

# MOUND FORT JUNIOR HIGH SCHOOL HVAC REPLACEMENT PROJECT

OGDEN SCHOOL DISTRICT  
 1400 MOUND FORT DR., OGDEN, UTAH 84404  
 FEBRUARY 2023

PROJECT TITLE: MOUND FORT JUNIOR HIGH SCHOOL HVAC REPLACEMENT PROJECT  
 SHEET TITLE: TITLE SHEET  
 PROJECT NO.: 1400 MOUND FORT DRIVE, OGDEN, UT 84404  
 OLSEN & PETERSON consulting engineers, inc.  
 141426 AVILE W LAIRD OGDEN UT 84404  
 PHONE: (801) 466-4646 FAX: (801) 466-2533  
 SHEET NO.: TS

### GENERAL NOTES

- DO NOT SCALE DRAWINGS. CLOSELY COORDINATE NEW MECHANICAL, ELECTRICAL AND GENERAL CONSTRUCTION WORK WITH ALL NEW AND EXISTING MECHANICAL, ELECTRICAL AND STRUCTURAL TRADES. PIPE AND DUCT ROUTING SHOWN IS APPROXIMATE AND IS NOT TO BE SCALED. PROVIDE ALTERNATE ROUTING, OFFSETS AND TRANSITIONS AS REQUIRED FOR COORDINATION OF ALL WORK WITHOUT ADDITIONAL COST TO THE OWNER.
- BUILDING IS EXISTING. FIELD VERIFY ALL MECHANICAL, PLUMBING AND ELECTRICAL ITEMS PRIOR TO COMMENCING NEW WORK. NO ADDITIONAL PAYMENT WILL BE ALLOWED FOR CONTRACTOR'S FAILURE TO BECOME FAMILIAR WITH EXISTING CONDITIONS.
- ALL GENERAL, MECHANICAL AND ELECTRICAL WORK SHALL BE COORDINATED WITH THE WORK PERFORMED UNDER OTHER DIVISIONS TO AVOID INTERFERENCE.
- CONTRACTOR SHALL REMOVE FROM THE JOBSITE ANY DEMOLISHED MATERIALS NOT ECONOMICALLY RECOVERABLE AND TRANSPORT PROMPTLY OFF-SITE TO AN APPROVED LANDFILL. SALVAGE RIGHTS TO DEMOLISHED MATERIALS BELONG TO THE CONTRACTOR.
- INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
- ALL PIPING, CONDUIT, VENTS, ETC. EXTENDING THROUGH THE EXTERIOR WALLS AND/OR ROOF SHALL BE FLASHED AND COUNTER FLASHED IN A WATERPROOF MANNER.
- CONTRACTOR SHALL FURNISH AND INSTALL ALL SUPPORTING ANGLES AND EXTRA SUPPORT BEAMS FOR MECHANICAL AND ELECTRICAL EQUIPMENT. CONTRACTOR SHALL CHANGE OUT THE PUMP STARTUP SCREENS AT THE TIME OF POSSESSION OF THE PROJECT BY THE OWNER.
- THE CONTRACTOR SHALL LEAVE HIS WORK AND EQUIPMENT IN AS NEW WORKING CONDITION AND SHALL GUARANTEE SAME FOR A PERIOD OF TWELVE (12) MONTHS FROM DATE OF FINAL ACCEPTANCE.
- PROVIDE IDENTIFICATION LABELS ON ALL EQUIPMENT, PIPING, VALVES, DEVICES, CONTROLS, ETC. TO MATCH EXISTING BUILDING LABELING STANDARDS.
- CURRENT OWNER SPECIFICATION AND STANDARDS ARE A PART OF THESE DOCUMENTS AND SHALL BE FOLLOWED.
- AT THE CONCLUSION OF THE PROJECT, PREPARE OPERATION AND MAINTENANCE MANUALS AND SUBMIT TO ENGINEER.
- PROVIDE AS-BUILT DRAWINGS AND SUBMIT TO ENGINEER.
- PROVIDE SUBMITTALS ON ITEMS LISTED IN MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT SCHEDULES TO THE ENGINEER FOR REVIEW PRIOR TO ORDER, PURCHASE OR INSTALLATION.
- PROVIDE ISOLATION VALVES ON ALL PIPING TO EQUIPMENT.

### GENERAL DEMOLITION NOTES

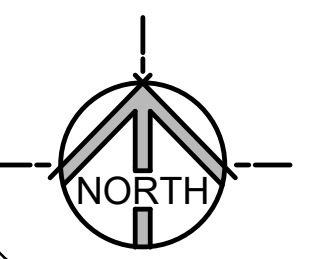
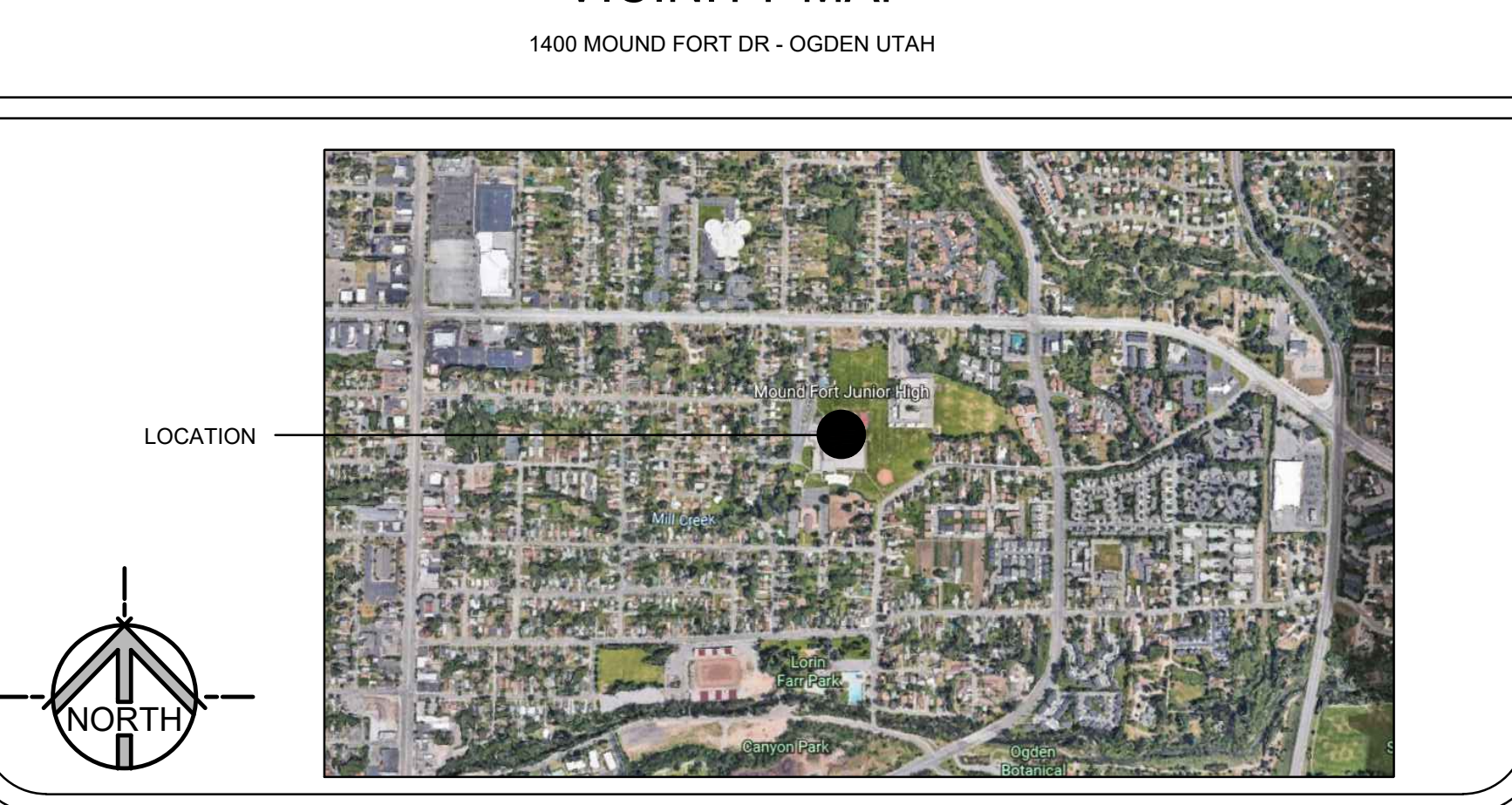
- IT IS THE INTENT OF THIS CONTRACT TO REMOVE THE EXISTING STEAM BOILERS, HEAT EXCHANGERS AND OTHER ITEMS INDICATED ON THE DRAWINGS AND REPLACE THEM WITH NEW HOT WATER BOILERS, PUMPS, EQUIPMENT OF TYPE, STYLE AND CAPACITY INDICATED ON THE DRAWINGS OR NOTED IN THE SPECIFICATIONS.
- IT IS THE INTENT OF THIS CONTRACT TO REMOVE PORTIONS OF EXISTING DUCTWORK INDICATED AND REPLACE WITH NEW DUCTWORK FOR THE PURPOSE OF COMPATIBLE HVAC ZONING.
- IT IS THE INTENT OF THIS CONTRACT TO REMOVE THE EXISTING PNEUMATIC CONTROLS THROUGHOUT THE BUILDING AND REPLACE WITH NEW DDC CONTROLS. CONTROL SYSTEMS TO BE PROVIDED AND INSTALLED BY UTAH-YAMAS CONTROLS INC.
- IT IS THE INTENT OF THIS CONTRACT TO REMOVE THE STEAM, CONDENSATE AND HEATING HOT WATER PIPING INDICATED ON THE DRAWINGS. WHERE PIPING IS INDICATED TO BE REMOVED, THE CONTRACTOR SHALL REMOVE THE PIPING SYSTEM COMPLETE INCLUDING ALL PIPING INSULATION, PIPE HANGERS AND PIPE SUPPORTS.
- IT IS THE INTENT OF THIS CONTRACT TO REMOVE THE STEAM/HOT WATER HEAT EXCHANGERS INDICATED ON THE DRAWINGS. REMOVE ALL ASSOCIATED EQUIPMENT SUPPORTS, CONTROL VALVES AND INSULATION COMPLETE.
- THE CONTRACTOR SHALL CAREFULLY COORDINATE WITH THEIR EQUIPMENT SUPPLIER TO PROVIDE THE NEW MECHANICAL EQUIPMENT. HOT WATER COILS, PIPING AND APPURTENANCES TO FIT WITHIN THE CONFINES OF THE EXISTING BOILER AND MECHANICAL ROOMS. OPERATIONAL AND SERVICE CLEARANCES OF ALL MECHANICAL EQUIPMENT MUST BE MAINTAINED.
- IT IS THE INTENT OF THIS CONTRACT TO REMOVE THE EXISTING STEAM COILS FROM THE EXISTING AIR HANDLERS AND REPLACE WITH NEW HEATING HOT WATER COILS INDICATED ON THE DRAWINGS. THE MECHANICAL CONTRACTOR SHALL FABRICATE CASINGS AND PANELS TO FACILITATE THE INSTALLATION OF THE NEW HOT WATER COILS.
- THE CONTRACTOR IS RESPONSIBLE FOR REMOVING THE EXISTING PIPING, DUCTWORK AND SUPPORT SYSTEMS TO FACILITATE REMOVAL AND REPLACEMENT OF THE EQUIPMENT, DUCTWORK, PIPING, AND OTHER APPURTENANCES ASSOCIATED WITH THIS WORK.
- THE CONTRACTOR SHALL CAREFULLY COORDINATE THE MECHANICAL DEMOLITION WORK WITH THE AUTOMATIC TEMPERATURE CONTROLS (ATC) CONTRACTOR TO IDENTIFY THE LOCATION AND DISPOSITION OF ALL DAMPERS, VALVES, ACTUATORS, THERMOSTATS, CONTROL PANELS AND OTHER RELATED DEVICES THAT REQUIRE DEMOLITION, RELOCATION, MODIFICATION OR RE-INSTALLATION.
- ABANDONMENT OF NON-FUNCTIONAL MECHANICAL EQUIPMENT, DUCTWORK CONDUIT, OR PIPING IN MECHANICAL SPACES IS PROHIBITED. REMOVE ALL ACCESSIBLE AND UNUSED MECHANICAL AND ELECTRICAL EQUIPMENT, DUCTWORK AND PIPING SYSTEMS THAT ARE NOT RE-USED AS PART OF THE NEW WORK.
- STORAGE OF DEMOLISHED MATERIALS IS PROHIBITED. ALL MECHANICAL EQUIPMENT, PIPING, DUCTWORK, CONTROLS ETC. REMOVED AS PART OF THIS WORK SHALL BE PROMPTLY TRANSPORTED OFF SITE AND LEGALLY DISPOSED OF AT AN EPA-APPROVED LANDFILL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING FLOORS, CEILING AND OTHER DEVICES FROM DAMAGE DURING CONSTRUCTION. PROVIDE SUITABLE DUST COVERS, TARPS AND WORK CLOTH AS NEEDED.

### DESIGN TEAM

**OLSEN AND PETERSON CONSULTING ENGINEERS – MECHANICAL**  
 14 East 2700 South  
 Salt Lake City, Utah 84115  
 Phone: (801) 466-4646  
 Web: op-eng.com

**BNA CONSULTING ELECTRICAL ENGINEERING – ELECTRICAL**  
 4225 Lake Park Blvd – Suite 275  
 West Valley City, Utah 84120  
 Phone: (801) 532-2196  
 Web: bnaconsulting.com

### VICINITY MAP



### ABBREVIATIONS

Ø	ROUND OR DIAMETER	LVT	LEAVING WATER TEMPERATURE
AD	ACCESS DOOR	MAX	MAXIMUM
AF	AIRFOIL	MBH	THOUSAND BRITISH THERMAL UNITS/HOUR
AFB	ABOVE FINISHED FLOOR	MECH	MECHANICAL
ALT	ALTERNATE	MIN	MINIMUM
BI	BACKWARD INCLINED	NC	NOISE CRITERIA OR NORMALLY CLOSED
BOD	BOTTOM OF DUCT	NIC	NOT IN CONTRACT
BOP	BOTTOM OF PIPE	NO	NUMBER
BTUH	BRITISH THERMAL UNITS PER HOUR	NOM	NOMINAL
CAP	CAPACITY	NSD	NEBD SCHOOL DISTRICT
CFM	CUBIC FEET PER MINUTE	NTS	NOT TO SCALE
CV	CONSTANT VOLUME	OA	OUTSIDE AIR
DB	DRY BULB	OSD	OPPOSED BLADE DAMPER
DN	DOWN	OD	OVERFLOW DRAIN
DIA	DIAMETER	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
DCW	DOMESTIC COLD WATER	OFIO	OWNER FURNISHED, OWNER INSTALLED
DHW	DOMESTIC HOT WATER	PD	PRESSURE DROP
DHWC	DOMESTIC HOT WATER CIRC.	POC	POINT OF CONNECTION
DSN	DOWN SPOUT NOZZLE	POD	POINT OF DISCONNECT
DW	DISHWASHER	PRV	PRESSURE REDUCING VALVE
(E)	EXISTING	PSI	POUNDS PER SQUARE INCH
EA	EXHAUST AIR	PSIG	POUNDS PER SQUARE INCH GAUGE
EAT	ENTERING AIR TEMPERATURE	RA	RETURN AIR
EFF	EFFICIENCY	RAD	RADIUS
ELEV	ELEVATION	RD	ROOF DRAIN
ENCL	ENCLOSURE	RFBP	REDUCED PRESSURE BACKFLOW PREVENTER
ESP	EXTERNAL STATIC PRESSURE	SA	SUPPLY AIR OR SHOCK ARRESTOR
ET	EXPANSION TANK	SEN	SENSIBLE
EWC	ELECTRIC WATER COOLER	SIM	SIMILAR
EWT	ENTERING WATER TEMPERATURE	SL	SEA LEVEL
FCO	FLOOR CLEANOUT	SP	STATIC PRESSURE
FD	FLOOR DRAIN	SQ FT	SQUARE FEET
FO	FLAT OVAL	SS	SERVICE SINK OR STAINLESS STEEL
FPM	FEET PER MINUTE	TOP	TOP OF DUCT
FS	FLOOR SINK	TSP	TOTAL STATIC PRESSURE
FT	FEET	TYP.	TYPICAL
FV	FACE VELOCITY	U	URNAL
GA	GAUGE	V	VOLUME
GAL	GALLON	VAV	VARIABLE AIR VOLUME
GD	GARAGE DRAIN	VD	VOLUME DAMPER
GPM	GALLONS PER MINUTE	VFD	VARIABLE FREQUENCY DRIVE
HP	HORSEPOWER	VOL	VOLUME
HR	HOUR	VTR	VENT THROUGH ROOF
HT	HEIGHT	W	WITH
IN	INCH	WO	WITHOUT
INWC	INCHES OF WATER COLUMN	WB	WET BULB
INWG	INCHES OF WATER GAUGE	WC	WATER CLOSET
L	LAVATORY OR LOUVER	MVD	MANUAL VOLUME DAMPER
LAT	LEAVING AIR TEMPERATURE	WCO	WALL CLEANOUT
LBS	POUNDS	WPD	WATER PRESSURE DROP
		WT	WEIGHT

### HVAC DESIGN CRITERIA

**PROJECT LOCATION:** OGDEN, UTAH  
**PROJECT ELEVATION:** 4260 FT ASL  
**LATITUDE:** 41° **LONGITUDE:** -111°

**SUMMER DESIGN CONDITIONS**  
 96 DEG F DB/ 64 DEG F WB

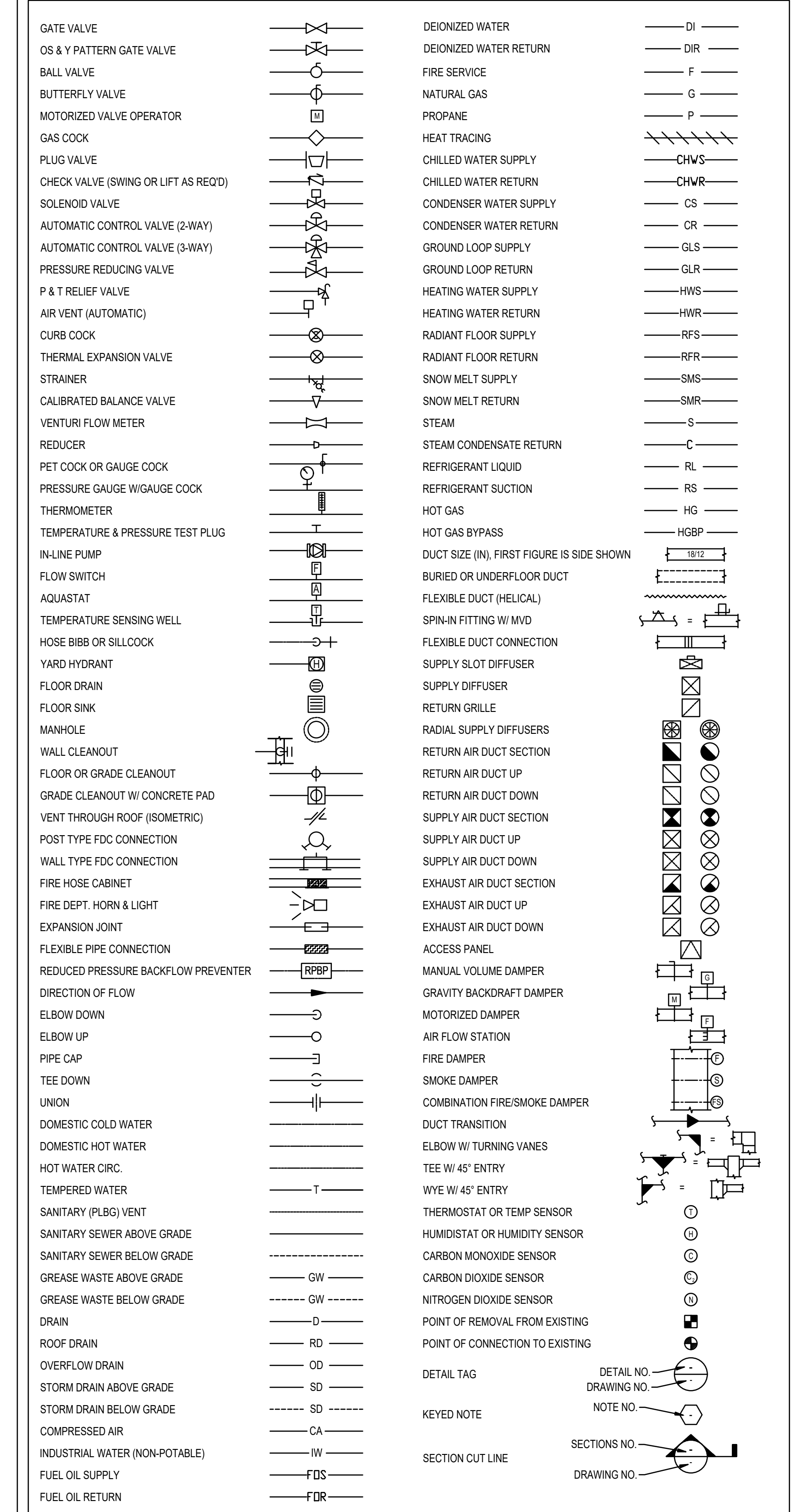
**WINTER DESIGN CONDITIONS**  
 3 DEG F DB

**INDOOR DESIGN CONDITIONS**  
 COOLING SETPOINT: 75 DEG F +/- 1.5 DEG F  
 HEATING SETPOINT: 72 DEG F +/- 1.5 DEG F  
 HUMIDITY: 40% RELATIVE

**INTERNAL HEAT GAIN**  
 LIGHTING: 1.2 W/(SQ.FT)  
 EQUIPMENT: 0.5 W/(SQ.FT)  
 OCCUPANTS: 255 BTUH SENSIBLE/ 250 BTUH LATENT

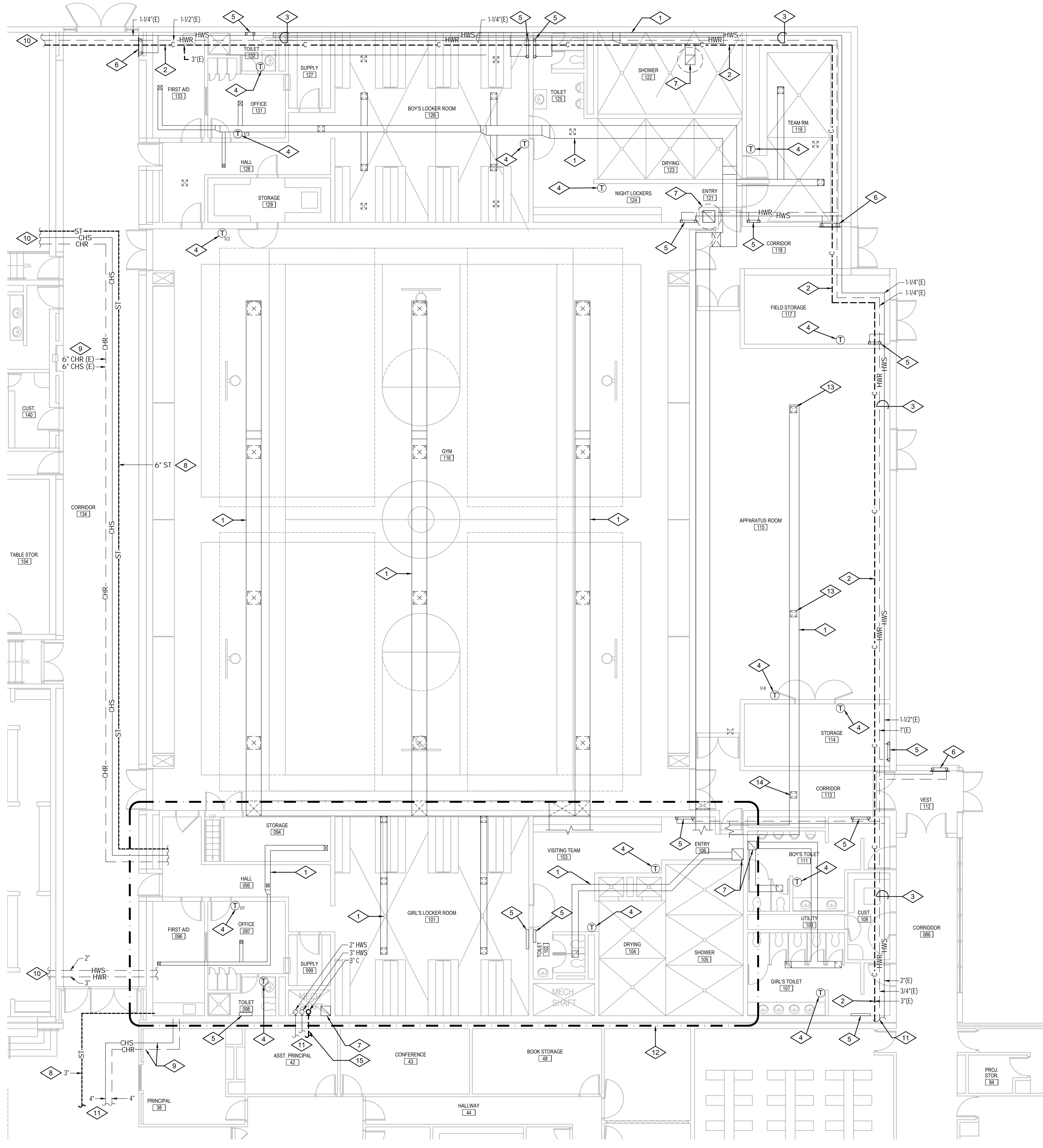
### MECHANICAL LEGEND

NOTE: ALL ITEMS MAY NOT APPEAR ON DRAWINGS



### DRAWING INDEX

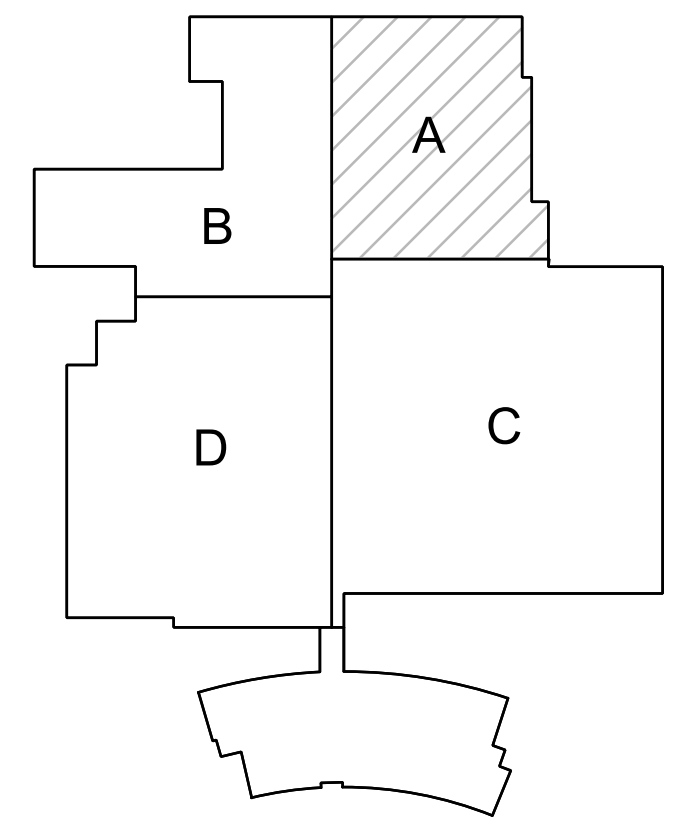
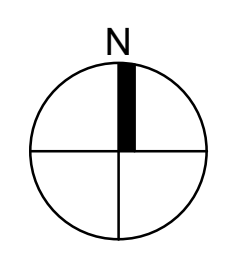
GENERAL	TITLE SHEET	TS	ELECTRICAL	ELECTRICAL SYMBOLS, SCHEDULES AND NOTES	EG001
MECHANICAL	MECHANICAL DEMOLITION PLAN - AREA A	MD101A	ELECTRICAL DEMOLITION PLAN - OVERALL	ED101	
	MECHANICAL DEMOLITION PLAN - AREA B	MD101B	ELECTRICAL DEMOLITION PLANS - ENLARGED	ED102	
	MECHANICAL DEMOLITION PLAN - AREA C	MD101C	ELECTRICAL PLAN - OVERALL	EE101	
	MECHANICAL DEMOLITION PLAN - AREA D	MD101D	ELECTRICAL PLAN - BOILER ROOM	EE102	
	ENLARGED MECHANICAL DEMOLITION PLANS	MD401	ELECTRICAL PLAN - ENLARGED FAN ROOMS	EE103	
	MECHANICAL PLAN - AREA A	M101A	ONE-LINE DIAGRAM	EX401	
	MECHANICAL PLAN - AREA B	M101B	PANEL BOARD SCHEDULES	EX402	
	MECHANICAL PLAN - AREA C	M101C	ELECTRICAL DIAGRAMS	EX501	
	MECHANICAL PLAN - AREA D	M101D			
	ENLARGED BOILER ROOM PLAN	M401			
	ENLARGED MECHANICAL ROOM PLAN	M402			
	BOILER ROOM VENTING PLAN	M403			
	AUDITORIUM FAN ROOM MECHANICAL PLAN	M404			
	MECHANICAL LEGEND & SCHEDULES	M501			
	MECHANICAL SCHEDULES	M502			
	MECHANICAL DETAILS	M601			
	MECHANICAL DETAILS	M602			
	MECHANICAL DETAILS	M603			
	MECHANICAL DETAILS	M604			



REFERENCE NOTES

- 1 EXISTING DUCTWORK TO REMAIN INTACT.
- 2 EXISTING CONDENSATE PIPING IN UTILITY TUNNEL TO BE ABANDONED IN PLACE.
- 3 EXISTING HEATING HOT WATER PIPING IN UTILITY TUNNEL TO REMAIN INTACT.
- 4 REMOVE EXISTING TEMPERATURE SENSOR. SEE DRAWING M101A FOR NEW CONTROL WORK.
- 5 REMOVE EXISTING PNEUMATIC CONTROLS SERVING CONVECTOR AND REPLACE WITH NEW DDC CONTROLS. SEE DRAWING M101A.
- 6 REMOVE EXISTING PNEUMATIC CONTROLS SERVING CABINET UNIT HEATER AND REPLACE WITH NEW DDC CONTROLS. SEE DRAWING M101A.
- 7 REMOVE EXISTING PNEUMATIC CONTROLS SERVING EXHAUST FAN AND REPLACE WITH NEW DDC CONTROLS. SEE DRAWING M101A.
- 8 EXISTING STEAM PIPING ABOVE CEILING TO BE ABANDONED IN PLACE.
- 9 EXISTING CHILLED WATER PIPING ABOVE CEILING TO REMAIN INTACT AND BE RE-USED AS PART OF THE NEW WORK. SEE DRAWING M101A.
- 10 FOR CONTINUATION OF PIPING SEE DRAWING MD101B.
- 11 FOR CONTINUATION OF PIPING SEE DRAWING MD101C.
- 12 FOR MECHANICAL WORK IN MEZZANINE AREA ABOVE LOCKER ROOM SEE DRAWINGS MD401 AND M401.
- 13 REMOVE EXISTING DIFFUSER. SEE DRAWING M101A FOR NEW WORK.
- 14 REMOVE EXISTING DIFFUSER AND CAP DIFFUSER OPENING. PATCH AND REPAIR CEILING TO MATCH EXISTING.
- 15 REMOVE EXISTING CONDENSATE PIPING COMPLETE.

MECHANICAL DEMOLITION PLAN - AREA A  
 SCALE: 1/8" = 1'-0"

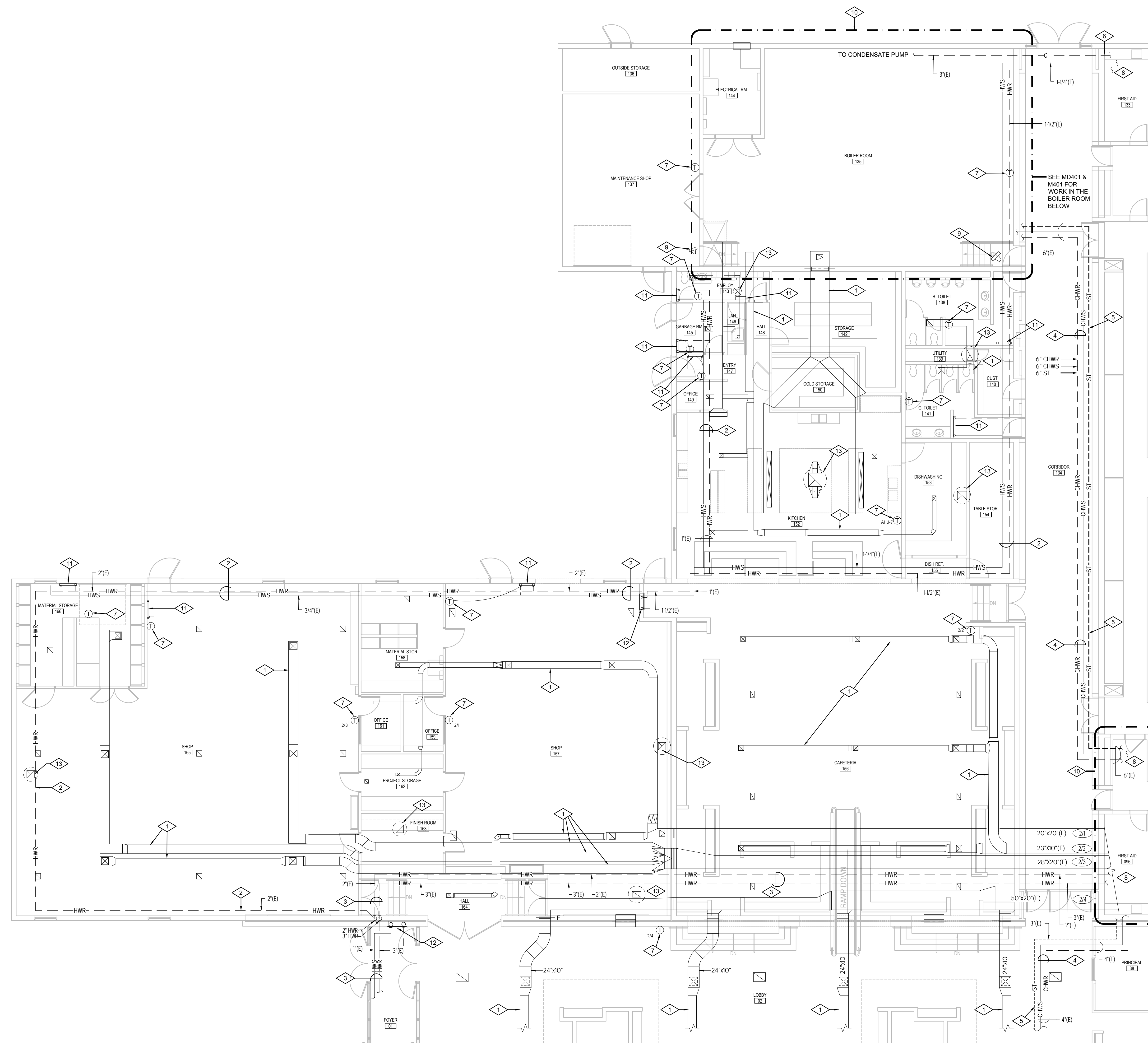


KEY PLAN  
 NTS

MECHANICAL DEMOLITION PLAN - AREA A

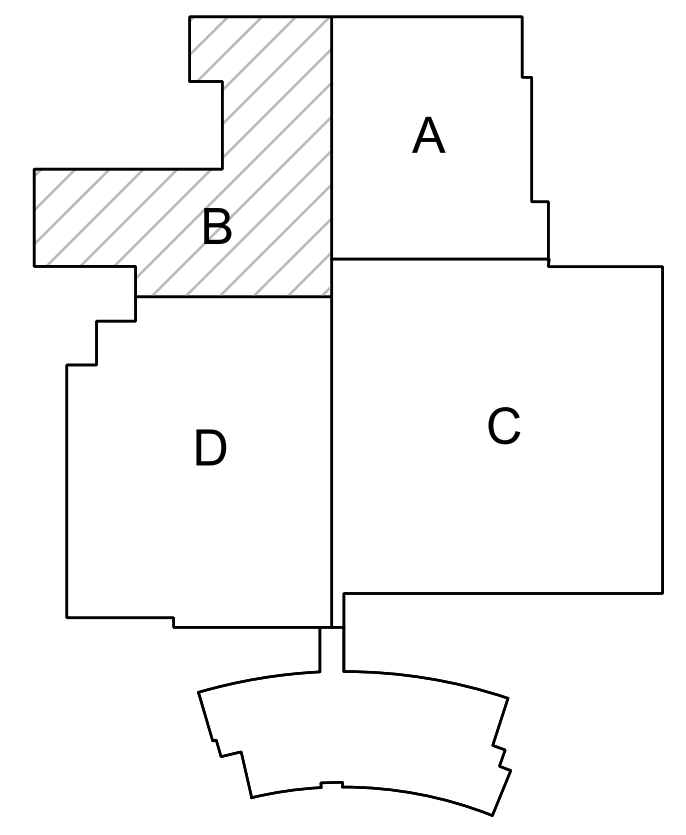
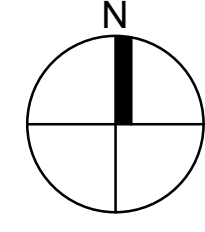
PROPOSED CONSTRUCTION FOR OGDEN SCHOOL DISTRICT:  
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 HVAC REPLACEMENT PROJECT**  
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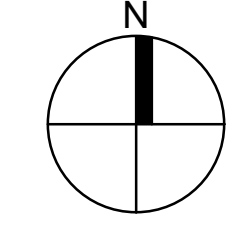


- REFERENCE NOTES**
- 1 EXISTING DUCTWORK TO REMAIN INTACT.
  - 2 EXISTING HEATING HOT WATER PIPING IN UTILITY TUNNEL TO REMAIN INTACT.
  - 3 EXISTING HEATING HOT WATER PIPING ABOVE CEILING TO REMAIN INTACT.
  - 4 EXISTING CHILLED WATER PIPING ABOVE CEILING TO REMAIN INTACT AND BE RE-USED AS PART OF THE NEW WORK. SEE DRAWING M101B.
  - 5 EXISTING STEAM AND CONDENSATE PIPING ABOVE CEILING TO BE ABANDONED IN PLACE.
  - 6 EXISTING CONDENSATE PIPING IN UTILITY TUNNEL TO BE ABANDONED IN PLACE.
  - 7 REMOVE EXISTING TEMPERATURE SENSOR. SEE DRAWING M101B FOR NEW CONTROL WORK.
  - 8 FOR CONTINUATION OF PIPING SEE DRAWING MD101A.
  - 9 REMOVE EXISTING STEAM UNIT HEATER AND PNEUMATIC CONTROLS AND REPLACE WITH NEW HOT WATER UNIT HEATER AND DDC CONTROLS. SEE DRAWING M101B.
  - 10 FOR MECHANICAL WORK IN THIS AREA SEE DRAWINGS MD401 AND M401.
  - 11 REMOVE EXISTING PNEUMATIC CONTROLS SERVING CONVECTOR AND REPLACE WITH NEW DDC CONTROLS. SEE DRAWING M101B.
  - 12 REMOVE EXISTING PNEUMATIC CONTROLS SERVING CABINET UNIT HEATER AND REPLACE WITH NEW DDC CONTROLS. SEE DRAWING M101B.
  - 13 REMOVE EXISTING PNEUMATIC CONTROLS SERVING EXHAUST FAN AND REPLACE WITH NEW DDC CONTROLS. SEE DRAWING M101B.

