

# MECHANICAL LEGENDS & ABBREVIATIONS

NOTE: NOT ALL SYMBOLS/ABBREVIATIONS SHOWN IN THE LEGEND ARE USED IN THIS DRAWING SET. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY CONTENT SHOWN ON DRAWINGS.

DUCTWORK	PIPING SYSTEMS	CONTROLS & BALANCING	ABBREVIATIONS
20x12	PC		Ø DIAMETER
20"ø	CD	H&C	A AMPS/AMPERAGE
20x20	L	T	AA ALL AROUND
20x20	S	120	ABV AUTOMATIC BALANCE VALVE
20"ø	CR	S	AD ACCESS DOOR
20"ø	CS	H	AFF ABOVE FINISH FLOOR
20x20	GHR	T <sub>S</sub>	AI ANALOG INPUT
20x20	GHS	A	AO ANALOG OUTPUT
20x20	LPS	PT	APD AIR PRESSURE DROP
	HPS	FS	ARCH ARCHITECT(URAL)
	LPC		ATC AUTOMATIC TEMPERATURE CONTROL
	HPC	DPS	AWT AVERAGE WATER TEMPERATURE
	HWR		BAS BUILDING AUTOMATION SYSTEM
	HWS	M	BF BOILER FEEDWATER
	MU		BHP BRAKE HORSEPOWER
	CHWR		BOD BOTTOM OF DUCTWORK (ELEVATION)
	CHWS		BTU/H BRITISH THERMAL UNITS PER HOUR
	CGR	HVAC	C COMMON
	GCS		CAP CAPACITY
	CTR		CFM CUBIC FEET PER MINUTE
	CTS		CKT CIRCUIT
	FOS		CM CONSTRUCTION MANAGER
	FOR		CONN. CONNECTION
			COP COEFFICIENT OF PERFORMANCE
			CP CONTROL PANEL
			db DRY BULB TEMPERATURE
			DCW DOMESTIC COLD WATER
			DDC DIRECT DIGITAL CONTROL
			DI DIGITAL INPUT
			DIA DIAMETER
			DN DOWN
			DO DIGITAL OUTPUT
			DR DRAIN
			DWG DRAWING
			DWV DRAIN, WASTE, VENT
			DX DIRECT EXPANSION
			<E> EXISTING
			E/A EXHAUST AIR
			EAT ENTERING AIR TEMPERATURE
			EC ELECTRICAL CONTRACTOR
			ECONOMIZER
			EDB ENTERING DRY BULB
			EER ENERGY EFFICIENCY RATIO
			EFF EFFICIENCY
			ESP EXTERNAL STATIC PRESSURE
			EWB ENTERING WET BULB
			EWT ENTERING WATER TEMPERATURE
			FA FREE AREA
			FLA FULL LOAD AMPS
			FOB FLAT ON BOTTOM
			FOT FLAT ON TOP
			FPI FINS PER INCH
			FPM FEET PER MINUTE
			FT FEET
			FVNR FULL VOLTAGE ON REVERSING
			GAL GALLONS(S)
			GC GENERAL CONTRACTOR
			GPM GALLONS PER MINUTE
			HOA HAND-OFF-AUTOMATIC
			HP HORSEPOWER
			Hz HERTZ
			IDB INSIDE DIAMETER
			in INCHES
			kw KILOWATT(S)
			LAT LEAVING AIR TEMPERATURE
			LDB LEAVING DRY BULB
			LF LINEAR FEET
			LRA LOCKED ROTOR AMPS
			LWB LEAVING WET BULB
			LWT LEAVING WATER TEMPERATURE
			MAX MAXIMUM
			MBH 1,000 BRITISH THERMAL UNITS PER HOUR
			MC MECHANICAL CONTRACTOR
			MCA MINIMUM CIRCUIT AMPACITY
			MCC MOTOR CONTROL CENTER
			MEP MECHANICAL, ELECTRICAL, PLUMBING
			MIN MINIMUM
			MMBH MILLIONS OF BTU/H
			MOCPP MAXIMUM OVERCURRENT PROTECTION
			MOD MOTOR OPERATED DAMPER
			MRE MECHANICAL ROOM EQUIPMENT
			MTD MOUNTED
			NC NORMALLY CLOSED
			NIC NOT IN CONTRACT
			NO NORMALLY OPEN
			NTS NOT TO SCALE
			O/A OUTDOOR AIR
			OAT OUTSIDE AIR TEMPERATURE
			OD OUTSIDE DIAMETER
			OED OPEN ENDED DUCT
			OIT OPERATOR INTERFACE TERMINAL
			P PUMP
			PC PLUMBING CONTRACTOR
			PD PRESSURE DROP
			PH ELECTRICAL PHASE
			PSI POUNDS PER SQUARE INCH
			R/A RETURN AIR
			RH RELATIVE HUMIDITY
			RLA RATED LOAD AMPS
			RPM REVOLUTIONS PER MINUTE
			S/A SUPPLY AIR
			SAT SUPPLY AIR TEMPERATURE
			SF SQUARE FEET
			SP STATIC PRESSURE
			SS STAINLESS STEEL
			TEMP DEGREES FAHRENHEIT (°F) UNLESS OTHERWISE NOTED
			TSP TOTAL STATIC PRESSURE
			TYP TYPICAL
			UD UNDERCUT DOOR
			VD VACUUM BREAKER
			VFB VARIABLE FREQUENCY DRIVE
			VIF VERIFY IN FIELD
			WB WET BULB TEMPERATURE
			WC WATER COLUMN
			WG WATER GAUGE
			WPD WATER PRESSURE DROP

## A. QUALITY OF WORK

- IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS TO OBTAIN A COMPLETE AND SATISFACTORY INSTALLATION. AN ATTEMPT HAS BEEN MADE TO SEPARATE AND DEFINE THE WORK OF THE CONTRACTOR. DRAWINGS ARE DIAGRAMMATIC, BUT MUST BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION OF THE FACILITY AND WORK OF OTHER TRADES WILL PERMIT. THE DRAWINGS UTILIZE SYMBOLS AND SCHEMATIC DIAGRAMS TO INDICATE VARIOUS ITEMS OF WORK. THEREFORE, NO INTERPRETATION WILL BE MADE FROM THE LIMITATION OF SYMBOLS AND DIAGRAMS THAT ANY ELEMENTS NECESSARY FOR THE COMPLETE INSTALLATION ARE EXCLUDED. THE ENGINEER IS TO BE NOTIFIED OF ANY DISCREPANCIES, OMISSIONS, CONFLICTS, OR INTERFERENCE WHICH OCCUR BETWEEN VARIOUS DRAWINGS AND SPECIFICATIONS. IF SUCH NOTIFICATION IS NOT RECEIVED, THE INSTALLING CONTRACTOR(S) IS TO BE RESPONSIBLE FOR THEIR INTERPRETATIONS.
- "PROVIDE" MEANS "FURNISH AND INSTALL" AND MUST INCLUDE ALL EQUIPMENT (THAT INCLUDE THE ACCESSORIES, SUPPORTS, FITTINGS AND OTHER INCIDENTAL MATERIAL NEEDED FOR THE EQUIPMENT), DEVICES, HARDWARE, MOUNTS, LABOR, RIGGING, SUBCONTRACTORS, ETC., THAT RESULT IN A COMPLETE AND FUNCTIONAL PROJECT INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE. MINOR ITEMS TO FINISH THE WORK SUCH AS PATCHING, BLOCKING, TRIM, TOUCH-UP PAINT, ETC., SHALL BE PROVIDED WHETHER OR NOT INDICATED IN THE CONTRACT DOCUMENTS.
- LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS IN STRAIGHT SECTIONS OF PIPE OR DUCT AS RECOMMENDED BY THE MANUFACTURER. NOTIFY ENGINEER FOR FIELD REVIEW IF CONFIGURATION WILL NOT ALLOW.
- WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER IS TO BE USED.
- ALL WORKMANSHIP, MATERIALS, AND EQUIPMENT IS TO BE GUARANTEED FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE BY THE OWNER.
- PROVIDE IDENTIFICATION LABELS FOR NEW EQUIPMENT. AFFIX PERMANENT IDENTIFYING TAGS OR LABELS TO FANS, TERMINAL UNITS, AIR-HANDLERS ETC. IDENTIFY SYSTEM ON PIPING AND DUCTWORK MAINS AND INDICATE DIRECTION OF FLOW ON PIPING. INDICATE THE CONTROLLED EQUIPMENT ON WALL MOUNTED CONTROLS.

## B. CODES/PERMITS

- WORK IS TO BE PERFORMED IN STRICT ACCORDANCE WITH STATE RECOGNIZED BUILDING CODES, NFPA, ASHRAE, UNDERWRITERS LABORATORIES AND ALL MUNICIPAL, STATE AND OTHER AUTHORITIES, PUBLIC AND PRIVATE, HAVING JURISDICTION. REPORT ALL DISCREPANCIES WITH SUCH REGULATIONS TO ENGINEER AND DO NOT PROCEED WITH ANY WORK UNTIL WRITTEN AUTHORIZATION IS RECEIVED FROM THE ENGINEER.
- ALL NECESSARY FEES, PERMITS, AND APPROVALS AS REQUIRED BY THE WORK OF THESE DRAWINGS AND SPECIFICATIONS IS TO BE OBTAINED AND PAID FOR BY THIS CONTRACTOR.
- NOTHING CONTAINED IN THE SPECIFICATIONS OR INDICATED ON THESE DRAWINGS IS TO BE CONSTRUED TO CONFLICT WITH APPLICABLE PORTIONS OF ANY LAWS, ORDINANCES, REGULATIONS, OR CODES.

## C. COORDINATION OF WORK

- COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, AND ELECTRICAL WORK - NEW OR EXISTING.
- WHEN MECHANICAL WORK (HVAC, PLUMBING, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT IS TO BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT MUST BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION IS FINAL.
- THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS ARE APPROXIMATE AND NOT DEFINITELY FIXED BY DIMENSIONS. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS. CASES WHERE THERE ARE MAJOR CONFLICTS THE CONTRACTOR MUST NOTIFY THE ENGINEER FOR FIELD REVIEW. DO NOT SCALE THE DRAWINGS.
- PROVIDE LOCATIONS OF REQUIRED ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS TO SERVICE VALVES, DAMPERS, AND OTHER CONCEALED MECHANICAL EQUIPMENT. GENERAL CONTRACTOR IS TO FURNISH & INSTALL ACCESS PANELS.
- COORDINATE LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS WITH ALL OTHER TRADES INVOLVED. ALL OPENINGS IN FIRE WALLS, FLOORS AND RATED PARTITIONS FOR PIPING, CONDUIT, ETC., ARE TO BE FIRE STOPPED WITH A UL APPROVED SYSTEM.

## D. PIPING

- TAKE ALL NECESSARY MEASUREMENTS AT THE BUILDING AND FABRICATE THE PIPING ON THE SITE, IF REQUIRED, TO ENSURE AN APPROVED INSTALLATION.
- UNLESS OTHERWISE NOTED, ALL PIPING IS OVERHEAD, TIGHT TO UNDERSIDE OF STRUCTURE OR SLAB, WITH SPACE FOR INSULATION.
- INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING.
- ALL PIPING IS TO CLEAR DOORS AND WINDOWS.
- COORDINATE ALL PIPING WITH EXISTING CONDITIONS. OFFSETS IN PIPING AROUND OBSTRUCTIONS ARE TO BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- PIPING PENETRATIONS OF ALL WALLS AND FLOORS ARE TO BE SEALED WITH FIRE CAULK.
- INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE. ALL VALVES ARE TO BE ADJUSTED FOR SMOOTH AND EASY OPERATION. ALL VALVES ARE TO BE MARKED WITH A PERMANENT TAG INDICATING THE EQUIPMENT SERVED. PROVIDE A TYPED VALVE SCHEDULE TO BE KEPT IN OWNER IDENTIFIED AREA.
- ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS ARE TO BE FULL SIZE OF PIPE. INSTALL VALVES AT ALL TAKEOFFS FROM THE MAIN AND PROVIDE EXTENDED STEMS TO CLEAR INSULATION.
- UNIONS AND/OR FLANGES ARE TO BE INSTALLED AT EACH PIECE OF EQUIPMENT, IN BYPASSES, AND IN LONG PIPING RUNS (100 FEET OR MORE) TO PERMIT DISASSEMBLY FOR ALTERNATION AND REPAIRS.
- PROVIDE FLEXIBLE CONNECTION IN ALL PIPING SYSTEMS CONNECTED TO PUMPS, CHILLERS, AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION EXCEPT WATER COILS. FLEXIBLE CONNECTIONS ARE TO BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE OR AS INDICATED ON DRAWINGS.

## APPLICABLE CODES & STANDARDS:

VT BUILDING & FIRE SAFETY-2015	VERMONT FIRE & BUILDING SAFETY CODE
NFPA 101-2015	LIFE SAFETY CODE
NFPA 1-2015	FIRE CODE
NFPA 90A-2015	STANDARD FOR THE INSTALLATION OF AIR-CONDITIONING AND VENTILATING SYSTEMS
IBC-2015	INTERNATIONAL BUILDING CODE
IEBC-2015	INTERNATIONAL EXISTING BUILDING CODE
NBIC-2015	NATIONAL BOARD OF INSPECTION CODE
NFPA 70-2017	NATIONAL ELECTRIC CODE
VCBES-2020	VERMONT COMMERCIAL BUILDING ENERGY STANDARDS
ASHRAE 62.1-2016	VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY
ASHRAE 90.1-2013	ENERGY STANDARDS FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL

## BASIS OF DESIGN - WOODSTOCK HIGH SCHOOL

- THE BASIS OF DESIGN INCLUDES:
- CONVERSION OF ONE SMITH MILLS 450-S/W-20 OIL FIRED STEAM BOILER TO HYDRONIC BOILER AS WELL AS CONVERSION OF ONE WEIL MCLAIN 2194 OIL FIRED STEAM BOILER TO HYDRONIC BOILER.
  - EXISTING EQUIPMENT IS TO BE DISABLED AND ABANDONED IN PLACE PER OWNER REQUEST EXCEPT WHERE EQUIPMENT REMOVAL IS REQUIRED TO ALLOW INSTALLATION OF NEW EQUIPMENT, PIPING, ETC.
  - THE INTENT IS TO REPLACE ALL STEAM EQUIPMENT WITH NEW HYDRONIC EQUIPMENT.
  - EXISTING STEAM UNIT VENTILATORS WILL BE REPLACED WITH HYDRONIC UNIT VENTILATORS OR CABINET HEATERS DEPENDING ON LOCATION. OWNER REQUESTS A PRICE BREAKOUT ON A PER CABINET UNIT HEATER AND PER UNIT VENTILATOR CASE. THE OWNER HAS INDICATED THE LONG EAST CORRIDOR CLASSROOMS RECEIVE VENTILATION FROM A GAS FIRED MAKEUP AIR UNIT LOCATED ON THE ROOF. THEREFORE IT HAS BEEN DETERMINED THESE CLASSROOMS CAN BE HEATED WITH HEAVY GAUGE CABINET HEATERS IN LIEU OF UNIT VENTILATORS.

## E. DUCTWORK

- FABRICATE DUCTWORK FROM FIELD VERIFIED DIMENSIONS. FABRICATE DUCTWORK IN ACCORDANCE WITH SMACNA GUIDELINES (LATEST EDITION). PRIOR TO FABRICATING DUCTWORK VERIFY CEILING CLEARANCES WITH STRUCTURE, PIPES, ETC. COORDINATE THE INSTALLATION OF DUCTWORK WITH SPRINKLER PIPING. INSTALL DUCTWORK PRIOR TO INSTALLING ANY PIPING AND ELECTRICAL WORK TO REDUCE CONFLICTS.
- ALL DUCTWORK IS TO BE FABRICATED FROM G-90 GALVANIZED SHEET METAL IN LOCK-FORMING QUALITY, UNLESS SPECIFIED OTHERWISE.
- ALL DUCTWORK DIMENSIONS SHOWN ON PLANS ARE CLEAR INTERNAL SIZES.
- ALL SUPPLY, RETURN, EXHAUST, AND OUTSIDE AIR DUCTWORK SHALL BE FABRICATED AT A MINIMUM CLASS OF 2 INCH WATER GAGE SEAL CLASS 'A'.
- ALL DUCT SEALANT TO BE WATER BASED LOW VOC.
- ALL SUPPLY AND O/A DUCT WORK TO BE INSULATED TO MEET THE ENERGY CONSERVATION CODE ADOPTED BY THE STATE. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- COORDINATE THE LOCATION OF CEILING AIR INLETS AND OUTLETS WITH LIGHTS, SPRINKLER HEADS, AND LIFE SAFETY DEVICES.
- PROVIDE ADJUSTABLE VOLUME DAMPERS AT ALL BRANCH DUCT TAKE OFFS. "RAP-IT" STYLE VOLUME DAMPERS AND HARDWARE IS NOT PERMITTED. FOR LOW FLOW BRANCHES, PROVIDE EDGE SEALED DAMPERS TO OBTAIN PROPER FLOW BALANCING.

## F. TESTING, ADJUSTING, AND BALANCING

- WORK IS TO BE PERFORMED BY AN INDEPENDENT TESTING AND BALANCING AGENCY SPECIALIZING IN TESTING, ADJUSTING, AND BALANCING OF HEATING, VENTILATION, AND COOLING SYSTEMS. TESTING AND BALANCING CONTRACTOR MUST BE AABC OR NEBB CERTIFIED.
- TOLERANCE OF HYDRONIC SYSTEMS: ADJUST FLUID FLOW RATES AT BALANCE VALVES AND ALL EQUIPMENT TO PLUS/MINUS 10% OF DESIGN FLOW RATES.
- TOLERANCE OF AIR SYSTEMS: ADJUST AIR FLOW RATES AT AIR HANDLING UNITS TO PLUS/MINUS 5% OF DESIGN FOR SUPPLY SYSTEMS AND PLUS/MINUS 10% OF DESIGN FOR RETURN AND EXHAUST SYSTEMS. ADJUST AIR FLOW RATES AT AIR INLETS AND OUTLETS TO PLUS/MINUS 10% OF DESIGN TO THE SPACE. IN ALL CASES MAINTAIN REQUIRED FLOW OR SPACE PRESSURIZATION CRITERIA.
- SCHEDULED EQUIPMENT IS TO BE BALANCED AND A PRELIMINARY REPORT SUBMITTED TO THE ENGINEER FOR REVIEW. PROVIDE ALLOWANCE FOR (2) RETURN TRIPS FOR ADDITIONAL REBALANCE WORK AFTER ENGINEER REVIEW OF INITIAL REPORTS. PROVIDE THE FINAL REPORT TO ENGINEER.

## G. WARRANTY

- GUARANTEE ALL WORK PERFORMED AND MATERIALS AND EQUIPMENT INSTALLED TO THE FULL EXTENT REQUIRED BY THE DRAWINGS AND SPECIFICATIONS TO BE FREE FROM INHERENT DEFECTS OF MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE.
- REPLACE ANY MATERIAL AND EQUIPMENT PRIOR TO THE FINAL ACCEPTANCE WHICH IS CORRODED OR OTHERWISE DAMAGED THROUGH THE MECHANICAL CONTRACTOR'S FAILURE TO PROPERLY OPERATE AND MAINTAIN THE INSTALLATION DURING CONSTRUCTION OR RETESTING.
- KEEP THE WORK IN REPAIR AND REPLACE ANY DEFECTIVE MATERIALS, EQUIPMENT, OR WORKMANSHIP UPON NOTICE FROM THE ENGINEER OR OWNER'S REPRESENTATIVE FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE.

## H. INSURANCE

- THE CONTRACTOR MUST, DURING THE LIFE OF THE CONTRACT, MAINTAIN IN FORCE, SUCH INSURANCE AS IS REQUIRED OF THE PRIME CONTRACTOR IN THE GENERAL CONDITIONS OF THE CONTRACT, AND IS TO FURNISH THE PRIME CONTRACTOR AND THE OWNER WITH CERTIFICATION OF SUCH INSURANCE BEFORE BEGINNING WORK ON THIS SECTION OF CONTRACT.

## I. DOCUMENTATION

- PROVIDE AN ENTIRE SET OF PROJECT CLOSE-OUT DOCUMENTS TO OWNER PER CONTRACT DOCUMENTS. PACKAGE MUST CONTAIN ENTIRE O&M MANUALS WITH PROJECT SUBMITTALS AND SUBMITTAL COMMENTS, TAB REPORTS, TEST REPORTS, AND RECORD DRAWINGS, PLUS ADMINISTRATIVE DOCUMENTS.

