

STATIC PRESSURE CLASSIFICATION FOR DUCT CONSTRUCTION					
DUCT SYSTEM	LOCATION		PRESSURE CLASSIFICATION (INCH WATER GAUGE)	DUCTWORK SEAL / LEAKAGE CLASS	REMARKS
	FROM	TO			
AHU-1, 2, 3, 4					
SUPPLY	AHU	TERMINAL UNITS	4	A	
	TERMINAL UNITS	DIFFUSERS	3	A	
LABORATORY EXHAUST					
	ERU & FANS	TERMINAL UNITS	-6	A	
	TERMINAL EXH UNITS	FUME HOODS	-6	A	
	TERMINAL EXH UNITS	POINT EXHAUST	-6	A	
	TERMINAL EXH UNITS	GENERAL EXHAUST	-3	A	
OUTSIDE AIR INTAKE	LOUVER	AHU	3	A	
REFRIGERANT EXH					
	FAN	LOUVER	3	A	
	INTAKE	FAN	3	A	

NOTES:
A. ALL DUCTWORK WITH PRESSURE CLASSIFICATIONS IN EXCESS OF NEGATIVE 3 INCH WATER GAUGE (I.E. -6) SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA INDUSTRIAL DUCT STANDARDS (ROUND & RECTANGULAR)
B. ALL DUCTWORK SERVING POINT OR FUME HOOD EXHAUST (LABORATORY EXHAUST) SHALL BE CONSTRUCTED WITH MINIMUM THICKNESS AS REQUIRED BY TABLE 510.9 (2018 NCMC) FOR NON-ABRASIVE MATERIALS.

EQUIPMENT IDENTIFICATION	
AHU	AIR-HANDLING UNIT
AS	AIR SEPARATOR
B	BOILER
BCU	BLOWER COIL UNIT
CH	CHILLER
CHWP	CHILLED WATER PUMP
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
CWP	CONDENSER WATER PUMP
DSS	DUCTLESS SPLIT SYSTEM
ECH	ELECTRIC CEILING HEATER
ERP	ENERGY RECOVERY PUMP
ERU	ENERGY RECOVERY UNIT
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EV	EXHAUST VALVE
EWH	ELECTRIC WALL HEATER
F	FAN
FCU	FAN COIL UNIT
FF	FILTER FEEDER
HP	HEAT PUMP
HWP	HOT WATER PUMP
HX	HEAT EXCHANGER
IV	INTAKE GRAVITY VENTILATOR
LEF	LABORATORY EXHAUST FAN
LTU	LABORATORY TERMINAL UNIT
OAU	OUTDOOR AIR UNIT
P	PUMP
RTU	ROOFTOP UNIT
SSI	SPLIT-SYSTEM INDOOR UNIT
SSO	SPLIT-SYSTEM OUTDOOR UNIT
TU	TERMINAL UNIT
UH	UNIT HEATER
VFD	VARIABLE FREQUENCY DRIVE

CONTROLS ABBREVIATIONS	
AI	ANALOG INPUT TO CONTROLLER
ALM	ALARM
AMS	AIRFLOW MEASURING STATION
AO	ANALOG OUTPUT FROM CONTROLLER
ATS	AVERAGING TEMPERATURE SENSOR
BAS	BUILDING AUTOMATION SYSTEM
BI	BINARY INPUT TO CONTROLLER
BO	BINARY OUTPUT FROM CONTROLLER
CO2	CARBON DIOXIDE SENSOR
CSR	CURRENT-SENSING RELAY
DM	DAMPER MOTOR
DP	DIFFERENTIAL PRESSURE
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
FM	FLOW METER
FZ	FREEZESTAT
HS	HUMIDITY SENSOR
M	MOTOR STARTER
POS	POSITION
R	RELAY
SD	SMOKE DETECTOR
SPD	SPEED
SS	START/STOP
STS	STATUS
TS	TEMPERATURE SENSOR
VFD	VARIABLE-FREQUENCY DRIVE

CONTROL SYSTEM SYMBOLS			
	CIRCULATOR OR PUMP		NORMALLY OPEN CONTACT
	MOTORIZED 2-WAY VALVE		NORMALLY CLOSED CONTACT
	MOTORIZED 3-WAY VALVE		WIRING OR DEVICE NOT PROVIDED UNDER DIVISION 23
	VARIABLE FREQUENCY DRIVE		WIRING CONNECTION BY DIVISION 23
	DIRECT DIGITAL CONTROLLER		WIRING CONNECTION BY OTHERS
	THERMOSTAT		NUMBER OF CONDUCTORS INDICATED BY SLASH MARKS
	FREEZESTAT		MOTORIZED PARALLEL BLADE DAMPER
	CONTACTOR		MOTORIZED OPPOSED BLADE DAMPER
	RELAY		MOTORIZED BUTTERFLY BLADE DAMPER
	SPACE TEMPERATURE SENSOR		SUPPLY, RETURN, OR EXHAUST FAN
	LINE VOLTAGE THERMOSTAT		AIRFLOW DIRECTION
	HAND-OFF-AUTOMATIC SWITCH		CONTROL POINT INDICATOR INPUT OR OUTPUT (ANALOG INPUT)
	DUCT-MOUNTED SMOKE DETECTOR		CONTROL POINT INDICATOR DEVICE TYPE (AIR TEMPERATURE SENSOR WITH AVERAGING ELEMENT)
	TRANSFORMER		CONTROL POINT INDICATOR INPUT OR OUTPUT (ANALOG INPUT)
	FUSE		CONTROL POINT INDICATOR DEVICE TYPE (WATER TEMPERATURE SENSOR WITH BULB TYPE ELEMENT IN PIPING WELL)
			CONTROL POINT INDICATOR INPUT OR OUTPUT (ANALOG INPUT)
			CONTROL POINT INDICATOR DEVICE TYPE (CURRENT SENSING RELAY)

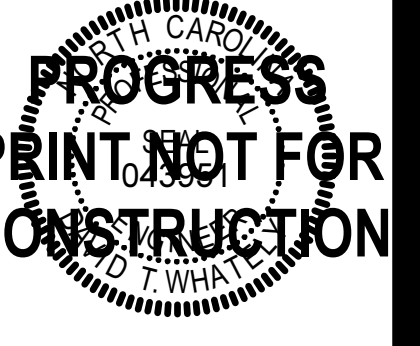
ABBREVIATIONS	
A	AMPERE(S)
AD	ACCESS DOOR
AF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
APD	AIR PRESSURE DROP
BHP	BRAKE HORSEPOWER
BTUH	BRITISH THERMAL UNITS PER HOUR
CFM	CUBIC FEET PER MINUTE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CLO	COOLING
COM	COMMON
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
D	DRAIN
DB	DRY BULB TEMPERATURE
dBA	A-WEIGHTED DECIBELS
DCW	DOMESTIC COLD WATER
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EQ	EQUAL
ESP	EXTERNAL STATIC PRESSURE
EWI	ENTERING WATER TEMPERATURE
EX	EXISTING
F	DEGREES FAHRENHEIT
FC	FAIL CLOSED
FD	FIRE DAMPER
FLA	FULL LOAD AMPS
FO	FAIL OPEN
FPM	FEET PER MINUTE
FT	FOOT, FEET
GA	GAUGE
GAL	GALLON(S)
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GWR	GLYCOL WATER RETURN
GWS	GLYCOL WATER SUPPLY
HP	HORSEPOWER
HPWR	HEAT PUMP WATER RETURN
HPWS	HEAT PUMP WATER SUPPLY
HTG	HEATING
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
IN	INCH
IPLV	INTEGRATED PART-LOAD VALUE
KW	KILOWATT(S)
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	ONE THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPACITY
MFR	MANUFACTURER
MIN	MINIMUM
MOC	MAXIMUM OVERCURRENT PROTECTION
MOD	MOTOR-OPERATED DAMPER
NC	NORMALLY CLOSED (FOR PLANS, DETAILS)
NC	NOISE CRITERIA (FOR SCHEDULES)
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
OA	OUTSIDE AIR
OC	ON CENTER
OCFC	OWNER FURNISHED CONTRACTOR INSTALLED
PH	PHASE
PSIG	POUNDS PER SQUARE INCH GAUGE
RA	RETURN AIR
RD	REFRIGERANT DISCHARGE
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
SA	SUPPLY AIR
SEER	SEASONAL ENERGY EFFICIENCY RATIO
TD	TRANSFER DUCT
TYP	TYPICAL
UNO	UNLESS NOTED (INDICATED) OTHERWISE
V	VOLTAGE, VOLTS
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
W	WATT(S)
W	WITH
W/O	WITHOUT
WB	WET BULB TEMPERATURE
WC	WATER COLUMN
WPD	WATER PRESSURE DROP
WWM	WELDED WIRE MESH

GRAPHICS SYMBOLS LEGEND	
	SPACE IDENTIFICATION TAG SPACE NUMBER BUILDING AREA (WHEN USED)
	EQUIPMENT IDENTIFICATION TAG EQUIPMENT NUMBER UNIT DESIGNATION
	DIFFUSER, GRILLE OR REGISTER TAG TAG, REFER TO DIFFUSER, GRILLE AND REGISTER SCHEDULE
	DETAIL TAG DETAIL NUMBER DRAWING WHERE DETAIL IS INDICATED
	KEYNOTE
	STRUCTURAL GRID LINE WITH DESIGNATION
	EXISTING TO BE REMOVED
	DETAIL TITLE DETAIL NUMBER DRAWING WHERE DETAIL IS REFERENCED ADDITIONAL DRAWING REFERENCES
	SECTION TITLE SECTION NUMBER DRAWING WHERE SECTION IS INDICATED ADDITIONAL DRAWING REFERENCES
	SECTION CALLOUT SECTION NUMBER DRAWING WHERE SECTION IS INDICATED
	ENLARGED PLAN CALLOUT ENLARGED PLAN NUMBER DRAWING WHERE ENLARGED PLAN IS INDICATED
	MECHANICAL EQUIPMENT WITH REQUIRED SERVICE CLEARANCE INDICATED

DUCTWORK LEGEND	
	RECTANGULAR DUCT (FIRST DIMENSION REFERS TO SIDE VIEWED)
	ROUND DUCT SIZE
	FLAT OVAL DUCT SIZE
	DOUBLE WALL, EXPOSED DUCT
	FABRIC DUCT
	FLEXIBLE DUCTWORK
	FLEXIBLE CONNECTOR
	DUCT-MOUNTED SMOKE DETECTOR
	DUCT WITH DUCT LINER
	DUCT ACCESS DOOR
	DUCT WITH END CAP
	LINEAR SLOT DIFFUSER, LENGTH AS INDICATED
	LINEAR BAR GRILLE, LENGTH AS INDICATED
	SUPPLY DIFFUSER
	RETURN OR EXHAUST GRILLE
	SUPPLY DIFFUSER WITH DIRECTIONAL BLOW, SOLID HATCH INDICATES BLANK OFF PANEL
	POINT OF CONNECTION TO EXISTING
	LIMIT OF DEMOLITION
	SUPPLY AIRFLOW ARROW
	RETURN OR EXHAUST AIRFLOW ARROW
	MANUAL BALANCING DAMPER IN DUCT
	FIRE DAMPER IN DUCT
	SMOKE DAMPER IN DUCT
	COMBINATION FIRE/SMOKE DAMPER IN DUCT
	MOTORIZED DAMPER IN DUCT
	SMOKE CONTROL MANUAL BALANCING DAMPER IN DUCT
	SMOKE CONTROL MOTORIZED DAMPER IN DUCT
	SECURITY BARS IN DUCT
	DUCT WITH ACCESS PANEL
	SUPPLY/MAKEUP AIR DUCT SECTIONS
	RETURN AIR DUCT SECTIONS
	EXHAUST AIR DUCT SECTIONS
	SMOKE DETECTOR
	HUMIDITY SENSOR
	THERMOSTAT, LINE VOLTAGE
	THERMOSTAT, LOW VOLTAGE
	TEMPERATURE SENSOR
	CARBON DIOXIDE SENSOR
	CARBON MONOXIDE SENSOR
	SENSOR WELL
	DOOR UNDERCUT
	DOOR LOUVER

PIPING LEGEND	
	PIPE CAP
	PIPE TURNED DOWN
	PIPE TURNED UP
	PIPE TEE UP
	PIPE TEE DOWN
	END OF LINE CLEANOUT PLUG
	CLEANOUT PLUG
	PRESSURE GAUGE WITH GAUGE COCK
	LIQUID FILLED THERMOMETER
	UNION
	STRAINER WITH BLOWDOWN VALVE AND 3/4" HOSE END CONNECTION
	FLEXIBLE PIPE CONNECTOR
	MANUAL AIR VENT
	VALVE
	VALVE IN RISER
	MANUAL BALANCING VALVE WITH FLOW TAPS
	AUTOMATIC BALANCING VALVE WITH FLOW TAPS
	SWING CHECK VALVE
	PRESSURE REDUCING VALVE
	TRIPLE DUTY VALVE
	GAS COCK
	PRESSURE-RELIEF VALVE
	TWO-WAY CONTROL VALVE
	THREE-WAY CONTROL VALVE
	DIRECTION OF FLOW
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER

GENERAL NOTES	
A. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. IN THE CASE OF A CONFLICT, DISAGREEMENT, OR AMBIGUITY, PROVIDE THE BETTER QUALITY. IN THE CASE OF A CONFLICT, DISAGREEMENT, OR AMBIGUITY, PROVIDE THE GREATER QUANTITY OF WORK.	F. COORDINATE LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS WITH ALL OTHER TRADES. COORDINATE ALL PIPING AND EQUIPMENT SUPPORTED FROM STRUCTURE WITH GENERAL CONSTRUCTION WORK.
B. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY. DO NOT SCALE DRAWINGS. LOCATIONS OF ALL ITEMS INDICATED ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE. COORDINATE CONTRACT DOCUMENTS PROJECT REQUIREMENTS, WORK OF OTHERS, AND EQUIPMENT AND MATERIALS PURCHASED WITH FIELD DIMENSIONS. MANUFACTURER'S REQUIREMENTS FOR INSTALLATION, OPERATION, AND MAINTENANCE. CONTRACTOR'S INTENDED MEANS AND METHODS OF INSTALLATION, AND CONTRACTOR'S FABRICATED ITEMS TO ENSURE A PROPER FIT AND INSTALLATION.	G. PROVIDE TRAPPED DRAIN PIPING FROM DRAIN PANS OF ALL COOLING COILS, FANS AND OTHER ACTIVE DRAINS EXPOSED TO SYSTEM AIRSTREAM. PROVIDE TRAP AT CONNECTION WITH WATER SEAL DEPTH ONE INCH GREATER THAN UNIT OPERATING PRESSURE. DIRECT DRAINS TO NEAREST FLOOR DRAIN, MOP SINK, OR OTHER LOCATION APPROVED BY THE ARCHITECT.
C. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS AT ALL POINTS, WHERE HEADROOM AND SPACE CONDITIONS APPEAR INADEQUATE, NOTIFY THE ARCHITECTS PRIOR TO PROCEEDING WITH INSTALLATION. MAINTAIN A MINIMUM OF 7'-0" CLEARANCE ABOVE FINISHED FLOOR TO UNDERSIDE OF PIPES, DUCTS, CONDUTS, SUSPENDED EQUIPMENT, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.	H. INSTALL PIPING, DUCTWORK, AND CONDUT CONCEALED IN AREAS HAVING CEILINGS AND/OR FURRED SPACES UNLESS OTHERWISE INDICATED.
D. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION. MAKE MODIFICATIONS IN THE LAYOUT AS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES OR FOR PROPER EXECUTION OF THE WORK.	I. ALL EQUIPMENT, VALVES, DAMPERS, DAMPER AND VALVE OPERATORS SHALL BE PROVIDED WITH ADEQUATE ACCESS FOR SERVICING, MAINTENANCE, AND REPLACEMENT.
E. INSTALL ALL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.	J. SIZE ALL SPLIT-SYSTEM REFRIGERANT PIPING IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
	K. DUCT DIMENSIONS MAY BE MODIFIED ONLY WITH PRIOR APPROVAL FROM ARCHITECT. DUCT DIMENSIONS ARE IN INCHES AND INSIDE CLEAR.
	L. FOR LOCATION OF REGISTERS, GRILLES AND DIFFUSERS WITHIN CEILING GRID, REFER TO ARCHITECTURAL REFLECTED CEILING PLANS.
	M. ELEVATION INDICATED FOR RECTANGULAR DUCT, GRILLE AND LOUVER OPENINGS IS TO THE TOP OF ROUGH OPENING UNLESS OTHERWISE INDICATED. ELEVATION INDICATED FOR ROUND DUCTWORK AND PIPING IS TO CENTERLINE.
	N. BRANCH PIPING RUNOUTS TO TERMINAL UNITS SHALL BE 3/4" DIAMETER UNLESS INDICATED OTHERWISE.



Dobo Hall Renovation - Package A

SCO PROJECT NO. 18-19798-01A

UNC Wilmington

4978 CAHILL DR, WILMINGTON, NC 28403

PROJECT NO.	DATE
580999	MARCH 27, 2019
REVISIONS	
DATE	DESCRIPTION

LEGENDS,
ABBREVIATIONS
AND GENERAL
NOTES

M0.1A

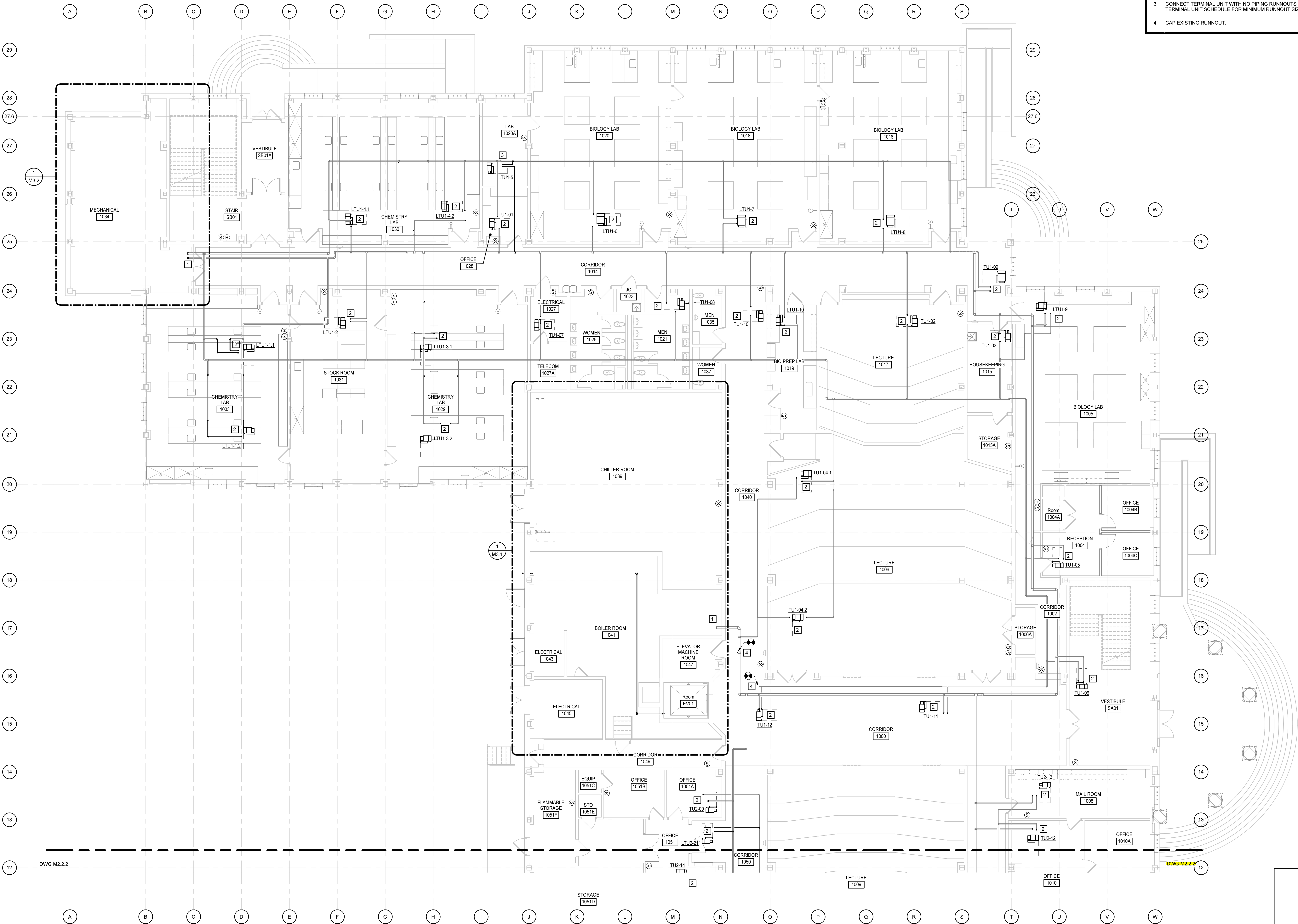
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TERMINAL UNIT SCHEDULE																																		
TAG	MFR	MODEL NUMBER	AIR VALVE										HEATING COIL										ELECTRICAL DATA										LOCATION (ROOM)	
			INLET DIAMETER (IN)	MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	APD AT MAX AIRFLOW (IN-WC)	DESIGN AIRFLOW (CFM)	CAPACITY (BTUH)	EAT (°F)	LAT (°F)	FLOW RATE (GPM)	WPD (FTWC)	EWT (°F)	LWT (°F)	MOCP (A)	(V)	(PH)	(HZ)	WEIGHT (LBS)	NOTES	NUMBER	NAME												
TU1-01	SIEMENS	LGS	4	105	65	0.40	65	2,106	55	85.0	0.5	10.0	140	100	15	120	1	60	20	-	1028	OFFICE												
TU1-02	SIEMENS	LGS	10	1250	420	0.40	480	15,552	55	85.0	1.0	10.0	140	100	15	120	1	60	50	-	1017	LECTURE												
TU1-03	SIEMENS	LGS	4	150	50	0.40	50	2,430	55	100.0	0.5	10.0	140	100	15	120	1	60	20	-	1015	HOUSEKEEPING												
TU1-04	SIEMENS	LGS	12	1740	415	0.40	415	13,466	55	85.0	1.0	10.0	140	100	15	120	1	60	50	-	1008	LECTURE												
TU1-04.2	SIEMENS	LGS	12	1780	415	0.40	415	13,466	55	85.0	1.0	10.0	140	100	15	120	1	60	50	-	1008	LECTURE												
TU1-05	SIEMENS	LGS	8	570	195	0.40	270	14,580	55	105.0	1.0	10.0	140	100	15	120	1	60	45	-	1004	RECEPTION												
TU1-06	SIEMENS	LGS	8	600	315	0.40	600	25,920	55	95.0	1.5	10.0	140	100	15	120	1	60	45	-	SA01	VESTIBULE												
TU1-07	SIEMENS	LGS	8	600	145	0.40	145	4,698	55	85.0	0.5	10.0	140	100	15	120	1	60	45	-	1027	ELECTRICAL												
TU1-08	SIEMENS	LGS	4	200	200	0.40	200	5,400	55	80.0	0.5	10.0	140	100	15	120	1	60	20	-	1021	MEN												
TU1-09	SIEMENS	LGS	12	2500	2500	0.40	2500	70,200	55	81.0	4.0	10.0	140	100	15	120	1	60	50	-	1014	CORRIDOR												
TU1-10	SIEMENS	LGS	8	710	710	0.40	710	19,937	55	81.0	1.0	10.0	140	100	15	120	1	60	45	-	1040	CORRIDOR												
TU1-11	SIEMENS	LGS	8	700	700	0.40	700	20,412	55	82.0	1.0	10.0	140	100	15	120	1	60	45	-	1000	CORRIDOR												
TU1-12	SIEMENS	LGS	4	150	150	0.40	150	5,346	55	88.0	0.5	10.0	140	100	15	120	1	60	20	-	1000	CORRIDOR												
TU2-01	SIEMENS	LGS	4	180	65	0.40	120	6,091	55	102.0	0.5	10.0	140	100	15	120	1	60	20	-	1082A	OFFICE												
TU2-02	SIEMENS	LGS	4	100	60	0.40	60	1,844	55	85.0	0.5	10.0	140	100	15	120	1	60	20	-	1080A	OFFICE												
TU2-03	SIEMENS	LGS	6	200	70	0.40	70	2,268	55	85.0	0.5	10.0	140	100	15	120	1	60	35	-	1078A	OFFICE												
TU2-04	SIEMENS	LGS	8	600	225	0.40	145	4,698	55	85.0	0.5	10.0	140	100	15	120	1	60	45	-	1074	ELECTRICAL												
TU2-05	SIEMENS	LGS	6	300	300	0.40	300	11,340	55	90.0	1.0	10.0	140	100	15	120	1	60	35	-	1068	MEN												
TU2-06	SIEMENS	LGS	10	975	975	0.40	975	28,431	55	82.0	1.5	10.0	140	100	15	120	1	60	50	-	1050	CORRIDOR												
TU2-07	SIEMENS	LGS	4	100	60	0.40	60	1,844	55	85.0	0.5	10.0	140	100	15	120	1	60	20	-	1067D	OFFICE												
TU2-08	SIEMENS	LGS	6	230	120	0.40	120	3,888	55	85.0	0.5	10.0	140	100	15	120	1	60	35	-	1061	OFFICE												
TU2-09	SIEMENS	LGS	6	210	70	0.40	70	2,268	55	85.0	0.5	10.0	140	100	15	120	1	60	35	-	1051A	OFFICE												
TU2-10	SIEMENS	LGS	16	2300	600	0.40	600	20,120	55	82.0	1.5	10.0	140	100	15	120	1	60	65	-	1009	LECTURE												
TU2-11	SIEMENS	LGS	10	900	900	0.40	900	34,020	55	90.0	2.0	10.0	140	100	15	120	1	60	50	-	1180	CORRIDOR												
TU2-12	SIEMENS	LGS	10	755	240	0.40	465	25,110	55	105.0	1.5	10.0	140	100	15	120	1	60	50	-	1010	OFFICE												
TU2-13	SIEMENS	LGS	6	260	110	0.40	150	7,290	55	90.0	0.5	10.0	140	100	15	120	1	60	35	-	1008	MAIL ROOM												
TU2-14	SIEMENS	LGS	8	365	155	0.40	270	16,038	55	110.0	1.0	10.0	140	100	15	120	1	60	45	-	1061	OFFICE												
TU2-16	SIEMENS	LGS	4	120	60	0.40	60	2,592	55	95.0	0.5	10.0	140	100	15	120	1	60	20	-	1055	CORRIDOR												
TU2-17.1	SIEMENS	LGS	12	1830	1830	0.40	1830	45,457	55	78.0	2.5	10.0	140	100	15	120	1	60	50	-	1079	LAB												
TU2-17.2	SIEMENS	LGS	12	1545	1545	0.40	1545	38,378	55	78.0	2.0	10.0	140	100	15	120	1	60	50	-	1152	CORRIDOR												
TU2-18	SIEMENS	LGS	4	115	60	0.40	60	1,750	55	82.0	0.5	10.0	140	100	15	120	1	60	20	-	1052	OFFICE												
FIRST FLOOR																																		
TU3-01	SIEMENS	LGS	4	195	70	0.40	150	7,614	55	102.0	0.5	10.0	140	100	15	120	1	60	20	-	2043A	OFFICE												
TU3-02	SIEMENS	LGS	6	230	70	0.40	100	4,860	55	100.0	0.5	10.0	140	100	15	120	1	60	35	-	2037	OFFICE												
TU3-03	SIEMENS	LGS	4	115	60	0.40	60	2,592	55	95.0	0.5	10.0	140	100	15	120	1	60	20	-	2033	OFFICE												
TU3-04	SIEMENS	LGS	6	420	170	0.40	300	12,960	55	95.0	1.0	10.0	140	100	15	120	1	60	35	-	2038A	OFFICE												
TU3-05	SIEMENS	LGS	8	330	185	0.40	250	12,960	55	98.0	1.5	10.0	140	100	15	120	1	60	45	-	2038	CORRIDOR												
TU3-06	SIEMENS	LGS	8	345	355	0.40	355	17,253	55	100.0	1.0	10.0	140	100	15	120	1	60	45	-	2034	OFFICE												
TU3-07	SIEMENS	LGS	8	600	150	0.40	125	4,725	55	90.0	0.5	10.0	140	100	15	120	1	60	45	-	2031	ELECTRICAL												
TU3-08	SIEMENS	LGS	6	300	300	0.40	300	11,888	55	92.0	1.0	10.0	140	100	15	120	1	60	35	-	2025	MEN												
TU3-09	SIEMENS	LGS	4	105	60	0.40	60	2,268	55	90.0	0.5	10.0	140	100	15	120	1	60	20	-	2026	OFFICE												
TU3-10	SIEMENS	LGS	6	0	70	0.40	70	3,553	55	102.0	0.5	10.0	140	100	15	120	1	60	35	-	2022	OFFICE												
TU3-11	SIEMENS	LGS	6	200	70	0.40	150	7,614	55	102.0	0.5	10.0	140	100	15	120	1	60	35	-	2014A	OFFICE												
TU3-12	SIEMENS	LGS	4	110	60	0.40	60	2,592	55	95.0	0.5	10.0	140	100	15	120	1	60	20	-	2050	OFFICE												
TU3-13	SIEMENS	LGS	4	115	120	0.40	60	2,592	55	95.0	0.5	10.0	140	100	15	120	1	60	20	-	2051	OFFICE												
TU3-14	SIEMENS	LGS	6	340	120	0.40	120	5,573	55	98.0	0.5	10.0	140	100	15	120	1	60	35	-	2090	SEMINAR												
TU3-15	SIEMENS	LGS	8	540	170	0.40	300	16,200	55	105.0	1.0	10.0	140	100	15	120	1	60	45	-	2062A	GRAD WORK AREA												
TU3-16	SIEMENS	LGS	8	540	175	0.40	300	16,200	55	105.0	1.0	10.0	140	100	15	120	1	60	45	-	2062	GRAD LOUNGE												
TU3-17	SIEMENS	LGS	6	405	125	0.40	405	21,433	55	104.0	1.5	10.0	140	100	15	120	1	60	35	-	2068A	OFFICE												
TU3-18	SIEMENS	LGS	0	135	0	0.40	400	19,440	55	99.0	1.0	10.0	140	100	15	120	1	60	35	-	2060	RECEPTION												
TU3-19	SIEMENS	LGS	6	425	130	0.40	250	13,050	55	104.0	1.0	10.0	140	100	15	120	1	60	35	-	2006	RECEPTION												
TU3-20	SIEMENS	LGS	6	240	75	0.40	75	4,405	55	105.0	0.5	10.0	140	100	15	120	1	60	35	-	2004	COPY / MAIL												
TU3-21	SIEMENS	LGS	10	850	290	0.40	350	17,766	55	102.0	1.0	10.0	140	100	15	120	1	60	50	-	2002	GRAD STUDENT WORKSTATIONS												
TU3-22	SIEMENS	LGS	6	0	120	0.40	200	10,800	55	105.0	1.0	10.0	140	100	15	120	1	60	35	-	2013	OFFICE												
TU3-23	SIEMENS	LGS	4	60	60	0.40	60	3,240	55	101.0	0.5	10.0	140	100	15	120	1	60	20	-	2024A	COOLER												
TU3-24	SIEMENS	LGS	16	2775	1200	0.40	1200	40,176	55	86.0	2.0	10.0	140	100	15	120	1	60	65	-	2011	CORRIDOR												
TU3-25	SIEMENS	LGS	12	1425	1425	0.40	1425	46,170	55	85.0	2.5	10.0	140	100	15	120	1	60	50	-	2047	CORRIDOR												
TU3-26	SIEMENS	LGS	16	2060	860	0.40	860	23,220	55	80.0	1.5	10.0	140	100	15	120	1	60	65	-	2000	CORRIDOR												
TU4-01	SIEMENS	LGS	105	60	0.40	60	2,268	55	90.0	0.5	10.0	140	100	15	120	1	60	20	-	2103	OFFICE													
TU4-02	SIEMENS	LGS	6	100	60	0.40	60	3,453	55	102.0	0.5	10.0	140	100	15	120	1	60	20	-	2097	OFFICE												
TU4-03	SIEMENS	LGS	4	200	70	0.40	200	8,840	55	95.0	0.5	10.0	140	100	15	120	1	60	20	-	2106A	OFFICE												
TU4-04	SIEMENS	LGS	6	230	70	0.40	70	4,158	55	110.0	0.5	10.0	140	100	15	120	1	60	35	-	2102	OFFICE												
TU4-05	SIEMENS	LGS	6	115	70	0.40	70	3,024	55	95.0	0.5	10.0	140	100	15	120	1	60	35	-	2094	BIOLOGY LAB												
TU4-06	SIEMENS	LGS	6	130	70	0.40	70	4,158	55	110.0	0.5	10.0	140	100	15	120	1	60	35	-	2081	OFFICE												
TU4-07	SIEMENS	LGS	6	200	70	0.40	200	8,840	55	95.0	0.5	10.0	140	100	15	120	1	60	35	-	2075	OFFICE												
TU4-08	SIEMENS	LGS	8	600	145	0.40	145	5,481	55	90.0	0.5	10.0	140	100	15	120	1	60	45	-	2092	ELECTRICAL												
TU4-09	SIEMENS	LGS	6	300	300	0.40	300	12,312	55	93.0	1.0	10.0	140	100	15	120	1	60	35	-	208													

LAB TERMINAL EXHAUST UNIT SCHEDULE													
		AIR VALVE					ELECTRICAL DATA				LOCATION (ROOM)		
TAG	MANUFACTURER	MODEL NUMBER	INLET DIAMETER (IN)	MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	APD AT MAX AIR FLOW (IN-WVC)	(V)	(PH)	(HZ)	WEIGHT (LBS)	NOTES	NUMBER	NAME
EV1-1.1	SIEMENS	LGE	04	90	50	0.25	120	1	60	20	1	1028 OFFICE	
EV1-2.1	SIEMENS	LGE	10	1070	240	0.25	120	1	60	32	1	1017 LECTURE	
EV1-3.1	SIEMENS	LGE	04	150	50	0.25	120	1	60	20	1	1017 LECTURE	
EV1-4.1	SIEMENS	LGE	16	3300	630	0.25	120	1	60	32	1	1008A STORAGE	
EV1-5.1	SIEMENS	LGE	07	510	135	0.25	120	1	60	25	1	1004 RECEPTION	
EV1-6.1	SIEMENS	LGE	07	410	125	0.25	120	1	60	25	1	SA01 VESTIBULE	
EV1-7.1	SIEMENS	LGE	07	580	125	0.25	120	1	60	25	1	1028 WOMEN	
EV1-8.1	SIEMENS	LGE	10	1000	1000	0.25	120	1	60	32	1	1021 MEN	
EV1-11.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1033 CHEMISTRY LAB	
EV1-11.2	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1033 CHEMISTRY LAB	
EV1-11.3	SIEMENS	LGE	10	1200	1200	0.25	120	1	60	32	-	1033 CHEMISTRY LAB	
EV1-14.1	SIEMENS	LGE	06	250	90	0.25	120	1	60	25	1	1033 CHEMISTRY LAB	
EV1-12.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1031 STOCK ROOM	
EV1-12.2	SIEMENS	LGE	06	100	100	0.25	120	1	60	25	-	1031 STOCK ROOM	
EV1-12.3	SIEMENS	LGE	09	980	200	0.25	120	1	60	0	-	1029 CHEMISTRY LAB	
EV1-13.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1029 CHEMISTRY LAB	
EV1-13.2	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1029 CHEMISTRY LAB	
EV1-13.3	SIEMENS	LGE	09	800	800	0.25	120	1	60	0	-	1029 CHEMISTRY LAB	
EV1-13.4	SIEMENS	LGE	07	400	400	0.25	120	1	60	25	-	1029 CHEMISTRY LAB	
EV1-13.5	SIEMENS	LGE	06	270	90	0.25	120	1	60	25	1	1029 CHEMISTRY LAB	
EV1-14.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1030 CHEMISTRY LAB	
EV1-14.2	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1030 CHEMISTRY LAB	
EV1-14.3	SIEMENS	LGE	10	1200	1200	0.25	120	1	60	32	-	1030 CHEMISTRY LAB	
EV1-14.4	SIEMENS	LGE	07	315	100	0.25	120	1	60	25	1	1030 CHEMISTRY LAB	
EV1-15.1	SIEMENS	LGE	07	315	125	0.25	120	1	60	25	1	1020A LAB	
EV1-16.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1020 BIOLOGY LAB	
EV1-16.2	SIEMENS	LGE	14	1785	345	0.25	120	1	60	32	1	1020 BIOLOGY LAB	
EV1-17.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1018 BIOLOGY LAB	
EV1-17.2	SIEMENS	LGE	14	1820	560	0.25	120	1	60	32	1	1018 BIOLOGY LAB	
EV1-18.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1016 BIOLOGY LAB	
EV1-18.2	SIEMENS	LGE	14	1805	550	0.25	120	1	60	32	1	1016 BIOLOGY LAB	
EV1-19.1	SIEMENS	LGE	10	1200	1200	0.25	120	1	60	32	-	1005 BIOLOGY LAB	
EV1-19.2	SIEMENS	LGE	06	200	200	0.25	120	1	60	25	-	1005 BIOLOGY LAB	
EV1-19.3	SIEMENS	LGE	08	700	125	0.25	120	1	60	32	1	1005 BIOLOGY LAB	
EV1-10.1	SIEMENS	LGE	07	435	125	0.25	120	1	60	25	1	1019 BIO PREP LAB	
EV2-1.1	SIEMENS	LGE	04	90	50	0.25	120	1	60	20	1	1082 LAB	
EV2-2.1	SIEMENS	LGE	04	90	50	0.25	120	1	60	20	1	1080A OFFICE	
EV2-3.1	SIEMENS	LGE	04	180	50	0.25	120	1	60	20	1	1078A OFFICE	
EV2-4.1	SIEMENS	LGE	08	580	125	0.25	120	1	60	32	1	1055B LAB	
EV2-5.1	SIEMENS	LGE	10	1000	1000	0.25	120	1	60	32	1	1085 CORRIDOR	
EV2-7.1	SIEMENS	LGE	04	90	50	0.25	120	1	60	20	1	1087 LAB	
EV2-8.1	SIEMENS	LGE	04	210	100	0.25	120	1	60	20	1	1083 OFFICE	
EV2-9.1	SIEMENS	LGE	04	190	50	0.25	120	1	60	20	1	1051A OFFICE	
EV2-10.1	SIEMENS	LGE	14	2070	460	0.25	120	1	60	32	1	1009 LECTURE	
EV2-12.1	SIEMENS	LGE	08	695	180	0.25	120	1	60	32	1	1010B OFFICE	
EV2-13.1	SIEMENS	LGE	06	240	90	0.25	120	1	60	25	-	1008 MAIL ROOM	
EV2-14.1	SIEMENS	LGE	08	330	125	0.25	120	1	60	32	1	1051D STORAGE	
EV2-16.1	SIEMENS	LGE	04	110	50	0.25	120	1	60	20	1	1053 LAB	
EV2-18.1	SIEMENS	LGE	04	105	50	0.25	120	1	60	20	1	1052 OFFICE	
EV2-11.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1075 LAB	
EV2-11.2	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1075 LAB	
EV2-11.3	SIEMENS	LGE	08	305	125	0.25	120	1	60	32	1	1079 LAB	
EV2-12.1	SIEMENS	LGE	12	1390	360	0.25	120	1	60	32	1	1077 FREEZER ROOM	
EV2-13.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1075 LAB	
EV2-13.2	SIEMENS	LGE	07	580	125	0.25	120	1	60	32	-	1075 LAB	
EV2-14.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1082 LAB	
EV2-14.2	SIEMENS	LGE	09	865	175	0.25	120	1	60	0	1	1082 LAB	
EV2-15.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1080 LAB	
EV2-15.2	SIEMENS	LGE	10	890	250	0.25	120	1	60	32	1	1080 LAB	
EV2-16.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1078 LAB	
EV2-16.2	SIEMENS	LGE	06	200	200	0.25	120	1	60	25	-	1078 LAB	
EV2-16.3	SIEMENS	LGE	08	665	125	0.25	120	1	60	32	1	1078 LAB	
EV2-17.1	SIEMENS	LGE	08	675	270	0.25	120	1	60	32	1	1076 LAB	
EV2-18.1	SIEMENS	LGE	08	475	175	0.25	120	1	60	32	1	1055B LAB	
EV2-19.1	SIEMENS	LGE	06	280	150	0.25	120	1	60	25	1	1067C LAB	
EV2-10.1	SIEMENS	LGE	08	465	175	0.25	120	1	60	32	1	1078B TEM	
EV2-11.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1067 LAB	
EV2-11.2	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1067 LAB	
EV2-11.3	SIEMENS	LGE	08	595	125	0.25	120	1	60	32	1	1067 LAB	
EV2-11.1	SIEMENS	LGE	08	595	125	0.25	120	1	60	32	-	1067 LAB	
EV2-12.1	SIEMENS	LGE	08	420	170	0.25	120	1	60	32	1	1067E LAB	
EV2-13.1	SIEMENS	LGE	08	485	175	0.25	120	1	60	32	1	1067A SEM	
EV2-14.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1065 BIOLOGY LAB	
EV2-14.2	SIEMENS	LGE	09	800	225	0.25	120	1	60	0	1	1065 BIOLOGY LAB	
EV2-15.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1059 BIOLOGY LAB	
EV2-15.2	SIEMENS	LGE	09	895	225	0.25	120	1	60	0	1	1059 BIOLOGY LAB	
EV2-16.1	SIEMENS	LGE	10	830	335	0.25	120	1	60	32	1	1055B LAB	
EV2-17.1	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1053 LAB	
EV2-17.2	SIEMENS	LGE	08	405	125	0.25	120	1	60	32	1	1053 LAB	
EV2-18.1	SIEMENS	LGE	09	965	390	0.25	120	1	60	0	-	1013 BIO-CHEMISTRY LAB	
EV2-18.2	SIEMENS	LGE	09	965	390	0.25	120	1	60	0	-	1013 BIO-CHEMISTRY LAB	
EV2-18.3	SIEMENS	LGE	10	1200	1200	0.25	120	1	60	32	-	1013 BIO-CHEMISTRY LAB	
EV2-18.4	SIEMENS	LGE	04	130	50	0.25	120	1	60	20	1	1013 BIO-CHEMISTRY LAB	
EV2-19.1	SIEMENS	LGE	07	500	155	0.25	120	1	60	25	1	1011 PREP LAB	
EV2-19.2	SIEMENS	LGE	08	550	0	0.25	120	1	60	32	-	1011 PREP LAB	
EV2-20.1	SIEMENS	LGE	08	965	285	0.25	120	1	60	32	-	1012 BIO-CHEMISTRY LAB	
EV2-20.2	SIEMENS	LGE	08	700	285	0.25	120	1	60	32	-	1012 BIO-CHEMISTRY LAB	
EV2-20.3	SIEMENS	LGE	10	1200	1200	0.25	120	1	60	32	-	1012 BIO-CHEMISTRY LAB	
EV2-20.4	SIEMENS	LGE	04	80	50	0.25	120	1	60	20	1	1012 BIO-CHEMISTRY LAB	
EV2-21.1	SIEMENS	LGE	07	330	135	0.25	120	1	60	25	-	1055B LAB	
FIRST FLOOR													
EV3-1.1	SIEMENS	LGE	04	175	50	0.25	120	1	60	20	1	2043A OFFICE	
EV3-2.1	SIEMENS	LGE	04	210	50	0.25	120	1	60	20	1	2039 OFFICE	
EV3-3.1	SIEMENS	LGE	04	105	50	0.25	120	1	60	20	1	2033 OFFICE	
EV3-4.1	SIEMENS	LGE	07	380	0	0.25	120	1	60	25	1	2038B OFFICE	
EV3-5.1	SIEMENS	LGE	07	570	0	0.25	120	1	60	25	1	2038C OFFICE	
EV3-6.1	SIEMENS	LGE	07	315	0	0.25	120	1	60	25	1	2032 OFFICE	
EV3-7.1	SIEMENS	LGE	08	600	125	0.25	120	1	60	32	1	2029 WOMEN	
EV3-8.1	SIEMENS	LGE	10	1000	0	0.25	120	1	60	32	1	2025 MEN	
EV3-9.1	SIEMENS	LGE	04	95	50	0.25	120	1	60	20	1	2028 OFFICE	
EV3-10.1	SIEMENS	LGE	04	410	0	0.25	120	1	60	20	1	2022 OFFICE	
EV3-11.1	SIEMENS	LGE	04	180	50	0.25	120	1	60	20	1	2014A OFFICE	
EV3-12.1	SIEMENS	LGE	04	100	50	0.25	120	1	60	20	1	2050 OFFICE	
EV3-13.1	SIEMENS	LGE	04	105	50	0.25	120	1	60	20	1	2051 OFFICE</	

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FIRST FLOOR PLAN - PART A - PIPING

1/8" = 1'-0"

KEYNOTES

APPLIES TO THIS DRAWING

- 1 REFER TO ENLARGED PLAN FOR CONTINUATION.
- 2 CONNECT TERMINAL UNIT TO EXISTING HWS & HWR PIPING RUNNOUTS. CUT AND REROUTE RUNNOUTS AS REQUIRED TO INSTALL ALL VALVES AND ACCESSORIES. REFER TO COIL CONNECTION DETAIL. REFER TO TERMINAL UNIT SCHEDULE FOR MINIMUM RUNNOUT SIZE.
- 3 CONNECT TERMINAL UNIT WITH NO PIPING RUNNOUTS TO MAIN. REFER TO TERMINAL UNIT SCHEDULE FOR MINIMUM RUNNOUT SIZE.
- 4 CAP EXISTING RUNNOUT.