**MECHANICAL DEMOLITION PLAN - AREA B**  
SCALE: 1/8" = 1'-0"



**KEY PLAN**  
NTS



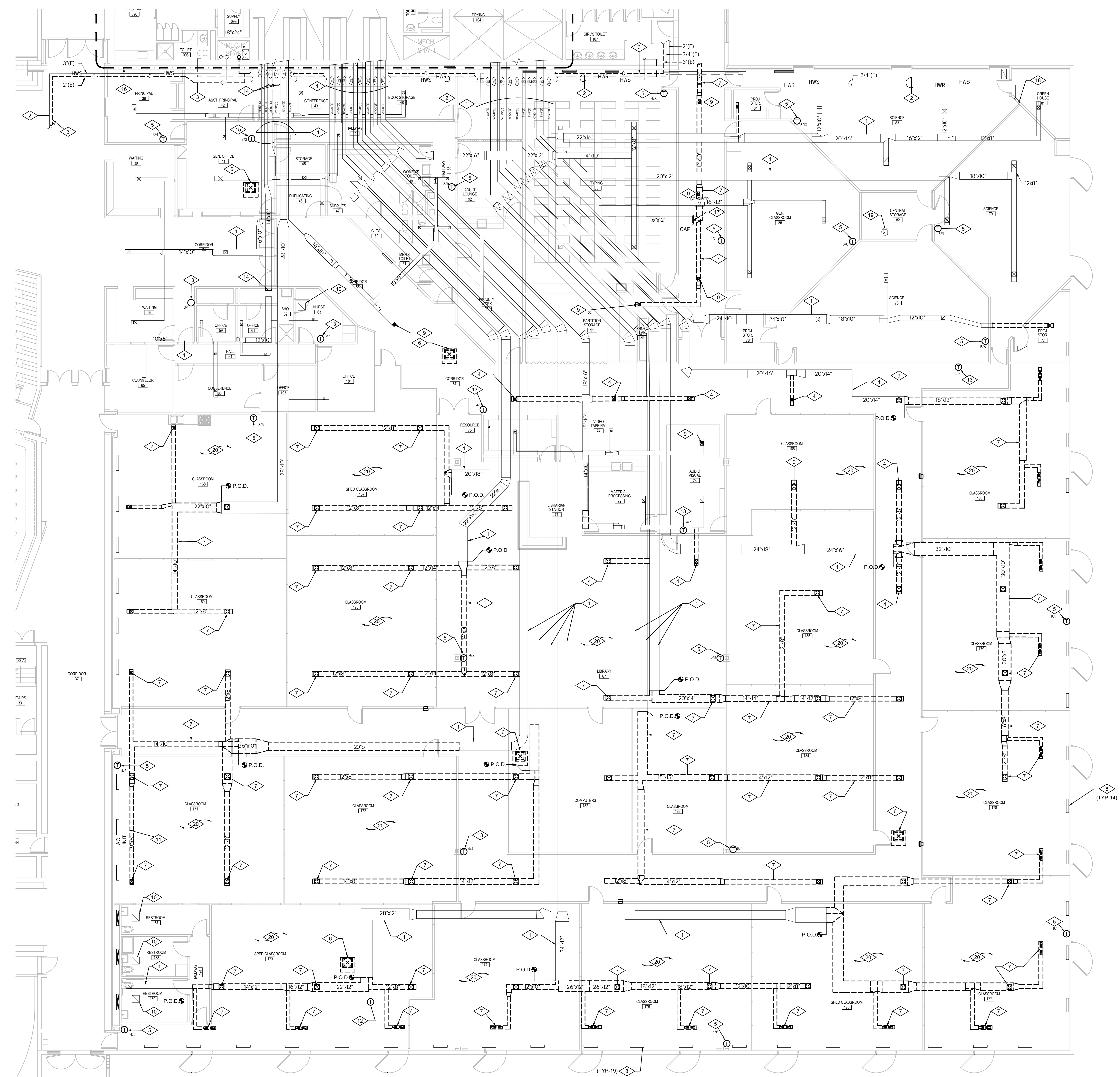
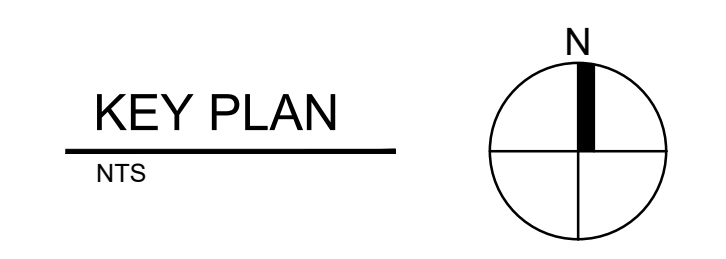
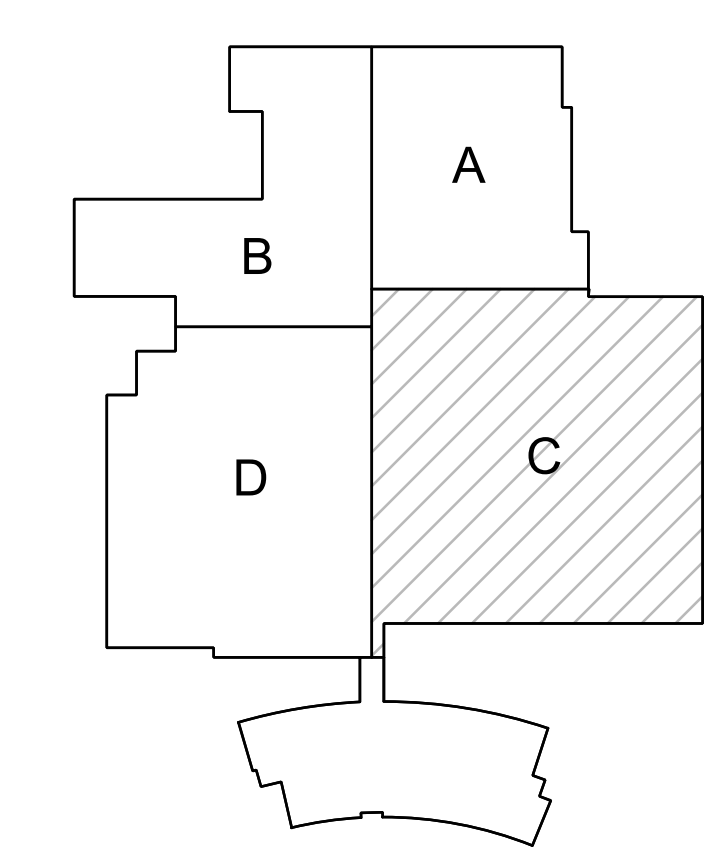
**MECHANICAL DEMOLITION PLAN - AREA B**

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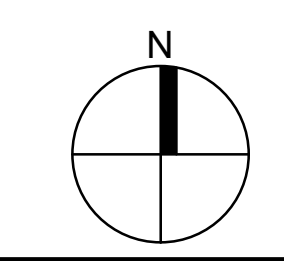
REFERENCE NOTES

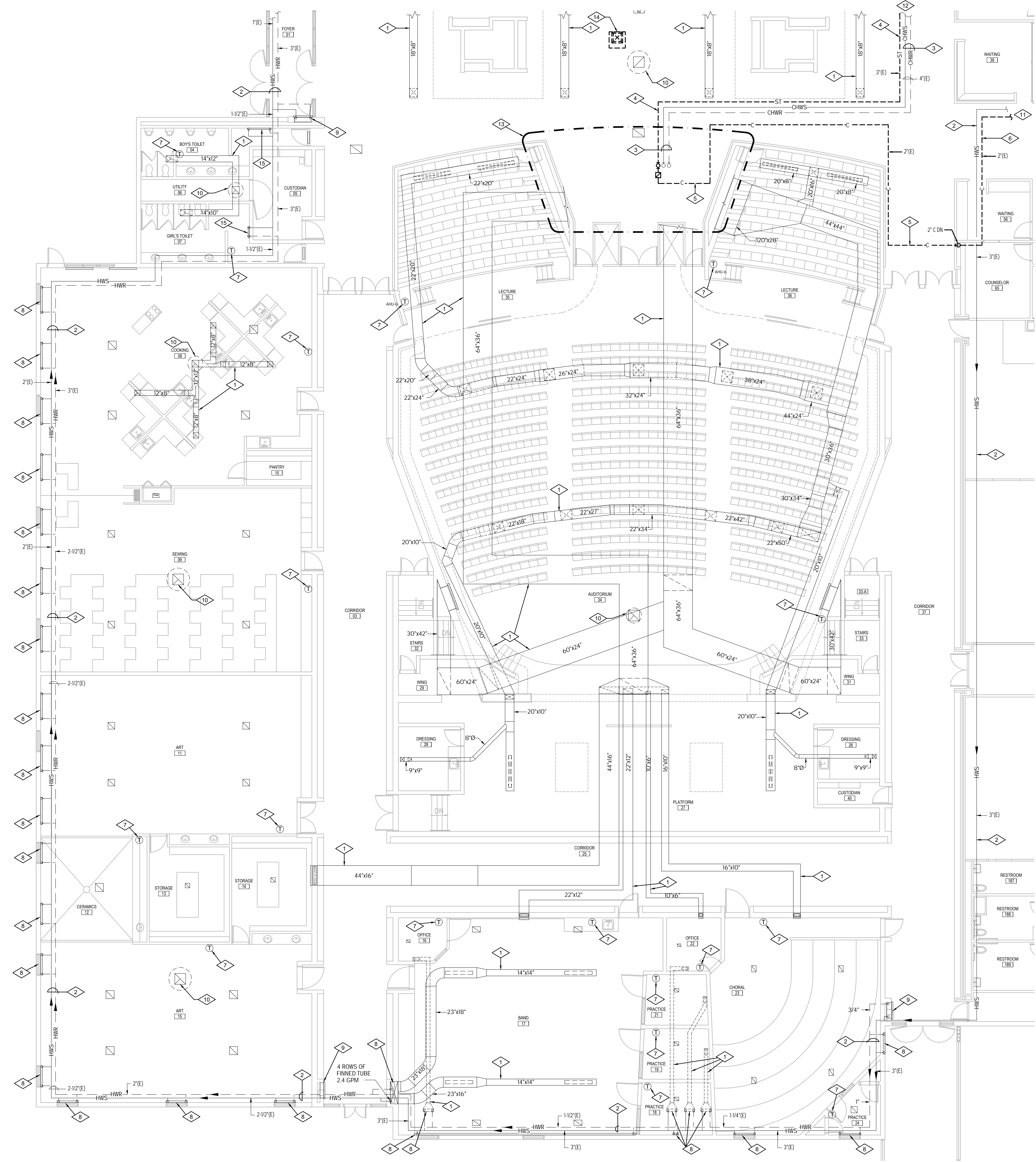
- 1 EXISTING DUCTWORK TO REMAIN INTACT
- 2 EXISTING HEATING HOT WATER PIPING IN UTILITY TUNNEL TO REMAIN INTACT.
- 3 EXISTING CONDENSATE PIPING IN UTILITY TUNNEL TO BE ABANDONED IN PLACE.
- 4 REMOVE EXISTING BRANCH DUCTWORK AND DIFFUSER. REMOVE DUCT BACK TO MAIN AND CAP. PATCH AND REPAIR CEILING TO MATCH EXISTING.
- 5 REMOVE EXISTING TEMPERATURE SENSOR. SEE DRAWING M101C FOR NEW CONTROL WORK.
- 6 REMOVE EXISTING EVAPORATIVE COOLER COMPLETE. REMOVE ALL ASSOCIATED CONTROLS, DUCTWORK AND DIFFUSER. CAP ABANDONED ROOF OPENING WATERTIGHT. REMOVE WATER LINE BACK TO MAIN AND CAP.
- 7 REMOVE EXISTING DUCTWORK AND CEILING DIFFUSERS. REMOVE DUCT BACK TO P.O.D. AS INDICATED. PATCH AND REPAIR CEILING OPENINGS TO MATCH EXISTING CEILING. SEE DRAWING M101C FOR NEW DUCTWORK.
- 8 EXISTING FLOOR R.A. GRILLES TO REMAIN INTACT.
- 9 REMOVE EXISTING CEILING DIFFUSER. CAP S.A. DUCT ABOVE CEILING. PATCH AND REPAIR CEILING TO MATCH EXISTING.
- 10 EXISTING CEILING EXHAUST FAN. NO WORK REQUIRED.
- 11 EXISTING AC UNIT TO REMAIN INTACT NO WORK REQUIRED.
- 12 REMOVE EXISTING TEMPERATURE SENSOR EXTENDING FROM CEILING. DO NOT REPLACE.
- 13 REMOVE EXISTING TEMPERATURE SENSOR. COVER ABANDONED WALL BOX WITH S.S. COVER PLATE. SEE DRAWING M101C FOR LOCATION OF NEW DDC SENSOR.
- 14 CUT EXISTING DUCTWORK IN THIS LOCATION AND CAP ZONES SERVING THE OFFICE ADMIN AREA AND COUNSELING AREA. PREPARE EXISTING DUCTWORK IN GENERAL FOR CONNECTION TO NEW ROOF TOP UNITS. SEE DRAWING M101C FOR NEW WORK.
- 15 REMOVE EXISTING TEMPERATURE SENSOR COMPLETE.
- 16 FOR MECHANICAL WORK IN THIS AREA SEE DRAWINGS MD401 AND M401.
- 17 CUT AND CAP EXISTING S.A. DUCT IN THIS LOCATION. SEE DRAWING M101C FOR NEW WORK.
- 18 REMOVE EXISTING PNEUMATIC CONTROLS SERVING CONVECTOR AND REPLACE WITH NEW DDC CONTROLS. SEE DRAWING M101C.
- 19 REMOVE EXISTING PNEUMATIC CONTROLS SERVING EXHAUST FAN AND REPLACE WITH NEW DDC CONTROLS. SEE DRAWING M101C.
- 20 WHERE DUCTWORK IS INDICATED TO BE REMOVED, CAREFULLY REMOVE EXISTING CEILING SYSTEM AND LIGHTS AS NEEDED TO FACILITATE REMOVAL OF DUCTWORK. REPLACE CEILING SYSTEM UPON COMPLETION OF WORK.



MECHANICAL DEMOLITION PLAN - AREA C

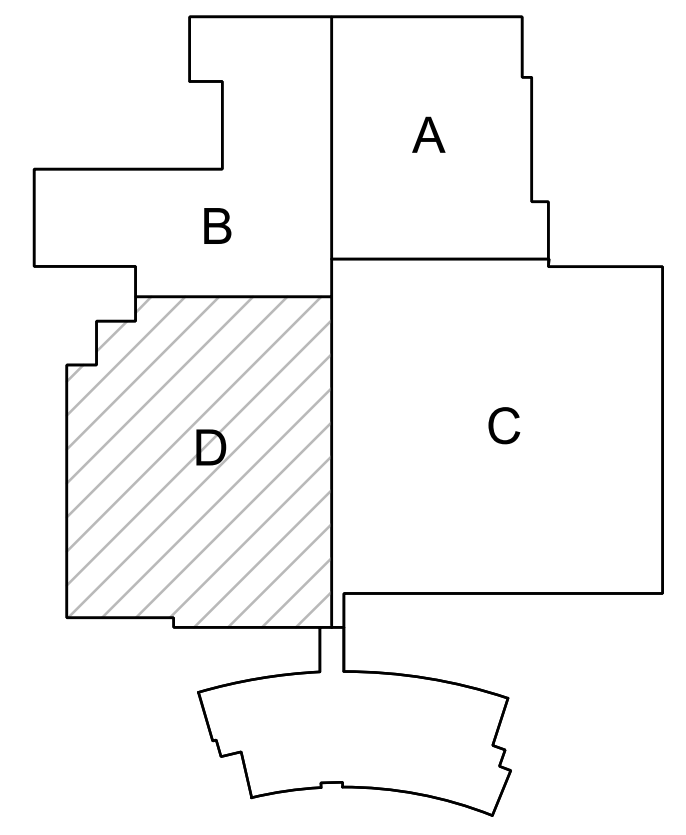
SCALE: 1/8" = 1'-0"





REFERENCE NOTES

- 1 EXISTING DUCTWORK TO REMAIN INTACT.
- 2 EXISTING HEATING HOT WATER PIPING IN UTILITY TUNNEL TO REMAIN INTACT.
- 3 EXISTING CHILLED WATER PIPING ABOVE CEILING TO REMAIN INTACT AND BE USED AS PART OF THE NEW WORK. SEE DRAWING M101D.
- 4 EXISTING STEAM PIPING ABOVE CEILING TO BE ABANDONED IN PLACE.
- 5 EXISTING CONDENSATE PIPING ABOVE CEILING TO BE ABANDONED IN PLACE.
- 6 EXISTING CONDENSATE PIPING IN UTILITY TUNNEL TO BE ABANDONED IN PLACE.
- 7 REMOVE EXISTING TEMPERATURE SENSOR. SEE DRAWING M101D FOR NEW CONTROL WORK.
- 8 REMOVE EXISTING PNEUMATIC CONTROLS SERVING HOT WATER COILS OR RADIANT HEATING IN UTILITY TUNNEL AND REPLACE WITH NEW DDC CONTROLS. SEE DRAWING M101D.
- 9 REMOVE EXISTING PNEUMATIC CONTROLS SERVING CABINET UNIT HEATER AND REPLACE WITH NEW DDC CONTROLS. SEE DRAWING M101D.
- 10 REMOVE EXISTING PNEUMATIC CONTROLS SERVING EXHAUST FAN AND REPLACE WITH NEW DDC CONTROLS. SEE DRAWING M101A.
- 11 FOR CONTINUATION OF PIPING SEE DRAWING MD101C.
- 12 FOR CONTINUATION OF PIPING SEE DRAWING MD101B.
- 13 FOR MECHANICAL WORK IN THIS AREA SEE DRAWINGS MD401 AND M401.
- 14 REMOVE EXISTING EVAPORATIVE COOLER COMPLETE. REMOVE ALL ASSOCIATED, CONTROLS, DUCTWORK AND DIFFUSER. CAP ABANDONED ROOF OPENING WATERTIGHT. REMOVE WATER LINE BACK TO MAIN AND CAP.
- 15 REMOVE EXISTING PNEUMATIC CONTROLS SERVING CONVECTOR AND REPLACE WITH NEW DDC CONTROLS. SEE DRAWING M101D.



MECHANICAL DEMOLITION PLAN - AREA D

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

MECHANICAL DEMOLITION PLAN - AREA D

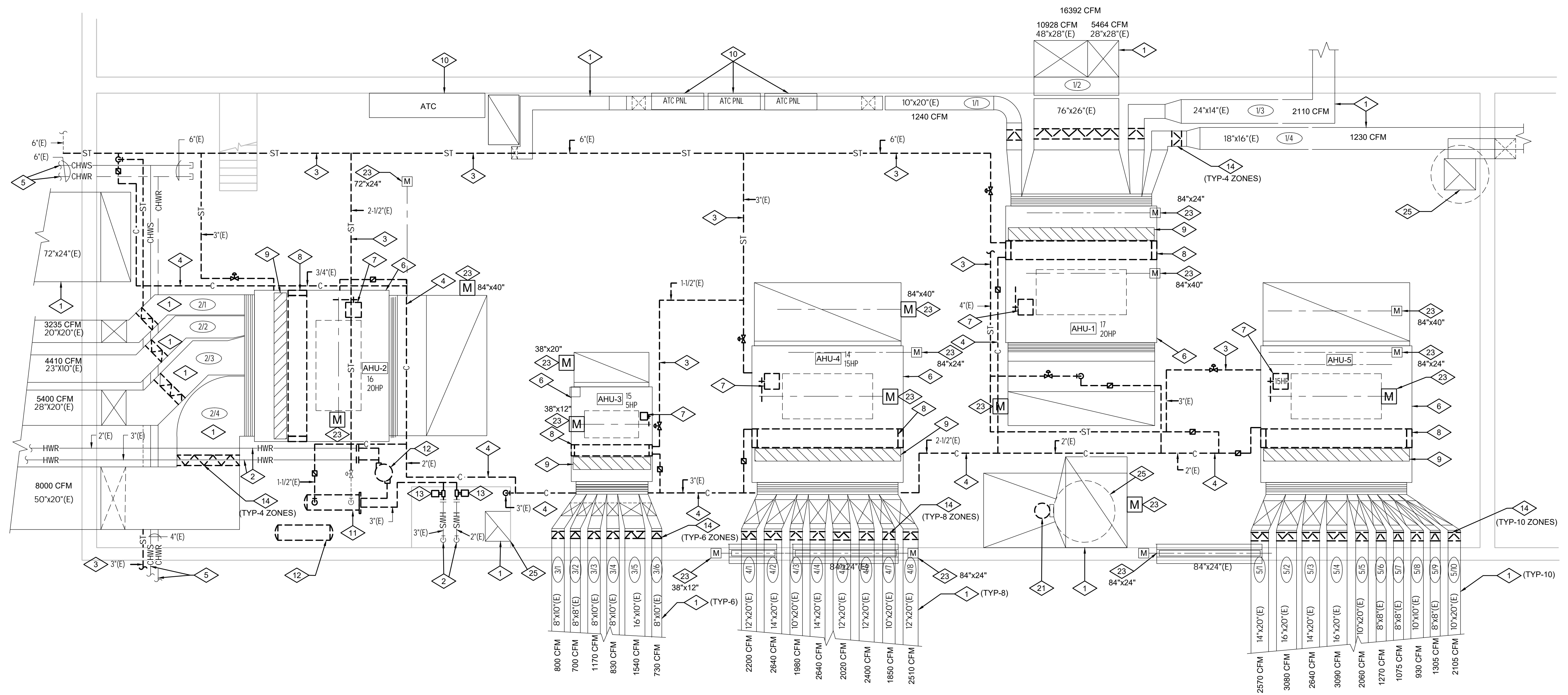
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Sheet No. MD101D

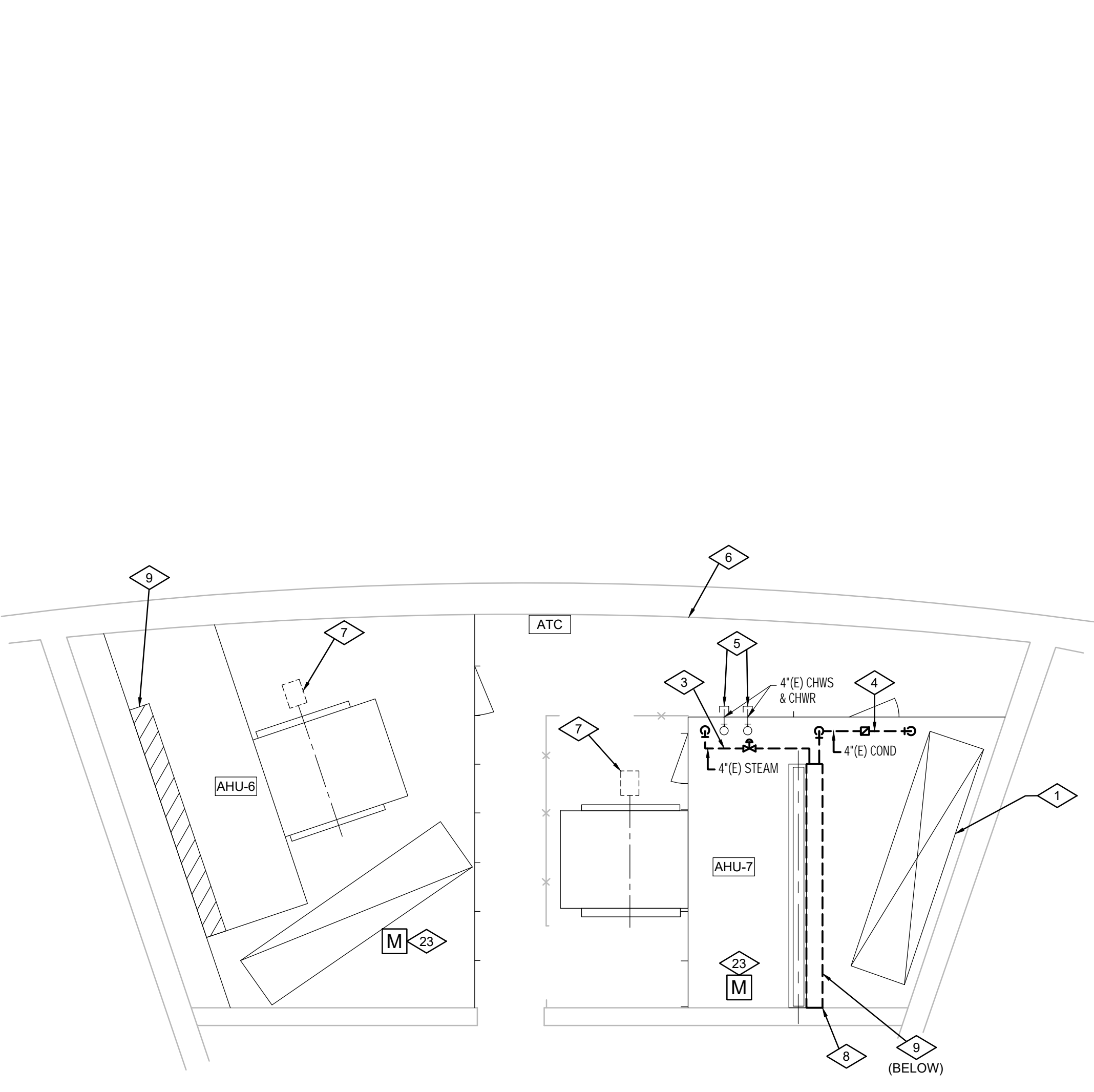
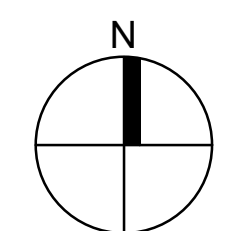
REFERENCE NOTES

- 1 EXISTING DUCTWORK TO REMAIN INTACT
- 2 EXISTING HEATING HOT WATER SUPPLY AND RETURN PIPING TO REMAIN INTACT.
- 3 CUT AND REMOVE ALL STEAM PIPING FROM BOILER AND MECHANICAL ROOM.
- 4 CUT AND REMOVE ALL CONDENSATE PIPING FROM BOILER AND MECHANICAL ROOM.
- 5 EXISTING CHILLED WATER SUPPLY AND RETURN PIPING TO REMAIN. SEE DRAWING M402 FOR NEW WORK.
- 6 EXISTING AIR HANDLING UNIT TO REMAIN INTACT AND BE REFURBISHED. SEE DRAWING M401 FOR NEW WORK.
- 7 REMOVE EXISTING AIR HANDLER FAN MOTOR AND REPLACE WITH NEW FAN MOTOR OF SAME HP AND ELECTRICAL CONFIGURATION FOR NEW VFD. FIELD VERIFY ACTUAL HP OF MOTOR.
- 8 REMOVE EXISTING AIR HANDLER STEAM COIL, CONTROLS AND PIPING. PREPARE COIL SPACE IN GENERAL FOR NEW HW HEATING COIL. SEE DRAWING M401 & M402 FOR NEW WORK.
- 9 EXISTING AIR HANDLER CHILLED WATER COIL TO REMAIN INTACT AND BE RE-USED AS PART OF THE NEW WORK. SEE DRAWING M401 & M402 FOR NEW WORK REQUIRED.
- 10 TEMPERATURE CONTROLS CONTRACTOR TO REMOVE AND REPLACE EXISTING ATC CONTROL PANEL. REMOVE ALL PNEUMATIC CONTROLS AND REPLACE WITH NEW DDC CONTROLS AS PART OF THE NEW CONTROL WORK.
- 11 REMOVE EXISTING STEAM / HOT WATER HEAT EXCHANGER. REMOVE ALL ASSOCIATED AND ACCESSIBLE STEAM AND CONDENSATE PIPING IN MECHANICAL ROOM.
- 12 REMOVE EXISTING AIR SEPARATOR AND EXPANSION TANK AND REPLACE WITH NEW. SEE DRAWING M402 FOR NEW WORK.
- 13 REMOVE EXISTING HEATING HOT WATER PUMPS AND CONTROLS. PROVIDE NEW HOT WATER PUMPS AND DDC CONTROLS AS PART OF THE NEW WORK. SEE DRAWING M401 & M402.
- 14 REMOVE EXISTING PNEUMATIC ZONE DAMPER CONTROLS COMPLETE AND REPLACE WITH NEW DDC DAMPER CONTROLS. SEE DRAWING M402 FOR NEW WORK.
- 15 REMOVE EXISTING STEAM BOILER COMPLETE. REMOVE ALL ASSOCIATED, STEAM AND CONDENSATE PIPING. REMOVE BOILER HOUSEKEEPING PAD. REMOVE BOILER FLUE THRU ROOF COMPLETE. PREPARE AREA IN GENERAL FOR NEW HOT WATER BOILERS.
- 16 REMOVE EXISTING STEAM UNIT HEATER COMPLETE. REMOVE ALL ASSOCIATED STEAM AND CONDENSATE PIPING.
- 17 EXISTING MAKE-UP AIR UNIT SERVING KITCHEN AREA TO REMAIN INTACT. REMOVE EXISTING STEAM COIL AS DESCRIBED ABOVE.
- 18 EXISTING DOMESTIC HOT WATER HEATERS AND STORAGE TANKS IN THIS AREA TO REMAIN INTACT. NO WORK REQUIRED UNLESS OTHERWISE NOTED.
- 19 REMOVE EXISTING BOILER FEED TANK AND PUMP SYSTEM COMPLETE. INFILL FLOOR WITH GRAVEL AND CAP WITH CONCRETE TO MATCH EXISTING FLOOR.
- 20 EXISTING AIR COMPRESSOR SERVING GENERAL SHOP AREA TO REMAIN INTACT.
- 21 REMOVE EXISTING RETURN FAN MOTOR AND REPLACE WITH NEW FAN MOTOR OF SAME HP AND ELECTRICAL CONFIGURATION.
- 22 REMOVE AND SALVAGE EXISTING ATC COMPRESSOR TO OSD. REMOVE AND SCRAP ASSOCIATED AIR DRYER AND ALL CONTROLS.
- 23 REMOVE EXISTING O.A. R.A. AND RELIEF AIR DAMPERS AND PNEUMATIC CONTROLS AT EACH AIR HANDLER AND REPLACE WITH NEW DAMPERS AND DDC CONTROLS. SEE DRAWING M402 FOR NEW WORK.
- 24 EXISTING TRENCH DRAIN TO REMAIN INTACT. REMOVE ALL ASSOCIATED CONDENSATE AND DRAIN PIPING.
- 25 REMOVE EXISTING PNEUMATIC CONTROLS SERVING EXHAUST FAN AND REPLACE WITH NEW DDC CONTROLS. SEE DRAWING M401.
- 26 REMOVE GAS LINE TO BOILER
- 27 REMOVE GAS LINE TO THIS LOCATION. SEE DRAWINGS M401 FOR NEW GAS PIPING.
- 28 REMOVE WATER MAKE-UP LINE TO CONDENSATE FEED TANK AND BOILERS.



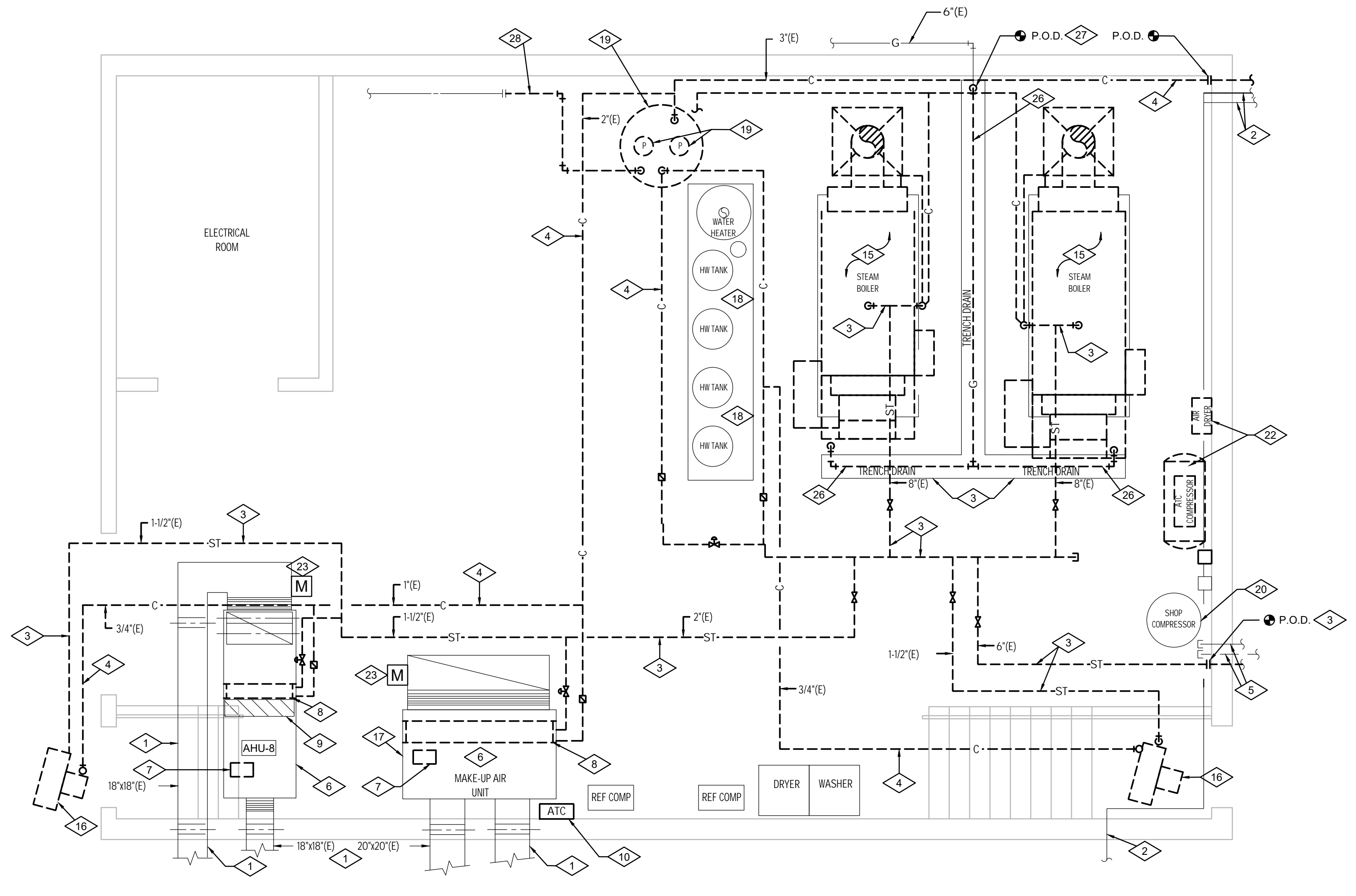
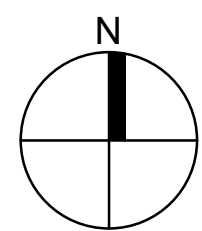
MEZZANINE MECHANICAL ROOM DEMOLITION PLAN

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



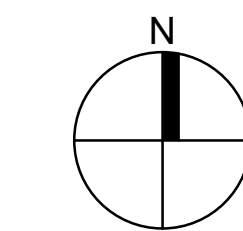
AUDITORIUM MEZZANINE MECHANICAL ROOM DEMOLITION PLAN

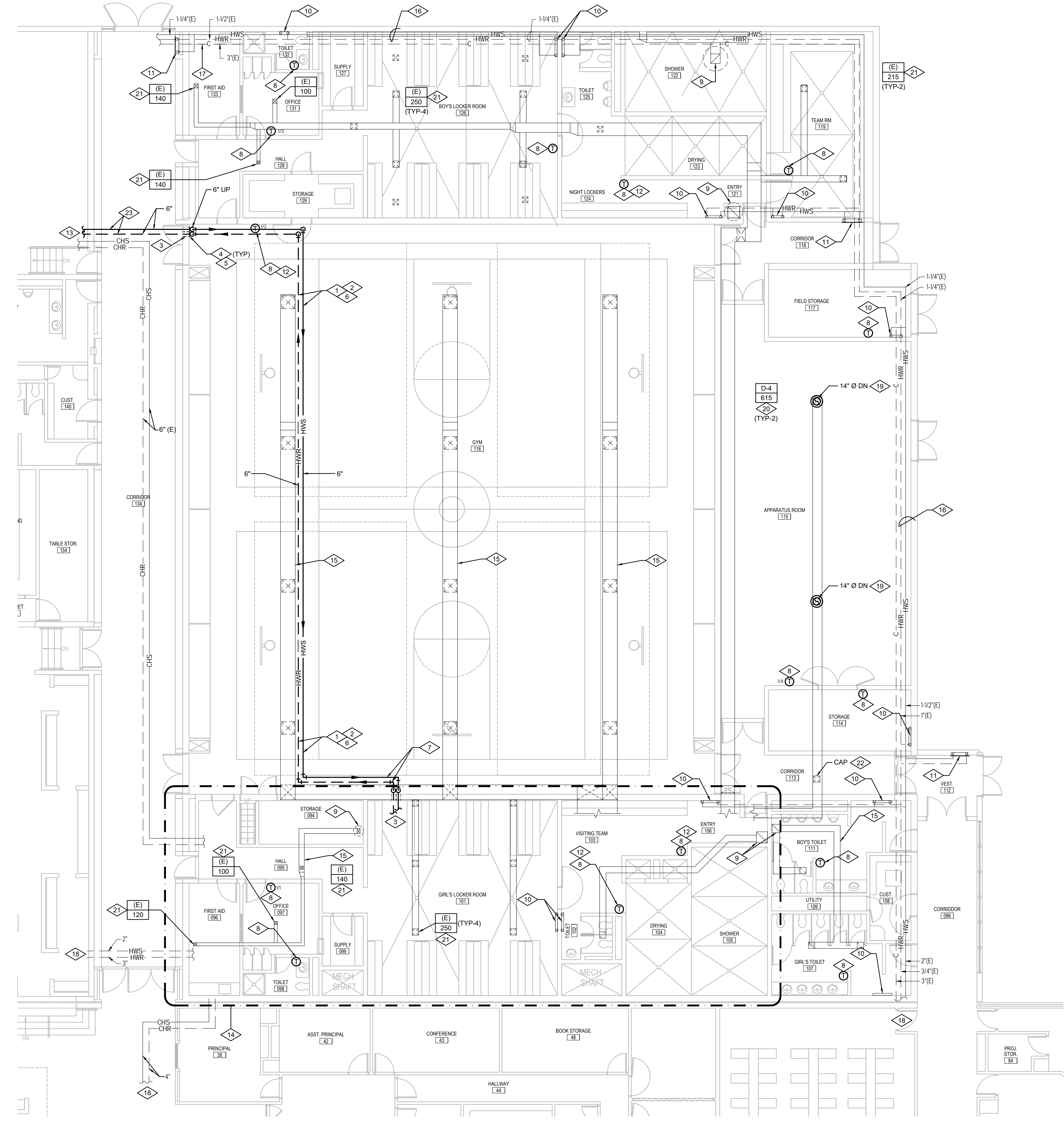
SCALE: 1/4" = 1'-0"



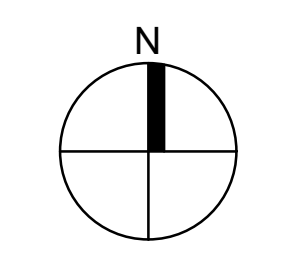
BOILER ROOM MECHANICAL DEMOLITION PLAN

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



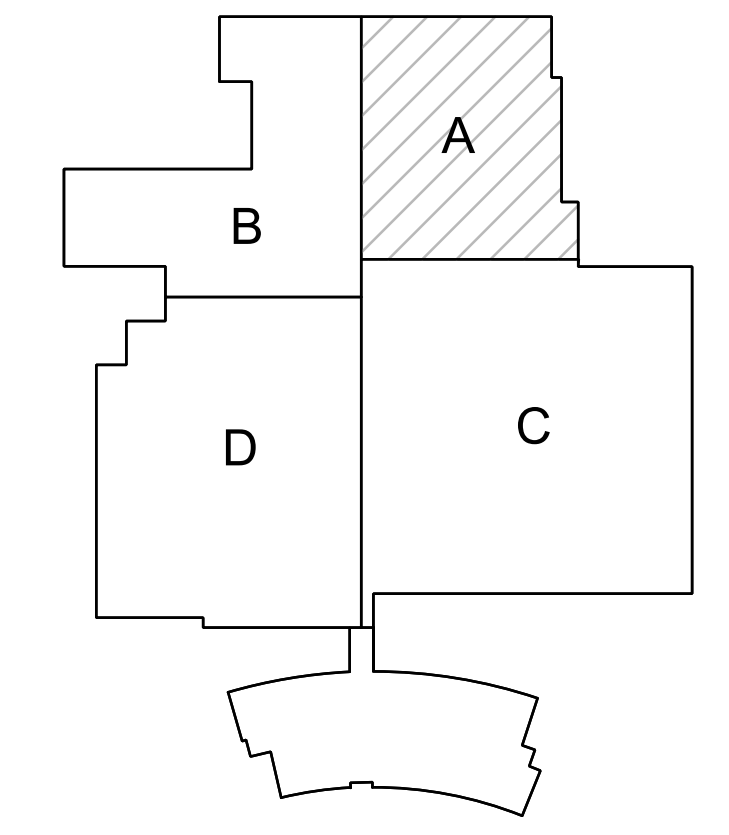


MECHANICAL PLAN - AREA A  
SCALE: 1/8" = 1'-0"

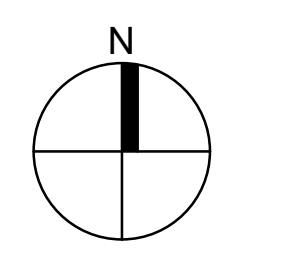


REFERENCE NOTES

- 1 INSTALL NEW HWS AND HWR PIPING IN THIS LOCATION.
- 2 RUN PIPING HIGH CLOSE TO EXISTING ROOF TRUSS. COORDINATE LOCATION OF PIPING WITH EXISTING DUCTWORK AND LIGHTING.
- 3 CORE DRILL EXISTING MASONRY WALL ABOVE CORRIDOR CEILING FOR PIPE THRU WALL PENETRATION.
- 4 PROVIDE WALL ESCUTCHEON AT PIPE PENETRATION.
- 5 PIPE TO RISE TIGHT TO MASONRY WALL.
- 6 INSULATE AND PVC JACKET ALL NEW HWS AND HWR PIPING IN GYMNASIUM AREA. LABEL PIPING PER SPECIFICATIONS.
- 7 OFFSET HWS AND HWR PIPING AS NEEDED TO EXTEND INTO EXISTING MEZZANINE MECHANICAL ROOM.
- 8 INSTALL NEW DDC THERMO SENSOR IN THIS LOCATION. PROVIDE NEW MOUNTING BOX OR RE-USE EXISTING. MOUNT SENSOR 48" A.F.F. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
- 9 INSTALL NEW DDC MOTORIZED DAMPER CONTROL. INTEGRATE DAMPER CONTROL INTO EXISTING OR NEW SEQUENCE OF OPERATION.
- 10 INSTALL NEW DDC HEATING HOT WATER CONTROL VALVE AT CONVECTOR. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
- 11 INSTALL NEW DDC HEATING HOT WATER CONTROL VALVE AT CABINET UNIT HEATER. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
- 12 ALL TEMPERATURE CONTROL WIRING INSIDE WALLS SHALL BE INSTALLED IN EMT CONDUIT. TEMPERATURE CONTROL WIRING ABOVE CEILING MAY BE PLENUM RATED CABLE.
- 13 FOR CONTINUATION OF PIPING SEE DRAWING M401.
- 14 FOR WORK IN MECHANICAL MEZZANINE SEE ENLARGED MECHANICAL PLANS ON DRAWING M402.
- 15 EXISTING DUCTWORK AND DIFFUSERS IN THIS AREA TO REMAIN. NO WORK REQUIRED.
- 16 EXISTING HWS AND HWR PIPING IN UTILITY TUNNELS AND ABOVE CEILING. NO WORK REQUIRED.
- 17 EXISTING CONDENSATE LINE IN UTILITY TUNNEL TO BE ABANDONED IN PLACE.
- 18 FOR CONTINUATION OF PIPING SEE DRAWING M101B OR M101C.
- 19 INSTALL NEW 14"Ø 18 GAUGE S.A. DUCT AND EXTEND TO 10'-0" A.F.F. TERMINATE WITH ROUND DIFFUSER AND BALANCING DAMPER.
- 20 INSTALL ROUND S.A. DIFFUSER AT BOTTOM OF DUCT. SECURE DIFFUSER RIGIDLY TO DUCT.
- 21 BALANCE EXISTING DIFFUSER TO CFM INDICATED.
- 22 CAP DIFFUSER.
- 23 EXTEND PIPING ACROSS HALLWAY ABOVE CEILING. REMOVE AND REPLACE CEILING SYSTEM AS NEEDED TO INSTALL NEW PIPING. PATCH CEILING TO MATCH EXISTING.

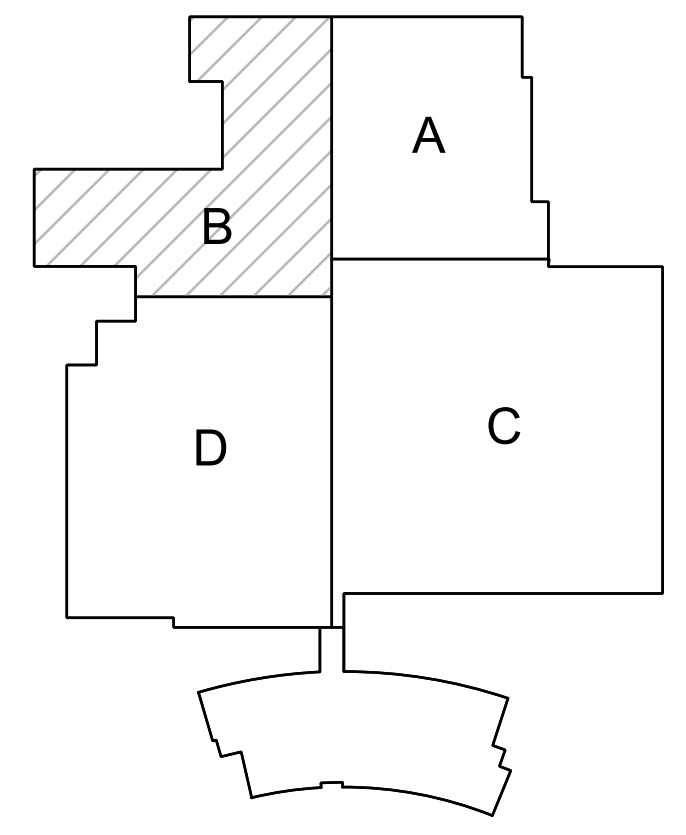
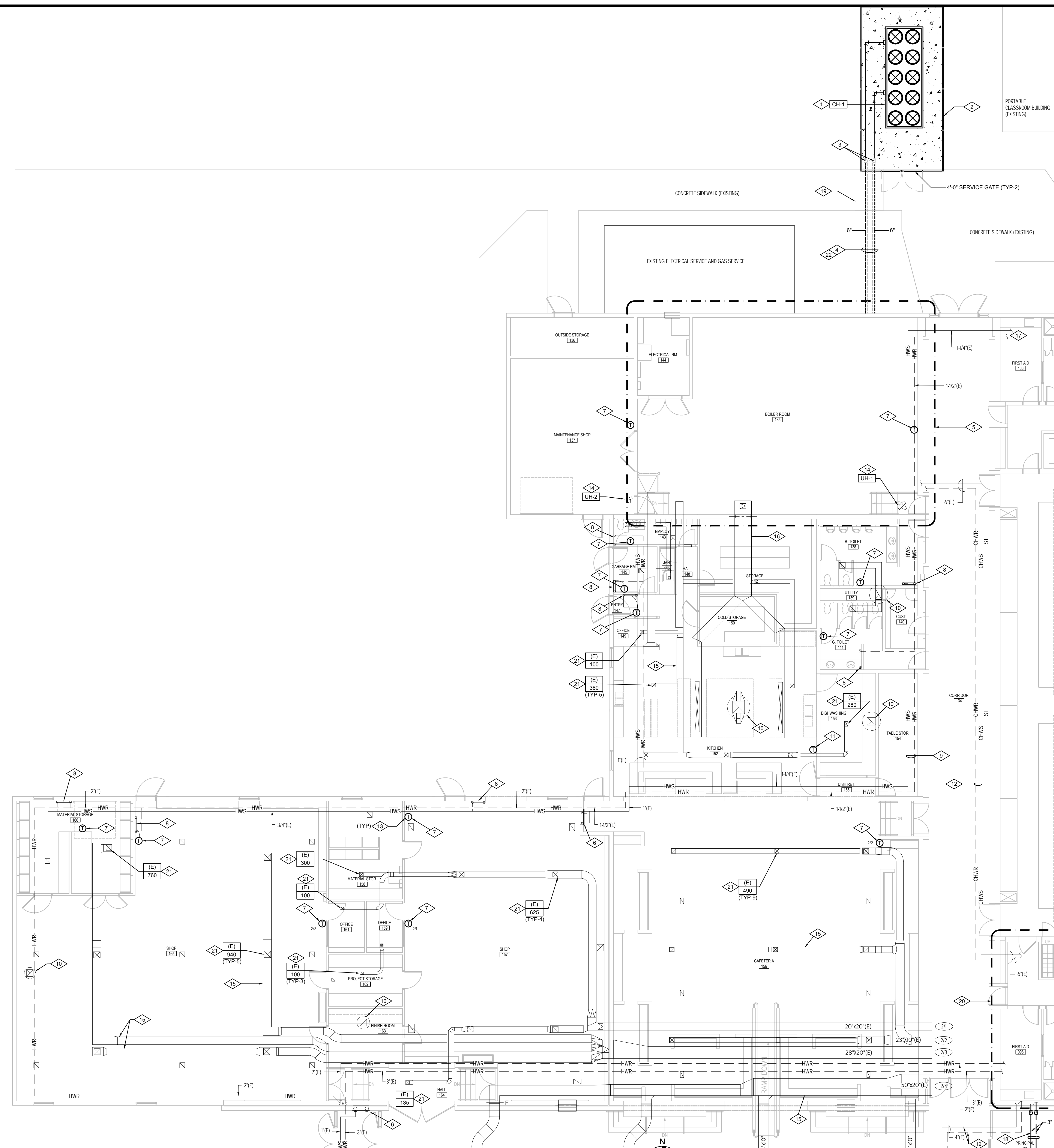


KEY PLAN  
NTS



REFERENCE NOTES

- 1 INSTALL AIR COOLED CHILLER IN THIS LOCATION. COORDINATE LOCATION OF CHILLER WITH EXISTING PORTABLE CLASSROOMS. SEE DETAIL 1M603.
- 2 MOUNT CHILLER ON 6 INCH HIGH REINFORCED CONCRETE PAD. PROVIDE GALVANIZED HEAVY DUTY SECURITY FENCE AND SERVICE GATES AS INDICATED. SEE DETAIL 6M803
- 3 6" CWS AND CWR PIPING TO DROP AND RUN BELOW GRADE. PROVIDE 12" DIA PIPE SLEEVES AT PAD PENETRATION. SEE DETAIL 3M604
- 4 RUN PRE-INSULATED CWS AND CWR PIPING BELOW GRADE. PIPING TO BE EQUAL TO PERMA PIPE MULTI THERM INSTALLED AND BEDDED PER MANUFACTURERS INSTRUCTIONS.
- 5 FOR MECHANICAL WORK IN THIS AREA SEE ENLARGED BOILER ROOM MECHANICAL PLANS ON DRAWING M401.
- 6 INSTALL NEW DDC HEATING HOT WATER CONTROL VALVE AT CABINET UNIT HEATER. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
- 7 INSTALL NEW DDC THERMO SENSOR IN THIS LOCATION. PROVIDE NEW MOUNTING BOX OR RE-USE EXISTING. MOUNT SENSOR 48" A.F.F. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
- 8 INSTALL NEW DDC HEATING HOT WATER CONTROL VALVE AT CONVECTOR. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
- 9 EXISTING HWS AND HWR PIPING IN UTILITY TUNNELS AND ABOVE CEILING. NO WORK REQUIRED.
- 10 INSTALL NEW DDC MOTORIZED DAMPER AND FAN CONTROL. INTEGRATE DAMPER AND FAN CONTROL INTO EXISTING OR NEW SEQUENCE OF OPERATION.
- 11 INSTALL NEW DDC THERMO SENSOR IN THIS LOCATION FOR KITCHEN AIR HANDLER CONTROL. MAKE ALL REQUIRED CONNECTIONS TO THE KITCHEN AIR HANDLER FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
- 12 EXISTING CWS AND CWR PIPING ABOVE CEILING TO BE CLEANED AND VERIFIED OPERATIONAL PRIOR TO CONNECTING TO NEW CHILLED WATER SYSTEM. NOTIFY OWNER OF ANY DISCREPANCIES.
- 13 ALL TEMPERATURE CONTROL WIRING INSIDE WALLS SHALL BE INSTALLED IN EMT CONDUIT. TEMPERATURE CONTROL WIRING ABOVE CEILING MAY BE PLENUM RATED CABLE.
- 14 INSTALL NEW HOT WATER UNIT HEATER IN THIS LOCATION. SEE DETAIL 9M603
- 15 EXISTING DUCTWORK AND DIFFUSERS IN THIS AREA TO REMAIN. BALANCE DIFFUSERS AS INDICATED.
- 16 EXISTING MAKEUP AIR DUCT SERVING KITCHEN AREA TO REMAIN. NO WORK REQUIRED.
- 17 FOR CONTINUATION OF PIPING SEE DRAWING M101A
- 18 INSTALL NEW 3" HWS AND HWR PIPING FROM MEZZANINE MECHANICAL ROOM TO AUDITORIUM MECHANICAL ROOM. RUN PIPING ABOVE ROOF. PROVIDE ROOF MOUNTED PIPE SUPPORTS PIPE INSULATION AND ALUMINUM JACKETING. SEE DETAIL 4M604
- 19 REMOVE EXISTING CONCRETE SIDEWALK PANEL AS NEEDED TO EXCAVATE AND INSTALL CWS AND CWR PIPING BELOW GRADE. REPLACE CONCRETE PANEL TO MATCH EXISTING UPON COMPLETION OF WORK.
- 20 FOR MECHANICAL WORK IN THIS AREA SEE ENLARGED MEZZANINE ROOM MECHANICAL PLANS ON DRAWING M402.
- 21 BALANCE EXISTING DIFFUSER TO CFM INDICATED.
- 22 REMOVE SOD AND EXCAVATE PIPE TRENCH AS NEEDED TO INSTALL PIPING. REPLACE SOD UPON COMPLETION OF WORK.