## BASIS OF DESIGN - WOODSTOCK HIGH SCHOOL (CONTINUED)

- TWO AIR HANDLING UNITS LOCATED IN THE GYM MEZZANINE ALONG WITH TWO ENERGY RECOVERY UNITS WILL REMAIN IN PLACE. NEW WATER HEATING COILS WILL REPLACE EXISTING STEAM HEATING COILS IN THE TWO AIR HANDLING UNITS THAT SERVE THE GYM AND ONE ENERGY RECOVERY UNIT THAT SERVES THE BOYS LOCKER. THE SECOND ENERGY RECOVERY UNIT DOES NOT CONTAIN A HEATING COIL AND SUPPLY FRESH AIR TO THE GYM AIR HANDLING UNIT RETURN. ADDITIONALLY, A STEAM HEATING COILS LOCATED IN THE SUPPLY DUCTWORK OF THE GIRL'S LOCKER AREA THAT PROVIDES ADDITIONAL OUTSIDE AIR TO THE GYM WILL BE REPLACED WITH A HYDRONIC HEATING COIL. A THIRD ENERGY RECOVERY UNIT LOCATE ON THE ROOF ABOVE THE GIRLS GYM LOCKER WILL BE PROVIDED WITH NEW DDC CONTROLS TO BE INTEGRATED INTO THE EXISTING BUILDING MANAGEMENT SYSTEM.
- THE INTENT OF THE NEW WATER PIPE ROUTING IS TO INSTALL THE PIPING EXPOSED HIGH ALONG THE WALL PER THE OWNER'S PREFERENCE. ALL PIPING TO BE PRESSURE TESTED AND INSULATED PER SPECIFICATIONS. THE OWNER HAS INDICATED THAT THEY MAY BE ABLE TO ASSIST IN PIPING INSTALLATION IF THE CONTRACTOR DESIRES & IF IT CAN HELP MAKE THE INSTALLATION QUICKER. THE PIPING WILL BE ROUTED EXPOSED EXCEPT FOR WHERE IT ENTERS AND EXITS THE TUNNEL FROM THE MECHANICAL ROOM.
- THE NEW HW PUMPING ARRANGEMENT WILL BE A PRIMARY/SECONDARY PUMPING SYSTEM WITH TWO VARIABLE SPEED MAIN PUMPS SIZED FOR REDUNDANCY. NEW UNIT VENTILATORS AND COILS WILL GET 2-WAY CONTROL VALVES.
- (5) EXISTING PUMPS THAT SERVE THE MIDDLE SCHOOL WILL REMAIN AND BE CONNECTED TO THE NEW HYDRONIC SYSTEM. A STEAM TO WATER HEAT EXCHANGER THAT SERVES THE MIDDLE SCHOOL WILL BE ABANDONED IN PLACE.
- THE SCHOOL DISTRICT IS IMPLEMENTING A JOHNSON CONTROLS METASYS SYSTEM IN THE MIDDLE SCHOOL ADJACENT TO THE HIGH SCHOOL. THEREFORE ALL NEW CONTROLS SHALL BE COMPATIBLE WITH AND INTEGRATED WITH THE MIDDLE SCHOOL JOHNSON CONTROLS METASYS SYSTEM.
- THE OWNER HAS INDICATED THE SOLARIUM AND ADJACENT LOBBY DON'T REQUIRE HEAT. THEREFORE STEAM HEATERS IN THESE AREAS WILL REMAIN AND BE ABANDONED IN PLACE. NO HYDRONIC HEATING WILL BE PROVIDED FOR THIS AREA. ADDITIONALLY, THE OWNER INDICATES THE MEZZANINE CONTAINING THE AIR HANDLERS DOES NOT REQUIRE HEAT. THEREFORE, THE EXISTING UNIT HEATER WILL BE ABANDONED IN PLACE.
- REUSING THE EXISTING STEAM FINNED TUBE WAS CONSIDERED. DUE TO THE AGE OF THE STEAM FINNED TUBE RADIATION AND THE LIKELIHOOD OF LEAKS, IT WAS NOT RECOMMENDED TO REUSE THE STEAM RADIATION. THEREFORE THE FINNED TUBE RADIATION LOCATED IN THE CLASSROOMS WILL BE ABANDONED IN PLACE.
- SEVERAL OFFICES AND THE GIRL'S LOCKER ROOM CONTAIN STEAM CONVECTORS THAT WILL BE REPLACED WITH HYDRONIC CONVECTORS.
13. BASIS FOR DESIGN HEATING:
  - VENTILATION IS BASED ON 20 KIDS PER CLASSROOM FOR SMALLER CLASSROOMS (UNDER 1000 SF) AND 25 KIDS FOR THE LARGER CLASSROOMS (1000 SF OR MORE). VENTILATION FOR CLASSROOMS 001 THROUGH 0013 IS BASED ON EXISTING HEATED AIR BEING SUPPLIED FROM A MAKEUP AIR UNIT THAT THE OWNER HAS INDICATED PROVIDES VENTILATION TO THESE SPACES.
  - A NEW EXPANSION TANK WAS SIZED BASED ON THE ADDITIONAL VOLUME OF WATER REQUIRED FOR THE HIGH SCHOOL. THIS BASIS PRESUMES THE EXISTING EXPANSION TANK FOR THE HYDRONIC SYSTEM SERVING THE MIDDLE SCHOOL ALREADY IS PROPERLY SIZED TO HANDLE THIS PORTION OF THE HYDRONIC LOOP IN THE BUILDING.
  - IT IS BELIEVED BOTH EXISTING BOILERS ARE SERVED BY AUTOFLAME MINI MARK 8 (MK8) COMBUSTION MANAGEMENT SYSTEM. THESE CONTROLS ARE TO REMAIN IN PLACE AND BE UPGRADED AS REQUIRED FOR THE NEW HYDRONIC BOILERS. THE INTENTION IS TO CONNECT THIS CONTROL TO THE METASYS DDC SYSTEM. UPGRADE CONTROLS AS REQUIRED BY PROVIDING ALL INTERFACES, ETC AS REQUIRED.
  - ALL WORK IN ALL CLASSROOMS IS TO BE COMPLETED BY AUGUST 26, 2023. ALL WORK IN MECHANICAL ROOM IS TO BE COMPLETED BY SEPTEMBER 30, 2023
  - SEE DRAWING ME 3 FOR ELECTRICAL REQUIREMENTS.



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REVISIONS	REVISION DESCRIPTION	
	NUMBER	DATE

WOODSTOCK HIGH SCHOOL  
WOODSTOCK, VERMONT

PROJECT NAME:  
**WOODSTOCK HIGH SCHOOL STEAM TO HYDRONIC**

SHEET TITLE:  
**HVAC LEGENDS & ABBREV.**

DRAWN BY	Author	DATE	01/06/23
CHECKED BY	D&K PROJECT #	Checker	527971
PROJ. ENGR.	D&K ARCHIVE #	Designer	

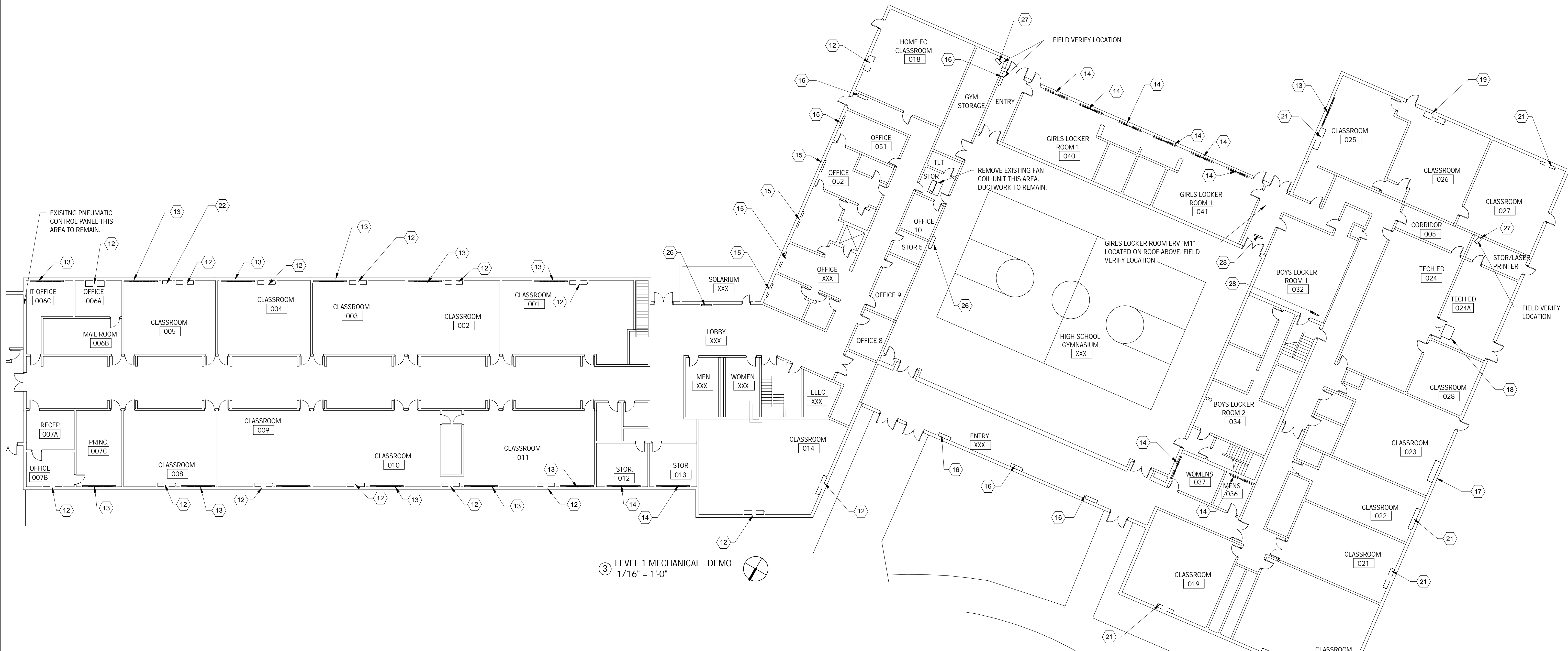
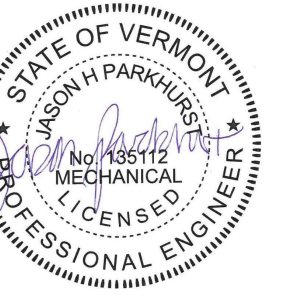
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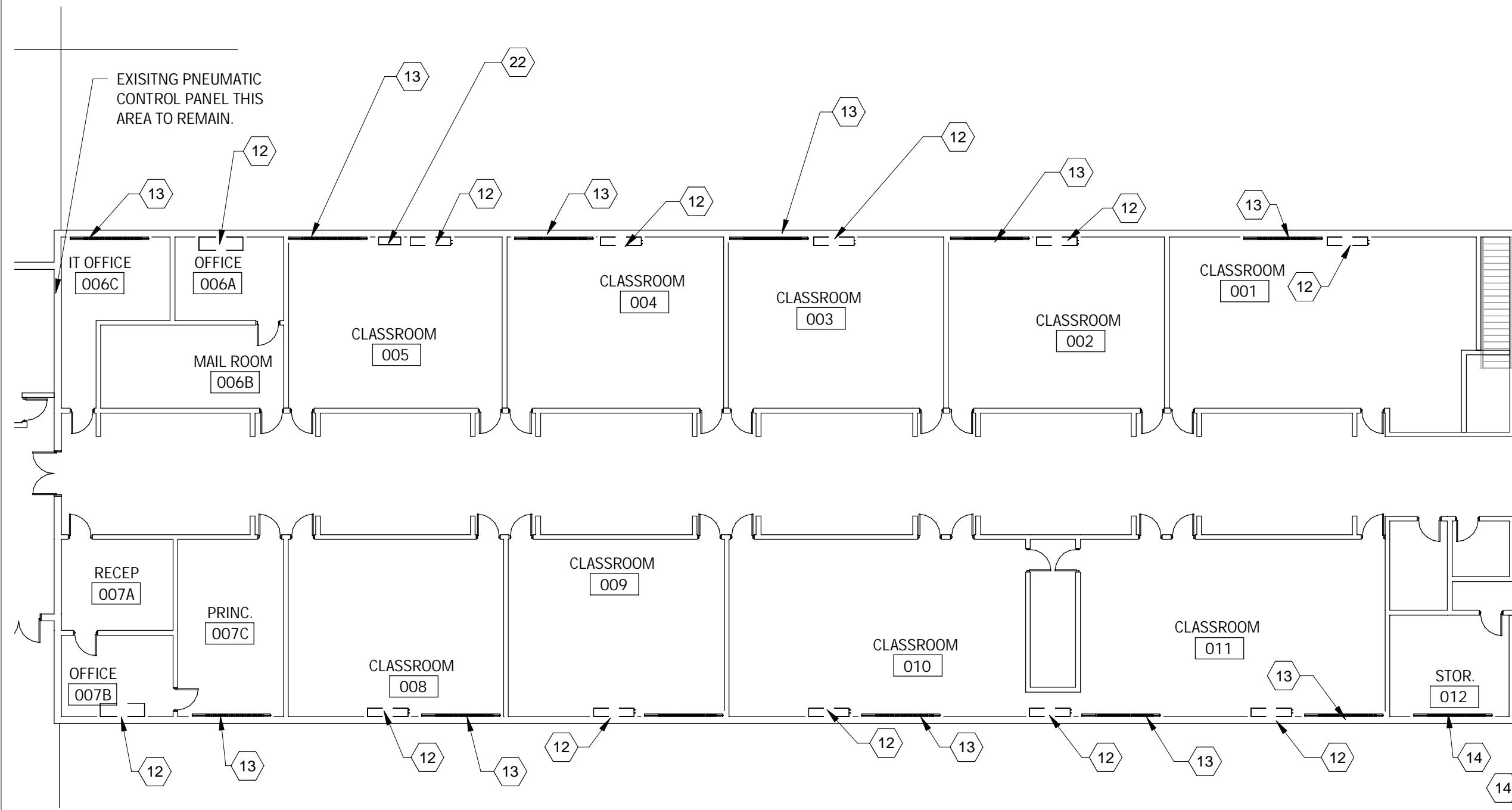
BID DOCUMENTS  
DO NOT REVISE

01/06/23

SHEET: of



③ LEVEL 1 MECHANICAL - DEMO  
1/16" = 1'-0"



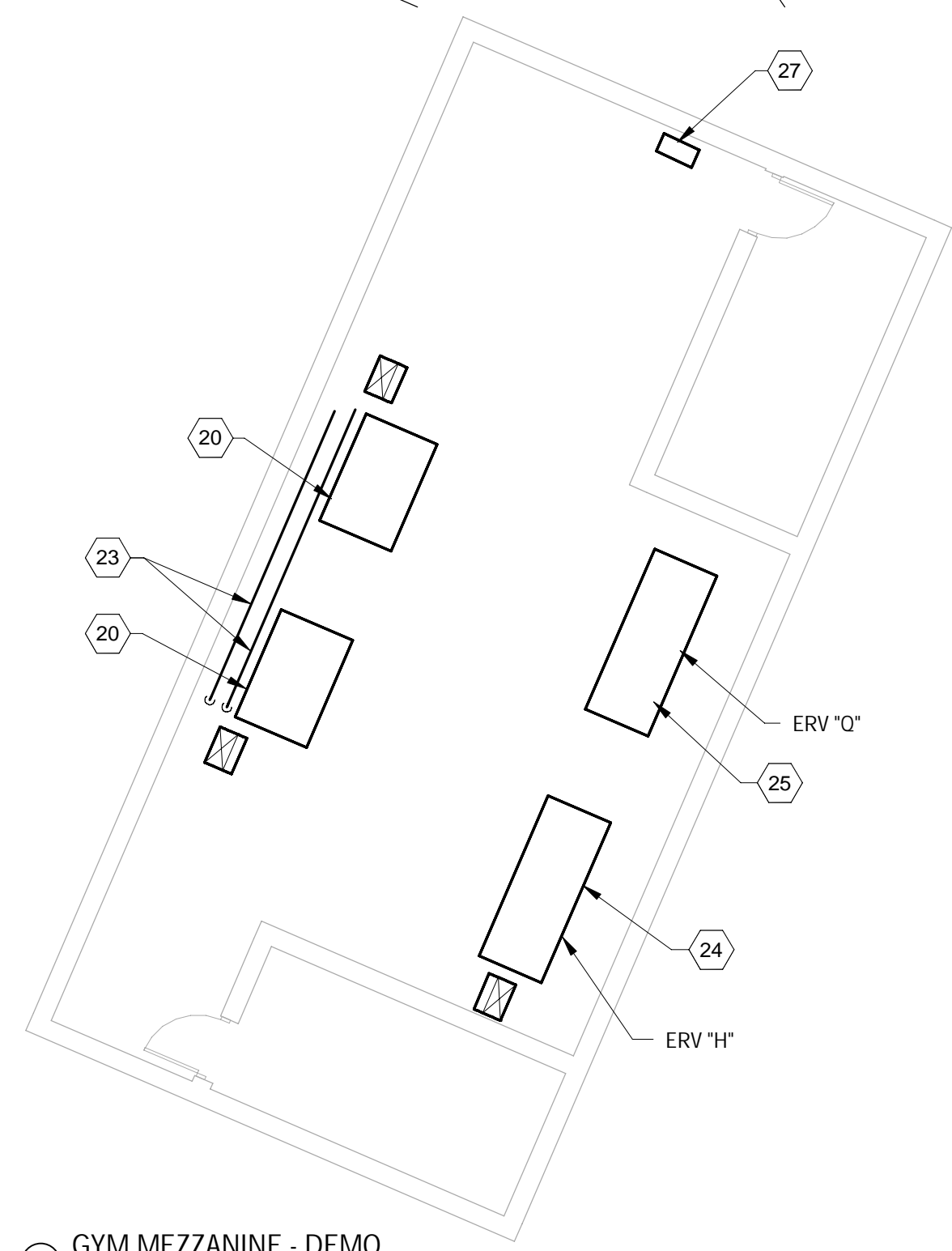
① MECHANICAL ROOM - DEMO  
1/8" = 1'-0"

**KEYED NOTES**

- EXISTING WEIL MCLAIN STEAM BOILER TO BE CONVERTED TO A WATER BOILER
- EXISTING SMITH MILS 450 BOILER THIS AREA TO BE CONVERTED TO A WATER BOILER
- EXISTING STEAM TO WATER HEAT EXCHANGER THIS AREA TO BE DISCONNECTED AND ABANDONED.
- EXISTING FEEDWATER SYSTEM THIS AREA TO BE DISCONNECTED AND ABANDONED
- EXISTING FUEL OIL TANK THIS AREA TO REMAIN
- EXISTING OIL FIRED WATER HEATER THIS AREA TO REMAIN
- EXISTING OUTSIDE AIR LOUVER THIS AREA TO REMAIN
- EXISTING FUEL OIL TRANSFER PUMPS THIS AREA TO REMAIN
- EXISTING FIELDS 'FAN IN A CAN' COMBUSTION AIR FANS TO REMAIN
- EXISTING COMPRESSED AIR SERVING PNEUMATIC CONTROLS THIS AREA TO BE RELOCATED AS NECESSARY TO ALLOW ROOM FOR NEW PUMPS. COORDINATE NEW LOCATION WITH OWNER. REPIPE AS REQUIRED. EXTEND ELECTRICAL POWER AS REQUIRED TO NEW LOCATION.
- EXISTING WATER SOFTENER PACKAGE THIS AREA TO REMAIN
- EXISTING STEAM UNIT VENTILATORS THIS AREA TO BE REMOVED. DISCONNECT EXISTING STEAM PIPING & REMOVE ANY STEAM TRAPS AND CONTROLS. REMOVE STEAM PIPING WHERE EXPOSED BETWEEN CEILING AND UNIT. ABANDON STEAM PIPES FROM RADIATION. CLOSE OFF OUTSIDE AIR TO UNIT VENTILATOR & SEAL WEATHER TIGHT. INTAKE LOUVERS TO REMAIN.
- EXISTING STEAM FINNED TUBE RADIATION ADJACENT TO UNIT VENTILATOR TO BE ABANDONED IN PLACE.
- EXISTING STEAM FINNED TUBE RADIATION THIS AREA TO BE REMOVED.
- EXISTING STEAM CONVECTOR THIS AREA TO BE REMOVED
- EXISTING STEAM CABINET HEATER THIS AREA TO BE REMOVED.

**KEYED NOTES**

- EXISTING STEAM UNIT VENTILATOR THIS AREA INSTALLED IN 2021 TO BE CONVERTED TO HYDRONIC
- EXISTING DUCTED UNIT VENTILATOR THIS AREA SERVING TECH ED AND CLASS 028 TO BE CONVERTED TO HOT WATER. DISCONNECT STEAM PIPING & REMOVE ANY STEAM TRAPS. CAP ALL STEAM PIPING.
- EXISTING STEAM UNIT HEATER THIS AREA TO BE REMOVED. EXISTING UNIT VENTILATOR TO BE REMOVED. REMOVE PIPING WHERE EXPOSED AND ANY STEAM TRAPS. CAP EXISTING STEAM PIPING
- EXISTING STEAM HEATING COIL IN EXISTING AIR HANDLING UNIT THIS AREA TO BE REPLACED WITH NEW HYDRONIC HEATING COIL. EXISTING AIR HANDLER IS A MCCOY LHD108CH
- EXISTING STEAM UNIT VENTILATORS THIS AREA TO BE REMOVED. DISCONNECT EXISTING STEAM PIPING & REMOVE ANY STEAM TRAPS AND CONTROLS. REMOVE STEAM PIPING WHERE EXPOSED. ABANDON STEAM PIPES FROM RADIATION.
- EXISTING RINNAI GAS FIRED HEATER THIS AREA TO BE REMOVED. DISCONNECT EXISTING GAS PIPING AND CAP. PATCH INTERIOR AND EXTERIOR OF EXTERIOR WALL PENETRATIONS WEATHER TIGHT TO MATCH EXISTING CONDITIONS.
- EXISTING STEAM PIPING THIS AREA TO BE REMOVED WHERE NECESSARY TO ALLOW INSTALLATION FOR NEW HOT WATER PIPING.
- EXISTING ENERGY RECOVERY UNIT THIS AREA SERVING GYM (WITHOUT HEATING COIL) TO REMAIN. EXISTING ERV IS A DES CHAMPS MZ-4070.
- EXISTING STEAM HEATING COIL IN ENERGY RECOVERY UNIT THIS AREA TO BE REPLACED WITH NEW HYDRONIC HEATING COIL. EXISTING ERV IS A DES CHAMPS MZ-2070
- EXISTING STEAM CABINET HEATER THIS AREA TO BE ABANDONED IN PLACE
- EXISTING STEAM UNIT HEATER THIS AREA TO REMAIN ABANDONED IN PLACE.
- EXISTING STEAM HEATING COIL THIS AREA TO BE REMOVED AND REPLACED WITH NEW HYDRONIC HEATING COIL. REMOVE ASSOCIATED PIPING TO ALLOW FOR INSTALLATION OF NEW COIL. REMOVE EXISTING CONTROLS. FIELD VERIFY EXACT LOCATION.