MOSELEYARCHITECTS

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MOSELEYARCHITECTS.COM

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Dobo Hall Renovation - Package A

SCO PROJECT NO. 18-19798-01A

UNC Wilmington

4978 CAHILL DR, WILMINGTON, NC 28403

PROJECT NO. DATE

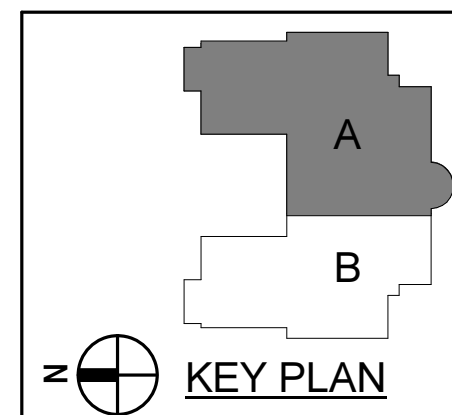
580999 MARCH 27, 2019

REVISIONS

DATE DESCRIPTION

FIRST FLOOR PLAN
- PART A - PIPING

M2.1.2



KEY PLAN

1/8" = 1'-0"



Dobo Hall Renovation - Package A

SCO PROJECT NO. 18-19798-01A
UNC Wilmington
4978 CAHILL DR, WILMINGTON, NC 28403

PROJECT NO.	DATE
580999	MARCH 27, 2019
REVISIONS	
DATE	DESCRIPTION

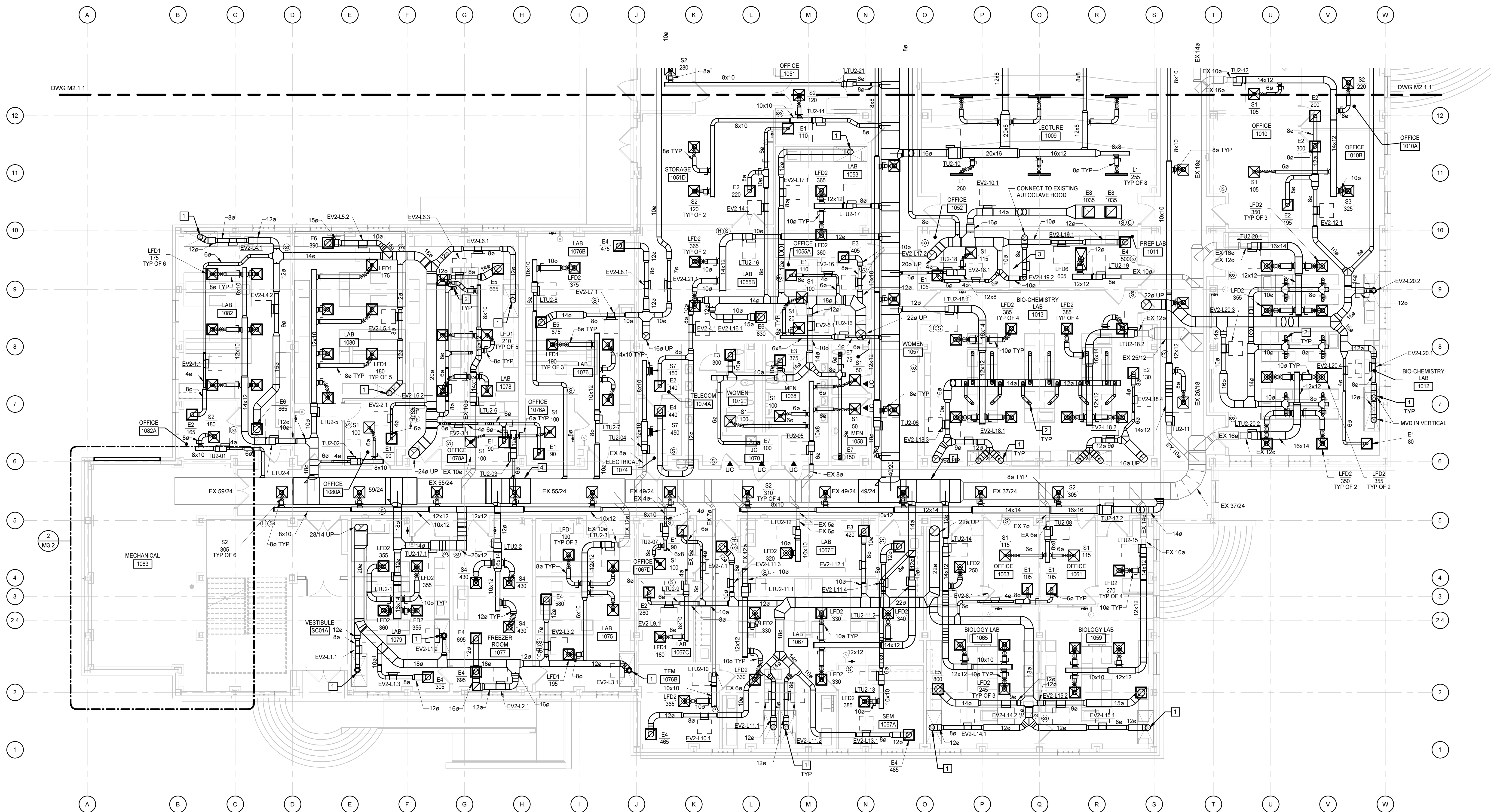
FIRST FLOOR PLAN
- PART B -
DUCTWORK

M2.2.1

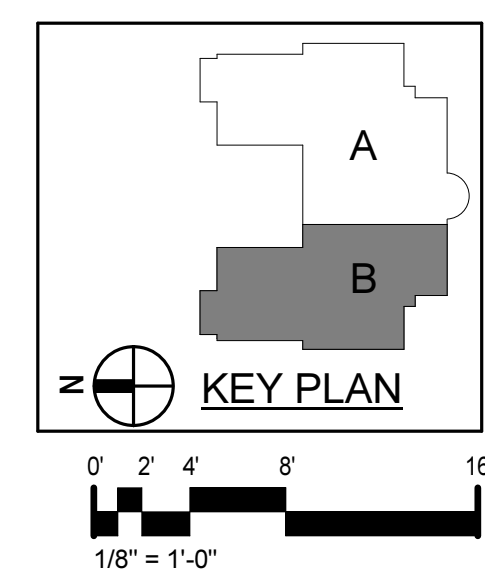
KEYNOTES

APPLIES TO THIS DRAWING

1. CONNECT TO FUME HOOD FULL SIZE OF FUME HOOD CONNECTION.
2. CONNECT 6" TO POINT EXHAUST EXTRACTION ARM. COORDINATE CONNECTION WITH LAB EQUIPMENT. BALANCE TO 100 CFM. PROVIDE MANUAL VOLUME DAMPER IN HORIZONTAL OR VERTICAL ABOVE THE CEILING.
3. PROVIDE WALL SWITCH FOR AUTOCLAVE HOOD EXHAUST.
4. LOCATION OF DOWN DUCT STATIC PRESSURE SENSOR FOR AHU-1.
5. LOCATION OF DOWN DUCT STATIC PRESSURE SENSOR FOR AHU-2.



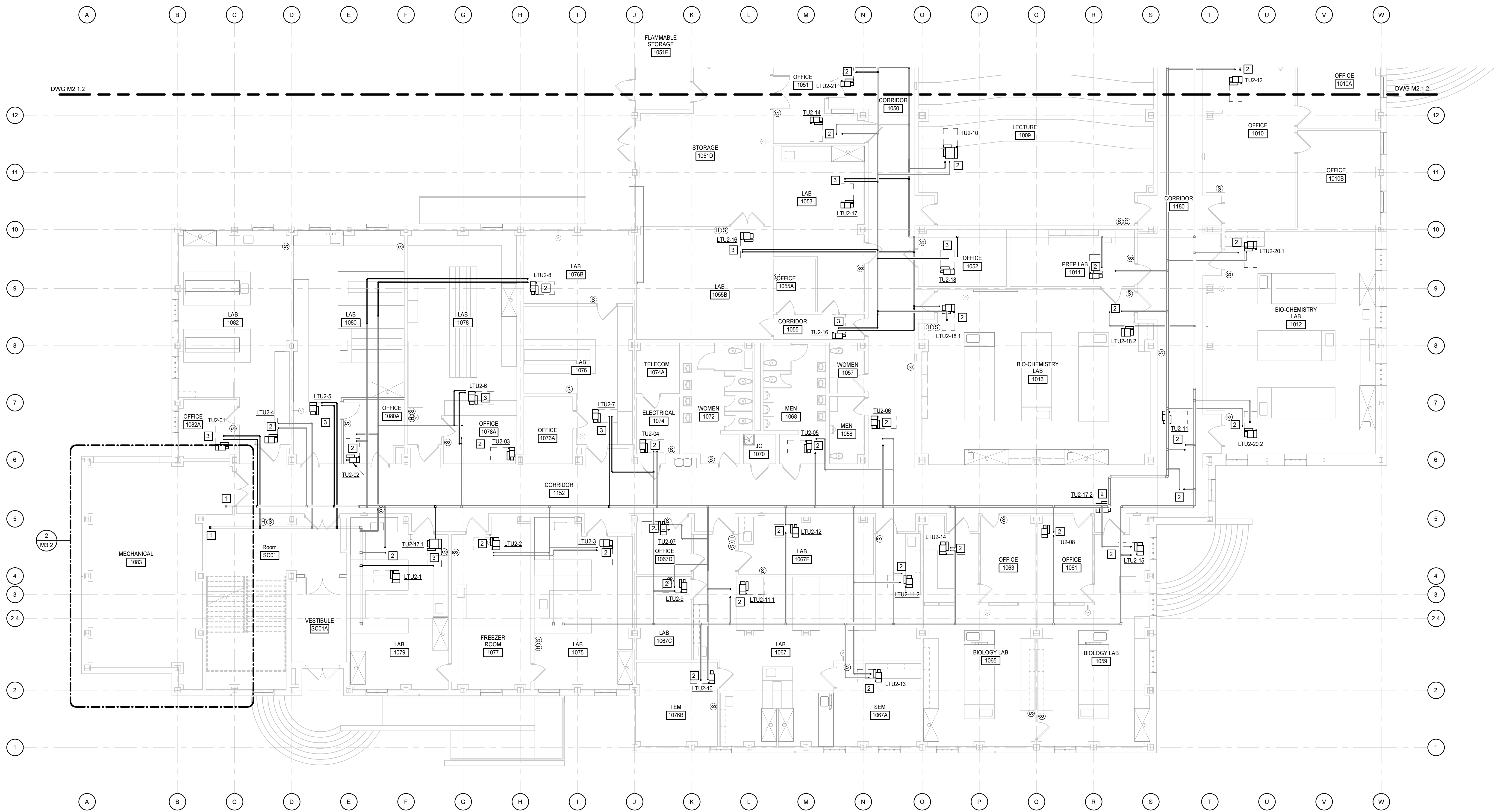
FIRST FLOOR PLAN - PART B - DUCTWORK
1/8" = 1'-0"



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FIRST FLOOR PLAN - PART B - PIPING

1/8" = 1'-0"



KEYNOTES

APPLIES TO THIS DRAWING

- 1 REFER TO ENLARGED PLAN FOR CONTINUATION.
- 2 CONNECT TERMINAL UNIT TO EXISTING HWS & HWR PIPING RUNNOUTS. CUT AND REROUTE RUNNOUTS AS REQUIRED TO INSTALL ALL VALVES AND ACCESSORIES. REFER TO COIL CONNECTION DETAIL. REFER TO TERMINAL UNIT SCHEDULE FOR MINIMUM RUNNOUT SIZE.
- 3 CONNECT TERMINAL UNIT WITH NO PIPING RUNNOUTS TO MAIN. REFER TO TERMINAL UNIT SCHEDULE FOR MINIMUM RUNNOUT SIZE.

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Dobo Hall Renovation - Package A

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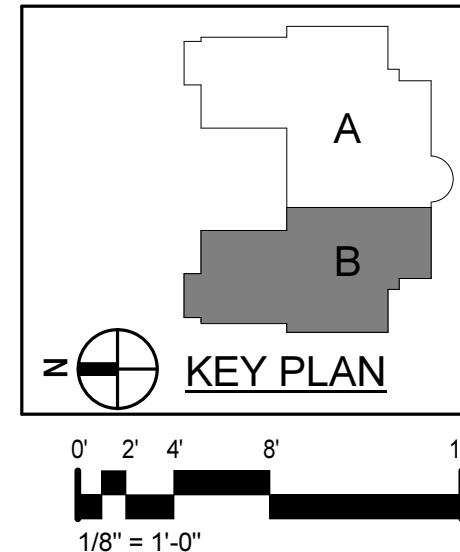
PROJECT NO. DATE

580999 MARCH 27, 2019

REVISIONS

DATE DESCRIPTION

FIRST FLOOR PLAN
- PART B - PIPING



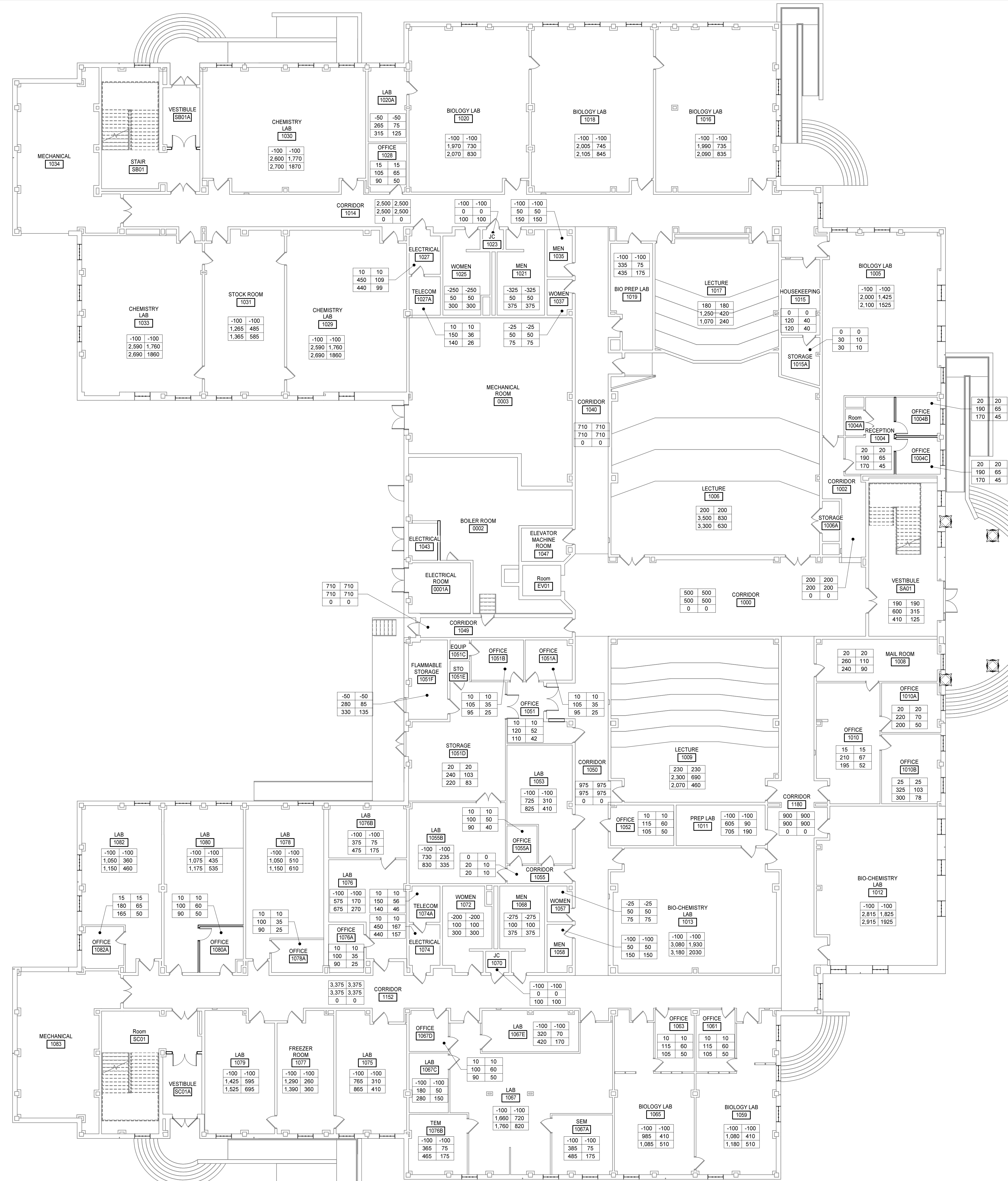
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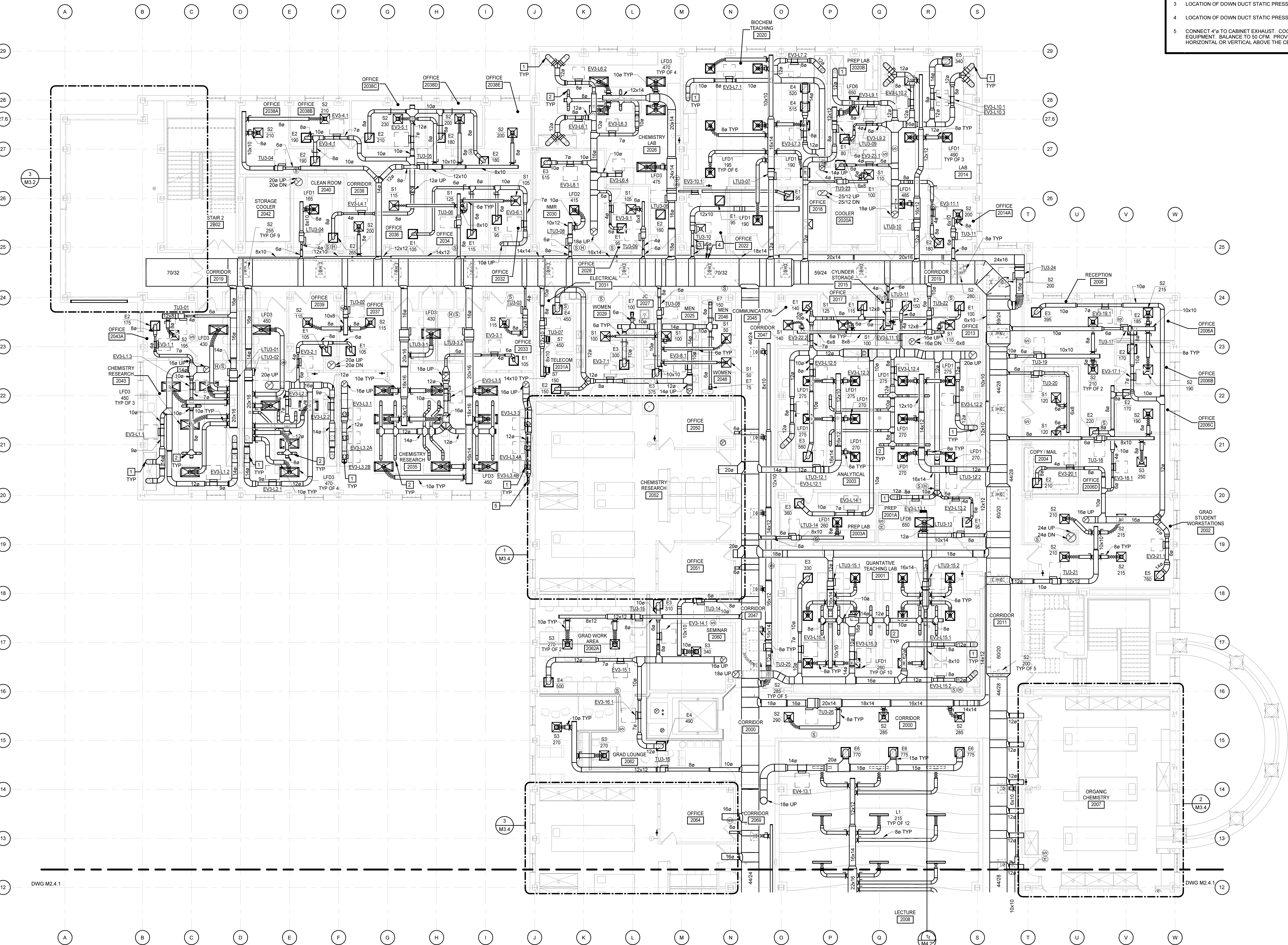
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FIRST FLOOR PLAN - AIR BALANCE

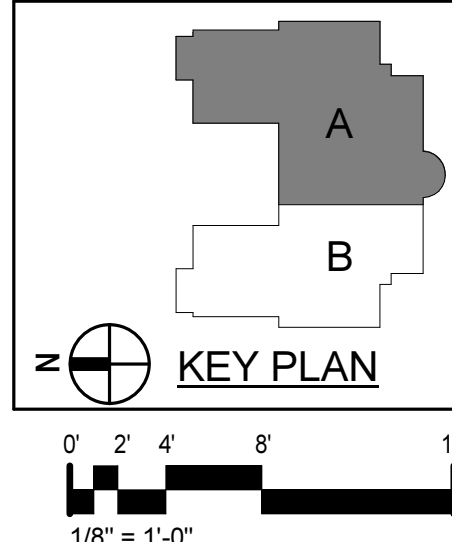
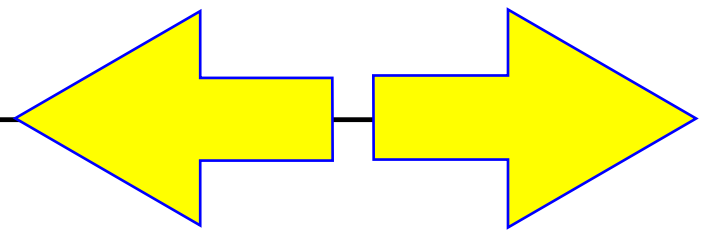
3/32" = 1'-0"



AIR BALANCE SCHEDULE - FIRST FLOOR																	
ROOM		ZONE	TRANSFER TO SPACE (CFM)	TRANSFER FROM SPACE (CFM)	OCC ACH (CFM)	UNOCC ACH (CFM)	PRESSURIZATION AIR (CFM)	FUME HOODS POINT EXHAUST EXHAUST SYSTEMS				GENERAL LAB VALVE		ZONE			
NUMBER	NAME							HOODS MAX (CFM)	HOODS MIN (CFM)	POINT MAX (CFM)	POINT MIN (CFM)	MAX (CFM)	MIN (CFM)	MAX SUPPLY (CFM)	MIN SUPPLY (CFM)	MAX EXHAUST (CFM)	MIN EXHAUST (CFM)
1000	CORRIDOR	1-VAV-11	0	0	0	0	500	0	0	0	0	0	0	200	200	0	0
1002	CORRIDOR	1-VAV-11	0	100	0	0	100	0	0	0	0	0	0	200	200	0	0
1004	RECEPTION	1-VAV-5	0	0	0	0	20	0	0	0	0	170	45	190	65	170	45
1004A	Room	1-VAV-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1004B	OFFICE	1-VAV-5	0	0	0	0	20	0	0	0	0	170	45	190	65	170	45
1004C	OFFICE	1-VAV-5	0	0	0	0	20	0	0	0	0	170	45	190	65	170	45
1005	BIOLOGY LAB	1-L8	100	0	2,100	840	0	0	0	1,400	1,400	700	125	2,000	1,425	2,100	1525
1006	LECTURE	1-VAV-4	0	0	0	0	200	0	0	0	0	3,300	630	3,500	830	3,300	630
1006A	STORAGE	1-VAV-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1014	CORRIDOR	1-VAV-9	0	1425	0	0	1,075	0	0	0	0	0	2,500	2,500	0	0	0
1015	HOUSEKEEPING	1-VAV-3	0	0	0	0	0	0	0	0	0	120	40	120	40	120	40
1015A	STORAGE	1-VAV-3	0	0	0	0	0	0	0	0	0	30	10	30	10	30	10
1016	BIOLOGY LAB	1-L8	100	0	2,090	835	0	700	285	0	0	1,805	550	1,990	735	2,090	835
1017	LECTURE	1-VAV-2	0	0	0	0	180	0	0	0	0	1,070	240	1,250	420	1,070	240
1018	BIOLOGY LAB	1-L7	100	0	2,105	845	0	700	285	0	0	1,820	560	2,005	745	2,105	845
1019	BIO PREP LAB	1-L10	100	0	435	175	0	0	0	0	0	435	175	335	75	435	175
1020	BIOLOGY LAB	1-L6	100	0	2,070	830	0	700	285	0	0	1,785	545	1,970	730	2,070	830
1020A	LAB	1-L5	50	0	305	125	0	0	0	0	0	315	125	265	75	315	125
1021	MEN	1-VAV-8	325	0	0	0	0	0	0	375	375	0	0	50	50	375	375
1023	JC	1-VAV-8	100	0	0	0	10	0	0	100	100	0	0	0	0	100	100
1025	WOMEN	1-VAV-8	250	0	0	0	0	0	0	300	300	0	0	50	50	300	300
1027	ELECTRICAL	1-VAV-7	0	0	0	0	10	0	0	0	0	440	63	450	109	440	99
1027A	TELECOM	1-VAV-7	0	0	0	0	10	0	0	0	0	140	62	150	36	140	28
1028	OFFICE	1-VAV-1	0	0	0	0	15	0	0	0	0	90	50	105	65	90	50
1029	CHEMISTRY LAB	1-L3	100	0	2,040	815	0	1,400	570	1,200	1,200	270	90	2,590	1,760	2,590	1,760
1030	CHEMISTRY LAB	1-L4	100	0	2,085	835	0	1,400	570	1,200	1,200	315	100	2,600	1,770	2,700	1,870
1031	STOCK ROOM	1-L2	100	0	1,365	550	0	700	285	100	100	980	200	1,265	485	1,365	585
1033	CHEMISTRY LAB	1-L1	100	0	2,020	810	0	1,400	570	1,200	1,200	250	90	2,590	1,760	2,690	1,860
1035	MEN	1-VAV-8	150	0	0	0	0	0	0	150	150	0	0	50	50	150	150
1037	WOMEN	1-VAV-8	25	0	0	0	0	0	0	75	75	0	0	50	50	75	75
1040	CORRIDOR	1-VAV-10	0	225	0	0	485	0	0	0	0	0	0	710	710	0	0
1049	CORRIDOR	1-VAV-12	0	0	0	0	150	0	0	0	0	0	0	150	150	0	0
SA01	VESTIBULE	1-VAV-6	0	0	0	0	190	0	0	0	0	410	125	600	315	410	125
AHU-1: 33																	
1008	MAIL ROOM	2-VAV-13	0	0	0	0	20	0	0	0	0	240	90	260	110	240	90
1009	LECTURE	2-VAV-10	0	0	0	0	230	0	0	0	0	2,070	460	2,300	690	2,070	460
1010	OFFICE	2-VAV-12	0	0	0	0	15	0	0	0	0	195	52	210	67	195	52
1010A	OFFICE	2-VAV-12	0	0	0	0	20	0	0	0	0	200	50	220	70	200	50
1010B	OFFICE	2-VAV-12	0	0	0	0	25	0	0	0	0	300	78	325	100	300	78
1011	PREP LAB	2-L19	100	0	385	155	0	0	0	550	0	500	155	605	89	705	188
1012	BIO-CHEMISTRY LAB	2-L20	100	0	1,955	785	0	1,665	675	1,200	1,200	80	50	2,815	1,825	2,915	1,925
1013	BIO-CHEMISTRY LAB	2-L18	100	0	2,110	845	0	1,930	780	1,200	1,200	130	50	3,080	1,930	3,180	2,030
1050	CORRIDOR	2-VAV-6	0	375	0	0	600	0	0	0	0	0	975	975	0	0	0
1051	OFFICE	2-VAV-14	0	0	0	0	10	0	0	0	0	110	42	120	42	110	42
1051A	OFFICE	2-VAV-9	0	0	0	0	10	0	0	0	0	95	25	105	35	95	25
1051B	OFFICE	2-VAV-9	0	0	0	0	10	0	0	0	0	95	25	105	35	95	25
1051C	EQUIP	2-VAV-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1051D	STORAGE	2-VAV-14	0	0	0	0	20	0	0	0	0	220	83	240	103	220	83
1051E	STO	2-VAV-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1051F	FLAMMABLE STORAGE	2-L21	50	0	330	135	0	0	0	0	0	330	135	280	85	330	135
1052	OFFICE	2-VAV-18	0	0	0	0	10	0	0	0	0	105	50	115	60	105	50
1053	LAB	2-L17	100	0	690	280	0	700	285	0	0	405	125	725	310	825	410
1055	CORRIDOR	2-VAV-16	0	0	0	0	0	0	0	0	0	20	10	20	10	20	10
1055A	OFFICE	2-VAV-16	0	0	0	0	10	0	0	0	0	90	40	100	50	90	40
1055B	LAB	2-L16	100	0	830	335	0	0	0	0	0	830	335	730	235	830	335
1057	WOMEN	2-VAV-5	25	0	0	0	0	0	0	75	75	0	75	50	50	75	75
1058	MEN	2-VAV-5	100	0	0	0	0	0	0	150	150	0	150	50	50	150	150
1059	BIOLOGY LAB	2-L15	100	0	1,080	435	0	700	285	0	0	895	225	1,080	410	1,180	510
1061	OFFICE	2-VAV-8	0	0	0	0	10	0	0	0	0	105	25	115	60	105	50
1063	OFFICE	2-VAV-8	0	0	0	0	10	0	0	0	0	105	25	115	60	105	50
1065	BIOLOGY LAB	2-L14	100	0	1,085	435	0	700	285	0	0	800	225	985	410	1,085	510
1067	LAB	2-L11	100	0	1,760	705	0	1,400	570	0	0	1,190	250	1,660	720	1,760	820
1067A	SEM	2-L13	100	0	385	155	25	0	0	0	0	485	155	385	75	485	175
1067C	LAB	2-L9	100	0	250	100	0	0	0	0	0	280	100	180	50	280	150
1067D	OFFICE	2-VAV-7	0	0	0	0	10	0	0	0	0	90	50	100	60	90	50
1067E	LAB	2-L12	100	0	420	170	0	0	0	0	0	420	170	320	70	420	170
1068	MEN	2-VAV-5	275	0	0	0	0	0	0	375	375	0	375	100	100	375	375
1070	JC	2-VAV-5	100	0	0	0	10	0	0	100	100	0	100	0	0	100	100
1072	WOMEN	2-VAV-5	200	0	0	0	0	0	0	300	300	0	300	100	100	300	300
1074	ELECTRICAL	2-VAV-4	0	0	0	0	10	0	0	0	0	440	83	450	167	440	157
1074A	TELECOM	2-VAV-4	0	0	0	0	10	0	0	0	0	140	42	150	56	140	46
1075	LAB	2-L3	100	0	865	350	0	700	285	0	0	580	125	685	310	865	410
1076	LAB	2-L7	100	0	675	270	0	0	0	0	0	675	270	575	170	675	270
1076A	OFFICE	2-VAV-3	0	0	0	0	10	0	0	0	0	90	25	100	35	90	25
1076B	TEM	2-L10	100	0	370	150	0	0	0	0	0	465	150	365	75	465	175
1076B	LAB	2-L8	100	0	430	175	0	0	0	0	0	475	175	375	75	475	175
1077	PREEZER ROOM	2-L2	100	0	695	280	0	0	0	0	0	1,390	300	1,290	258	1,390	300
1078	LAB	2-L6	100	0	1,150	460	0	700	285	200	200	665	125	1,050	510	1,150	610
1078A	OFFICE	2-VAV-3	0	0	0	0	10	0	0	0	0	90	25	100	35	90	25
1079	LAB	2-L1	100	0	875	350	0	1,400	570	0	0	305	125	1,425	595	1,525	695
1080	LAB	2-L5	100	0	1,175	470	0	700	285	0	0	890	250	1,075	435	1,175	535
1080A	OFFICE	2-VAV-2	0	0	0	0	10	0	0	0	0	90	50	100	60	90	50
1082	LAB	2-L4	100	0	1,145	460	0	700	285	0	0	865	175	1,050	360	1,150	460
1082A	OFFICE	2-VAV-1	0	0	0	0	15	0	0	0	0	165	50	180	65	165	50
1152	CORRIDOR	2-VAV-17	0	2075	0	0	1,300	0	0	0	0	0	0	3,375	3,375	0	0



SECOND FLOOR PLAN - PART A - DUCTWORK
1/8" = 1'-0"



PROJECT NO.	DATE
580999	MARCH 27, 2019
REVISIONS	
DATE	DESCRIPTION

SECOND FLOOR
PLAN - PART A -
DUCTWORK

M2.3.1

Dobo Hall Renovation - Package A

SCO PROJECT NO. 18-19798-01A
UNC Wilmington
4978 CAHILL DR, WILMINGTON, NC 28403

PROGRESS
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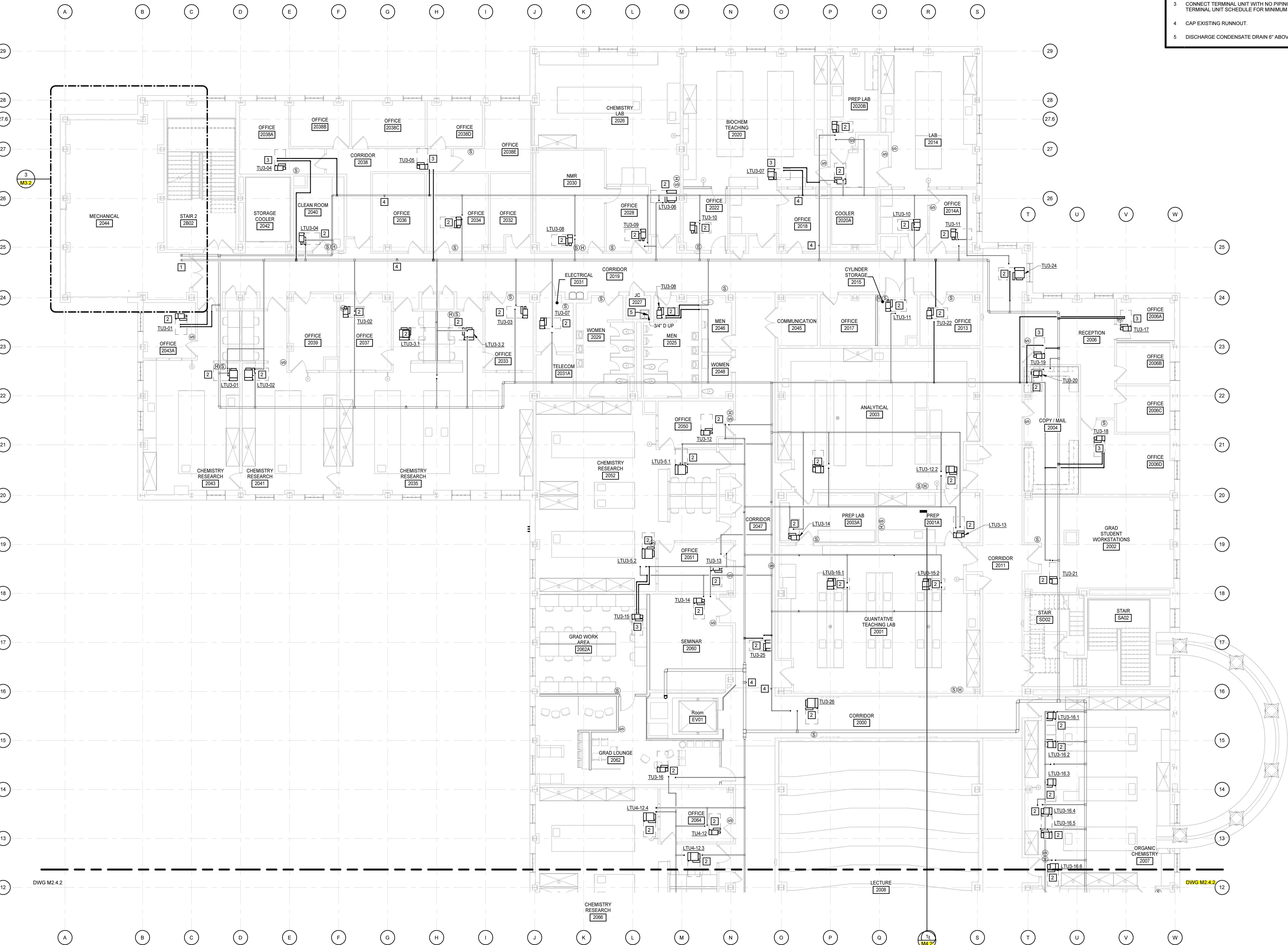
MOSELEYARCHITECTS

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PHONE (919) 845-0091
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KEYNOTES

APPLIES TO THIS DRAWING

- 1 CONNECT TO FUME HOOD FULL SIZE OF FUME HOOD CONNECTION.
- 2 CONNECT 6" TO POINT EXHAUST EXTRACTION ARM. COORDINATE CONNECTION WITH LAB EQUIPMENT. BALANCE TO 100 CFM. PROVIDE MANUAL VOLUME DAMPER IN HORIZONTAL OR VERTICAL ABOVE THE CEILING.
- 3 LOCATION OF DOWN DUCT STATIC PRESSURE SENSOR FOR AHU-3.
- 4 LOCATION OF DOWN DUCT STATIC PRESSURE SENSOR FOR AHU-4.
- 5 CONNECT 4" TO CABINET EXHAUST. COORDINATE CONNECTION WITH LAB EQUIPMENT. BALANCE TO 50 CFM. PROVIDE MANUAL VOLUME DAMPER IN HORIZONTAL OR VERTICAL ABOVE THE CEILING.



KEYNOTES

APPLIES TO THIS DRAWING

1

REFER TO ENLARGED PLAN FOR CONTINUATION.

2

CONNECT TERMINAL UNIT TO EXISTING HWS & HWR PIPING RUNNOUTS. CUT AND REROUTE RUNNOUTS AS REQUIRED TO INSTALL ALL VALVES AND ACCESSORIES. REFER TO COIL CONNECTION DETAIL. REFER TO TERMINAL UNIT SCHEDULE FOR MINIMUM RUNNOUT SIZE.