KEY PLAN  
NTS

MECHANICAL PLAN - AREA B  
SCALE: 1/8" = 1'-0"

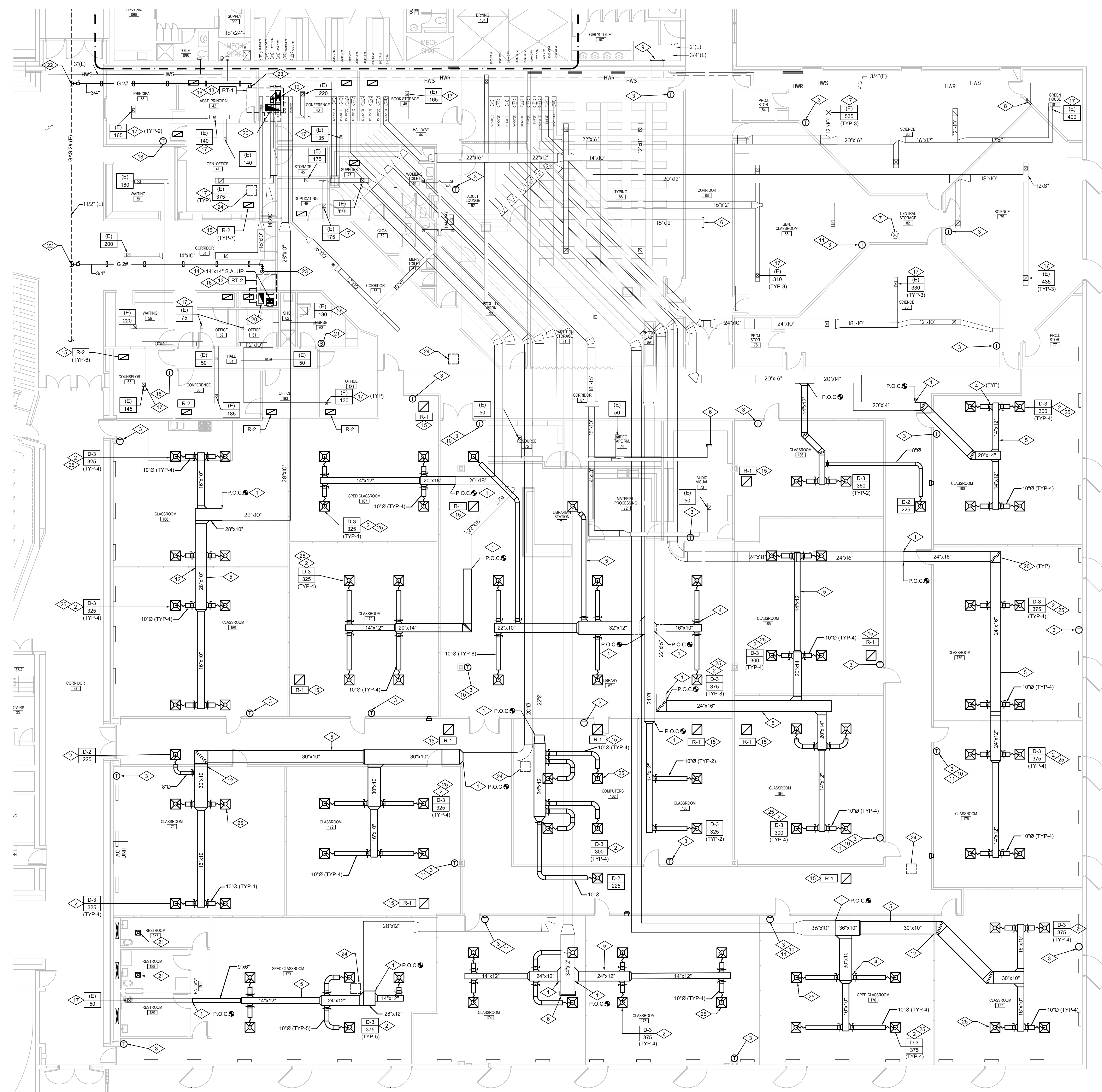
MECHANICAL PLAN - AREA B

PROPOSED CONSTRUCTION FOR OGDEN SCHOOL DISTRICT:  
MOUND FORT JUNIOR HIGH SCHOOL  
HVAC REPLACEMENT PROJECT  
1400 Mound Fort Drive, Ogden, UT 84404

OLSEN & PETERSON  
consulting engineers, inc.  
14 East 2700 South, Salt Lake City, UT 84115  
Phone: (801) 486-4646 Fax: (801) 487-2531

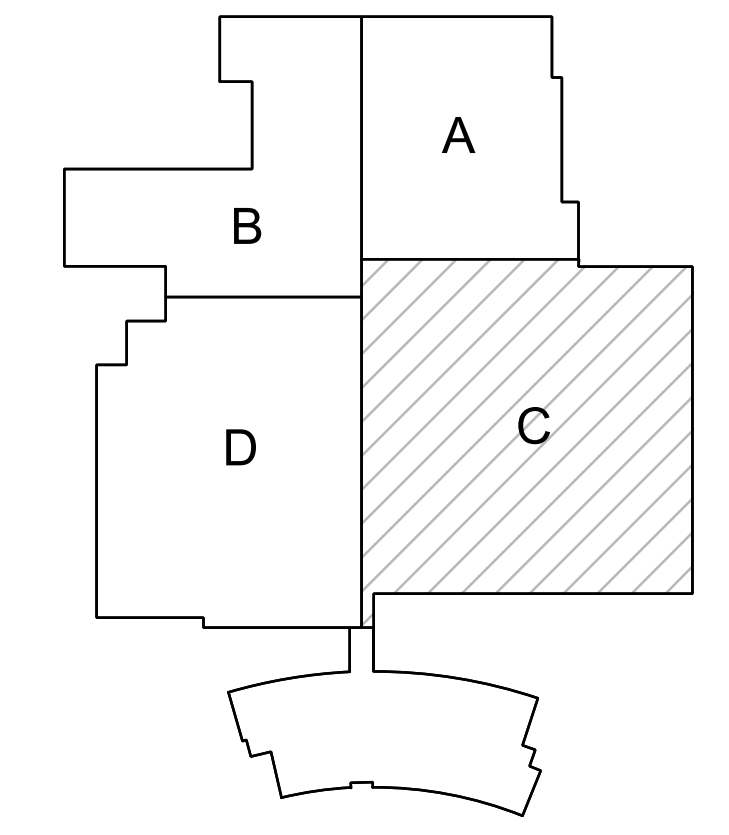
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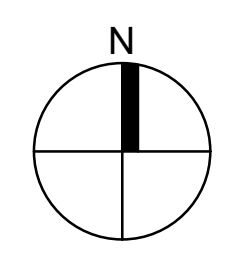
**REFERENCE NOTES**

1. CONNECT TO EXISTING DUCTWORK IN THIS LOCATION. PROVIDE COMPATIBLE TRANSITION FROM FIBERGLASS TO SHEETMETAL DUCT.
2. INSTALL DIFFUSERS AND GRILLES AS INDICATED. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION. (TYP)
3. INSTALL NEW DDC THERMO SENSOR IN THIS LOCATION. PROVIDE NEW MOUNTING BOX OR RE-USE EXISTING. MOUNT SENSOR 48" A.F.F. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
4. VOLUME DAMPER (TYP)
5. RUN DUCTWORK HIGH CLOSE TO STRUCTURE. COORDINATE LOCATION WITH EXISTING ELECTRICAL AND PLUMBING TRADES.
6. CAP EXISTING DUCT IN THIS LOCATION. PROVIDE SHEET METAL CAP SECURED AND SEALED AIRTIGHT.
7. INSTALL NEW DDC MOTORIZED DAMPER CONTROL. INTEGRATE DAMPER CONTROL INTO EXISTING OR NEW SEQUENCE OF OPERATION.
8. INSTALL NEW DDC HEATING HOT WATER CONTROL VALVE AT CONVECTOR. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
9. INSTALL NEW DDC HEATING HOT WATER CONTROL VALVE AT CABINET UNIT HEATER. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
10. WHERE MULTIPLE THERMO SENSORS ARE INSTALLED AND SERVED BY A SINGLE ZONE, THE ATC CONTRACTOR SHALL PROVIDE FOR TEMPERATURE AVERAGING IN THOSE SPACES.
11. ALL TEMPERATURE CONTROL WIRING INSIDE WALLS SHALL BE INSTALLED IN EMT CONDUIT. TEMPERATURE CONTROL WIRING ABOVE CEILING MAY BE PLENUM RATED CABLE.
12. WHERE NEW DUCTWORK PENETRATES EXISTING WALLS PROVIDE NEW FRAMED OR SLEEVED WALL OPENING. (TYP)
13. INSTALL NEW ROOF TOP UNIT ON ROOF IN THIS LOCATION. MOUNT UNIT ON 14 INCH HIGH ROOF CURB. CUT EXISTING ROOF AS NEEDED TO INSTALL NEW S.A. AND R.A. DUCTS. SEE DETAIL 5/M604
14. EXTEND NEW S.A. DUCT FROM ROOF TOP UNIT DN THROUGH ATTIC SPACE AND CONNECT TO EXISTING S.A. DUCT IN THIS LOCATION. PROVIDE DUCT TRANSITION AS NEEDED.
15. INSTALL NEW R.A. GRILLE IN EXISTING CEILING. CEILING SPACE TO BE USED AS RETURN AIR PLENUM FOR NEW ROOF TOP UNIT. CUT EXISTING CEILING AS NEEDED TO INSTALL NEW R.A. GRILLE.
16. FLASH, PATCH AND REPAIR ROOFING SYSTEM AROUND NEW ROOF TOP UNIT.
17. BALANCE EXISTING CEILING DIFFUSER TO CFM INDICATED (TYP).
18. INSTALL NEW DDC ROOF TOP UNIT SENSOR CONTROL IN THIS LOCATION. MAKE ALL REQUIRED CONNECTIONS TO ROOF TOP UNIT.
19. EXTEND NEW 18"x30" S.A. DUCT FROM ROOF TOP UNIT DN THROUGH ATTIC SPACE AND CONNECT TO EXISTING S.A. DUCTS IN THIS LOCATION. PROVIDE DUCT TRANSITIONS AS NEEDED.
20. R.A. DUCT TO ROOF TOP UNIT TO BE OPEN TO CEILING PLENUM.
21. PROVIDE NEW DDC OCCUPANCY SENSOR CONTROL FOR EXISTING EXHAUST FAN.
22. CONNECT TO EXISTING 1-1/2" GAS LINE ON ROOF IN THIS LOCATION. EXTEND NEW GAS LINE TO NEW ROOF TOP UNIT. SEE DETAIL 6/M604
23. PIPE GAS LINE TO NEW ROOF TOP UNIT. SUPPORT GAS LINE ON ROOF EVERY 6'-0" O.C. SEE DETAIL 7/M604 FOR GAS LINE CONNECTION REQUIREMENTS.
24. PATCH AND REPAIR CEILING AND ROOFING SYSTEM WHERE EXISTING EVAPORATIVE COOLER WAS REMOVED. (TYP-6)
25. BALANCE NEW AND EXISTING CEILING DIFFUSERS TO CFM INDICATED. (TYP)
26. TURNING VANES (TYP)

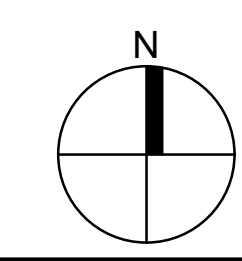


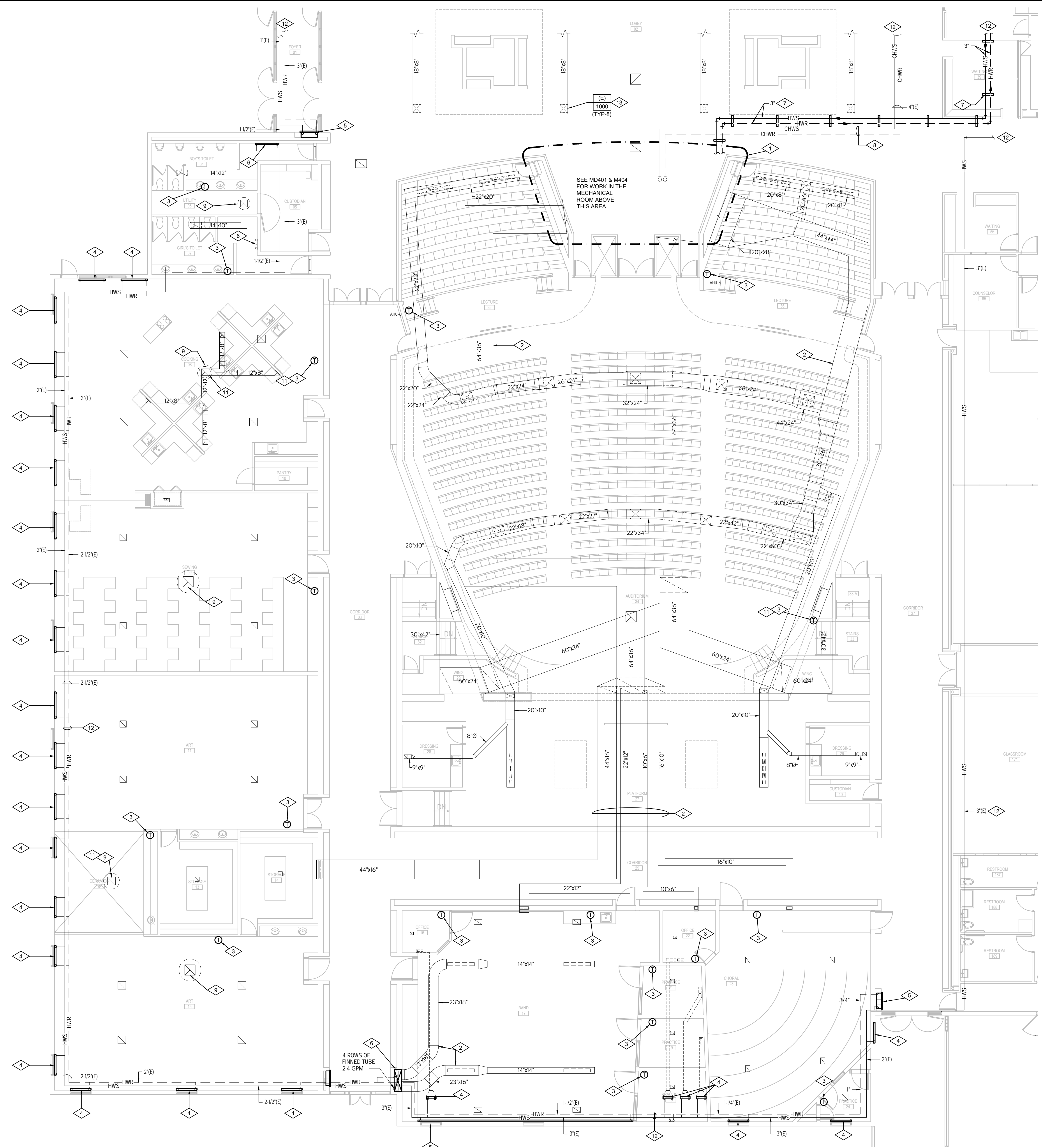
**KEY PLAN**

NTS



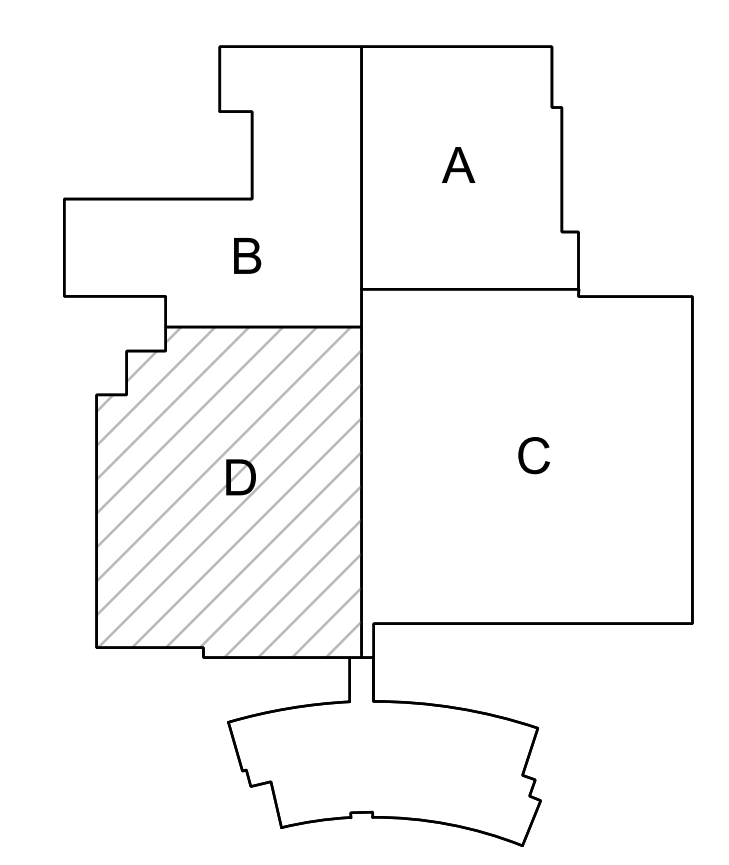
**MECHANICAL PLAN - AREA C**  
 SCALE: 1/8" = 1'-0"





**REFERENCE NOTES**

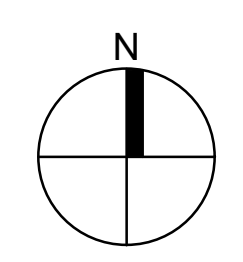
- 1 FOR MECHANICAL WORK IN THIS AREA SEE ENLARGED MECHANICAL PLANS ON DRAWING M404.
- 2 EXISTING DUCTWORK AND DIFFUSERS IN THIS AREA TO REMAIN. NO WORK REQUIRED.
- 3 INSTALL NEW DDC THERMO SENSOR IN THIS LOCATION. PROVIDE NEW MOUNTING BOX OR RE-USE EXISTING. MOUNT SENSOR 48" A.F.F. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
- 4 INSTALL NEW DDC HEATING HOT WATER CONTROL VALVE AT HOT WATER COILS IN UTILITY TUNNEL. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
- 5 INSTALL NEW DDC HEATING HOT WATER CONTROL VALVE AT CABINET UNIT HEATER. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
- 6 INSTALL NEW DDC HEATING HOT WATER CONTROL VALVE AT CONVECTOR. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
- 7 INSTALL NEW 3" HWS AND HWR PIPING ON ROOF. COORDINATE LOCATION WITH EXISTING SKYLIGHT AND GAS LINE. SUPPORT HWS AND HWR PIPING 18" A.F.F. SEE DETAIL 41M604
- 8 EXISTING CWS AND CWR PIPING ABOVE CEILING TO BE CLEANED AND VERIFIED OPERATIONAL PRIOR TO CONNECTING TO NEW CHILLED WATER SYSTEM. NOTIFY OWNER OF ANY DISCREPANCIES.
- 9 INSTALL NEW DDC MOTORIZED DAMPER AND EXHAUST FAN CONTROL. INTEGRATE DAMPER AND FAN CONTROL INTO EXISTING OR NEW SEQUENCE OF OPERATION.
- 10 EXISTING HWS AND HWR PIPING MAINS IN UTILITY TUNNELS. NO WORK REQUIRED.
- 11 ALL TEMPERATURE CONTROL WIRING INSIDE WALLS SHALL BE INSTALLED IN EMT CONDUIT. TEMPERATURE CONTROL WIRING ABOVE CEILING MAY BE PLENUM RATED CABLE.
- 12 FOR CONTINUATION OF PIPING SEE DRAWING M101B.
- 13 BALANCE EXISTING DIFFUSER TO CFM INDICATED.

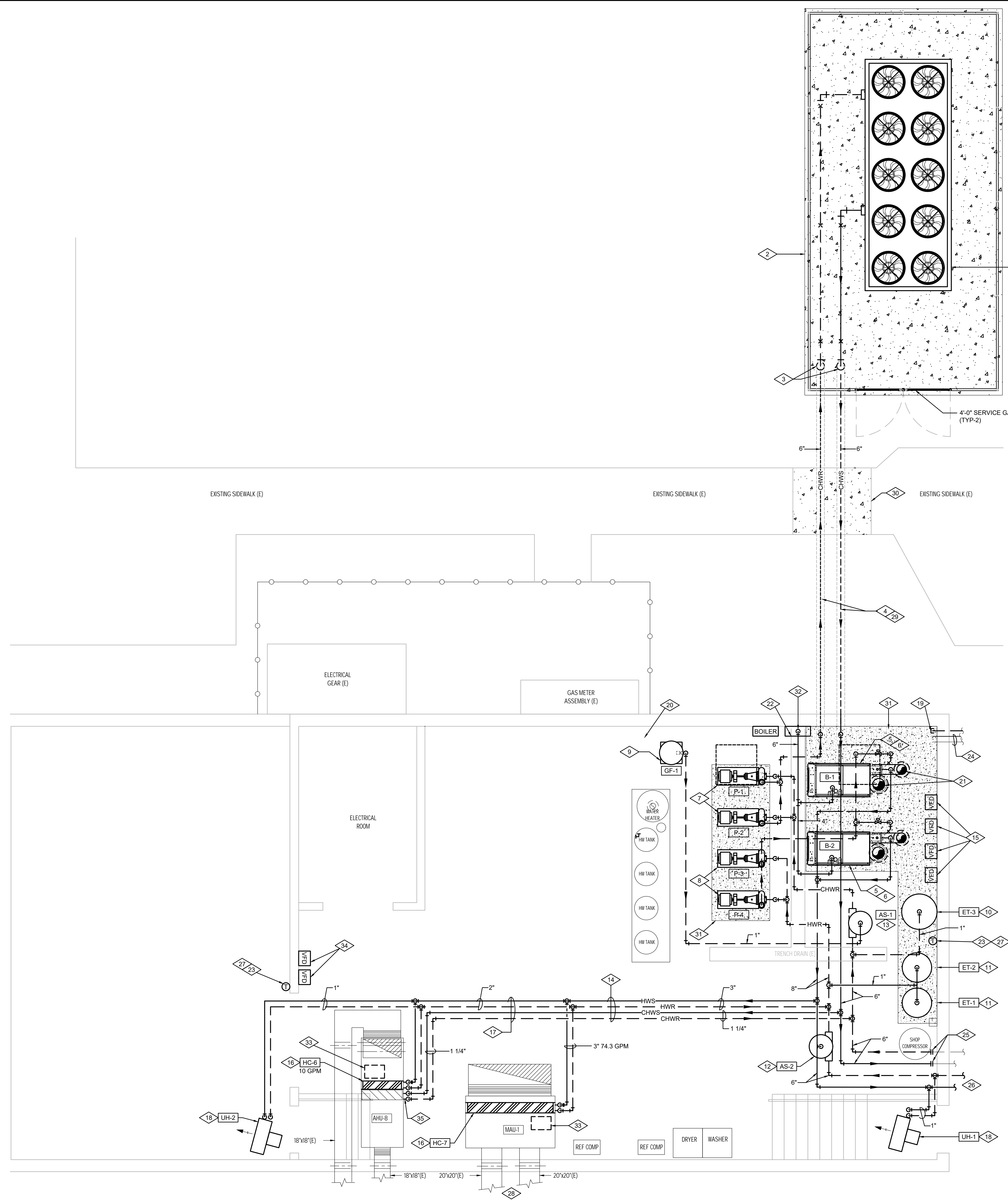


KEY PLAN  
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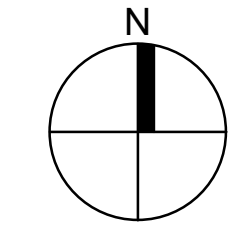
**MECHANICAL PLAN - AREA D**

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



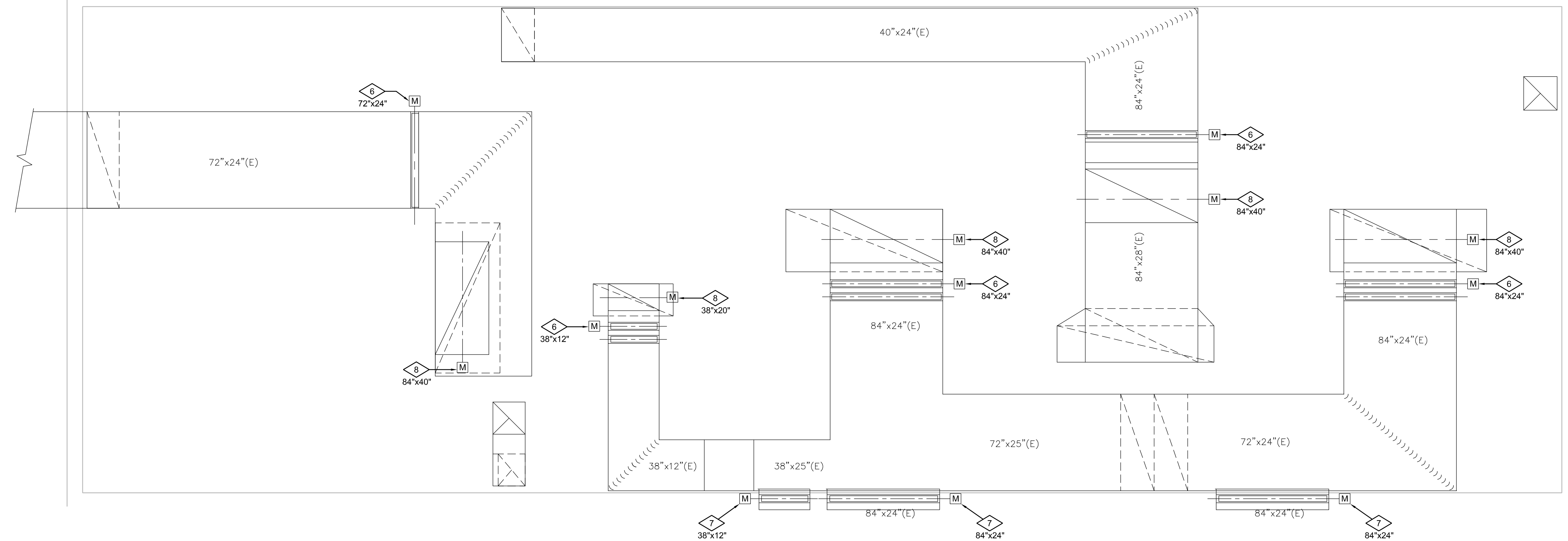


**BOILER ROOM MECHANICAL PLAN**  
SCALE: 1/4" = 1'-0"

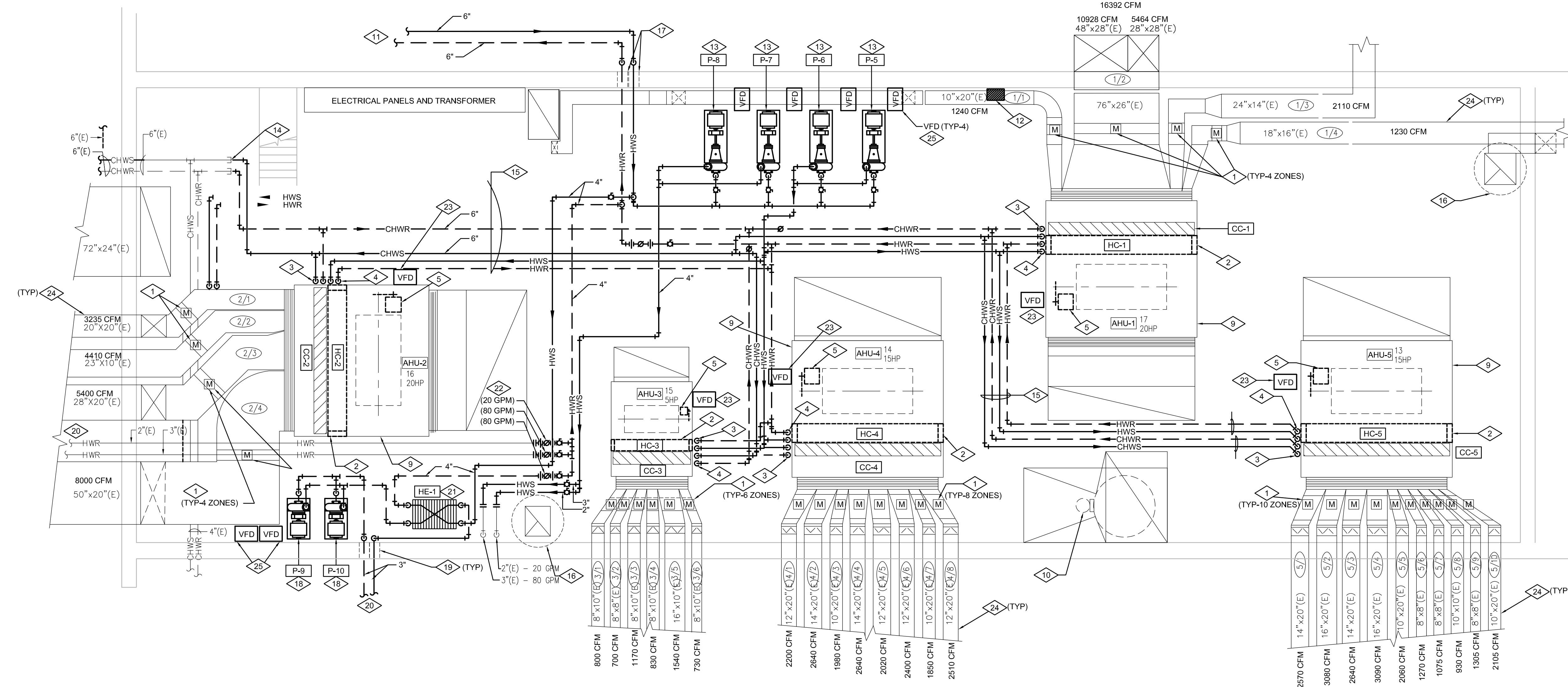
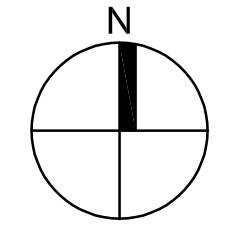


**REFERENCE NOTES**

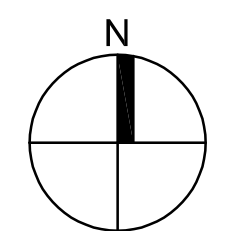
- 1 INSTALL NEW AIR COOLED CHILLER IN THIS LOCATION. COORDINATE LOCATION OF CHILLER WITH EXISTING PORTABLE CLASSROOMS AND OSD MAINTENANCE PERSONNEL. SEE DETAIL 11M603
- 2 MOUNT CHILLER ON 6 INCH HIGH REINFORCED CONCRETE PAD. PROVIDE SECURITY FENCE AND SERVICE GATES AS INDICATED. SEE DETAIL 21M604 & 6M603
- 3 6" CWS AND CWR PIPING TO DROP AND RUN BELOW GRADE. PROVIDE 8" DIA PIPE SLEEVES AT PAD PENETRATION. SEE DETAIL 31M604
- 4 RUN PRE-INSULATED CWS AND CWR PIPING BELOW GRADE. PIPING TO BE EQUAL TO PERMA PIPE MULTI THERM INSTALLED AND BEDDED PER MANUFACTURERS INSTRUCTIONS. SEE NOTE 29
- 5 INSTALL NEW HEATING HOT WATER BOILER IN THIS LOCATION. MOUNT BOILER ON 4 INCH HIGH CONCRETE PAD. SEE DETAIL 11M602
- 6 MAINTAIN MANUFACTURERS RECOMMENDED OPERATIONAL AND SERVICE CLEARANCES FOR THE BOILER. INSTALL BOILER PER STATE OF UTAH BOILER AND PRESSURE VESSEL REGULATIONS.
- 7 INSTALL CHILLED WATER PUMPS IN THIS LOCATION. INSTALL PUMPS ON 4 INCH HIGH CONCRETE PAD. SEE DETAIL 21M602
- 8 INSTALL HEATING HOT WATER PUMPS IN THIS LOCATION. INSTALL PUMPS ON 4 INCH HIGH CONCRETE PAD. SEE DETAIL 21M602
- 9 INSTALL GLYCOL FEED UNIT FOR CHILLED WATER SYSTEM. SEE DETAIL 11M604
- 10 INSTALL CHILLED WATER EXPANSION TANK IN THIS LOCATION. SEE DETAIL 31M602
- 11 INSTALL HEATING HOT WATER EXPANSION TANKS IN THIS LOCATION. SEE DETAIL 31M602
- 12 INSTALL HEATING HOT WATER AIR SEPARATOR IN THIS LOCATION. MOUNT SEPARATOR HIGH CLOSE TO EXISTING ROOF STRUCTURE. SEE DETAIL 41M602
- 13 INSTALL CHILLED WATER AIR SEPARATOR IN THIS LOCATION. MOUNT SEPARATOR HIGH CLOSE TO EXISTING ROOF STRUCTURE. SEE DETAIL 41M602
- 14 PIPING TO RUN HIGH CLOSE TO ROOF STRUCTURE. COORDINATE LOCATION OF PIPING WITH EXISTING MECHANICAL, PLUMBING, LIGHTING, AND ELECTRICAL TRADES. MAKE OFFSETS IN PIPING AS NEEDED TO FACILITATE INSTALLATION. SEE DETAIL 121M602
- 15 INSTALL PUMP VFD'S ON WALL IN THIS LOCATION. VERIFY SUFFICIENT WALL SPACE PRIOR TO INSTALLATION.
- 16 INSTALL NEW HEATING HOT WATER COIL IN EXISTING AIR HANDLER SERVING KITCHEN AREA. REFURBISH AIR HANDLER AS NEEDED TO ACCOMMODATE NEW COIL. FABRICATE COIL FRAME AS NEEDED FOR INSTALLATION. SEE DETAIL 81M603
- 17 EXTEND NEW CWS AND CWR PIPING TO EXISTING CHILLED WATER COIL AT AIR HANDLER SERVING KITCHEN AREA. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE COOLING SYSTEM.
- 18 INSTALL NEW HOT WATER UNIT HEATER IN THIS LOCATION. SEE DETAIL 91M603
- 19 CAP EXISTING ABANDONED CONDENSATE PIPING IN THIS LOCATION.
- 20 INFILL ABANDONED CONDENSATE PUMP STATION WITH CONCRETE AND TROWEL LEVEL. PREPARE AREA IN GENERAL FOR NEW GLYCOL FEED TANKS AND PUMPS.
- 21 FOR BOILER COMBUSTION AIR AND FLUE VENTING. SEE DRAWING M403.
- 22 MOUNT BOILER CONTROL PANEL(S) IN THIS LOCATION.
- 23 INSTALL NEW DDC THERMO SENSOR IN THIS LOCATION. PROVIDE NEW MOUNTING BOX OR RE-USE EXISTING. MOUNT SENSOR 48" A.F.F. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND FUNCTIONAL TEMPERATURE CONTROL SYSTEM.
- 24 EXISTING HWS AND HWR PIPING IN UTILITY TUNNEL. NO WORK REQUIRED.
- 25 MAKE CONNECTION TO EXISTING CWS AND CWR PIPING IN THIS LOCATION. VERIFY THAT EXISTING PIPING IS CLEAN AND OPERATIONAL PRIOR TO CONNECTING TO NEW CHILLED WATER SYSTEM. NOTIFY OWNER OF ANY DISCREPANCIES.
- 26 EXTEND NEW HWS AND HWR PIPING THROUGH EXISTING WALL TO GYM. CORE DRILL WALL OPENINGS AND EXTEND PIPING ACROSS EXISTING CORRIDOR CEILING. SEE DRAWING M101 B FOR CONTINUATION OF PIPING.
- 27 ALL TEMPERATURE CONTROL WIRING INSIDE WALLS SHALL BE INSTALLED IN EMT CONDUIT. TEMPERATURE CONTROL WIRING ABOVE CEILING MAY BE PLENUM RATED CABLE.
- 28 EXISTING MAKEUP AIR DUCT SERVING KITCHEN AREA TO REMAIN. NO WORK REQUIRED.
- 29 PRIOR TO EXCAVATING, CONTRACT WITH BLUE STAKES UTILITY IDENTIFICATION PROGRAM TO VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES IN THIS AREA. COORDINATE INSTALLATION OF UNDERGROUND PIPING WITH EXISTING UTILITIES. MAKE REQUIRED ROUTING ADJUSTMENTS AND OFFSETS AS NEEDED.
- 30 REMOVE CONC. SIDEWALK AS NEEDED TO INSTALL NEW PIPING. REPLACE SIDEWALK TO MATCH EXISTING.
- 31 PROVIDE NEW 4" HIGH CONCRETE EQUIPMENT PAD. SEE DETAIL 111M602.
- 32 CONNECT TO EXISTING 6" GAS LINE IN THIS LOCATION. EXTEND NEW GAS LINES TO EACH BOILER.
- 33 INSTALL NEW SYNCHRONOUS FAN MOTOR MATCHED WITH NEW VFD.
- 34 INSTALL FAN VFD'S ON WALL IN THIS LOCATION. CONNECT NEW FAN MOTORS TO NEW VFD. INTERLINK CONTROLS TO NEW DDC CONTROL SYSTEM.
- 35 CONNECT NEW CWS & CWR PIPING TO EXISTING COOLING COIL. SEE DETAIL 51M603.



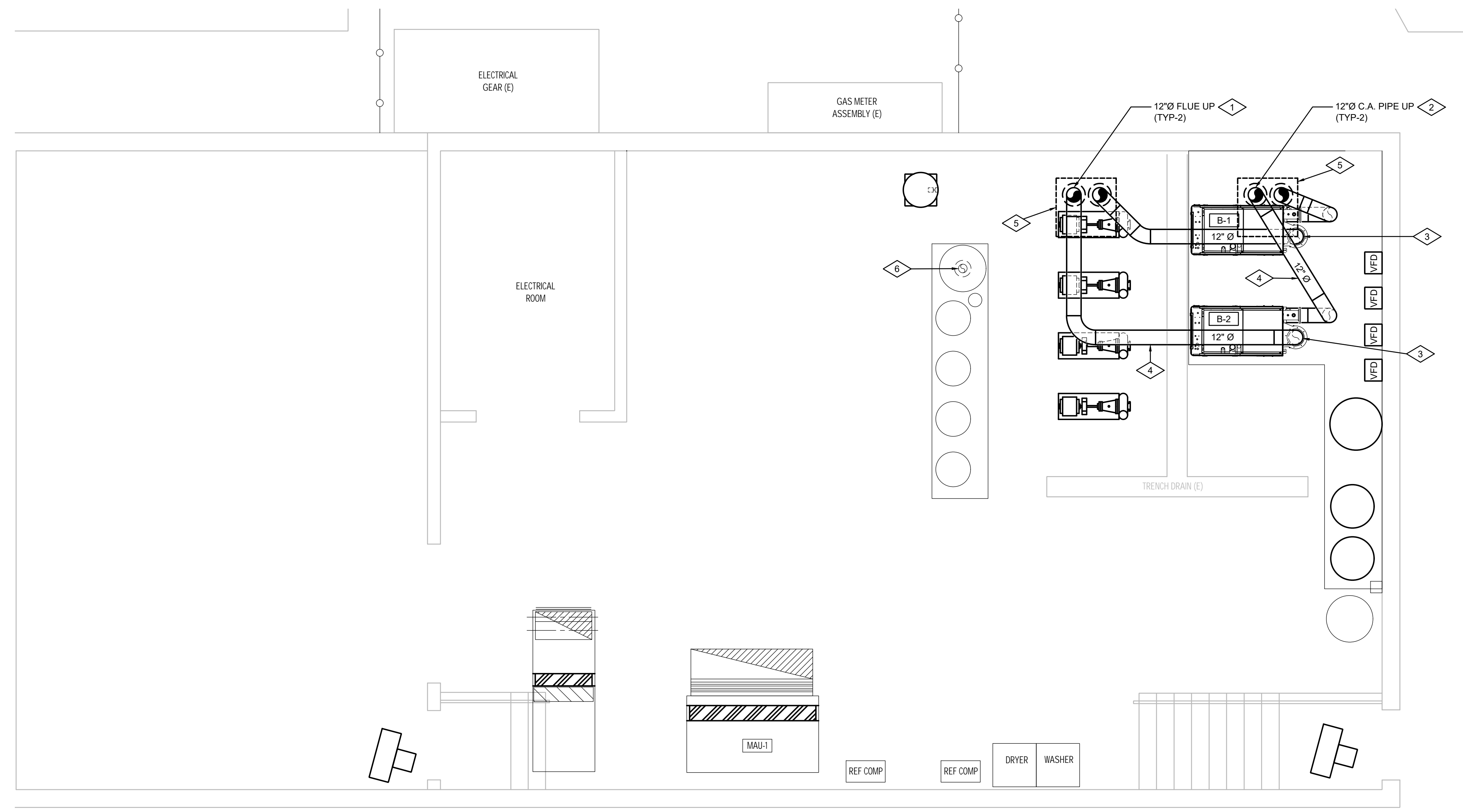
MAIN FAN ROOM MECHANICAL PLAN  
 SCALE: 1/4" = 1'-0"



MAIN FAN ROOM MECHANICAL PLAN  
 SCALE: 1/4" = 1'-0"



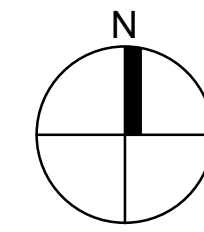
- REFERENCE NOTES**
- INSTALL NEW DDC DAMPER ACTUATOR ON EXISTING HOT DECK/COLD DECK CONTROL SHAFT. INTEGRATE DAMPER CONTROL INTO NEW UTAH-YAMAS BUILDING TEMPERATURE CONTROLS. VERIFY OPERATION OF EXISTING DAMPERS. (TYP)
  - INSTALL NEW HEATING HOT WATER COIL IN THIS LOCATION. COIL SPACE TO BE VERIFIED PRIOR TO SELECTING AND ORDERING COIL. REMOVE EXISTING AIR HANDLER SECTION CASING AS NEEDED TO INSTALL NEW COIL. PATCH AND REPAIR CASING UPON COMPLETION OF WORK.
  - EXTEND NEW CHILLED WATER PIPING TO EXISTING COOLING COIL AT AIR HANDLER. MAKE CONNECTIONS TO EXISTING COIL. SEE DETAIL 5M603.
  - EXTEND NEW HEATING HOT WATER PIPING TO NEW HOT WATER COIL AT AIR HANDLER. MAKE CONNECTIONS TO NEW COIL. SEE DETAIL 8M603.
  - INSTALL NEW FAN MOTOR AND NEW FAN MOTOR BELTS. FAN BELTS TO BE SAME SIZE AND TYPE AS EXISTING.
  - INSTALL NEW DDC ACTUATED RETURN AIR DAMPER IN THIS LOCATION. FIELD VERIFY SIZE OF DAMPER PRIOR TO CONSTRUCTION. INSTALL DAMPER USING EXISTING FRAME OR PROVIDE NEW AS NEEDED.
  - INSTALL NEW DDC ACTUATED RELIEF AIR DAMPER IN THIS LOCATION. FIELD VERIFY SIZE OF DAMPER PRIOR TO CONSTRUCTION. INSTALL DAMPER USING EXISTING FRAME OR PROVIDE NEW AS NEEDED.
  - INSTALL NEW DDC ACTUATED OUTSIDE AIR DAMPER IN THIS LOCATION. FIELD VERIFY SIZE OF DAMPER PRIOR TO CONSTRUCTION. INSTALL DAMPER USING EXISTING FRAME OR PROVIDE NEW AS NEEDED.
  - INSTALL NEW AIR FILTERS IN EXISTING AIR HANDLER. INSTALL NEW 30% EFFICIENT MERV 8 FILTERS IN ALL EXISTING AIR HANDLERS.
  - INSTALL NEW DDC CONTROL FOR EXISTING RETURN AIR FAN. INTEGRATE RETURN AIR FAN CONTROL INTO BUILDING SCHEDULE AND STATIC PRESSURE INPUT.
  - FOR CONTINUATION OF PIPING SEE DRAWING M101A
  - INSTALL NEW ATC DDC CONTROL PANEL IN THIS LOCATION. EXTEND NEW DDC CONTROLS TO ALL EXISTING AIR HANDLERS, CHILLED WATER, HOT WATER AND DAMPERS CONTROLS.
  - INSTALL NEW BASE MOUNTED HEATING HOT WATER PUMP IN THIS LOCATION. SEE DETAIL 2M602.
  - CONNECT NEW 6" CHILLED WATER SUPPLY (CWS) AND RETURN (CWR) PIPING TO EXISTING ROUGHED IN PIPING IN THIS LOCATION. EXTEND NEW CHILLED WATER PIPING TO EXISTING AIR HANDLER COILS AS INDICATED.
  - PIPING TO RUN HIGH IN MECHANICAL ROOM. COORDINATE LOCATION OF NEW CHILLED AND HEATING HOT WATER PIPING WITH EXISTING STRUCTURE. MECHANICAL AND ELECTRICAL TRADES.
  - INSTALL NEW DDC CONTROLS SERVING EXHAUST FAN. INTEGRATE EXHAUST FAN CONTROL INTO NEW BUILDING TEMPERATURE CONTROLS. VERIFY OPERATION OF EXISTING EXHAUST FAN (TYP)
  - CORE DRILL EXISTING WALL FOR INSTALLATION OF NEW HWS AND HWR PIPING. GROUT PIPE PENETRATION SOLID UPON COMPLETION OF WORK.
  - INSTALL HEAT EXCHANGER BASE MOUNTED PUMPS IN THIS LOCATION. SEE DETAIL 2M602.
  - EXTEND PIPING THROUGH EXTERIOR WALL. SEE DRAWING M101C FOR CONTINUATION. CORE DRILL WALL AS NEEDED.
  - FOR CONTINUATION OF PIPING SEE DRAWING M101C
  - INSTALL PLATE & FRAME HEAT EXCHANGER IN THIS LOCATION. SEE DETAIL 8M604.
  - INSTALL VFD ADJACENT TO EACH AIR HANDLER. LINK VFD CONTROL TO NEW FAN MOTOR.
  - BALANCE ZONE AIR FLOW TO CFM INDICATED. MAKE CHANGES TO FAN SHEAVES AS NEEDED TO MEET CFM INDICATED (TYP).
  - INSTALL PUMP VFD ON WALL IN THIS LOCATION. INTERLINK VFD CONTROL WITH NEW PUMP.