② GYM MEZZANINE - DEMO  
1/8" = 1'-0"

REVISIONS	REVISION DESCRIPTION	DATE	BY

WOODSTOCK HIGH SCHOOL  
WOODSTOCK,  
VERMONT

PROJECT NAME:  
**WOODSTOCK HIGH SCHOOL STEAM TO HYDRONIC**

SHEET TITLE:  
**HVAC DEMO PLAN**

DRAWN BY	JHP	DATE	01/06/23
CHECKED BY	SVD	D&K PROJECT #	527971
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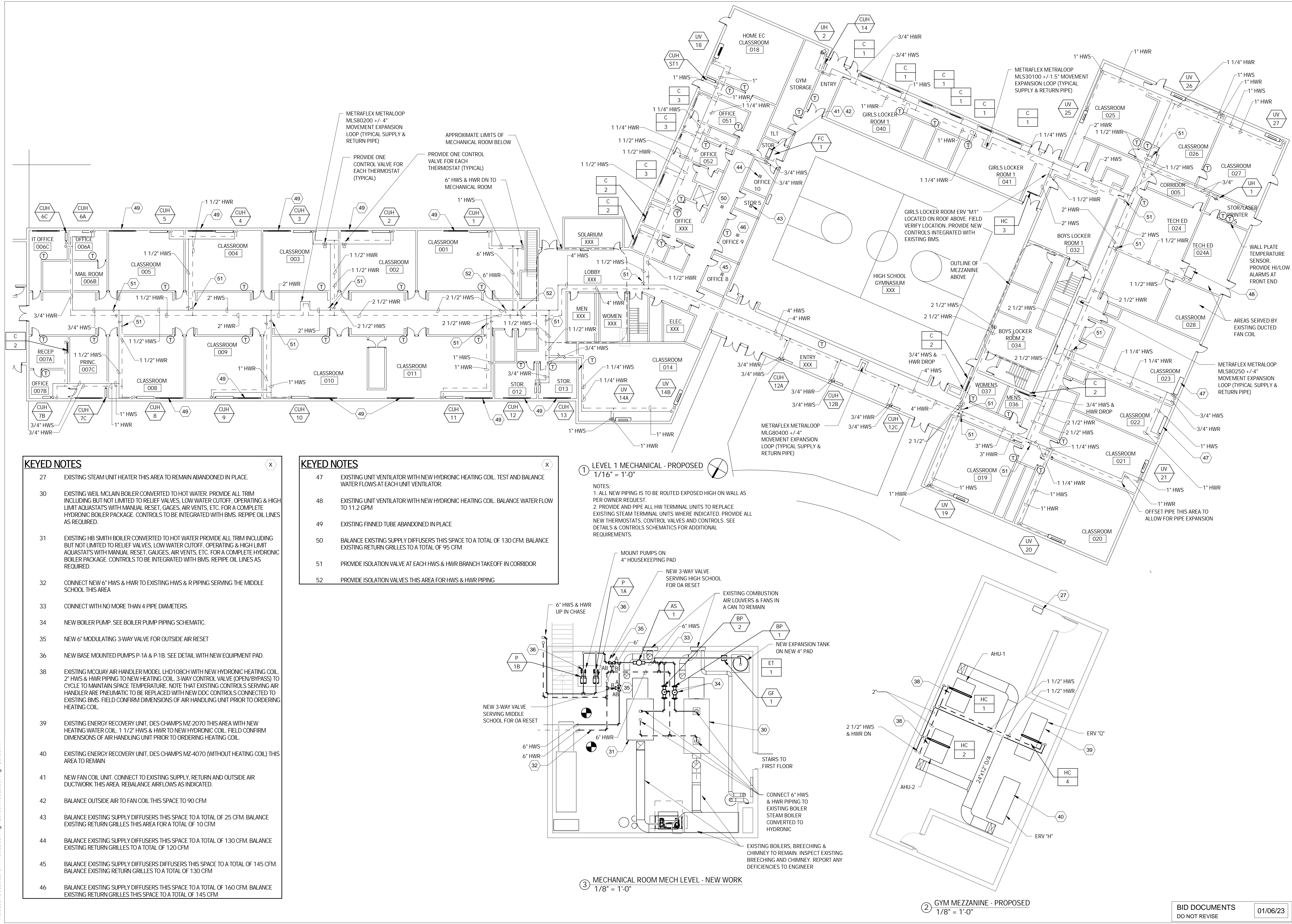
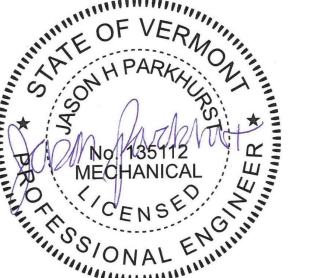
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- KEYED NOTES**
- 27 EXISTING STEAM UNIT HEATER THIS AREA TO REMAIN ABANDONED IN PLACE.
  - 30 EXISTING WEIL MCLAIN BOILER CONVERTED TO HOT WATER. PROVIDE ALL TRIM INCLUDING BUT NOT LIMITED TO RELIEF VALVES, LOW WATER CUTOFF, OPERATING & HIGH LIMIT AQUASTATS WITH MANUAL RESET, GAGES, AIR VENTS, ETC. FOR A COMPLETE HYDRONIC BOILER PACKAGE. CONTROLS TO BE INTEGRATED WITH BMS. REPIPE OIL LINES AS REQUIRED.
  - 31 EXISTING HB SMITH BOILER CONVERTED TO HOT WATER PROVIDE ALL TRIM INCLUDING BUT NOT LIMITED TO RELIEF VALVES, LOW WATER CUTOFF, OPERATING & HIGH LIMIT AQUASTATS WITH MANUAL RESET, GAGES, AIR VENTS, ETC. FOR A COMPLETE HYDRONIC BOILER PACKAGE. CONTROLS TO BE INTEGRATED WITH BMS. REPIPE OIL LINES AS REQUIRED.
  - 32 CONNECT NEW 6" HWS & HWR TO EXISTING HWS & R PIPING SERVING THE MIDDLE SCHOOL THIS AREA
  - 33 CONNECT WITH NO MORE THAN 4 PIPE DIAMETERS.
  - 34 NEW BOILER PUMP. SEE BOILER PUMP PIPING SCHEMATIC.
  - 35 NEW 6" MODULATING 3-WAY VALVE FOR OUTSIDE AIR RESET
  - 36 NEW BASE MOUNTED PUMPS P-1A & P-1B. SEE DETAIL WITH NEW EQUIPMENT PAD.
  - 38 EXISTING MCQUAY AIR HANDLER MODEL LHD108CH WITH NEW HYDRONIC HEATING COIL. 2" HWS & HWR PIPING TO NEW HEATING COIL. 3-WAY CONTROL VALVE (OPEN/BYPASS) TO CYCLE TO MAINTAIN SPACE TEMPERATURE. NOTE THAT EXISTING CONTROLS SERVING AIR HANDLER ARE PNEUMATIC TO BE REPLACED WITH NEW DDC. CONTROLS CONNECTED TO EXISTING BMS. FIELD CONFIRM DIMENSIONS OF AIR HANDLING UNIT PRIOR TO ORDERING HEATING COIL.
  - 39 EXISTING ENERGY RECOVERY UNIT, DES CHAMPS MZ-2070 THIS AREA WITH NEW HEATING WATER COIL. 1 1/2" HWS & HWR TO NEW HYDRONIC COIL. FIELD CONFIRM DIMENSIONS OF AIR HANDLING UNIT PRIOR TO ORDERING HEATING COIL.
  - 40 EXISTING ENERGY RECOVERY UNIT, DES CHAMPS MZ-4070 (WITHOUT HEATING COIL) THIS AREA TO REMAIN
  - 41 NEW FAN COIL UNIT. CONNECT TO EXISTING SUPPLY, RETURN AND OUTSIDE AIR DUCTWORK THIS AREA. REBALANCE AIRFLOWS AS INDICATED.
  - 42 BALANCE OUTSIDE AIR TO FAN COIL THIS SPACE TO 90 CFM
  - 43 BALANCE EXISTING SUPPLY DIFFUSERS THIS SPACE TO A TOTAL OF 25 CFM. BALANCE EXISTING RETURN GRILLES THIS AREA FOR A TOTAL OF 10 CFM
  - 44 BALANCE EXISTING SUPPLY DIFFUSERS THIS SPACE TO A TOTAL OF 130 CFM. BALANCE EXISTING RETURN GRILLES TO A TOTAL OF 120 CFM
  - 45 BALANCE EXISTING SUPPLY DIFFUSERS THIS SPACE TO A TOTAL OF 145 CFM. BALANCE EXISTING RETURN GRILLES TO A TOTAL OF 130 CFM
  - 46 BALANCE EXISTING SUPPLY DIFFUSERS THIS SPACE TO A TOTAL OF 160 CFM. BALANCE EXISTING RETURN GRILLES THIS SPACE TO A TOTAL OF 145 CFM

- KEYED NOTES**
- 47 EXISTING UNIT VENTILATOR WITH NEW HYDRONIC HEATING COIL. TEST AND BALANCE WATER FLOWS AT EACH UNIT VENTILATOR.
  - 48 EXISTING UNIT VENTILATOR WITH NEW HYDRONIC HEATING COIL. BALANCE WATER FLOW TO 11.2 GPM
  - 49 EXISTING FINNED TUBE ABANDONED IN PLACE
  - 50 BALANCE EXISTING SUPPLY DIFFUSERS THIS SPACE TO A TOTAL OF 130 CFM. BALANCE EXISTING RETURN GRILLES TO A TOTAL OF 95 CFM
  - 51 PROVIDE ISOLATION VALVE AT EACH HWS & HWR BRANCH TAKEOFF IN CORRIDOR
  - 52 PROVIDE ISOLATION VALVES THIS AREA FOR HWS & HWR PIPING

**1 LEVEL 1 MECHANICAL - PROPOSED**  
1/16" = 1'-0"

NOTES:  
1. ALL NEW PIPING IS TO BE ROUTED EXPOSED HIGH ON WALL AS PER OWNER REQUEST.  
2. PROVIDE AND PIPE ALL HW TERMINAL UNITS TO REPLACE EXISTING STEAM TERMINAL UNITS WHERE INDICATED. PROVIDE ALL NEW THERMOSTATS, CONTROL VALVES AND CONTROLS. SEE DETAILS & CONTROLS SCHEMATICS FOR ADDITIONAL REQUIREMENTS.

**3 MECHANICAL ROOM MECH LEVEL - NEW WORK**  
1/8" = 1'-0"

MOUNT PUMPS ON 4" HOUSEKEEPING PAD  
NEW 3-WAY VALVE SERVING HIGH SCHOOL FOR OA RESET  
EXISTING COMBUSTION AIR LOUVERS & FANS IN A CAN TO REMAIN  
NEW EXPANSION TANK ON NEW 4" PAD  
NEW 3-WAY VALVE SERVING MIDDLE SCHOOL FOR OA RESET  
STAIRS TO FIRST FLOOR  
CONNECT 6" HWS & HWR PIPING TO EXISTING BOILER STEAM BOILER CONVERTED TO HYDRONIC  
EXISTING BOILERS, BREECHING & CHIMNEY TO REMAIN. INSPECT EXISTING BREECHING AND CHIMNEY. REPORT ANY DEFICIENCIES TO ENGINEER

**2 GYM MEZZANINE - PROPOSED**  
1/8" = 1'-0"

REVISIONS	REVISION DESCRIPTION	DATE	NUMBER	BY

WOODSTOCK HIGH SCHOOL  
WOODSTOCK, VERMONT

PROJECT NAME:  
**WOODSTOCK HIGH SCHOOL STEAM TO HYDRONIC**

SHEET TITLE:  
**PROPOSED HVAC PLAN**

DRAWN BY	JHP	DATE	01/06/23
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REVISIONS	BY	
	DATE	
NUMBER		
	REVISION DESCRIPTION	

WOODSTOCK HIGH SCHOOL  
WOODSTOCK,  
VERMONT

PROJECT NAME:  
**WOODSTOCK HIGH SCHOOL STEAM TO HYDRONIC**

SHEET TITLE:  
**HVAC SCHEDULES**

DRAWN BY	DATE
Author	01/06/23
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Designer	

SHEET NUMBER

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SHEET: of

**HEATING COIL SCHEDULE**

TAG	MATCHED UNIT TAG	MANUFACTURER	MODEL	FLUID	SUPPLY AIR FLOW (CFM)	EAT	LAT	APD (IN)	FLUID FLOW (GPM)	WATER PD FT	EWT	LWT	COILS		REMARKS
						DB	DB						ROWS	FPI	
HC-1	AHU-1	DAIKIN	5WH1202B	40% GLYCOL	4000	25 °F	96 °F	0.25 in-wg	31.9 GPM	4.5 ftH2O	180 °F	160 °F	2	12	CONFIRM DIMENSIONS PRIOR TO ORDERING. TO FIT IN EXISTING AHU
HC-2	AHU-2	DAIKIN	5WH1202B	40% GLYCOL	4000	25 °F	96 °F	0.25 in-wg	31.9 GPM	4.5 ftH2O	180 °F	160 °F	2	12	CONFIRM DIMENSIONS PRIOR TO ORDERING. TO FIT IN EXISTING AHU
HC-3	ERV-M1 (GIRLS LOCKER)	DAIKIN	HWD02H12-12X42	40% GLYCOL	2000	-15 °F	72 °F	0.22 in-wg	20.3 GPM	12.9 ftH2O	180 °F	160 °F	2	12	FIELD VERIFY SPACE AVAILABLE. BASED ON EXISTING DRAWINGS. EXISTING COILS IS 36x12
HC-4	ERV-Q (BOYS LOCKER)	DAIKIN	5WH1202B	40% GLYCOL	1600	-15 °F	80 °F	0.14 in-wg	16.7 GPM	13.6 ftH2O	180 °F	160 °F	2	12	CONFIRM DIMENSIONS PRIOR TO ORDERING. TO FIT IN EXISTING ERV

**CABINET UNIT HEATER SCHEDULE**

TAG	LOCATION	MANUFACTURER	MODEL	AIRFLOW	TYPE	FLUID	HEATING CAPACITY	GPM	WPD (FT)	MOTOR				REMARKS	
										FAN QTY	HP (EACH FAN)	VOLTS	PHASE		TOTAL AMPS
CUH-1	CLASSROOM 001	MODINE	CW-014	1,430 CFM	FLOOR MOUNTED	40% GLYCOL	65,985.0 Btu/h	7.5	1 ftH2O	2	0.25	115 V	1	7.4 A	
CUH-2	CLASSROOM 002	MODINE	CW-012	1,240 CFM	FLOOR MOUNTED	40% GLYCOL	60,000.0 Btu/h	7.5	1 ftH2O	2	0.25	115 V	1	7.4 A	
CUH-3	CLASSROOM 003	MODINE	CW-012	1,240 CFM	FLOOR MOUNTED	40% GLYCOL	60,000.0 Btu/h	7.5	1 ftH2O	2	0.25	115 V	1	7.4 A	
CUH-4	CLASSROOM 004	MODINE	CW-012	1,240 CFM	FLOOR MOUNTED	40% GLYCOL	60,000.0 Btu/h	7.5	1 ftH2O	2	0.25	115 V	1	7.4 A	
CUH-5	CLASSROOM 005	MODINE	CW-012	1,240 CFM	FLOOR MOUNTED	40% GLYCOL	60,000.0 Btu/h	7.5	1 ftH2O	2	0.25	115 V	1	7.4 A	
CUH-6A	OFFICE 6A	MODINE	CW-002	250 CFM	FLOOR MOUNTED	40% GLYCOL	10,290.0 Btu/h	1.3	0.21 ftH2O	1	0.25	115 V	1	0.37 A	
CUH-6C	IT OFFICE 6C	MODINE	CW-002	250 CFM	FLOOR MOUNTED	40% GLYCOL	10,290.0 Btu/h	1.3	0.21 ftH2O	1	0.25	115 V	1	0.37 A	
CUH-7B	OFFICE 007B	MODINE	CW-002	250 CFM	FLOOR MOUNTED	40% GLYCOL	10,290.0 Btu/h	1.3	0.21 ftH2O	1	0.25	115 V	1	0.37 A	
CUH-7C	PRINC 007C	MODINE	CW-003	330 CFM	FLOOR MOUNTED	40% GLYCOL	18,590.0 Btu/h	2.3	0.21 ftH2O	1	0.25	115 V	1	0.7 A	
CUH-8	CLASSROOM 008	MODINE	CW-012	1,240 CFM	FLOOR MOUNTED	40% GLYCOL	60,000.0 Btu/h	7.5	1 ftH2O	2	0.25	115 V	1	7.4 A	
CUH-9	CLASSROOM 009	MODINE	CW-014	1,430 CFM	FLOOR MOUNTED	40% GLYCOL	65,985.0 Btu/h	8.3	1 ftH2O	2	0.25	115 V	1	7.4 A	
CUH-10	CLASSROOM 010	MODINE	CW-014	1,430 CFM	FLOOR MOUNTED	40% GLYCOL	65,985.0 Btu/h	7.5	1 ftH2O	2	0.25	115 V	1	7.4 A	
CUH-11	CLASSROOM 011	MODINE	CW-014	1,430 CFM	FLOOR MOUNTED	40% GLYCOL	65,985.0 Btu/h	7.5	1 ftH2O	2	0.25	115 V	1	7.4 A	
CUH-12	STOR 012	MODINE	CW-002	250 CFM	FLOOR MOUNTED	40% GLYCOL	10,290.0 Btu/h	1.3	1 ftH2O	1	0.25	115 V	1	0.37 A	
CUH-12A	GYM LOBBY	MODINE	CW-003	330 CFM	FLOOR MOUNTED	40% GLYCOL	18,590.0 Btu/h	2.3	0.21 ftH2O	1	0.25	115 V	1	0.7 A	
CUH-12B	GYM LOBBY	MODINE	CW-003	330 CFM	FLOOR MOUNTED	40% GLYCOL	18,590.0 Btu/h	2.3	0.21 ftH2O	1	0.25	115 V	1	0.7 A	
CUH-12C	GYM LOBBY	MODINE	CW-003	330 CFM	FLOOR MOUNTED	40% GLYCOL	18,590.0 Btu/h	2.3	0.21 ftH2O	1	0.25	115 V	1	0.7 A	
CUH-13	STORAGE	MODINE	CW-002	250 CFM	FLOOR MOUNTED	40% GLYCOL	10,290.0 Btu/h	1.3	1 ftH2O	1	0.25	115 V	1	0.37 A	
CUH-14	GYM ENTRY	MODINE	CW-002	250 CFM	FLOOR MOUNTED	40% GLYCOL	10,290.0 Btu/h	1.3	1 ftH2O	1	0.25	115 V	1	0.37 A	
CUH-ST1	STORAGE	MODINE	CW-003	250 CFM	FLOOR MOUNTED	40% GLYCOL	10,290.0 Btu/h	1.3	1 ftH2O	1	0.25	115 V	1	0.7 A	

- NOTES:  
1. HEATING FLUID IS 40% PROPYLENE GLYCOL.  
2. HEATING CAPACITY IS BASED ON 180°F EWT, 160°F LWT, 65°F EAT & 40% PROPYLENE GLYCOL.  
3. PROVIDE THERMOSTAT & CONTROLS INTEGRATED WITH EXISTING DDC. COORDINATE WITH ATC CONTRACTOR.

**UNIT VENTILATOR SCHEDULE**

TAG	LOCATION	MANUFACTURER	MODEL	AIRFLOW	TYPE	HEATING CAPACITY	GPM	WPD (FT)	MOTOR				REMARKS
									HP (EACH FAN)	VOLTS	PHASE	TOTAL AMPS	
UV-14A	CLASSROOM 014	MODINE	VF-1000C 2 ROW COIL ECM	1,000 CFM	16 5/8" DEEP VERTICAL	62,381.0 Btu/h	6.0	1.78 ftH2O	0.33	115 V	1	0 A	FIELD VERIFY CONFIGURATION OF EXISTING UNIT VENTILATOR PRIOR TO ORDERING
UV-14B	CLASSROOM 014	MODINE	VF-1000C 2 ROW COIL ECM	1,000 CFM	16 5/8" DEEP VERTICAL	62,381.0 Btu/h	6.0	1.78 ftH2O	0.33	115 V	1	0 A	FIELD VERIFY CONFIGURATION OF EXISTING UNIT VENTILATOR PRIOR TO ORDERING
UV-18	HOME ECONOMICS 018	MODINE	VF-1000H 2 ROW COIL WITH ECM	1,000 CFM	21-7/8" DEEP VERTICAL	62,381.0 Btu/h	6.0	1.78 ftH2O	0.33	115 V	1	0 A	FIELD VERIFY CONFIGURATION OF EXISTING UNIT VENTILATOR PRIOR TO ORDERING
UV-19	CLASSROOM 019	MODINE	VF-1000C 2 ROW COIL ECM	1,000 CFM	16 5/8" DEEP VERTICAL	62,381.0 Btu/h	6.0	1.78 ftH2O	0.33	115 V	1	0 A	FIELD VERIFY CONFIGURATION OF EXISTING UNIT VENTILATOR PRIOR TO ORDERING
UV-20	CLASSROOM 020	MODINE	PTF-1250C 2 ROW COIL ECM	1,250 CFM	16 5/8" DEEP VERTICAL	77,550.0 Btu/h	6.0	2.93 ftH2O	0.5	115 V	1	0 A	FIELD VERIFY CONFIGURATION OF EXISTING UNIT VENTILATOR PRIOR TO ORDERING
UV-21	CLASSROOM 021	MODINE	PTF-750C 1 ROW COIL ECM	750 CFM	16 5/8" DEEP VERTICAL	38,386.0 Btu/h	6.0	0.88 ftH2O	0.33	115 V	1	0 A	FIELD VERIFY CONFIGURATION OF EXISTING UNIT VENTILATOR PRIOR TO ORDERING
UV-25	WEIGHT ROOM	MODINE	PTF-750C 1 ROW COIL ECM	750 CFM	16 5/8" DEEP VERTICAL	38,386.0 Btu/h	6.0	2.31 ftH2O	0.33	115 V	1	0 A	FIELD VERIFY CONFIGURATION OF EXISTING UNIT VENTILATOR PRIOR TO ORDERING
UV-26	CLASS 26	MODINE	VF-1000C 2 ROW COIL ECM	1,000 CFM	16 5/8" DEEP VERTICAL	62,381.0 Btu/h	6.0	1.78 ftH2O	0.33	115 V	1	0 A	FIELD VERIFY CONFIGURATION OF EXISTING UNIT VENTILATOR PRIOR TO ORDERING
UV-27	CLASS 27	MODINE	VF-1000C 2 ROW COIL ECM	1,000 CFM	16 5/8" DEEP VERTICAL	62,381.0 Btu/h	6.0	1.78 ftH2O	0.25	115 V	1	0 A	FIELD VERIFY CONFIGURATION OF EXISTING UNIT VENTILATOR PRIOR TO ORDERING

- NOTES:  
1. HEATING FLUID IS 40% PROPYLENE GLYCOL.  
2. HEATING CAPACITY IS BASED ON 180°F EWT, 160°F LWT, 65°F EAT.  
3. PROVIDE THERMOSTAT & CONTROLS INTEGRATED WITH EXISTING DDC. COORDINATE WITH ATC CONTRACTOR.