3

CONNECT TERMINAL UNIT WITH NO PIPING RUNNOUTS TO MAIN. REFER TO TERMINAL UNIT SCHEDULE FOR MINIMUM RUNNOUT SIZE.

4

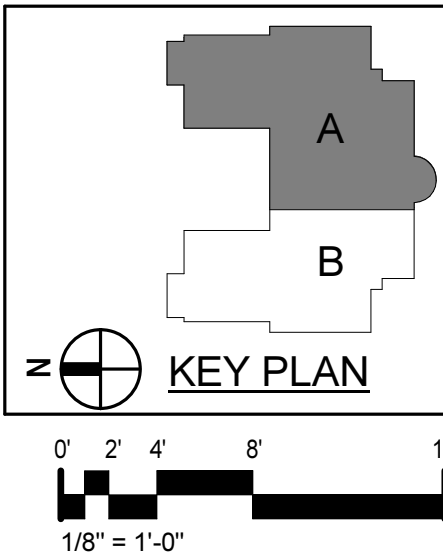
CAP EXISTING RUNNOUT.

5

DISCHARGE CONDENSATE DRAIN 6" ABOVE MOP SINK.

SECOND FLOOR PLAN - PART A - PIPING

1/8" = 1'-0"



PROJECT NO.	DATE
580999	MARCH 27, 2019
REVISIONS	
DATE	DESCRIPTION

SECOND FLOOR
PLAN - PART A -
PIPING

M2.3.2

Dobo Hall Renovation - Package A

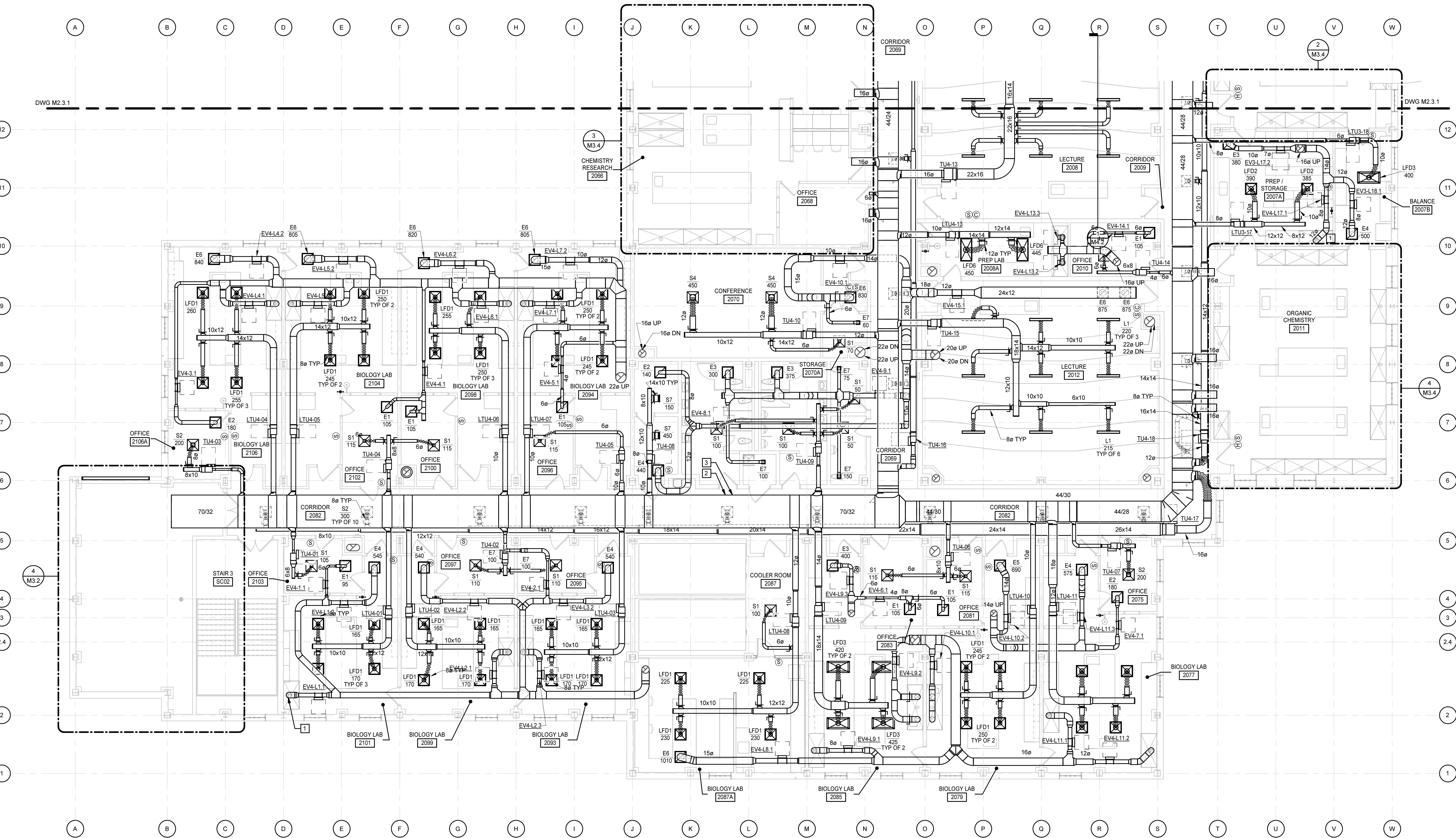
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SECOND FLOOR PLAN - PART B - DUCTWORK
1/8" = 1'-0"

KEYNOTES
APPLIES TO THIS DRAWING

- 1 CONNECT TO FUME HOOD FULL SIZE OF FUME HOOD CONNECTION.
- 2 LOCATION OF DOWN DUCT STATIC PRESSURE SENSOR FOR AHU-3.
- 3 LOCATION OF DOWN DUCT STATIC PRESSURE SENSOR FOR AHU-4.

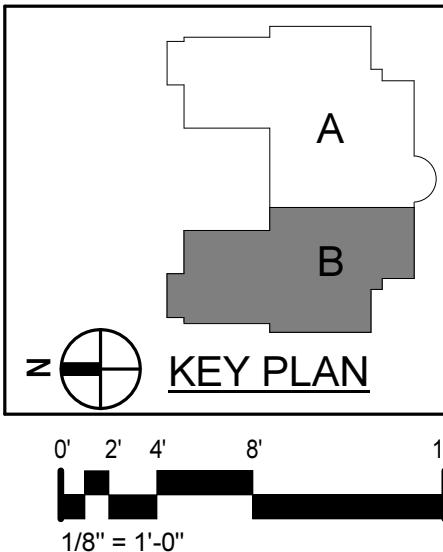
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Dobo Hall Renovation - Package A

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SECOND FLOOR
PLAN - PART B -
DUCTWORK

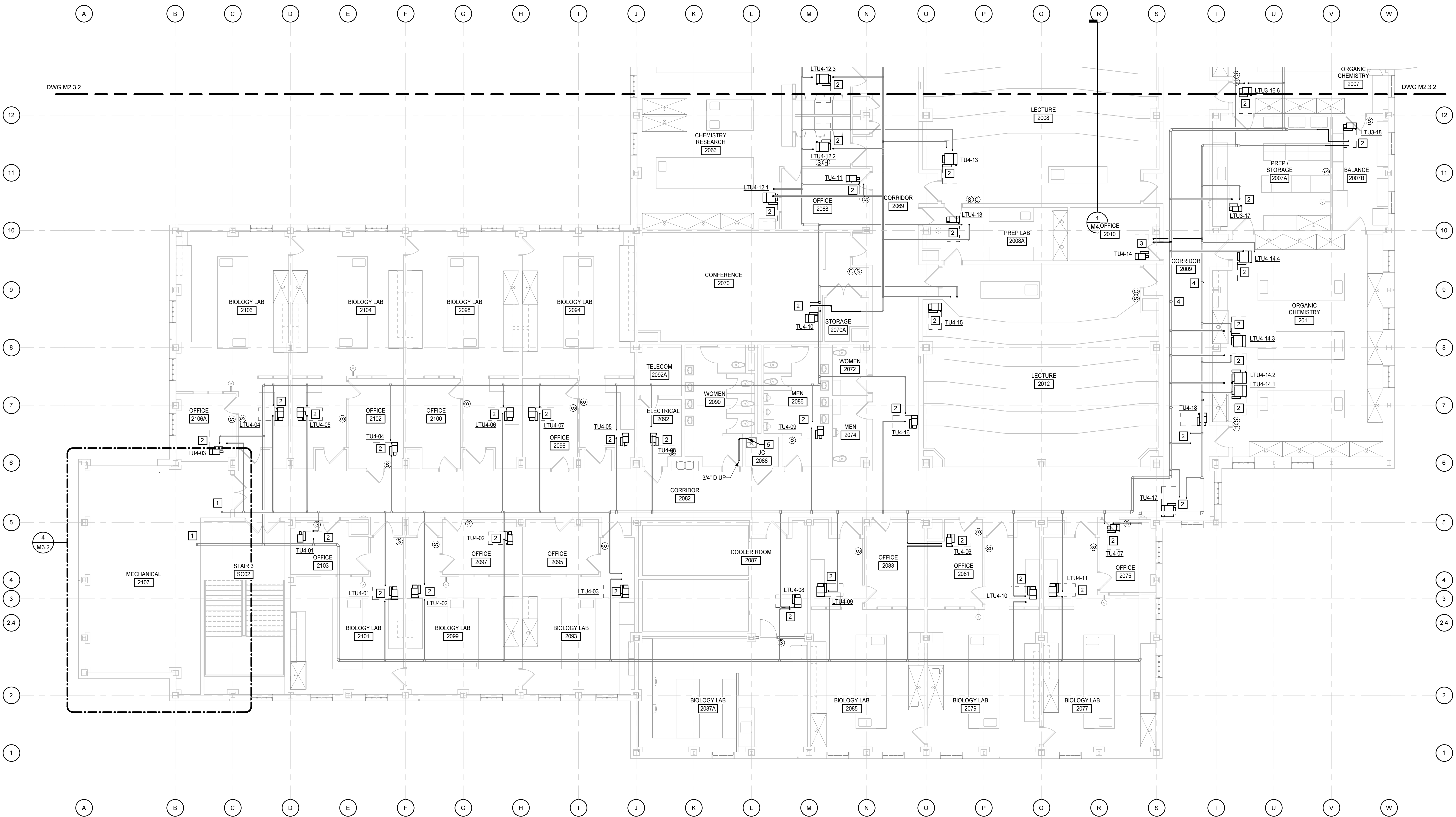


M2.4.1

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SECOND FLOOR PLAN - PART B - PIPING

1/8" = 1'-0"

KEYNOTES

APPLIES TO THIS DRAWING

- 1 REFER TO ENLARGED PLAN FOR CONTINUATION.
- 2 CONNECT TERMINAL UNIT TO EXISTING HWS & HWR PIPING RUNNOUTS. CUT AND REROUTE RUNNOUTS AS REQUIRED TO INSTALL ALL VALVES AND ACCESSORIES. REFER TO COIL CONNECTION DETAIL. REFER TO TERMINAL UNIT SCHEDULE FOR MINIMUM RUNNOUT SIZE.
- 3 CONNECT TERMINAL UNIT WITH NO PIPING RUNNOUTS TO MAIN. REFER TO TERMINAL UNIT SCHEDULE FOR MINIMUM RUNNOUT SIZE.
- 4 CAP EXISTING RUNNOUT.
- 5 DISCHARGE CONDENSATE DRAIN 6" ABOVE MOP SINK.



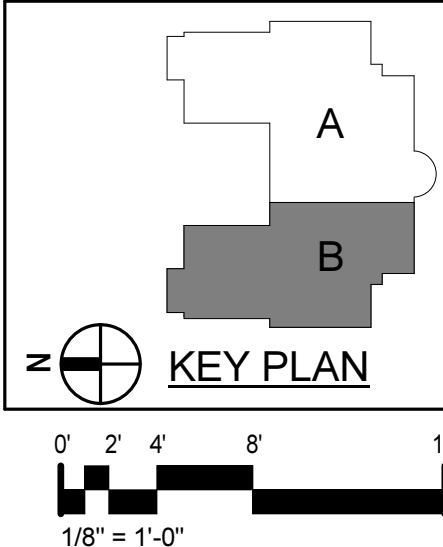
Dobo Hall Renovation - Package A

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UNC Wilmington
4978 CAHILL DR, WILMINGTON, NC 28403

PROJECT NO.	DATE
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REVISIONS	
DATE	DESCRIPTION

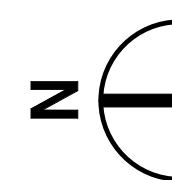
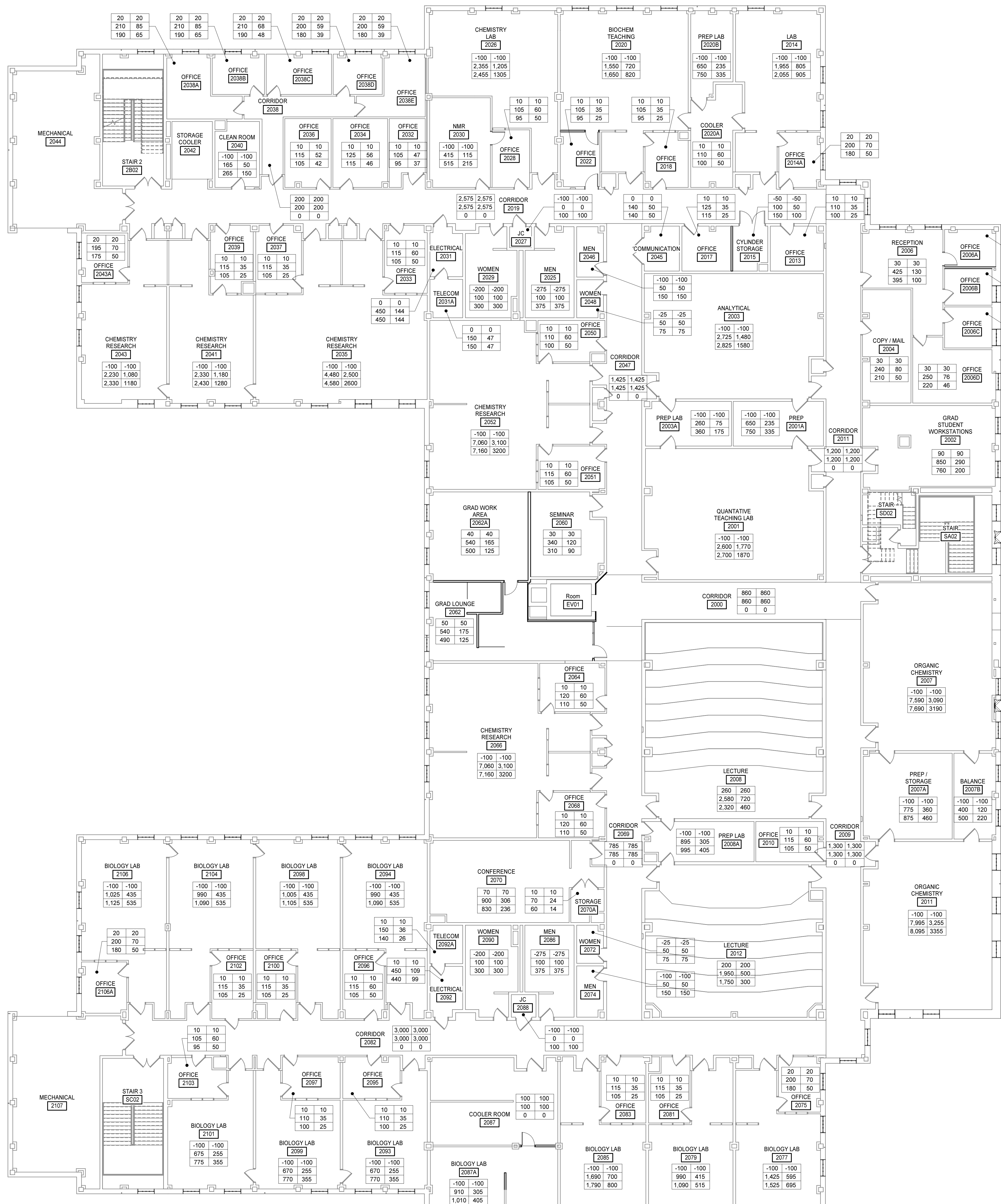
SECOND FLOOR
PLAN - PART B -
PIPING

M2.4.2



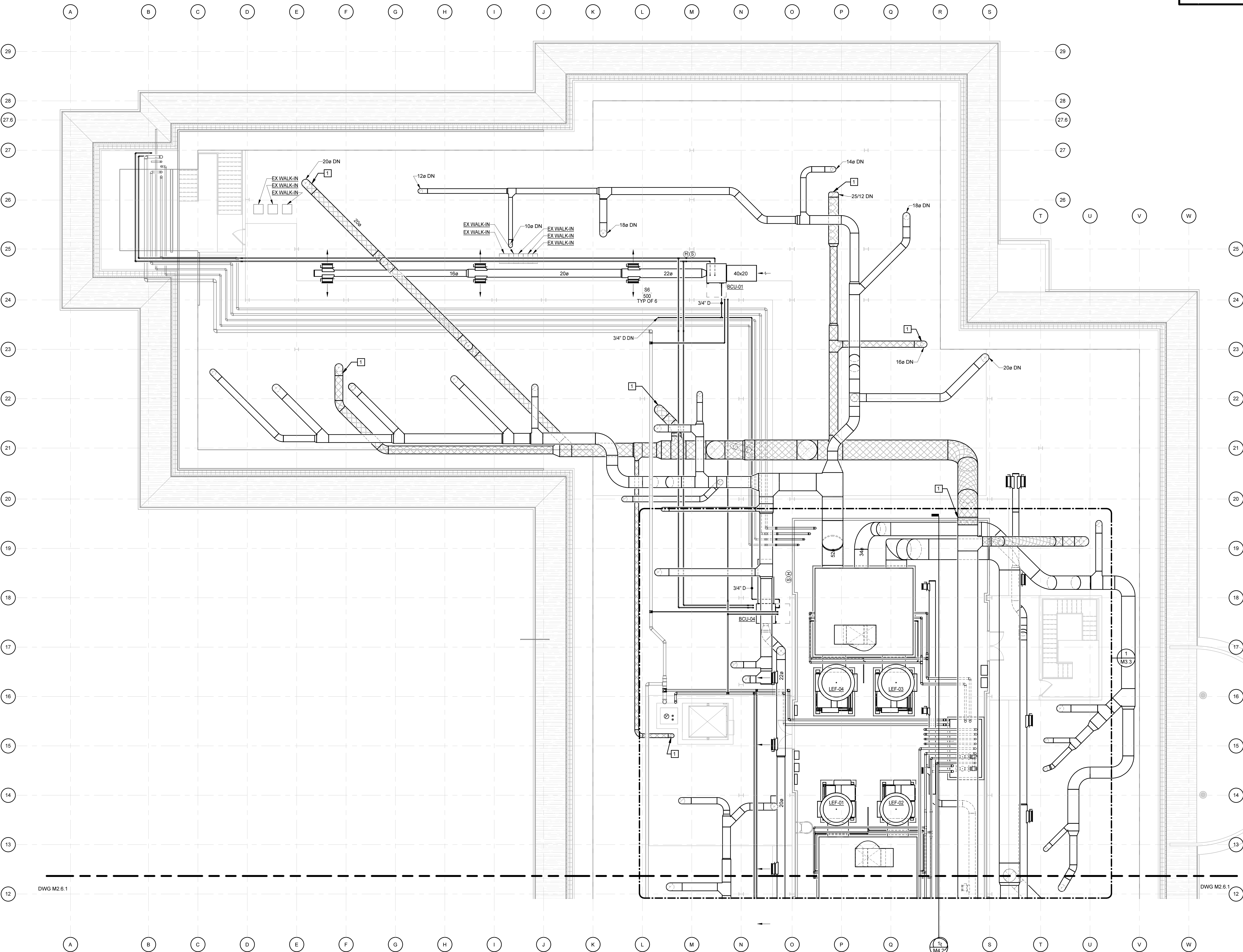
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SECOND FLOOR PLAN - AIR BALANCE
3/32" = 1'-0"

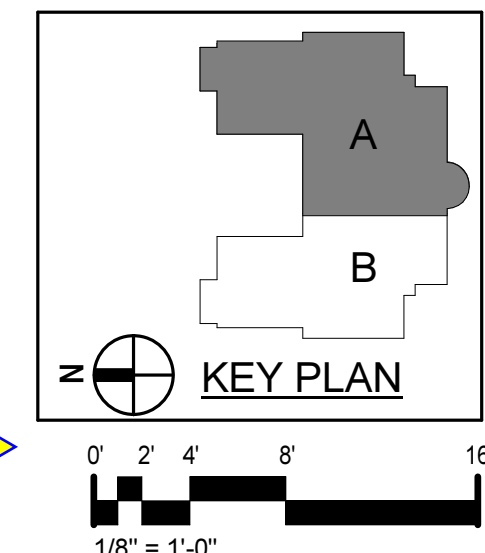
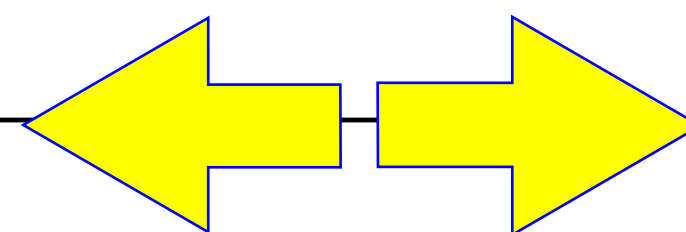
AIR BALANCE SCHEDULE - SECOND FLOOR																
ROOM			TRANSFER TO SPACE (CFM)	TRANSFER FROM SPACE (CFM)	OCC ACH (CFM)	UNOCC ACH (CFM)	PRESSURIZATION AIR (CFM)	FUME HOODS, POINT EXHAUST EXHAUST SYSTEMS				GENERAL LAB VALVE		ZONE		
NUMBER	NAME	ZONE						HOODS MAX (CFM)	HOODS MIN (CFM)	POINT MAX (CFM)	POINT MIN (CFM)	MAX (CFM)	MIN (CFM)	MAX SUPPLY (CFM)	MIN SUPPLY (CFM)	MAX EXHAUST (CFM)
2000	CORRIDOR	3-VAV-26	0	300	0	0	0	0	0	0	0	690	260	0	0	
2001	QUANTITATIVE TEACHING LAB	3-L15	100	0	2,100	840	0	1,400	570	1,200	1,200	330	100	2,600	1,770	2,700
2001A	PREP	3-L13	100	0	380	155	0	700	285	0	0	95	50	650	235	735
2002	GRAD STUDENT WORKSTATIONS	3-VAV-21	0	0	0	0	0	0	0	0	0	760	200	850	290	760
2003	ANALYTICAL	3-L12	100	0	2,015	805	0	2,100	855	600	600	560	125	2,725	1,480	2,825
2003A	PREP LAB	3-L14	100	0	360	145	0	0	0	0	0	360	145	260	74	360
2004	COPY / MAIL	3-VAV-20	0	0	0	0	0	0	0	0	0	210	43	240	73	210
2006	RECEPTION	3-VAV-19	0	0	0	0	0	0	0	0	0	395	99	425	129	395
2006A	OFFICE	3-VAV-17	0	0	0	0	0	0	0	0	0	185	35	215	65	185
2006B	OFFICE	3-VAV-17	0	0	0	0	0	0	0	0	0	170	38	190	58	170
2006C	OFFICE	3-VAV-18	0	0	0	0	0	0	0	0	0	170	38	190	58	170
2006D	OFFICE	3-VAV-18	0	0	0	0	0	0	0	0	0	220	46	250	76	220
2007	ORGANIC CHEMISTRY	3-L16	100	0	2,375	795	0	7,590	3,090	100	100	0	0	7,590	3,090	7,690
2007A	PREP / STORAGE	3-L17	100	0	715	290	0	700	285	50	50	380	125	775	360	875
2007B	BALANCE	3-L18	100	0	340	135	0	0	0	0	0	500	135	400	120	500
2011	CORRIDOR	3-VAV-26	0	200	0	0	0	0	0	0	0	0	0	1,200	1,200	0
2013	OFFICE	3-VAV-22	0	0	0	0	0	0	0	0	0	100	25	110	35	100
2014	LAB	3-L10	100	0	1,080	435	0	1,930	780	0	0	340	125	1,955	805	2,055
2014A	OFFICE	3-VAV-11	0	0	0	0	0	0	0	0	0	180	50	200	70	180
2015	CYLINDER STORAGE	3-L11	50	0	145	60	0	0	0	0	0	150	60	100	50	150
2017	OFFICE	3-VAV-22	0	0	0	0	0	0	0	0	0	115	25	125	35	115
2018	OFFICE	3-VAV-10	0	0	0	0	0	0	0	0	0	95	25	105	35	95
2019	CORRIDOR	3-VAV-24	0	1575	0	0	0	0	0	0	0	0	0	2,575	2,575	0
2020	BIOCHEM TEACHING	3-L7	100	0	1,605	645	0	1,400	570	0	0	1,035	250	1,550	720	1,650
2020A	COOLER	3-VAV-23	0	0	0	0	0	0	0	0	0	100	25	110	35	100
2020B	PREP LAB	3-L9	100	0	315	130	0	700	285	0	0	80	50	650	235	750
2022	OFFICE	3-VAV-10	0	0	0	0	0	0	0	0	0	95	25	105	35	95
2025	MEN	3-VAV-8	275	0	0	0	0	0	0	0	0	375	375	0	375	375
2026	CHEMISTRY LAB	3-L6	100	0	1,340	535	0	1,930	780	400	400	160	125	2,355	1,205	2,455
2027	JC	3-VAV-8	100	0	0	0	0	0	0	0	0	100	100	0	100	100
2028	OFFICE	3-VAV-9	0	0	0	0	0	0	0	0	0	95	50	105	60	95
2029	WOMEN	3-VAV-8	200	0	0	0	0	0	0	0	0	300	300	0	300	300
2030	NMR	3-L8	100	0	515	205	0	0	0	0	0	515	205	415	113	515
2031	ELECTRICAL	3-VAV-7	0	0	0	0	0	0	0	0	0	450	80	450	144	450
2031A	TELECOM	3-VAV-7	0	0	0	0	0	0	0	0	0	150	45	150	44	150
2032	OFFICE	3-VAV-6	0	0	0	0	0	0	0	0	0	95	37	105	47	95
2033	OFFICE	3-VAV-3	0	0	0	0	0	0	0	0	0	105	50	115	60	105
2034	OFFICE	3-VAV-8	0	0	0	0	0	0	0	0	0	115	46	125	36	115
2035	CHEMISTRY RESEARCH	3-L3	100	0	2,115	845	0	3,330	1,350	1,250	1,250	0	0	4,480	2,500	4,580
2036	OFFICE	3-VAV-6	0	0	0	0	0	0	0	0	0	105	42	115	52	105
2037	OFFICE	3-VAV-2	0	0	0	0	0	0	0	0	0	105	25	115	35	105
2038	CORRIDOR	3-VAV-6	0	0	0	0	0	0	0	0	0	0	0	200	200	0
2038A	OFFICE	3-VAV-4	0	0	0	0	0	0	0	0	0	190	65	210	65	190
2038B	OFFICE	3-VAV-4	0	0	0	0	0	0	0	0	0	190	65	210	65	190
2038C	OFFICE	3-VAV-5	0	0	0	0	0	0	0	0	0	210	48	230	68	210
2038D	OFFICE	3-VAV-5	0	0	0	0	0	0	0	0	0	180	39	200	59	180
2038E	OFFICE	3-VAV-5	0	0	0	0	0	0	0	0	0	180	39	200	59	180
2039	OFFICE	3-VAV-2	0	0	0	0	0	0	0	0	0	105	35	115	35	105
2040	CLEAN ROOM	3-L4	100	0	265	110	0	0	0	0	0	265	110	165	41	265
2041	CHEMISTRY RESEARCH	3-L2	100	0	1,060	425	0	1,930	780	500	500	0	0	2,330	1,180	2,430
2043	CHEMISTRY RESEARCH	3-L1	100	0	1,055	440	0	1,930	780	400	400	0	0	2,230	1,080	2,330
2043A	OFFICE	3-VAV-1	0	0	0	0	0	0	0	0	0	175	50	195	70	175
2045	COMMUNICATION	3-VAV-22	0	0	0	0	0	0	0	0	0	140	50	140	50	140
2046	MEN	3-VAV-8	100	0	0	0	0	0	0	0	0	150	50	50	150	150
2047	CORRIDOR	3-VAV-25	0	425	0	0	0	0	0	0	0	0	0	1,425	1,425	0
2048	WOMEN	3-VAV-8	25	0	0	0	0	0	0	0	0	75	75	0	75	75
2050	OFFICE	3-VAV-12	0	0	0	0	0	0	0	0	0	100	50	110	60	100
2051	OFFICE	3-VAV-13	0	0	0	0	0	0	0	0	0	105	50	115	60	105
2052	CHEMISTRY RESEARCH	3-L5	100	0	2,070	830	0	6,660	2,700	500	500	0	0	7,060	3,100	7,160
2060	SEMINAR	3-VAV-14	0	0	0	0	0	0	0	0	0	310	90	340	120	310
2062	GRAD LOUNGE	3-VAV-16	0	0	0	0	0	0	0	0	0	490	125	540	175	490
2062A	GRAD WORK AREA	3-VAV-15	0	0	0	0	0	0	0	0	0	500	125	540	166	500
AHU-3-82																
2008	LECTURE	4-VAV-13	0	0	0	0	0	260	0	0	0	2,320	460	2,580	720	2,320
2008A	PREP LAB	4-L13	100	0	400	160	0	995	405	0	0	0	0	895	305	995
2009	CORRIDOR	4-VAV-18	0	100	0	0	1,200	0	0	0	0	0	0	1,300	1,300	0
2010	OFFICE	4-VAV-14	0	0	0	0	0	0	0	0	0	105	50	115	60	105
2011	ORGANIC CHEMISTRY	4-L14	100	0	2,350	795	0	7,995	3,255	100	100	0	0	7,995	3,255	8,095
2012	LECTURE	4-VAV-15	0	0	0	0	0	200	0	0	0	1,750	300	1,950	500	1,750
2064	OFFICE	4-VAV-12	0	0	0	0	0	0	0	0	0	110	50	120	60	110
2066	CHEMISTRY RESEARCH	4-L12	100	0	2,140	860	0	6,660	2,700	500	500	0	0	7,060	3,100	7,160
2068	OFFICE	4-VAV-11	0	0	0	0	0	0	0	0	0	110	50	120	60	110
2069	CORRIDOR	4-VAV-16	0	325	0	0	460	0	0	0	0	0	0	785	785	0
2070	CONFERENCE	4-VAV-10	0	0	0	0	70	0	0	0	0	830	236	900	306	830
2070A	STORAGE	4-VAV-10	0	0	0	0	10	0	0	0	0	60	14	70	24	60
2072	WOMEN	4-VAV-9	25	0	0	0	0	0	0	0	0	75	75	0	75	75
2074	MEN	4-VAV-9	100	0	0	0	0	0	0	0	0	150	50	150	50	150
2075	OFFICE	4-VAV-7	0	0	0	0	20	0	0	0	0	180	50	200	70	180
2077	BIOLOGY LAB	4-L11	100	0	1,100	440	0	1,400	570	0	0	575	125	1,425	595	1,525
2079	BIOLOGY LAB	4-L10	100	0	1,080	435	0	965	390	0	0	690	125	990	415	1,090
2081	OFFICE	4-VAV-8	0	0	0	0	0	0	0	0	0	105	25	115	35	105
2082	CORRIDOR	4-VAV-17	0	1575	0	0	1,425	0	0	0	0	0	0	3,000	3,000	0
2083	OFFICE	4-VAV-6	0	0	0	0	0	0	0	0	0	105	25	115	35	105
2085	BIOLOGY LAB	4-L9	100	0	1,075	430	0	1,665	675	0	0	400	125	1,690	700	1,790
2086	MEN	4-VAV-9	275	0	0	0	0	0	0	0	0	375	375	0	375	375
2087	COOLER ROOM	4-L3	0	100	0	0	0	0	0	0	0	0	0	100	100	0
2087A	BIOLOGY LAB	4-L8	100	0	1,010	405	0	0								

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ATTIC FLOOR PLAN - PART A

1/8" = 1'-0"



PROJECT NO.	DATE
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REVISIONS	
DATE	DESCRIPTION

ATTIC FLOOR PLAN - PART A

M2.5.1

KEYNOTES

APPLIES TO THIS DRAWING

1 DUCT SHALL BE WRAPPED IN 2-HOUR RATED FIRE WRAP THAT IS LISTED FOR CHEMICAL FUME EXHAUST DUCT PROTECTION. REFER TO SECTION 230713. DUCT SHALL BE ENCLOSED FROM THE POINT IT EXITS THE GYPSUM SHAFT ON THE SECOND FLOOR AND ENTERS THE ATTIC TO THE POINT IT ENTERS THE RATED MECHANICAL ROOM. INSTALL IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS AND THE LISTING OF THE WRAP MANUFACTURER.



Dobo Hall Renovation - Package A

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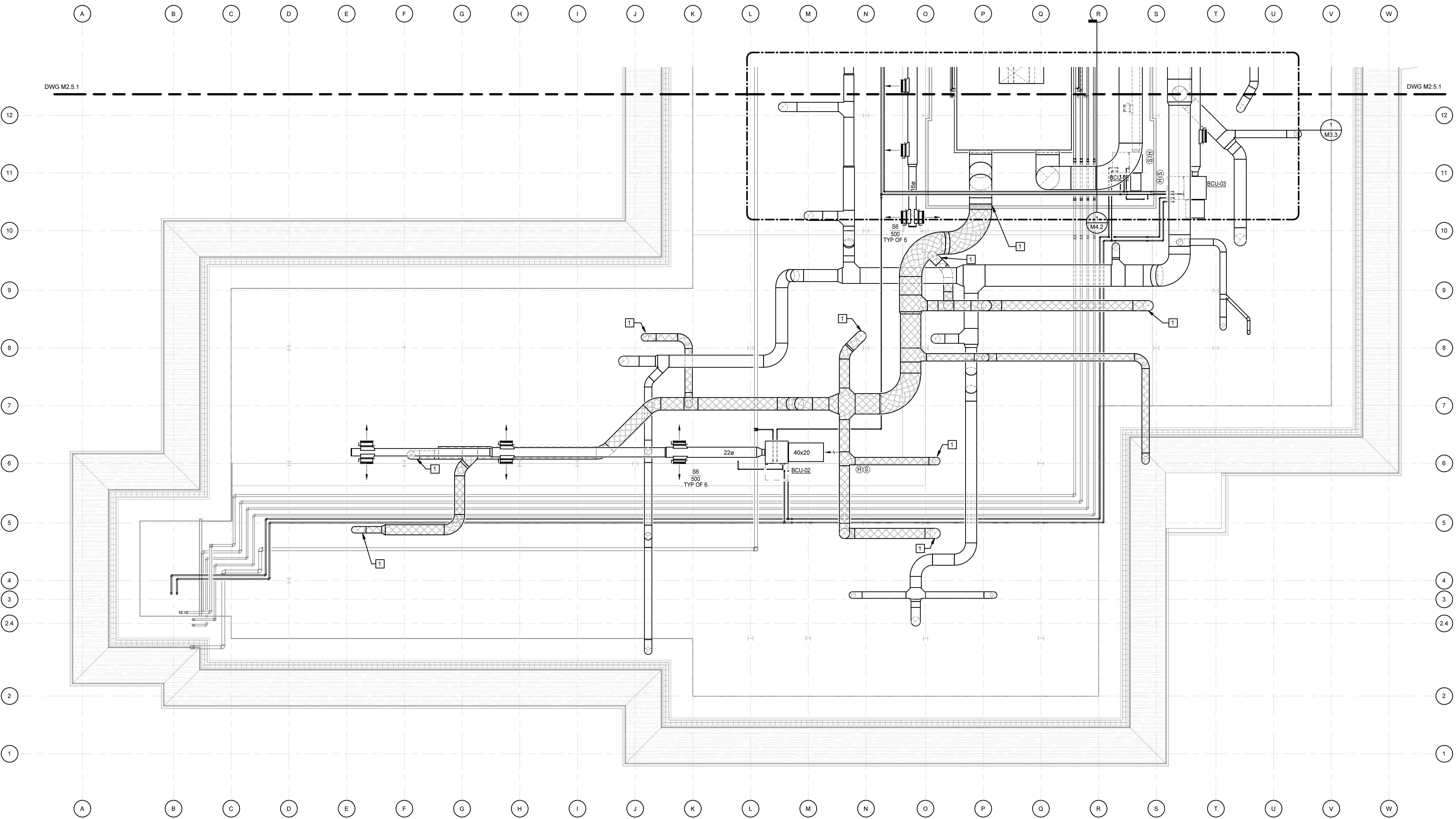
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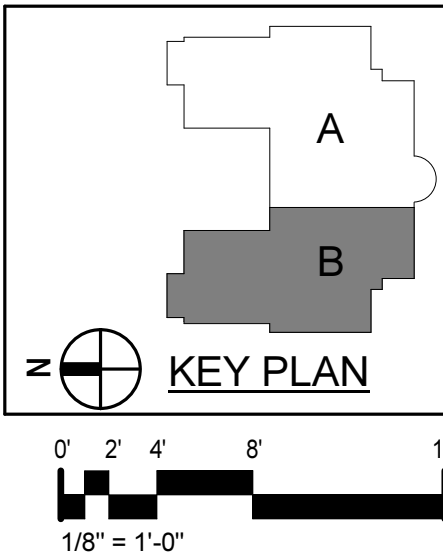
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ATTIC FLOOR PLAN - PART B
1/8" = 1'-0"



PROJECT NO.	DATE
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REVISIONS	
DATE	DESCRIPTION

ATTIC FLOOR PLAN
- PART B

M2.6.1

KEYNOTES

APPLIES TO THIS DRAWING

- 1 DUCT SHALL BE WRAPPED IN 2-HOUR RATED FIRE WRAP THAT IS LISTED FOR CHEMICAL FUME EXHAUST DUCT PROTECTION. REFER TO SECTION 230713. DUCT SHALL BE ENCLOSED FROM THE POINT IT EXITS THE GYPSUM SHAFT ON THE SECOND FLOOR AND ENTERS THE ATTIC TO THE POINT IT ENTERS THE RATED MECHANICAL ROOM. INSTALL IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS AND THE LISTING OF THE WRAP MANUFACTURER.