- REFERENCE NOTES**
- 1 INSTALL NEW 12" DIA. POLYPROPYLENE BOILER FLUE PER MANUFACTURERS INSTRUCTION AND EXTEND TO ROOF. (TYP-2 FLUES). SEE DETAIL 5/M602
  - 2 INSTALL NEW 12" DIA. POLYPROPYLENE COMBUSTION AIR (C.A.) PIPE PER MANUFACTURERS INSTRUCTION AND EXTEND TO ROOF. (TYP-2 C.A. PIPES). SEE DETAIL 7/M602
  - 3 SLOPE BOILER FLUE PIPING BACK TO CONDENSATE RESERVOIR AT BOILER. (TYP FOR EACH BOILER FLUE)
  - 4 RUN BOILER FLUE AND C.A. PIPING HIGH CLOSE TO EXISTING ROOF STRUCTURE. COORDINATE LOCATION OF FLUE AND C.A. PIPING WITH NEW HYDRONIC PIPING, LIGHTING AND MECHANICAL TRADES.
  - 5 EXISTING ROOF OPENINGS TO BE RE-USED FOR NEW FLUE AND C.A. PIPING. REMOVE EXISTING ROOF COVERING AND EXTEND NEW FLUE OR C.A. PIPING UP THROUGH OPENING. PROVIDE NEW GALVANIZED STEEL OR ALUMINUM COVERING SEALED WATERTIGHT OVER REMAINING OPENING.
  - 6 EXISTING WATER HEATER FLUE TO REMAIN INTACT. NO WORK REQUIRED.

**BOILER ROOM MECHANICAL VENTING PLAN**

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

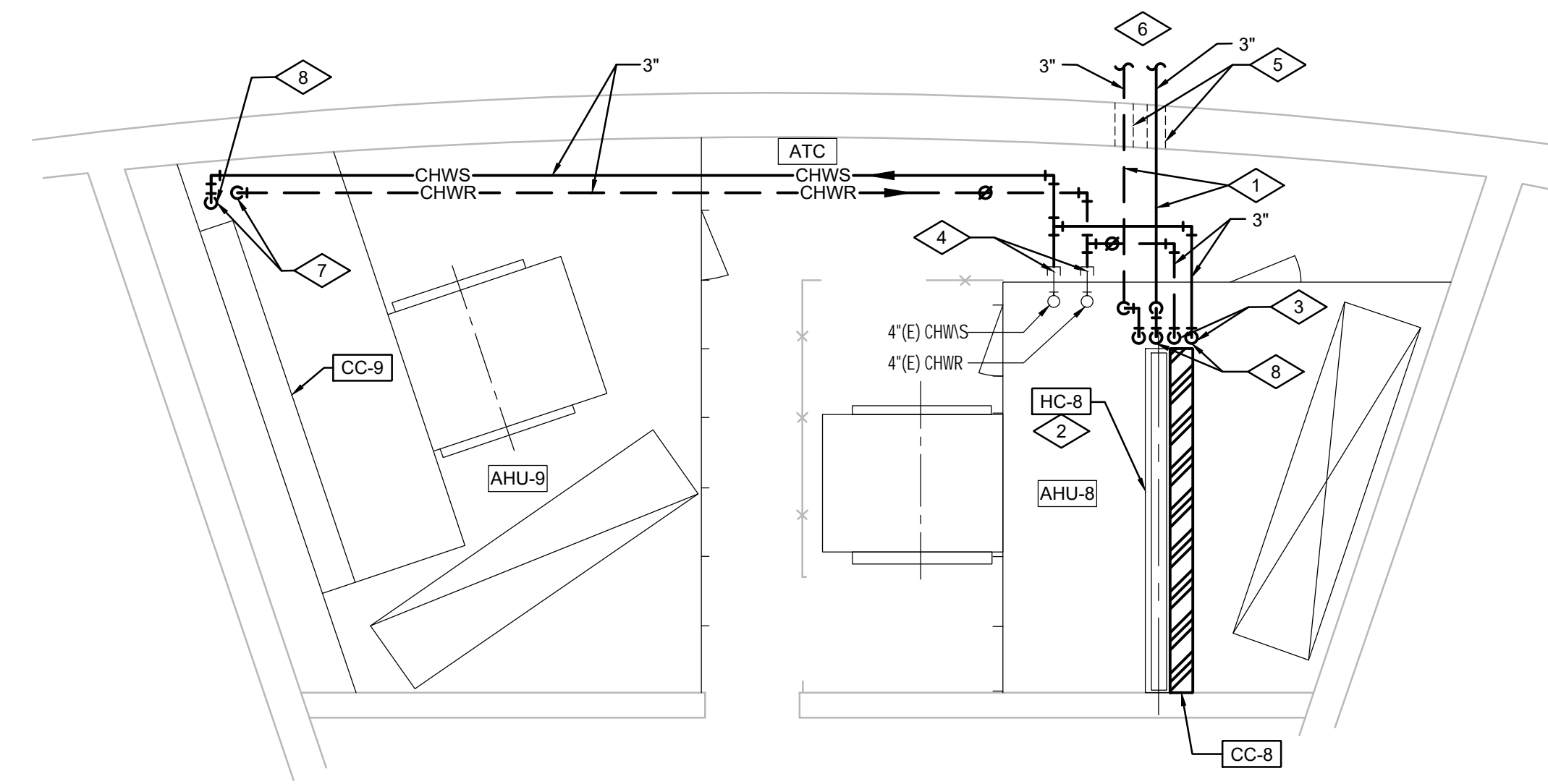


**BOILER ROOM MECHANICAL VENTING PLAN**

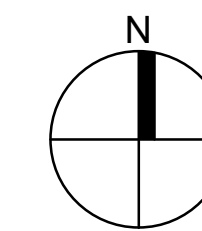
PROPOSED CONSTRUCTION FOR OGDEN SCHOOL DISTRICT:  
**MOUND FORT JUNIOR HIGH SCHOOL HVAC REPLACEMENT PROJECT**  
 1400 Mound Fort Drive, Ogden, UT 84404

**OLSEN & PETERSON**  
 consulting engineers, inc.  
 14 E. 200 N. Ste. 100, Ogden, UT 84405  
 Phone: (801) 468-4468 Fax: (801) 467-2339

Sheet No.  
**M403**



AUDITORIUM FAN ROOM MECHANICAL PLAN  
SCALE: 1/4" = 1'-0"



REFERENCE NOTES

- 1 PIPING TO RUN HIGH CLOSE TO ROOF STRUCTURE. COORDINATE LOCATION OF PIPING WITH EXISTING MECHANICAL, PLUMBING, LIGHTING, AND ELECTRICAL TRADES. MAKE OFFSETS IN PIPING AS NEEDED TO FACILITATE INSTALLATION.
- 2 INSTALL NEW HEATING HOT WATER COIL IN EXISTING AIR HANDLER SERVING AUDITORIUM AREA. REFURBISH AIR HANDLER AS NEEDED TO ACCOMMODATE NEW COIL. FABRICATE COIL FRAME AS NEEDED FOR INSTALLATION.
- 3 EXTEND NEW CWS AND CWR PIPING TO EXISTING CHILLED WATER COIL AT AIR HANDLER SERVING AUDITORIUM AREA. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE COOLING SYSTEM.
- 4 MAKE CONNECTION TO EXISTING CWS AND CWR PIPING IN THIS LOCATION. VERIFY THAT EXISTING PIPING IS CLEAN AND OPERATIONAL PRIOR TO CONNECTING TO NEW CHILLED WATER SYSTEM. NOTIFY OWNER OF ANY DISCREPANCIES.
- 5 EXTEND NEW HWS AND HWR PIPING THROUGH EXISTING WALL. CORE DRILL WALL OPENINGS AND EXTEND PIPING TO AIR HANDLER.
- 6 FOR CONTINUATION OF PIPING SEE DRAWING M101D
- 7 EXTEND NEW CWS AND CWR PIPING TO EXISTING CHILLED WATER COIL AT AIR HANDLER SERVING ART MUSIC AREA. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE COOLING SYSTEM.
- 8 PROVIDE 3-WAY COIL CONTROL VALVES WITH BYPASS FOR EACH COOLING COIL AND HEATING HOT WATER COIL CONNECTION. SEE DETAIL 5/M603

Project No: 22010  
Date: FEB 2023  
Drawn: STAFF  
Checked: PVIL

AUDITORIUM FAN ROOM  
MECHANICAL PLAN

Sheet Title

PROPOSED CONSTRUCTION FOR OGDEN SCHOOL DISTRICT:  
MOUND FORT JUNIOR HIGH SCHOOL  
HVAC REPLACEMENT PROJECT

Project Title

**OLSEN & PETERSON**  
consulting engineers, inc.  
145 East 200th Street, Suite 100, Ogden, UT 84403  
Phone: (801) 468-4468 Fax: (801) 467-2333

Sheet No.

M404



### DIFFUSER SCHEDULE

SYMBOL	TYPE	NECK SIZE	LOCATION	AIR PATTERN	MAKE & MODEL
D-1 CFM	LAY-IN	6"Ø	CEILING	4-WAY	PRICE SPD 12"x12" FACE (1)(2)
D-2 CFM	LAY-IN	8"Ø	CEILING	4-WAY	PRICE SPD 24"x24" FACE (1)(2)
D-3 CFM	LAY-IN	10"Ø	CEILING	4-WAY	PRICE SPD 24"x24" FACE (1)(2)
D-4 CFM	CONICAL	14"Ø	DUCT MTD	CONICAL	PRICE RCD 4-CONE (2)
E1 CFM	EXISTING	EXISTING	CEILING	EXISTING	EXISTING DIFFUSER TO BE RE-BALANCED TO CFM INDICATED

NOTES:  
 (1) PROVIDE REQUIRED CEILING FRAMES FOR MOUNTING IN LAY-IN OR GYP. BOARD CEILING. FIELD VERIFY LOCATION OF DIFFUSER.  
 (2) TO HAVE BRIGHT WHITE POWDER COAT FINISH.

### HEAT EXCHANGER SCHEDULE

SYMBOL	SYSTEM SERVED	SOURCE HOT WATER SIDE				LOAD COLD WATER SIDE				HEAT LOAD (MBH)	HEAT TRANSFER (SQ. FT.)	TYPE	MANUFACTURER & MODEL NO
		GPM	EWI/ LWT	MAX PD (FT)	PPG %	GPM	MAX PD (PSI)	PPG %					
HE-1	AUDITORIUM HW COIL	82	180/160	10	0	158/179	80	10	30	800	429.48	PLATE & FRAME	TACO PF 71-59-4-NH

NOTES:  
 (1) ASME RATED, 150 PSIG DESIGN PRESSURE 230 DEG F MAX WORKING TEMPERATURE.  
 (2) 59 TOTAL PLATES  
 (3) 3" FLANGED NOZZLE CONNECTIONS  
 (4) PROVIDE 4" HIGH CONCRETE PAD FOR MOUNTING  
 (5) WEIGHT = 2260 LBS

### RETURN GRILLE SCHEDULE

SYMBOL	NECK SIZE	LOCATION	TYPE	MAKE & MODEL
R-1	24" x 24"	CEILING	RETURN AIR	PRICE 535 (1)
R-2	24" x 12"	CEILING	RETURN AIR	PRICE 535 (1)

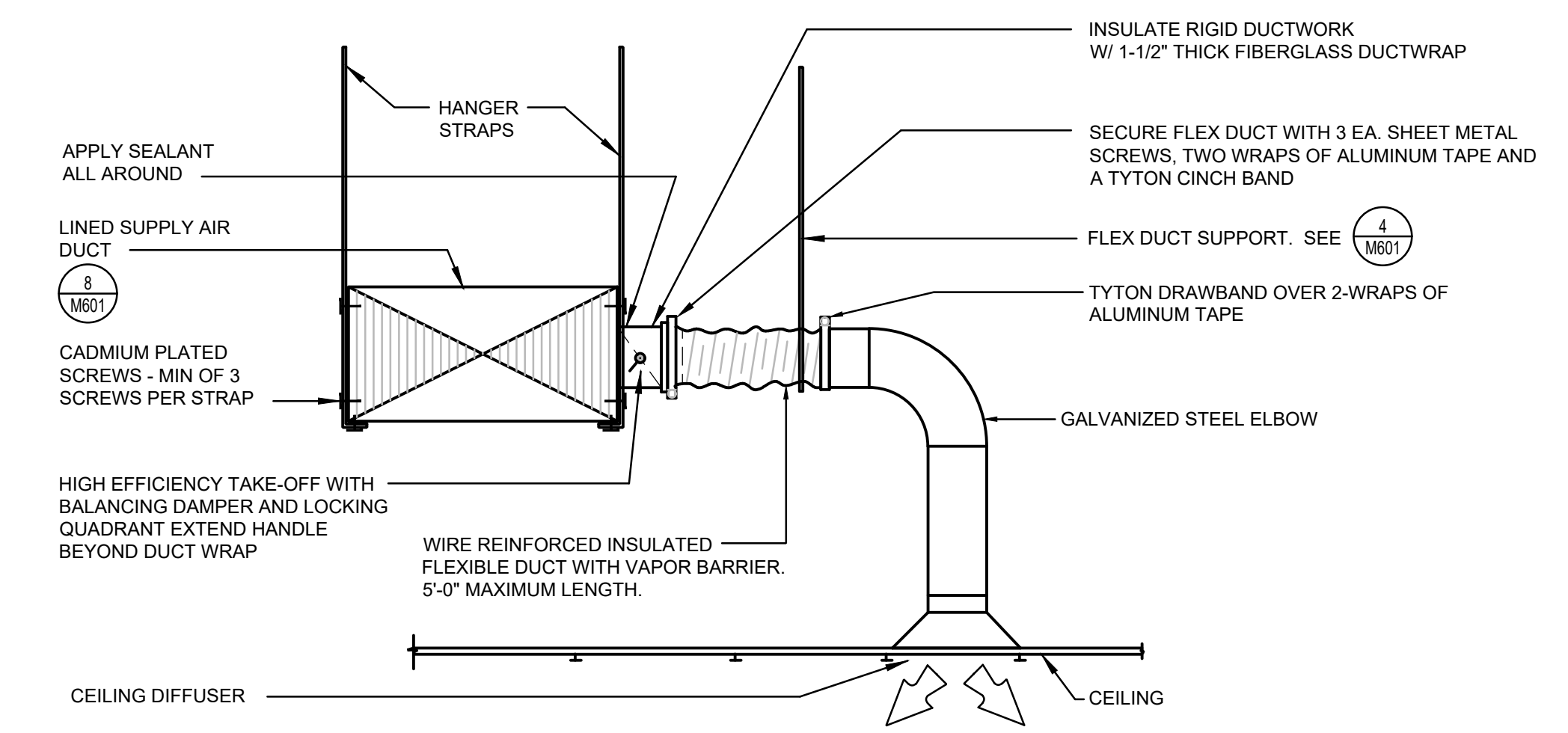
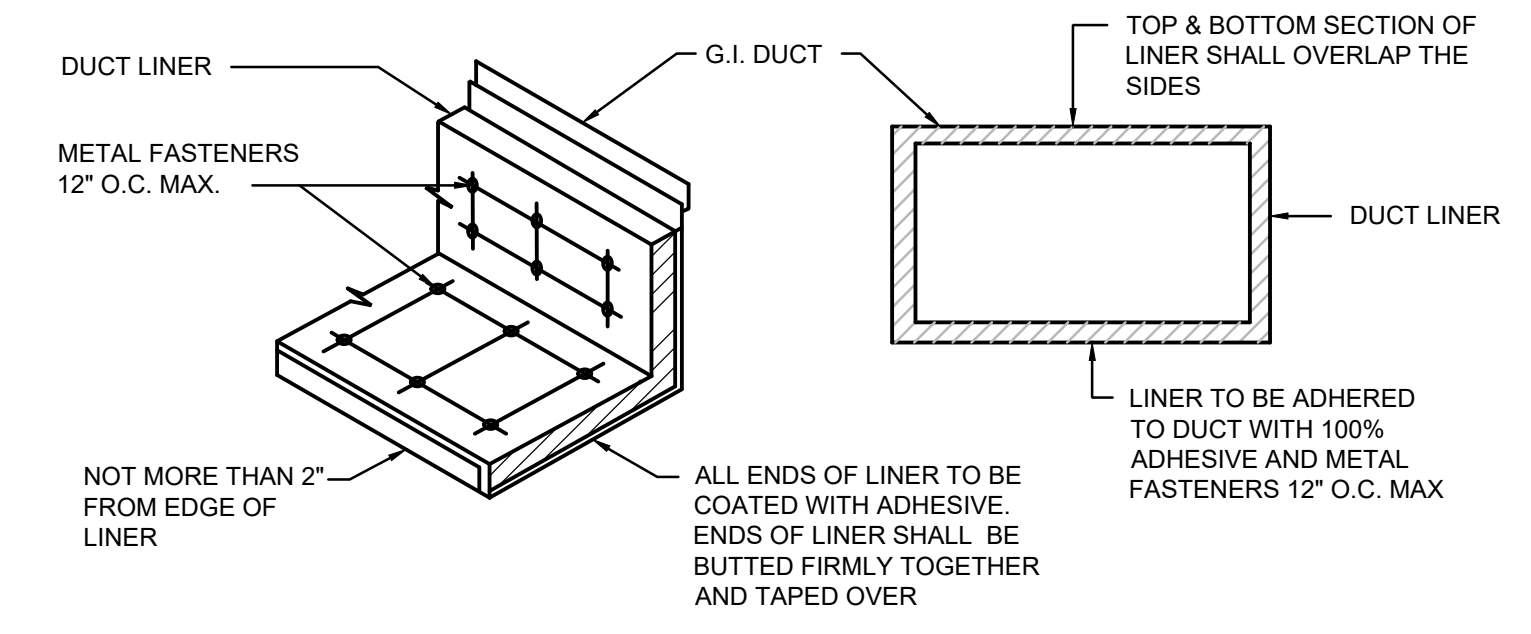
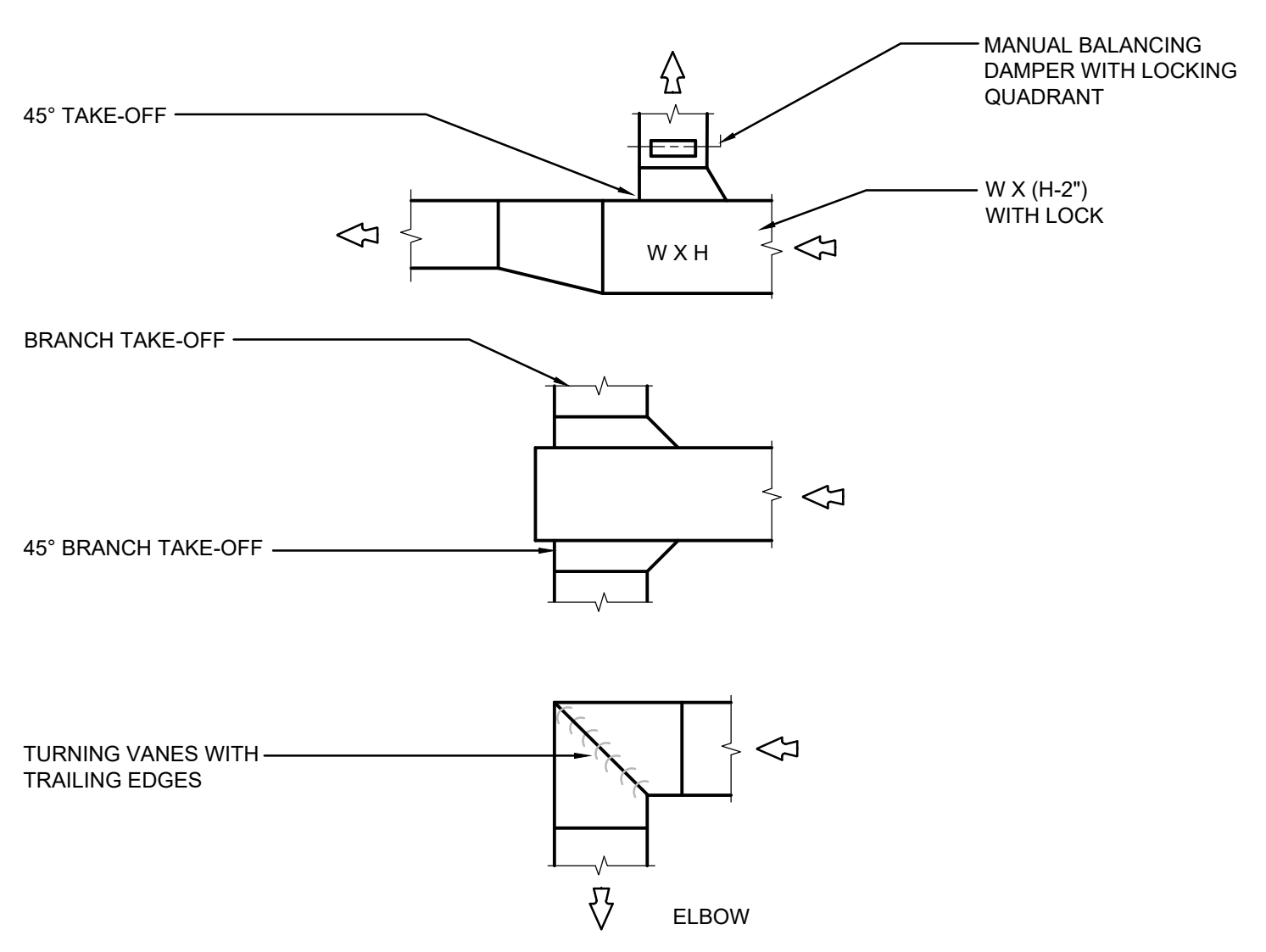
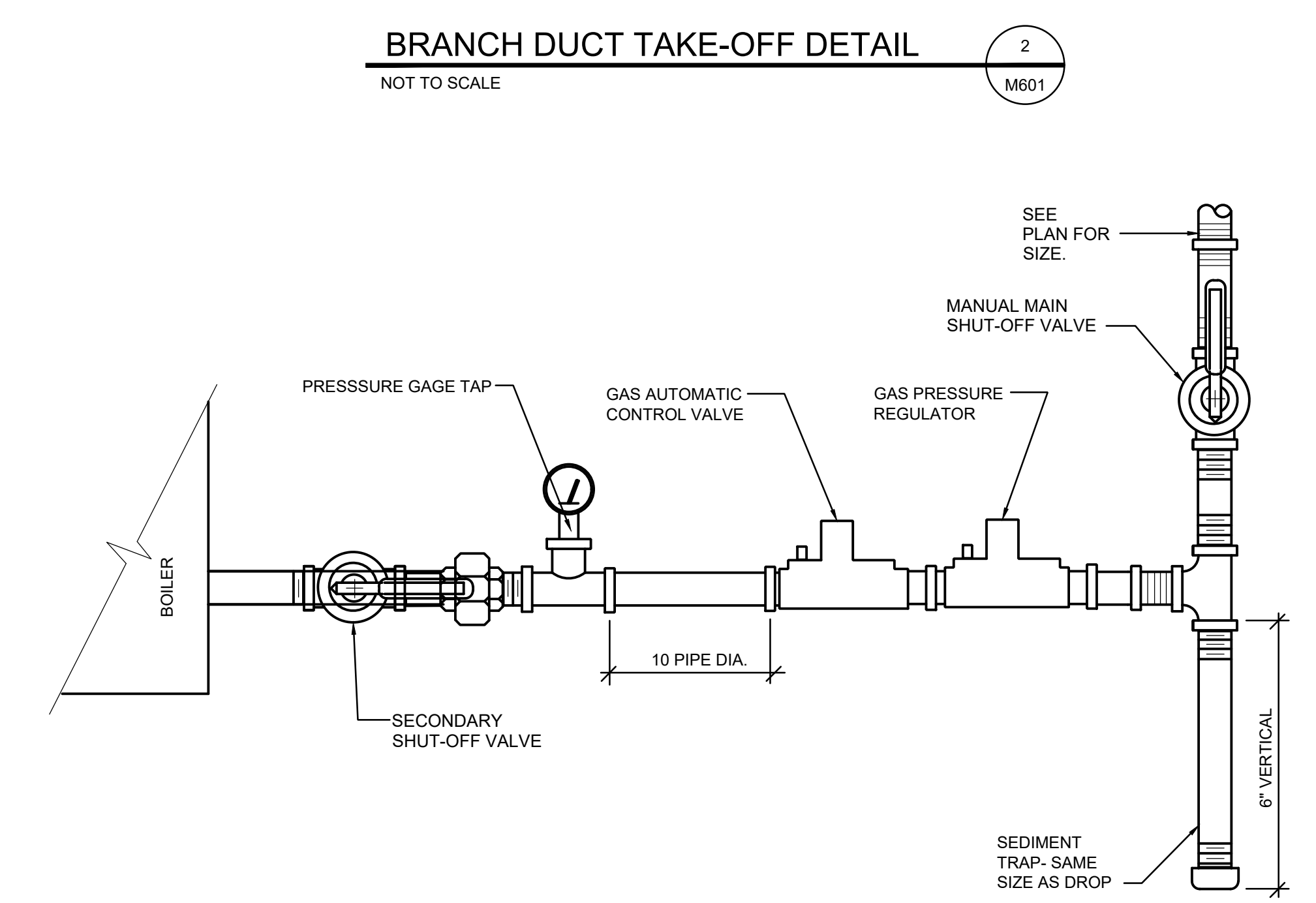
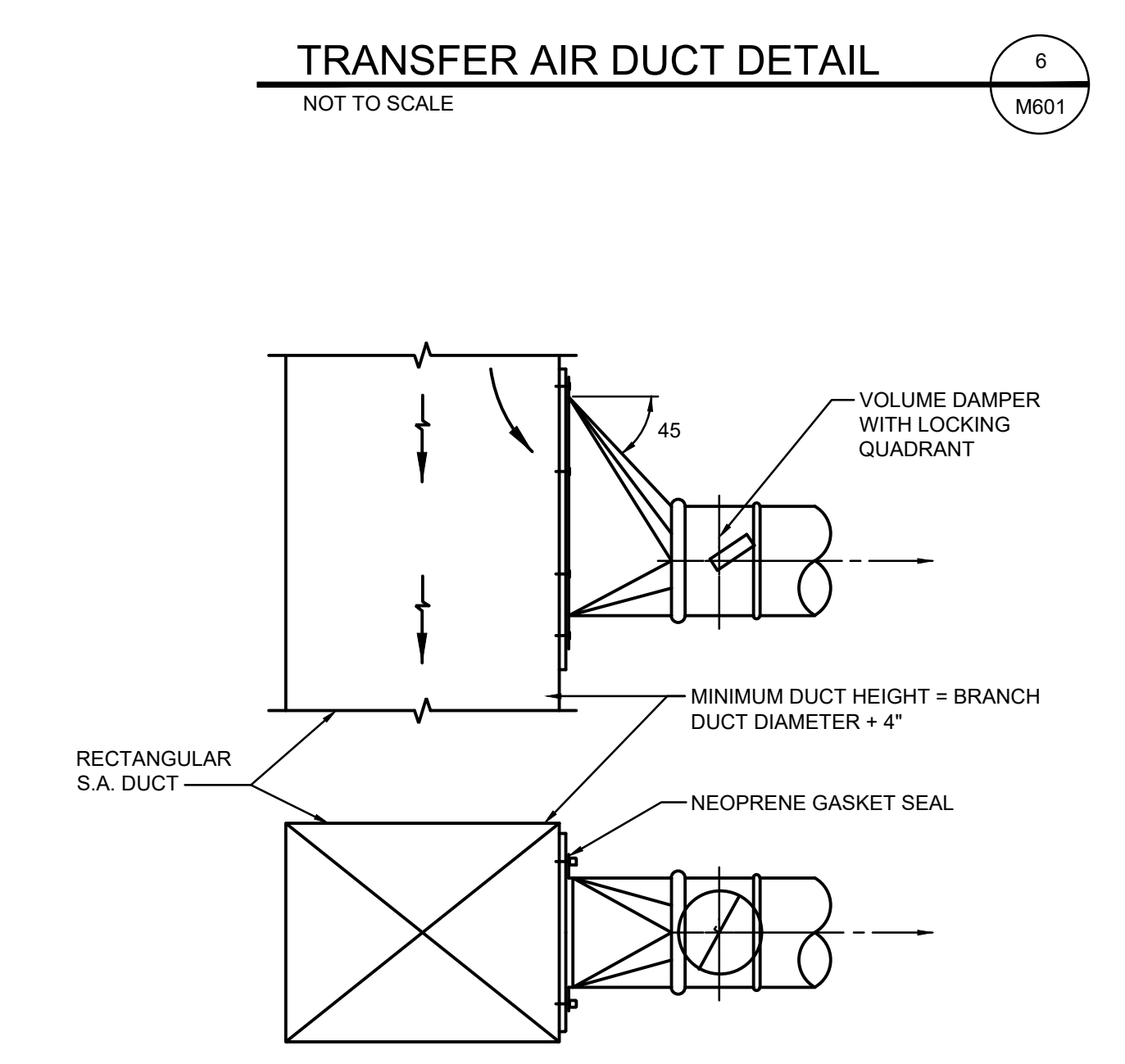
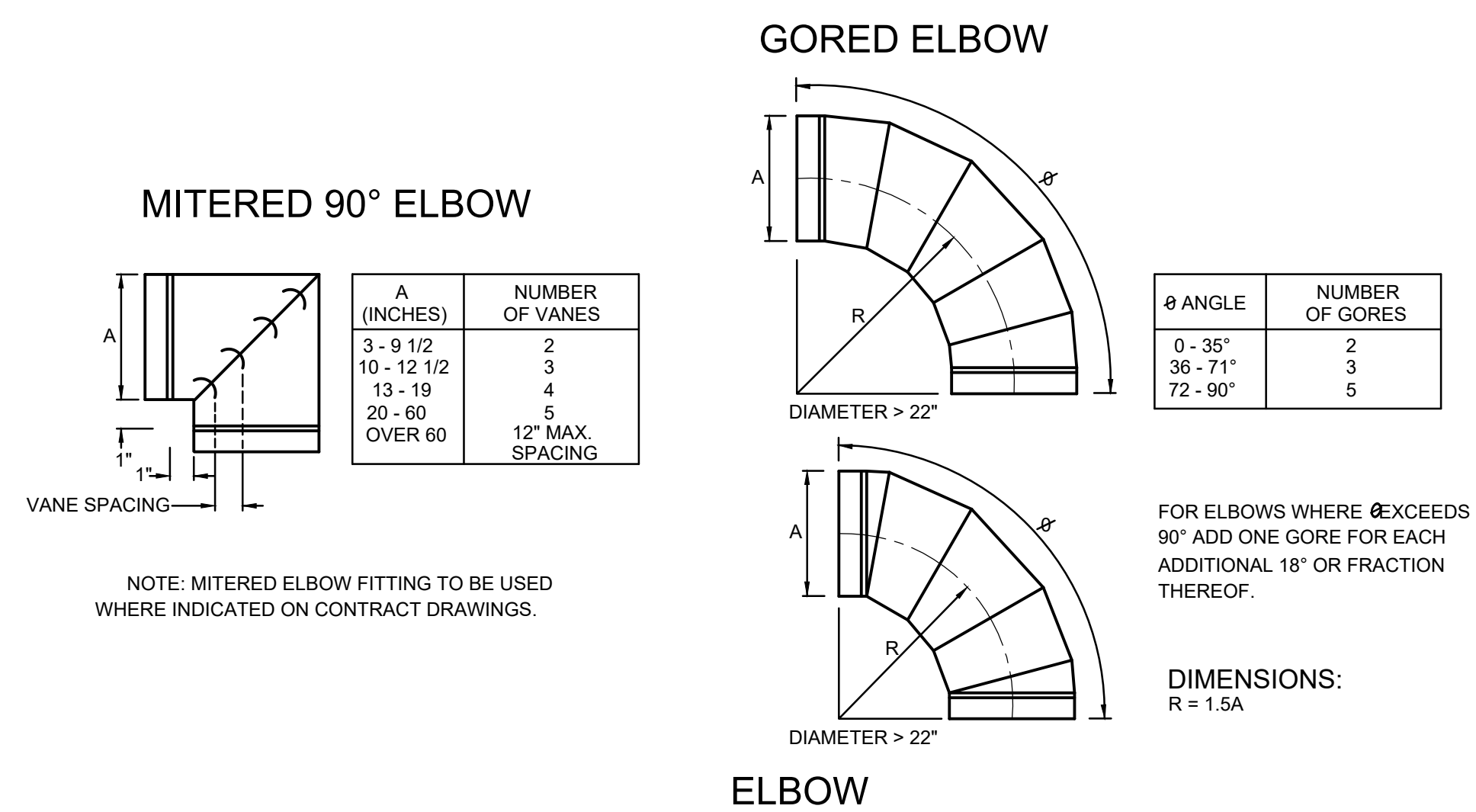
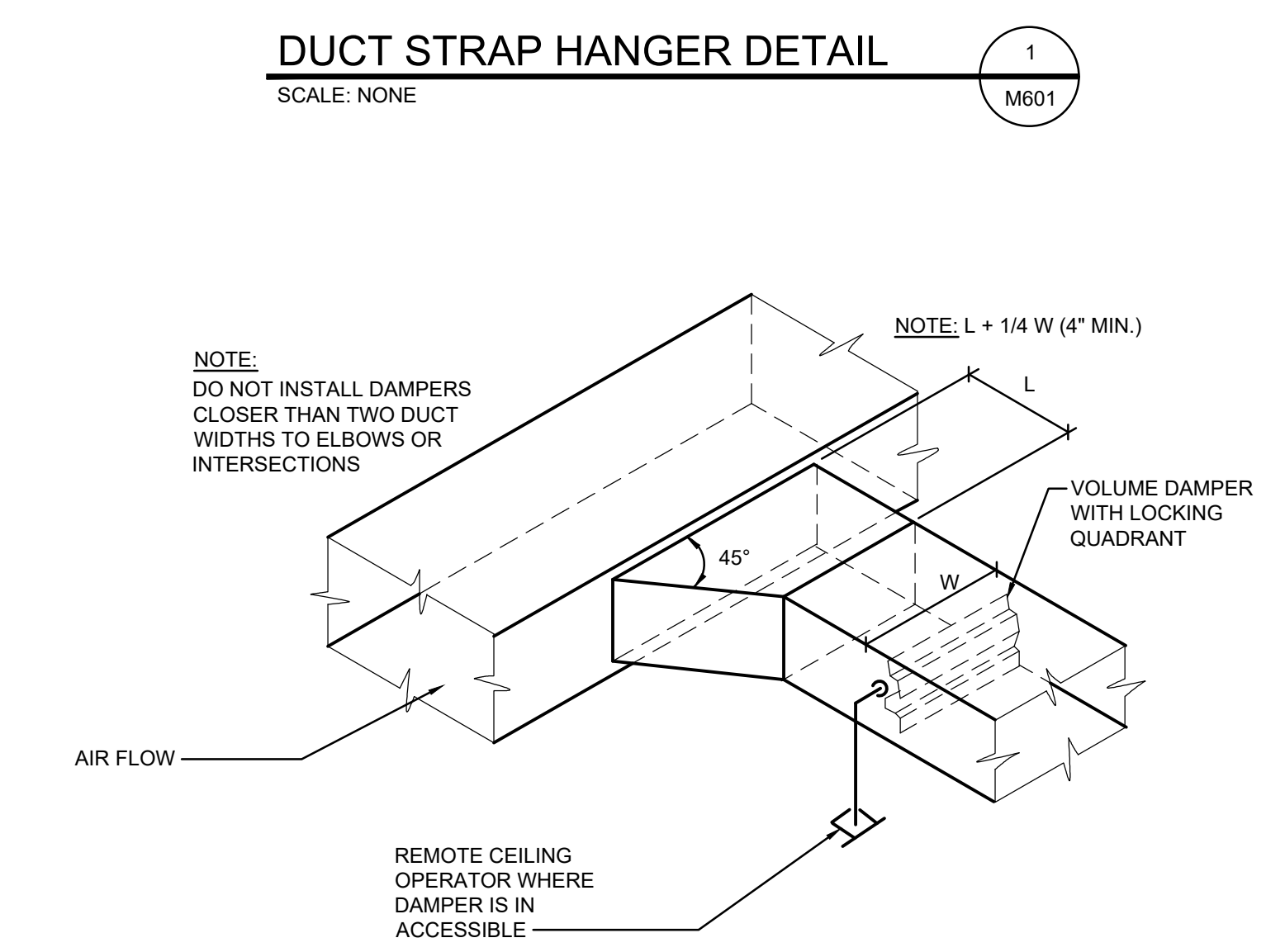
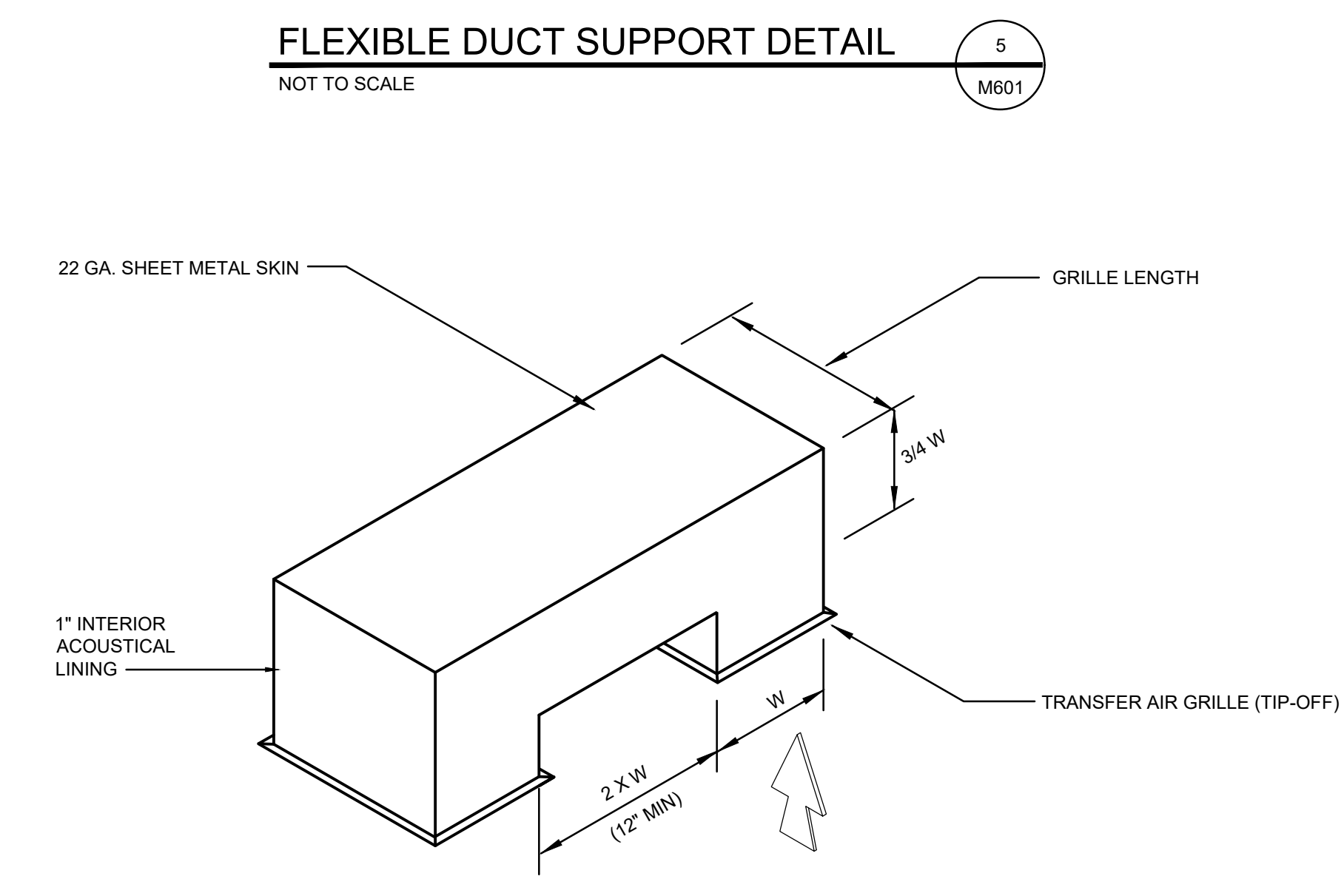
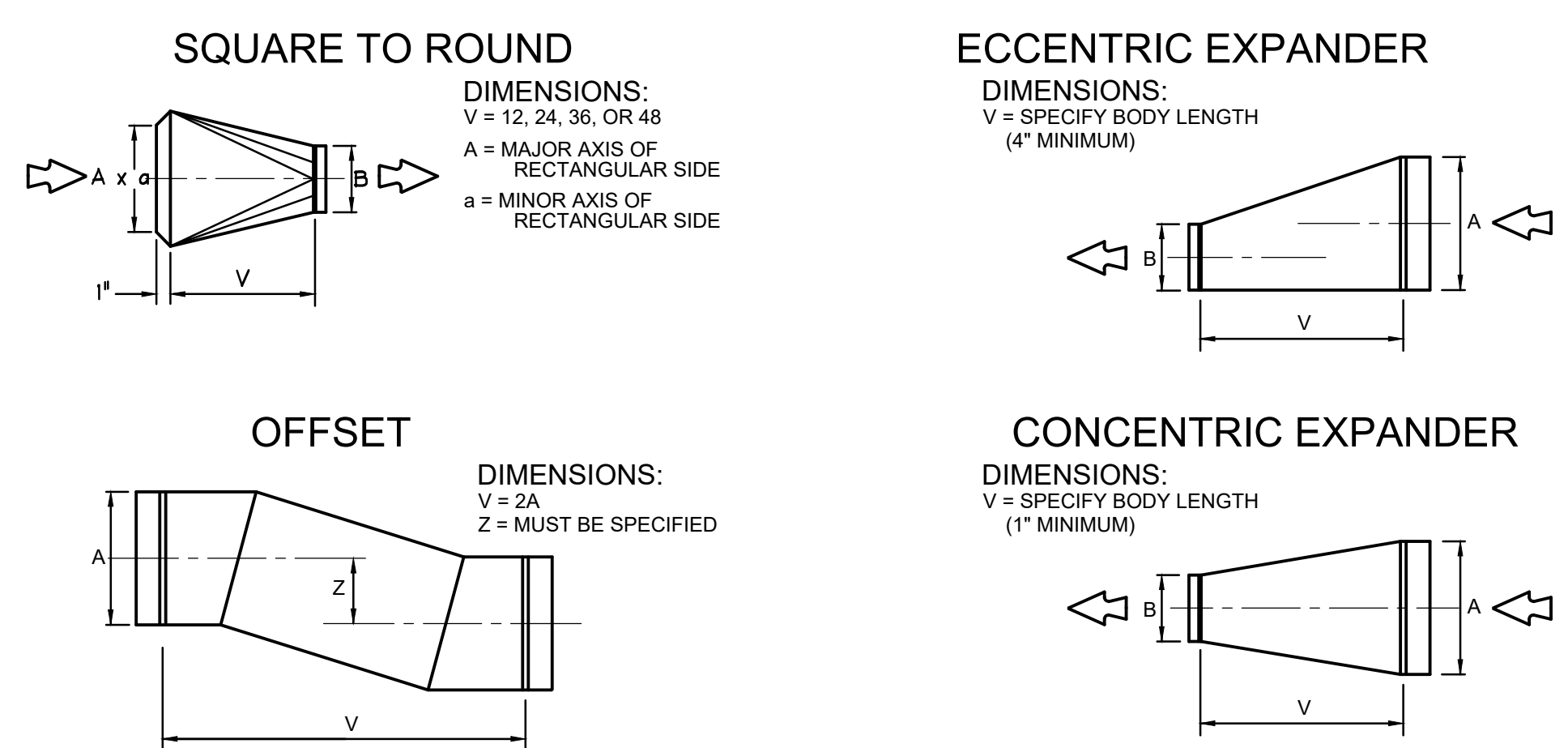
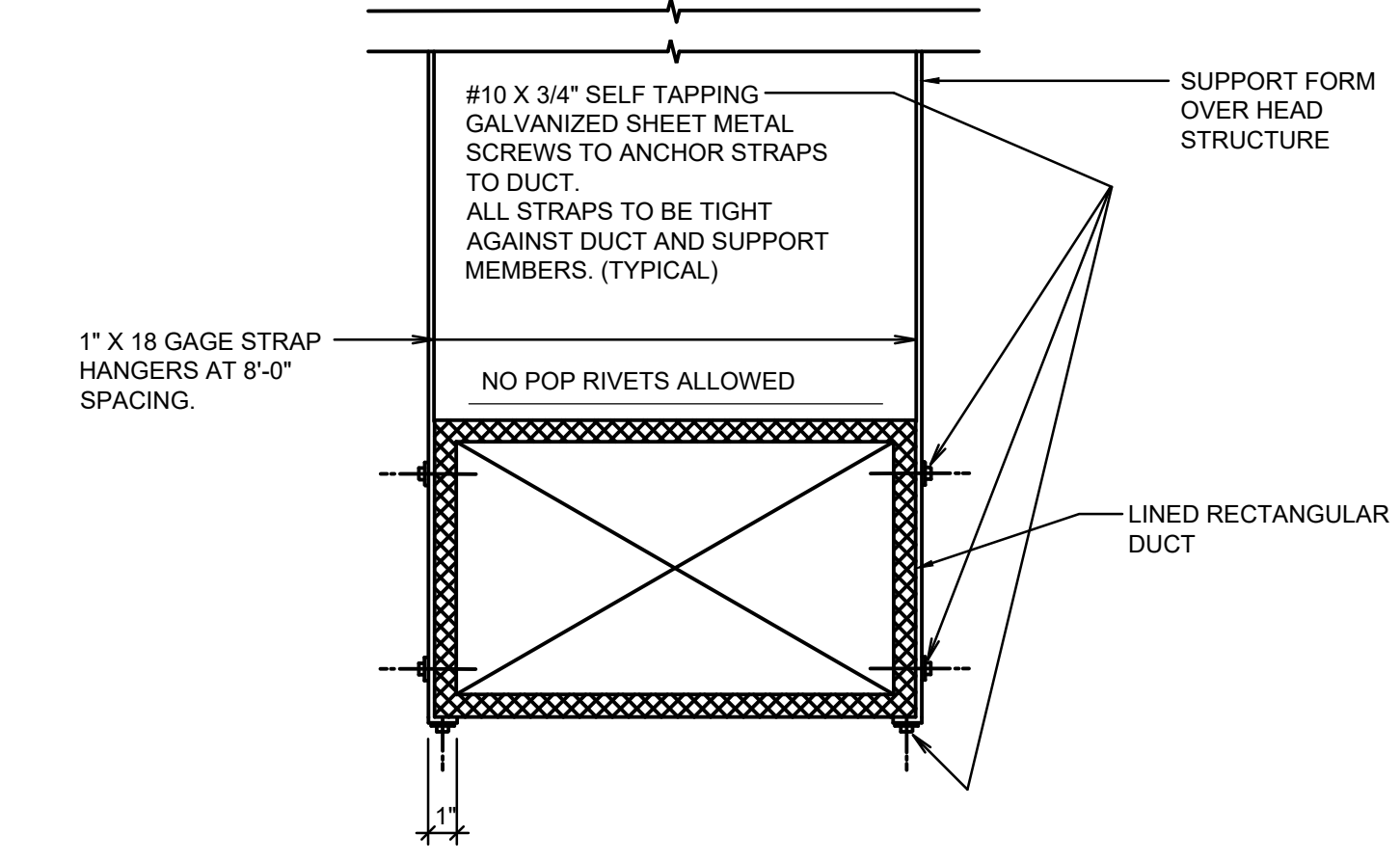
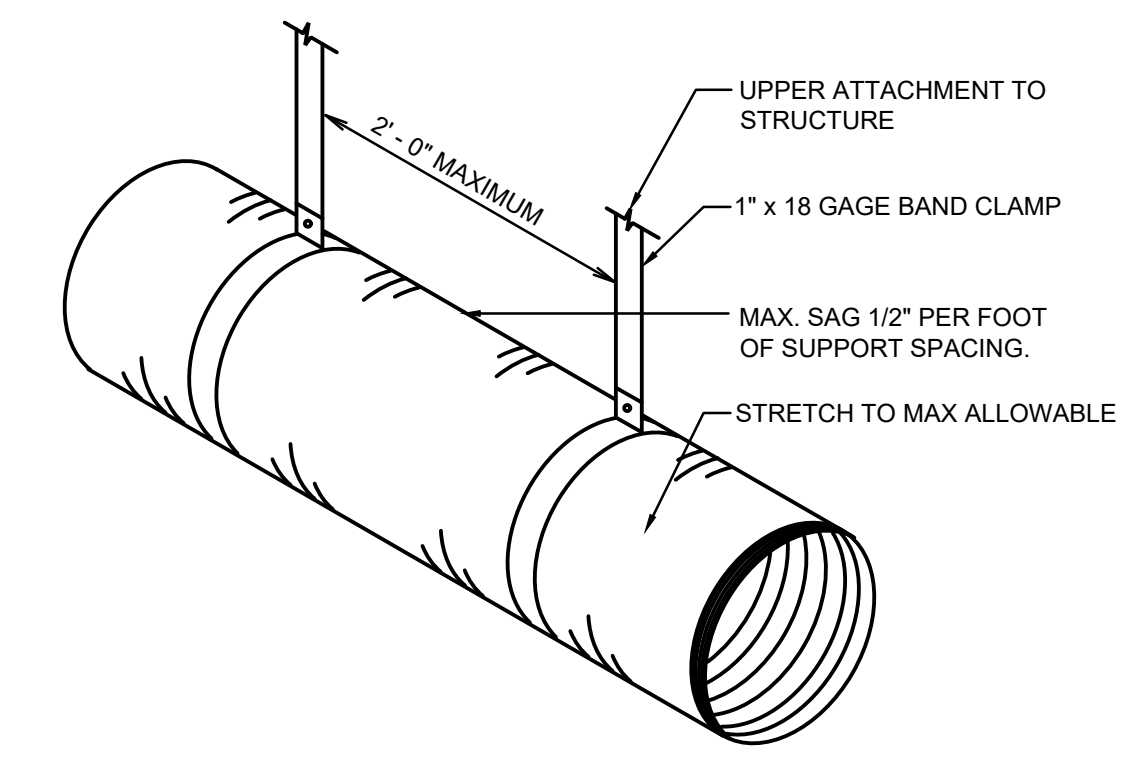
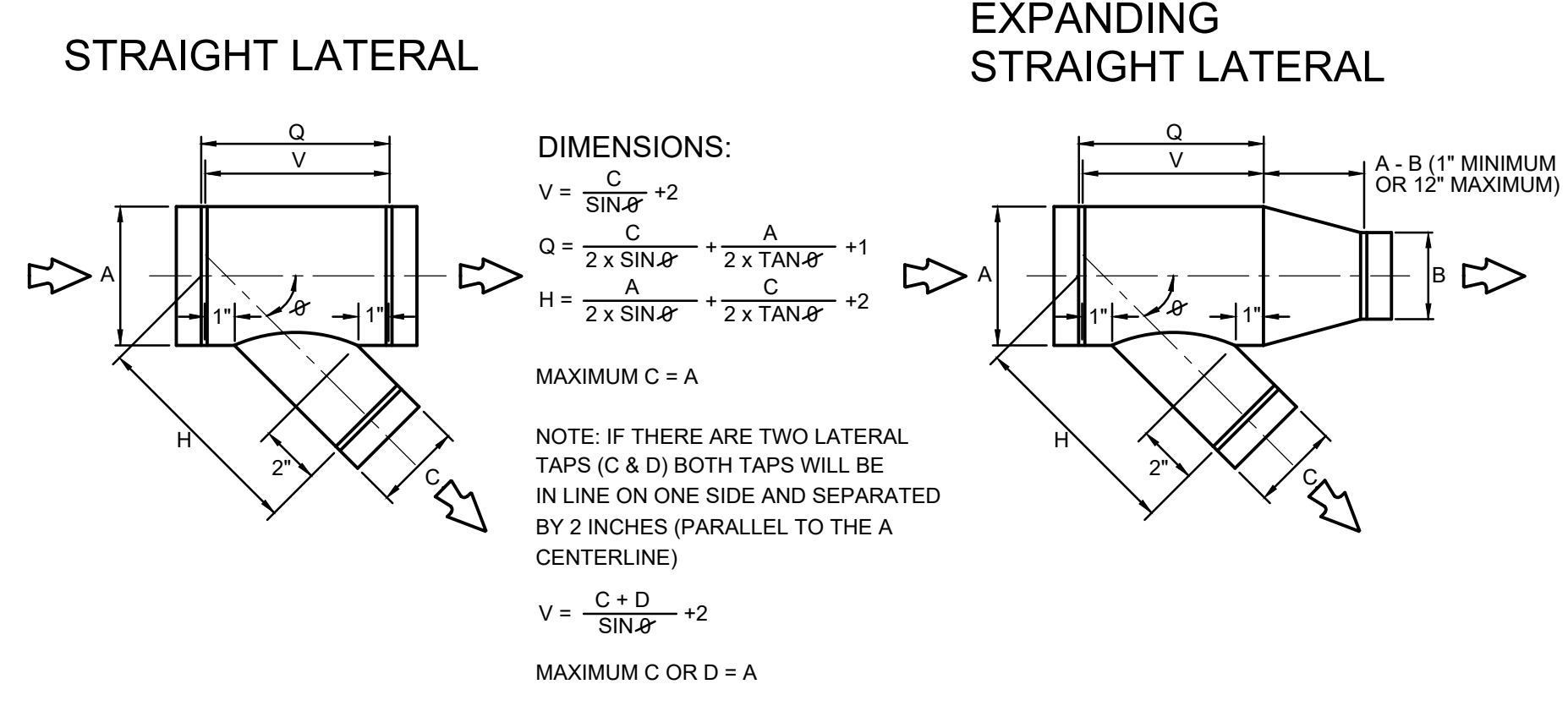
NOTES:  
 (1) TO HAVE BRIGHT WHITE POWDER COAT FINISH.