**CONVECTOR SCHEDULE**

TAG	MANUFACTURER	MODEL	ENCLOSURE			TUBE DIAMETER	CAPACITY BTU PER FOOT	WATER PRESSURE DROP	EWT	LWT	EAT	GPM	REMARKS
			TYPE	HEIGHT	DEPTH								
C-1	MODINE	FLO860J	5' LONG FLAT TOP	2'-8"	0'-8"	3/4"	2100.0 Btu/h	0.16 ftH2O	180 °F	160 °F	65 °F	1.1	14 GAUGE COVER & LINER
C-2	MODINE	FLO626A	4' LONG FLAT TOP	2'-2"	0'-8"	3/4"	1606.0 Btu/h	1 ftH2O	180 °F	160 °F	65 °F	1.0	
C-3	MODINE	FLO860A	5' LONG FLAT TOP	2'-8"	0'-8"	3/4"	2100.0 Btu/h	0.16 ftH2O	180 °F	160 °F	65 °F	1.1	

- NOTES:  
1. HEATING FLUID IS 40% PROPYLENE GLYCOL.  
2. HEATING CAPACITY IS BASED ON 180°F EWT, 160°F LWT, 65°F EAT.  
3. PROVIDE THERMOSTAT & CONTROLS INTEGRATED WITH EXISTING DDC. COORDINATE WITH ATC CONTRACTOR.

**CIRCULATOR PUMP SCHEDULE**

TAG	LOCATION	SERVES	MANUFACTURER	MODEL	GPM	WPD (FT)	CONNECTION SIZES		HP	VOLTS	PH	HZ	REMARKS
							SUCTION	DISCHARGE					
BP-1	MECHANICAL ROOM	WEIL MCLAIN BOILER	GRUNDFOS	60125 VL	520 GPM	30.0 ftH2O	0'-6"	0'-6"	7.5 hp	208 V	3	60 Hz	PROVIDE RELAYS AS REQUIRED. NOTE 5
BP-2	MECHANICAL ROOM	MILS 450 BOILER	GRUNDFOS	60125 VL	520 GPM	30.0 ftH2O	0'-6"	0'-6"	7.5 hp	208 V	3	60 Hz	PROVIDE RELAYS AS REQUIRED. NOTE 5
P-1A	MECHANICAL ROOM	MAIN PUMP HIGH SCHOOL	GRUNDFOS	NBSE 025-070-2P	290 GPM	85.0 ftH2O	0'-3"	0'-2 1/2"	10 hp	208 V	3	60 Hz	NOTES 1, 2, 3, 4 & 5
P-1B	MECHANICAL ROOM	MAIN PUMP HIGH SCHOOL	GRUNDFOS	NBSE 025-070-2P	290 GPM	85.0 ftH2O	0'-3"	0'-2 1/2"	10 hp	208 V	3	60 Hz	NOTES 1, 2, 3, 4 & 5

- NOTES:  
1. PROVIDE BACNET INTERFACE DEVICE FOR PUMP COMMUNICATION TO THE BUILDING AUTOMATION SYSTEM  
2. PUMP HAS AN INTEGRAL VARIABLE FREQUENCY DRIVE (VFD), PI PUMP SYSTEM CONTROLLER, AND DIFFERENTIAL PRESSURE SENSOR.  
3. PROVIDE PUMP SYSTEM PERFORMANCE PROGRAMMING FOR DESIGN FLOW RATE, DESIGN HEAD, AND MINIMUM FLOW RATE  
4. PROVIDE VIBRATION ISOLATION PADS BETWEEN THE PUMPS BASE AND THE CONCRETE SERVICE PADS. MASON SUPER W PADS, MODEL MBSW WITH CEMENTED PLATE ON TOP OF A SUPER WAFFLE PAD., SIZED FOR THE PUMP MOUNTING LEGS OR AS REQUIRED BY THE MANUFACTURER'S WRITTEN INSTALLATION AND OPERATIONS MANUAL  
5. PROVIDE WITH INTEGRAL DISCONNECT

**AIR/DIRT SEPARATOR SCHEDULE**

SYMBOL	MANUFACTURER	MODEL	SERVICE	FLOW RATE GPM	FLUID	PRESSURE DROP	CONNECTION DIA.	DIAMETER (IN)	HEIGHT (IN)	WEIGHT	COMMENTS
AS-1	SPIRO THERM	VDT 600 FA	BOILER LOOP	500 GPM	40% GLYCOL	0.3 ftH2O	6"	13	42	260.00 lbf	

- NOTES:  
1. WITHOUT STRAINER  
2. WITH AUTOMATIC AIR VENT

**EXPANSION TANK SCHEDULE**

SYMBOL	MANUFACTURER	MODEL	SERVICE	TANK CAPACITY	ACCEPTANCE	DIAMETER (IN)	HEIGHT (IN)	FILLED WEIGHT	COMMENTS
ET-1	TACO	CA-1100	BOILER LOOP	291 gal	291 gal	36	85	3290.00 lbf	291 GALLON TANK.FULL ACCEPTANCE, ASME RATED

- NOTES:  
1. ASME RATED

**FAN COIL UNIT SCHEDULE**

TAG	MANUFACTURER	MODEL	TYPE	FAN PERFORMANCE		HEATING PERFORMANCE			HEATING COIL		MOTOR				REMARKS				
				CFM	E.S.P.	HEATING CAPACITY	EAT DB	LAT DB	GPM	MAX WPD	EWT	LWT	ROWS	FPI		HP	VOLTS	PHASE	AMPS
				FC-1	DAIKIN APPLIED	BCHD0061A	BLOWER COIL	600	0.50 in-wg	23500.0 Btu/h	60 °F	96 °F	2.9 GPM	4.3 ftH2O		180 °F	160 °F	2	12

- NOTES:  
1. EACH UNIT TO BE EQUIPPED WITH VIBRATION ISOLATORS  
2. PROVIDE COMPLETE INTEGRATED STAND-ALONE CONTROLS W/ LOW VOLTAGE NETWORK INTERFACE BOARD TO BMS

**PIPING INSULATION SCHEDULE**

APPLICATION	FLUID OPERATING TEMPERATURE RANGE (°F)	TYPE	PIPE DIAMETER	THICKNESS	JACKET	FITTINGS
HOT WATER INTERIOR	141-200	FIBERGLASS PRE-MOLDED	<1.5"	1.5"	WHERE CONCEALED: ALL SERVICE WHERE EXPOSED: PVC PLASTIC	PRE-MOLDED PVC PLASTIC COVER, WHITE
			≥1.5"	2.0"		

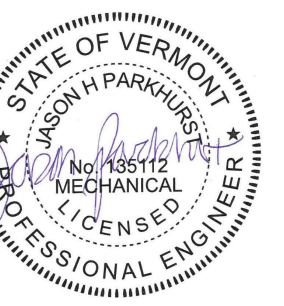
- NOTES:  
1. INSULATION THICKNESS LISTED ARE MINIMUM VALUES.  
2. INSULATION SHALL MEET THE REQUIREMENTS OF THE VERMONT COMMERCIAL BUILDING ENERGY CODE AS ADOPTED BY THE STATE OF VERMONT. MAXIMUM INSULATION CONDUCTIVITY TO BE 0.27 - 0.30 BTU-IN/(HR-SF-°F) FOR PIPING BETWEEN 201 TO 250F, 0.29 - 0.32 BTU-IN/(HR-SF-°F) FOR PIPING BETWEEN 251 TO 350F.  
3. PROVIDE COLOR CODED PVC JACKETS ON PIPING. REFER TO SPECIFICATIONS.  
4. INSULATE ENTIRE LENGTH OF PRESSURE RELIEF VALVE DISCHARGE PIPING IN THE BOILER BUILDING.  
5. CONTRACTOR SHALL LAYOUT PIPING CENTERLINES TO PERMIT FULL THICKNESS OF INSULATION AND JACKET INSTALLATION. DO NOT CRUSH INSULATION.  
6. PROVIDE INSULATION INSERTS AND PIPE SADDLES AT ALL SUPPORTS

**GLYCOL FEEDER SCHEDULE**

TAG	LOCATION	SERVES	MANUFACTURER	MODEL	GPM	GALLONS	WATTS	VOLTS	PH	HZ	REMARKS
GF-1	MECHANICAL ROOM	BOILER LOOP	AXIOM	DMF-300	1 GPM	17	50 W	115 V	1	60 Hz	

**PIPE SCHEDULE**

APPLICATION	FLUID OPERATING TEMPERATURE RANGE (°F)	TYPE	MAXIMUM OPERATING PRESSURE	PIPE WORKING PRESS
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**KEY NOTES**

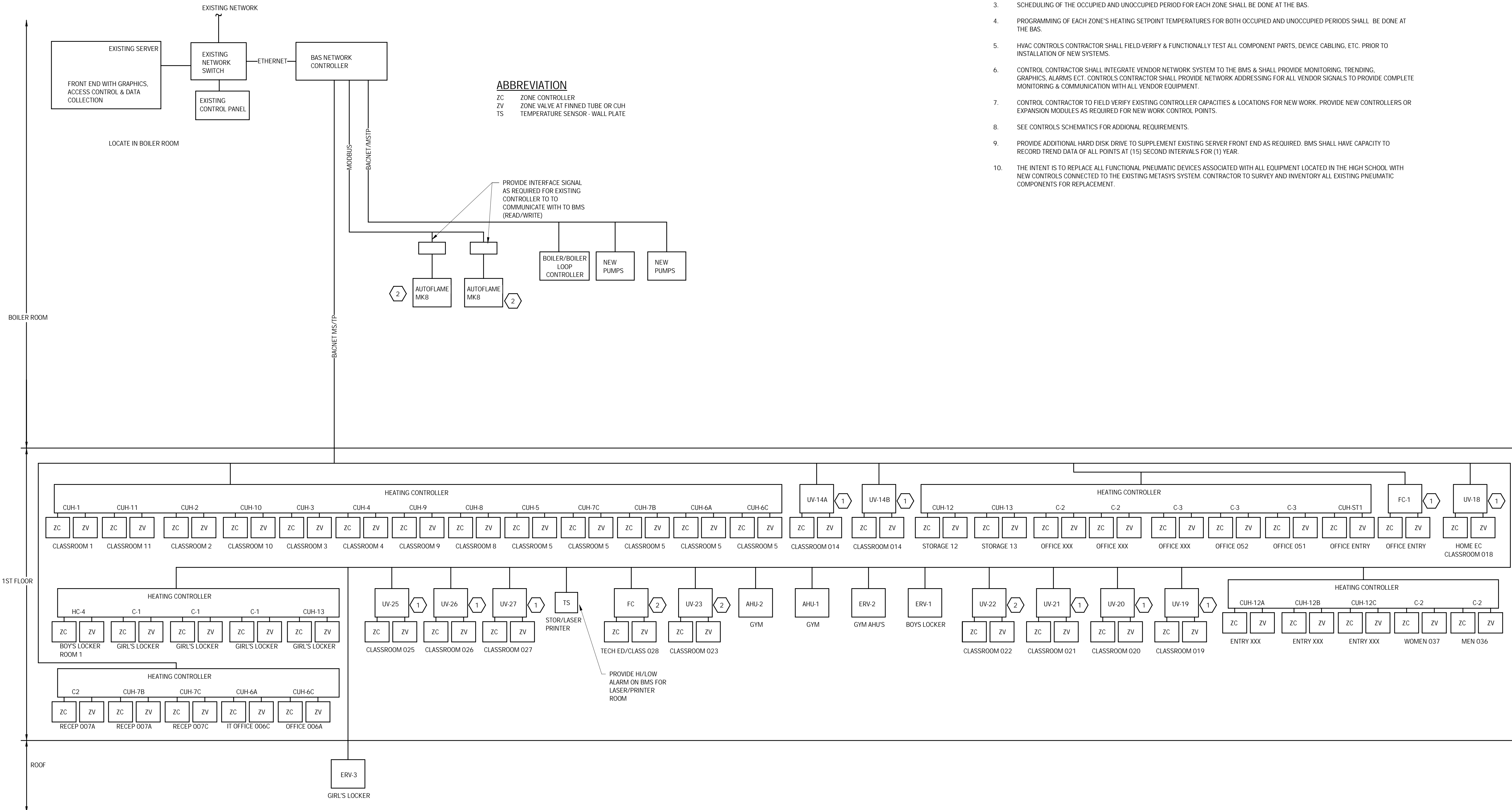
- 1. VENDOR CONTROLLER. CONTROLLER TO ALLOW REMOTE CONTROL AND PROVIDE STATUS MONITOR AND PROVIDE STATUS/ FAULT SIGNALS TO BMS FRONT END. (READ/WRITE). PROVIDE FULL ADDRESS MAPPING POINTS LIST IN CONTROLS SUBMITTAL.
- 2. INTEGRATE EXISTING EQUIPMENT INTO NEW BMS. PROVIDE INTERFACE EQUIPMENT AS REQUIRED. PROVIDE STATUS MONITOR AND PROVIDE STATUS/ FAULT SIGNALS TO BMS FRONT END. (READ/WRITE). PROVIDE FULL ADDRESS MAPPING POINTS LIST IN CONTROLS SUBMITTAL.

**GENERAL NOTES**

- 1. EXISTING BMS BUILDING CONTROLLER IS A JOHNSON CONTROLS METASYS SYSTEM.
- 2. CONTROL ZONE THERMOSTATS AND EQUIPMENT SHALL COMMUNICATE TO THE BUILDING AUTOMATION SYSTEM (BAS) VIA BACNET MS/TP INTERFACE PROTOCOL.
- 2. BUILDING IS EQUIPPED WITH PNEUMATIC CONTROLS. SURVEY AND INVENTORY ALL EXISTING SYSTEM FEATURES INCLUDING I/O, SENSORS, ETC., AND FEATURES AND REPLICATE ON TO EXISTING BMS.
- 3. SCHEDULING OF THE OCCUPIED AND UNOCCUPIED PERIOD FOR EACH ZONE SHALL BE DONE AT THE BAS.
- 4. PROGRAMMING OF EACH ZONE'S HEATING SETPOINT TEMPERATURES FOR BOTH OCCUPIED AND UNOCCUPIED PERIODS SHALL BE DONE AT THE BAS.
- 5. HVAC CONTROLS CONTRACTOR SHALL FIELD-VERIFY & FUNCTIONALLY TEST ALL COMPONENT PARTS, DEVICE CABLING, ETC. PRIOR TO INSTALLATION OF NEW SYSTEMS.
- 6. CONTROL CONTRACTOR SHALL INTEGRATE VENDOR NETWORK SYSTEM TO THE BMS & SHALL PROVIDE MONITORING, TRENDRING, GRAPHICS, ALARMS ECT. CONTROLS CONTRACTOR SHALL PROVIDE NETWORK ADDRESSING FOR ALL VENDOR SIGNALS TO PROVIDE COMPLETE MONITORING & COMMUNICATION WITH ALL VENDOR EQUIPMENT.
- 7. CONTROL CONTRACTOR TO FIELD VERIFY EXISTING CONTROLLER CAPACITIES & LOCATIONS FOR NEW WORK. PROVIDE NEW CONTROLLERS OR EXPANSION MODULES AS REQUIRED FOR NEW WORK CONTROL POINTS.
- 8. SEE CONTROLS SCHEMATICS FOR ADDITIONAL REQUIREMENTS.
- 9. PROVIDE ADDITIONAL HARD DISK DRIVE TO SUPPLEMENT EXISTING SERVER FRONT END AS REQUIRED. BMS SHALL HAVE CAPACITY TO RECORD TREND DATA OF ALL POINTS AT (15) SECOND INTERVALS FOR (1) YEAR.
- 10. THE INTENT IS TO REPLACE ALL FUNCTIONAL PNEUMATIC DEVICES ASSOCIATED WITH ALL EQUIPMENT LOCATED IN THE HIGH SCHOOL WITH NEW CONTROLS CONNECTED TO THE EXISTING METASYS SYSTEM. CONTRACTOR TO SURVEY AND INVENTORY ALL EXISTING PNEUMATIC COMPONENTS FOR REPLACEMENT.

**ABBREVIATION**

- ZC ZONE CONTROLLER
- ZV ZONE VALVE AT FINNED TUBE OR CUH
- TS TEMPERATURE SENSOR - WALL PLATE



1 NETWORK ARCHITECTURE SCHEMATIC  
NOT TO SCALE

REVISIONS	REVISION DESCRIPTION	DATE	BY

WOODSTOCK HIGH SCHOOL  
WOODSTOCK,  
VERMONT

PROJECT NAME:  
**WOODSTOCK HIGH SCHOOL STEAM TO HYDRONIC**

SHEET TITLE:  
**HVAC CONTROLS ARCH.**

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Author	01/06/23
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Designer	