Dobo Hall Renovation - Package A

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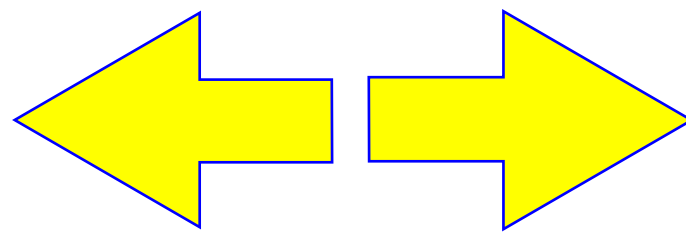
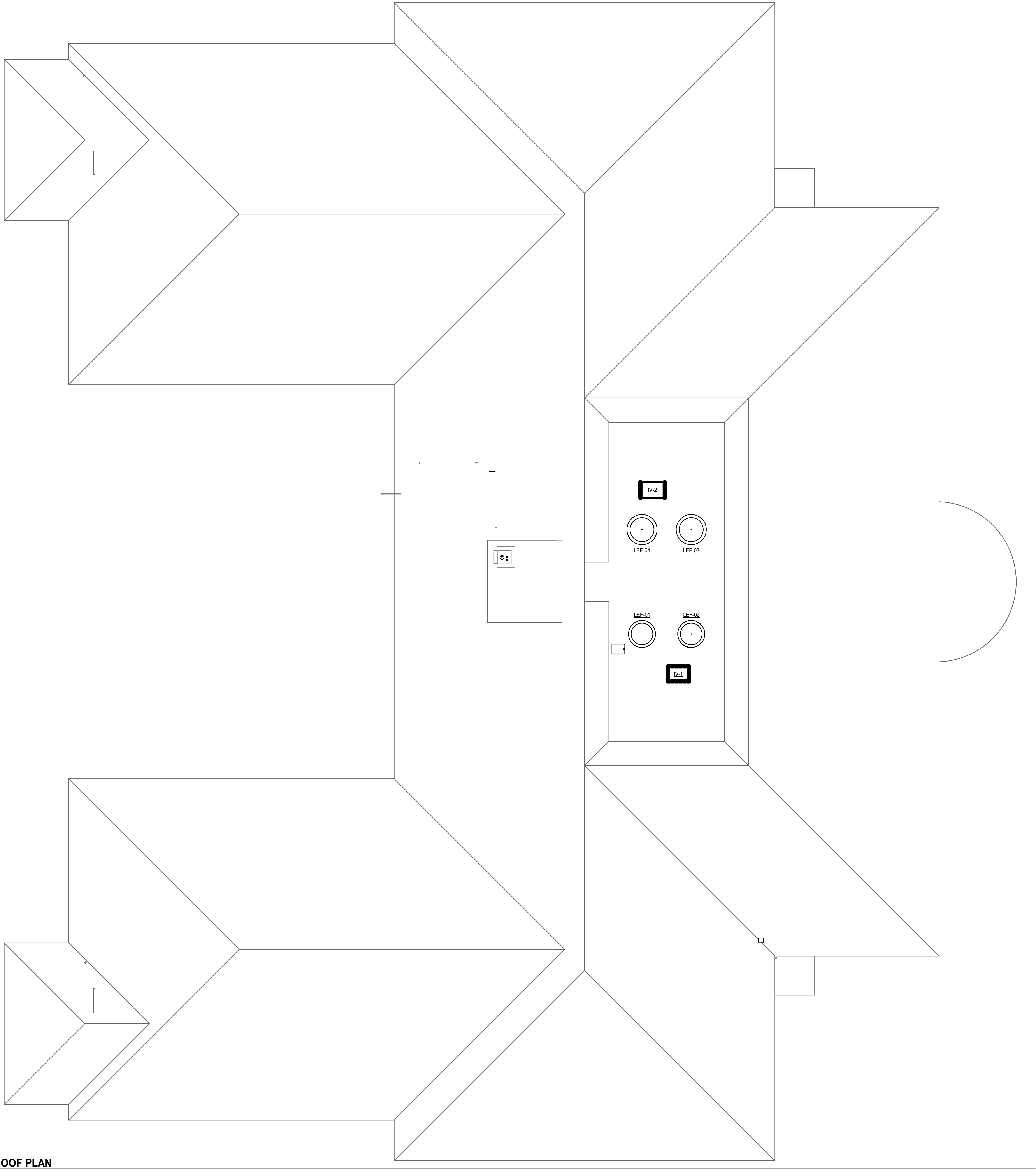
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N

ROOF PLAN

3/32" = 1'-0"



KEYNOTES
APPLIES TO THIS DRAWING

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DATE	DESCRIPTION

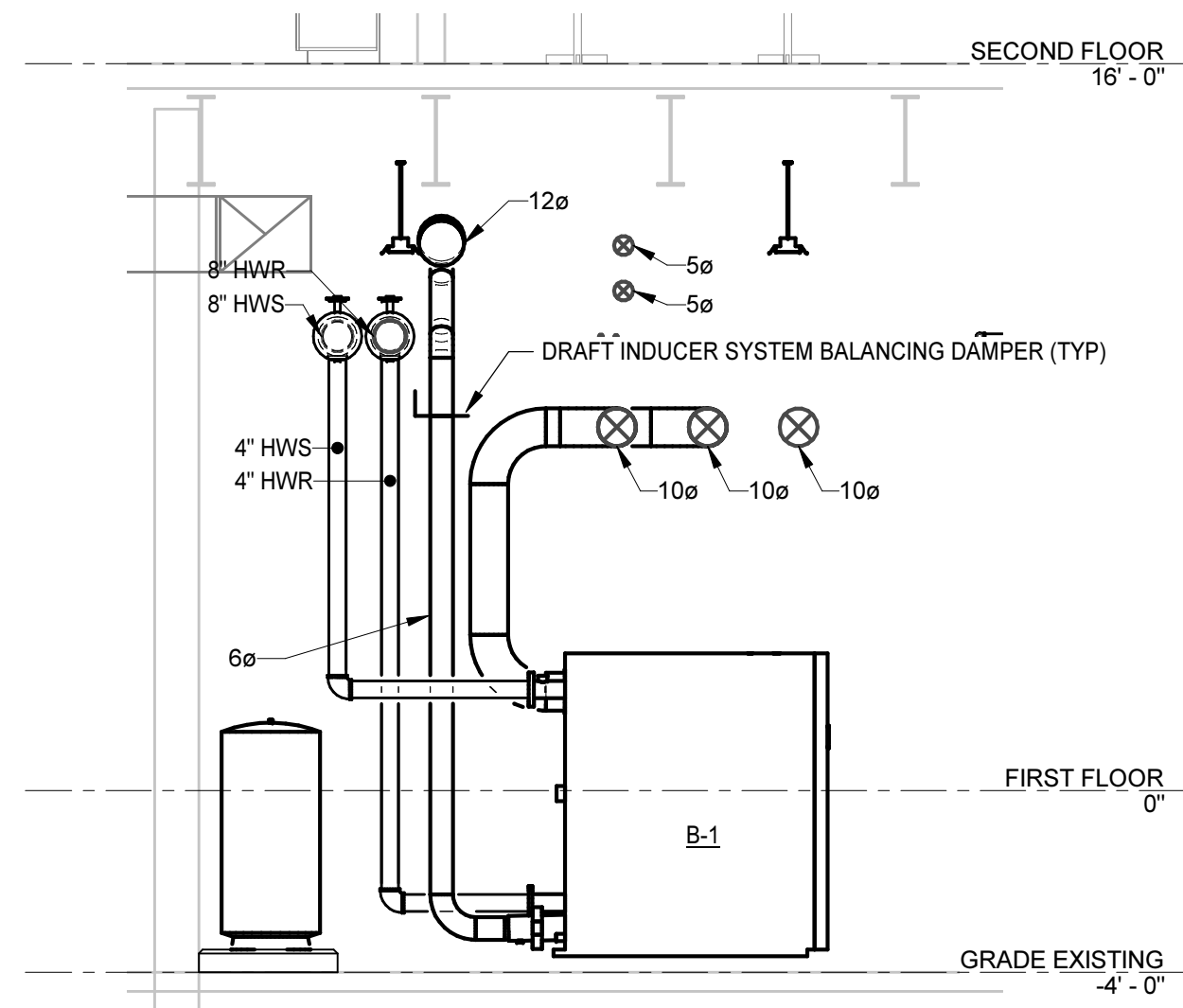
Dobo Hall Renovation - Package A
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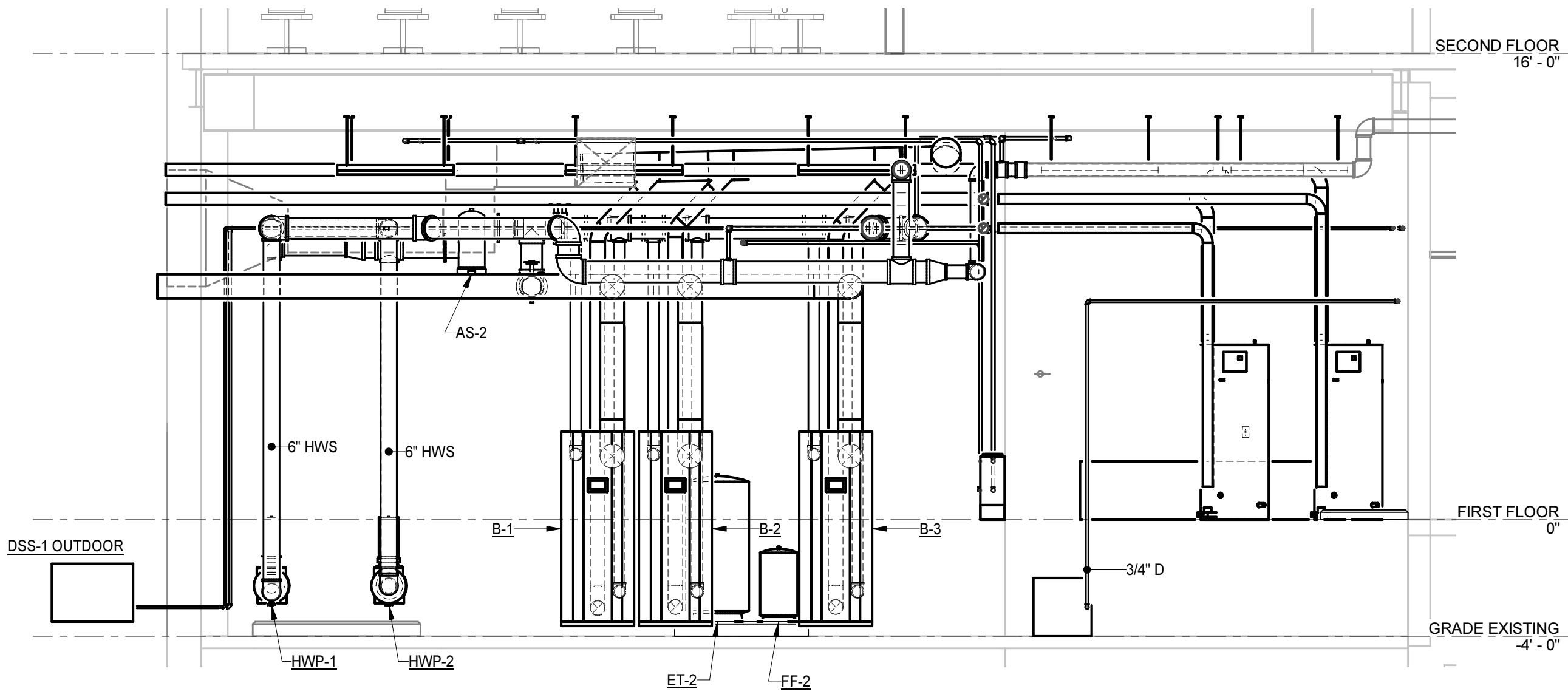
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ROOF PLAN

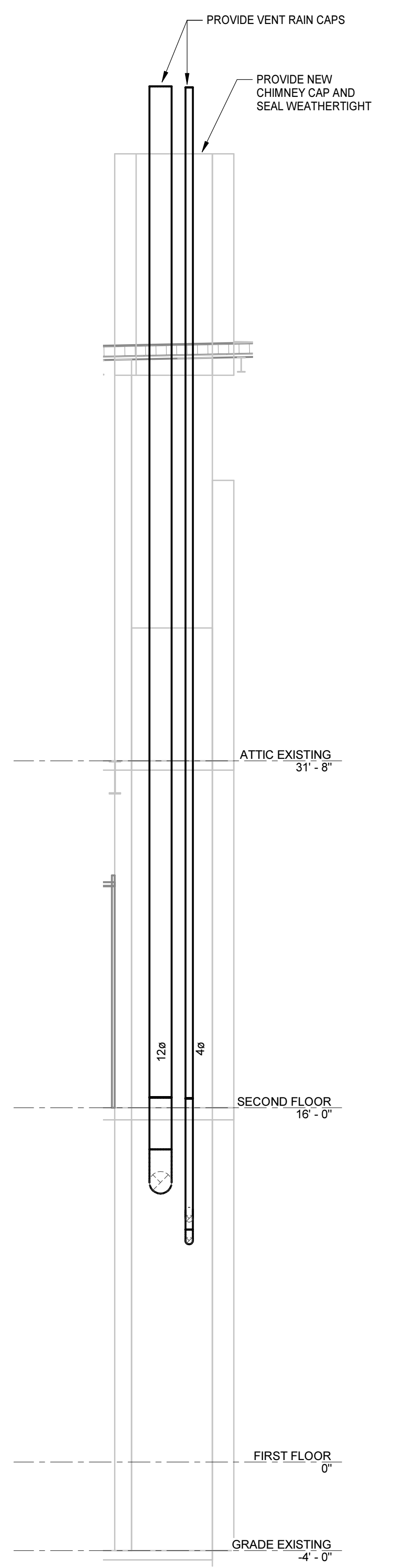
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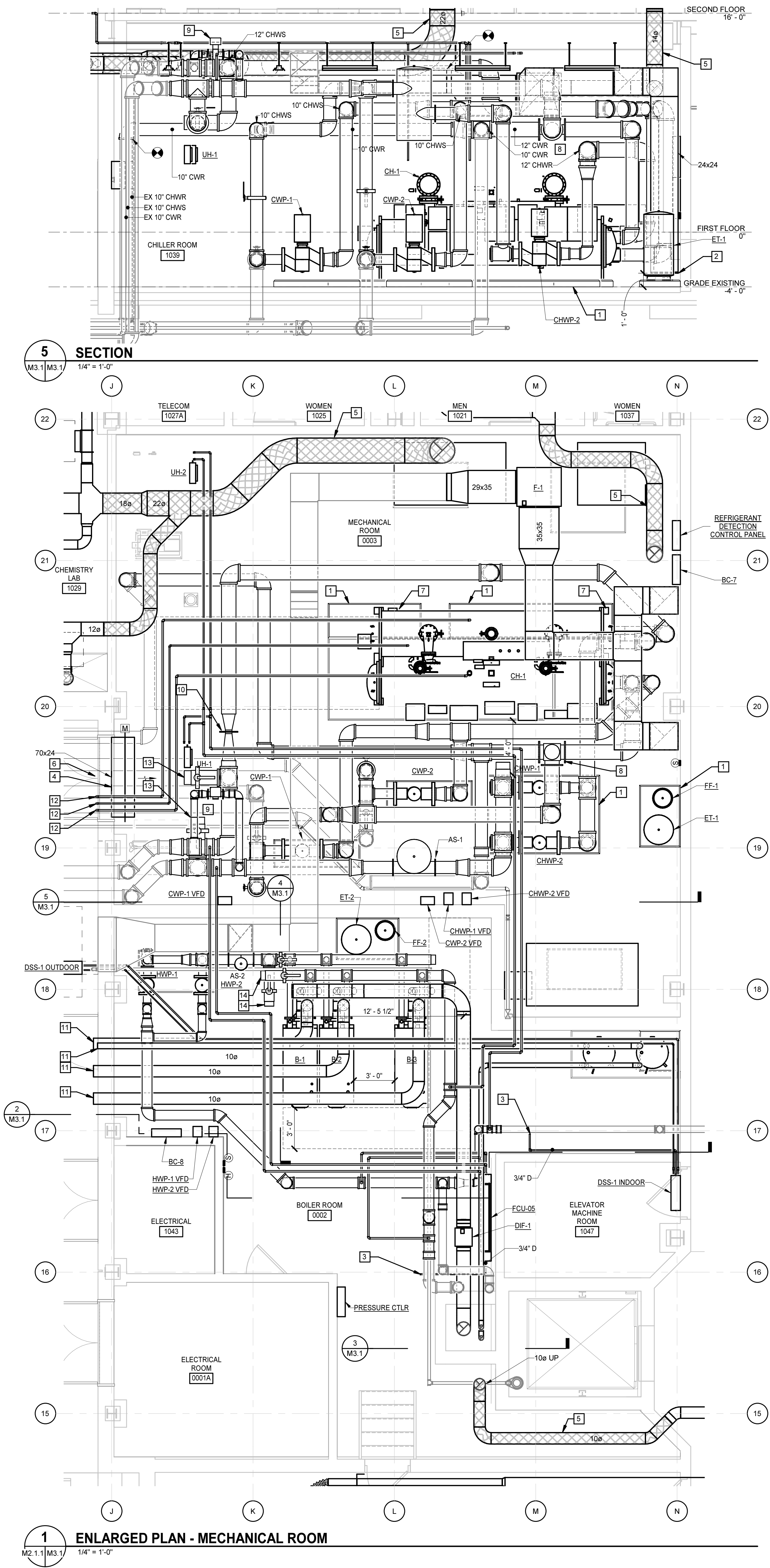
4 SECTION
M3.1 M3.1 1/4" = 1'-0"



2 SECTION
M3.1 M3.1 1/4" = 1'-0"

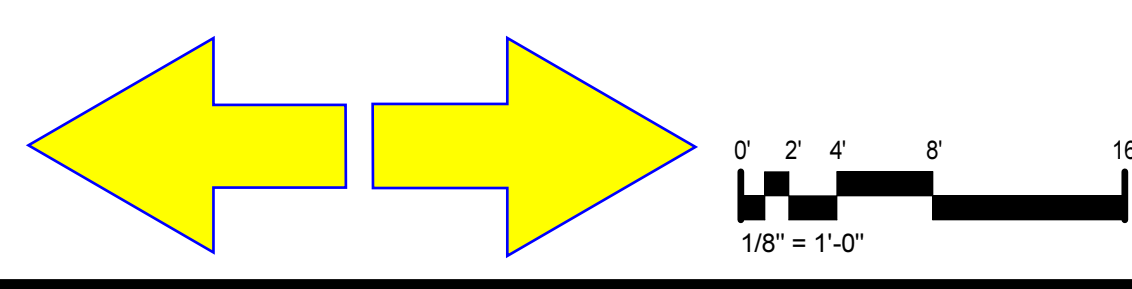


3 SECTION
M3.1 M3.1 1/4" = 1'-0"



1 ENLARGED PLAN - MECHANICAL ROOM
M2.1 M3.1 1/4" = 1'-0"

KEYNOTES	
APPLIES TO THIS DRAWING	
1	6" THICK CONCRETE HOUSEKEEPING PAD. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
2	OPEN END DUCT. COVER WITH 1/2"x1/2" WELDED WIRE MESH.
3	DISCHARGE CONDENSATE DRAIN TO FLOOR DRAIN.
4	CONNECT DUCT TO LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT SIZE AND LOCATION.
5	DUCT SHALL BE WRAPPED IN 2-HOUR RATED FIRE WRAP THAT IS LISTED FOR CHEMICAL FUME EXHAUST DUCT PROTECTION. REFER TO SECTION 230713. DUCT SHALL BE ENCLOSED FROM THE POINT IT CROSSES THE FIRE BARRIER TO THE POINT IT ENTERS THE RATED FLOOR INTO THE RATED GYPSUM WALL SHAFT. INSTALL IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS AND THE LISTING OF THE WRAP MANUFACTURER.
6	PROVIDE AUDIBLE AND VISIBLE ALARM AT EACH ENTRY DOOR. PROVIDE WARNING SIGNS INSIDE AND OUTSIDE OF EACH ENTRY DOOR TO CHILLER PLANT THAT READ "AUDIBLE AND VISIBLE ALARM SOUNDING INDICATES REFRIGERANT DETECTION - ENTRY REQUIRES SCBA". REFER TO SECTION 232350 FOR ADDITIONAL DETAILS.
7	LOCATION OF SAMPLING PORT FOR REFRIGERANT MONITOR. COORDINATE LOCATION WITH CHILLER.
8	COOLING TOWER BYPASS VALVE.
9	CHILLED WATER SYSTEM BYPASS VALVE.
10	INSTALL CHILLED WATER FLOW/BU METER IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
11	PROVIDE WALL COMBUSTION AIR INTAKE TERMINATION IN ACCORDANCE WITH BOILER/WATER HEATER MANUFACTURER'S INSTRUCTIONS.
12	TERMINATE REFRIGERANT RELIEF VALVE PIPING 20' ABOVE GRADE.
13	12" TEMPORARY CHILLER CONNECTIONS
14	8" TEMPORARY BOILER CONNECTIONS



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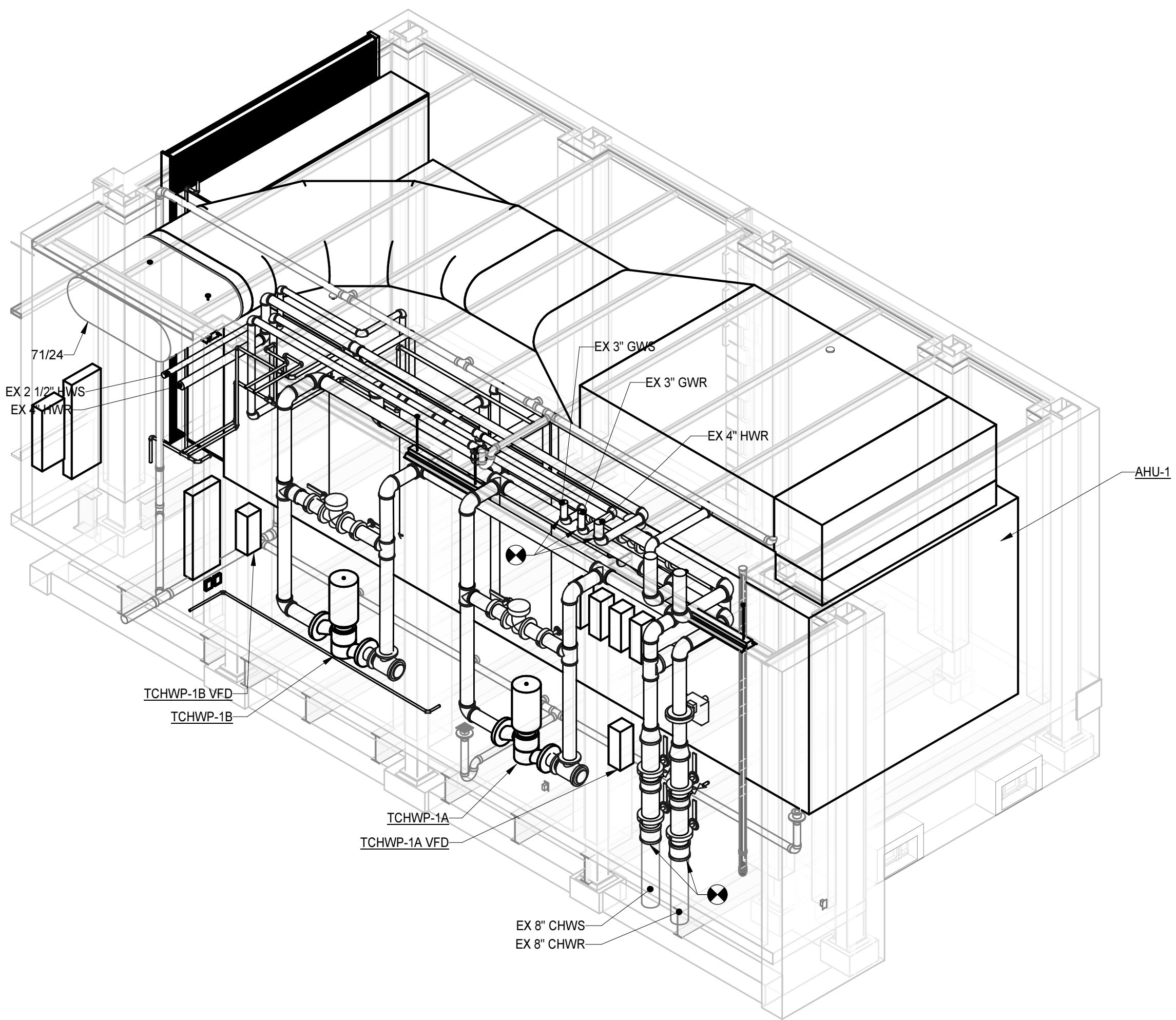
Dobo Hall Renovation - Package A

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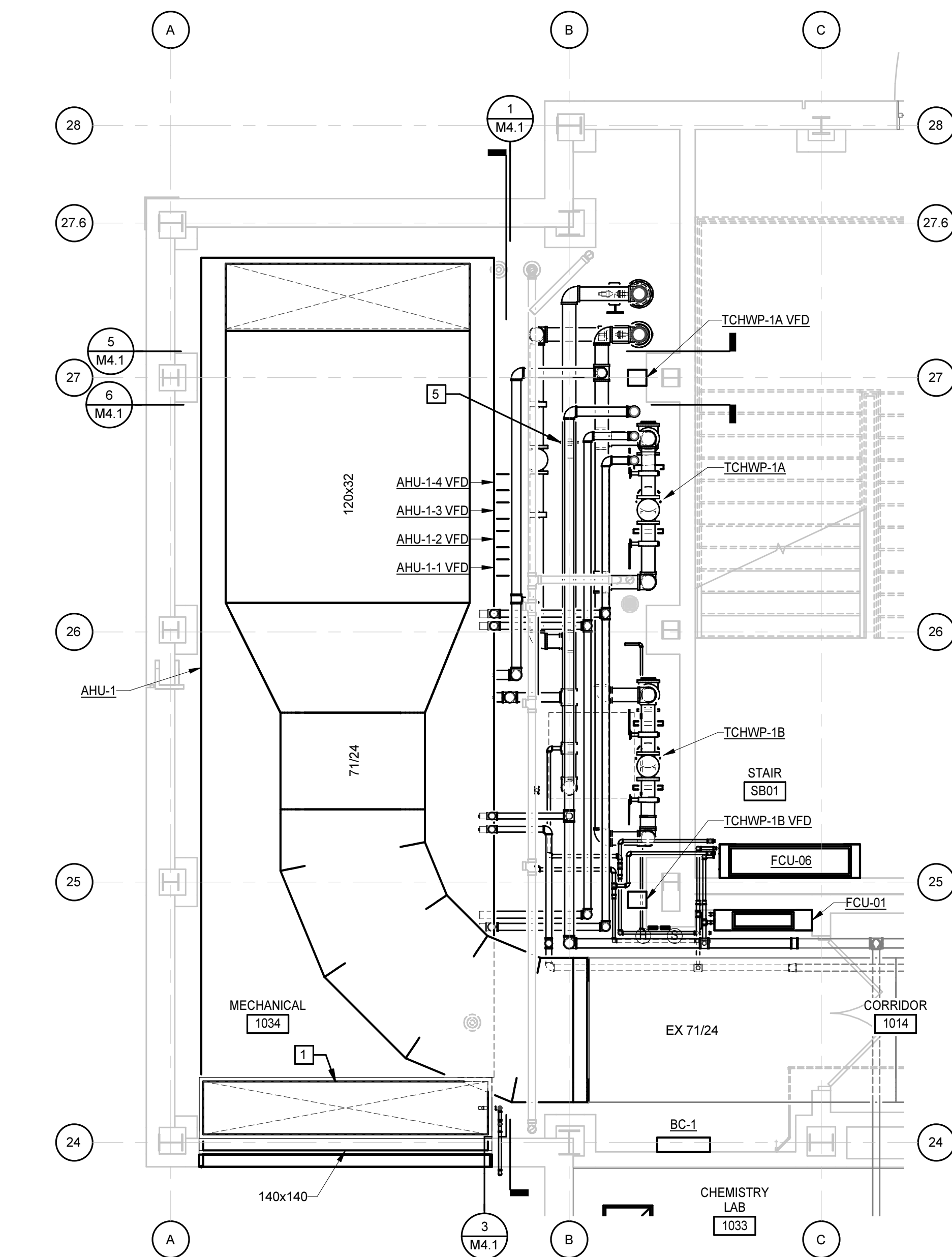
PROJECT NO.	DATE
580999	MARCH 27, 2019
REVISIONS	
DATE	DESCRIPTION

ENLARGED PLANS

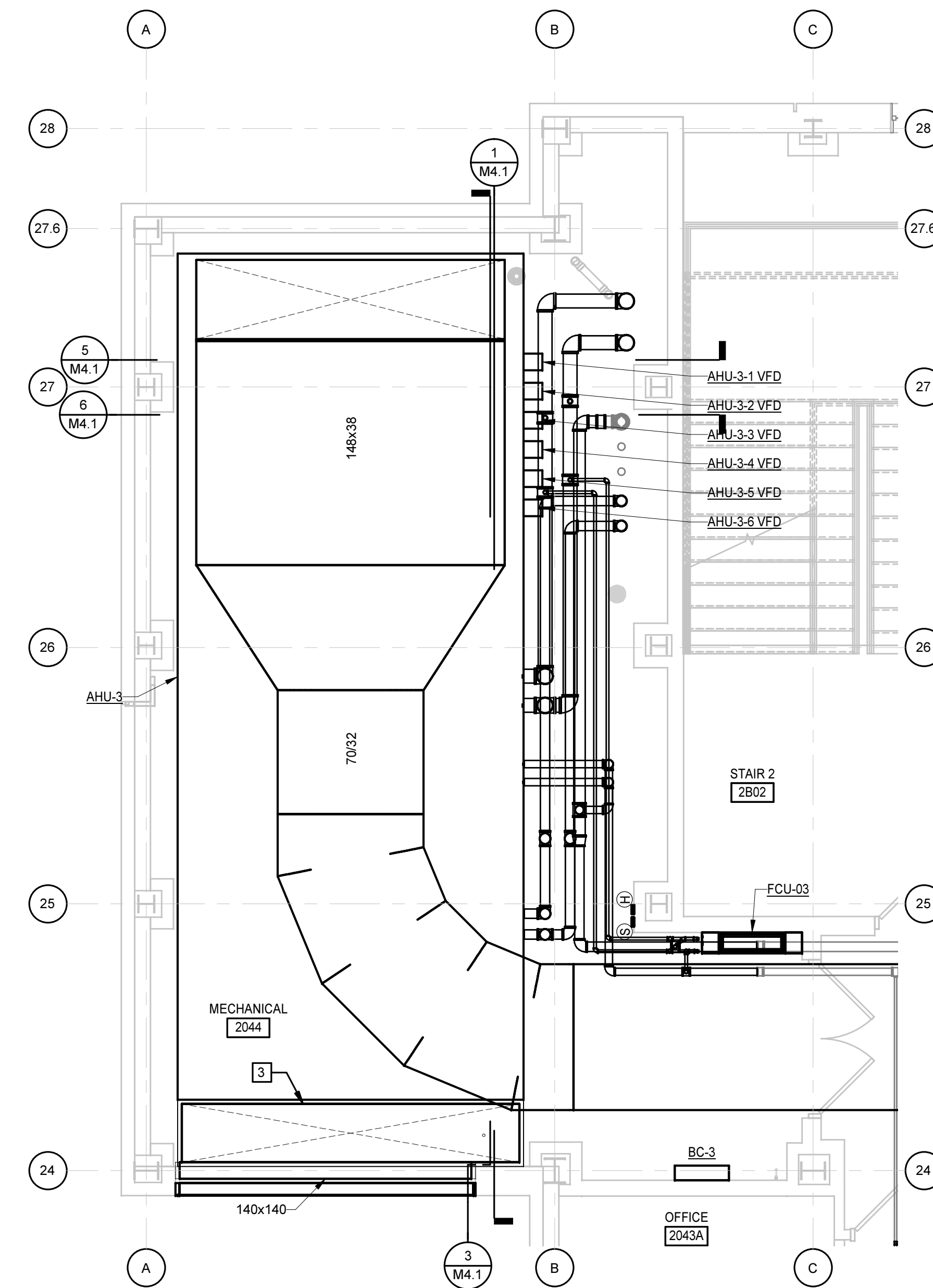
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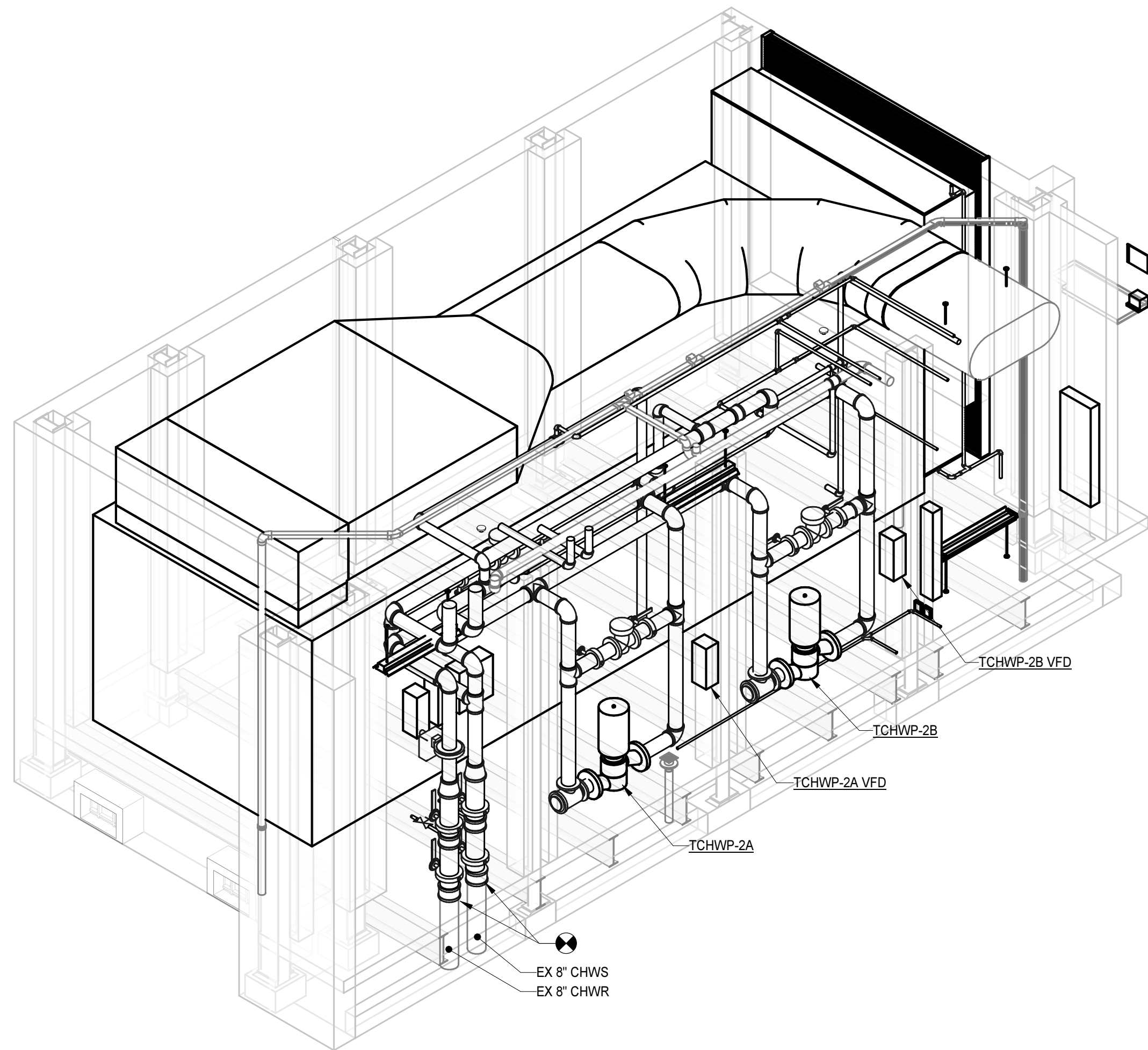
5 AHU-1 ISOMETRIC



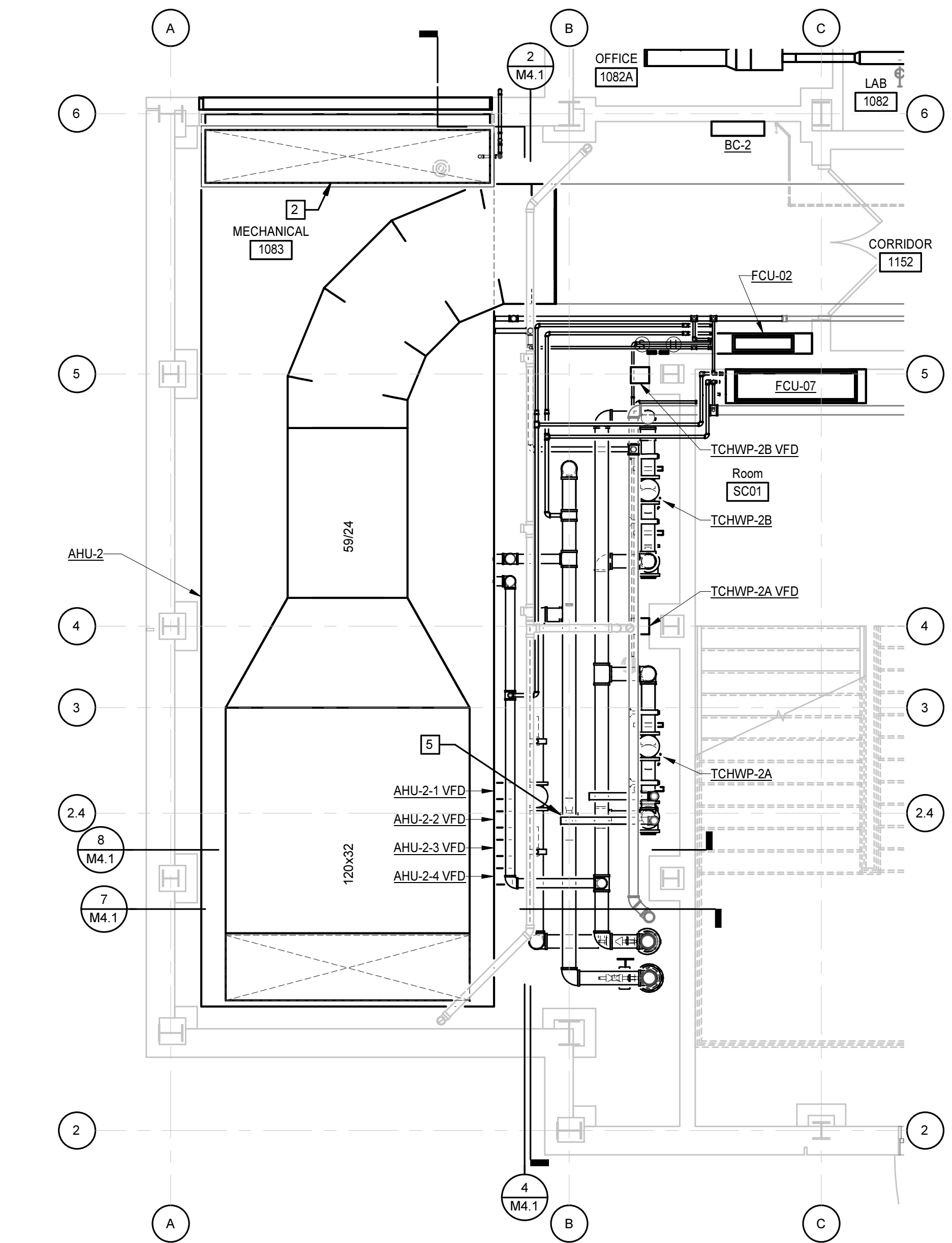
1 ENLARGED PLAN - 10-MECHANICAL - (AHU-1)



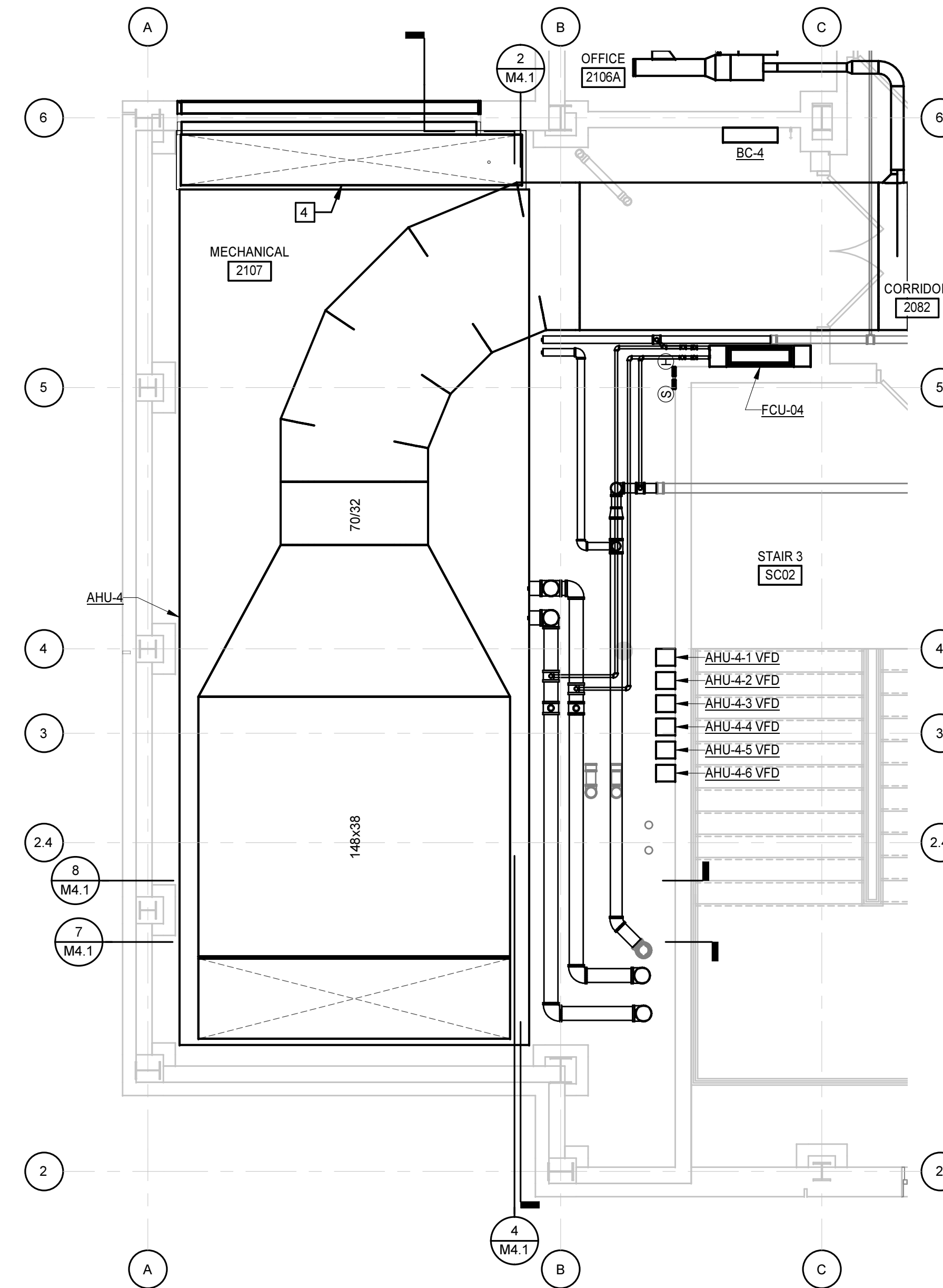
3 ENLARGED PLAN - 30-MECHANICAL - (AHU-3)



6 AHU-2 ISOMETRIC



2 ENLARGED PLAN - 27-MECHANICAL - (AHU-2)



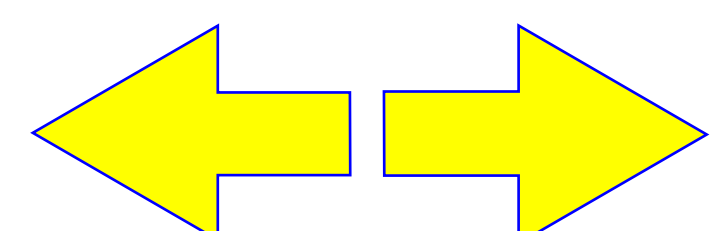
4 ENLARGED PLAN - 47-MECHANICAL - (AHU-4)

KEYNOTES	
APPLIES TO THIS DRAWING	
1	140x26 INSULATED SHEET METAL INTAKE PLENUM. HEIGHT AS INDICATED IN SECTION. PROVIDE ACCESS DOOR FOR CLEANING.
2	140x26 INSULATED SHEET METAL INTAKE PLENUM. HEIGHT AS INDICATED IN SECTION. PROVIDE ACCESS DOOR FOR CLEANING.
3	162x28 INSULATED SHEET METAL INTAKE PLENUM. HEIGHT AS INDICATED IN SECTION. PROVIDE ACCESS DOOR FOR CLEANING.
4	162x24 INSULATED SHEET METAL INTAKE PLENUM. HEIGHT AS INDICATED IN SECTION. PROVIDE ACCESS DOOR FOR CLEANING.
5	INSTALL CHILLED WATER FLOW/BTU METER IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

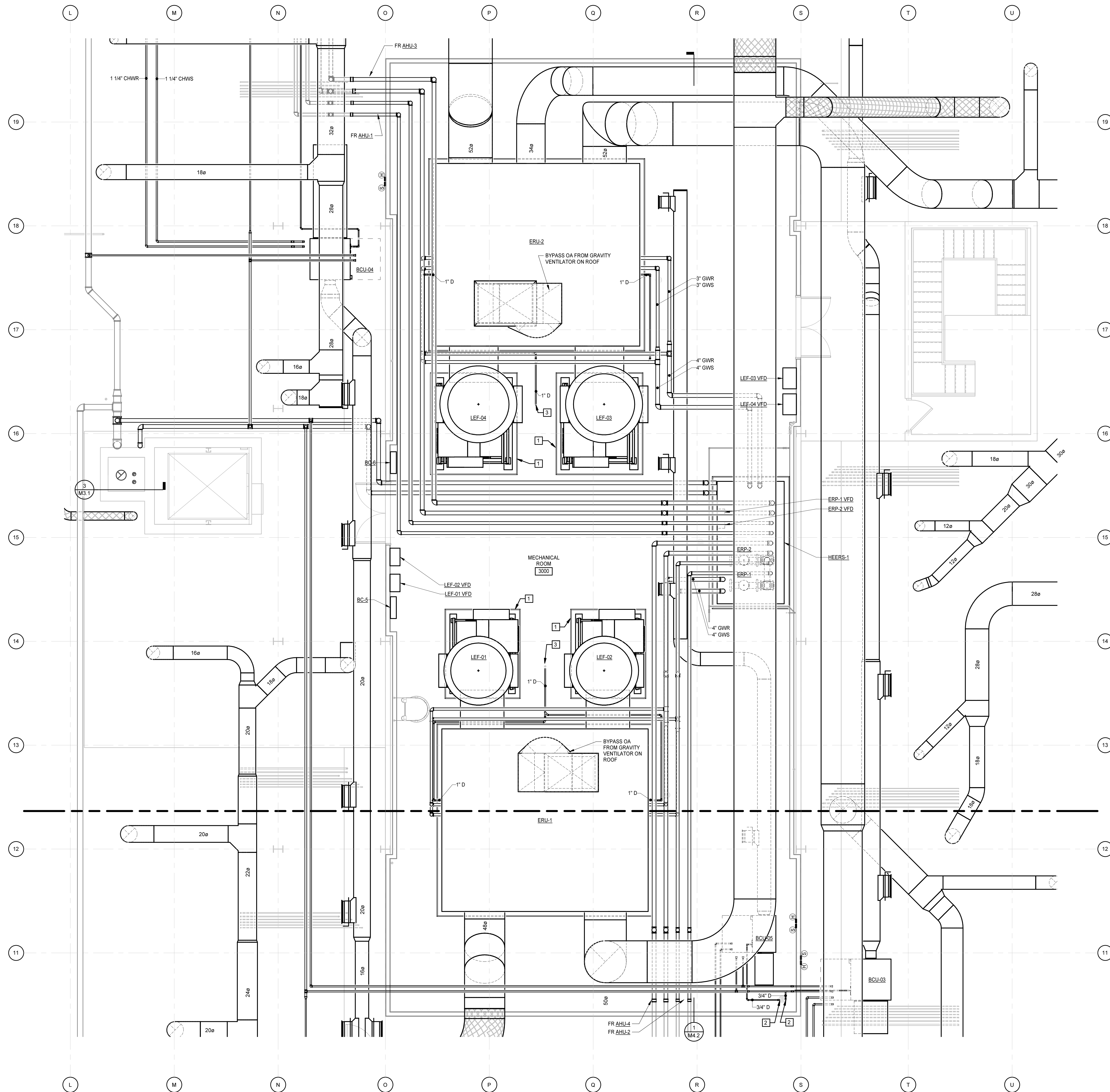
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PROJECT NO.	DATE
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ENLARGED PLANS



M3.2



KEYNOTES	
APPLIES TO THIS DRAWING	
1	6" THICK CONCRETE HOUSEKEEPING PAD. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
2	DISCHARGE CONDENSATE DRAIN TO FLOOR DRAIN.
3	DISCHARGE CONDENSATE DRAIN TO ACID WASTE DRAIN.