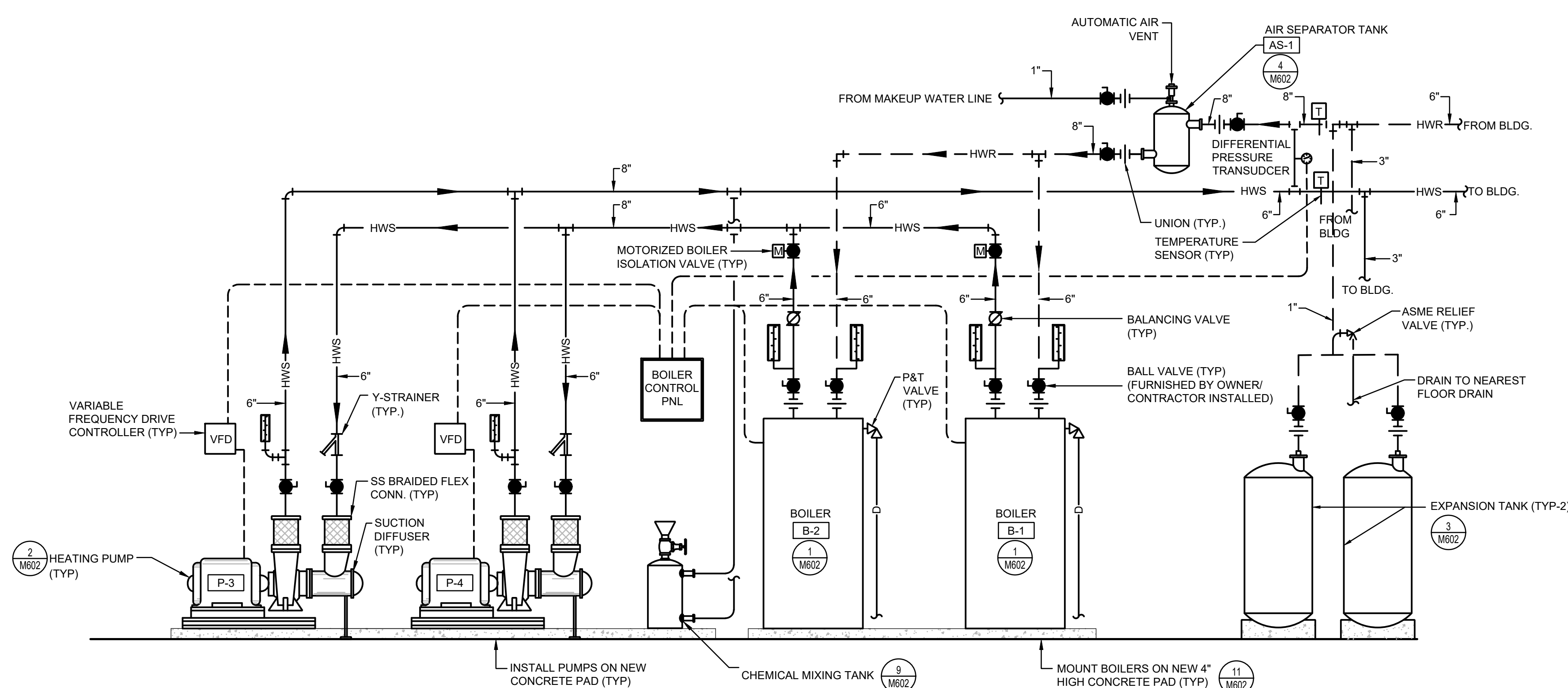
### ROOFTOP UNIT SCHEDULE

SYMBOL	SERVES	CFM	EXTERNAL STATIC PRESS.	MINIMUM OUTSIDE AIR (CFM)	EVAP FAN H.P.	DRIVE	EXHAUST FAN H.P.	DRIVE	COOLING CAPACITY			HEATING CAPACITY			ELEC	MCA	MFS	WEIGHT LBS.	SIZE	MANUFACTURER & MODEL (1)(2)(3)(4)(5)						
									OAT	EDB	EWB	TOTAL MBH	SENSIBLE MBH	SEER / EER							TYPE	GAS CONN.	MBH IN	MBH OUT		
RT-1	ADMIN	1865	0.8	240	1.5	BELT	-	-	95	80	62	66.1	65.8	15.4	INDIRECT GAS	1/2"	90	82	72	66	208 V/3 /60	35.7	50.0	740	74" x 49" x 41"	YORK ZYG06E2C1AK2B324A3 (5 TON)
RT-2	ADMIN & COUNCILING	790	0.8	60	1.0	BELT	-	-	95	80	62	36.2	30.0	15.2	INDIRECT GAS	1/2"	90	82	72	-	208 V/3 /60	21.0	25.0	580	74" x 49" x 41"	YORK ZYG04E2C1AK2B324A3 (3 TON)

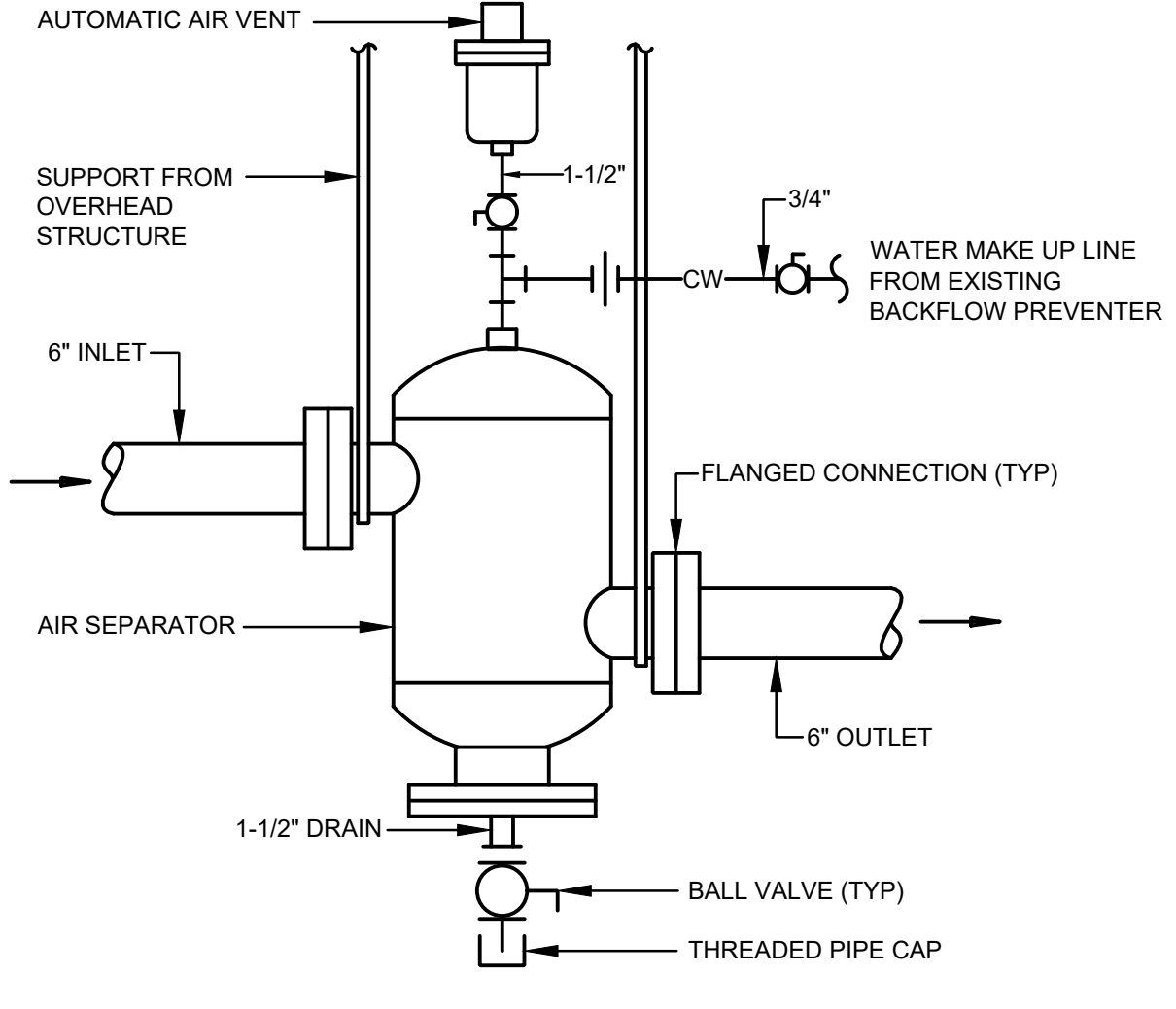
NOTES:  
 (1) FURNISH ROOF TOP UNIT COMPLETE WITH FULL ECONOMIZER, BACNET CARD CONTROLS, MOTORIZED R.A. & O.A. DAMPERS WITH GRAVITY RELIEF, WEATHERHOODS FOR O.A AND RELIEF AIR, HAIL GUARDS, POWERED CONVENIENCE OUTLET, SINGLE POINT POWER CONNECTION W/ NON-FUSED DISCONNECT, STAINLESS STEEL DRAIN PAN, HIGH ALTITUDE KIT, LBOZ GAS REGULATOR, MERV 8 AIR FILTERS, 2 STAGE MEDIUM GAS HEAT & LOCKING HINGED SERVICE ACCESS DOORS.  
 (2) INSTALL NEW ROOF-TOP UNIT LEVEL AND PLUMB PER MANUFACTURERS INSTRUCTIONS. MAINTAIN MANUFACTURERS RECOMMENDED SERVICE AND OPERATIONAL CLEARANCES AROUND UNIT.  
 (3) PROVIDE 14 INCH HIGH FACTORY FABRICATED AND INSULATED ROOF CURB. VERIFY LOCATION OF ROOF CURB AND ROOF OPENINGS WITH ENGINEER PRIOR TO INSTALLING. ROOF OPENINGS FOR SUPPLY AND RETURN AIR DUCTWORK TO BE STRUCTURALLY FRAMED TO MATCH DUCTWORK SIZES INDICATED OR NEEDED.  
 (4) AIRFLOW, HEATING AND COOLING CAPACITIES ARE MINIMUM ACCEPTABLE. CONTRACTOR TO SELECT EQUIPMENT FOR PROJECT SITE ALTITUDE OF 4300 FT ASL. 95 DEG F DB AND 62 DEG F WB.  
 (5) PROVIDE TEST AND BALANCE SERVICES TO BALANCE ROOF TOP UNIT TO CFM INDICATED. MECHANICAL CONTRACTOR TO PROVIDE SHEAVES, DRIVES AND BELTS AS NEEDED TO CONFIGURE THE FAN DRIVE SYSTEM TO MEET THE AIRFLOW REQUIREMENTS INDICATED.