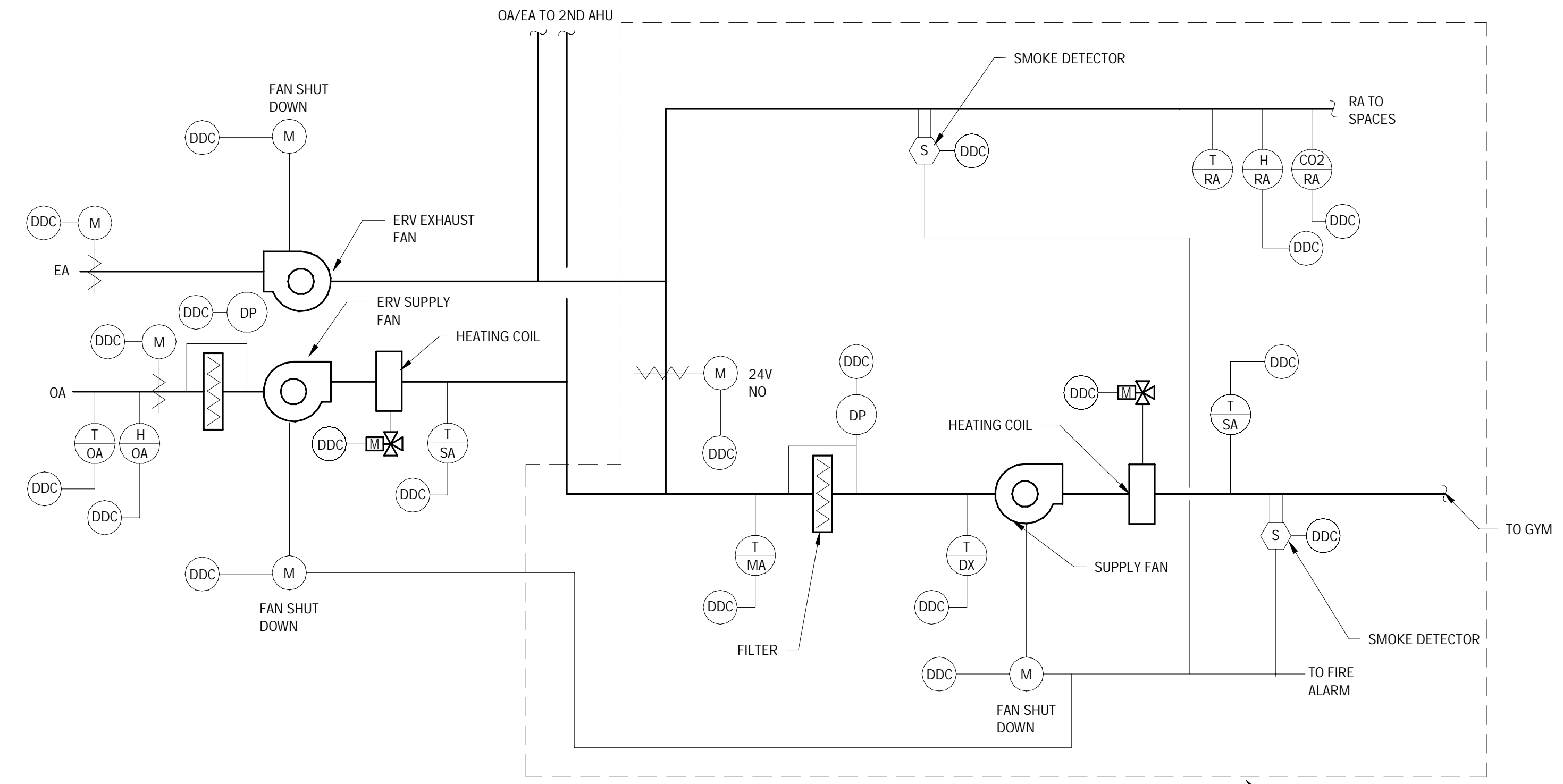
SHEET NUMBER

**M6.2**



**ELECTRICAL NOTES**

- ALL WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE (N.E.C.) LATEST EDITION, CONTRACTOR TO OBTAIN ALL PERMITS AND ARRANGE FOR ALL INSPECTIONS WITH AUTHORITY HAVING JURISDICTION.
- ALL POWER WIRING SHALL BE IN EITHER MC CABLE OR CONDUIT, ALL RACEWAYS SHALL BE EMT (ELECTRICAL METALLIC TUBING). ALL CONDUCTORS SHALL BE COPPER GROUND (TYPICAL) WITH NUMBER OF CONDUCTORS AS REQUIRED. REFER TO PANEL SCHEDULES, TYPICAL. ALL CONDUCTORS SHALL BE COPPER, WIRE SIZE NO. 8 AWG AND SMALLER BE TYPE THH/THW INSULATION. SIZES LARGER THAN NO. 8 SHALL HAVE TYPE THH/THW INSULATION UNLESS OTHERWISE NOTED.
- LIMIT 20A 120V BRANCH CIRCUITS TO A MAXIMUM 1920VA LOAD AND 15A 120V BRANCH CIRCUIT TO A MAXIMUM 1440VA LOAD.
- ALL WIRING SHALL BE CONCEALED IN WALLS AND ABOVE CEILING IN FINISHED AREAS AND WHEREVER POSSIBLE. WIRING IN UTILITY AREAS (MECHANICAL SPACE) MAY BE RUN EXPOSED AS APPROVED BY THE ARCHITECT. EXPOSED WIRING SHALL BE IN CONDUIT, BE PARALLEL TO BUILDING STRUCTURAL ELEMENTS AND PRESENT A NEAT AND COMPLETE INSTALLATION.
- WHERE WIRING CAN NOT BE ROUTED CONCEALED UTILIZE WIREMOLD SURFACE RACEWAY (WITH ALL NECESSARY FITTINGS/HARDWARE AND ATTACHMENT) WITH STRANDED TYPE THHN/THWN CONDUCTOR. ALL COMPONENTS SHALL BE PAINTED AS DIRECT BY ENGINEER. COORDINATE MOUNTING WITH ARCHITECT.
- CONDUITS, RACEWAYS AND CABLES SHALL BE PROPERLY AND SECURELY ATTACHED TO BUILDING STRUCTURAL COMPONENTS AS REQUIRED BY N.E.C. ALL FASTENERS AND HARDWARE SHALL BE APPROVED FOR THE INSTALLATION AND THE CONDITIONS ENCOUNTERED.
- EACH OUTLET OR JUNCTION IN ANY OF THE WIRING SYSTEMS SHALL BE MADE IN AN APPROVED, METALLIC JUNCTION BOX. SUCH BOX SHALL BE SUITABLE FOR THE SIZE AND NUMBER OF CONDUCTORS AND DEVICES TO BE INSTALLED, AS WELL AS THE CONDITION ENCOUNTERED. ALL SPLICES SHALL BE MADE WITH APPROVED, MECHANICAL CONNECTORS.
- ALL ELECTRICAL WORK SHALL BE CAREFULLY COORDINATED WITH THE WORK OF OTHER TRADES AND ON-SITE CONDITIONS. WHERE CUTTING, DRILLING OR ALTERATION TO THE WORK OF OTHERS IS NECESSARY, FOR THE PROPER INSTALLATION OF ELECTRICAL EQUIPMENT, SUCH WORK SHALL BE PLANNED IN ADVANCE WITH THE GENERAL CONTRACTOR AND SHALL BE CAREFULLY DONE. ANY DAMAGE TO THE BUILDINGS OR EQUIPMENT SHALL BE REPAIRED BY PROPERLY TRAINED PERSONNEL, TO THE SATISFACTION OF THE ARCHITECT, AT NO ADDITIONAL COST TO THE OWNER.
- DURING ROUGH IN AND FINISHED STAGES OF CONSTRUCTION, PROTECT AND KEEP CLEAN ALL ELECTRICAL EQUIPMENT, PANELS, FIXTURES AND DEVICES.
- PROVIDE ALL INFORMATION ABOUT EQUIPMENT WHICH IS BEING FURNISHED TO THE GENERAL CONTRACTOR FOR COORDINATION PURPOSES. PROVIDE ALL INSTALLATION DETAILS AND SUPPORT COMPONENTS TO THE GENERAL CONTRACTOR SO THAT THESE MAY BE BUILT INTO THE CONSTRUCTION IN A TIMELY MANNER.
- VERIFY LOCATIONS OF MECHANICAL, HVAC AND OWNER'S EQUIPMENT AND POWER CONNECTION DETAILS SO THAT THE ASSOCIATED ELECTRICAL WORK WILL BE PROPERLY COORDINATED AND INSTALLED.
- PROVIDE EACH MECHANICAL FAN, PUMP OR HVAC UNIT WITH DISCONNECT, WEATHERPROOF NEMA 3R&12 (WP), FOR OUTDOOR, NEMA 1 FOR INDOOR. FUSE TO MATCH EQUIPMENT NAMEPLATE OF EQUIPMENT.
- ALL MECHANICAL EQUIPMENT SHALL HAVE HACR RATED BREAKERS PER N.E.C. REQUIREMENTS. VERIFY THE CONDITION BRANCH CIRCUIT WIRING INDICATED TO BE REUSED. IF WIRING IS FOUND TO BE IN POOR CONDITION, REPLACE WITH #12, TYPE THHN/THWN COPPER CONDUCTORS.
- THE INTERIOR ELECTRICAL SYSTEM SHALL BE COMPLETELY AND EFFECTIVELY GROUNDING AS REQUIRED BY THE NEC. ALL METALLIC RACEWAYS SHALL BE MECHANICALLY AND ELECTRICALLY SECURE AT ALL JOINTS AND AT ALL BOXES, CABINETS, FITTINGS, AND EQUIPMENT.
- UPON COMPLETION OF WORK CORRECT ALL PANELBOARD CIRCUITS DIRECTORY CARDS TO REFLECT AS-BUILT CONDITIONS.
- ALL RACEWAYS SHALL BE PROVIDED WITH EQUIPMENT GROUND CONDUCTOR. EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL ELECTRICAL RACEWAYS AND SHALL BE SPECIFIED IN ACCORDANCE WITH NEC 250 AND SHALL BE CONTINUOUS.
- LOCATION OF ALL OUTLETS SHOWN ON DRAWINGS IS APPROXIMATE. CHECK ALL MEASUREMENTS AND VERIFY EXACT LOCATION WITH ARCHITECT.
- FURNISH, INSTALL, TEST, CALIBRATE, AND OTHERWISE MAKING OPERATIONAL ALL DEVICES AND EQUIPMENT SHOWN ON THESE DRAWINGS.
- CONNECT NEW UNIT VENTILATORS, FAN COILS & UNIT HEATERS TO EXISTING 120 VAC CIRCUIT PREVIOUSLY MADE SAFE DURING DEMOLITION. PROVIDE MANUAL MOTOR STARTER SWITCH AT EACH UNIT TO PROVIDE CODE REQUIRED DISCONNECTING MEANS. PROVIDE NEW 2#12, 1#12G WIRING EXTENDED FROM EXISTING CIRCUIT TO NEW EQUIPMENT TO SUPPLY REQUIRED 120VAC UNIT POWER. PROVIDE FOR MECHANICAL CONTROLS, CABINET UNIT HEATERS, UNIT HEATERS AND FAN COILS, MANUAL MOTOR STARTER DISCONNECT SWITCH AT UNIT. PROVIDE 2#12, 1#12G FROM EQUIPMENT TO NEAREST 120VAC PANEL. PROVIDE 20A/1P CIRCUIT BREAKERS IN PANEL. MATCH EXISTING CIRCUIT BREAKER TYPE, STYLE AND AIC RATING.
- IN BOILER ROOM 208V/120V PANEL(CE) PROVIDE TWO 60A/3P AND TWO 50A/3P CIRCUIT BREAKERS FOR PUMPS BP-1, BP-2, P-1A & P-1B. MATCH EXISTING CIRCUIT BREAKER TYPE, STYLE AND AIC RATING. PROVIDE 3#6, 1#6G, 1°C EACH FROM PANEL TO PUMPS BP-1, BP-2, P-1A & P-1B VFD DRIVES AT PUMP.



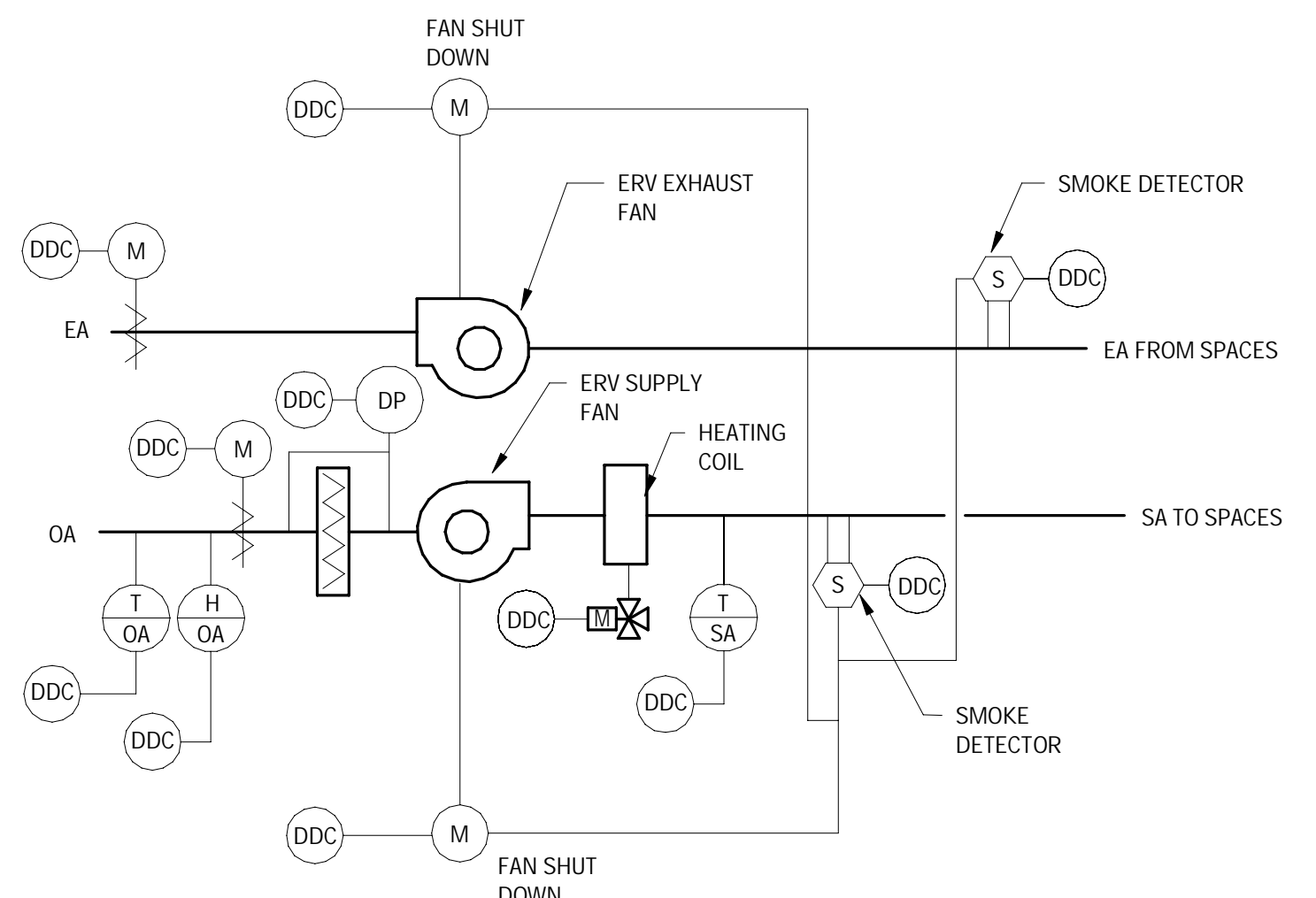
**LEGEND**  
AFS = AIRFLOW STATION  
CO2 = CARBON DIOXID  
DDC = CONNECTS TO BMS/DDC  
DP = DIFFERENTIAL PRESSURE  
DPT = DIFFERENTIAL PRESSURE TRANSMITTER  
DX = DIRECT EXPANSION  
FS = FREEZESTAT  
H = HUMIDITY  
M = MOTOR  
T = TEMPERATURE  
TXV = THERMAL EXPANSION VALVE  
RA = RETURN AIR  
SA = SUPPLY AIR  
SP = STATIC PRESSURE  
OA = OUTSIDE AIR

NOTE:  
1. REMOVE ALL PNEUMATIC CONTROLS. REPLACE WITH NEW DDC CONTROLS CONNECTED TO EXISTING JOHNSON CONTROLS METASYS SYSTEM

CONTROLS SHOWN WITHIN THIS BOX ARE FOR A SINGLE AIR HANDLING UNIT SERVING THE GYM. CONTROLS TYPICAL OF TWO AIR HANDLERS LOCATED IN GYM MEZZANINE

**1 GYM AHU & ERV CONTROLS SCHEMATIC NOT TO SCALE**

NOTE: REFER TO SPECIFICATIONS FOR SEQUENCE OF OPERATIONS.

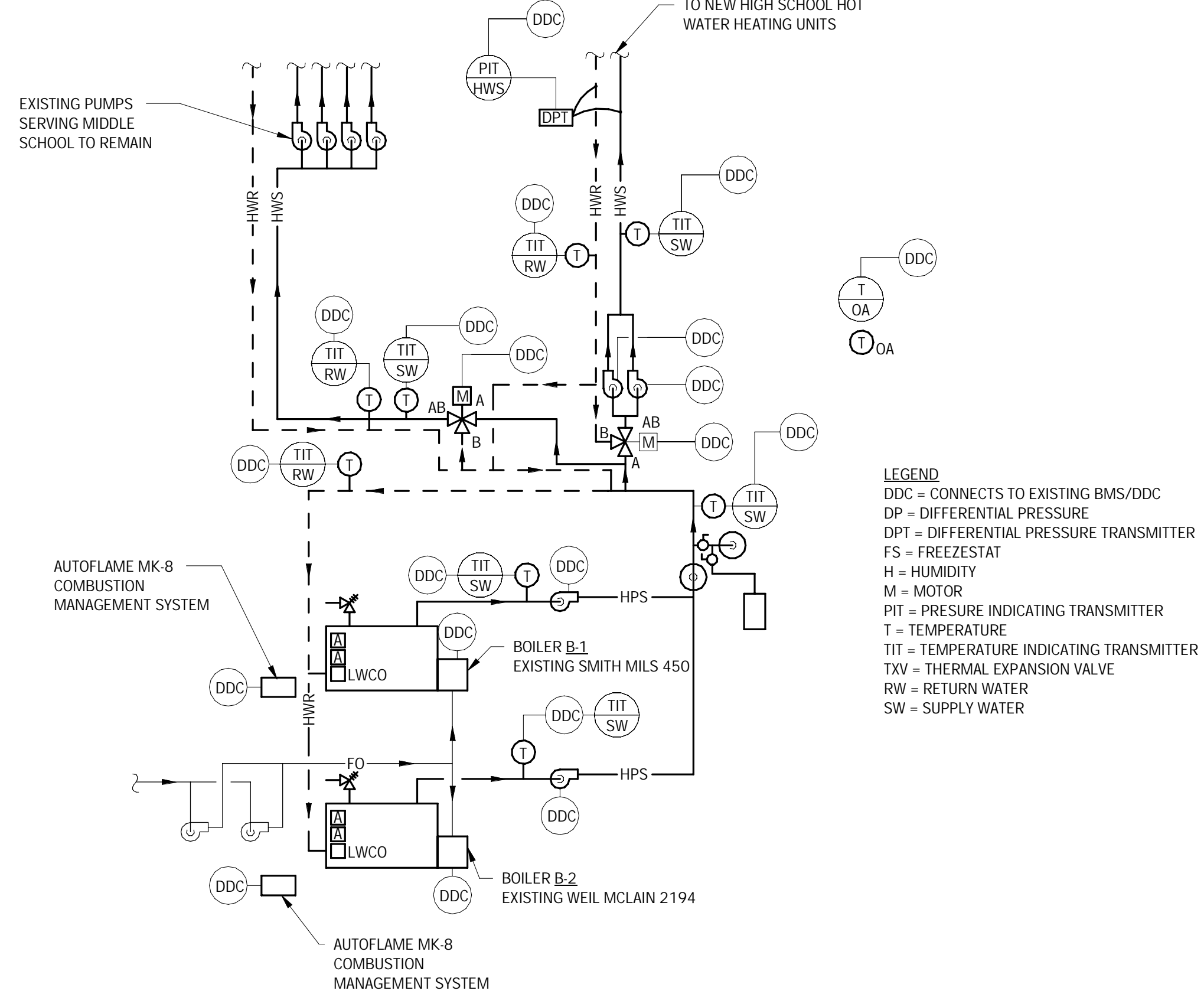


**LEGEND**  
AFS = AIRFLOW STATION  
CO2 = CARBON DIOXID  
DDC = CONNECTS TO BMS/DDC  
DP = DIFFERENTIAL PRESSURE  
DPT = DIFFERENTIAL PRESSURE TRANSMITTER  
DX = DIRECT EXPANSION  
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H = HUMIDITY  
M = MOTOR  
T = TEMPERATURE  
TXV = THERMAL EXPANSION VALVE  
RA = RETURN AIR  
SA = SUPPLY AIR  
SP = STATIC PRESSURE  
OA = OUTSIDE AIR

NOTE:  
1. REMOVE ALL PNEUMATIC CONTROLS. REPLACE WITH NEW DDC CONTROLS CONNECTED TO EXISTING JOHNSON CONTROLS METASYS SYSTEM  
2. CONTROLS SHOWN FOR SINGLE AIR HANDLER. CONTROLS TYPICAL FOR (2) ENERGY RECOVERY UNITS.

**2 LOCKER ROOM ERV CONTROLS SCHEMATIC NOT TO SCALE**

NOTE: REFER TO SPECIFICATIONS FOR SEQUENCE OF OPERATIONS.



**LEGEND**  
DDC = CONNECTS TO EXISTING BMS/DDC  
DP = DIFFERENTIAL PRESSURE  
DPT = DIFFERENTIAL PRESSURE TRANSMITTER  
FS = FREEZESTAT  
H = HUMIDITY  
M = MOTOR  
PIT = PRESSURE INDICATING TRANSMITTER  
T = TEMPERATURE  
TIT = TEMPERATURE INDICATING TRANSMITTER  
TXV = THERMAL EXPANSION VALVE  
RW = RETURN WATER  
SW = SUPPLY WATER

**3 BOILER CONTROLS SCHEMATIC NOT TO SCALE**

NOTE: REFER TO SPECIFICATIONS FOR SEQUENCE OF OPERATIONS.

REVISIONS	REVISION DESCRIPTION	DATE	NUMBER	BY

WOODSTOCK HIGH SCHOOL  
WOODSTOCK, VERMONT

PROJECT NAME:  
**WOODSTOCK HIGH SCHOOL STEAM TO HYDRONIC**

SHEET TITLE:  
**HVAC CONTROLS SCHEMATICS**

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Author	01/06/23
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PROJ. ENG.	D&K ARCHIVE #
Designer	