Dobo Hall Renovation - Package A

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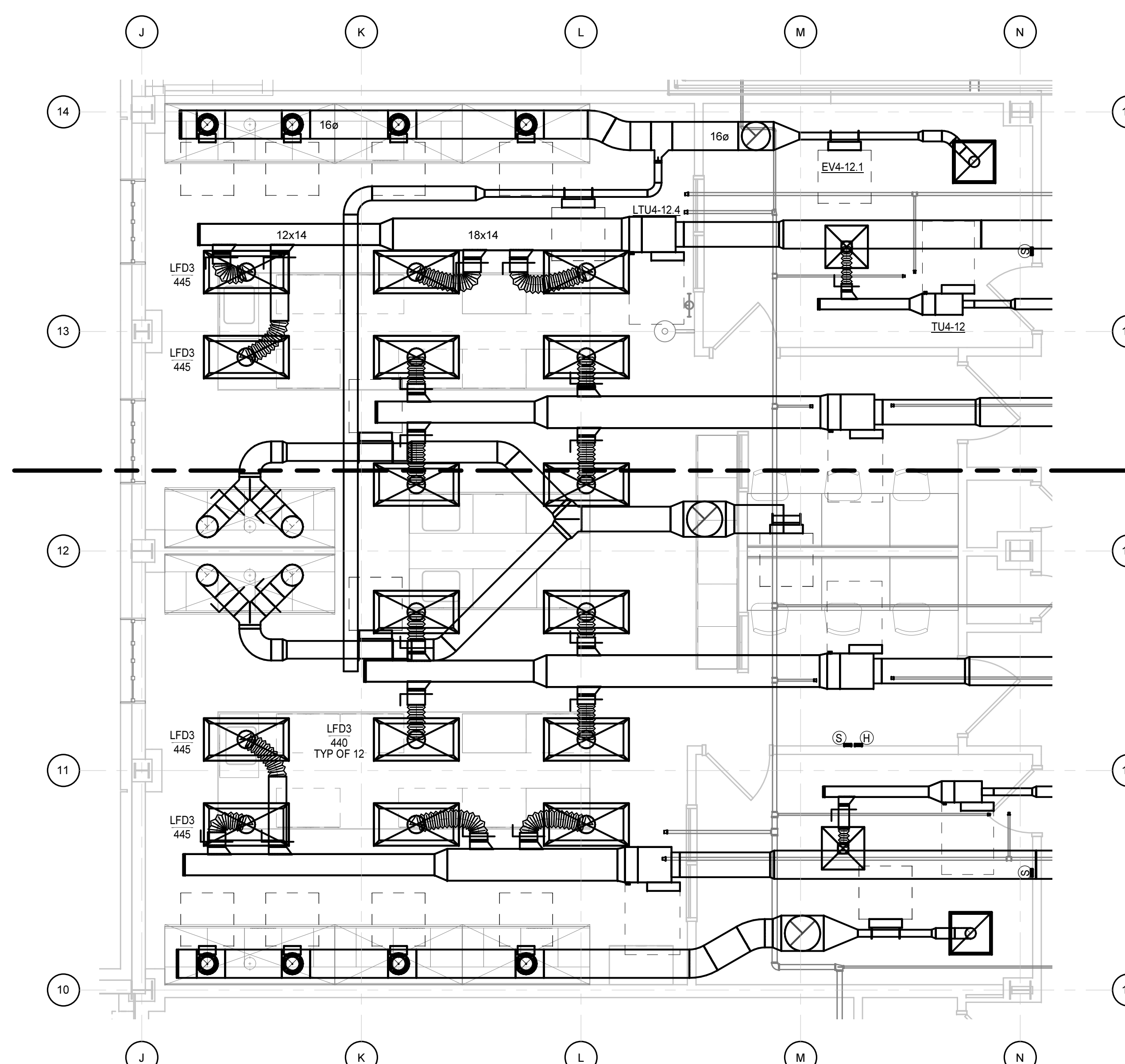
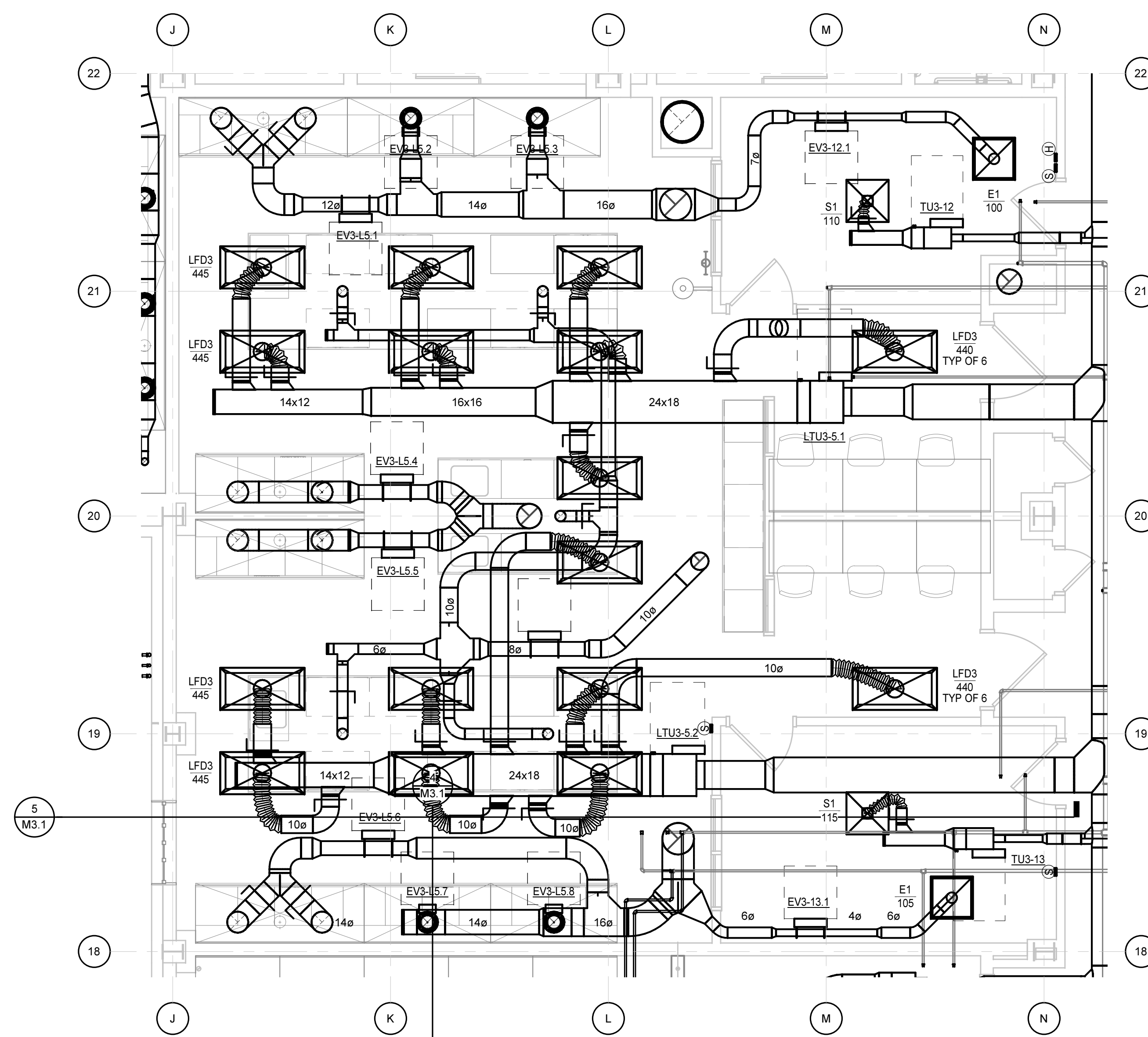
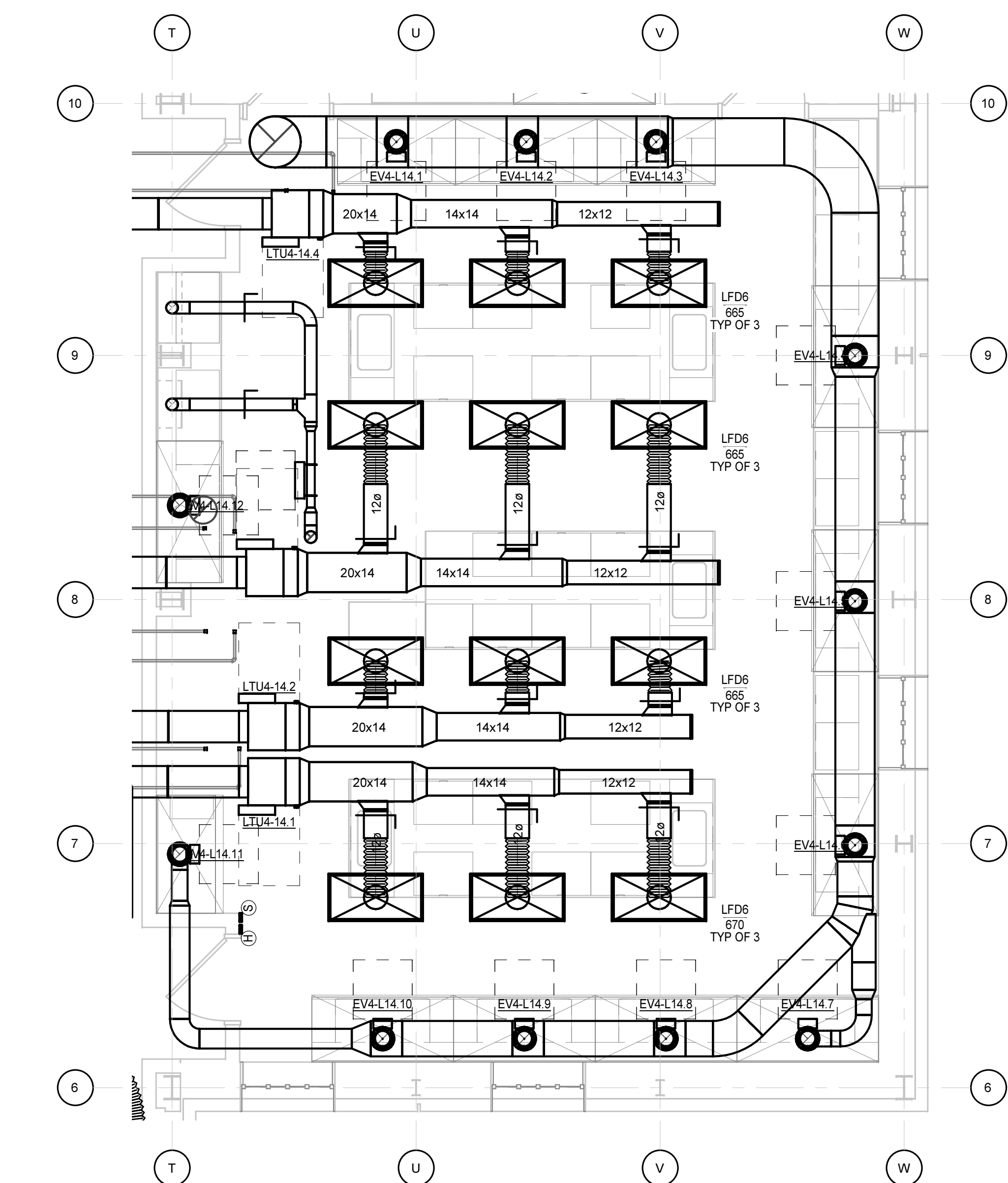
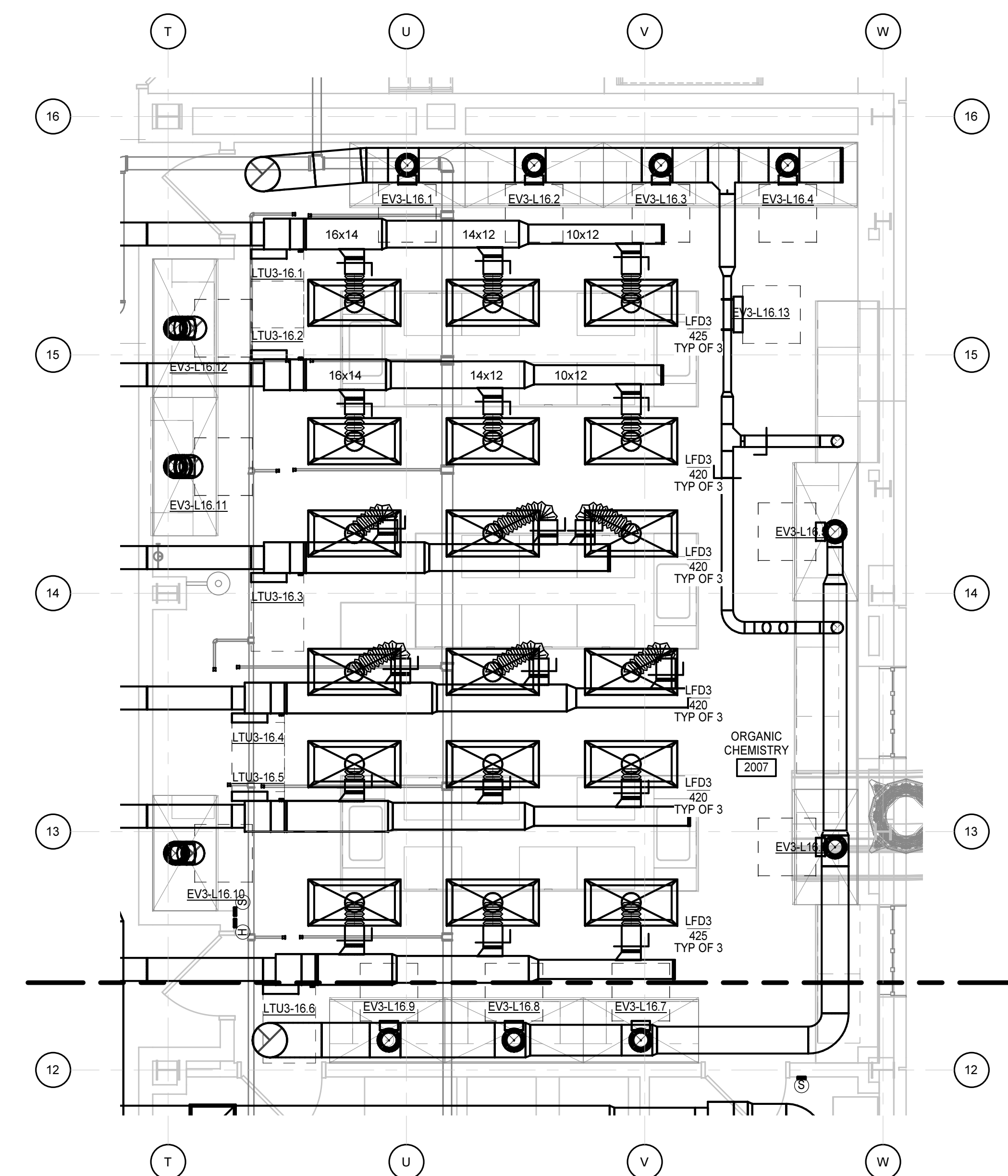
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ENLARGED PLANS

M3.3



KEYNOTES
APPLIES TO THIS DRAWING

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Dobo Hall Renovation - Package A

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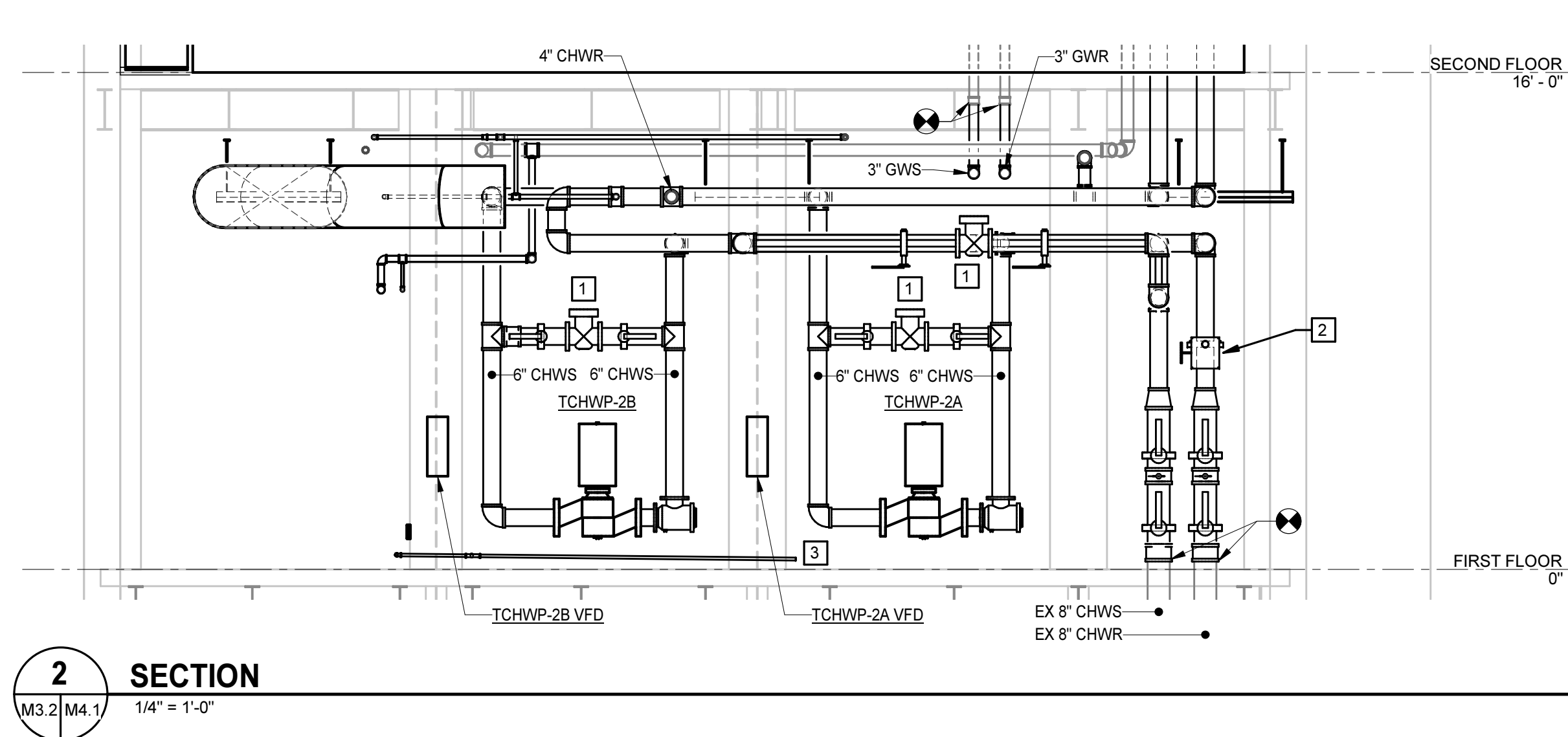
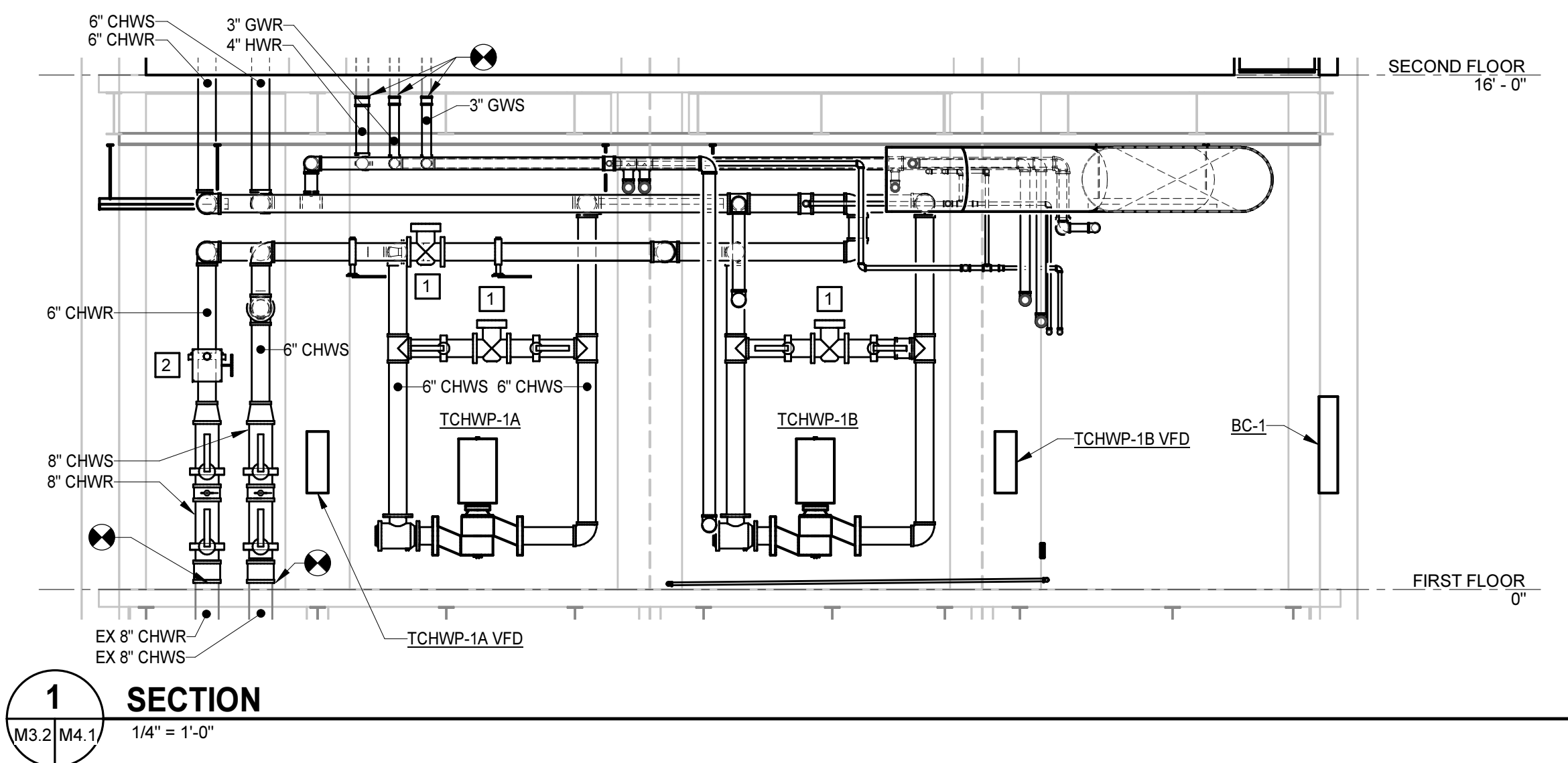
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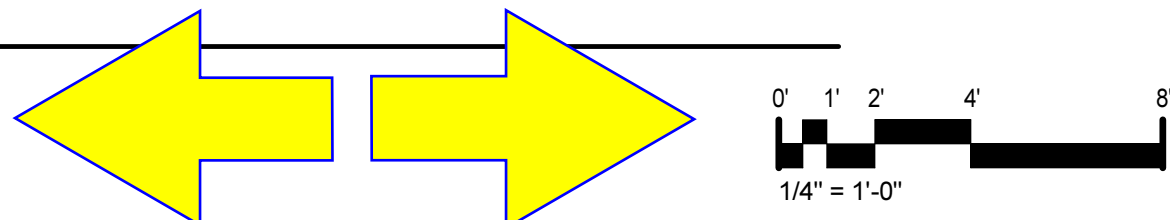
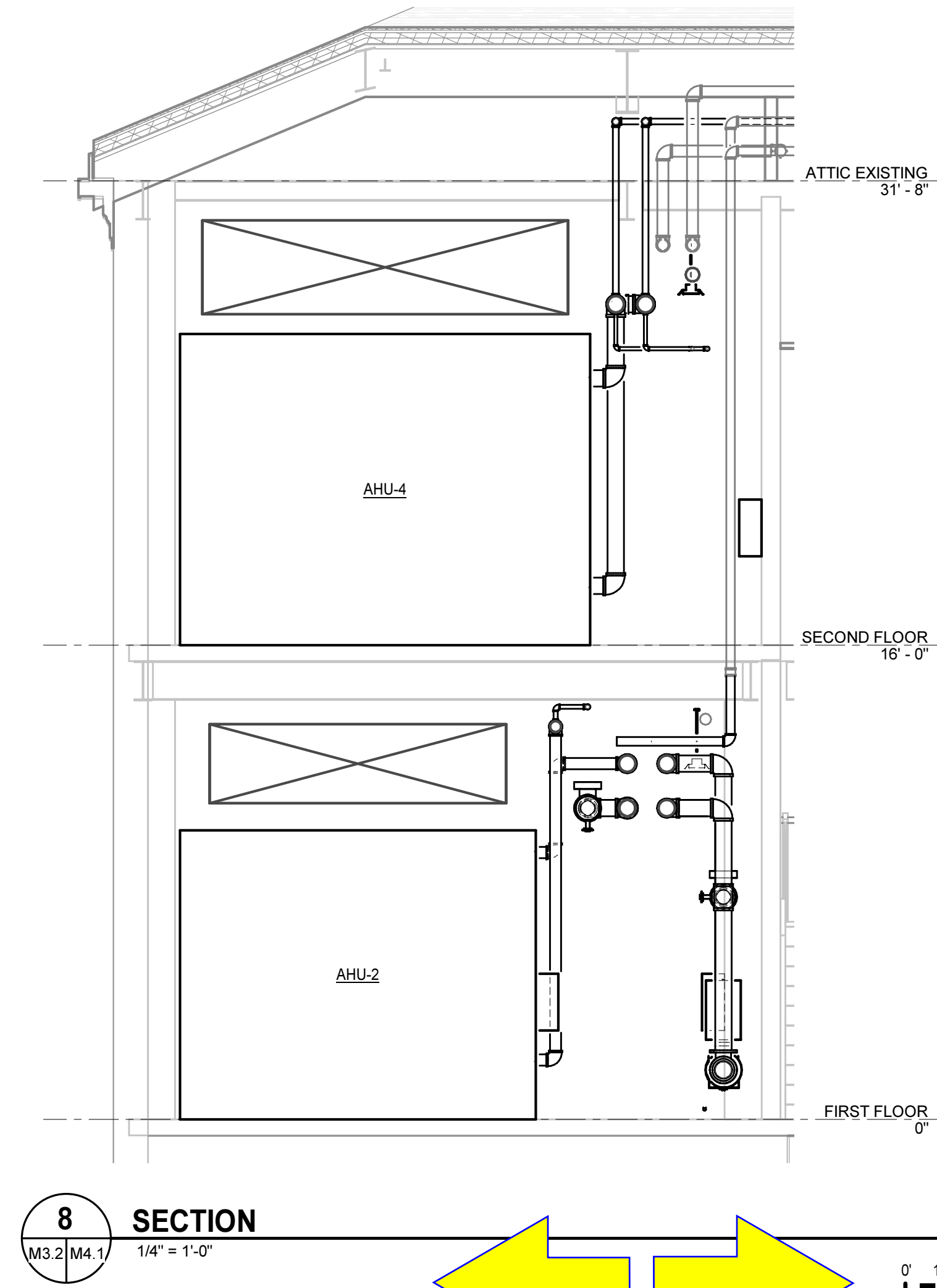
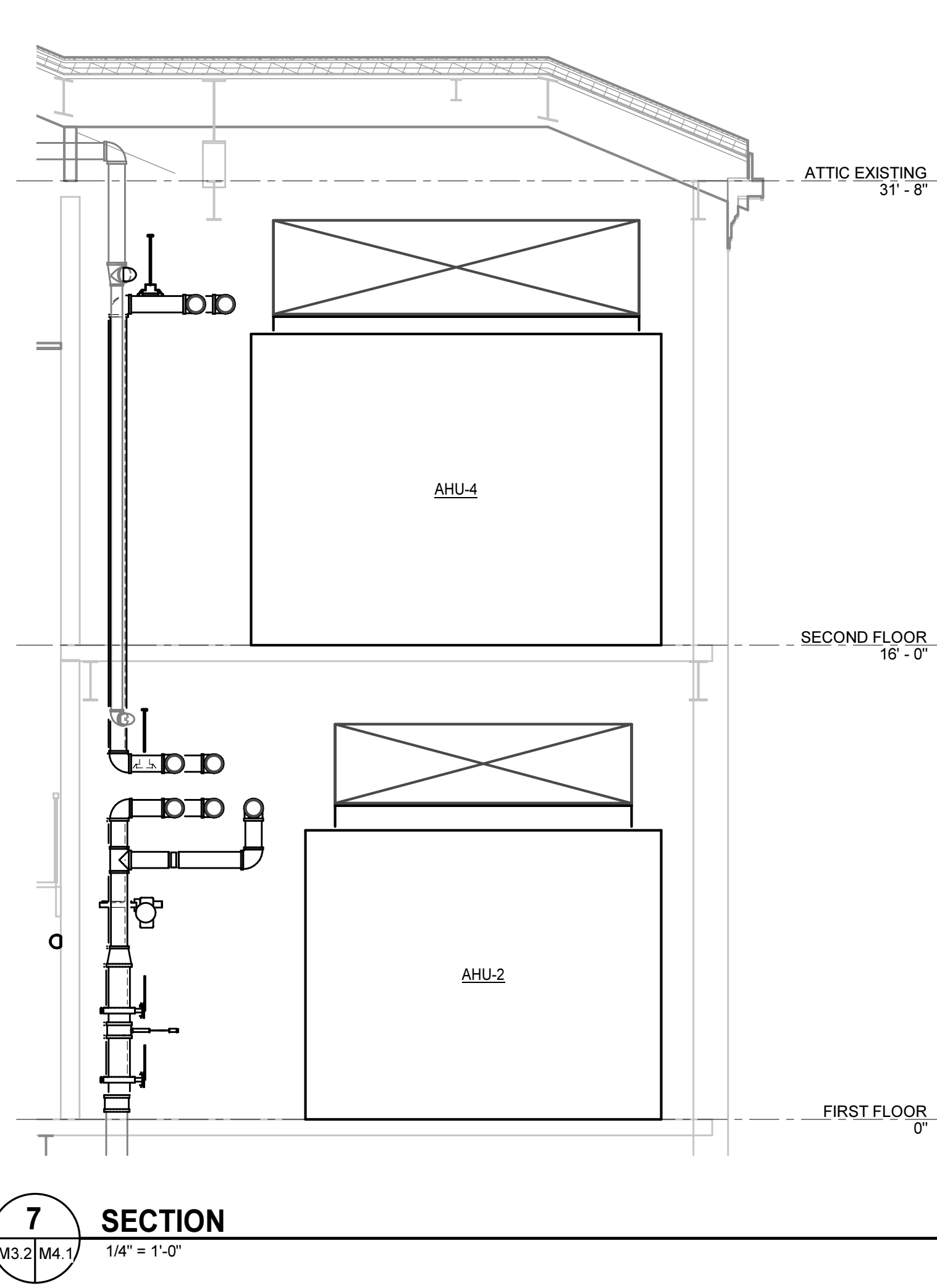
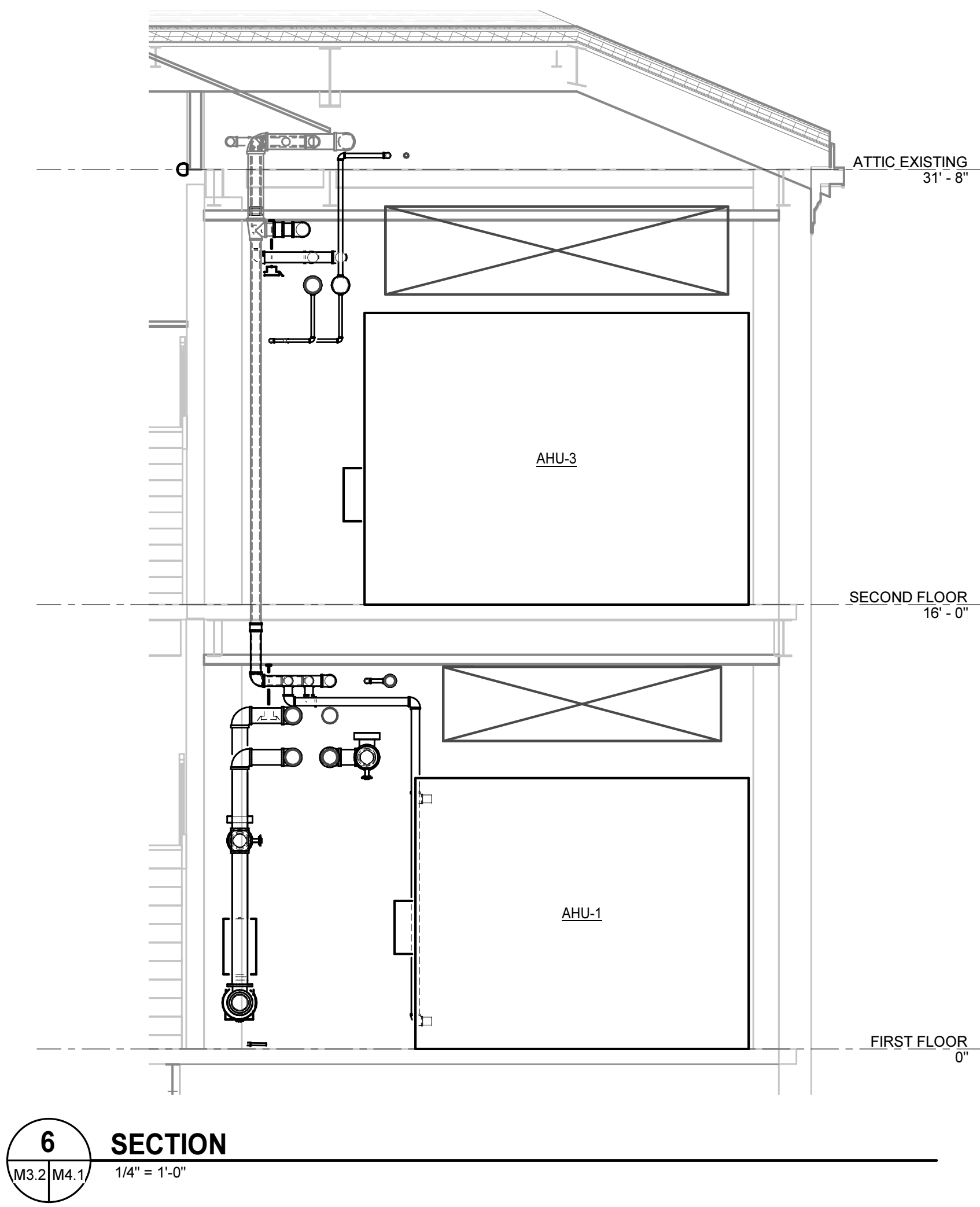
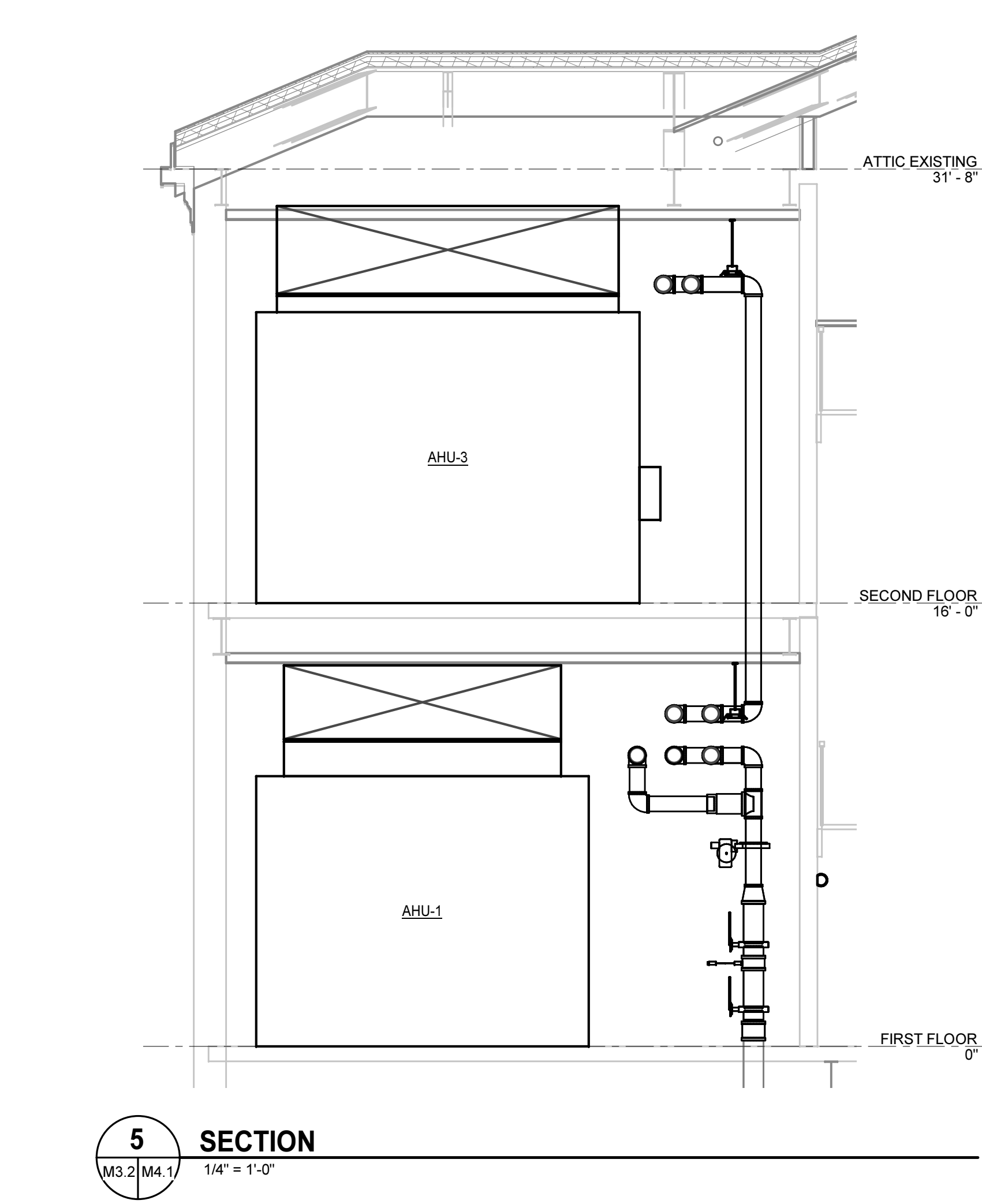
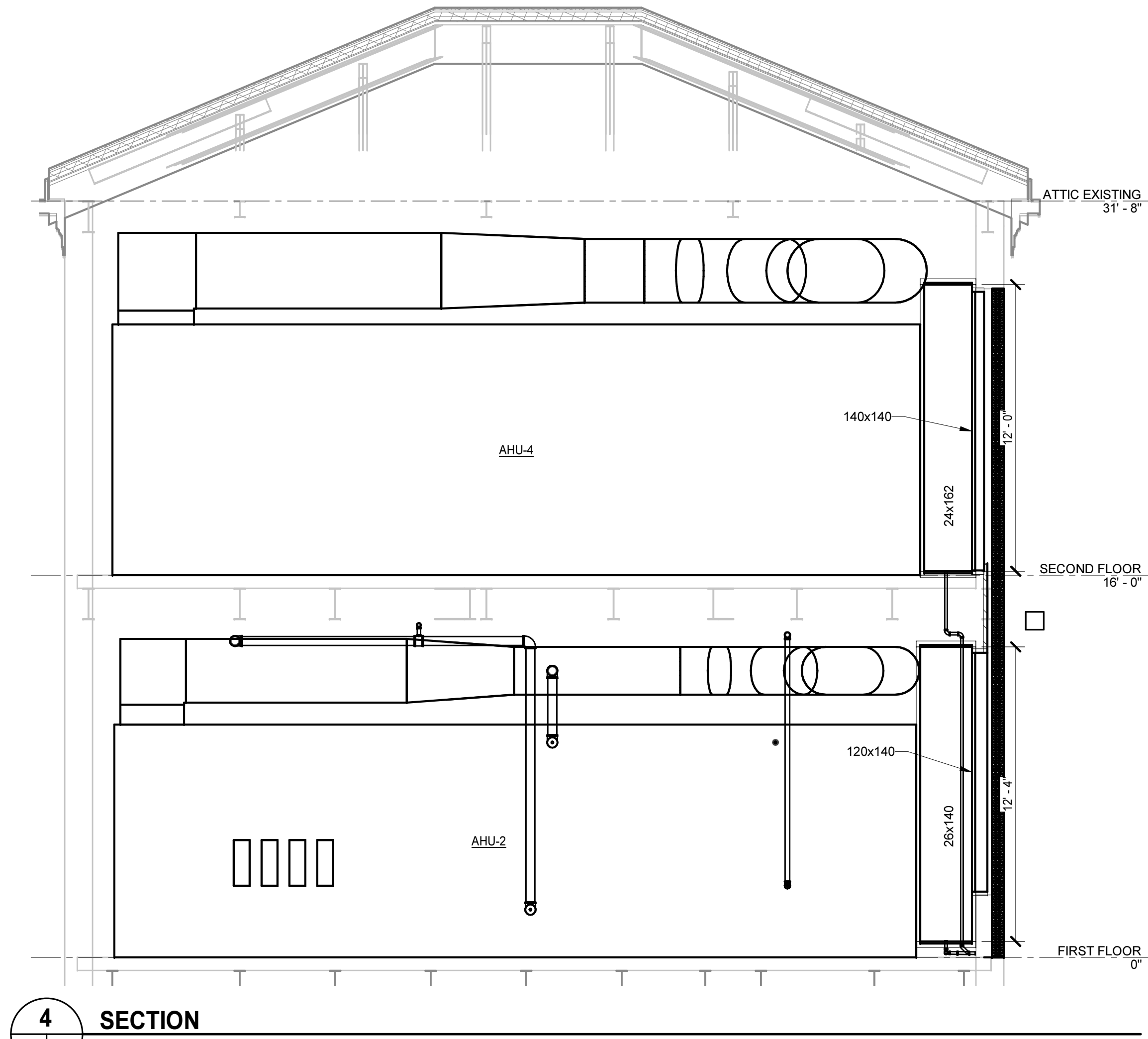
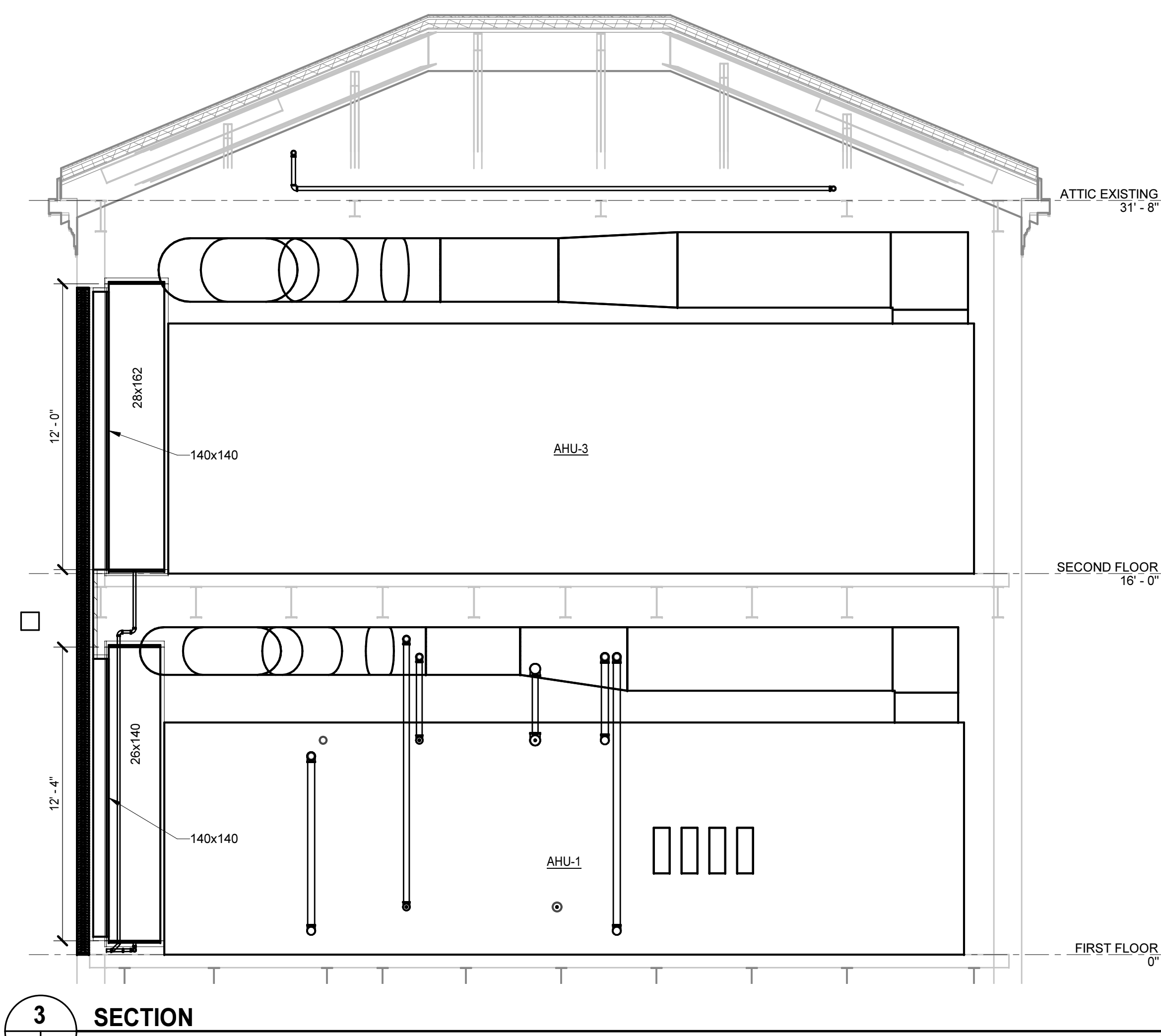
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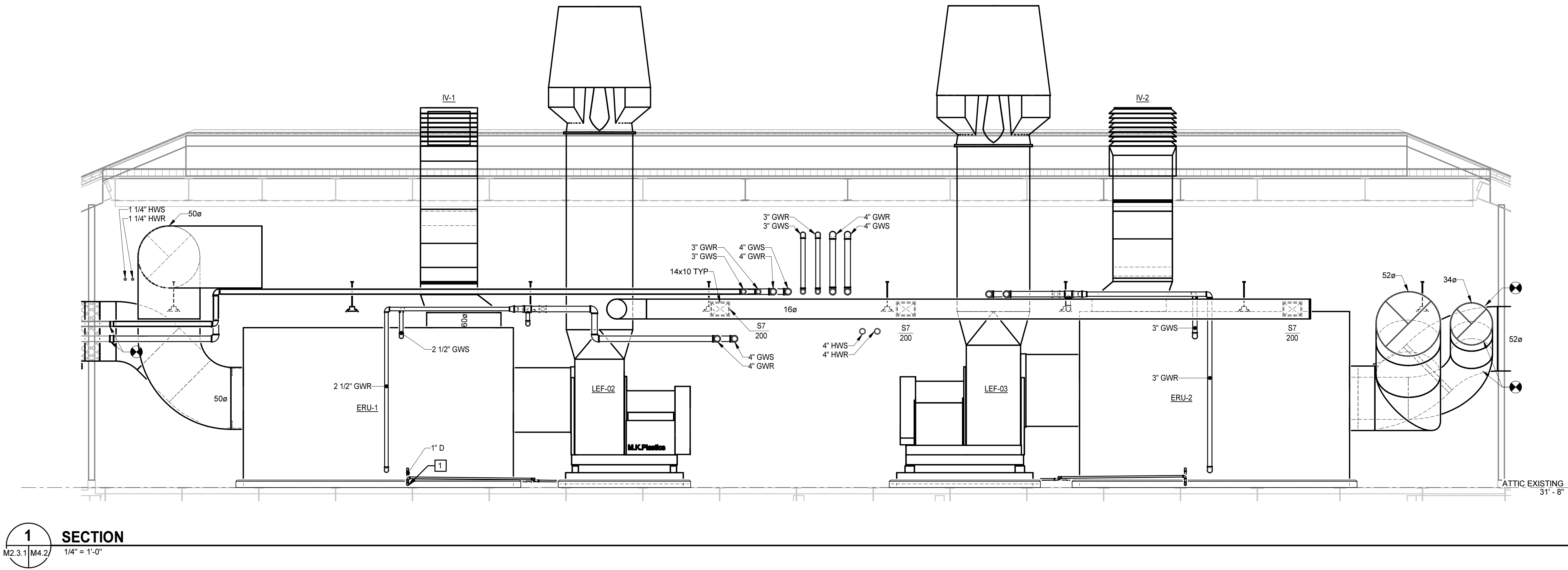
M3.4