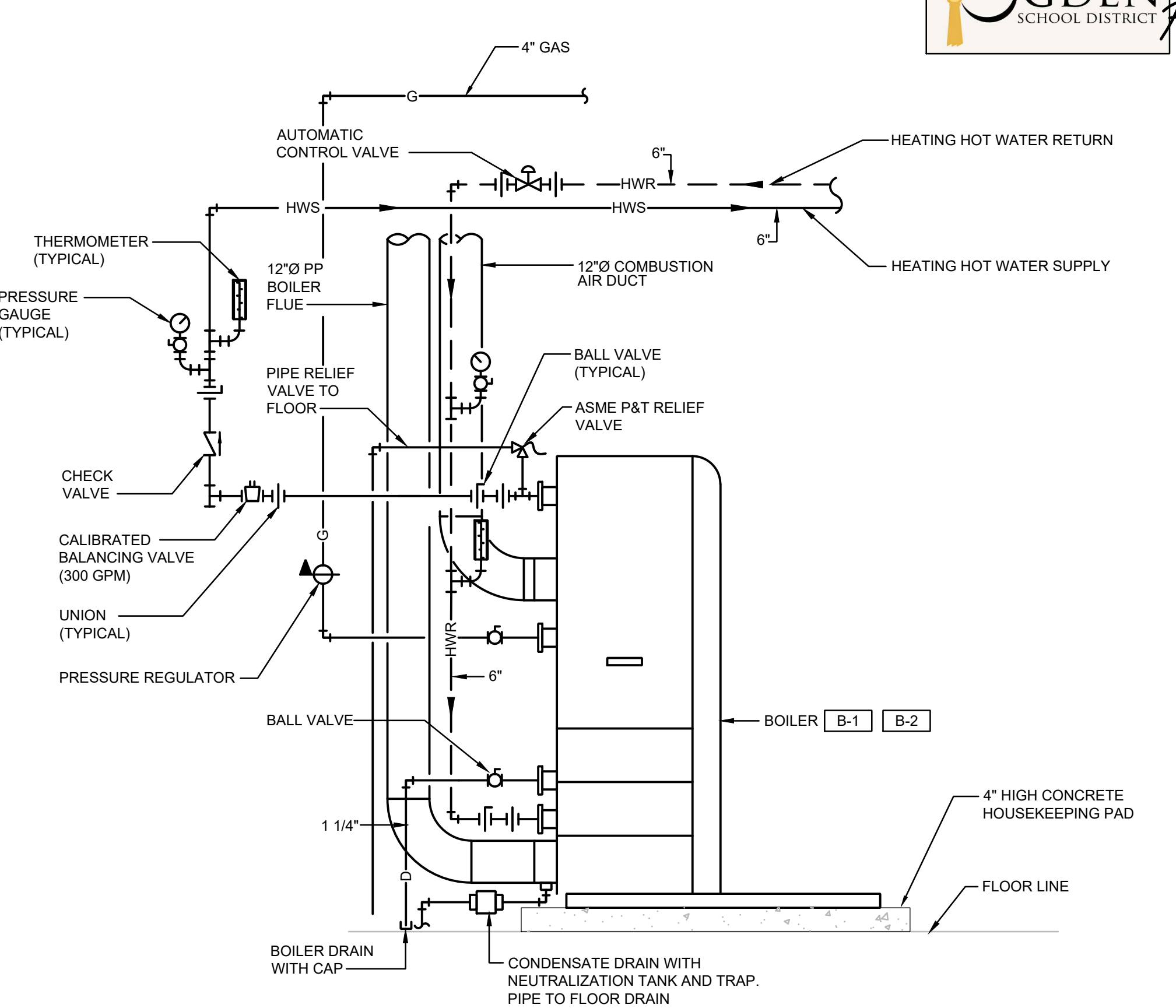




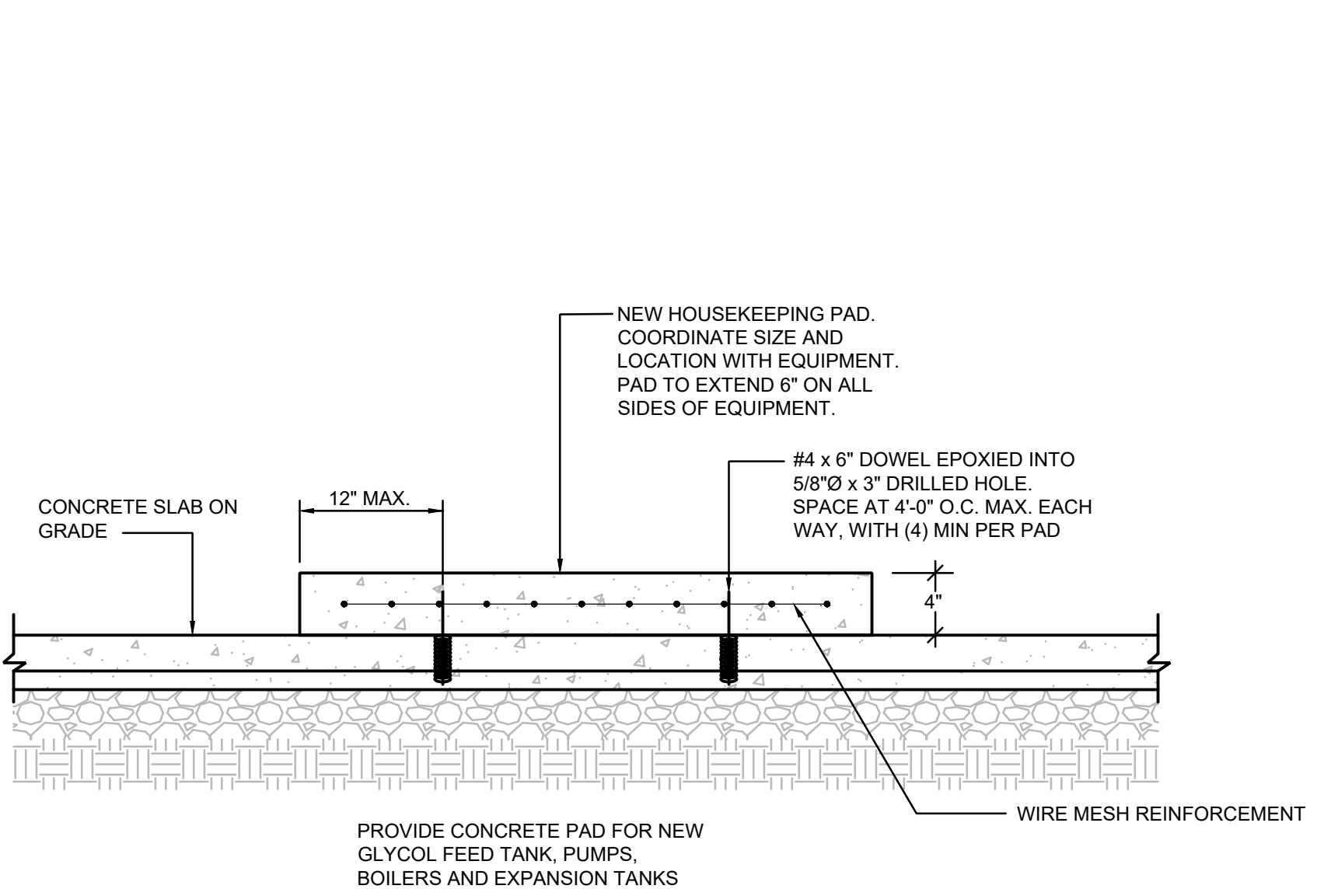
**BOILER ROOM-MECHANICAL PIPING SCHEMATIC**  
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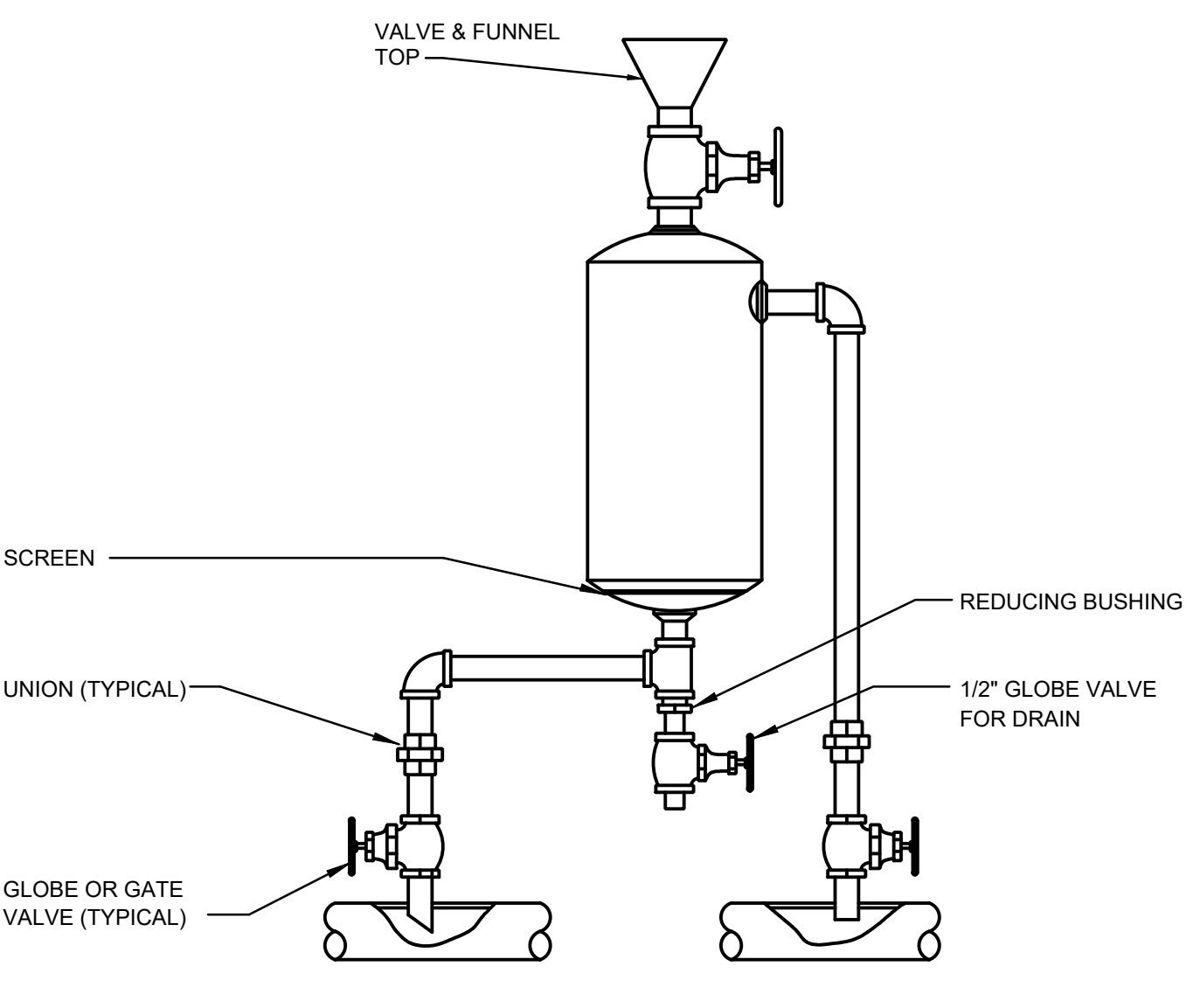
**AIR SEPARATOR DETAIL**  
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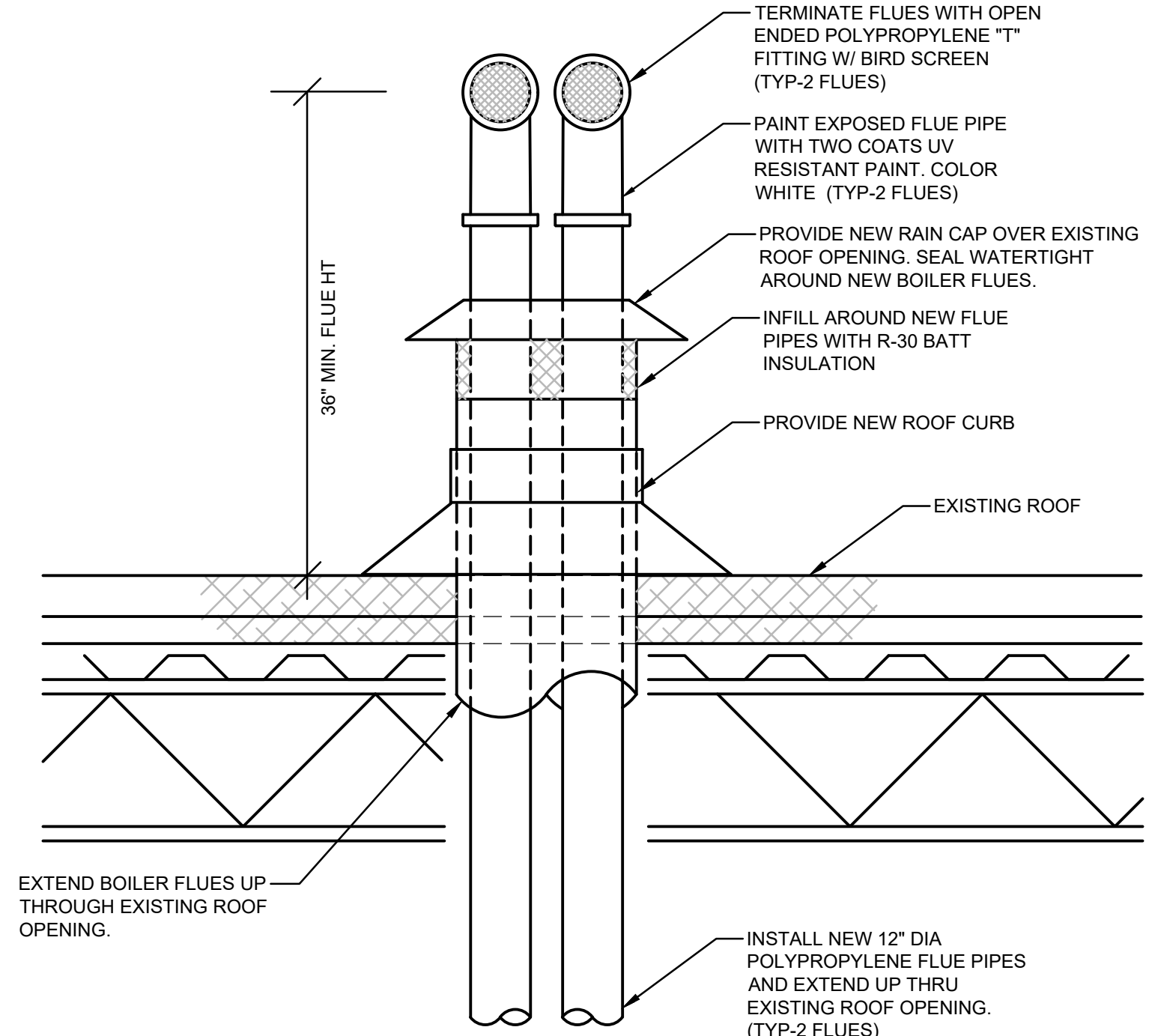
**BOILER INSTALLATION DETAIL**  
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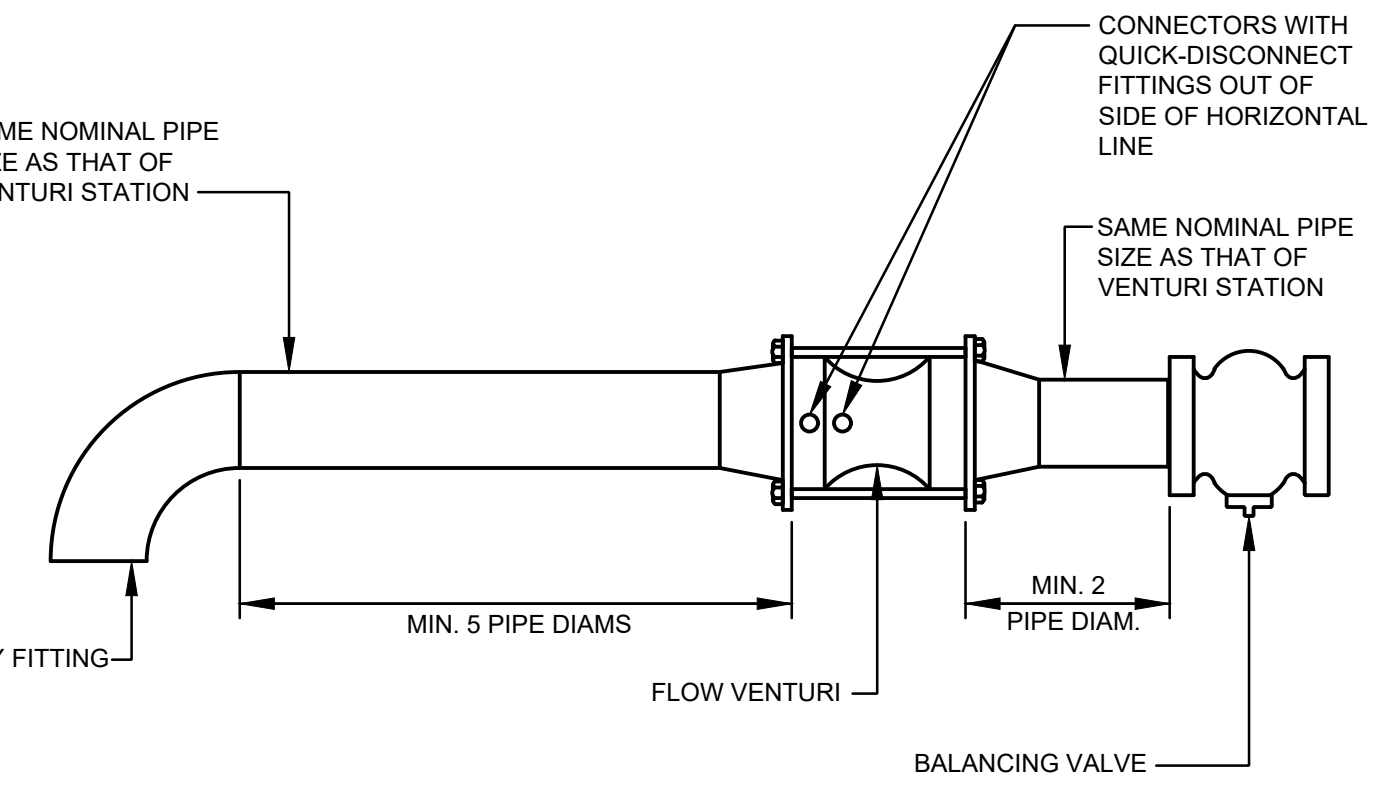
**HOUSEKEEPING PAD DETAIL**  
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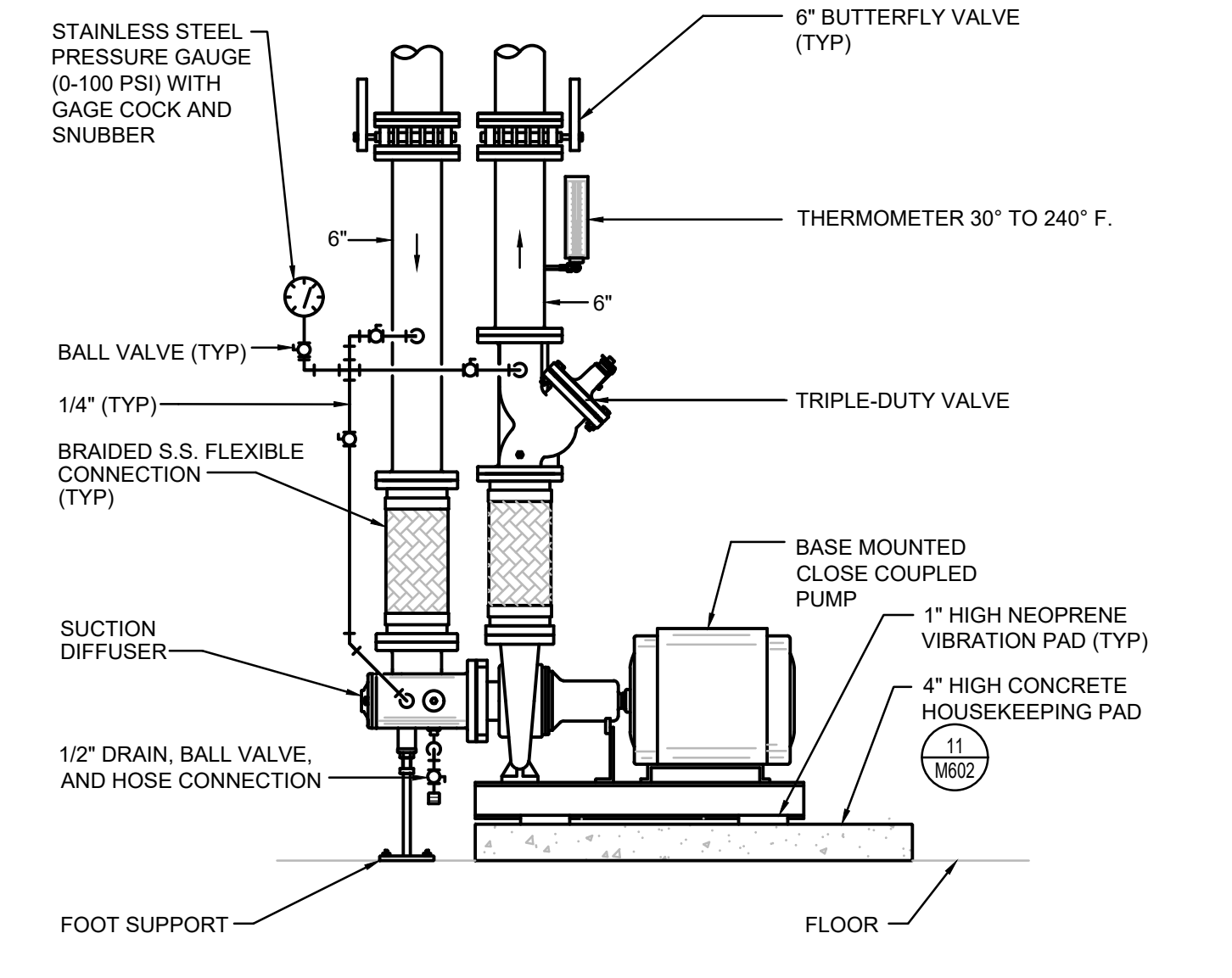
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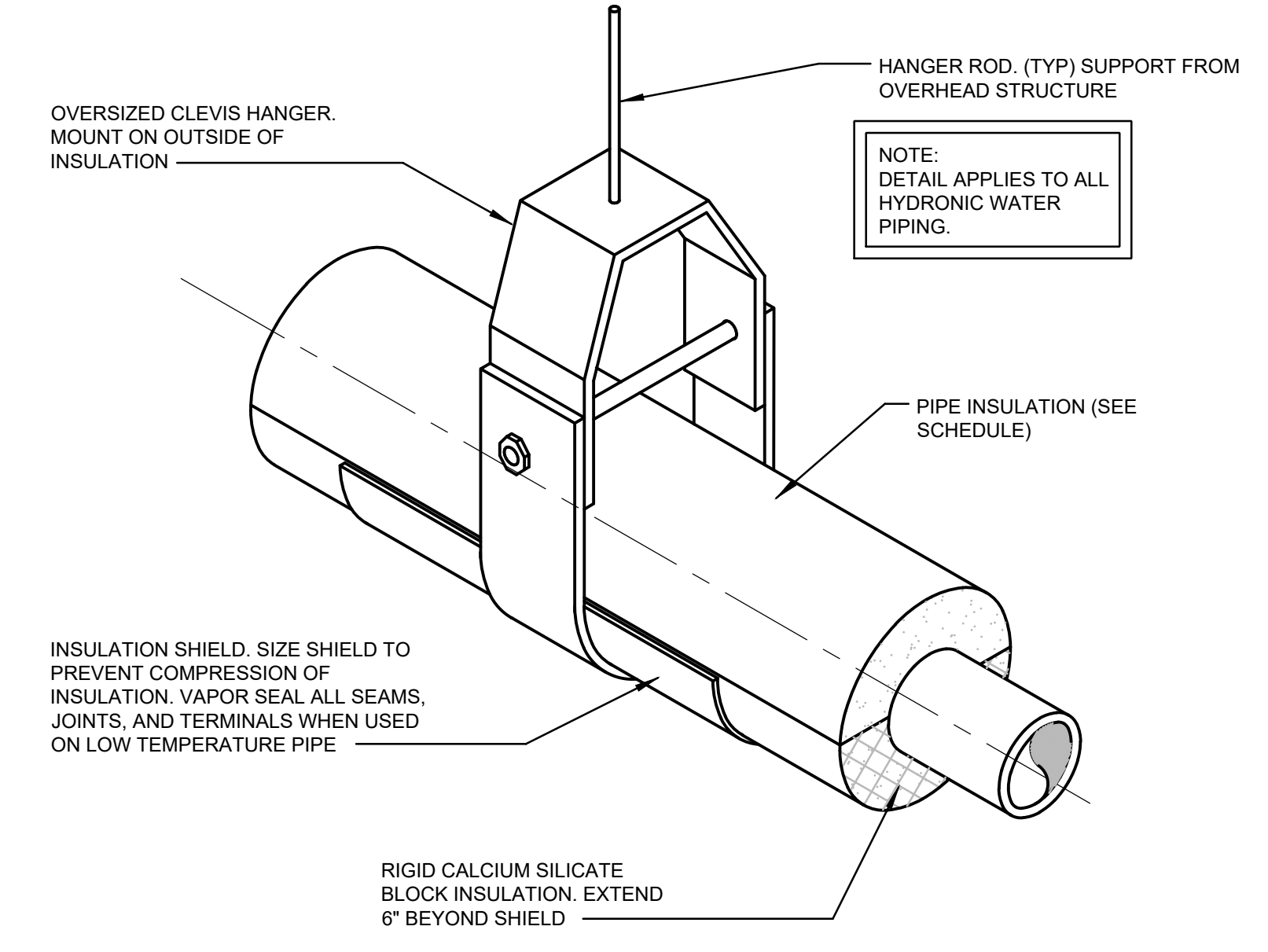
**TYPICAL BOILER FLUES AT ROOF DETAIL**  
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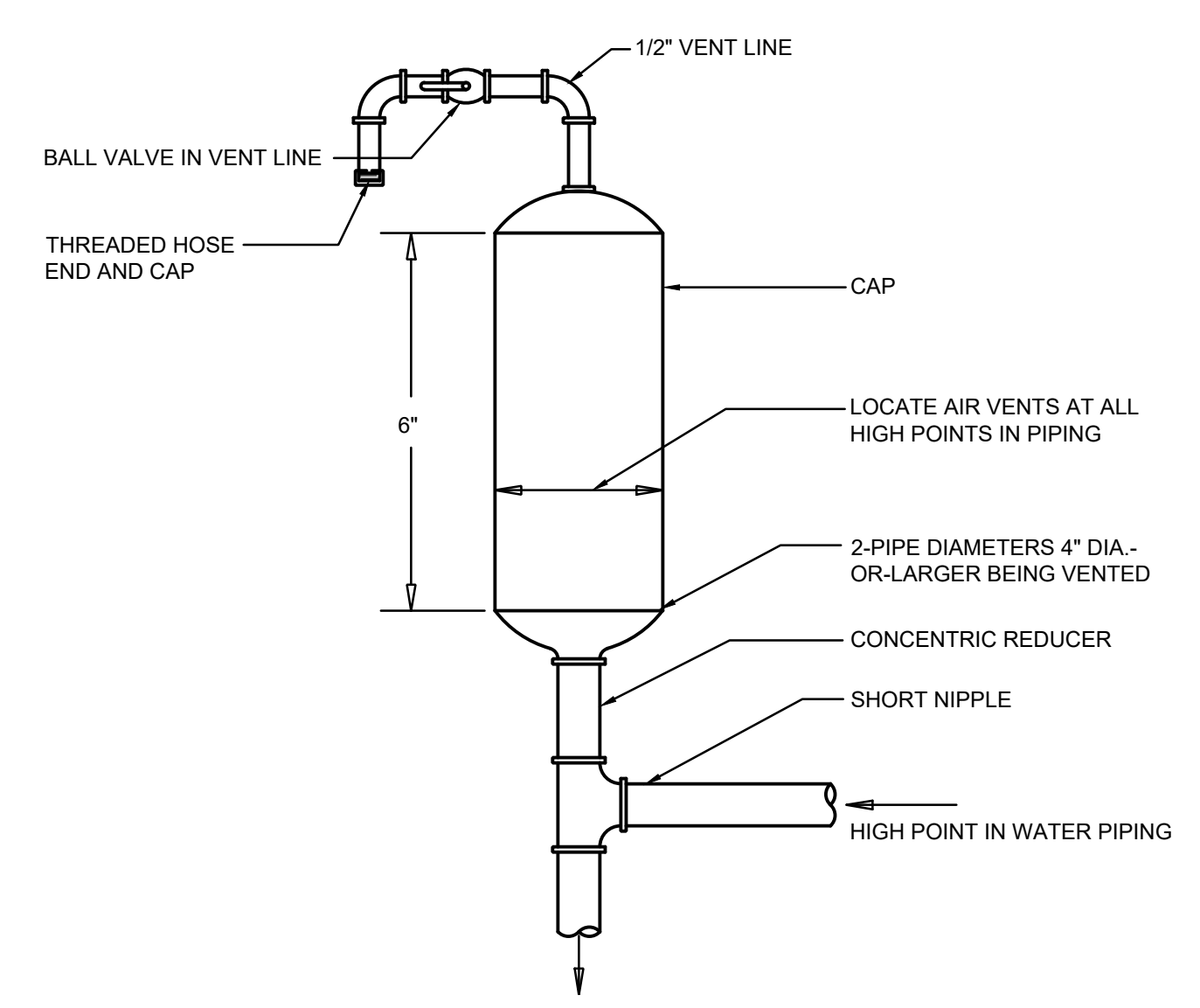
**FLOW VENTURI INSTALLATION DETAIL**  
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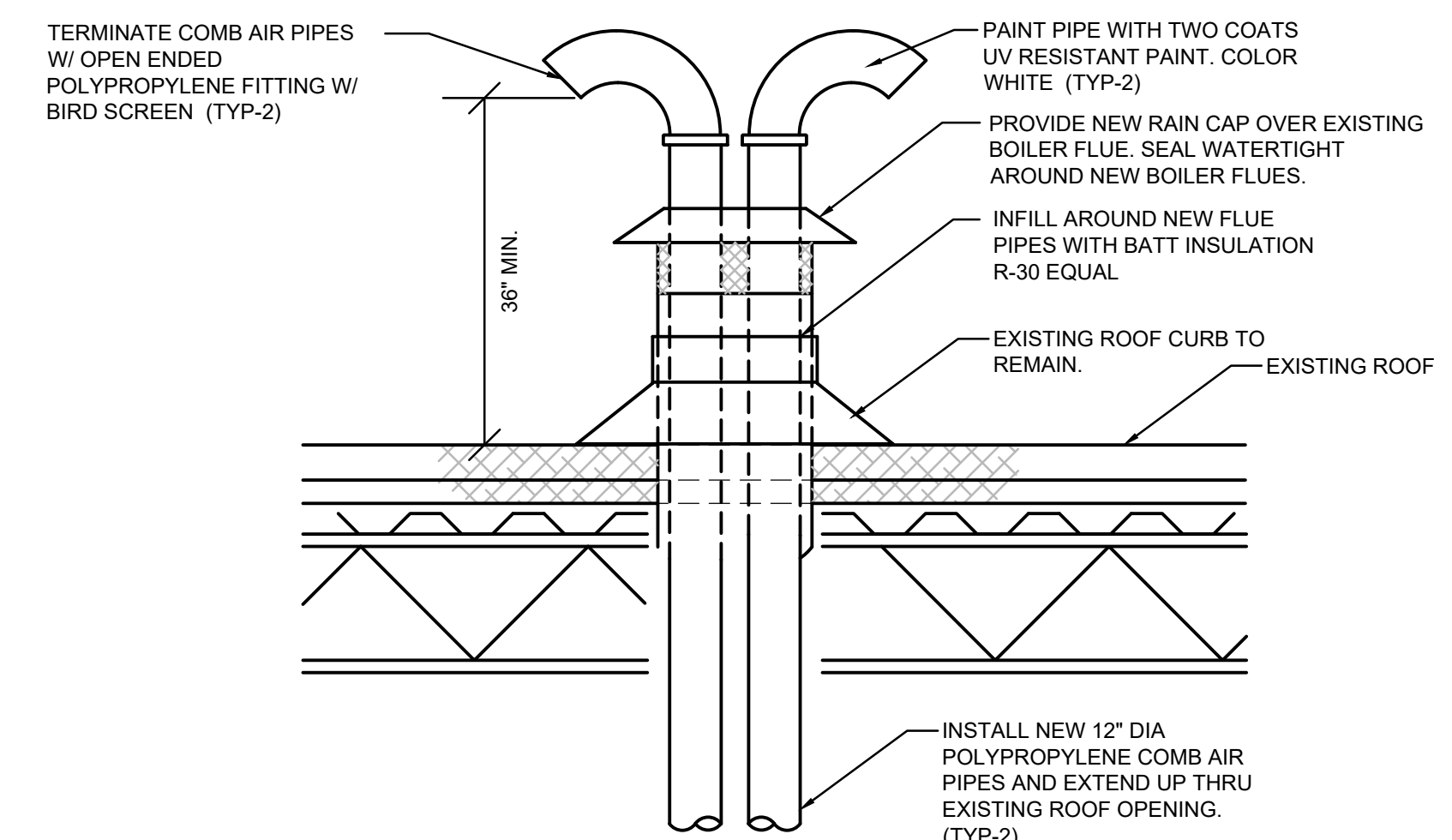
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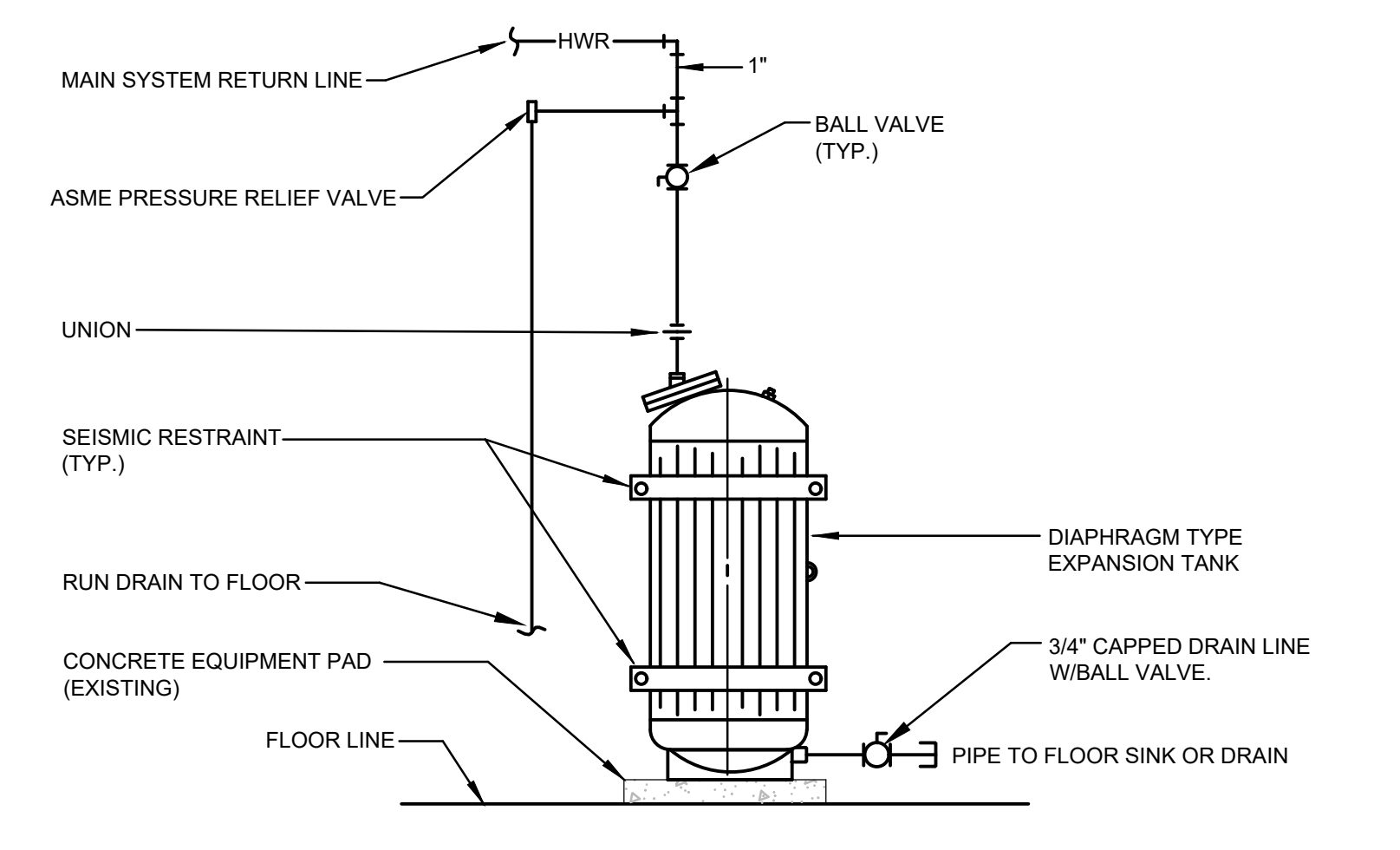
**PIPE SUPPORT DETAIL**  
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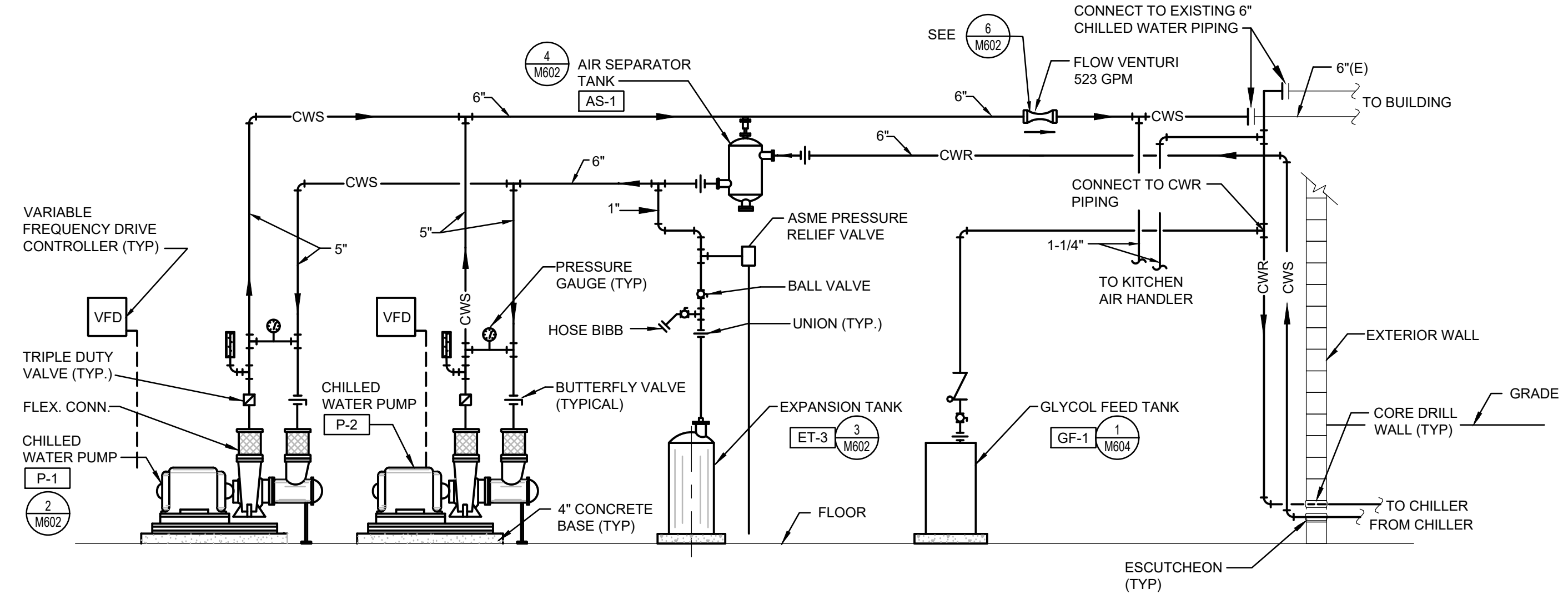
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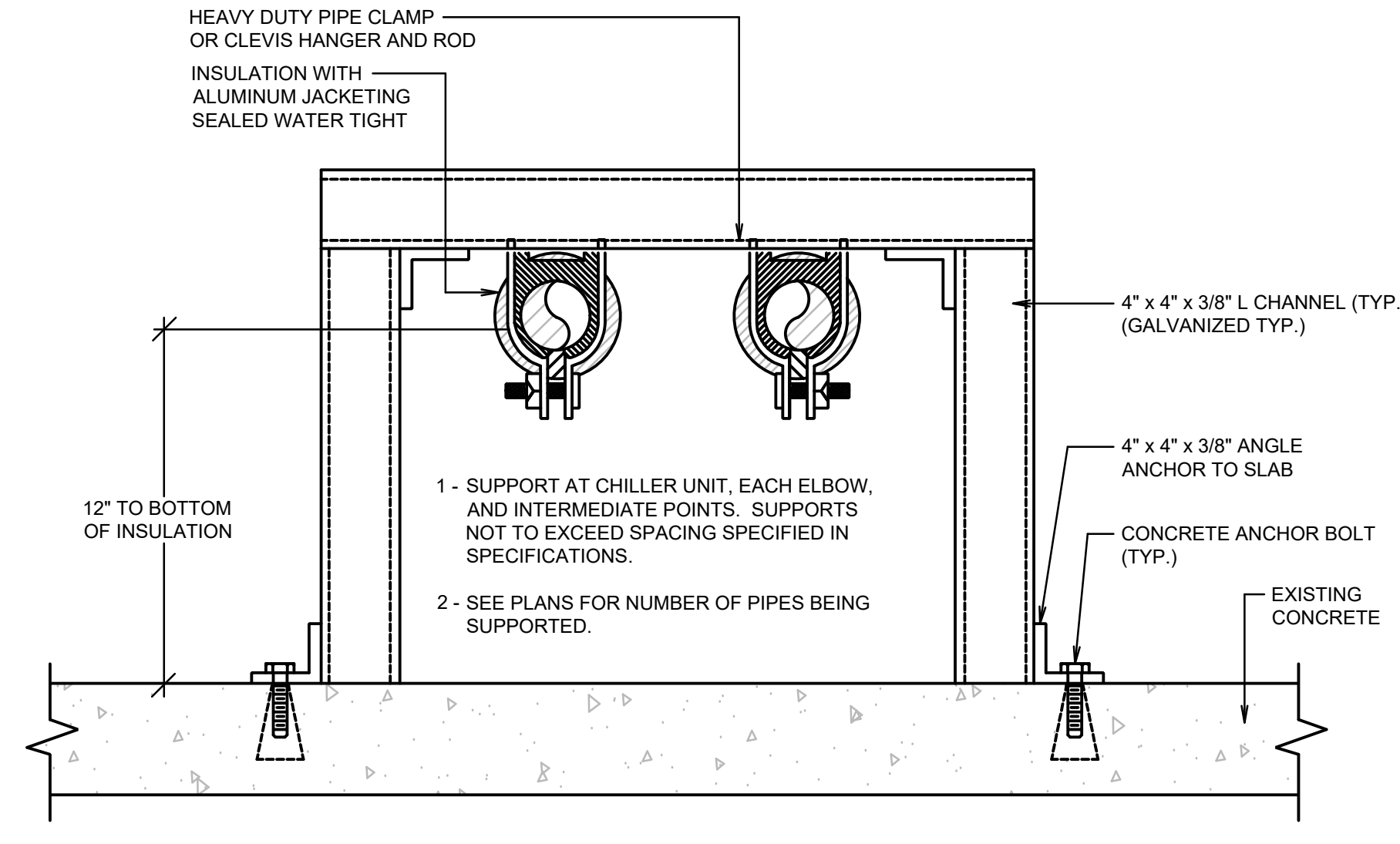
**COMBUSTION AIR PIPING DETAIL**  
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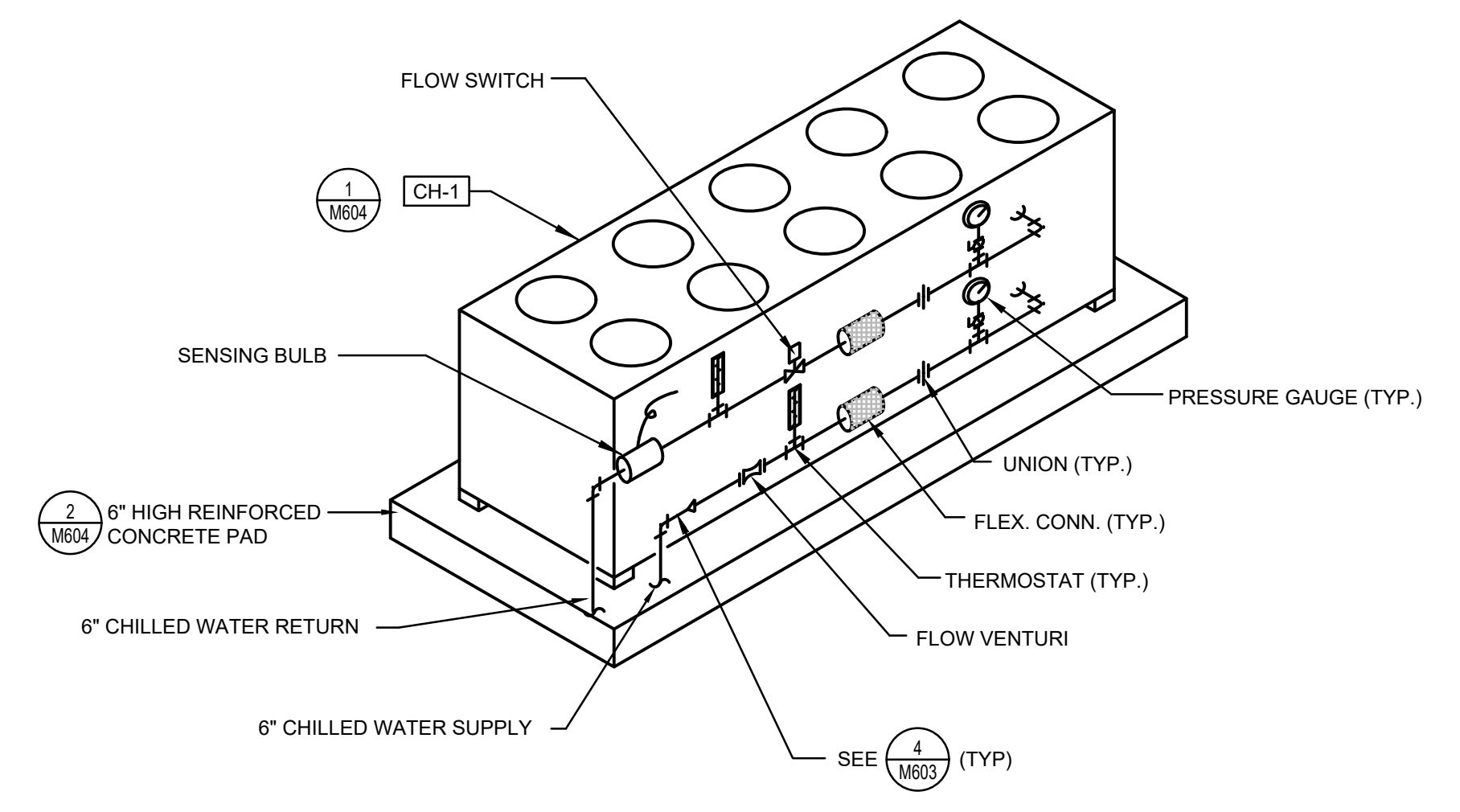
**EXPANSION TANK PIPING DETAIL**  
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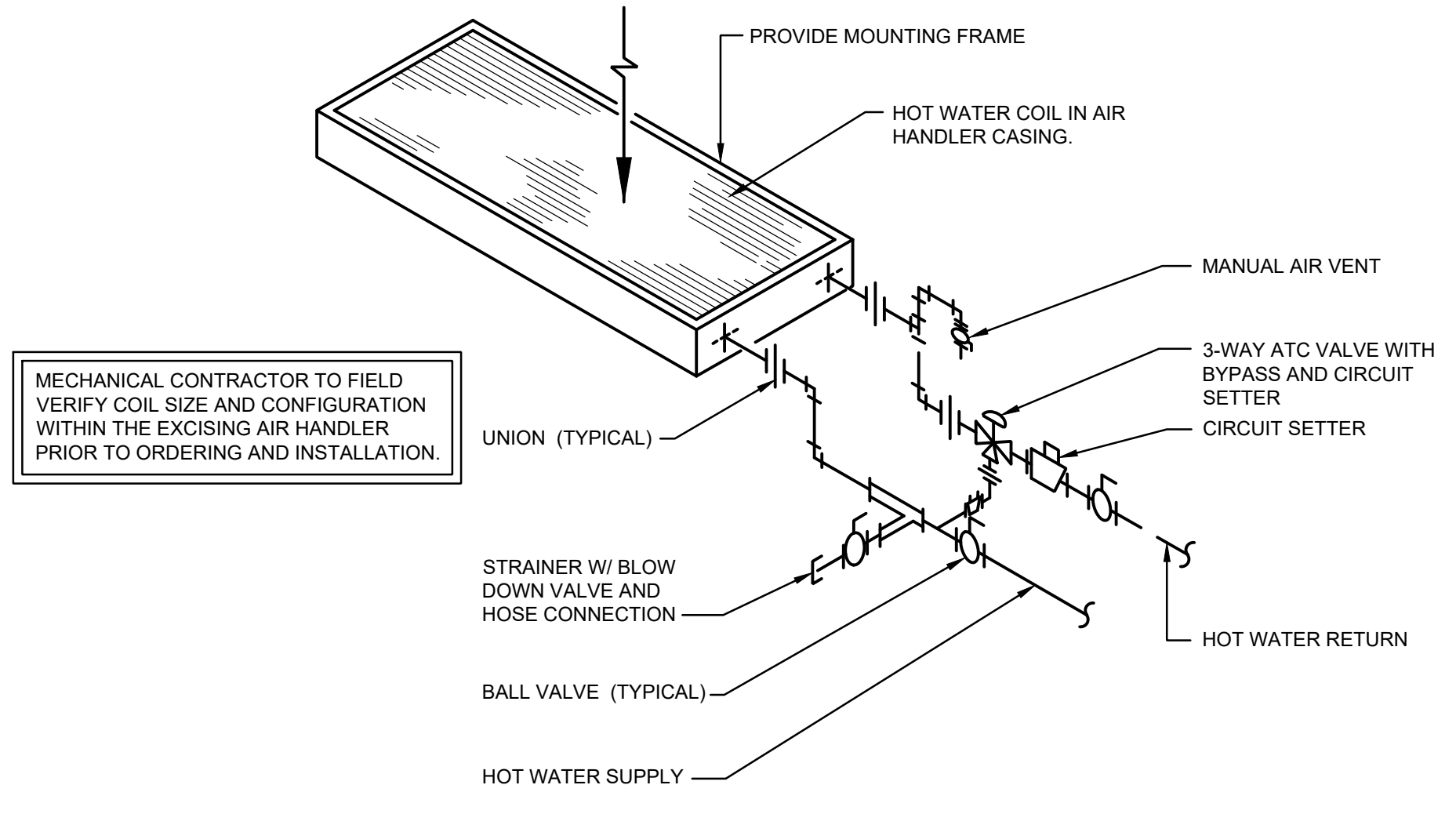
**CHILLED WATER PIPING SCHEMATIC**  
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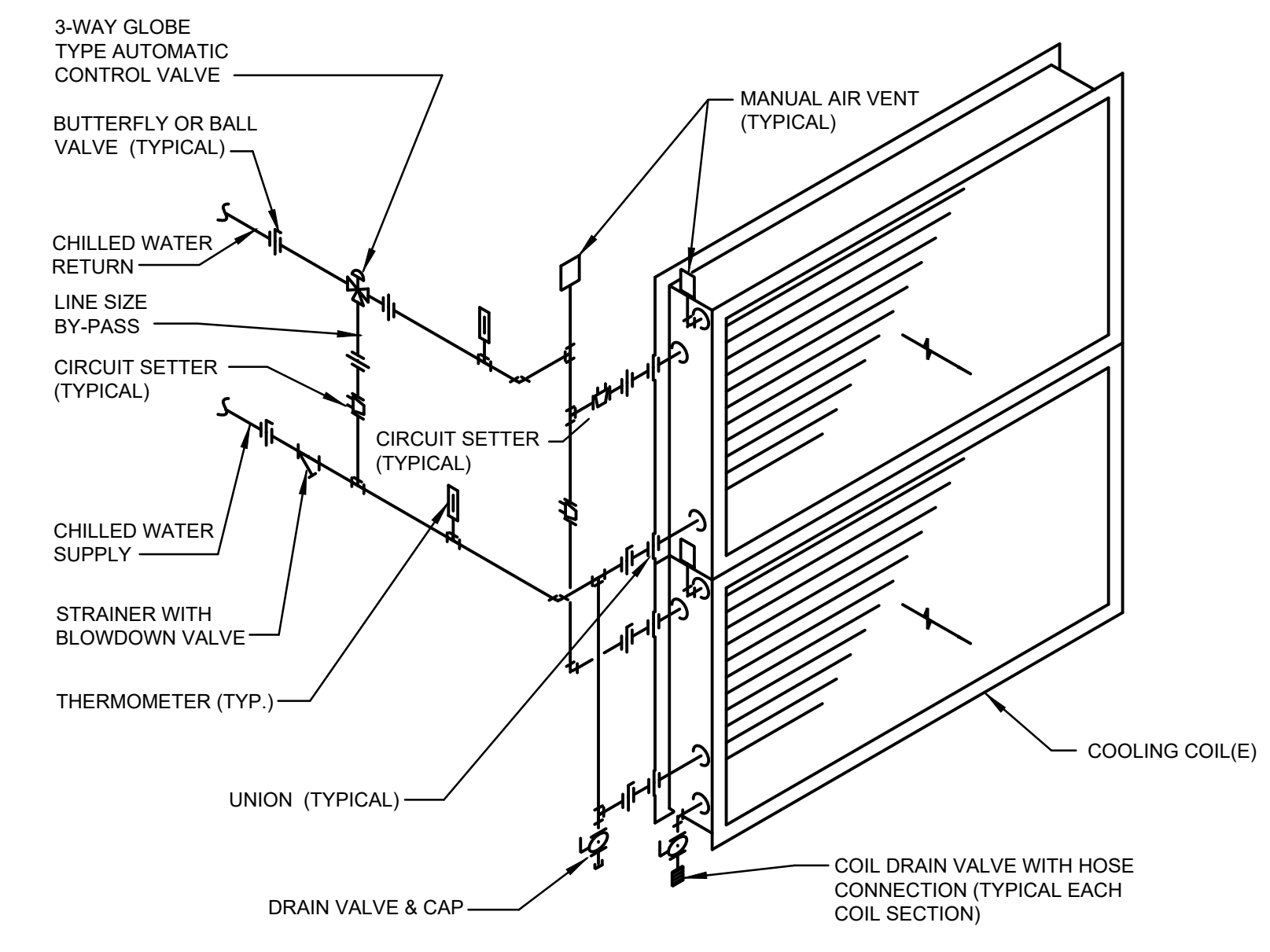
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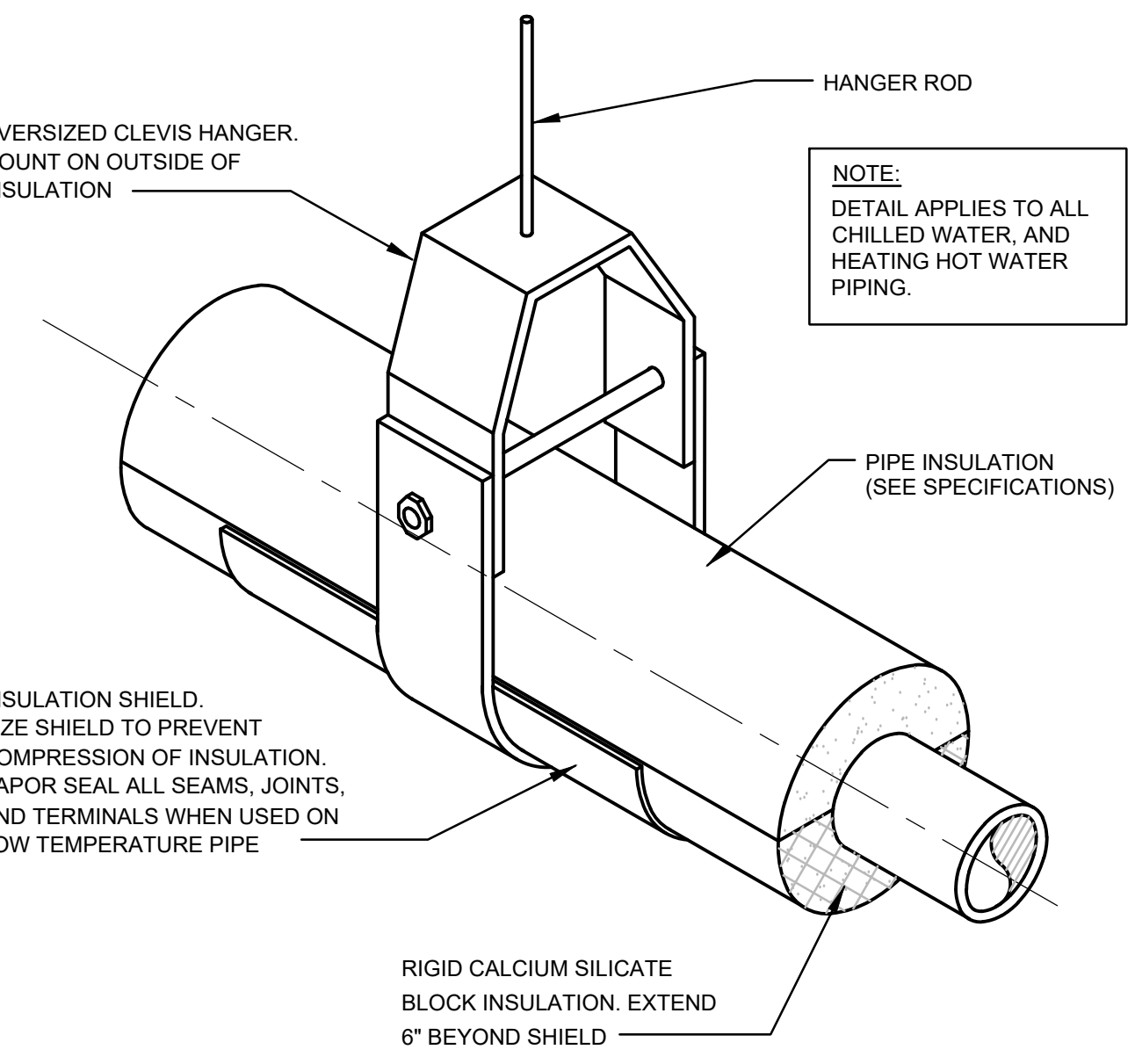
**AIR COOLED CHILLER PIPING SCHEMATIC DETAIL**  
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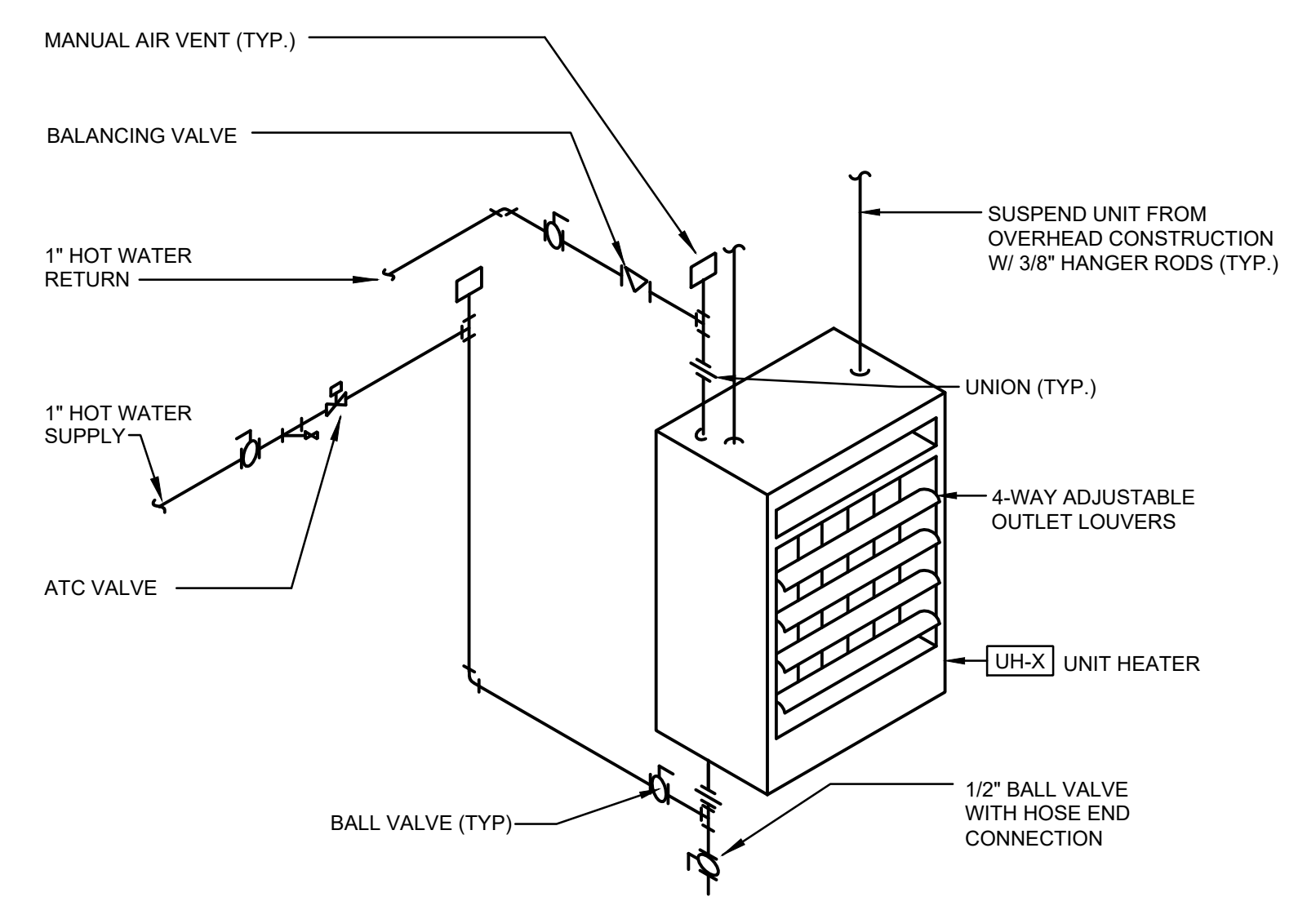
**HEATING HOT WATER COIL PIPING DETAIL**  
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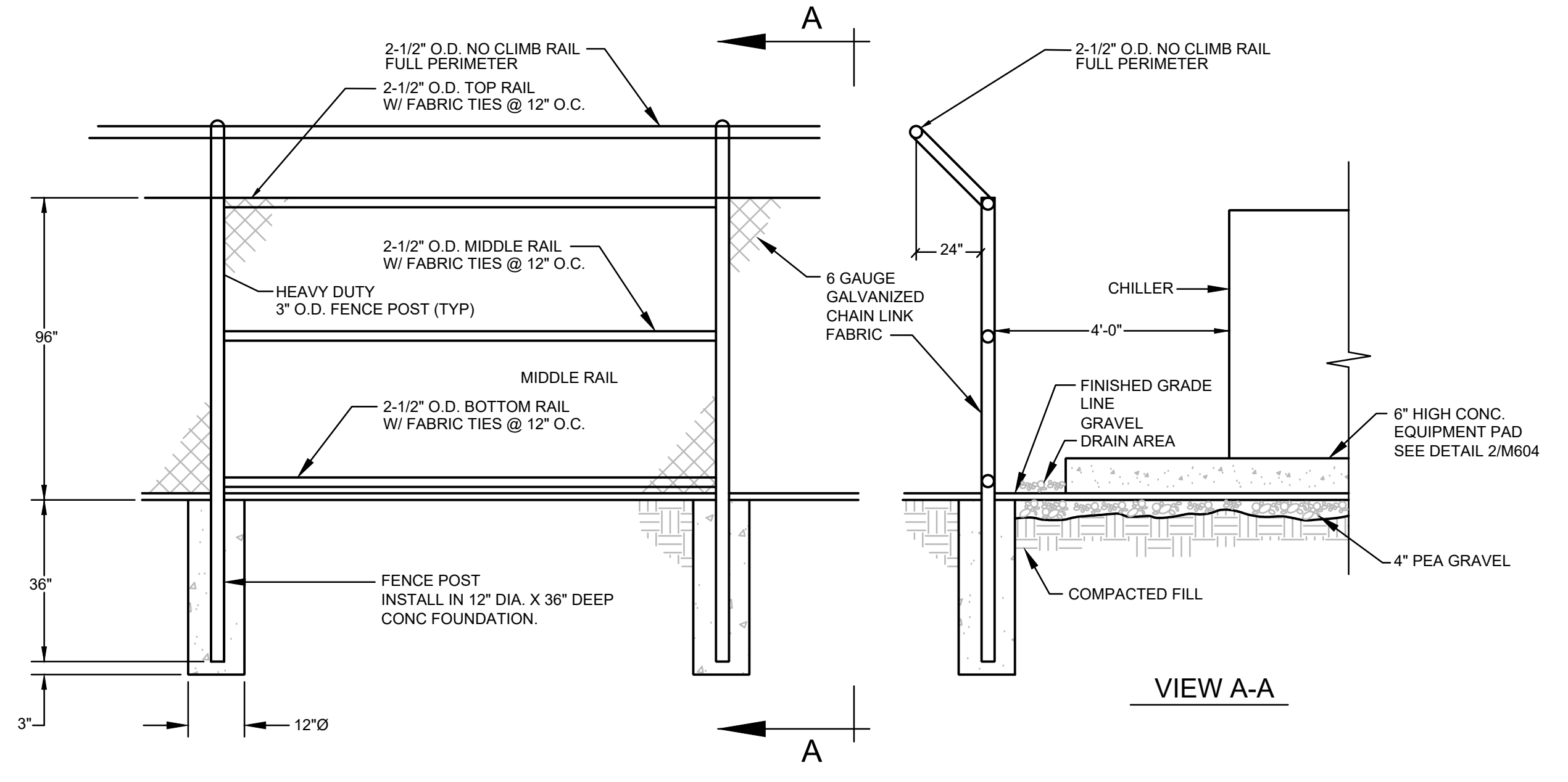
**CHILLED WATER COOLING COIL PIPING DETAIL**  
 NOT TO SCALE