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**M6.3**



REVISIONS	REVISION DESCRIPTION	DATE	NUMBER	BY

WOODSTOCK HIGH SCHOOL  
WOODSTOCK,  
VERMONT

PROJECT NAME:  
**WOODSTOCK HIGH SCHOOL STEAM TO HYDRONIC**

SHEET TITLE:  
**HVAC DETAILS**

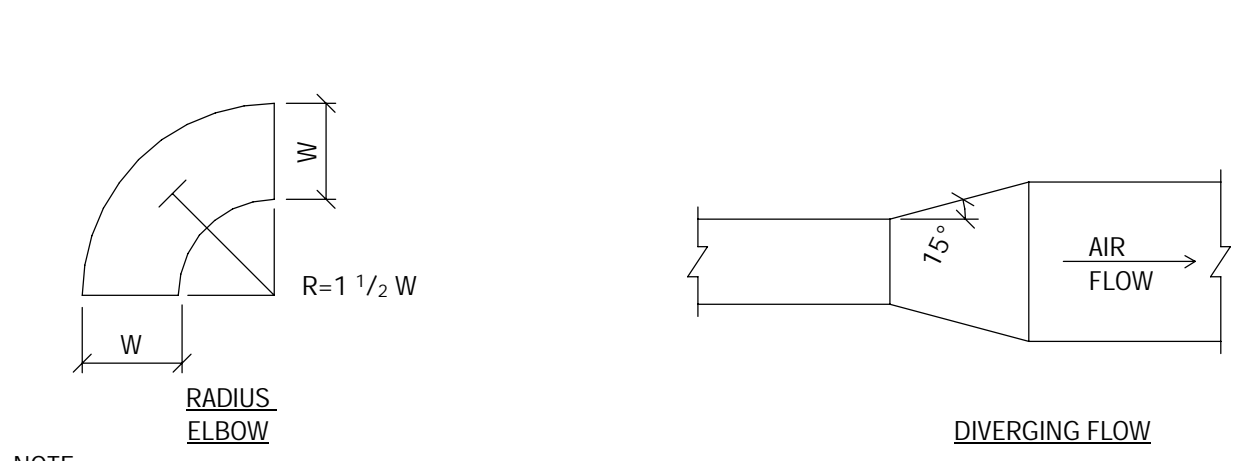
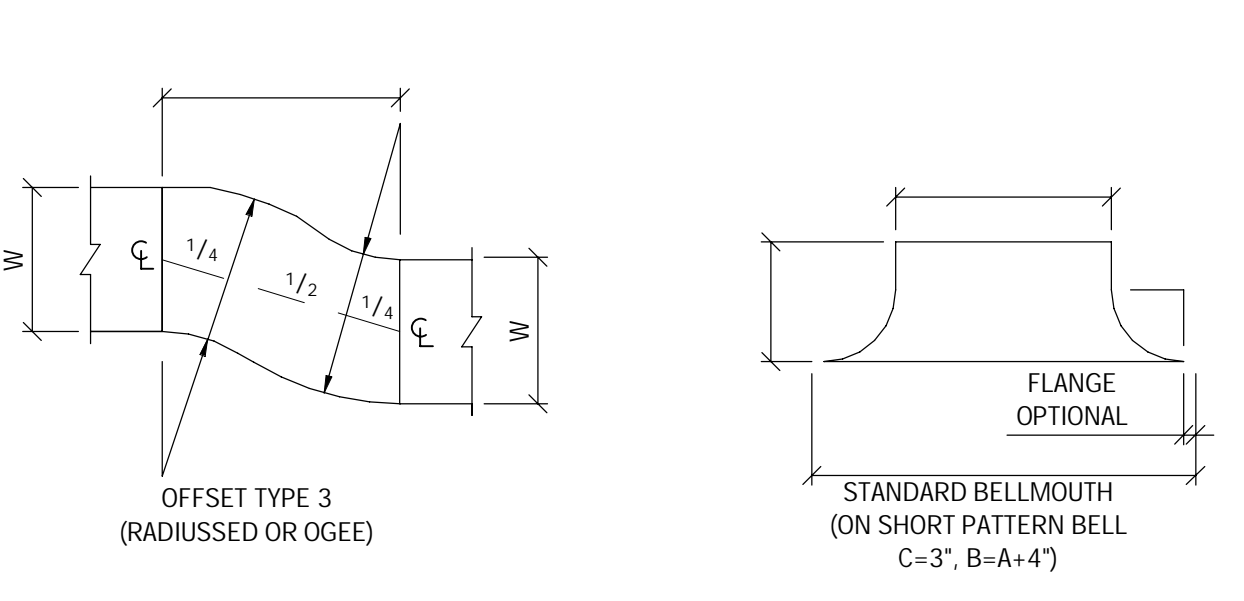
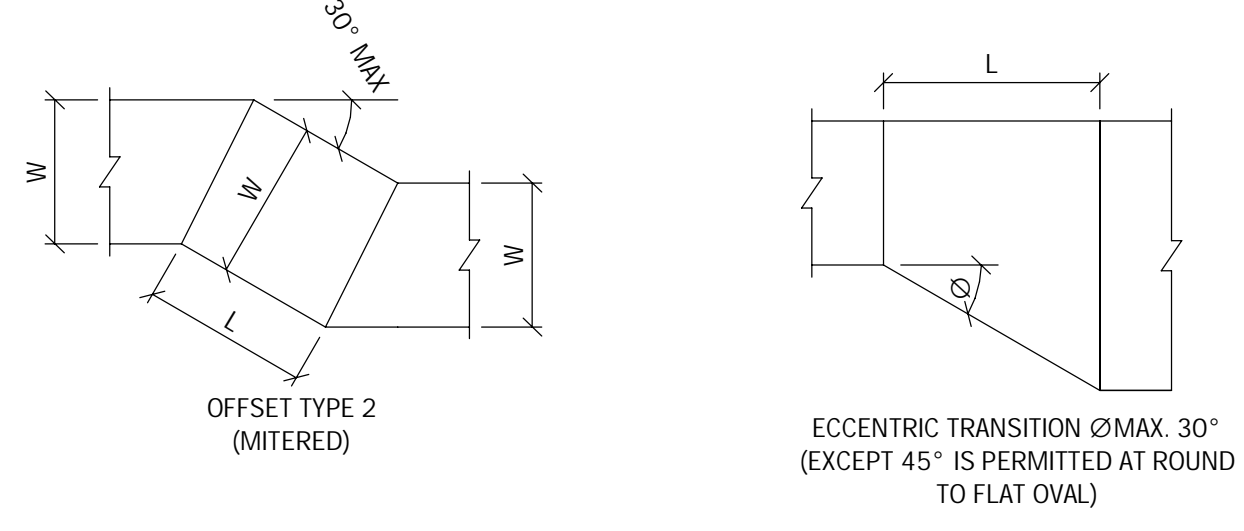
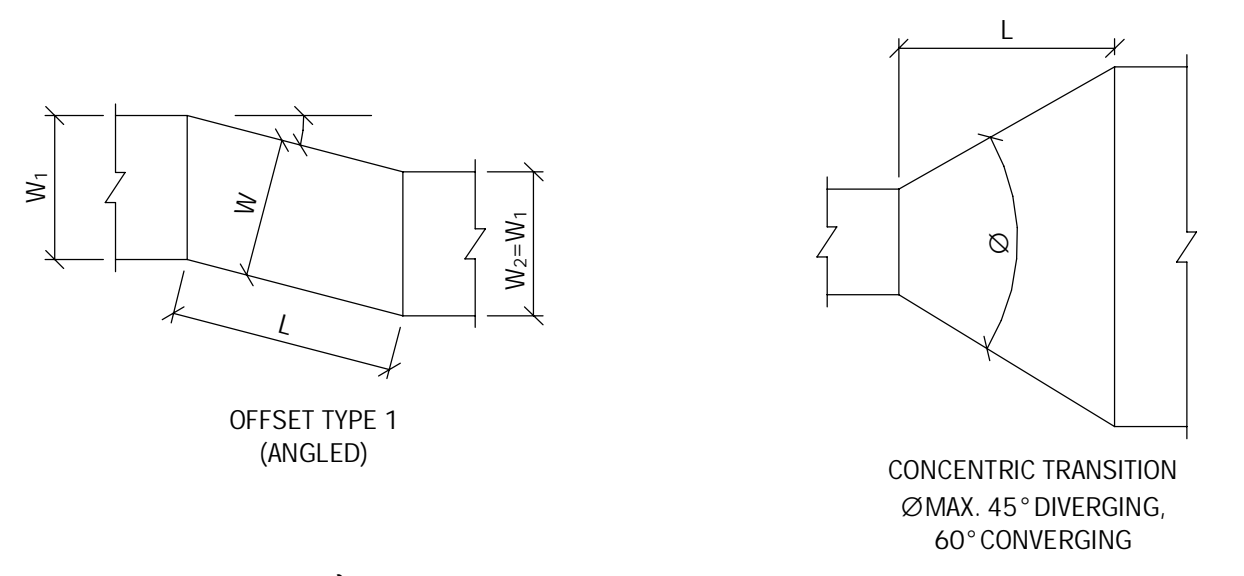
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CHECKED BY	SVD	D&K PROJECT #	527971
PROJ. ENG.	JHP	D&K ARCHIVE #	

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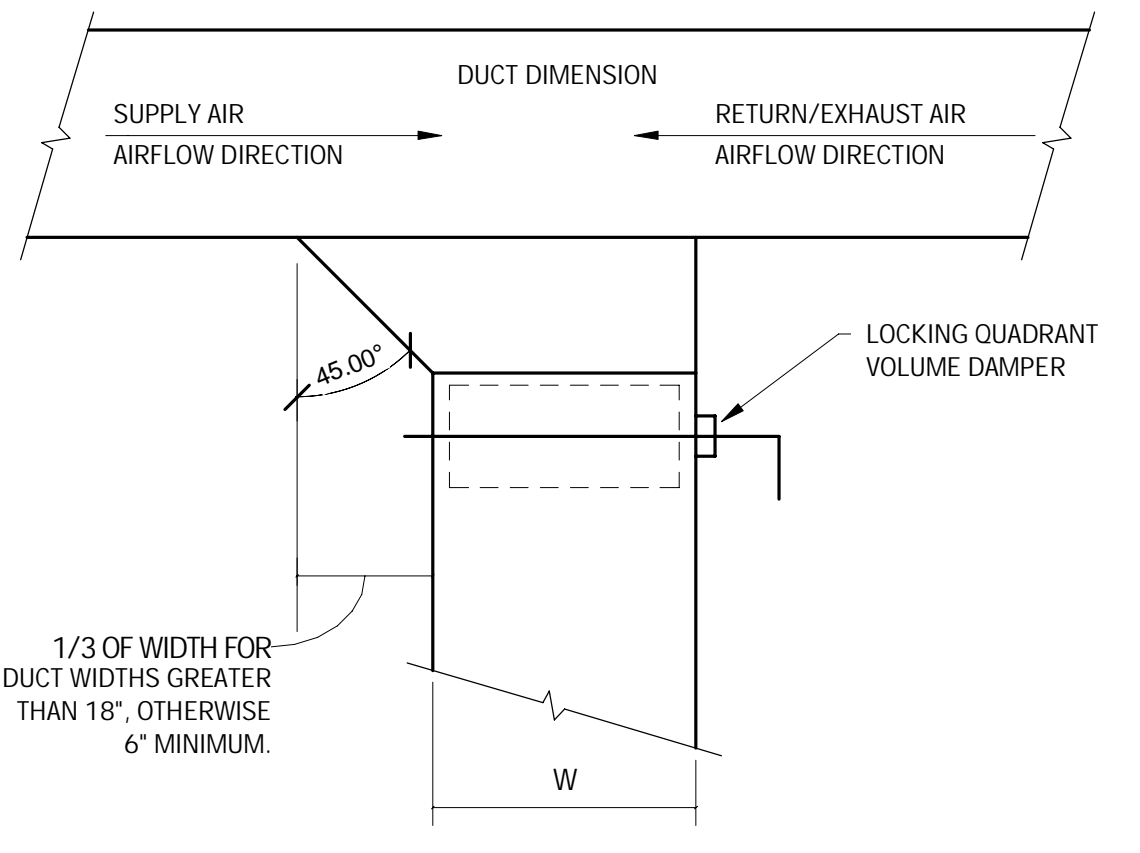
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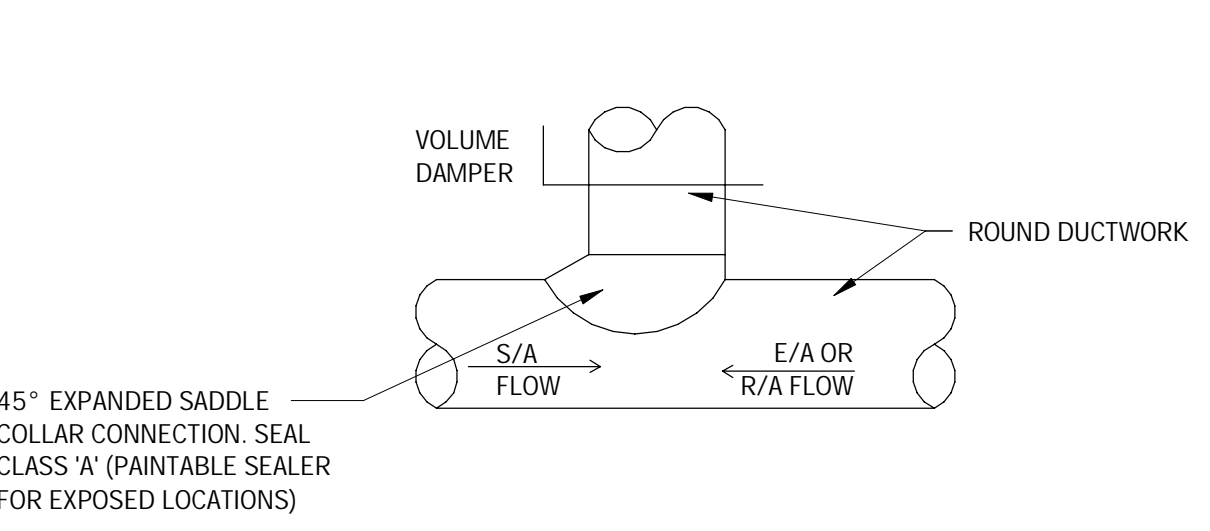
OFFSET 2 AND 3 AND TRANSITIONS MAY HAVE EQUAL OR UNEQUAL INLET AND OUTLET AREAS. TRANSITIONS MAY CONVERT DUCT PROFILES TO ANY COMBINATION FOR RECTANGULAR, ROUND OR FLAT OVAL SHAPES