KEYNOTES	
APPLIES TO THIS DRAWING	
1	CHECK VALVE. REFER TO SYSTEM SCHEMATICS AND DETAILS FOR ALL REQUIRED PIPING ACCESSORIES
2	CHILLED WATER BRIDGE CONTROL VALVE. REFER TO SCHEMATICS FOR ALL REQUIRED PIPING ACCESSORIES
3	DISCHARGE CONDENSATE DRAIN TO FLOOR DRAIN.



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KEYNOTES	
APPLIES TO THIS DRAWING	
1	DISCHARGE CONDENSATE DRAIN TO ACID WASTE DRAIN.



Dobo Hall Renovation - Package A

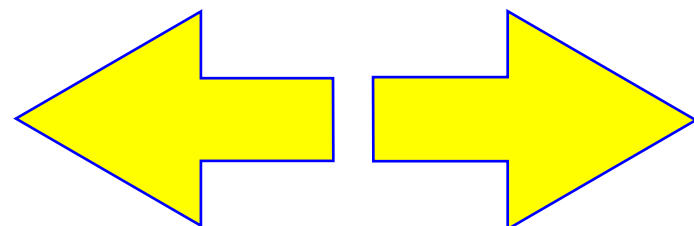
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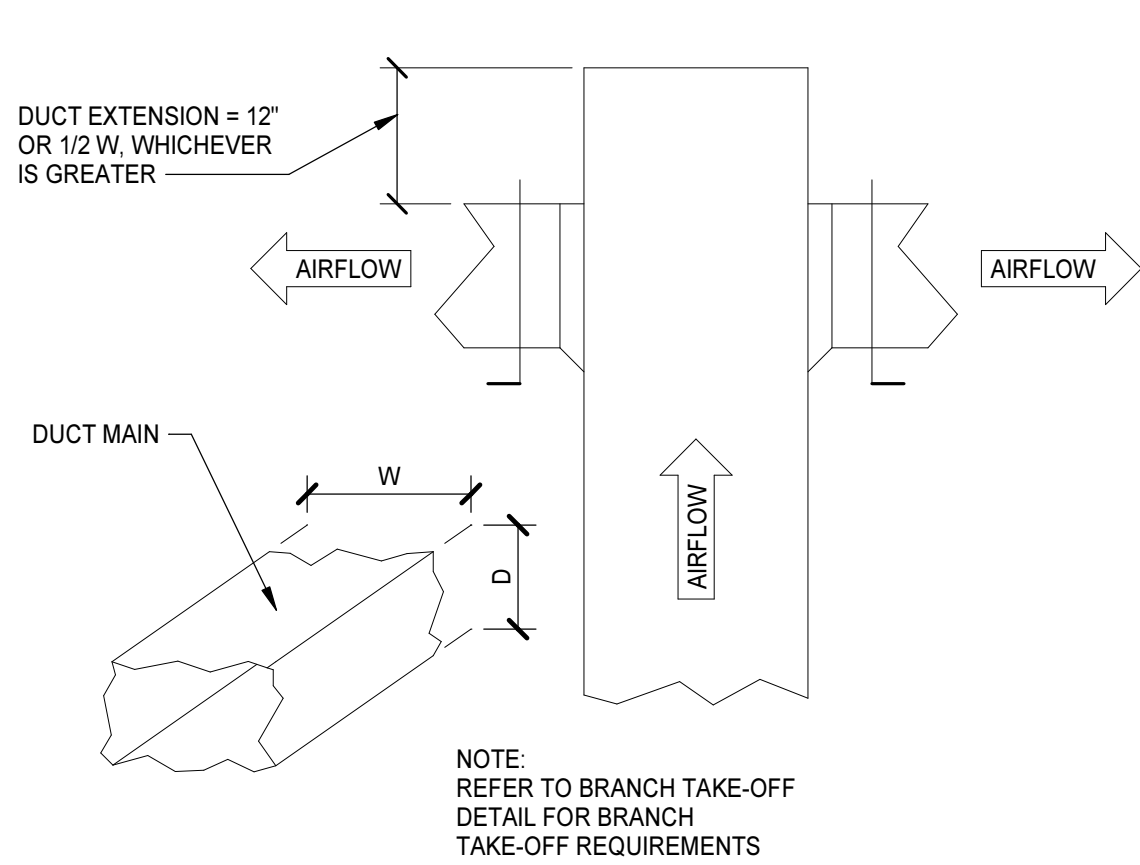
SECTIONS

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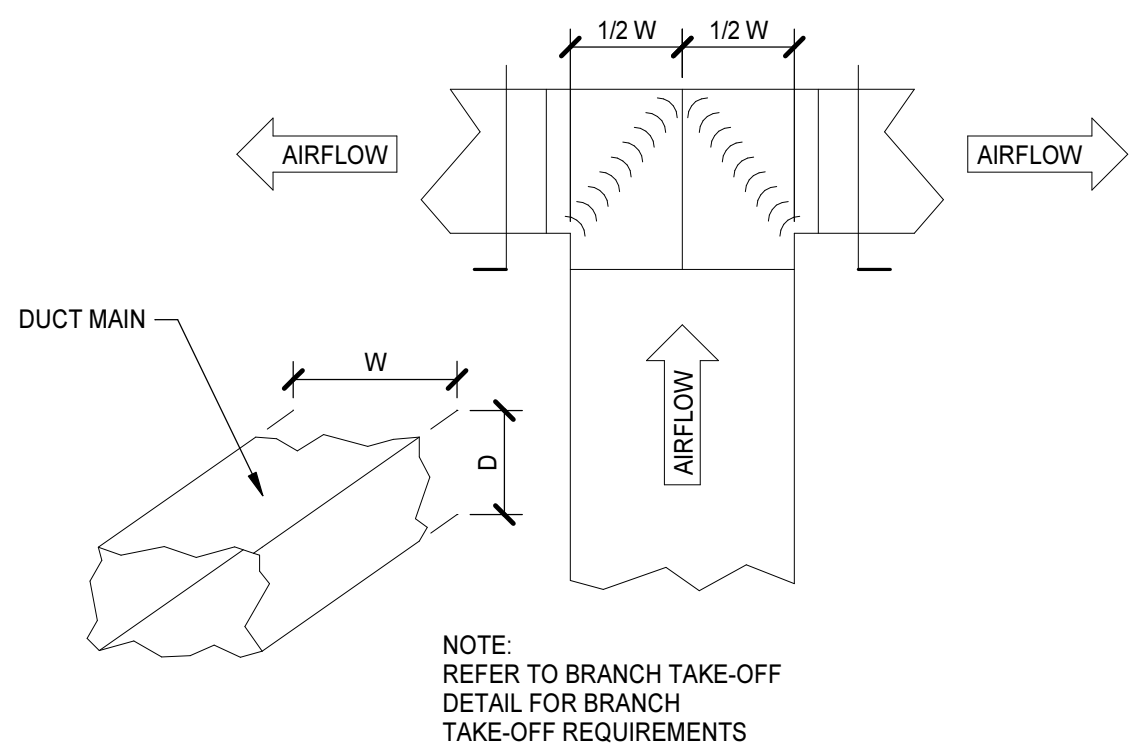
M4.2



DESIGNER NOTES:
USE WHERE "W" IS LESS THAN 24". WHEN YOU HAVE ROUND DUCT BRANCHES TO DIFFUSERS, OR WHEN AIR FLOW IS EQUAL TO OR LESS THAN 1500 CFM.

DUCT SPLIT WITHOUT VANES DETAIL

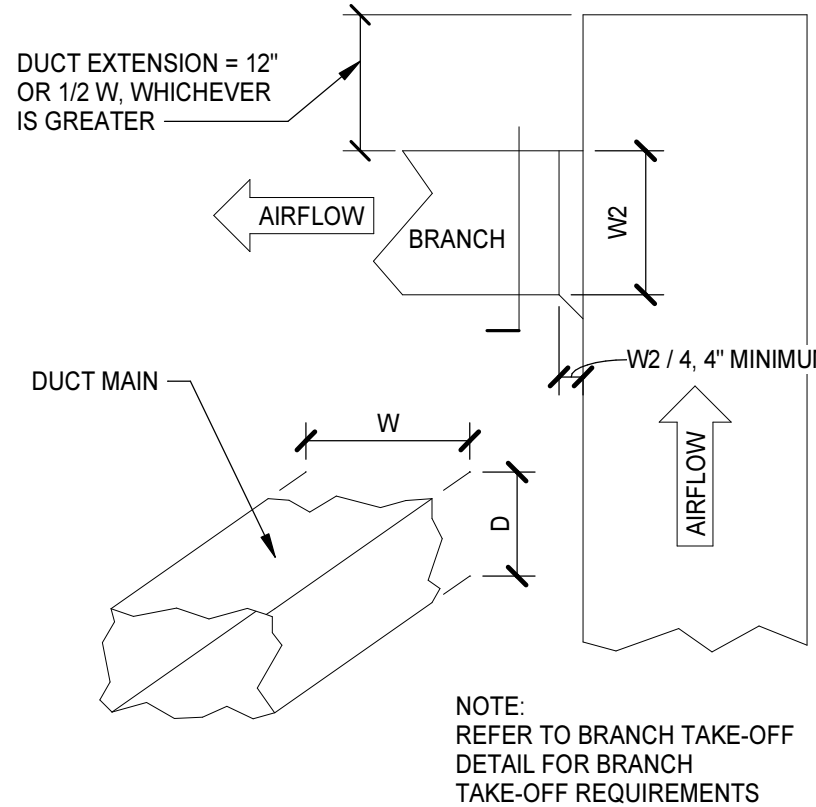
NO SCALE



DESIGNER NOTES:
USE WHERE "W" EXCEEDS 24" OR WHEN AIR FLOW IS IN EXCESS OF 1500 CFM. MAY BE PROPORTIONAL.

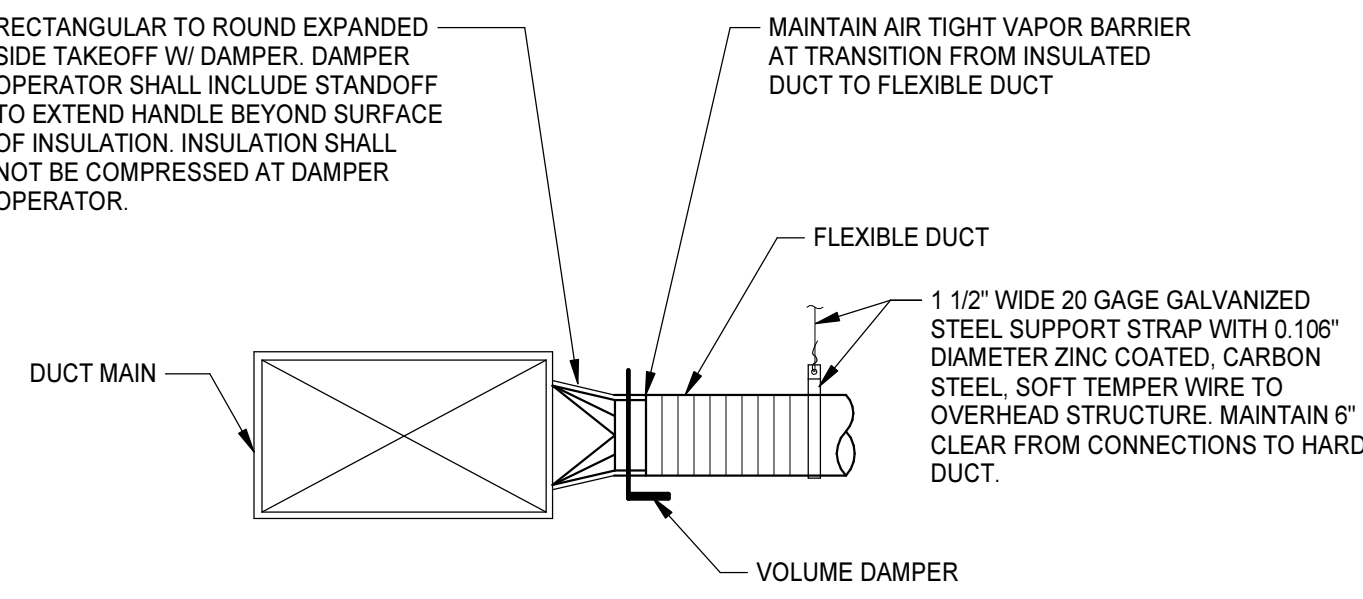
DUCT SPLIT WITH VANES DETAIL

NO SCALE



DUCT END OF MAIN DETAIL

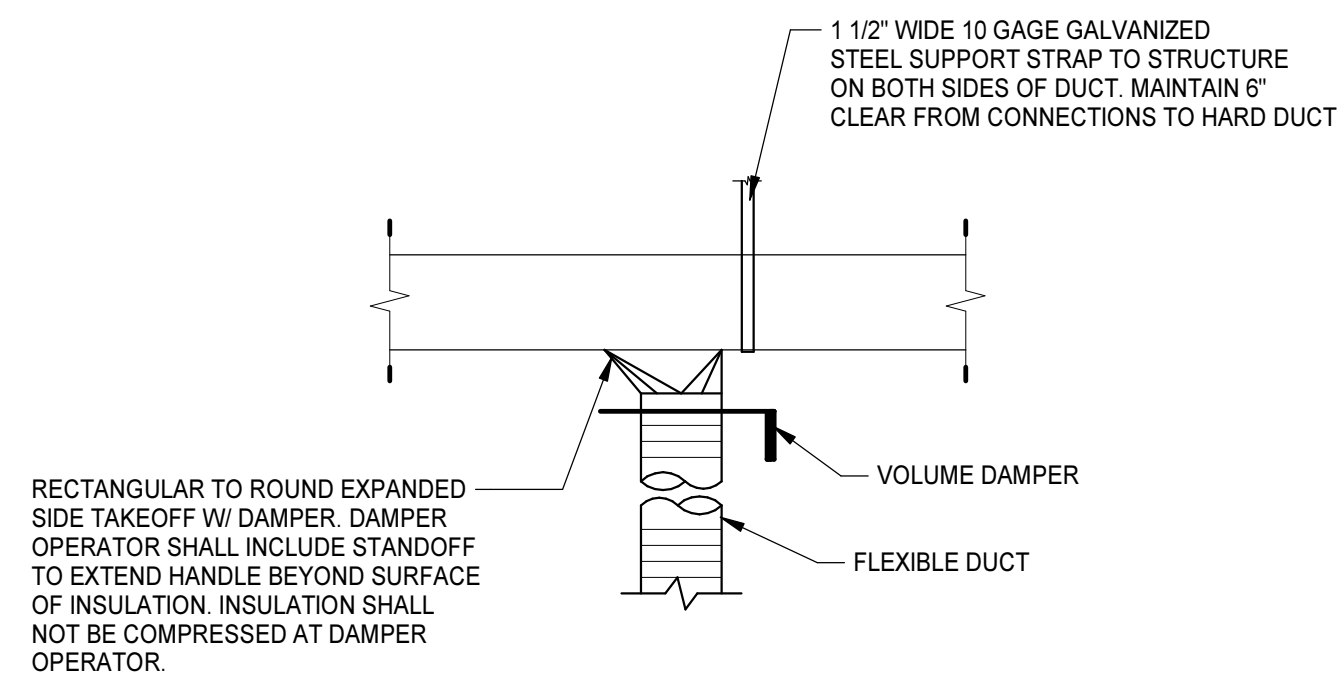
NO SCALE



NOTES:
- FLEXIBLE DUCT SHALL BE INSTALLED OVER METAL DUCT (BEAD/LIP ON METAL DUCT) AND ANCHORED W/ A SINGLE NYLON MECHANICAL BAND.
- IN EXPOSED AREAS PROVIDE RIGID GALVANIZED STEEL DUCTWORK IN LIEU OF FLEXIBLE DUCTWORK INDICATED. SUPPORT IN ACCORDANCE WITH REQUIREMENTS SPECIFIED FOR STEEL DUCTWORK.

BRANCH TAKEOFF TO DIFFUSER-SIDE

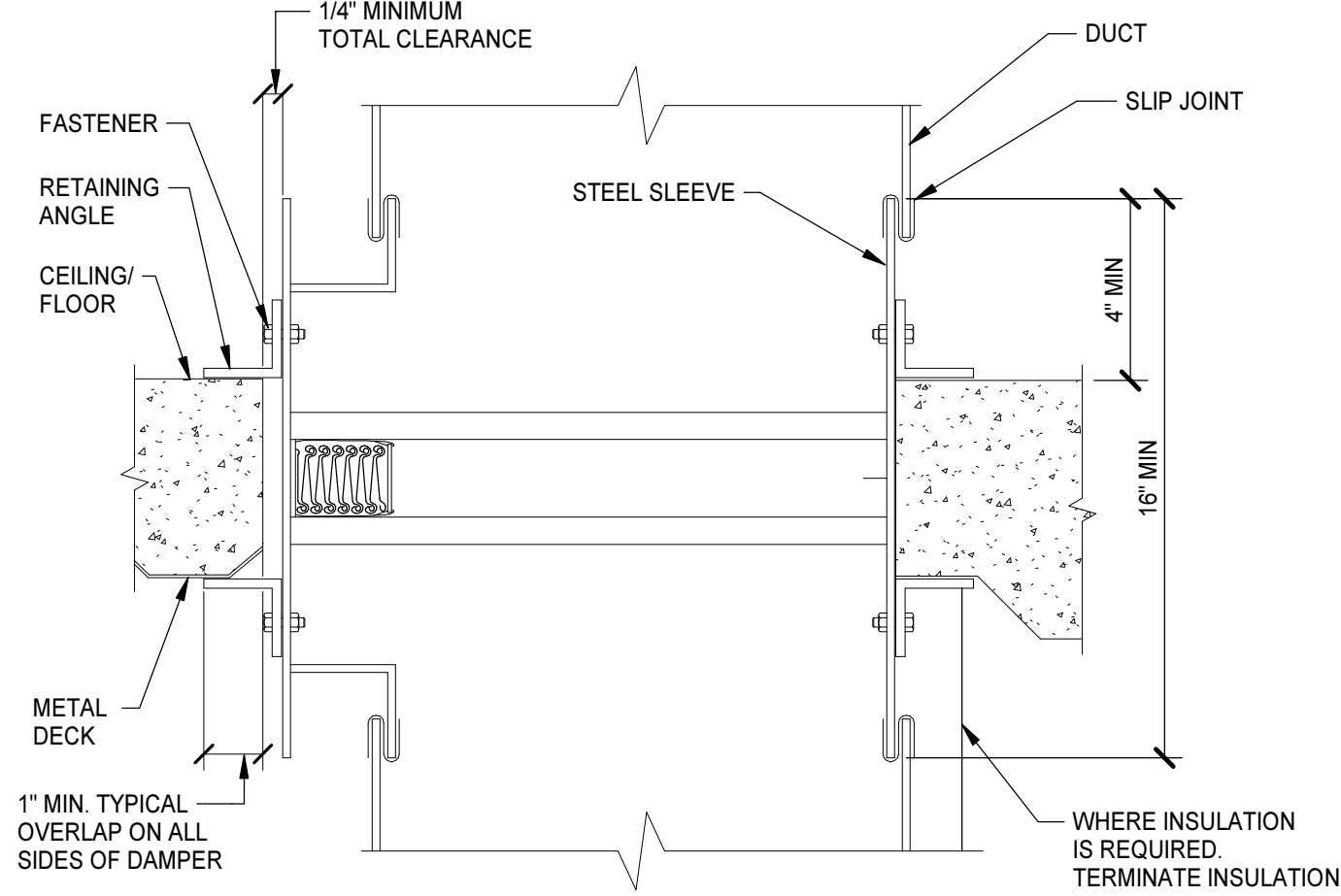
NO SCALE



NOTES:
- FLEXIBLE DUCT SHALL BE INSTALLED OVER METAL DUCT (BEAD/LIP ON METAL DUCT) AND ANCHORED W/ A SINGLE NYLON MECHANICAL BAND.
- IN EXPOSED AREAS PROVIDE RIGID GALVANIZED STEEL DUCTWORK IN LIEU OF FLEXIBLE DUCTWORK INDICATED. SUPPORT IN ACCORDANCE WITH REQUIREMENTS SPECIFIED FOR STEEL DUCTWORK.

BRANCH TAKEOFF TO DIFFUSER-BOTTOM

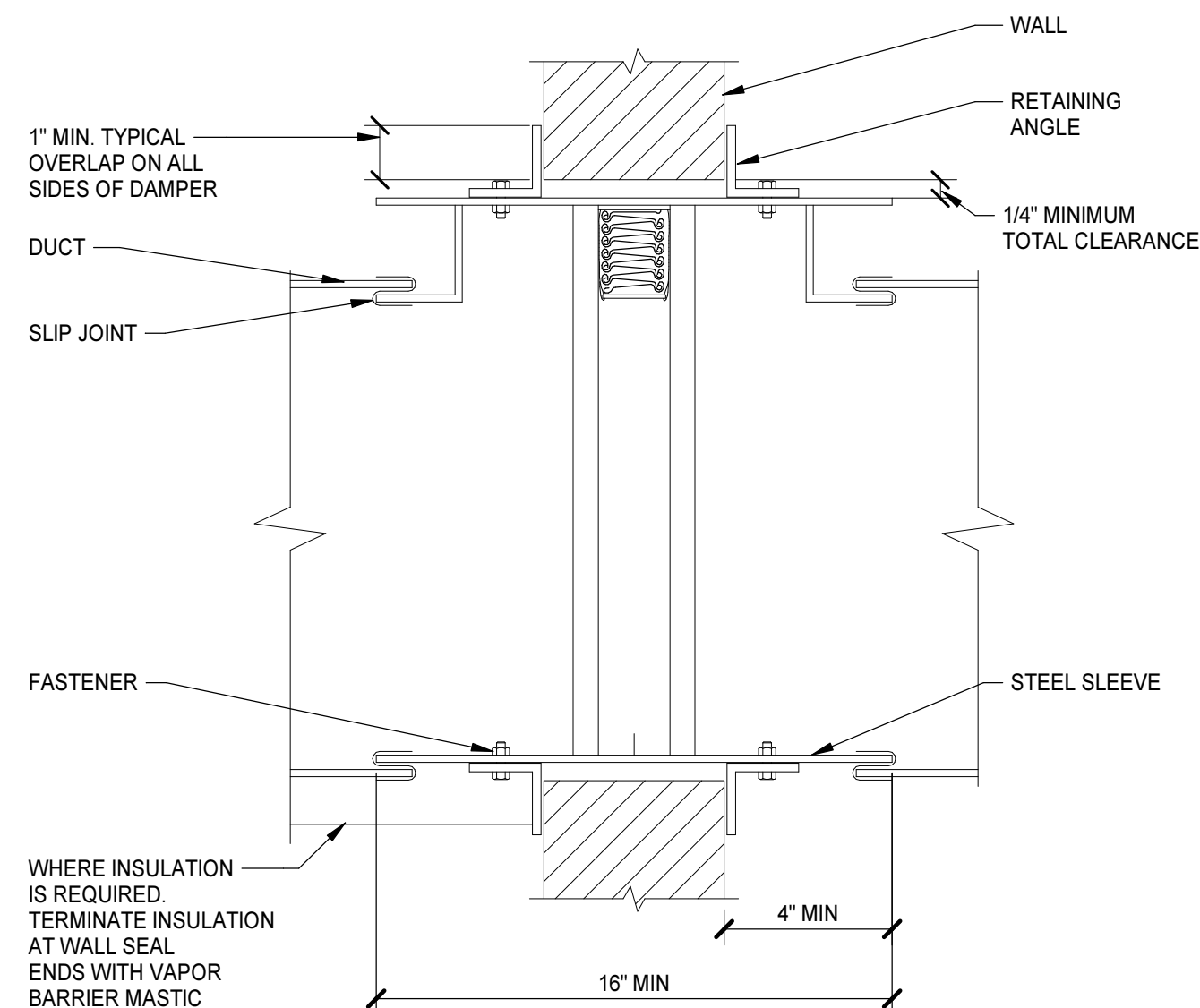
NO SCALE



NOTE: THIS DETAIL IS BASED ON GREENHECK MODEL FD150. ALL FIRE DAMPERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR THE MODEL USED.

FIRE DAMPER INSTALLATION DETAIL - TYPE B (HORIZONTAL)

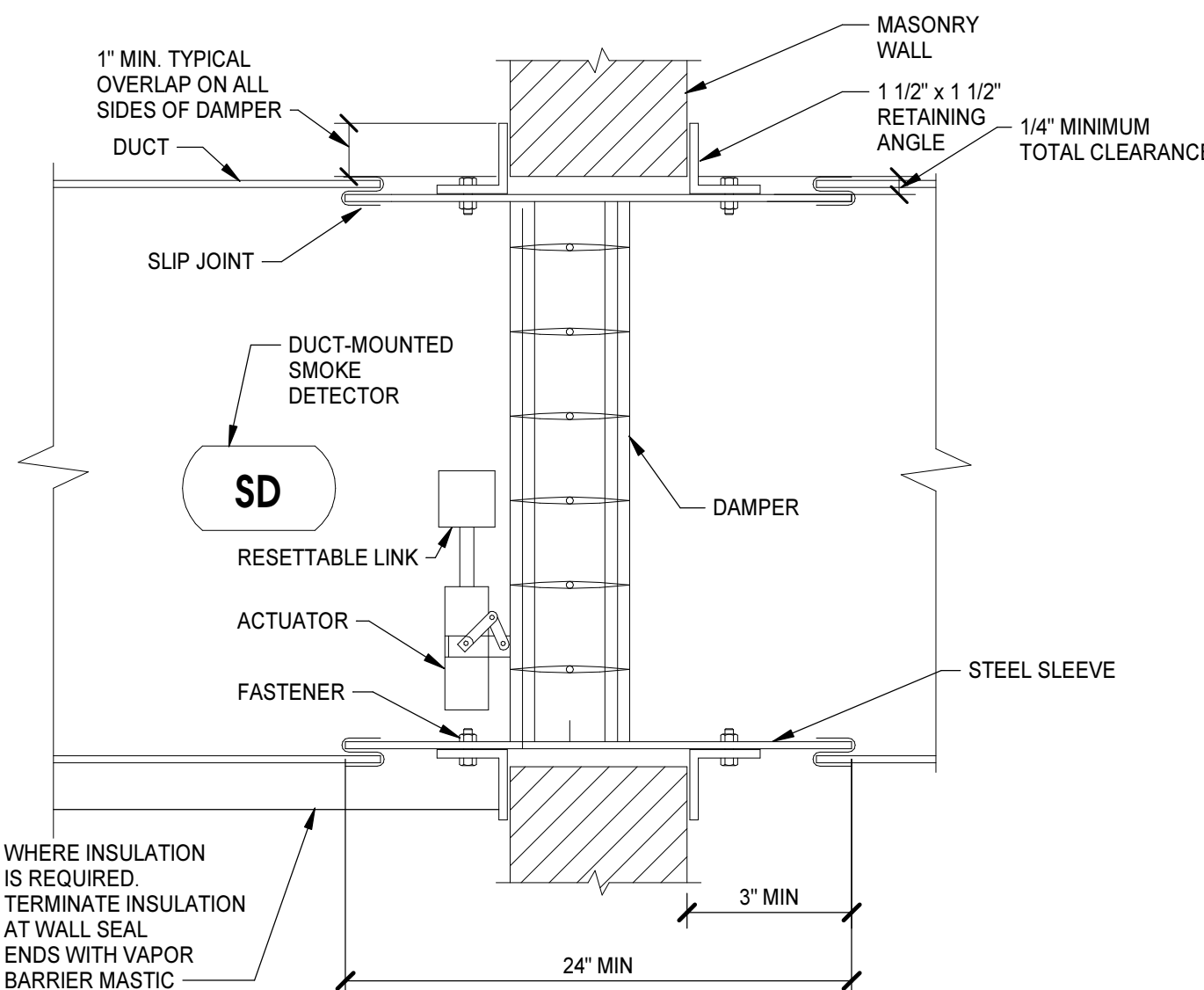
NO SCALE



NOTE: THIS DETAIL IS BASED ON GREENHECK MODEL FD150. ALL FIRE DAMPERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR THE MODEL USED.

FIRE DAMPER INSTALLATION DETAIL - TYPE B (VERTICAL)

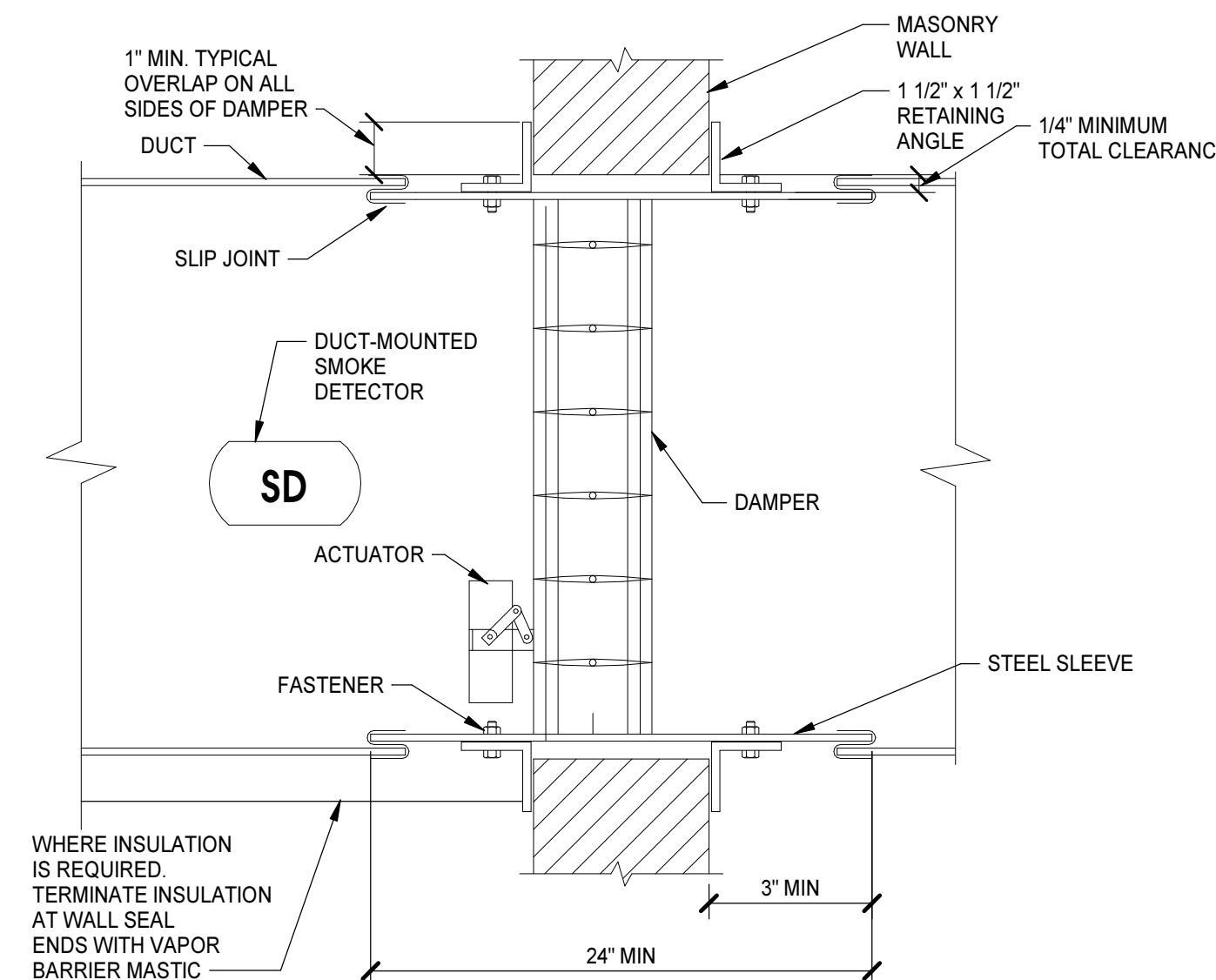
NO SCALE



NOTE: THIS DETAIL IS BASED ON GREENHECK MODEL FSD-331. ALL COMBINATION FIRE-SMOKE DAMPERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR THE MODEL USED.