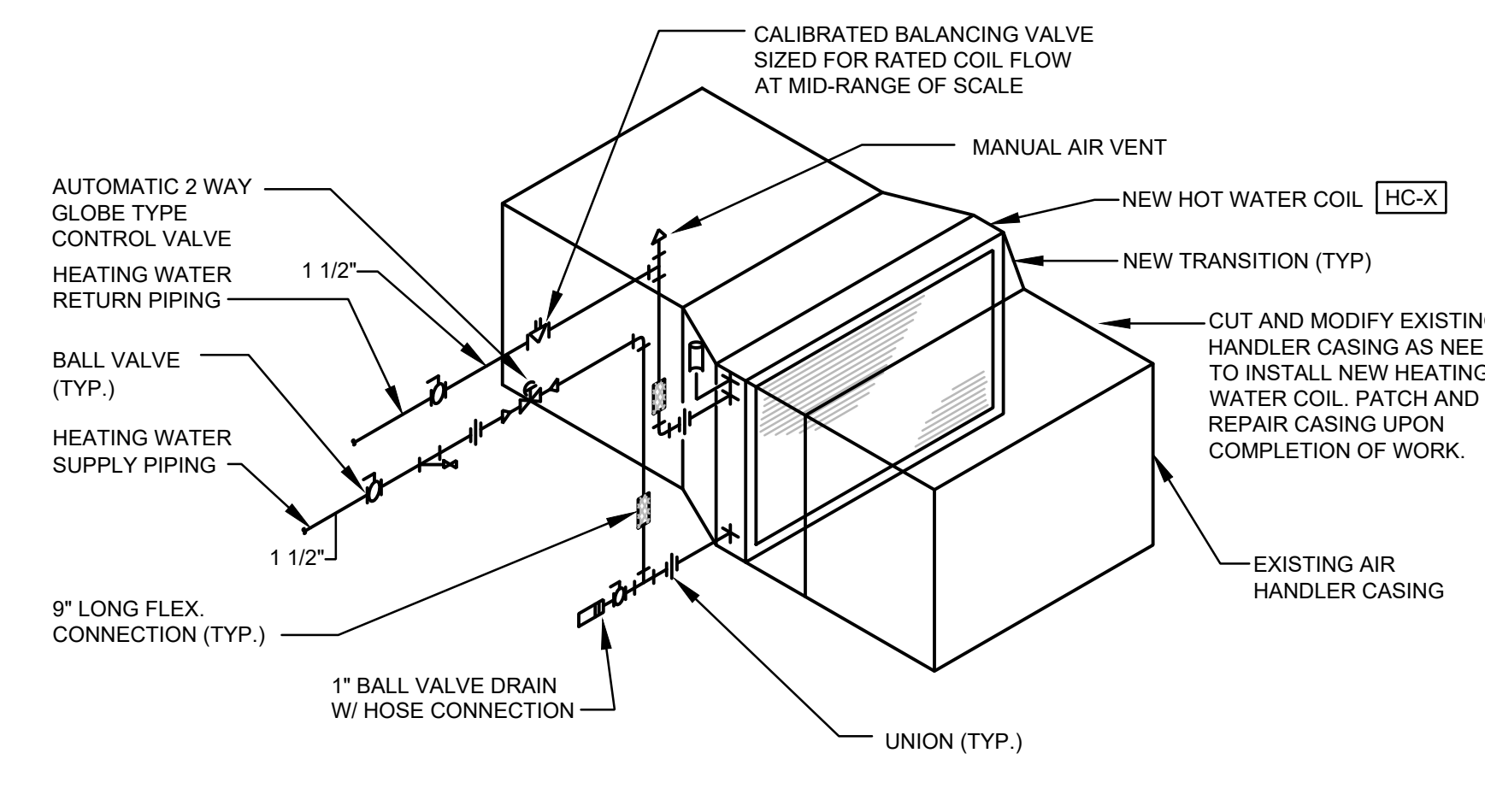
**PIPE SUPPORT DETAIL**  
 NOT TO SCALE



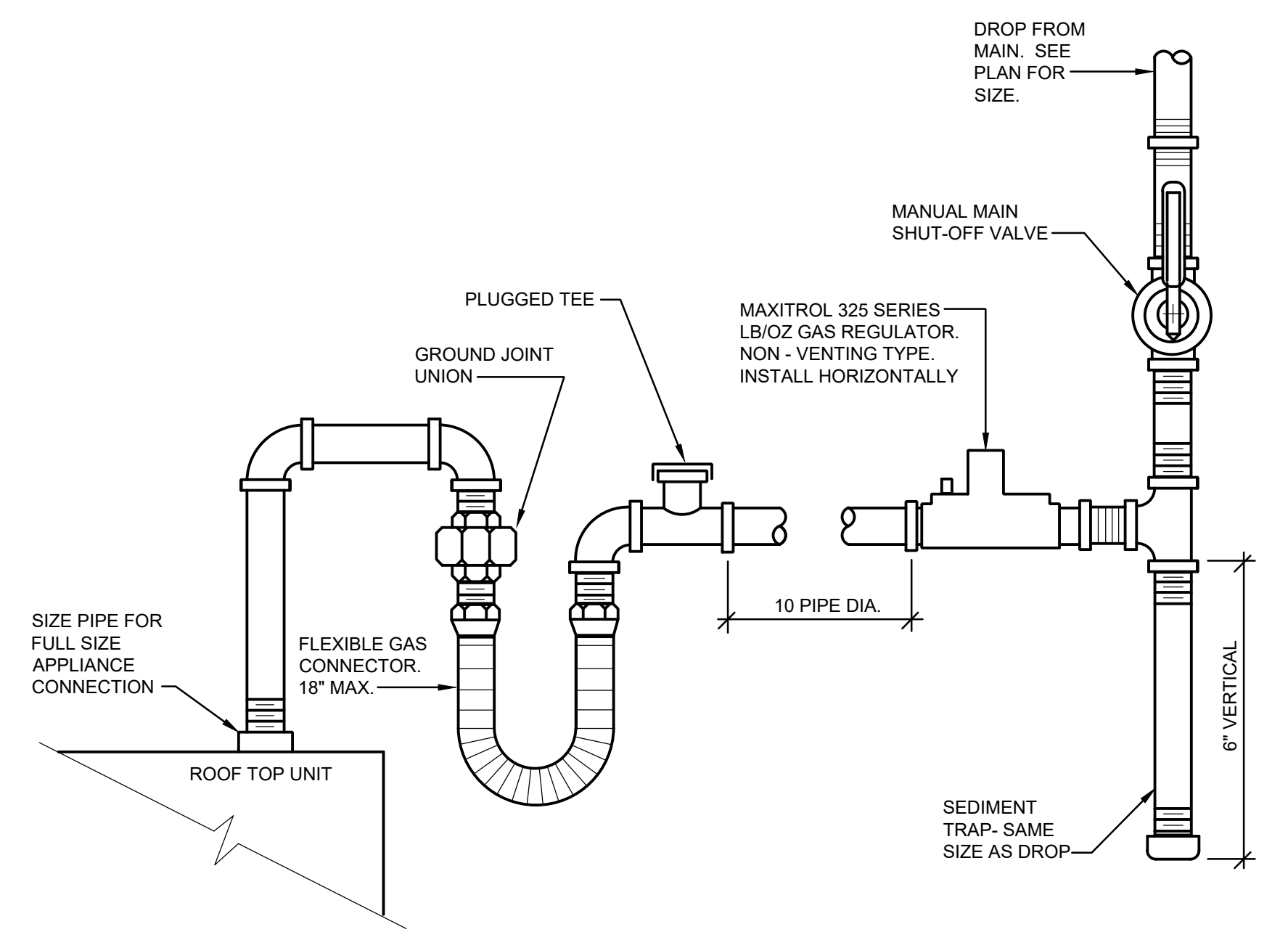
**UNIT HEATER PIPING SCHEMATIC**  
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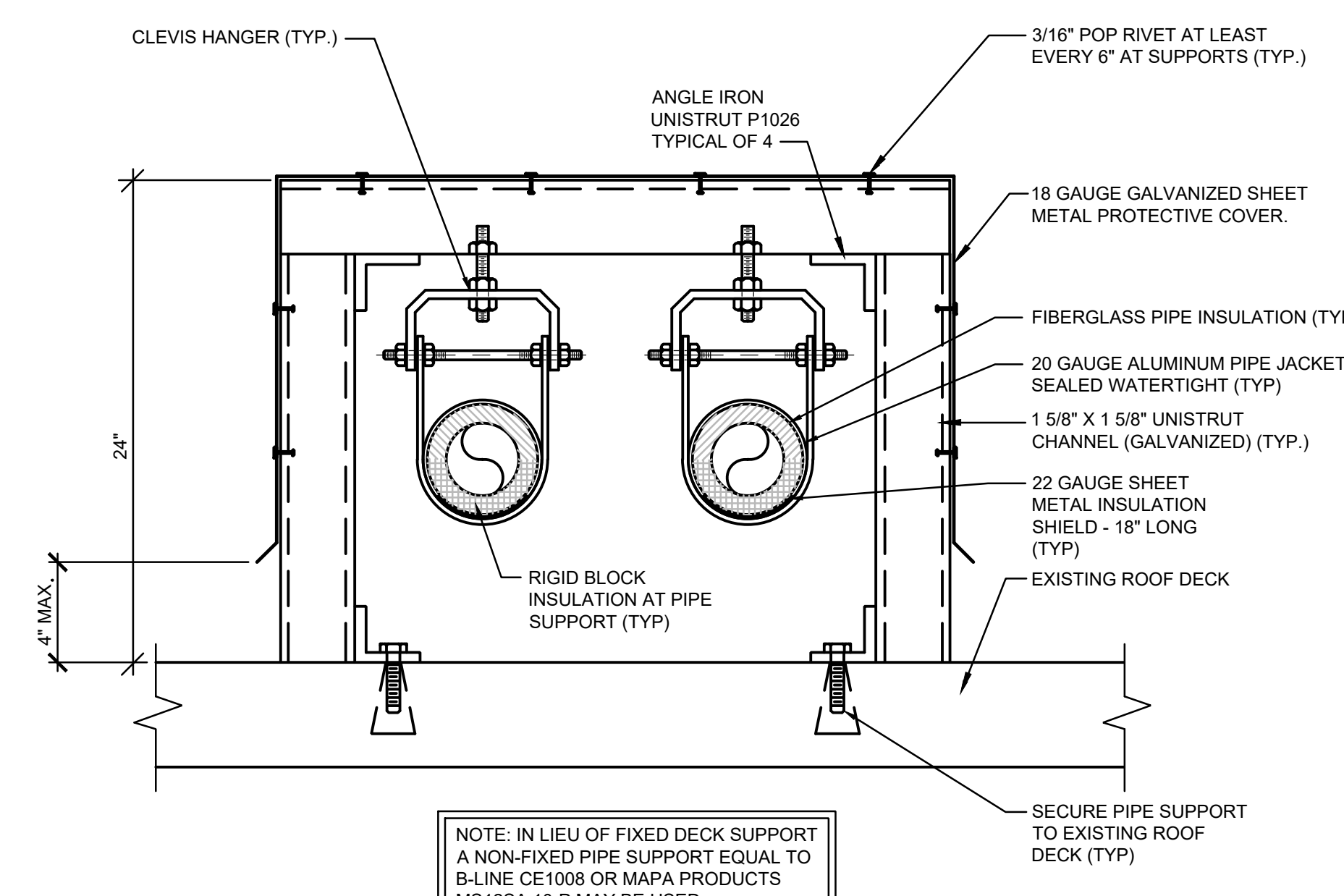
**TYPICAL LINE FENCE DETAIL**  
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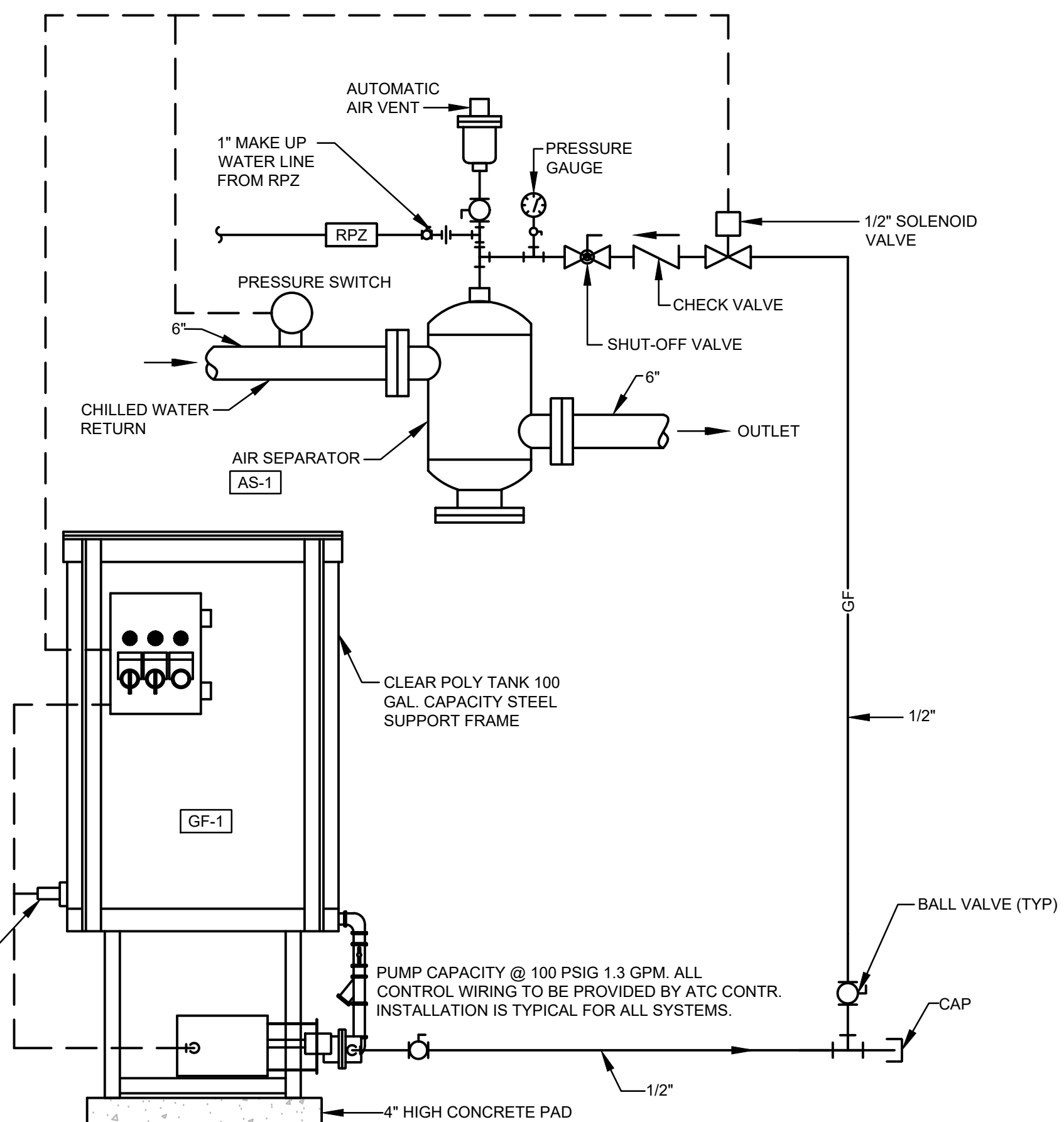
**HOT WATER COIL PIPING DETAIL**  
 NOT TO SCALE



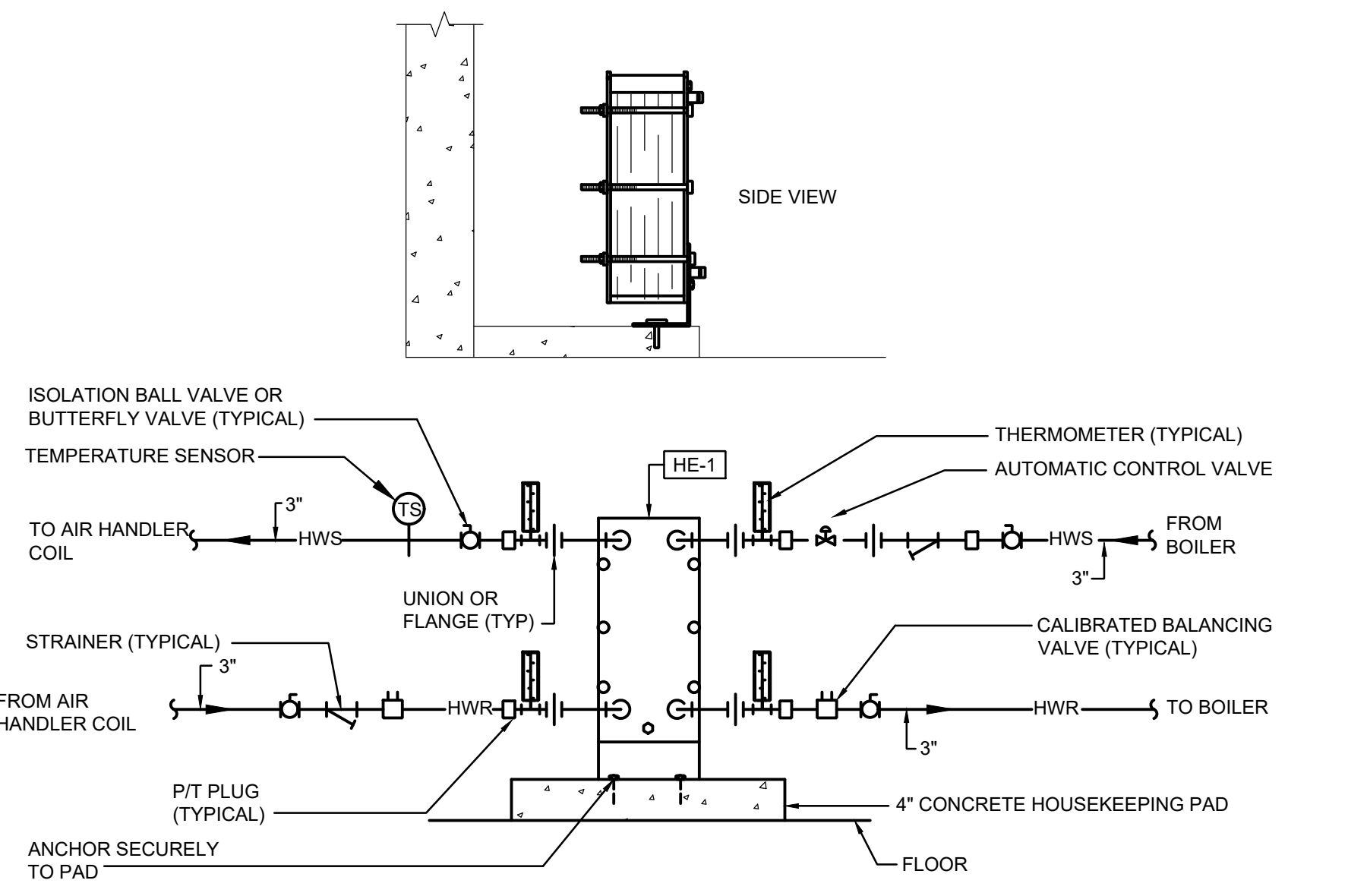
**GAS LINE CONNECTION DETAIL** 7  
 NOT TO SCALE M604



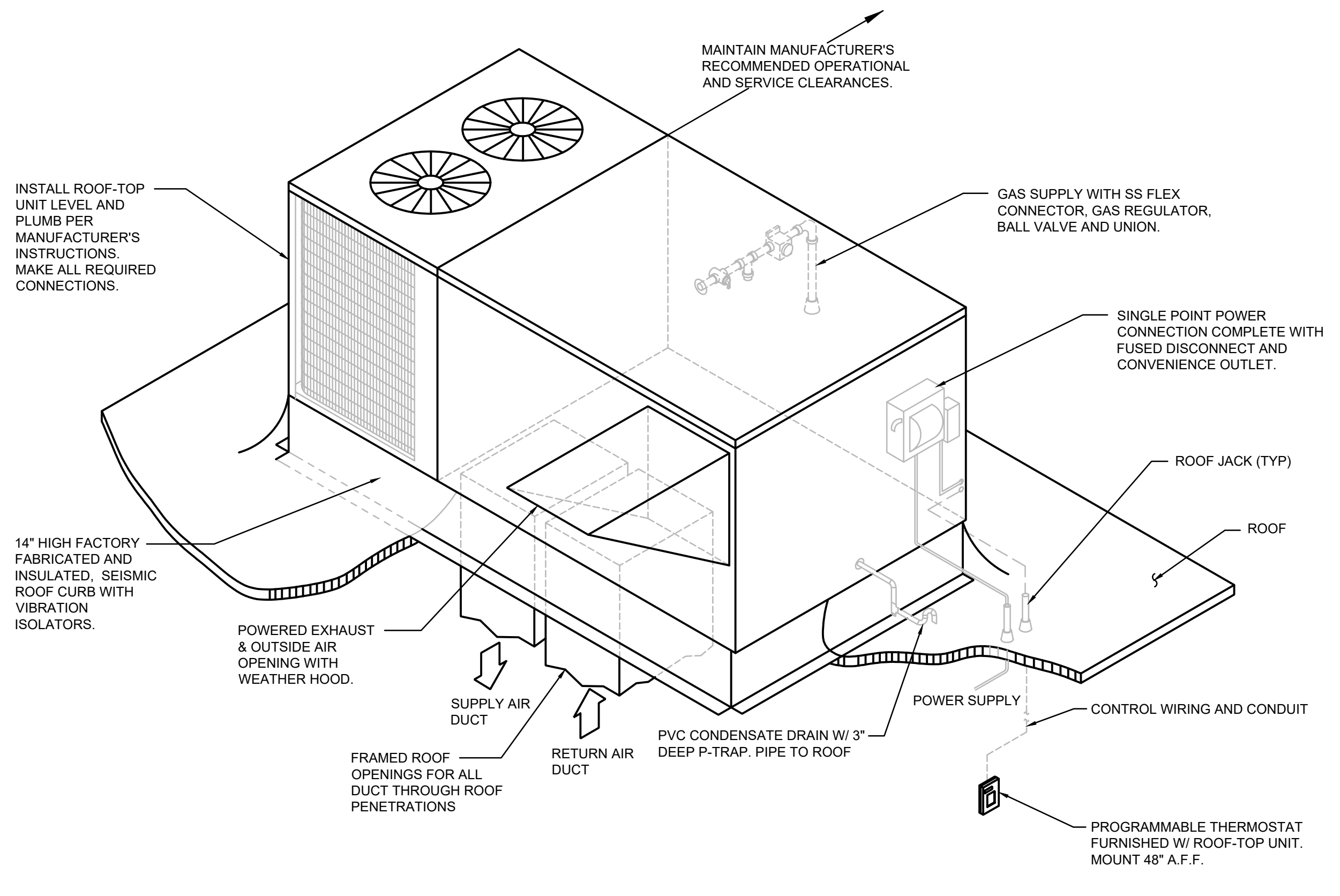
**ROOF TOP PIPING SUPPORT DETAIL** 4  
 NOT TO SCALE M604



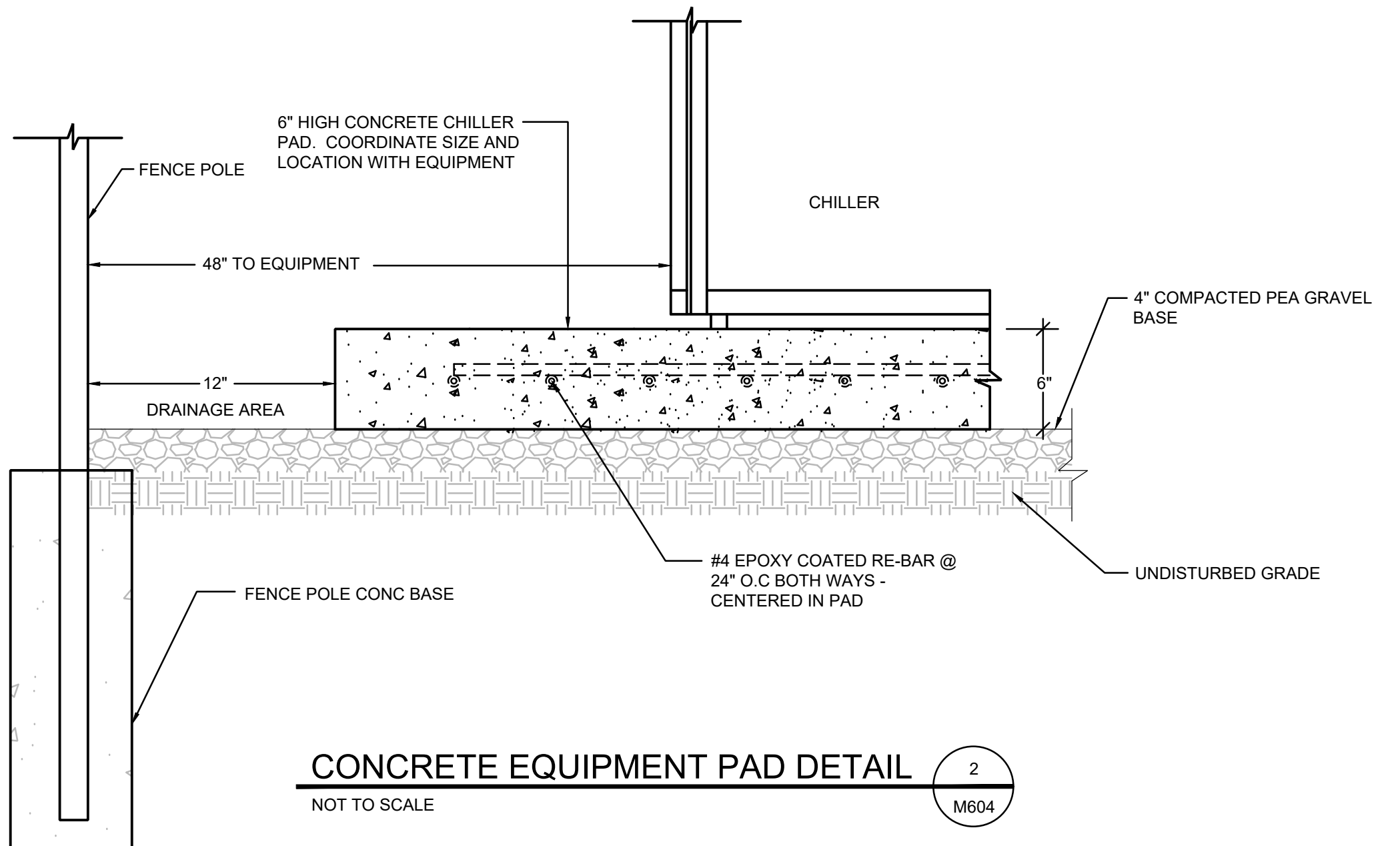
**GLYCOL FEED SYSTEM DETAIL** 1  
 NOT TO SCALE M604



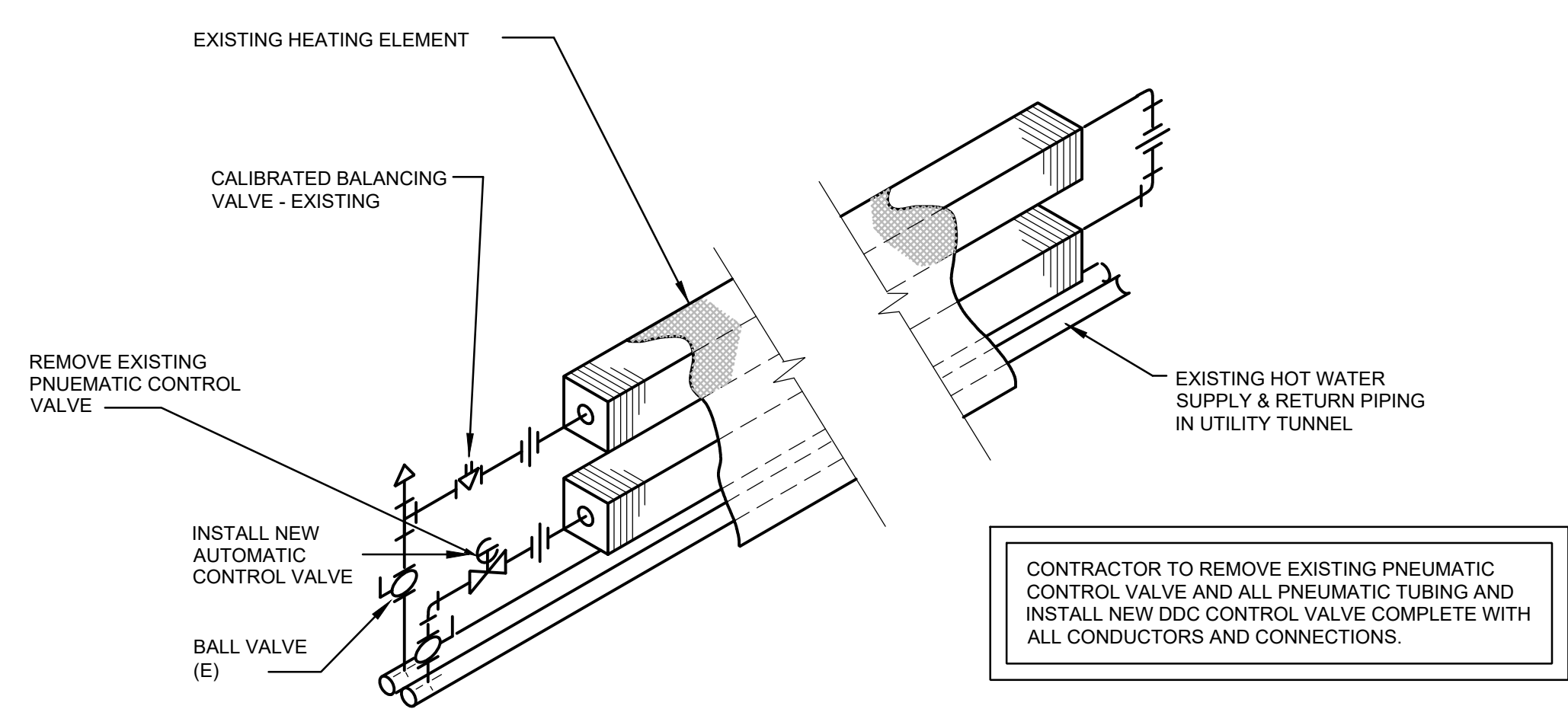
**FLAT PLATE HEAT EXCHANGER SCHEMATIC** 8  
 NOT TO SCALE M604



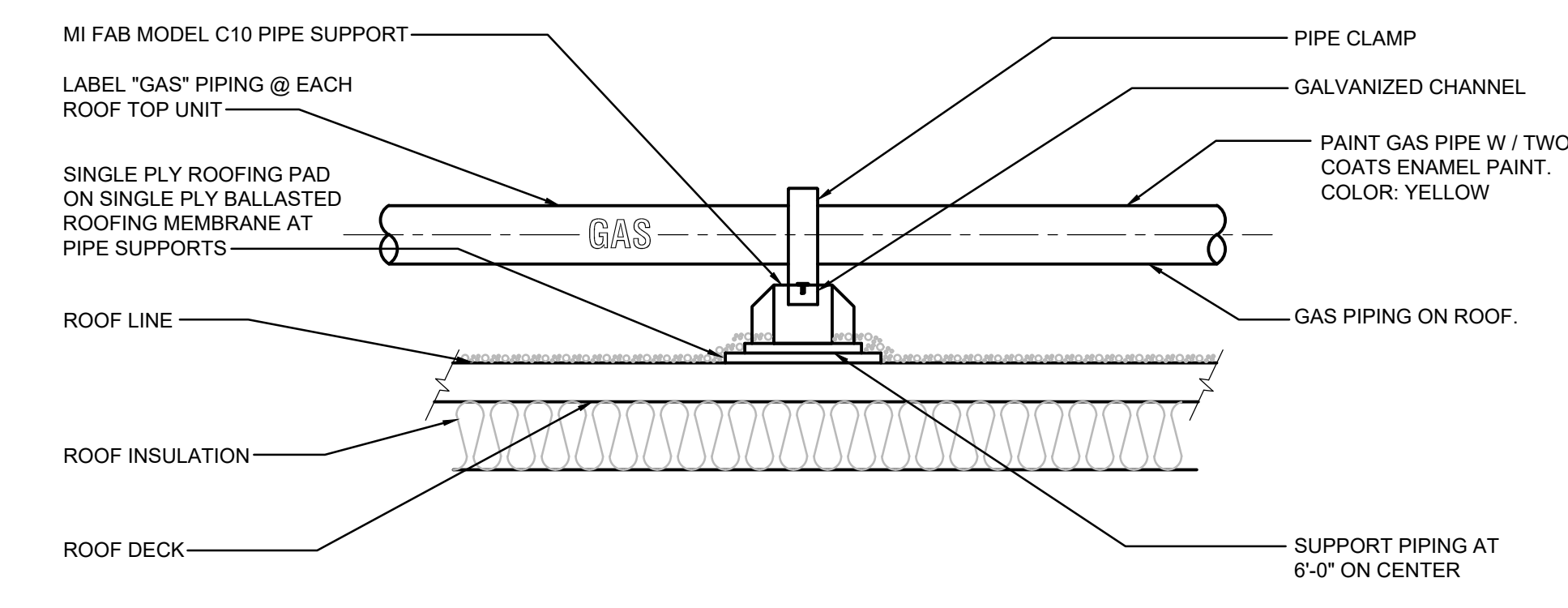
**PACKAGED ROOFTOP HVAC UNIT DETAIL** 5  
 NOT TO SCALE M604



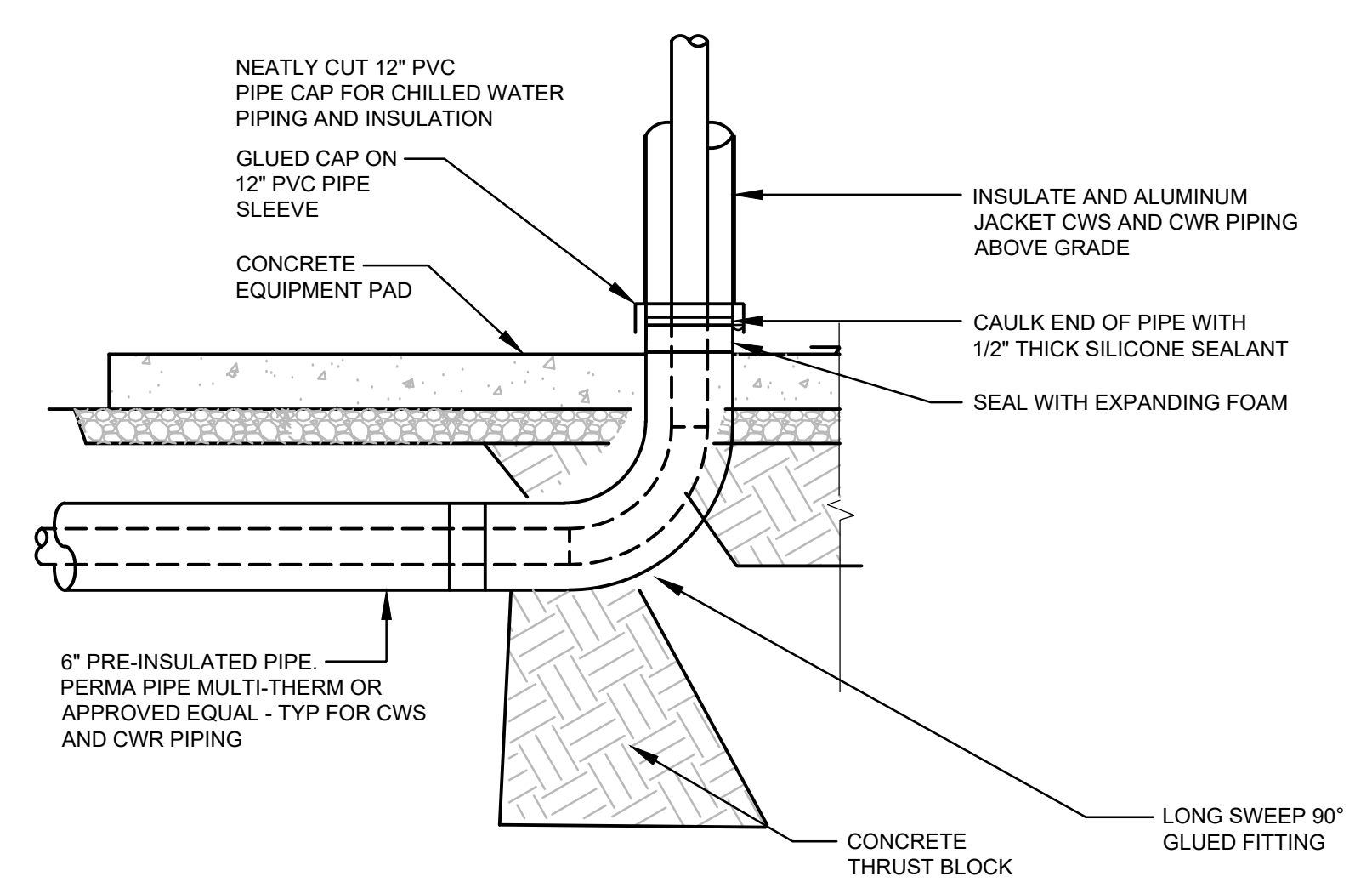
**CONCRETE EQUIPMENT PAD DETAIL** 2  
 NOT TO SCALE M604



**CONTROL VALVE REPLACEMENT DETAIL** 9  
 NOT TO SCALE M604



**TYPICAL PIPING SUPPORT ON ROOF DETAIL** 6  
 NOT TO SCALE M604



**UNDERGROUND CWS & CWR PIPING DETAIL** 3  
 SCALE: NONE M604

ABBREVIATIONS INDEX table with columns: ABBREVIATION, DESCRIPTION, ABBREVIATION, DESCRIPTION. Lists various electrical symbols and their meanings.

GENERAL NOTES

- 1. CONSULT ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL LIGHTING FIXTURES.
2. VERIFY ALL EQUIPMENT DIMENSIONS AND LOCATIONS BEFORE BEGINNING ROUGH IN...
3. CONTRACTOR SHALL VERIFY ALL ELECTRICAL LOADS (VOLTAGE, PHASE, CONNECTION REQUIREMENTS, ETC.) OF ALL EQUIPMENT FURNISHED UNDER ALL DIVISIONS...

20 AMP MINIMUM BRANCH CIRCUIT CONDUCTOR SIZING

Table with columns: CONDUCTOR LENGTH (FT), BRANCH CIRCUIT VOLTAGE, 120 VOLT, 277 VOLT. Provides conductor size requirements.

- A. THESE ARE BASED ON MAXIMUM LENGTH OF CIRCUIT.
B. PERFORM VOLTAGE DROP CALCULATIONS AND PROVIDE CONDUCTOR SIZE TO KEEP BRANCH CIRCUIT VOLTAGE DROP LESS THAN 3% WITH A 15 AMP LOAD.
C. CONTRACTOR SHALL ENSURE THAT THE INSTALLATION OF EACH BRANCH CIRCUIT STAYS WITHIN 3% VOLTAGE DROP FOR A 15 AMP LOAD...

DEMOLITION NOTES

- 1. COORDINATE ALL NEW ELECTRICAL EQUIPMENT REQUIREMENTS AND MAKE CONNECTION TO EXISTING SYSTEMS. THIS INCLUDES LIGHTING, POWER, SIGNAL, RACEWAY AND OTHER SYSTEMS INCLUDED UNDER DIVISION 28 (16).
2. RELOCATE, REPAIR AND/OR RECONNECT EXISTING ELECTRICAL DEVICES AND/OR EQUIPMENT THAT FOR ANY REASON OBSTRUCTS CONSTRUCTION.
3. CONCEAL ALL RACEWAY AND WIRING IN EXISTING WALLS, CEILINGS, FLOORS, ETC. EXCEPT WHERE THE USE OF SURFACE METAL RACEWAYS (E.G. WIRE MOLDS) IS INDICATED ON DRAWINGS OR IN SPEC.

SYMBOL SCHEDULE

Large table listing electrical symbols and their descriptions. Columns include SYMBOL, DESCRIPTION, MOUNTING HEIGHT, NOTES, SYMBOL, DESCRIPTION, MOUNTING HEIGHT, NOTES. Covers a wide range of devices from lighting to fire alarm.

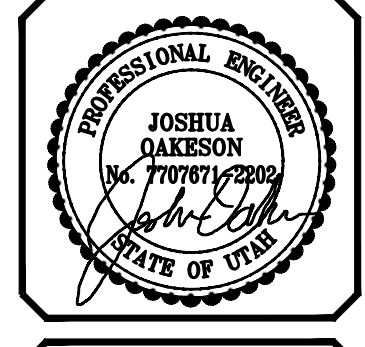
EQUIPMENT SCHEDULE

Table with columns: UNIT #, FUNCTION, LOAD, VOLT, PHASE, FULL LOAD, LOAD AMPS, CONDUIT SIZE, WIRE NO. SETS, WIRE NO., WIRE SIZE, OCCDP, TYPE, AMPS, REMARKS. Lists equipment units and their specifications.

- NOTES:
1. NON-FUSED DISCONNECT SWITCH
2. FUSED DISCONNECT SWITCH
3. BREAKER IN ENCLOSURE
4. MANUAL STARTER WITH THERMAL OVERLOAD
5. MAGNETIC STARTER
6. MAGNETIC STARTER/NON-FUSED DISCONNECT COMBINATION
7. MAGNETIC STARTER/FUSED DISCONNECT COMBINATION
8. MAGNETIC STARTER/BREAKER COMBINATION
9. VARIABLE FREQUENCY DRIVE
10. REDUCED VOLTAGE STARTER
11. DIRECT CONNECTION
12. RECEPTACLE/SPECIAL PURPOSE OUTLET/E.T.C.
13. TWO-SPEED STARTER, COORDINATE WITH MOTOR TYPE
14. SOLID STATE SOFT STARTER

INDEX OF ELECTRICAL DRAWINGS

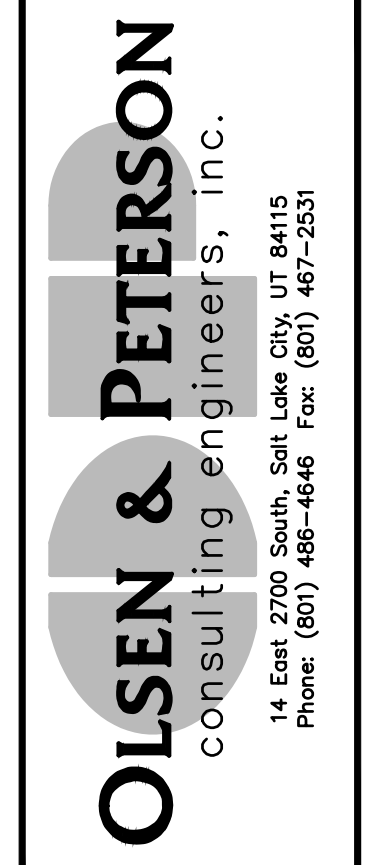
Table listing drawing titles and their corresponding sheet numbers. Includes: EG001 ELECTRICAL SYMBOLS, SCHEDULES AND NOTES; ED101 ELECTRICAL DEMOLITION PLAN - OVERALL; EE102 ELECTRICAL DEMOLITION PLANS - ENLARGED; EE101 ELECTRICAL PLAN - OVERALL; EE102 ELECTRICAL PLAN - BOILER ROOM; EE103 ELECTRICAL PLAN - ENLARGED FAN ROOMS; EX401 ONE-LINE DIAGRAM; EX402 PANELBOARD SCHEDULES; EX501 ELECTRICAL DIAGRAMS.



Project information table: Project No: 22010, Date: FEB 2023, Drawn: CD, Checked: RVL.