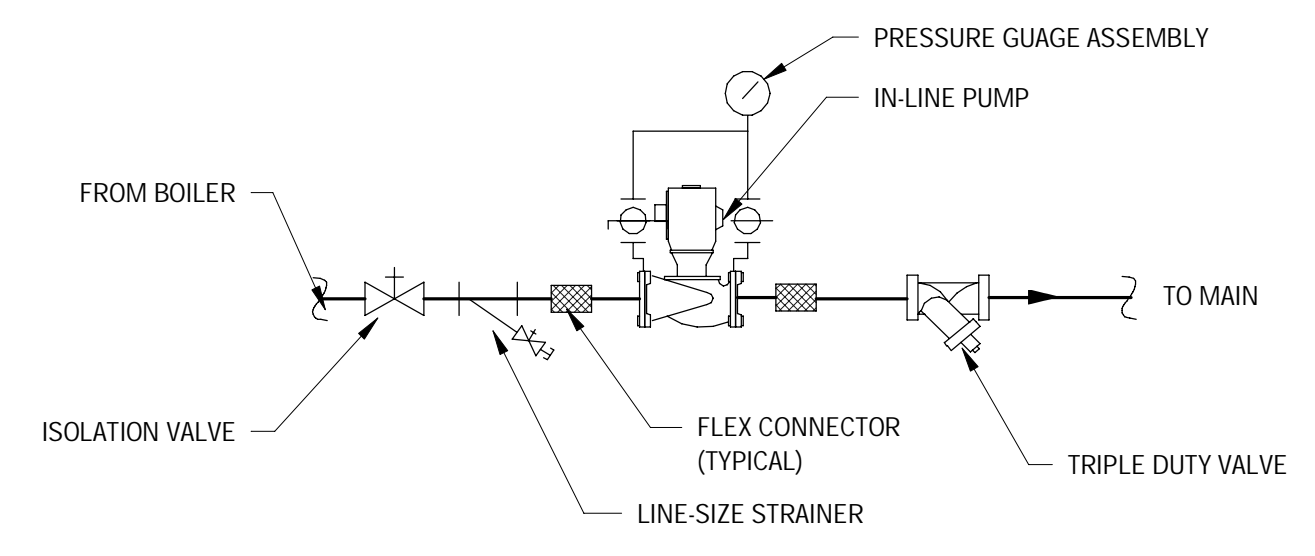
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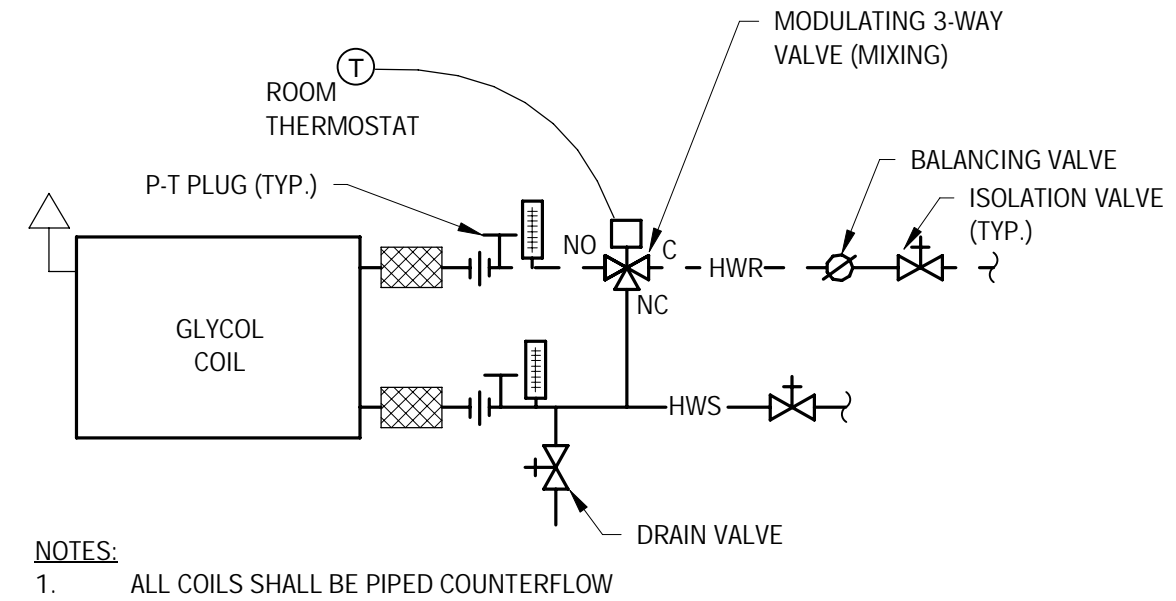
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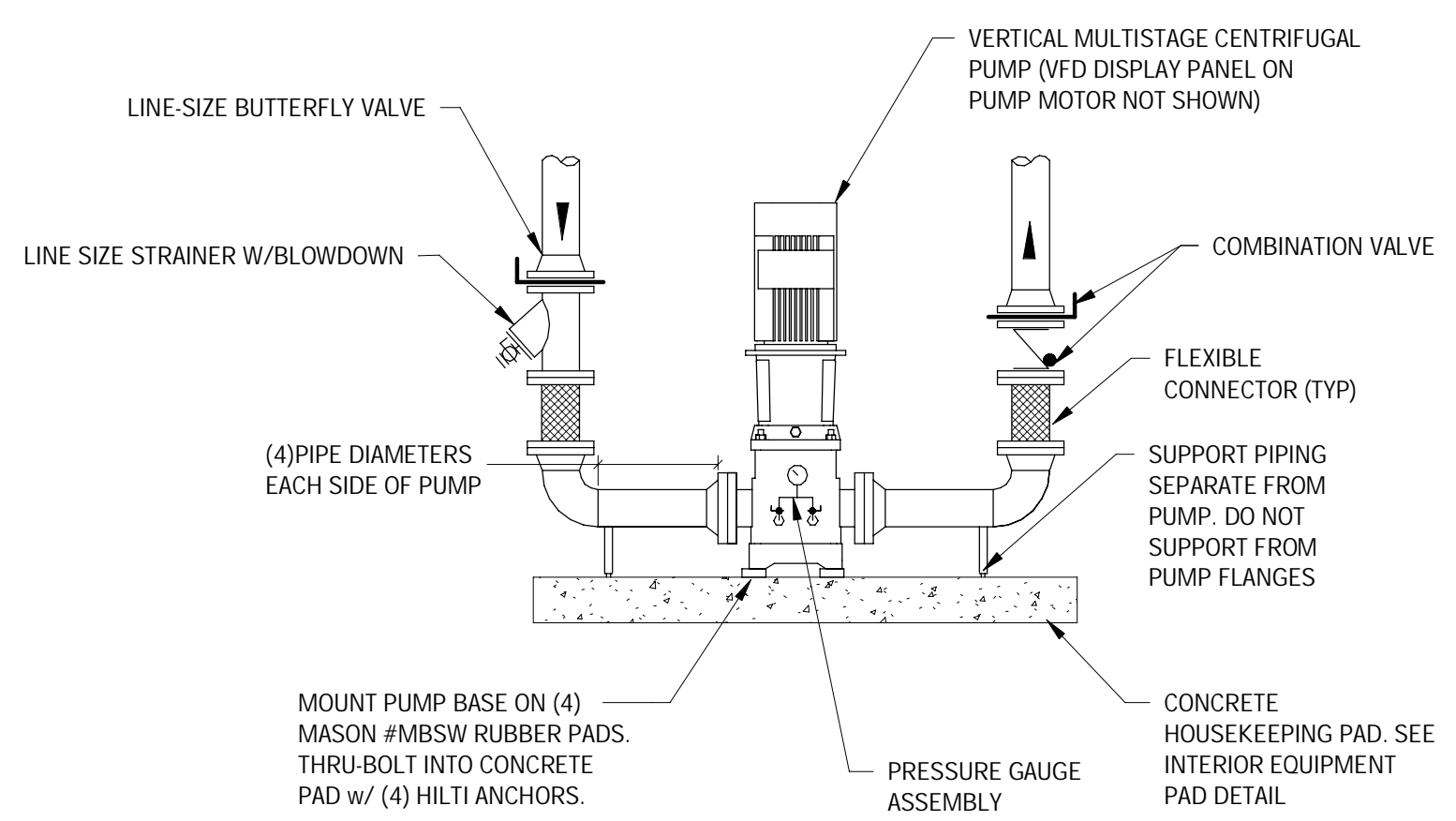
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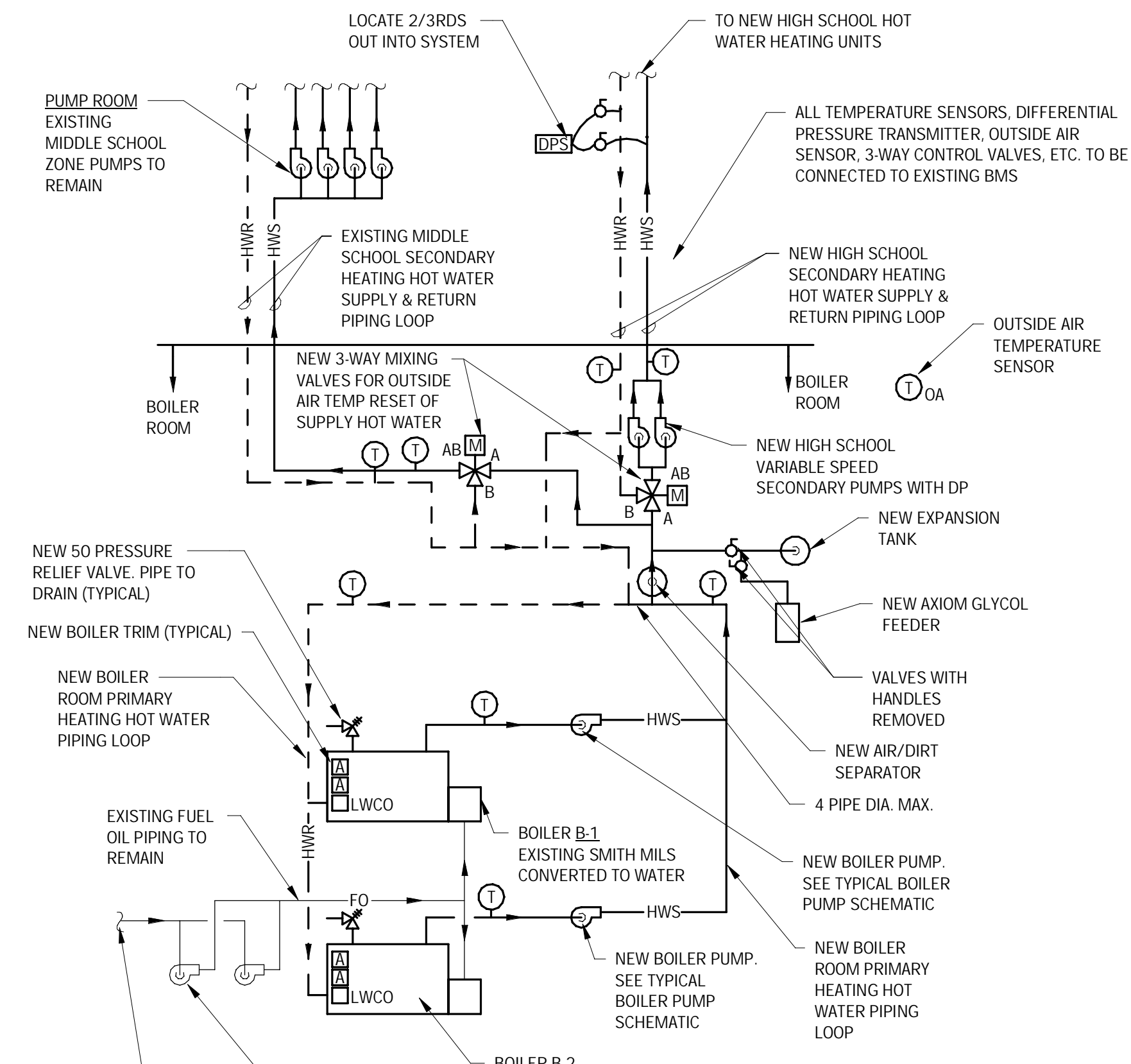
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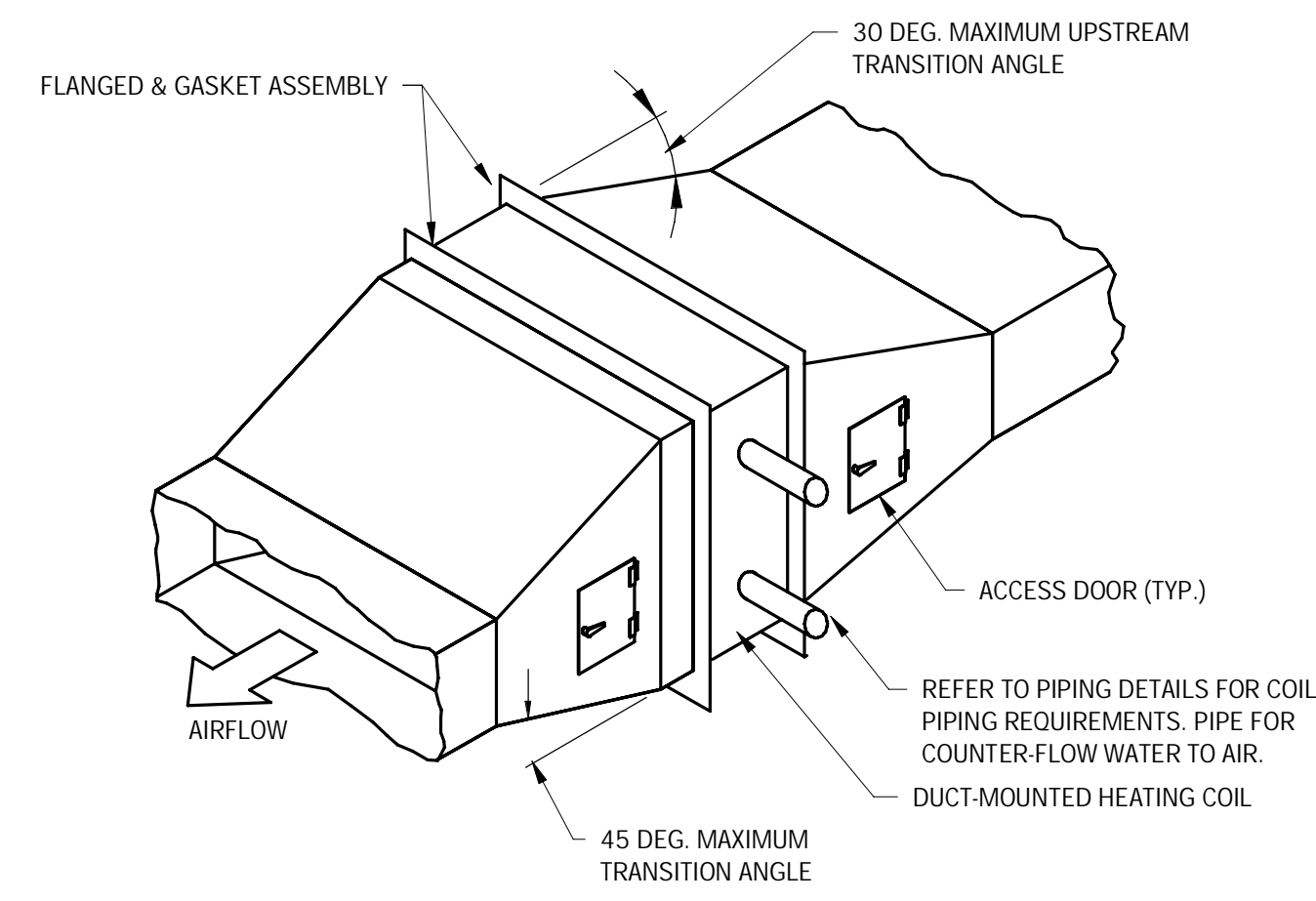
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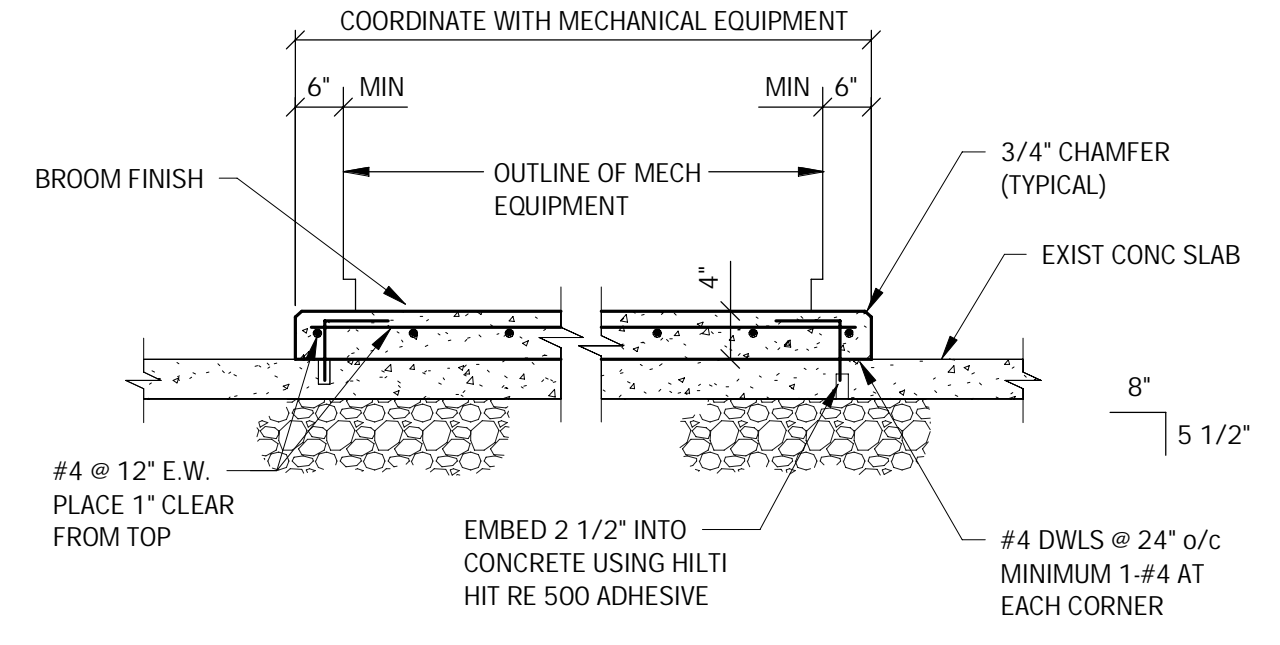
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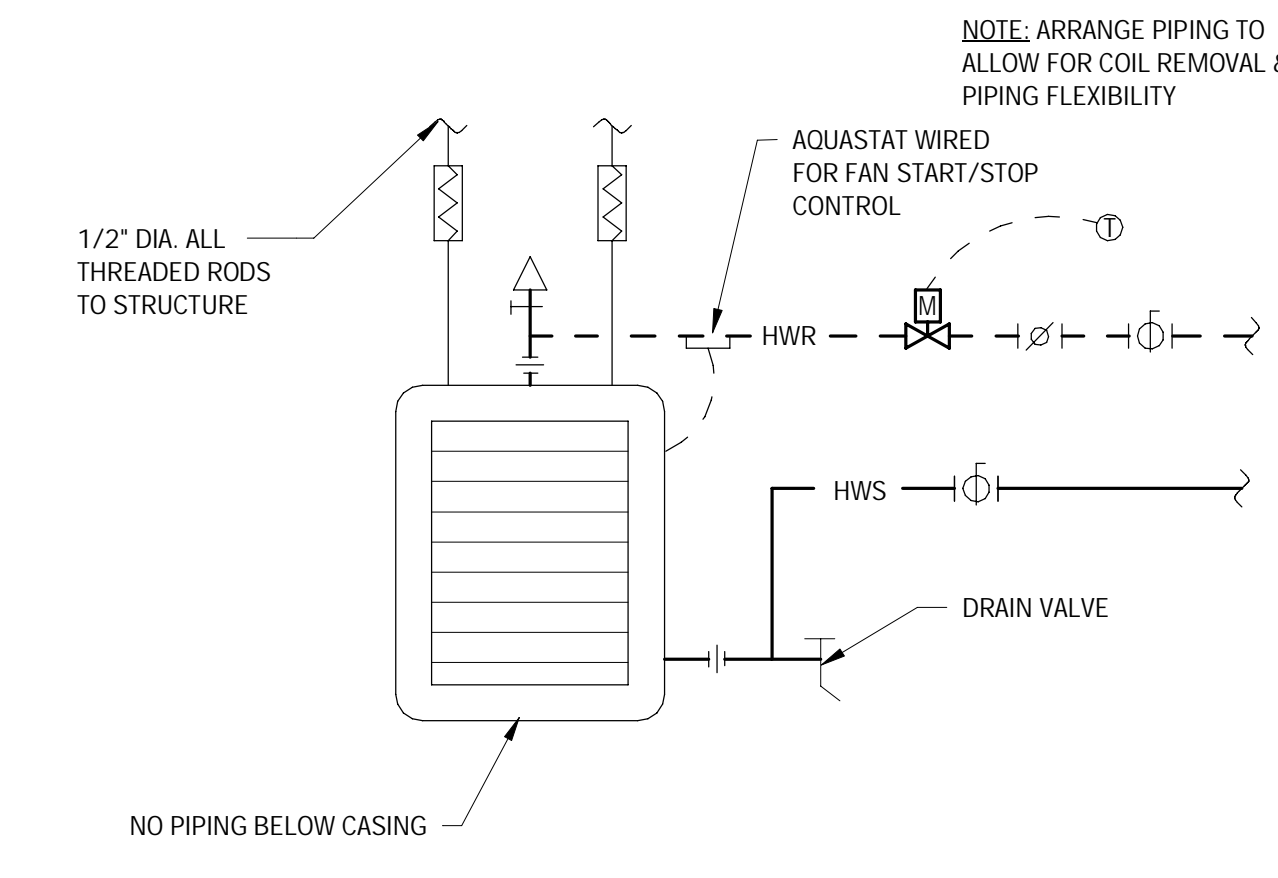
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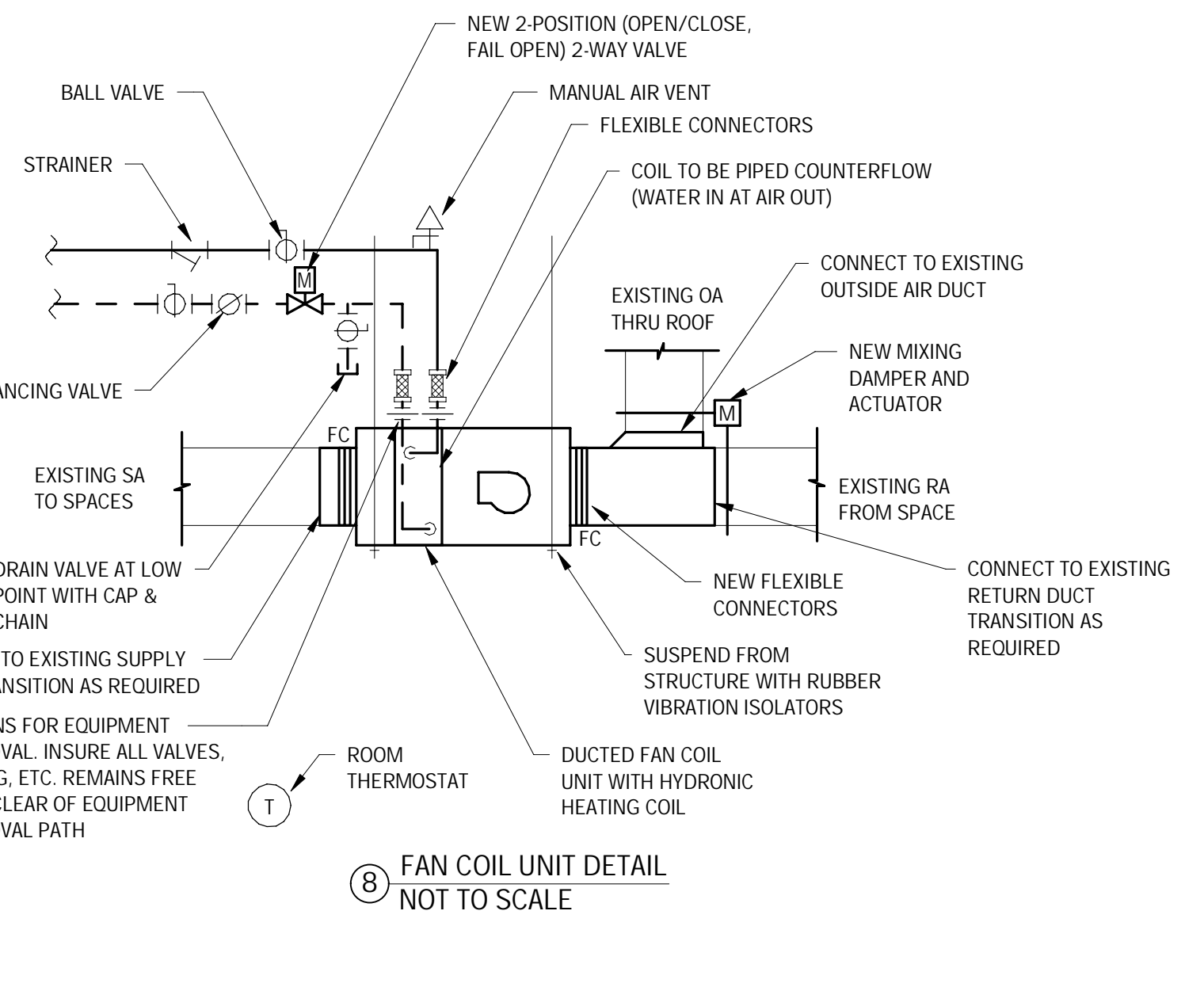
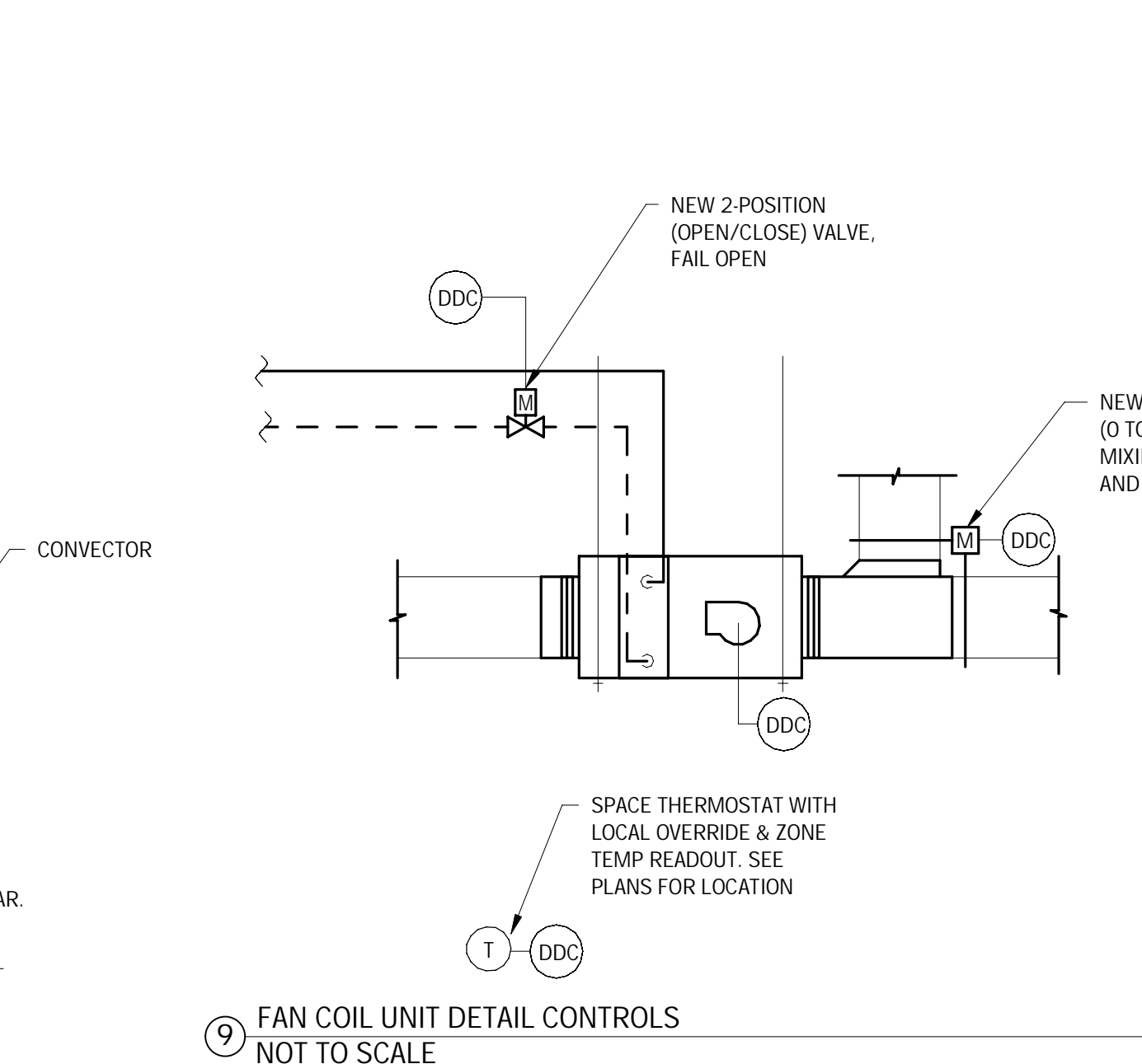
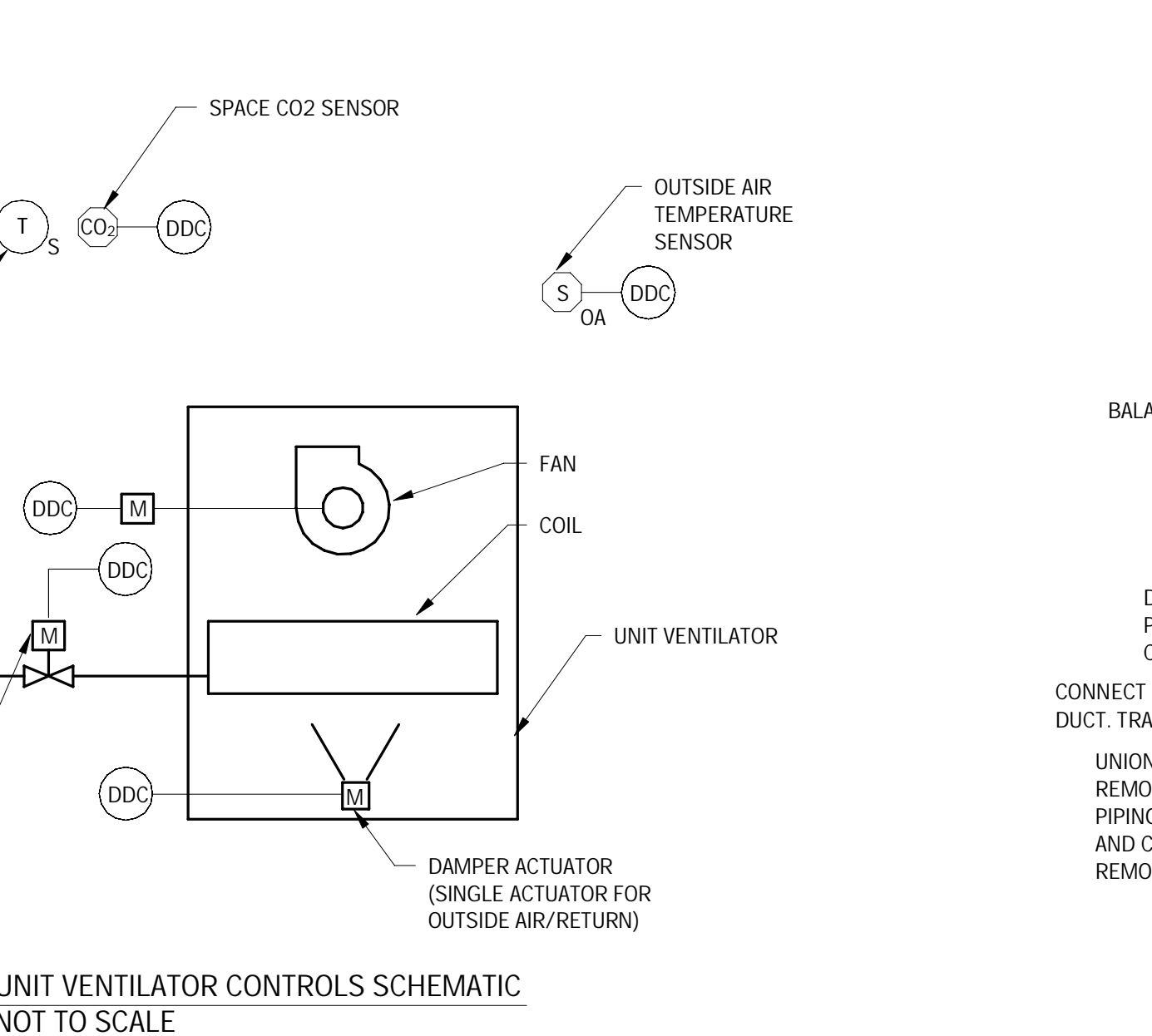