COMBINATION FIRE-SMOKE DAMPER INSTALLATION DETAIL

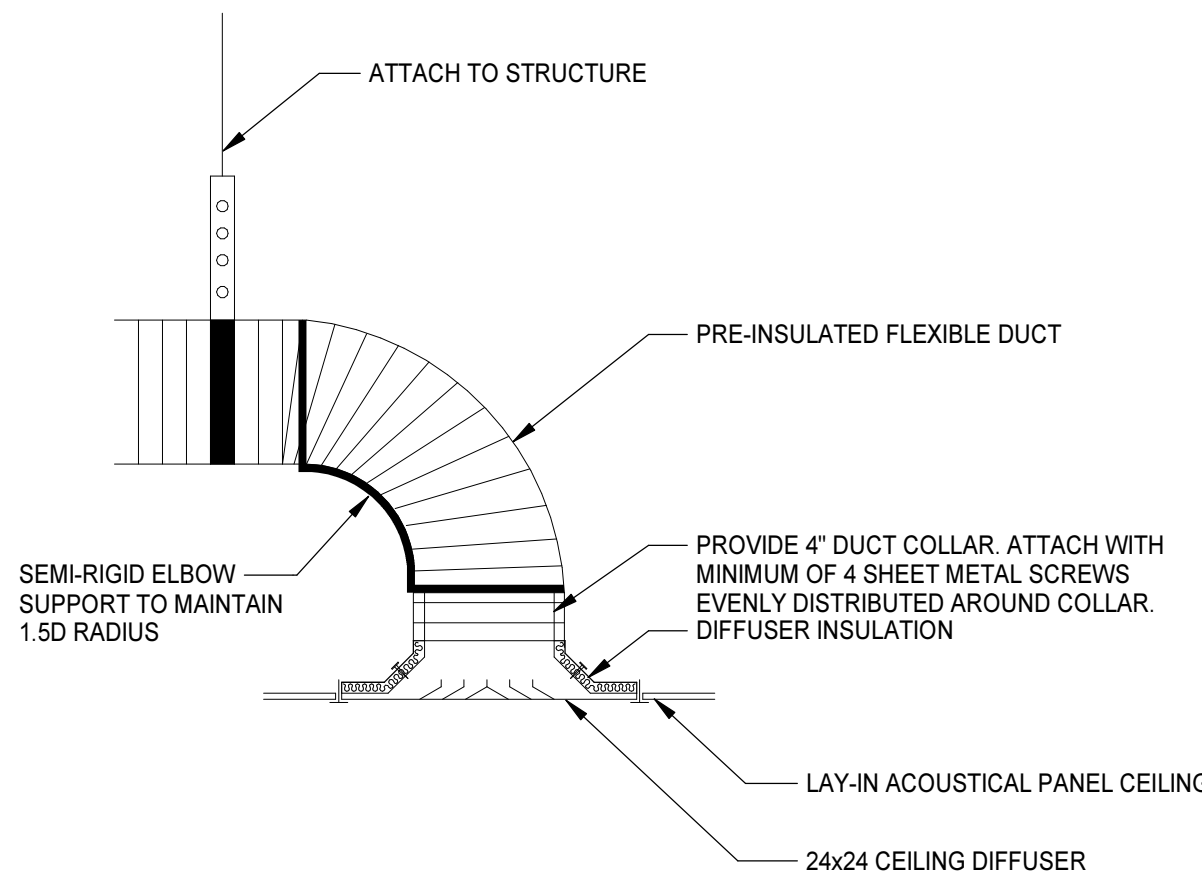
NO SCALE



NOTE: THIS DETAIL IS BASED ON GREENHECK MODEL SMD-301. ALL SMOKE DAMPERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR THE MODEL USED.

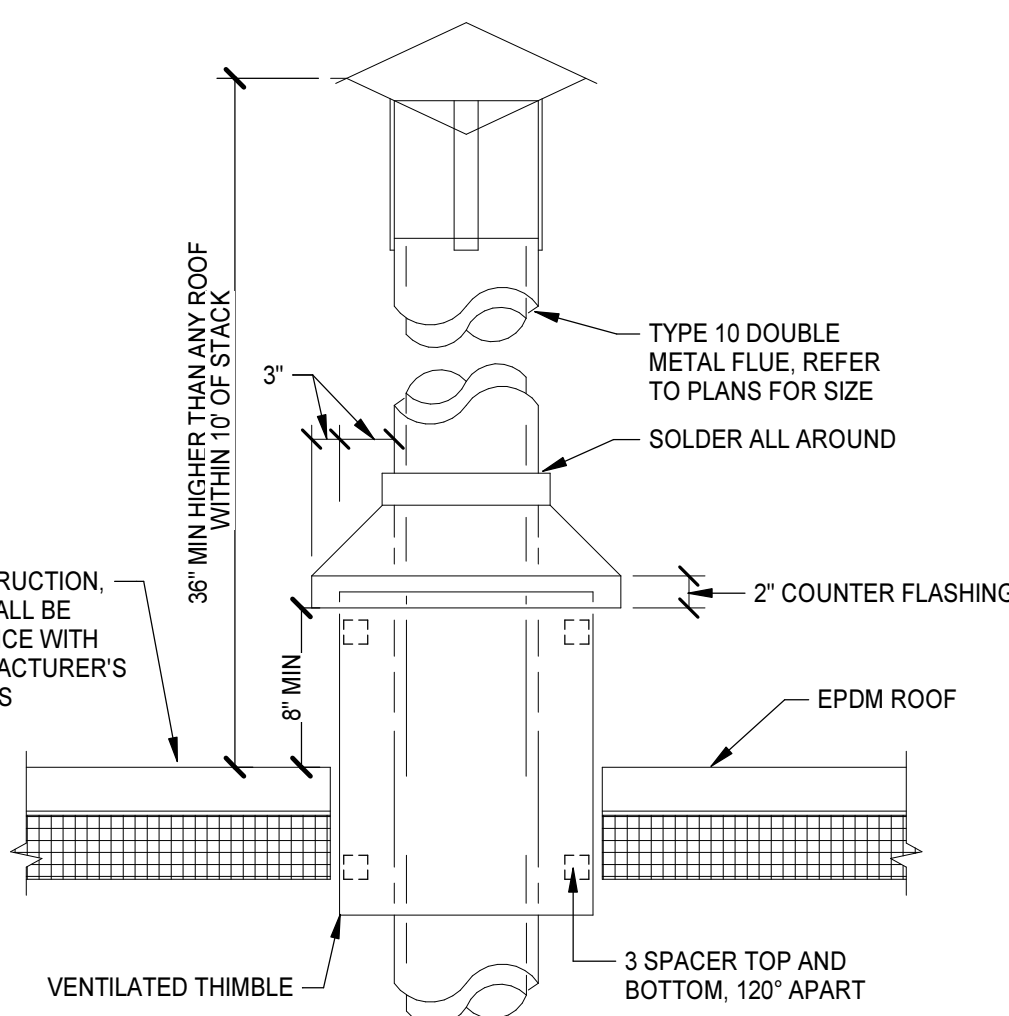
SMOKE DAMPER INSTALLATION DETAIL

NO SCALE



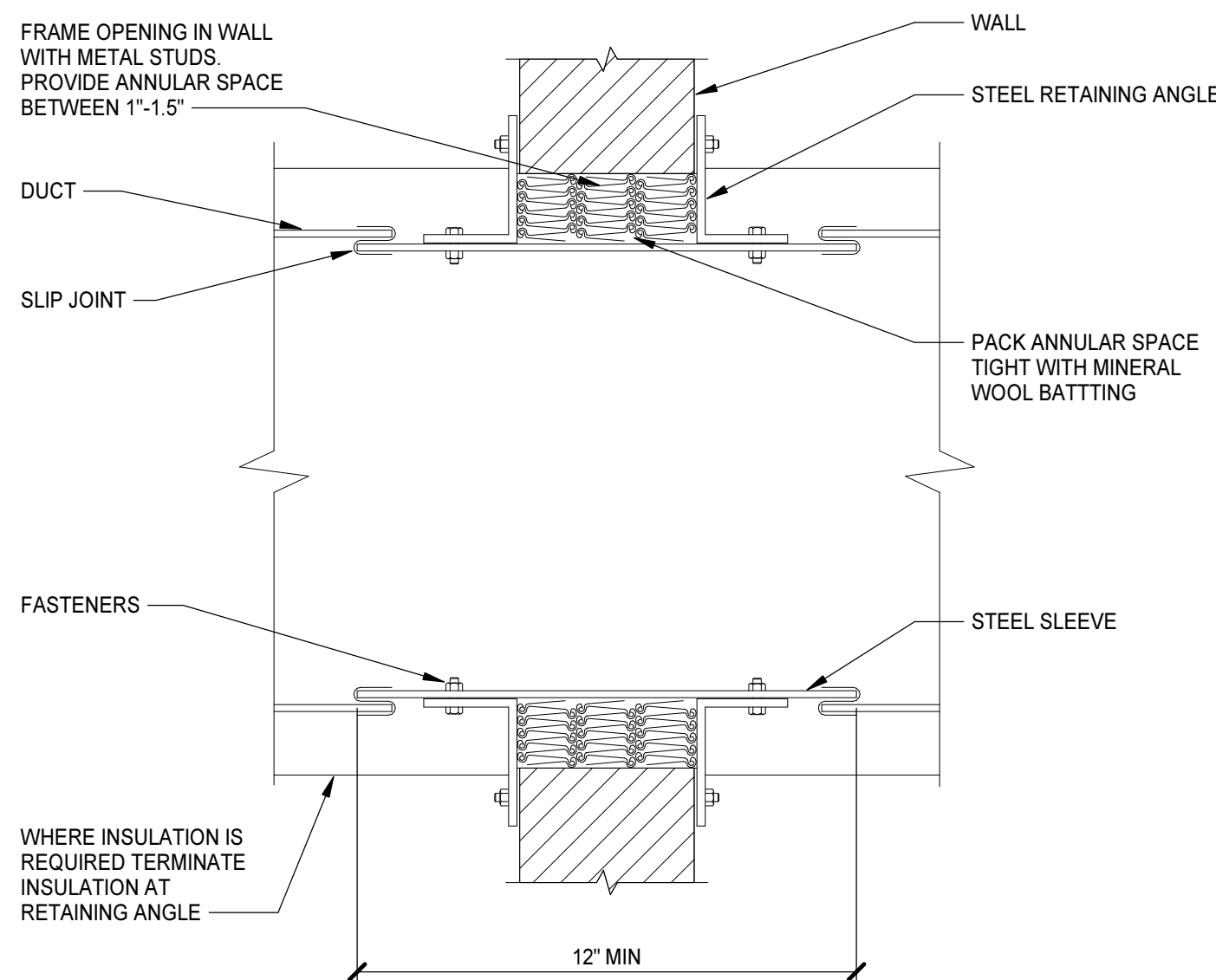
SUPPLY DIFFUSER CONNECTION LAY-IN-COLLAR

NO SCALE



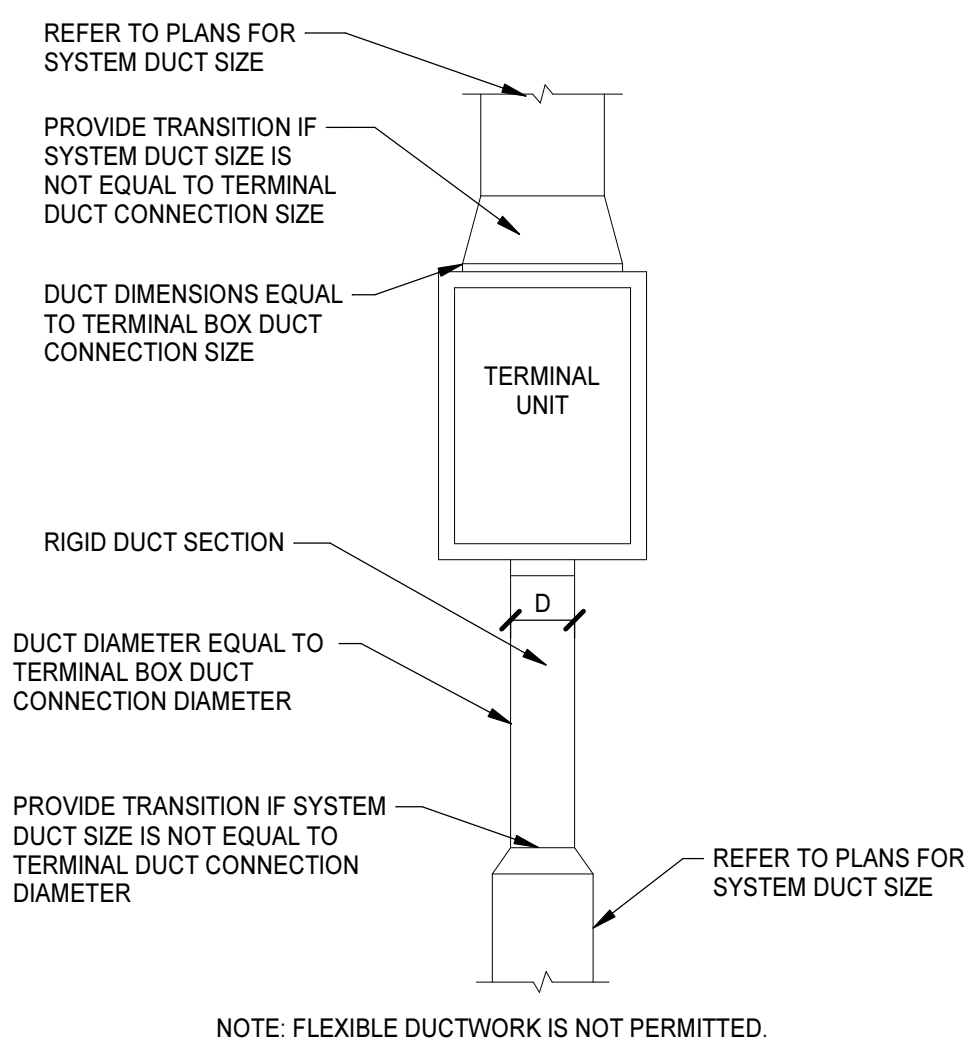
BOILER FLUE TERMINATION DETAIL

NO SCALE



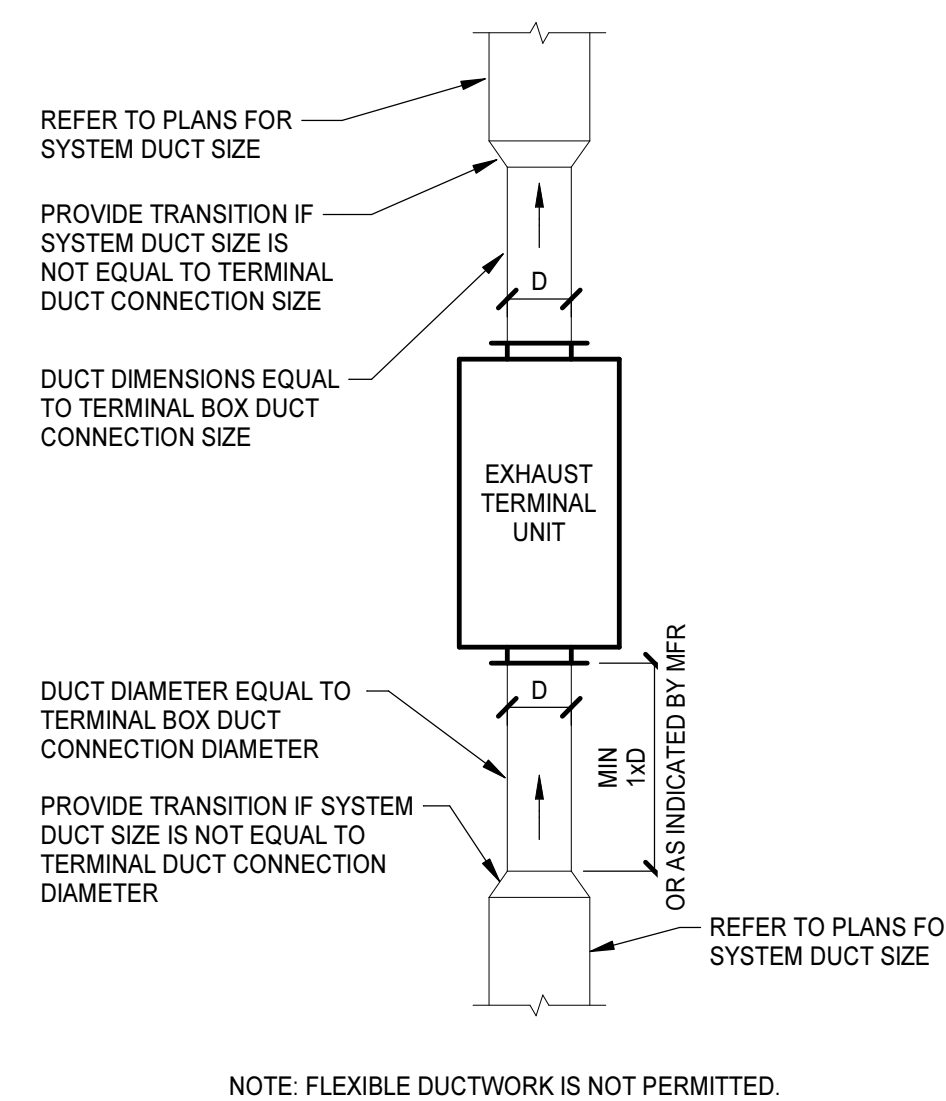
FIRE PARTITION DUCT PENETRATION DETAIL

NO SCALE



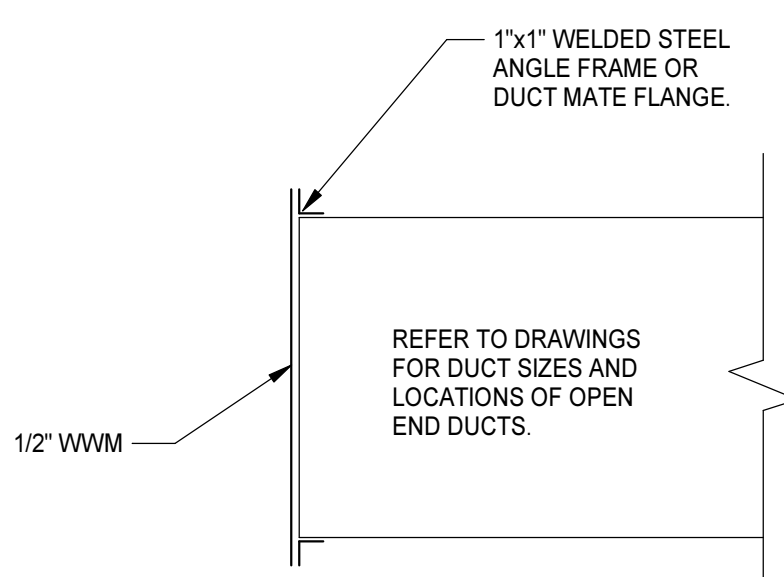
TERMINAL DUCT CONNECTION DETAIL

NO SCALE



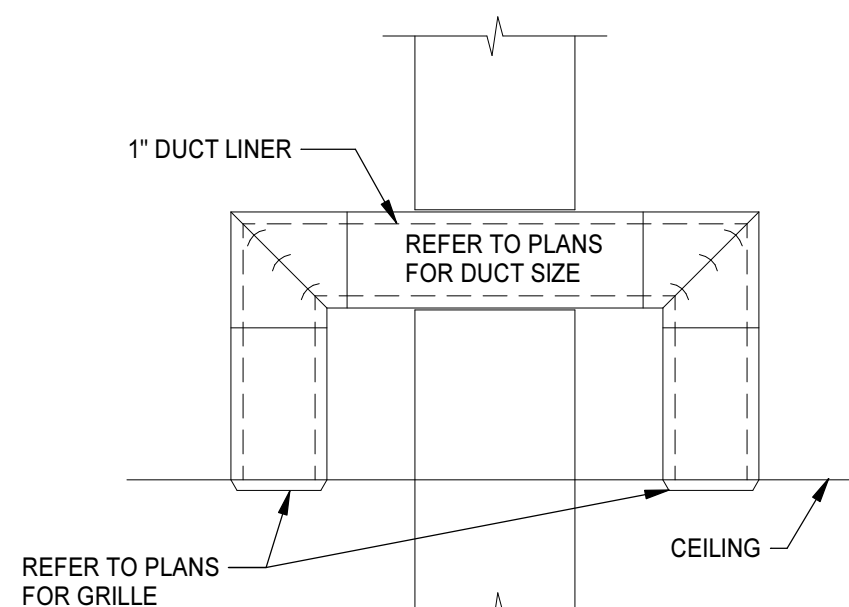
EXHAUST TERMINAL DUCT CONNECTION DETAIL

NO SCALE



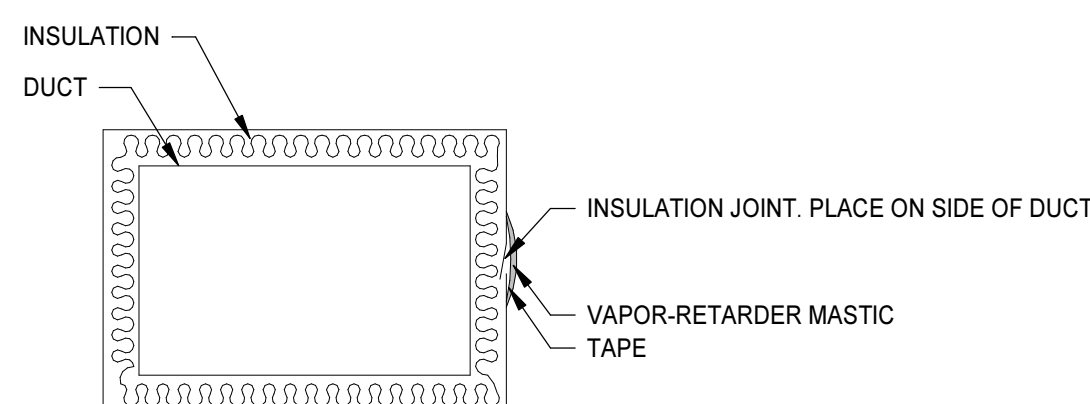
OPEN END DUCT DETAIL

NO SCALE



TRANSFER DUCT DETAIL

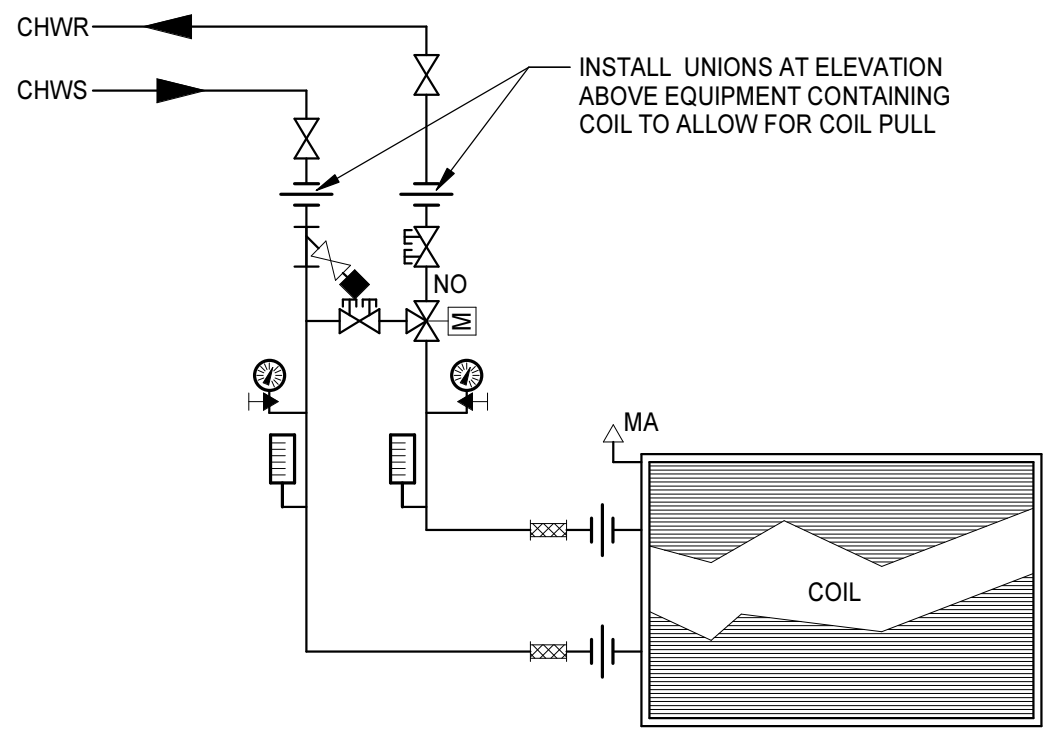
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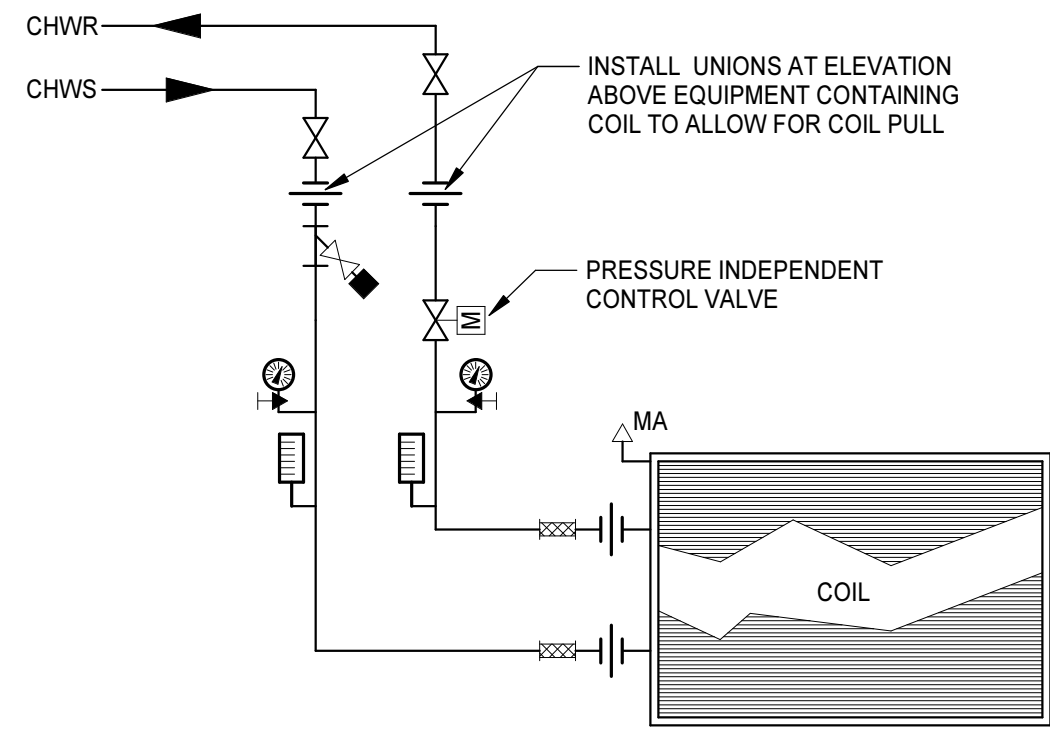
DUCT INSULATION JOINT DETAIL

NO SCALE

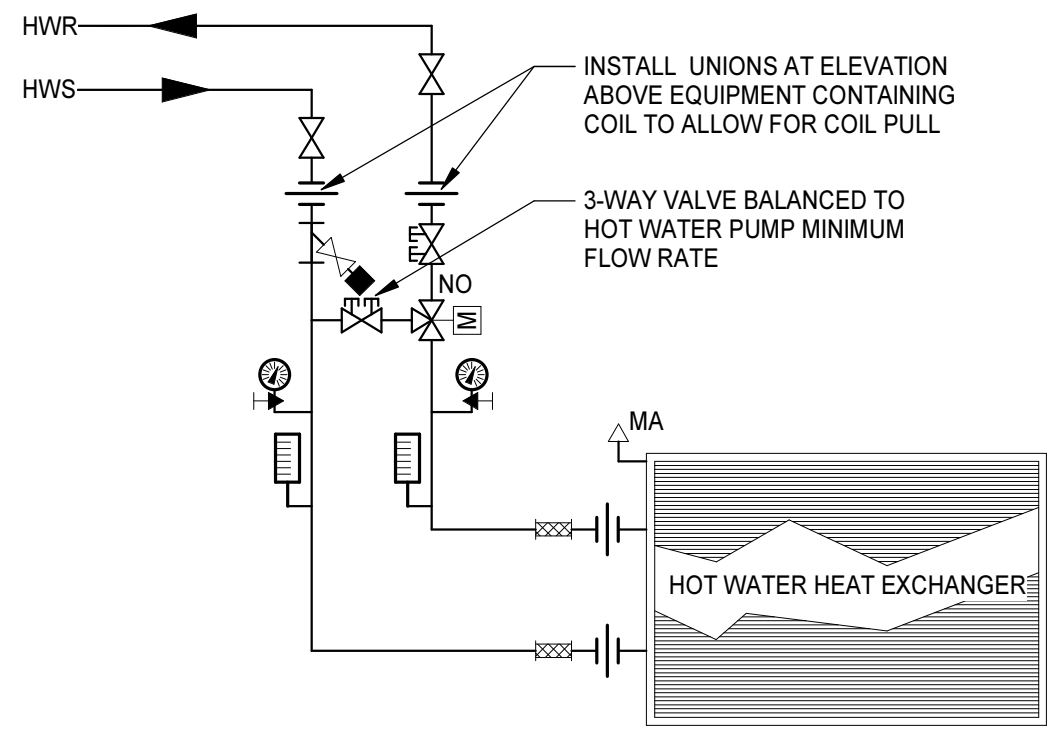
PROJECT NO.	DATE
580999	MARCH 27, 2019
REVISIONS	
DATE	DESCRIPTION



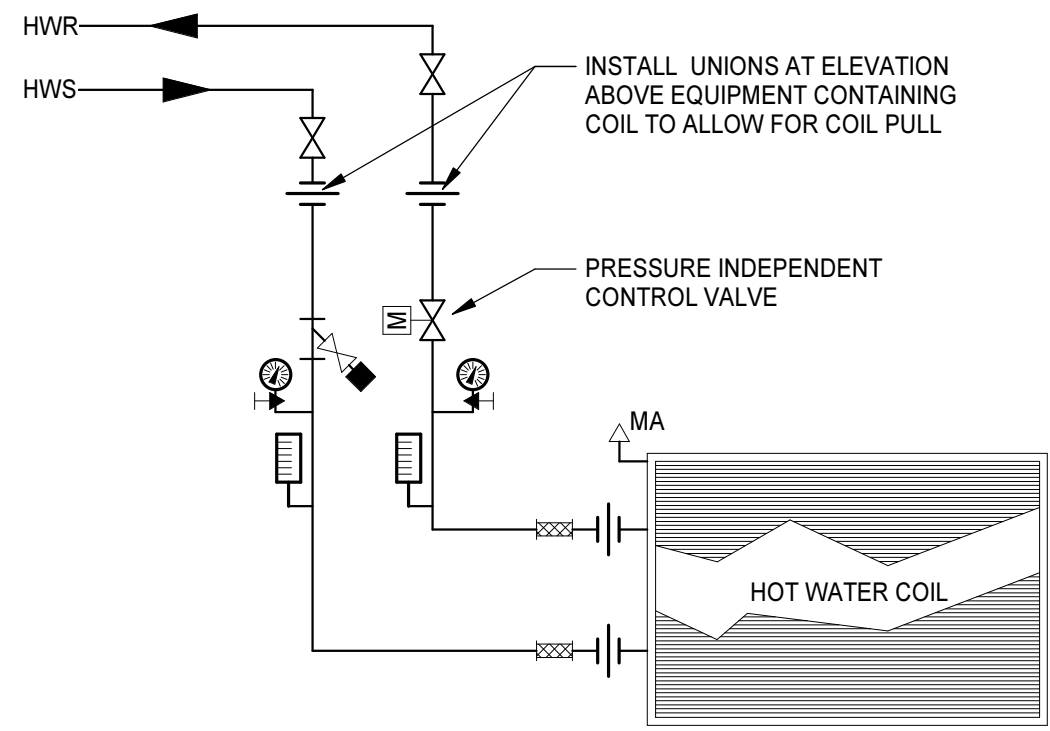
CHILLED WATER COIL PIPING DIAGRAM - AHU-1 & 2
NO SCALE



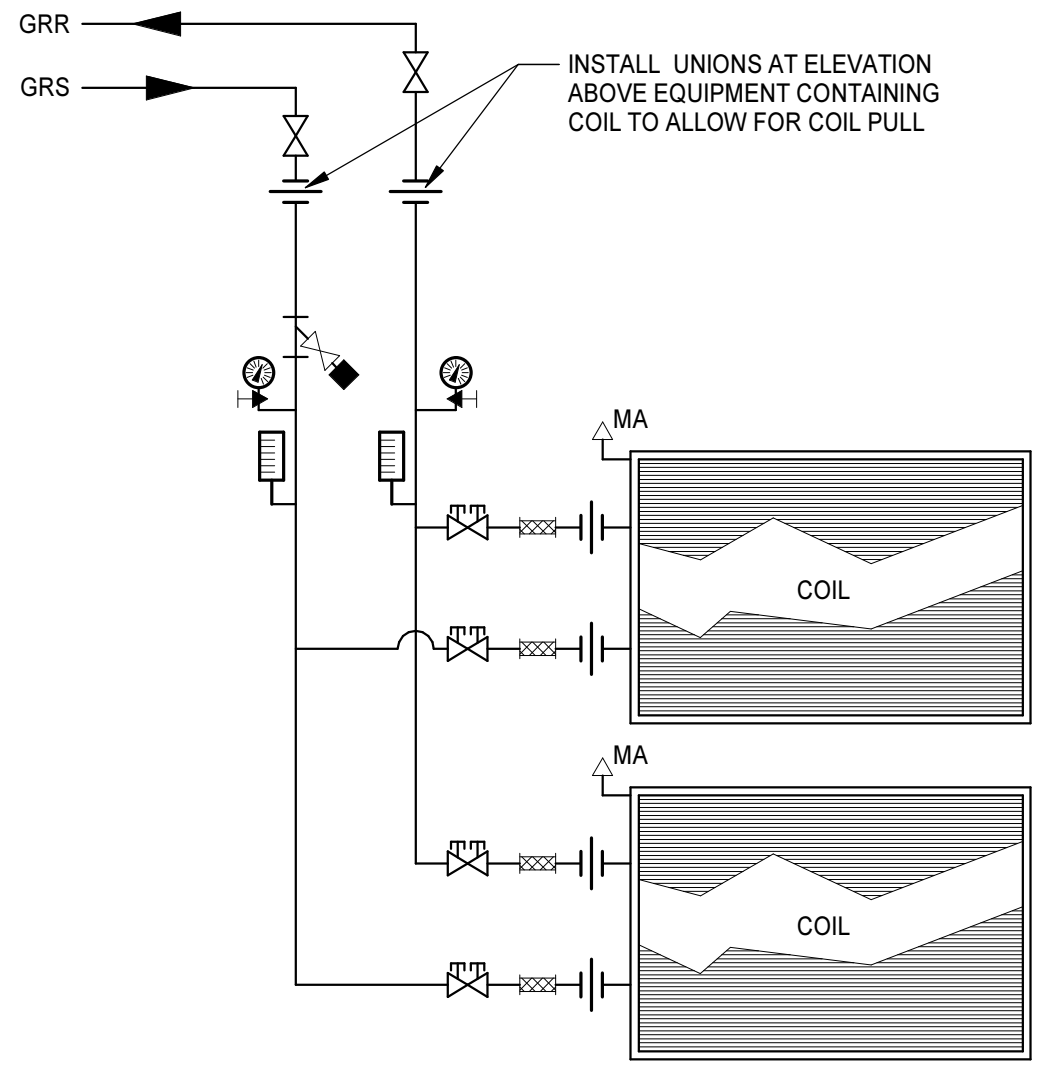
CHILLED WATER COIL PIPING DIAGRAM - AHU-3 & 4
NO SCALE



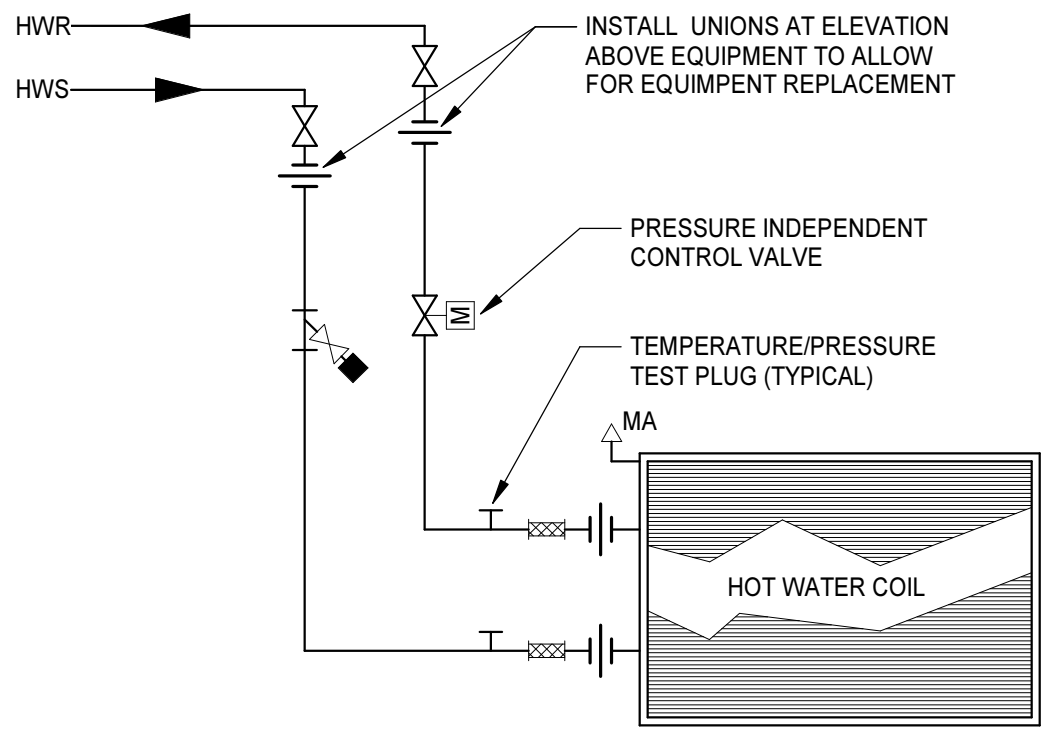
HIGH EFFICIENCY ENERGY RECOVERY PIPING DIAGRAM
NO SCALE