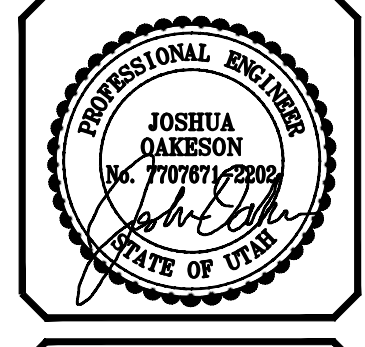
ELECTRICAL SYMBOLS, SCHEDULES AND NOTES

PROPOSED CONSTRUCTION FOR OGDEN SCHOOL DISTRICT: MOUND FORT MIDDLE SCHOOL MECHANICAL UPGRADE



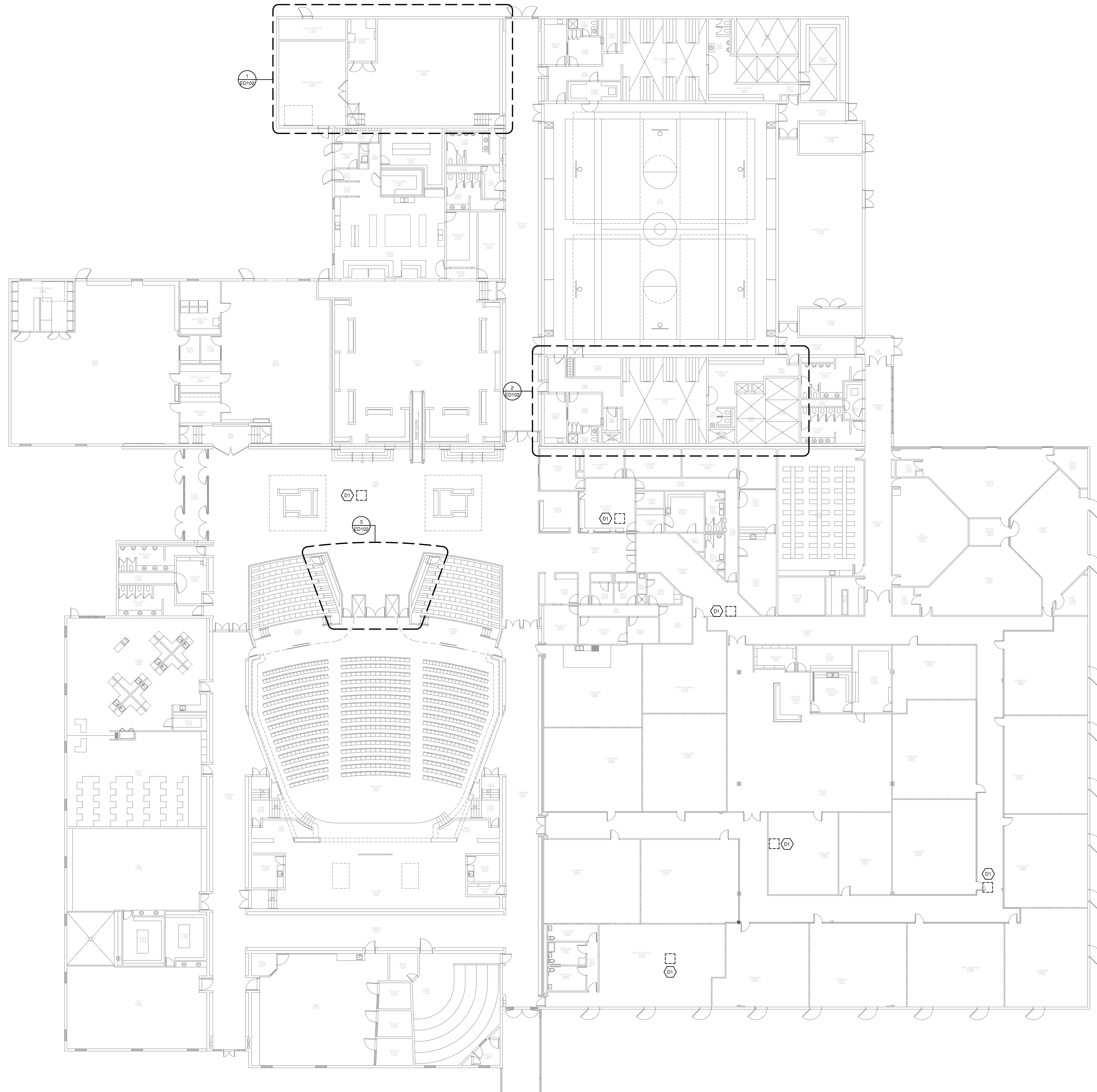
**SHEET KEYNOTES**

D1 EXISTING EVAPORATIVE COOLER TO BE REMOVED BY MECHANICAL CONTRACTOR. DISCONNECT POWER AND REMOVE ASSOCIATED CONDUIT AND WIRING BACK TO PANEL.



Project No. 22010  
 Date: FEB 2023  
 Drawn: CD  
 Checked: RWL

**ELECTRICAL DEMOLITION PLAN - OVERALL**



PROPOSED CONSTRUCTION FOR OGDEN SCHOOL DISTRICT:  
**MOUND FORT MIDDLE SCHOOL MECHANICAL UPGRADE**  
 1400 Mound Fort Drive, Ogden, UT 84404

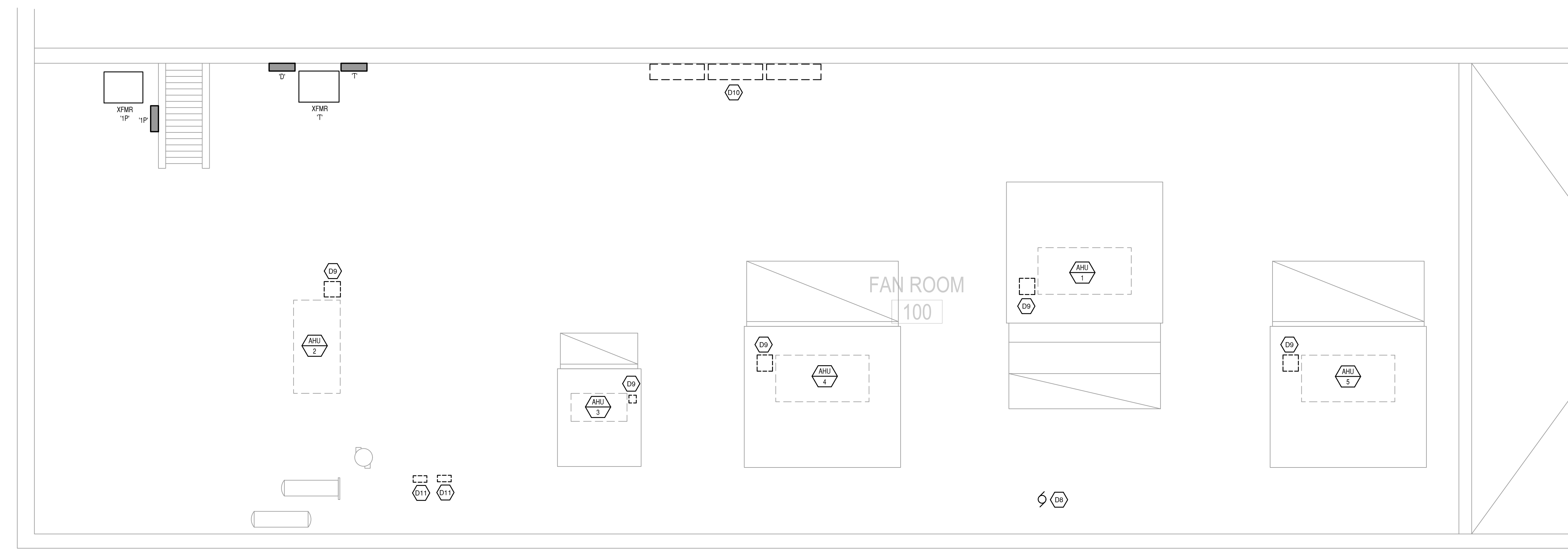
**OLSEN & PETERSON**  
 consulting engineers, inc.  
 145 East 200th Street, Suite 200, Ogden, UT 84403  
 Phone: (801) 468-4448 Fax: (801) 467-2333

PLAN NORTH  
**ELECTRICAL DEMOLITION PLAN OVERALL**  
 1/16" = 1'-0"

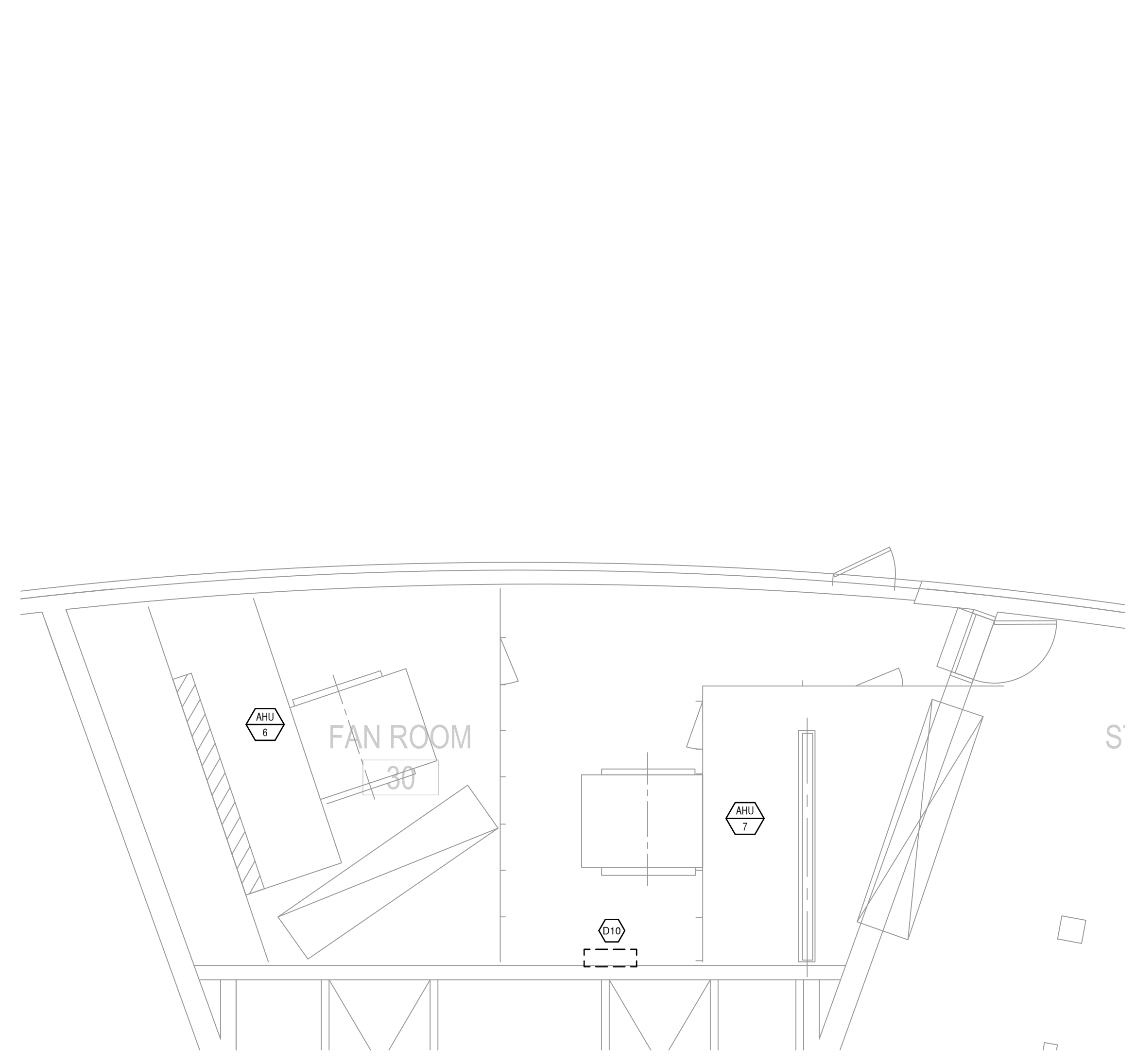
**BNA CONSULTING**  
 4225 Lake Park Blvd Ste 275  
 West Valley City, Utah 84120  
 P.801.532.2196  
 www.bnacconsulting.com

Sheet No.  
**ED101**

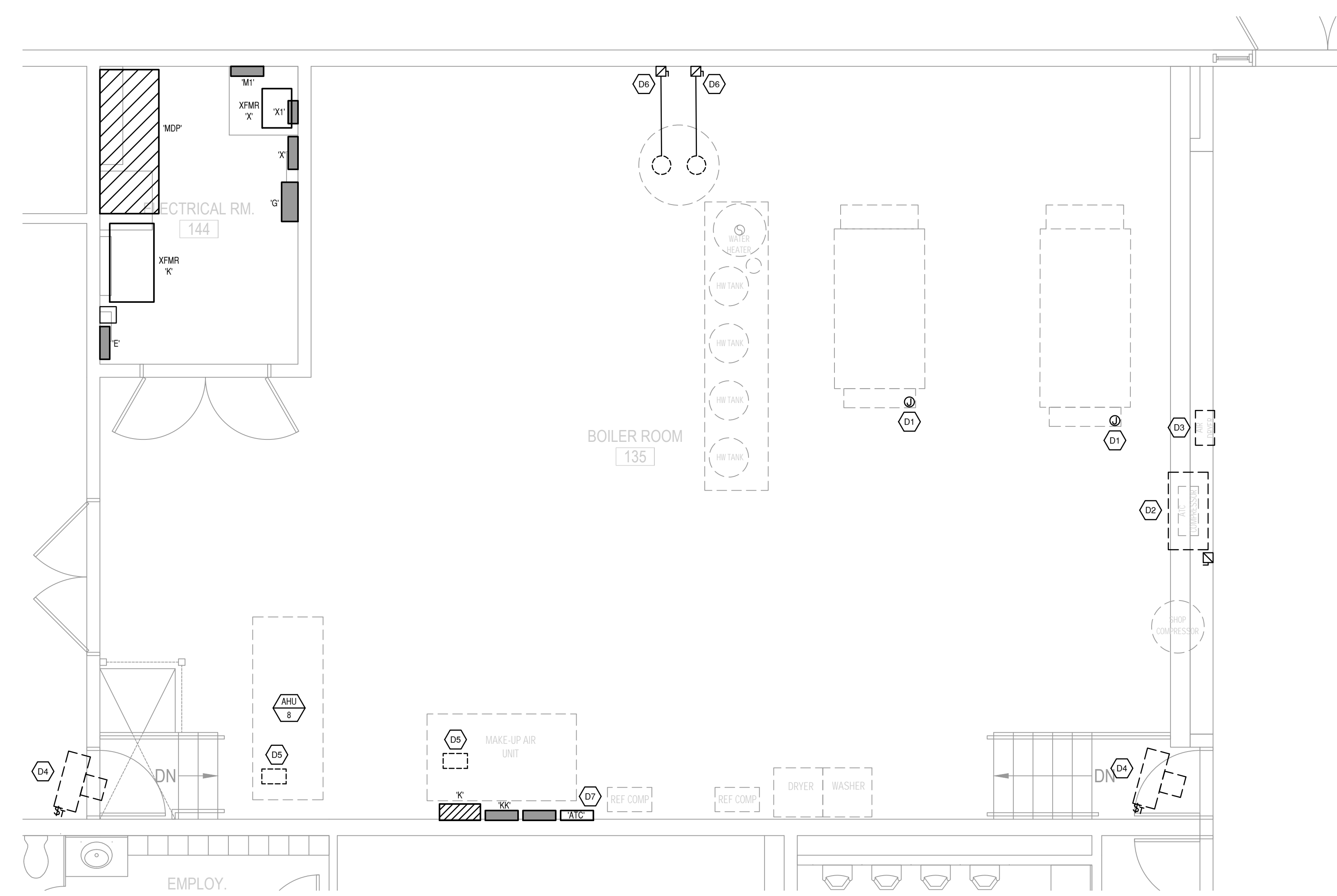
- SHEET KEYNOTES**
- D1 EXISTING BOILER TO BE REMOVED BY MECHANICAL CONTRACTOR. DISCONNECT POWER AND REMOVE ASSOCIATED CONDUIT AND WIRING BACK TO PANEL.
  - D2 EXISTING AIR COMPRESSOR TO BE REMOVED BY MECHANICAL CONTRACTOR. DISCONNECT POWER AND REMOVE ASSOCIATED STARTER, CONDUIT AND WIRING BACK TO PANEL.
  - D3 EXISTING AIR DRYER TO BE REMOVED BY MECHANICAL CONTRACTOR. DISCONNECT POWER.
  - D4 EXISTING UNIT HEATER TO BE REPLACED BY MECHANICAL CONTRACTOR. DISCONNECT POWER AND SEE ELECTRICAL PLAN SHEET EE102 FOR NEW REQUIREMENTS.
  - D5 EXISTING FAN MOTOR TO BE REPLACED BY MECHANICAL CONTRACTOR. DISCONNECT POWER AND SEE ELECTRICAL PLAN SHEET EE102 FOR NEW REQUIREMENTS.
  - D6 EXISTING BOILER FEED PUMP TO BE REMOVED BY MECHANICAL CONTRACTOR. DISCONNECT POWER AND REMOVE ASSOCIATED STARTER, CONDUIT AND WIRING BACK TO PANEL.
  - D7 EXISTING PNEUMATIC CONTROL PANEL TO BE REPLACED BY MECHANICAL CONTRACTOR. DISCONNECT POWER AND SEE ELECTRICAL PLAN SHEET EE102 FOR NEW REQUIREMENTS.
  - D8 EXISTING RETURN FAN MOTOR TO BE REPLACED BY MECHANICAL CONTRACTOR. DISCONNECT POWER AND SEE ELECTRICAL PLAN SHEET EE103 FOR NEW REQUIREMENTS.
  - D9 EXISTING FAN MOTOR TO BE REPLACED BY MECHANICAL CONTRACTOR. DISCONNECT POWER AND SEE ELECTRICAL PLAN SHEET EE103 FOR NEW REQUIREMENTS.
  - D10 EXISTING PNEUMATIC CONTROL PANEL TO BE REPLACED BY MECHANICAL CONTRACTOR. DISCONNECT POWER AND SEE ELECTRICAL PLAN SHEET EE103 FOR NEW REQUIREMENTS.
  - D11 EXISTING HEATING WATER PUMP TO BE REMOVED BY MECHANICAL CONTRACTOR. DISCONNECT POWER AND REMOVE ASSOCIATED STARTER, CONDUIT AND WIRING BACK TO PANEL.



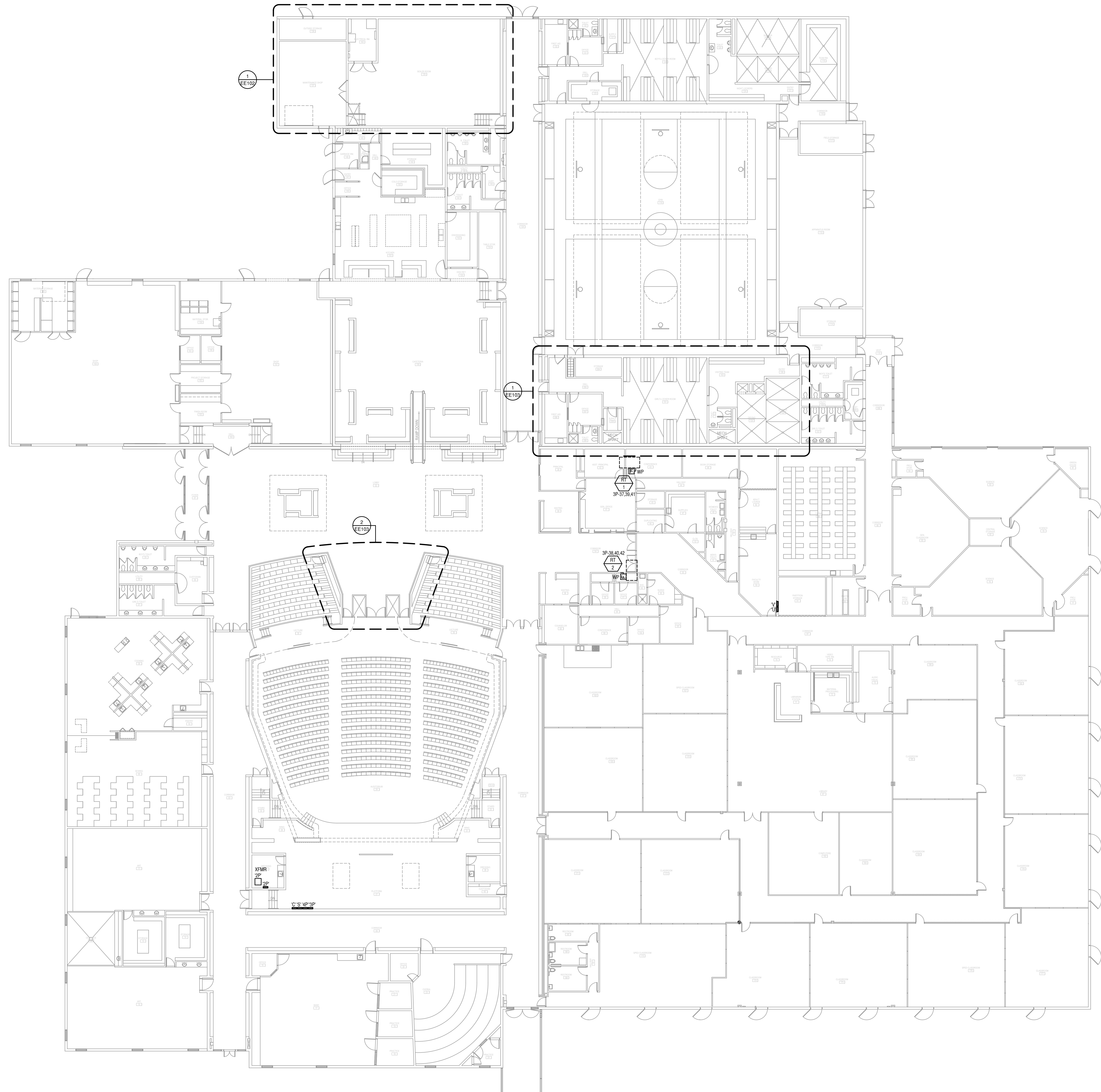
PLAN NORTH  
**2** ELECTRICAL DEMOLITION PLAN  
 MAIN FAN ROOM  
 1/4" = 1'-0"



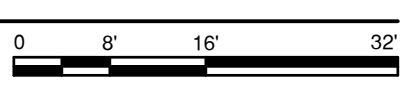
PLAN NORTH  
**3** ELECTRICAL DEMOLITION PLAN  
 AUDITORIUM FAN ROOM  
 1/4" = 1'-0"



PLAN NORTH  
**1** ELECTRICAL DEMOLITION PLAN  
 BOILER ROOM  
 1/4" = 1'-0"

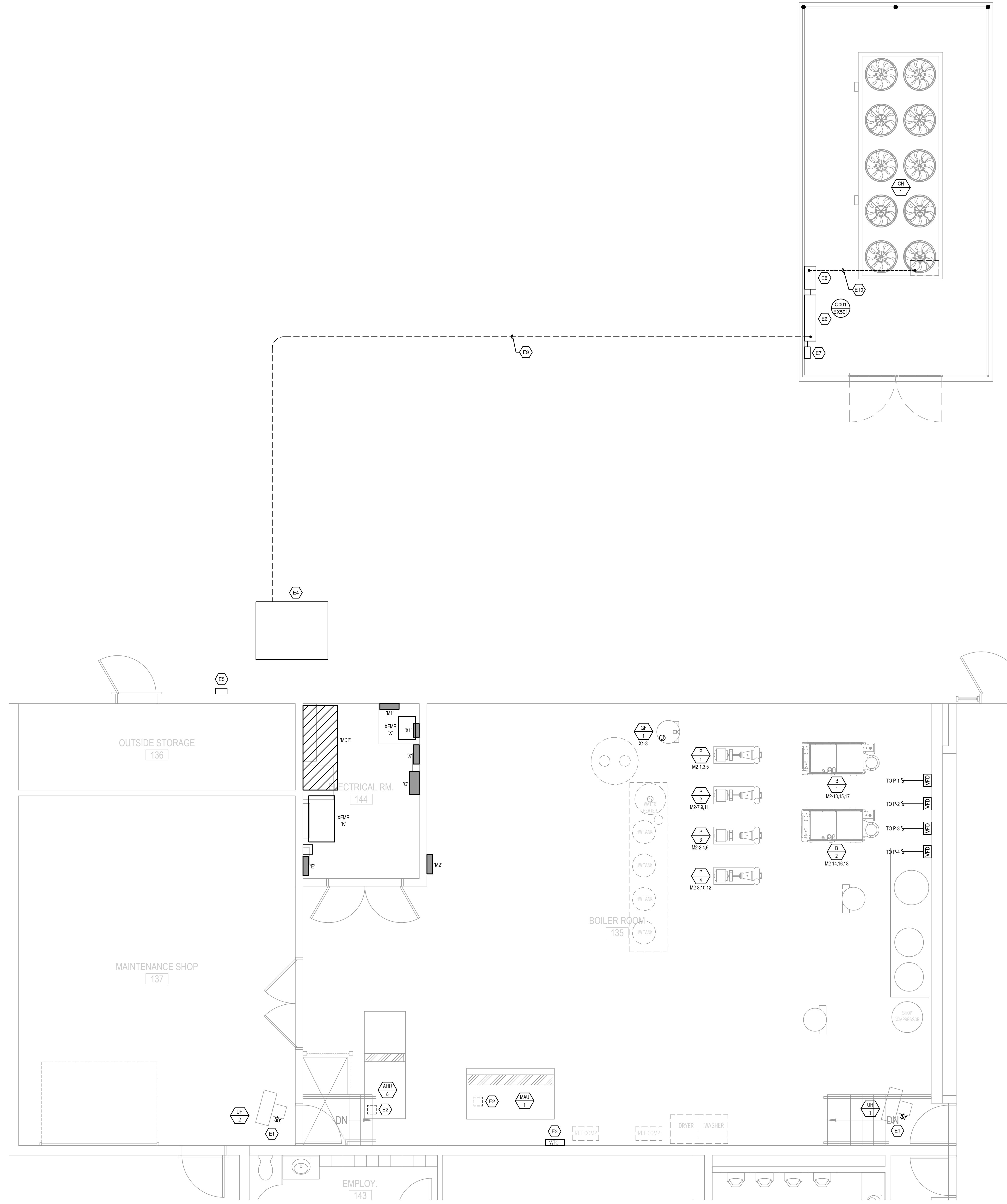


PLAN NORTH  
**ELECTRICAL PLAN OVERALL**  
 1/16" = 1'-0"



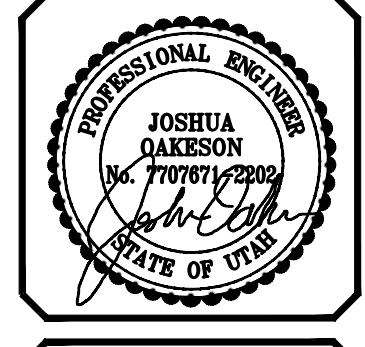


SHEET KEYNOTES	
E1	NEW UNIT HEATER AT EXISTING LOCATION. RECONNECT EXISTING POWER.
E2	NEW FAN MOTOR AT EXISTING LOCATION. RECONNECT EXISTING POWER.
E3	NEW DDC ATC PANEL AT EXISTING CONTROL PANEL LOCATION. RECONNECT EXISTING POWER.
E4	EXISTING ROCKY MOUNTAIN POWER TRANSFORMER.
E5	EXISTING ROCKY MOUNTAIN METER FOR SCHOOL SERVICE.
E6	NEW CT CABINET. SEE ONE-LINE DIAGRAM SHEET EX401 FOR ADDITIONAL REQUIREMENTS.
E7	NEW METER BASE. SEE ONE-LINE DIAGRAM SHEET EX401 FOR ADDITIONAL REQUIREMENTS.
E8	NEW FUSED DISCONNECT FOR SERVICE DISCONNECT. SEE ONE-LINE DIAGRAM SHEET EX401 FOR ADDITIONAL REQUIREMENTS.
E9	PROVIDE (1) 4" CONDUIT FOR CONDUCTORS BY ROCKY MOUNTAIN POWER.
E10	SERVICE TO CHILLER. SEE ONE-LINE DIAGRAM SHEET EX401 FOR ADDITIONAL REQUIREMENTS.



PLAN NORTH  
**1**  
 ELECTRICAL DEMOLITION PLAN  
 BOILER ROOM  
 1/4" = 1'-0"

SHEET KEYNOTES	
E1	NEW FAN MOTOR AT EXISTING LOCATION. RECONNECT EXISTING POWER.
E2	NEW RETURN FAN MOTOR AT EXISTING LOCATION. RECONNECT EXISTING POWER.
E3	NEW ATC PANEL BY MECHANICAL CONTRACTOR. EXTEND EXISTING 120 VOLT CIRCUIT FROM EXISTING LOCATION TO NEW LOCATION.
E4	NEW ATC PANEL BY MECHANICAL CONTRACTOR. RECONNECT EXISTING POWER.



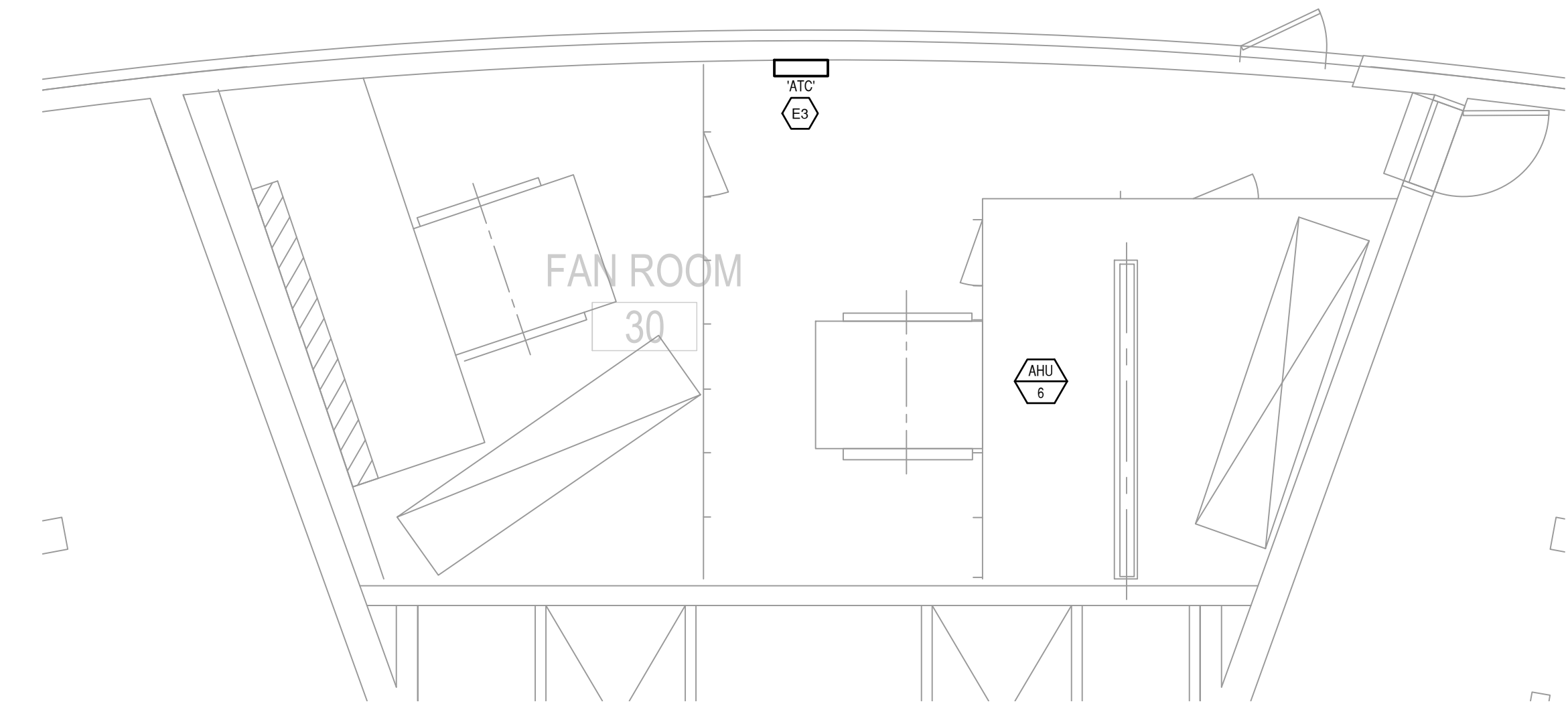
Project No.	22010	CD	RVL
Date	FEB 2023		
Drawn			
Checked			

ELECTRICAL PLANS - ENLARGED

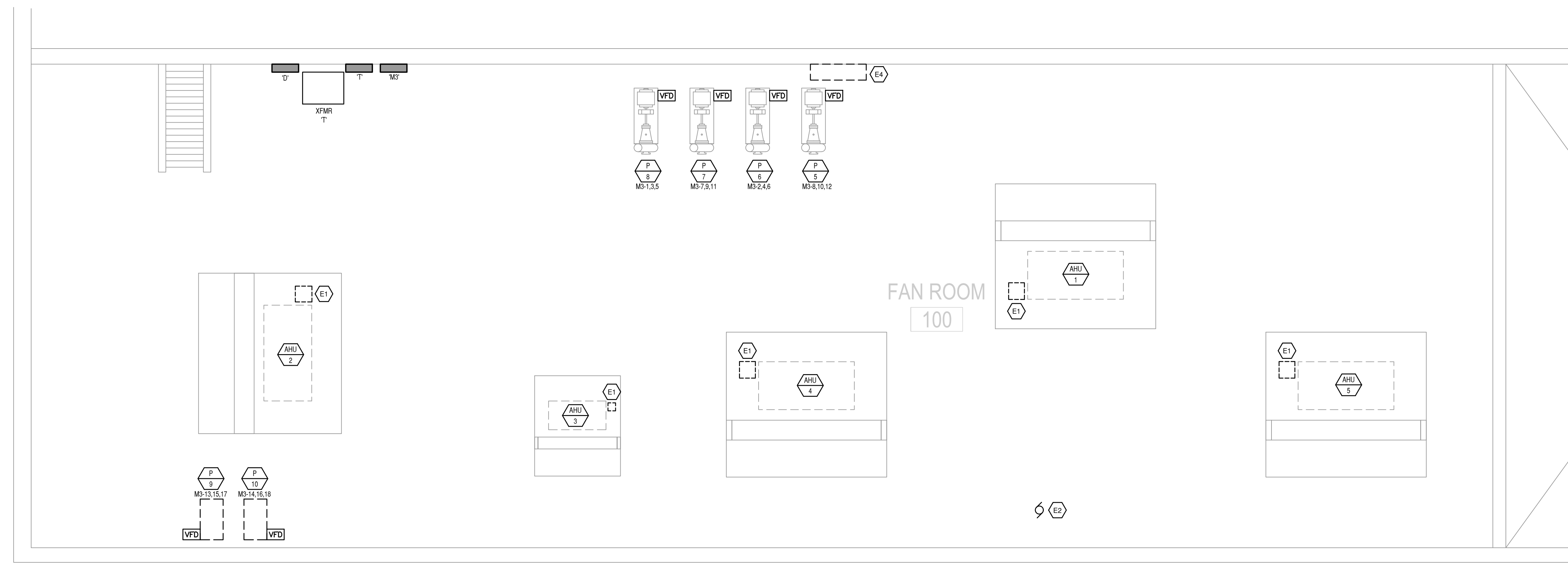
PROPOSED CONSTRUCTION FOR OGDEN SCHOOL DISTRICT:  
**MOUND FORT MIDDLE SCHOOL  
MECHANICAL UPGRADE**  
1400 Mound Fort Drive, Ogden, UT 84404

**OLSEN & PETERSON**  
consulting engineers, inc.  
14.5 am (201) 888-1448 Fax: (201) 467-2333  
14.5 am (201) 888-1448 Fax: (201) 467-2333

Sheet No.  
**EE103**



PLAN NORTH  
**2** ELECTRICAL PLAN  
AUDITORIUM FAN ROOM  
1/4" = 1'-0"



PLAN NORTH  
**1** ELECTRICAL PLAN  
MAIN FAN ROOM  
1/4" = 1'-0"

## SHEET KEYNOTES

X1 MOUNT OWNER FURNISHED BREAKER IN EXISTING SWITCHBOARD.  
 X2 PROVIDE (2) 3/4"x10'-0" COPPER WELD GROUND RODS DRIVEN 6'-0" APART TIED TO GROUND BUS.

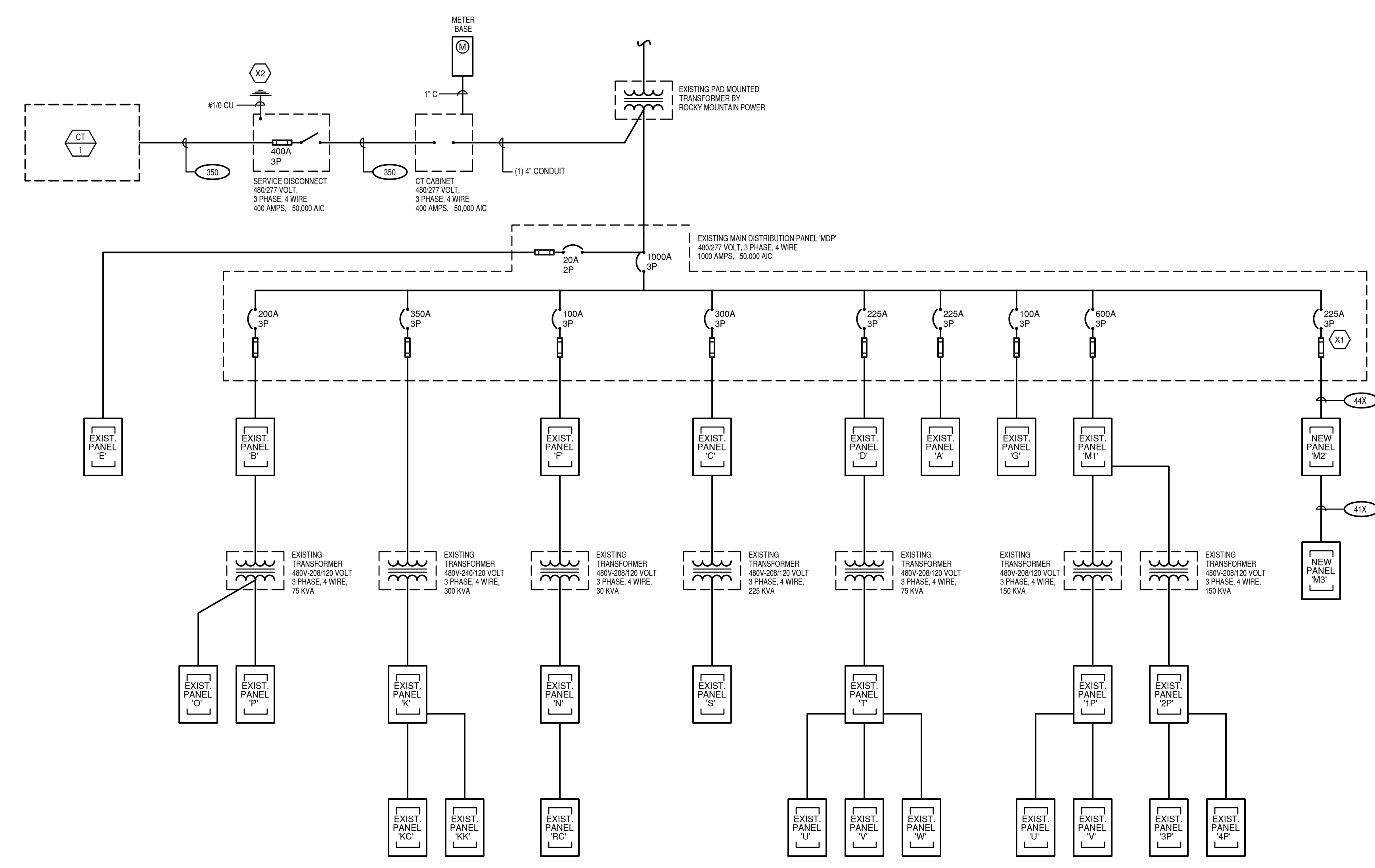
### COPPER CONDUCTOR & CONDUIT SCHEDULE

TYPE	AMP.	COND. SIZE	CONDUCTOR QUAN.	CONDUIT SIZE	INSULATION	EQ. GND. COND.
20	30	3/4"	2	10	THHN	10
30	30	3/4"	3	10	THHN	10
40	30	3/4"	4	10	THHN	10
20	40	1"	2	8	THHN	10
30	40	1"	3	8	THHN	10
40	40	1"	4	8	THHN	10
20	55	1"	2	6	THHN	8
30	55	1"	3	6	THHN	8
40	55	1"	4	6	THHN	8
30	70	1"	2	4	THHN	8
40	70	1-1/4"	3	4	THHN	8
40	70	1-1/4"	4	4	THHN	8
20	85	1-1/4"	2	3	THHN	8
30	85	1-1/4"	3	3	THHN	8
40	85	1-1/2"	4	3	THHN	8
30	95	1-1/2"	3	2	THHN	6
40	95	1-1/2"	4	2	THHN	6
30	110	1-1/2"	3	1	THHN	6
40	110	2"	4	1	THHN	6
30	88	2"	5*	1	THHN	6
31X	150	2"	3	1.0	THHN	6
41X	150	2"	4	1.0	THHN	6
51X	120	2"	5*	1.0	THHN	6
32X	175	2"	3	2.0	THHN	6
42X	175	2"	4	2.0	THHN	6
52X	140	2"	5*	2.0	THHN	6
33X	200	2"	3	3.0	THHN	6
43X	200	2"	4	3.0	THHN	6
53X	160	2-1/2"	5*	3.0	THHN	6
34X	230	2-1/2"	3	4.0	THHN	4
44X	230	2-1/2"	4	4.0	THHN	4
54X	184	2-1/2"	5*	4.0	THHN	4
35X	255	3"	3	250	THHN	4
45X	255	3"	4	250	THHN	4
55X	204	3"	5*	250	THHN	4
36X	310	3"	3	350	THHN	3
46X	310	3"	4	350	THHN	3
56X	248	3"	5*	350	THHN	3
37X	380	4"	3	500	XHHW	3
47X	380	4"	4	500	XHHW	3
57X	304	4"	5*	500	XHHW	3

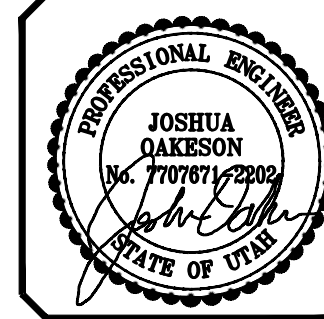
### COPPER CONDUCTOR & CONDUIT SCHEDULE FOR PARALLEL RUNS

TYPE	MAX. O.C. PROT.	COND. AMPS	SETS	CONDUCTOR QUAN.	CONDUIT SIZE	CONDUIT EQ. GND. COND.	
44X-2	400	400	2	4	4.0	2-1/2"	3
54X-2	400	368	2	5*	4.0	3"	3
35X-2	600	620	2	3	350	3"	1
45X-2	600	620	2	4	350	3"	1
55X-2	600	608	2	5*	350	3"	1
36X-2	800	760	2	3	500	4"	1.0
46X-2	800	760	2	4	500	4"	1.0
56X-2	800	744	2	5*	250	4"	1.0
37X-3	1000	1140	3	3	500	4"	2.0
47X-3	1000	1140	3	4	500	4"	2.0
57X-3	1000	1216	4	5*	500	4"	2.0
38X-4	1200	1240	4	3	350	3"	3.0
48X-4	1200	1240	4	4	350	3"	3.0
58X-4	1200	1216	4	5*	350	3"	3.0
39X-5	1600	1675	5	3	400	3"	4.0
49X-5	1600	1675	5	4	400	3"	4.0
59X-5	1600	1675	6	5*	400	4"	4.0
40X-6	2000	2010	6	4	400	4"	250
50X-6	2500	2665	7	4	500	4"	350
41X-8	3000	3340	8	4	500	4"	400
50X-11	4000	4180	11	4	500	4"	500

NOTES:  
 IN PARALLEL RUNS SIZE GND. COND. IN ACCORDANCE WITH NEC PARA. 250-122.  
 GND. CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS  
 \* 200% NEUTRAL, DERATED TO 80% BASED ON NEC 310.15(B)(3)(C)



**ONE-LINE DIAGRAM**  
NO SCALE



Project No. 22010  
 Date: FEB 2023  
 Drawn: CD  
 Checked: RVL

ONE-LINE DIAGRAM

PROPOSED CONSTRUCTION FOR OGDEN SCHOOL DISTRICT:  
**MOUND FORT MIDDLE SCHOOL MECHANICAL UPGRADE**  
 1400 Mound Fort Drive, Ogden, UT 84404

**OLSEN & PETERSON**  
 consulting engineers, inc.  
 14 E. 500 N., Ste. 200, Ogden, UT 84403  
 Phone: (801) 468-4444 Fax: (801) 467-2333

Sheet No. **EX401**



4225 Lake Park Blvd Ste 275  
 West Valley City, Utah 84120  
 P.801.532.2196  
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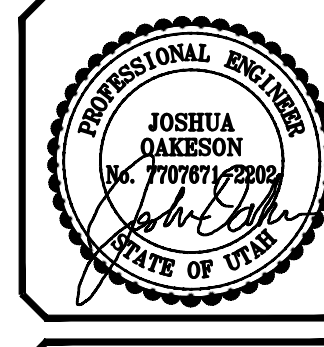
PANELBOARD SCHEDULE for Panel M2, 277480 Volts, 3 Ph, 4 W. Includes branch breakers table and connected load total of 13284 VA.

PANELBOARD SCHEDULE for Panel G, 277480 Volts, 3 Ph, 4 W. Includes branch breakers table and connected load total of 13284 VA.

PANELBOARD SCHEDULE for Panel M3, 277480 Volts, 3 Ph, 4 W. Includes branch breakers table and connected load total of 13484 VA.

PANELBOARD SCHEDULE for Panel 3P, 120/208 Volts, 3 Ph, 4 W. Includes branch breakers table and connected load total of 16329 VA.

PANELBOARD SCHEDULE for Panel X1, 120/208 Volts, 3 Ph, 4 W. Includes branch breakers table and connected load total of 600 VA.



Project No: 22010, Date: FEB 2023, Drawn: CD, Checked: RWL

PANELBOARD SCHEDULES

PROPOSED CONSTRUCTION FOR OGDEN SCHOOL DISTRICT: MOUND FORT MIDDLE SCHOOL MECHANICAL UPGRADE

OLSEN & PETERSON consulting engineers, inc. 1145 East 200th Street, Suite 100, Orem, Utah 84057

Sheet No: EX402



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