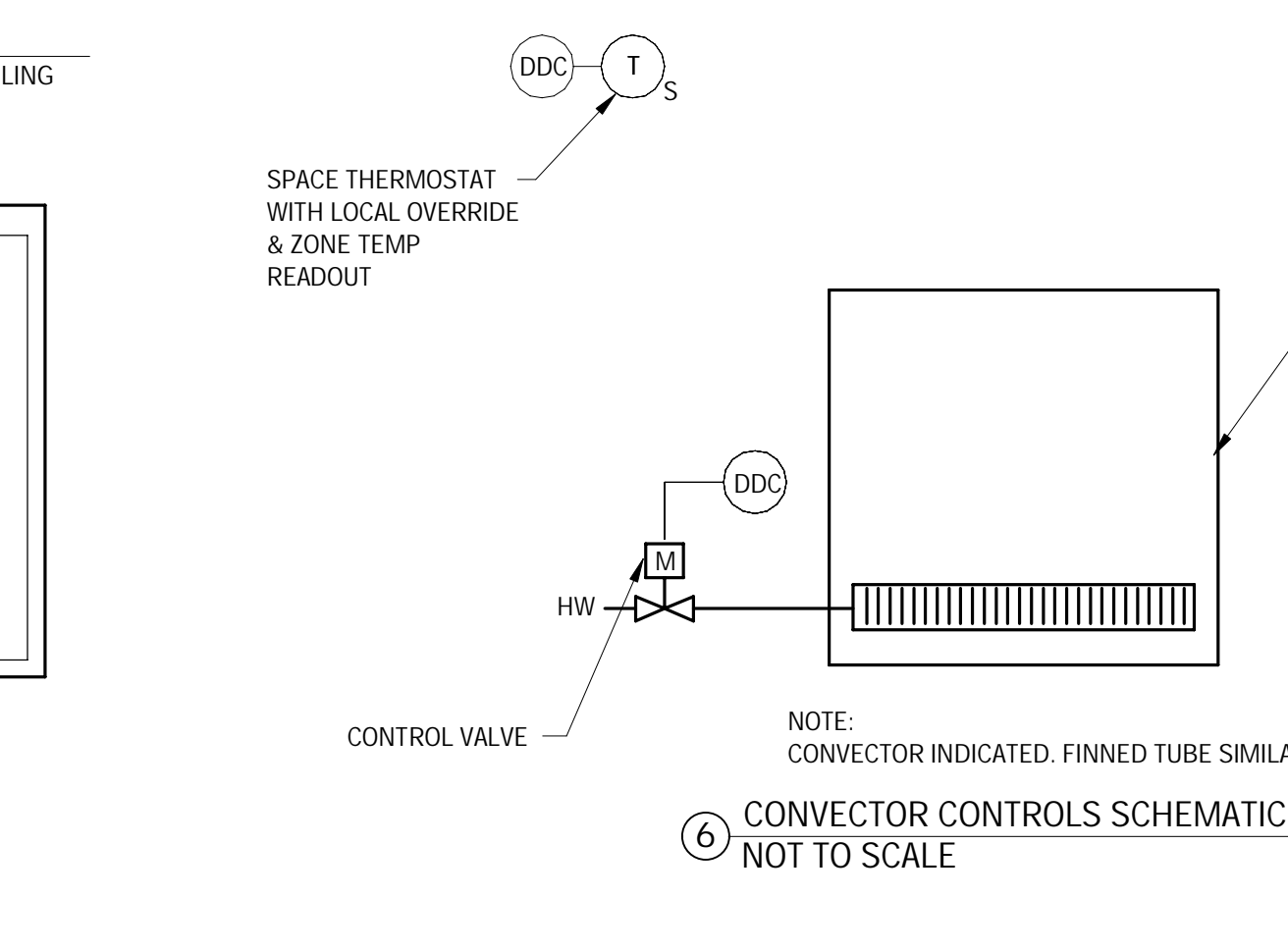
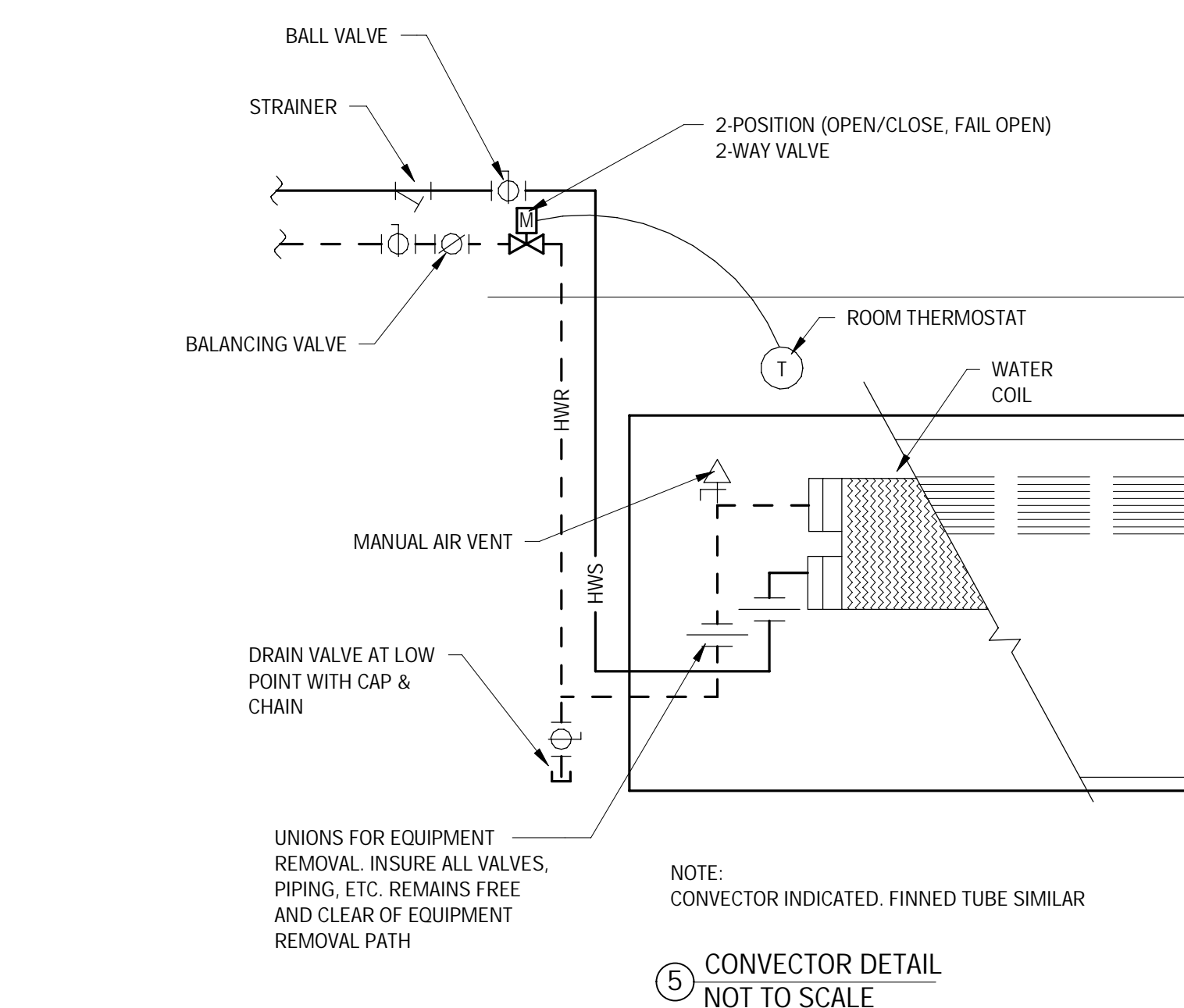
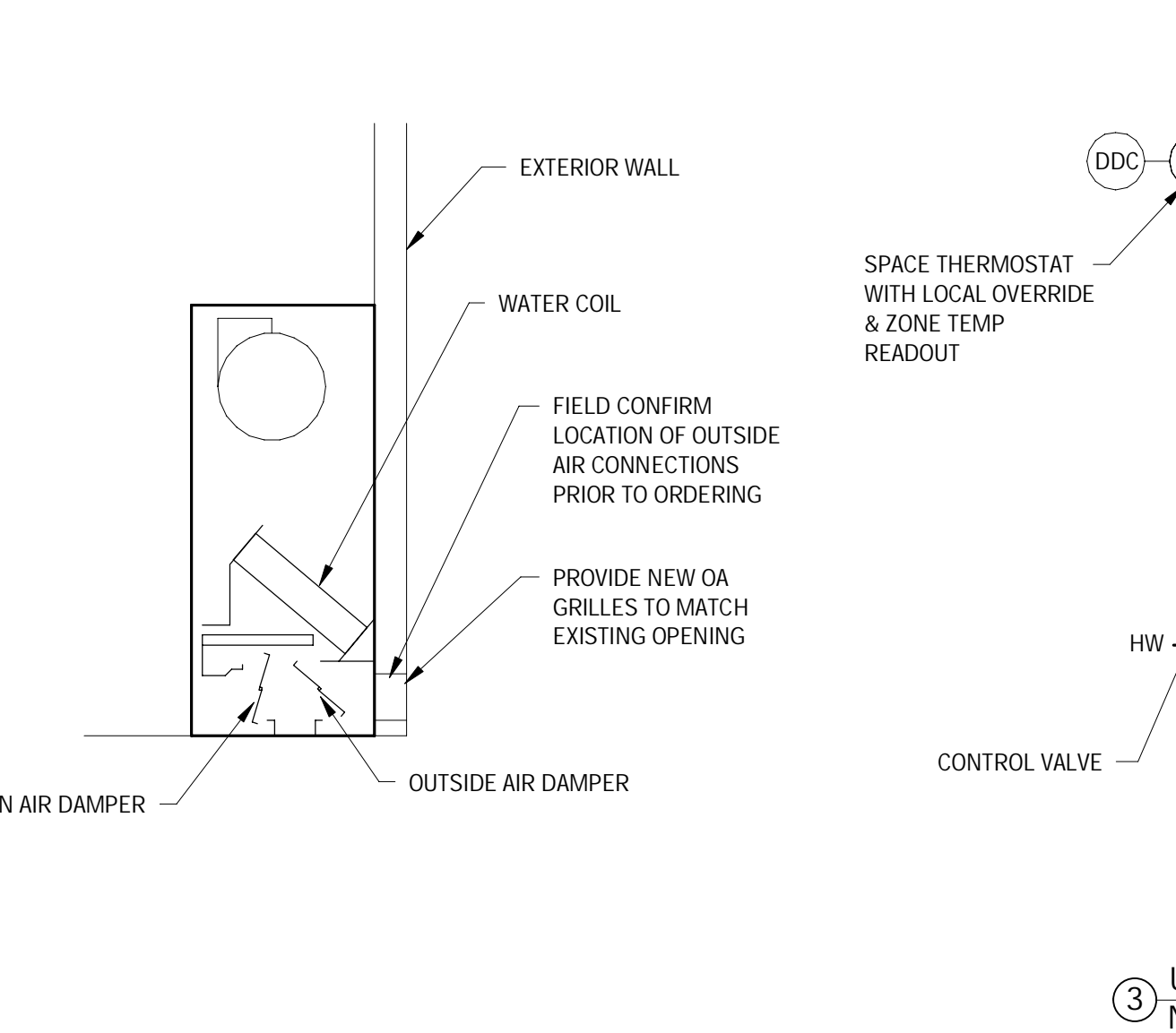
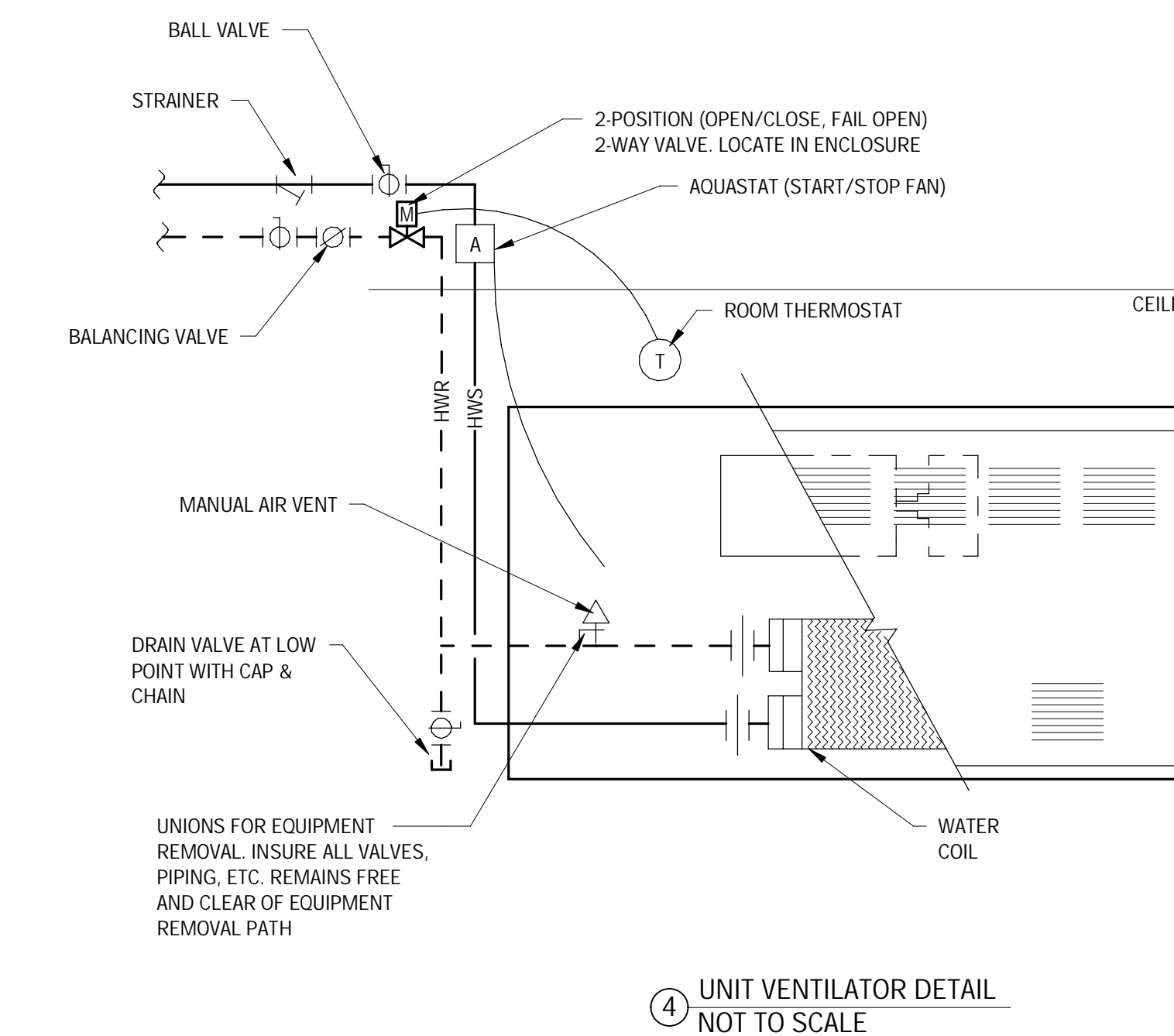
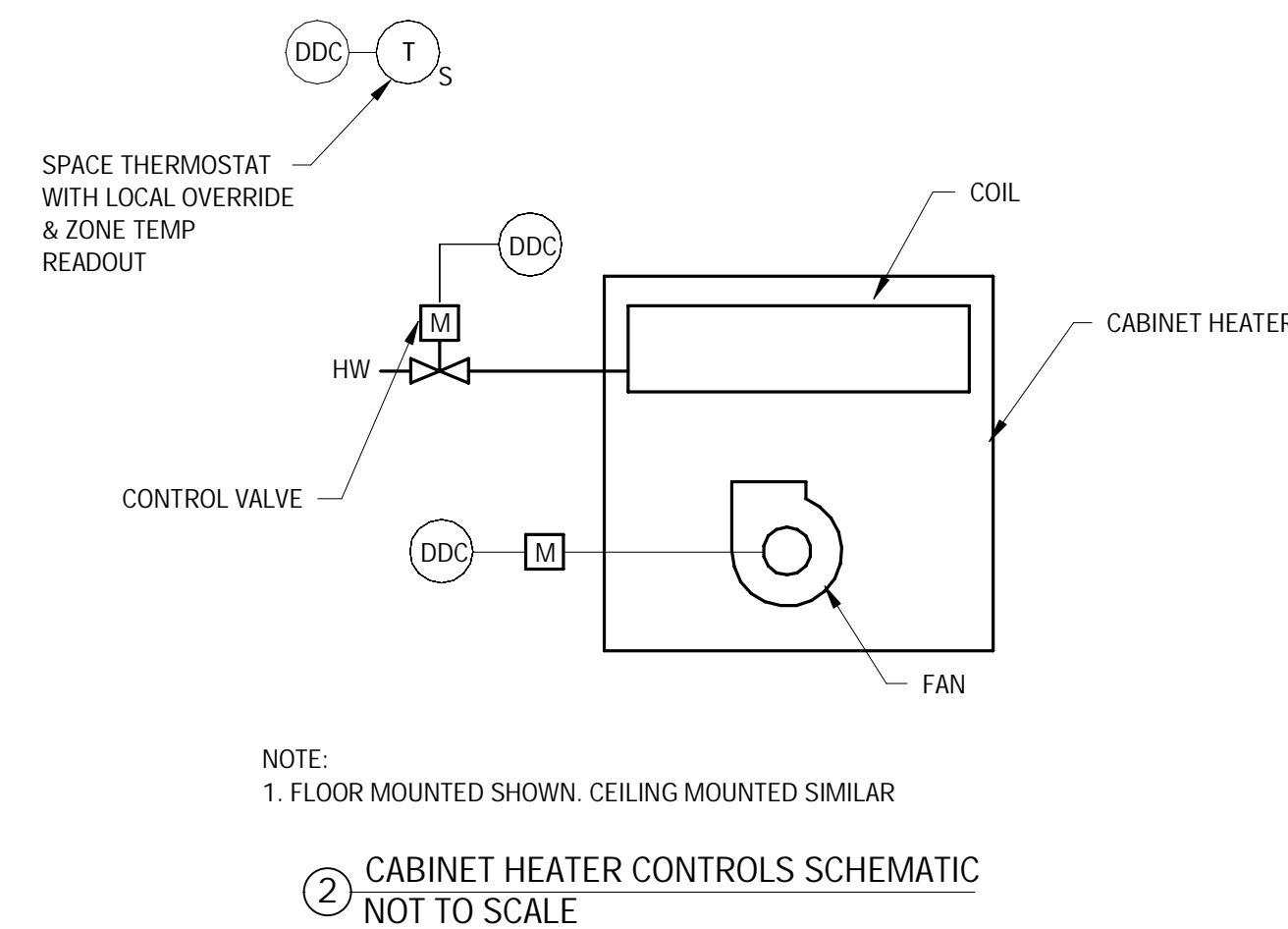
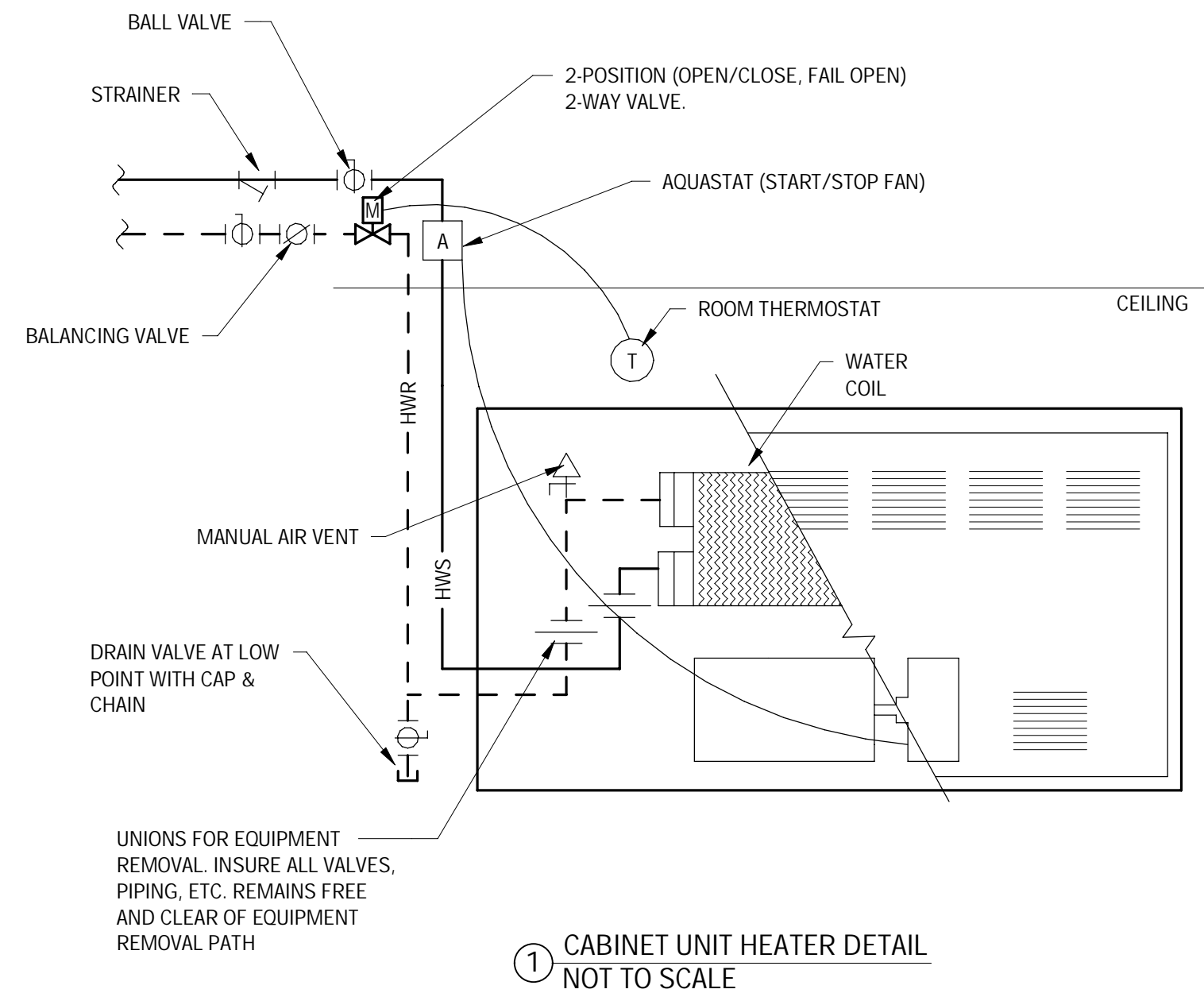
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⑫ TYPICAL INTERIOR EQUIPMENT PAD DETAIL  
NOT TO SCALE



⑬ UNIT HEATER DETAIL  
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REVISIONS	REVISION DESCRIPTION	DATE	NUMBER	BY

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WOODSTOCK,  
VERMONT

PROJECT NAME:  
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SHEET TITLE:  
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Author	01/06/23
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**M8.2**