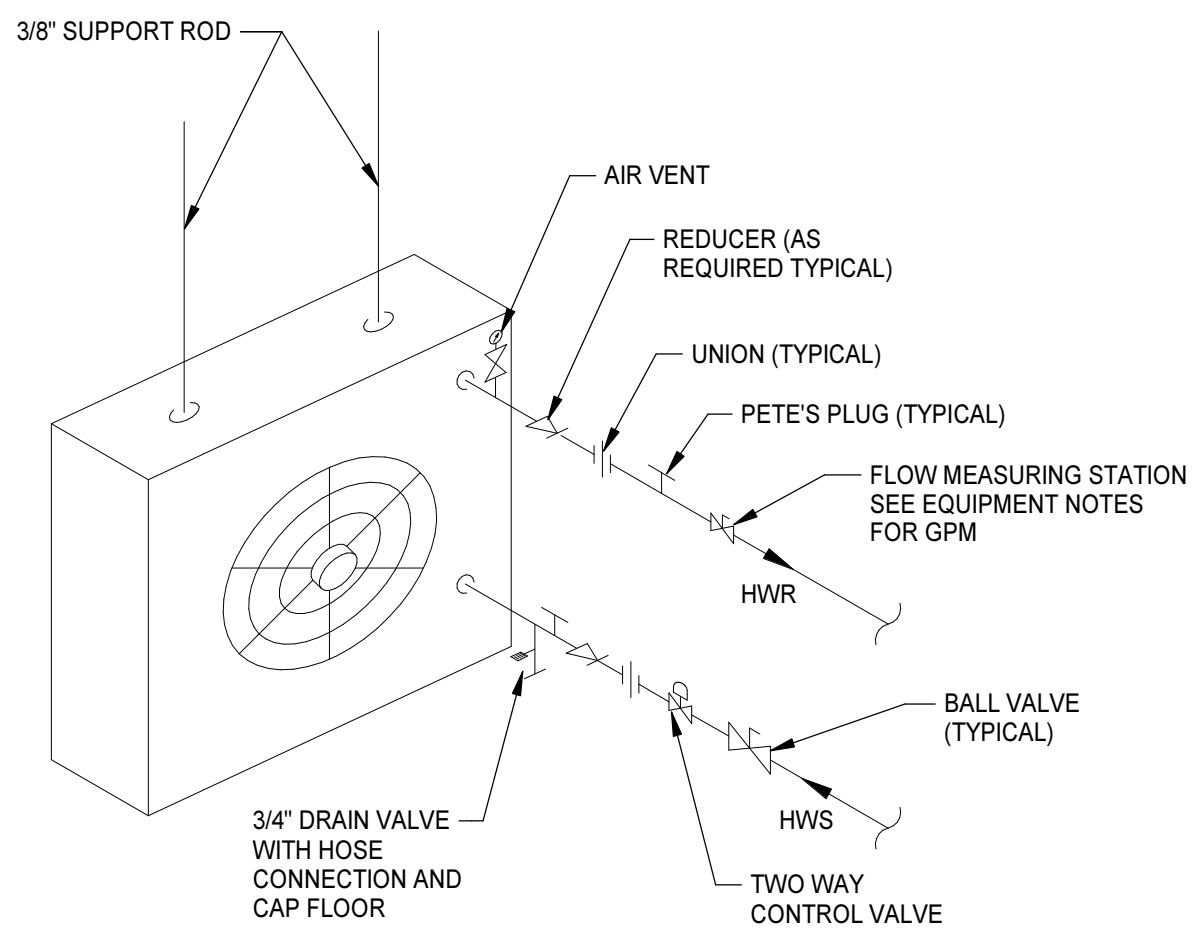
HOT WATER COIL PIPING DIAGRAM - AHU
NO SCALE



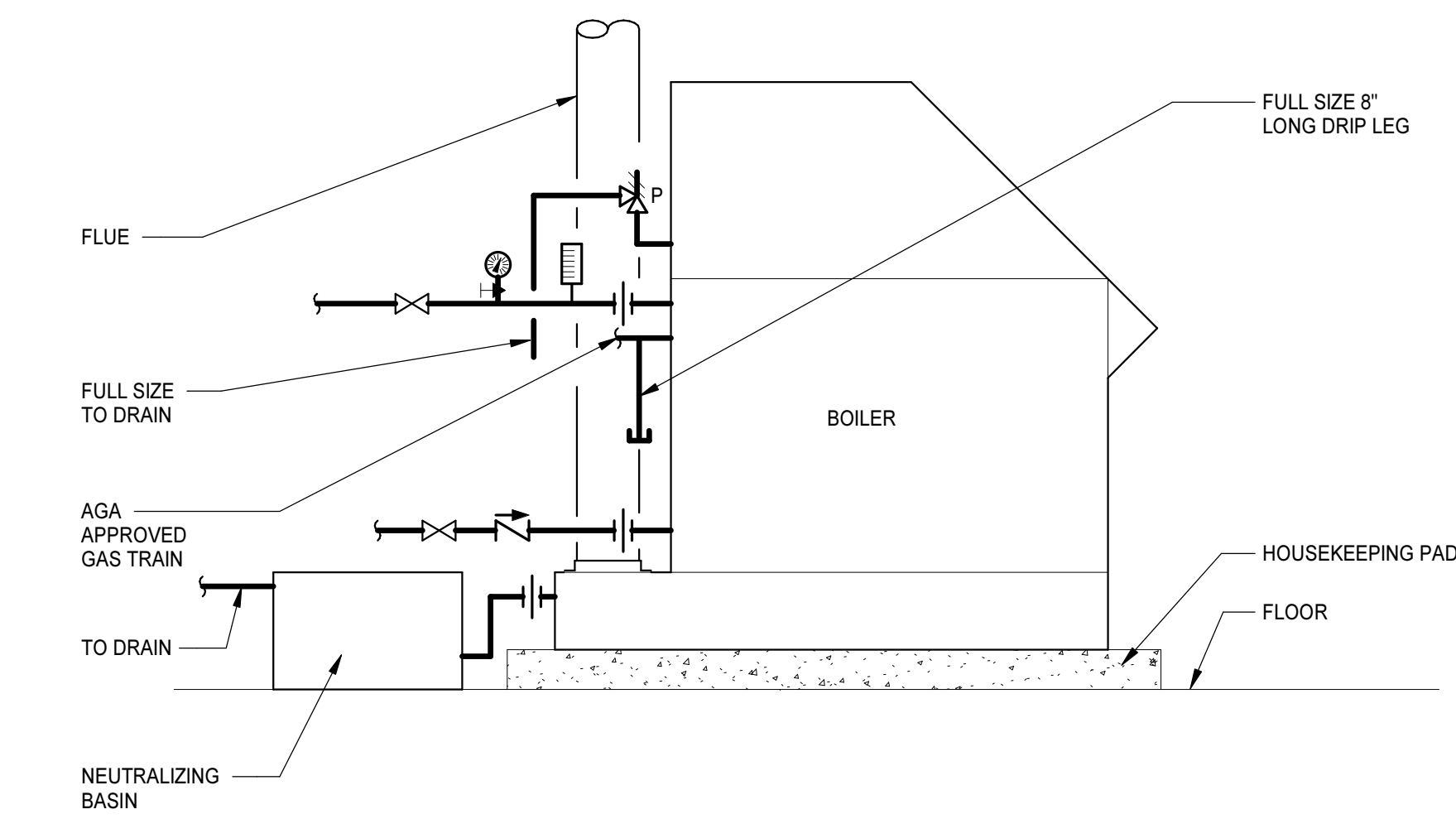
ENERGY RECOVERY COIL PIPING DIAGRAM
NO SCALE



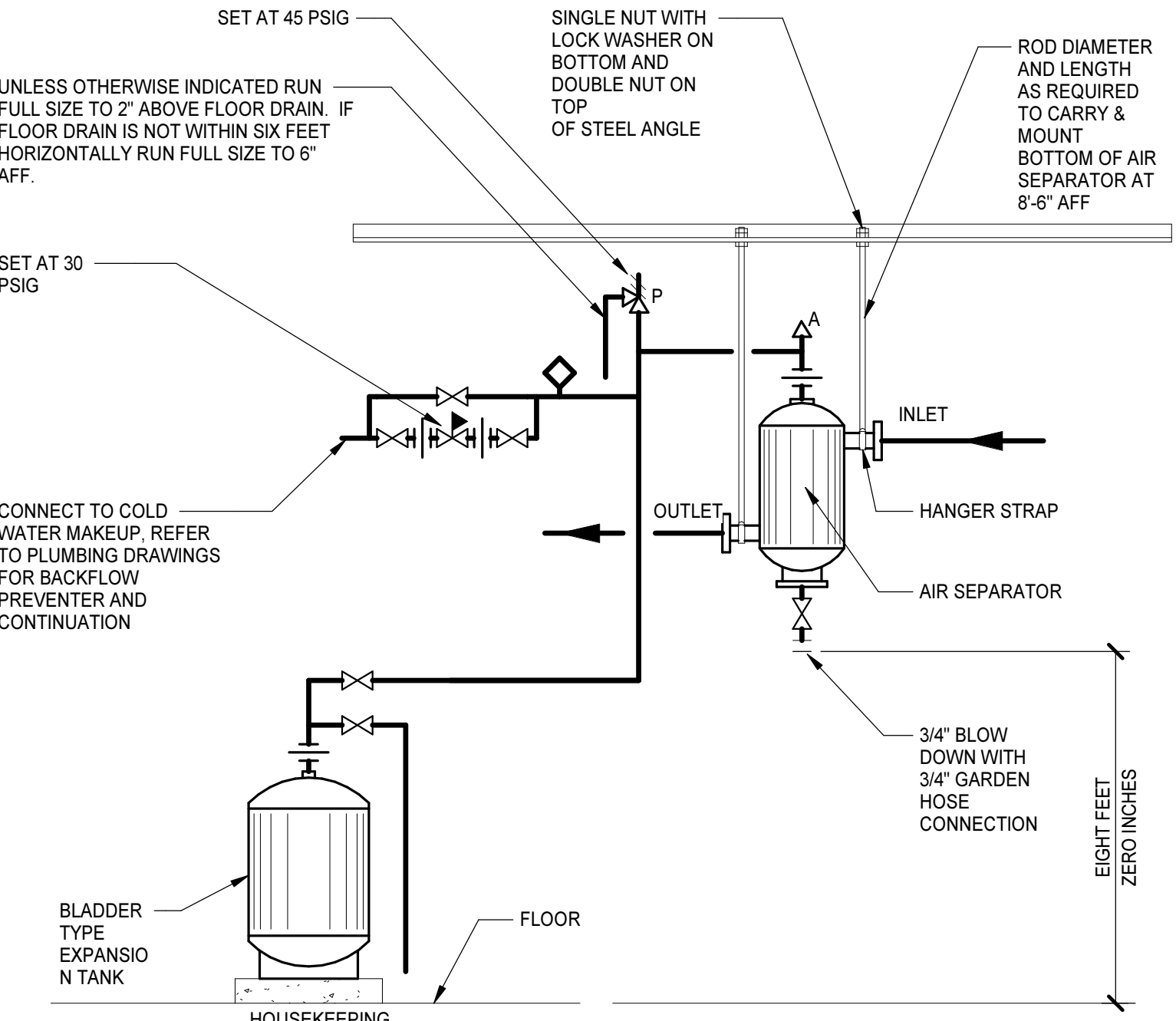
HOT WATER TERMINAL UNIT PIPING DIAGRAM
NO SCALE



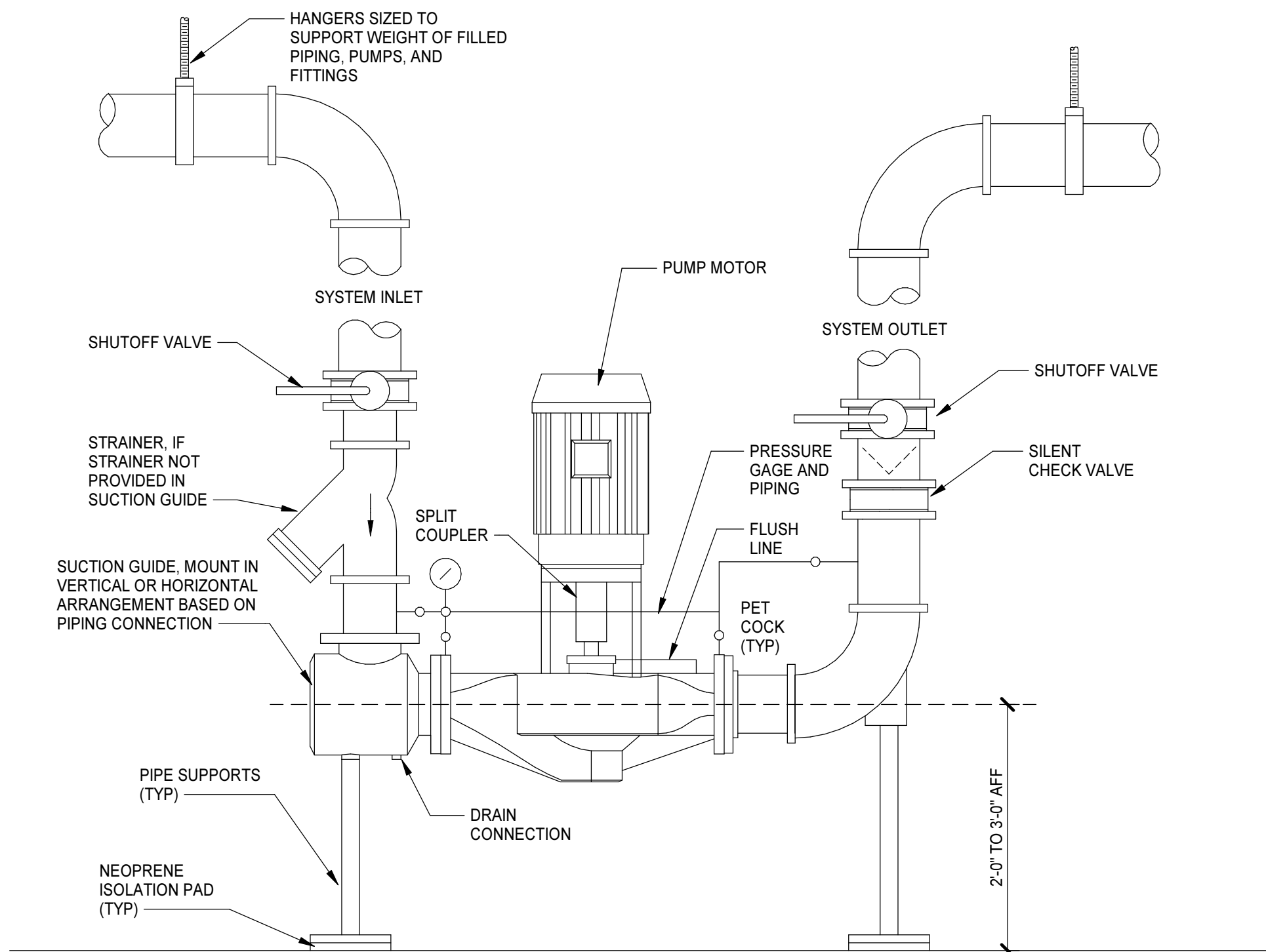
HORIZONTAL UNIT HEATER PIPING DIAGRAM
NO SCALE



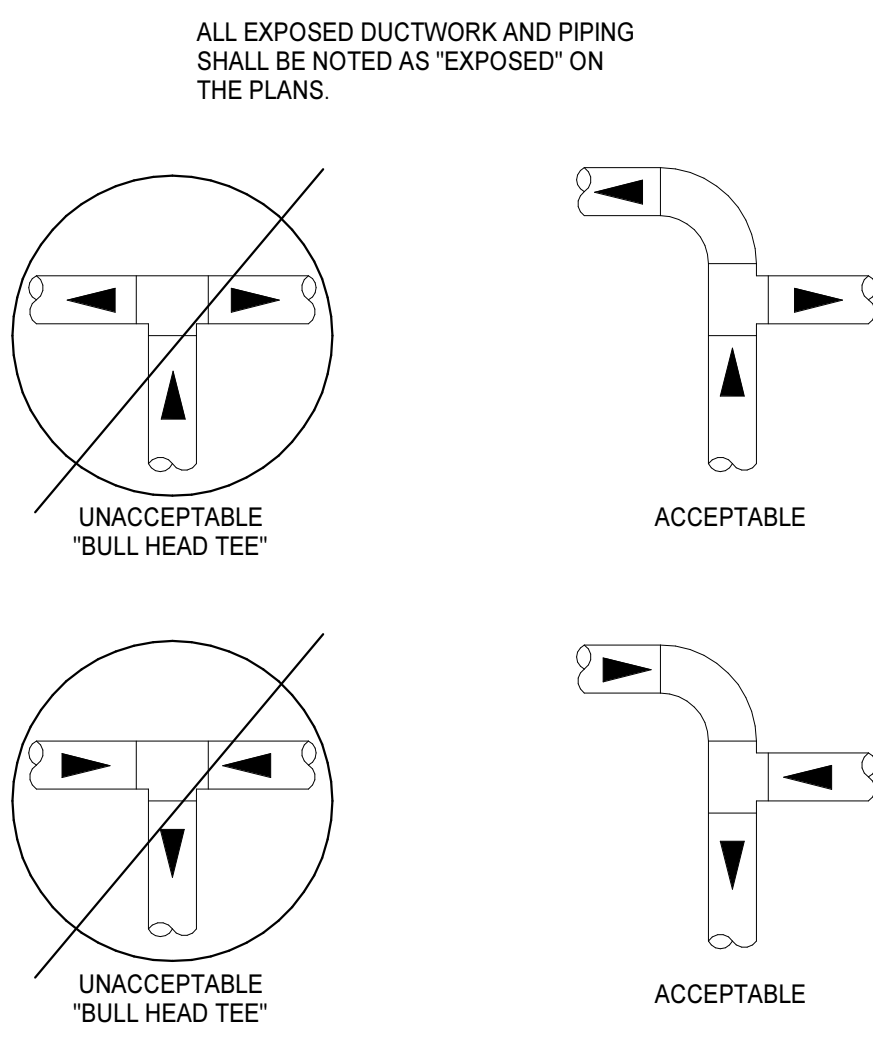
BOILER PIPING DIAGRAM
NO SCALE



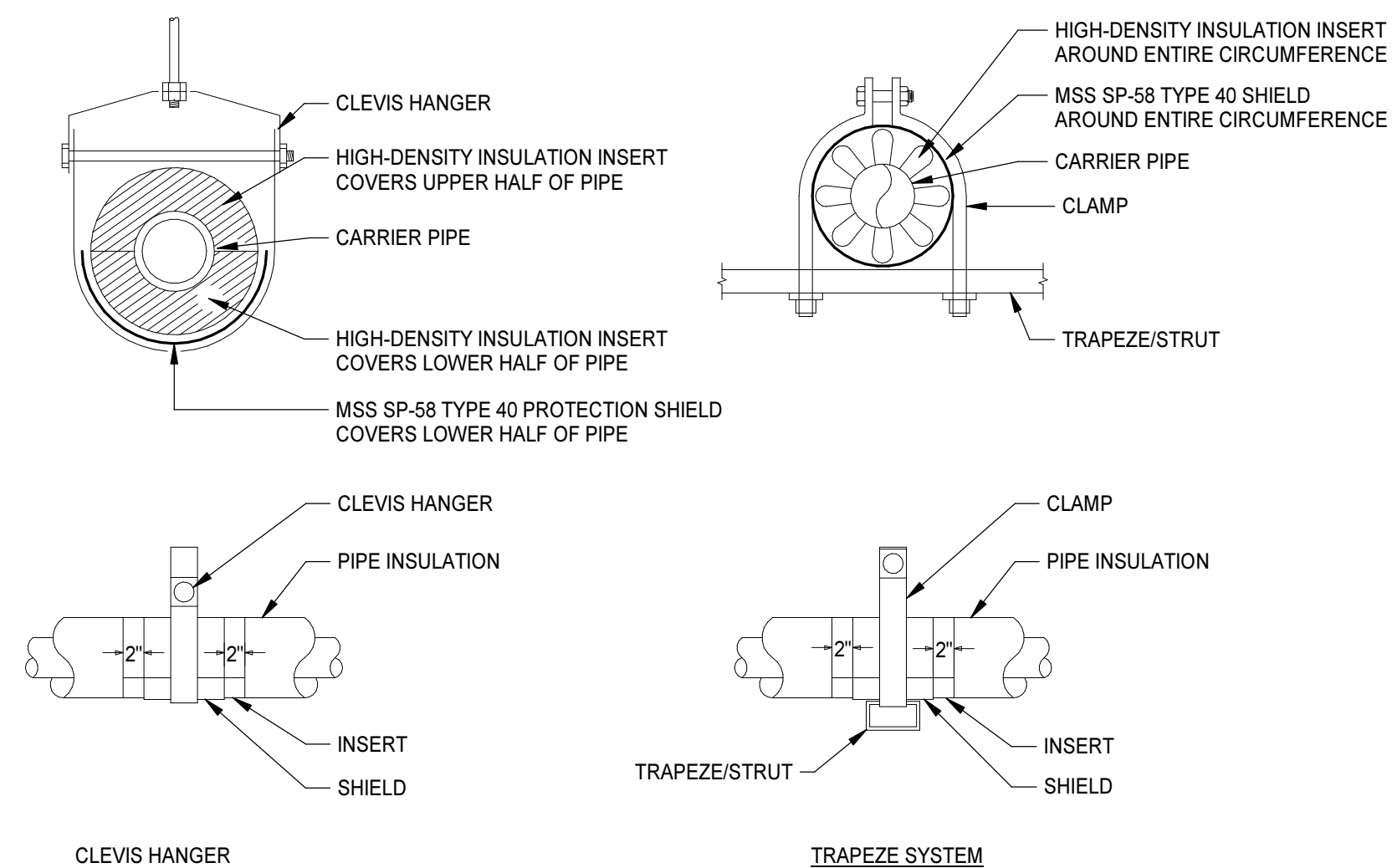
AIR SEPARATOR AND EXPANSION/COMPRESSION TANK DETAIL
NO SCALE



VERTICAL INLINE PUMP DETAIL - VARIABLE FLOW - P-1, 2, 6, 7, 8, & 9
NO SCALE

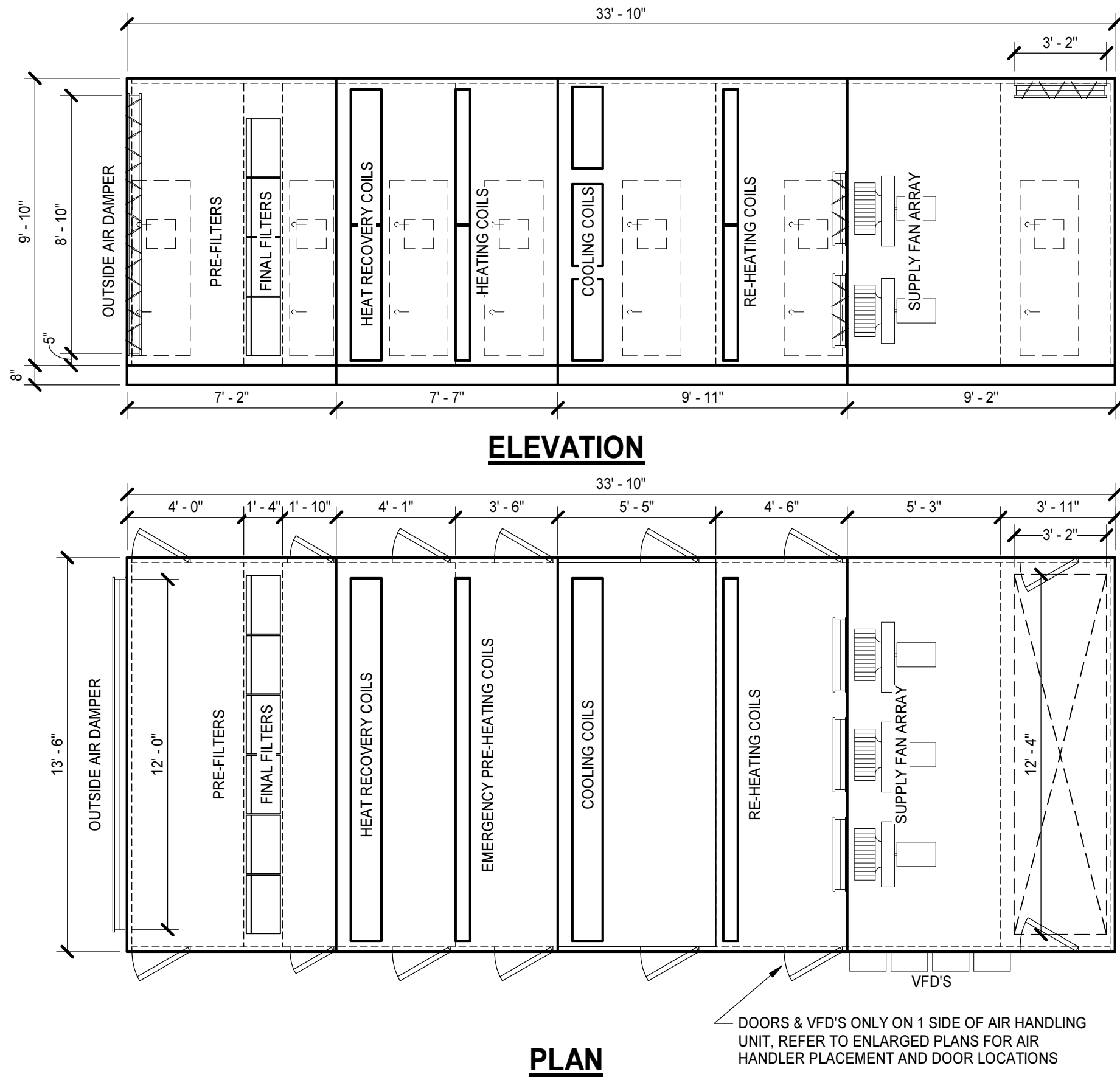


PIPE TEE CONFIGURATION DETAIL
NO SCALE

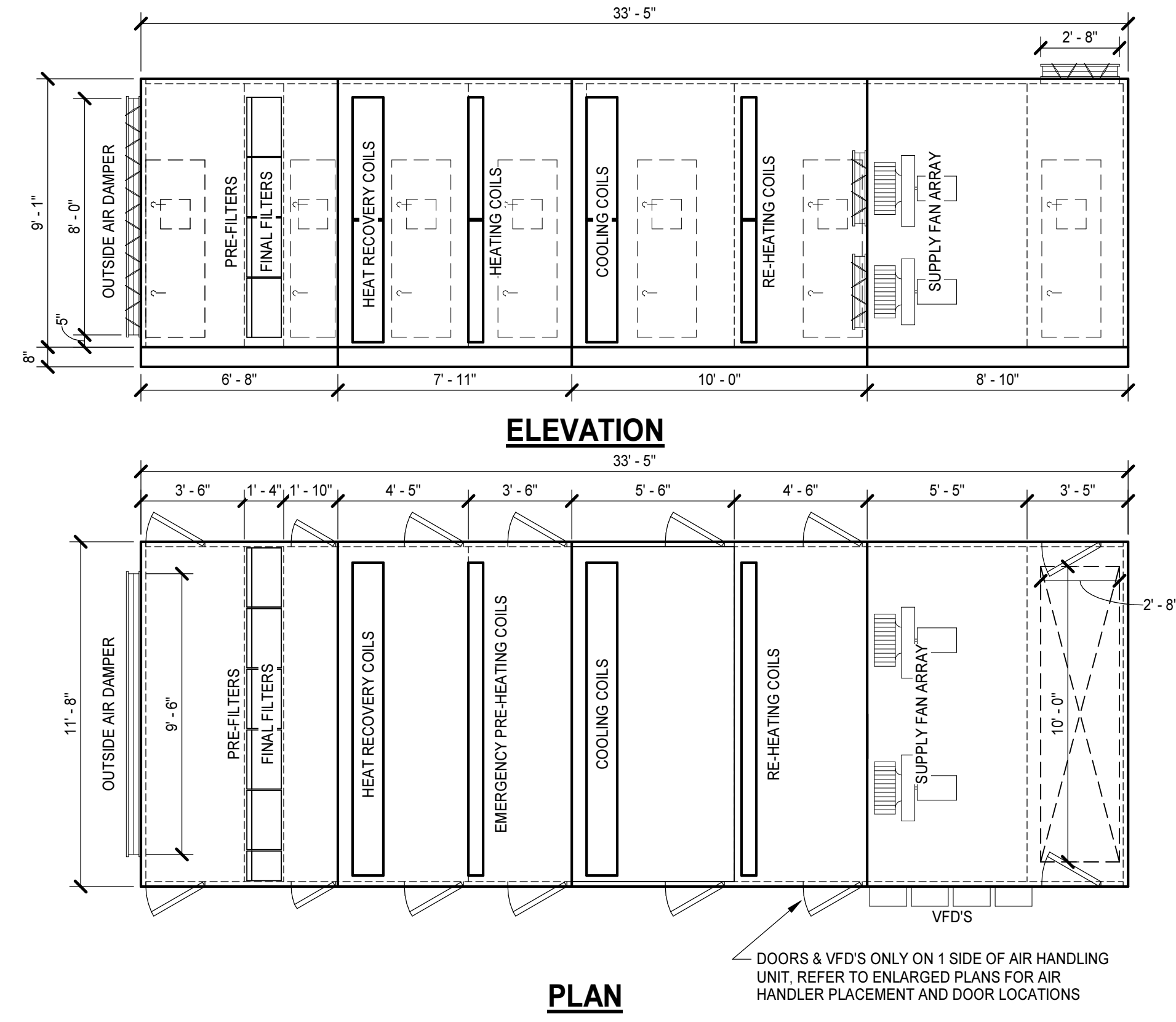


THERMAL HANGER SHIELD INSERT DETAIL
NO SCALE

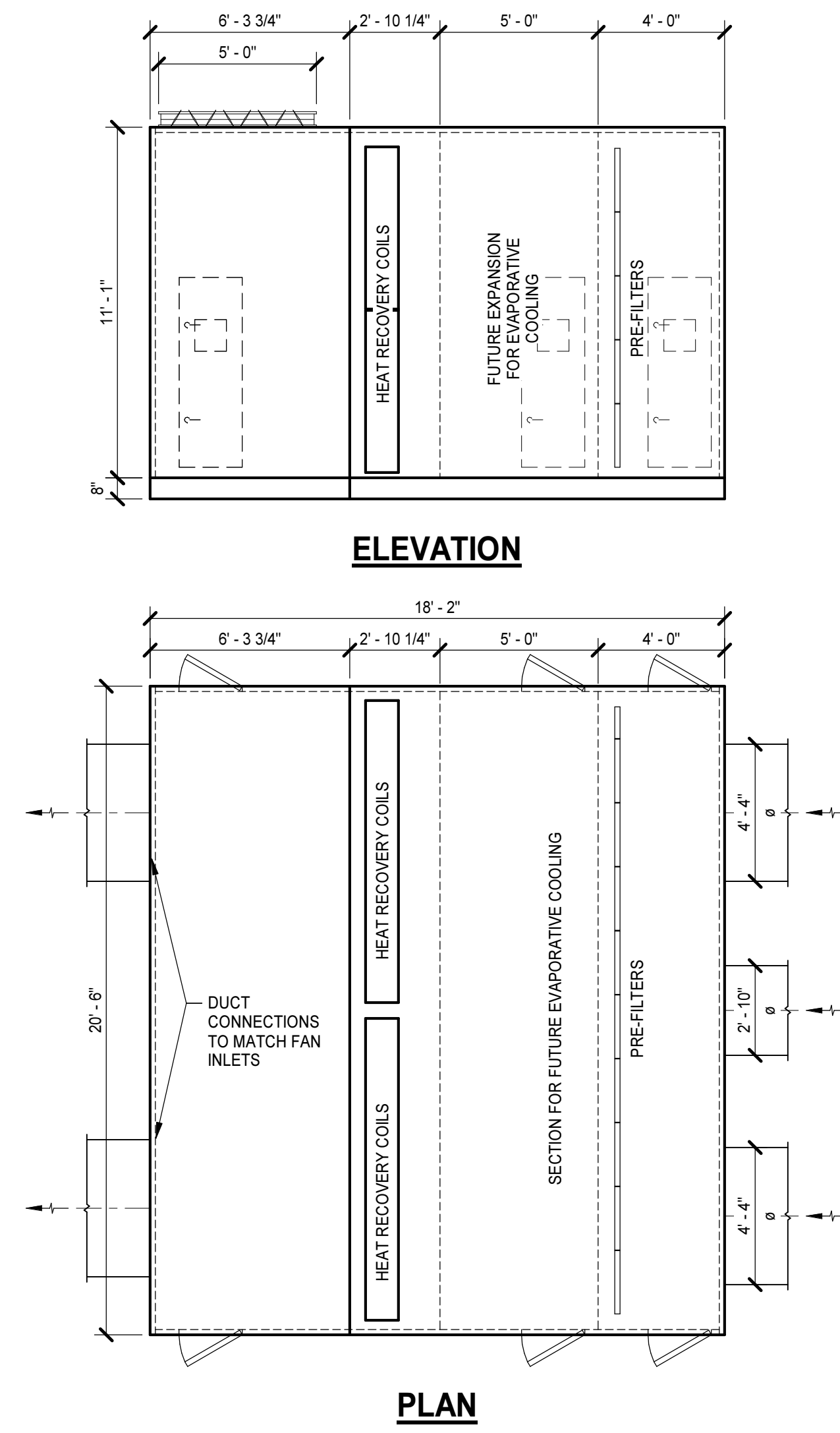
PROJECT NO.	DATE
580999	MARCH 27, 2019
REVISIONS	
DATE	DESCRIPTION



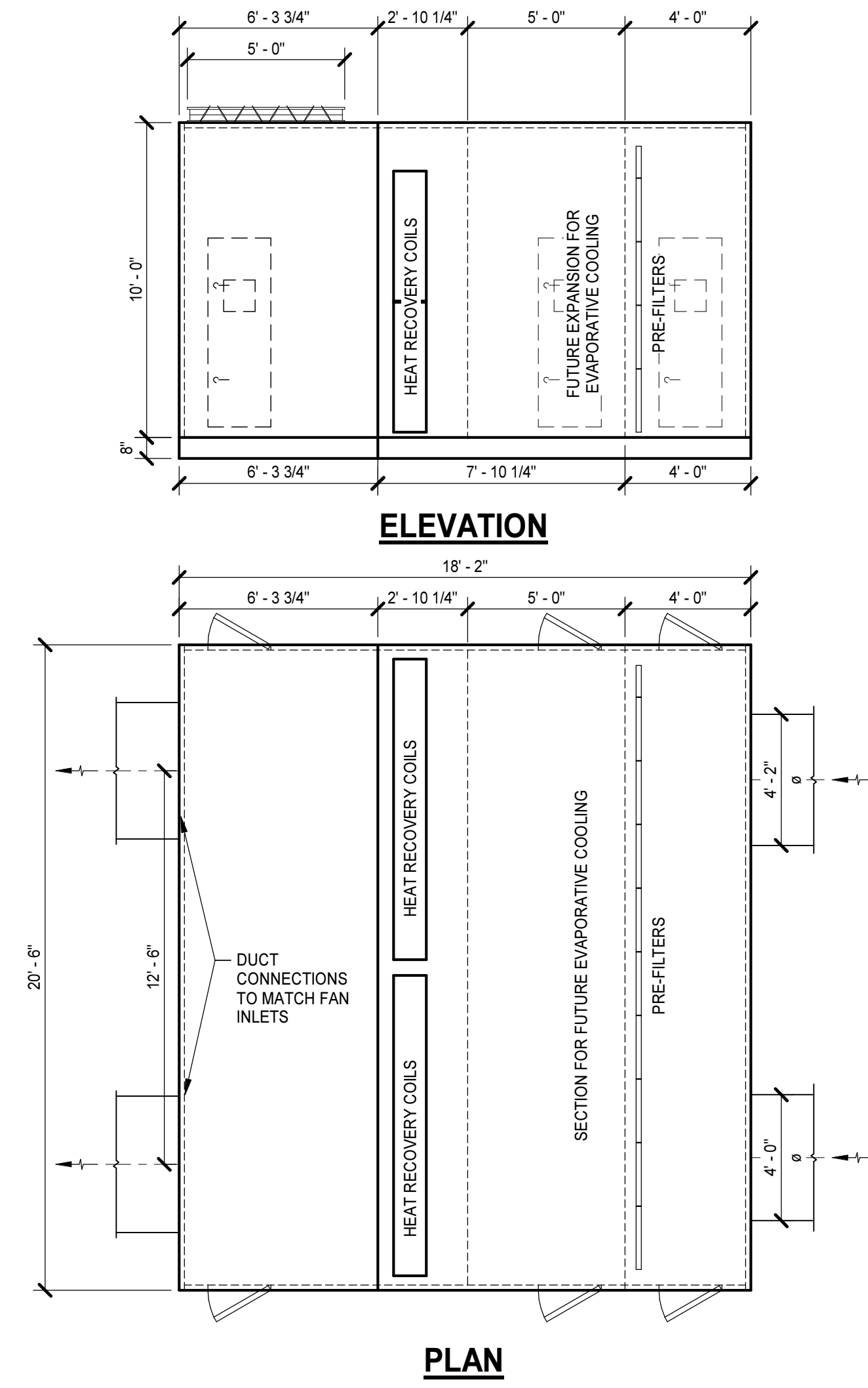
AHU-3 & 4 DETAIL
NO SCALE



AHU-1 & 2 DETAIL
NO SCALE



ERU-2 DETAIL
NO SCALE



ERU-1 DETAIL
NO SCALE

Dobo Hall Renovation - Package A

SCO PROJECT NO. 18-19798-01A
UNC Wilmington
4978 CAHILL DR, WILMINGTON, NC 28403

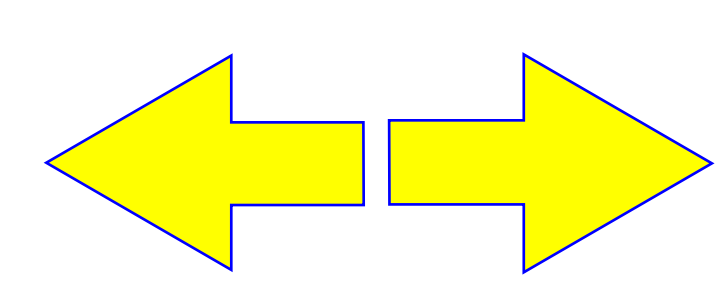
PROJECT NO.	DATE
580999	MARCH 27, 2019
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DATE	DESCRIPTION

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PHONE (919) 843-0091
MOSELEYARCHITECTS.COM



M5.3

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System No. C-AJ-1473

XHEZ.C-AJ-1473

Through-penetration Firestop Systems

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• Authorities Having Jurisdiction should be consulted before construction.

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• Only products which bear UL's Mark are considered Certified.

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ONLINE CERTIFICATIONS DIRECTORY

XHEZ - Through-penetration Firestop Systems

See General Information for Through-penetration Firestop Systems

System No. C-AJ-1473

July 09, 2018

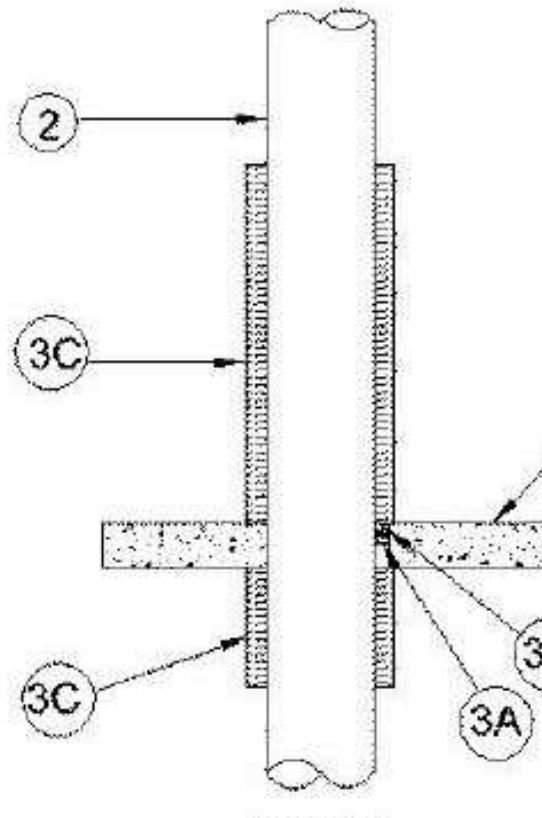
F Rating — 2 Hr

T Rating — 2 Hr

L Rating at Ambient — 2 CFM/sq ft

L Rating at 400°F — Less than 1 CFM/sq ft

W Rating — Class 1 (See Item 3B)



1. **Fire or Wall Assembly** — Min 4 1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks**®. Max diam of opening 12-3/4 in. (324 mm).

See **Concrete Blocks** (CATT) category in the Fire Resistance Directory for names of manufacturers.

1A. **Steel Sleeve** — (Optional, Not Shown) - Nom 12 in. (305 mm) diam (or smaller) sleeve fabricated from nom 0.019 in. (0.48 mm) thick galv steel cast or grouted into floor or wall assembly flush with floor or wall surfaces.

2. **Through-Penetrant** — Through-penetrant: One metallic pipe or tubing installed concentrically or eccentrically within opening. Annular space between penetrant and periphery of opening shall be min 0 in. (0 mm) (point contact) to max 2 in. (51 mm). Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of penetrants may be used:

A. **Steel Pipe** — Nom 10 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Iron Pipe** — Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe.

C. **Copper Tubing** — Nom 4 in. (102 mm) diam (or smaller) Type 1 (or heavier) copper tubing.

D. **Copper Pipe** — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

E. **Conduit** — Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.

3. **Firestop System** — The details of the firestop system shall be as follows:

A. **Packing Material** — Min 1 in. (25 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt installed on every pencil into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall to accommodate the required thickness of fill material. When optional steel sleeve is used, packing material to extend through floor or wall thickness except for recesses needed to accommodate fill material (Item 3B).

B. **Fill, Void or Cavity Materials**® — **Caulk, Sealant or Putty** — Min 1 in. (25 mm) thickness of caulk or putty applied within the annulus. Flush with top surface of floor or with both surfaces of wall.

3M COMPANY — CP 25WB® caulk, FB-3000 WT sealant or MP® putty

The W Rating applies only when FB-3000 WT sealant is used.

C. **Duct Wrap Material**® — Nom 2 in. (51 mm) thick duct wrap tightly wrapped around penetrant to extend 12 in. (305 mm) below floor and 36 in. (914 mm) above floor or 36 in. (914 mm) beyond both surfaces of wall. Longitudinal seams sealed with full tape.

3M COMPANY — FireBarrier Duct Wrap 20A, 3M FireBarrier Duct Wrap 615, 3M FireBarrier Duct Wrap 615®

* Indicates such products shall bear the UL or UL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Last Updated on 2018-07-09

Questions?

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XHEZ.W-L-5012

Through-penetration Firestop Systems

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ONLINE CERTIFICATIONS DIRECTORY

Through-penetration Firestop Systems

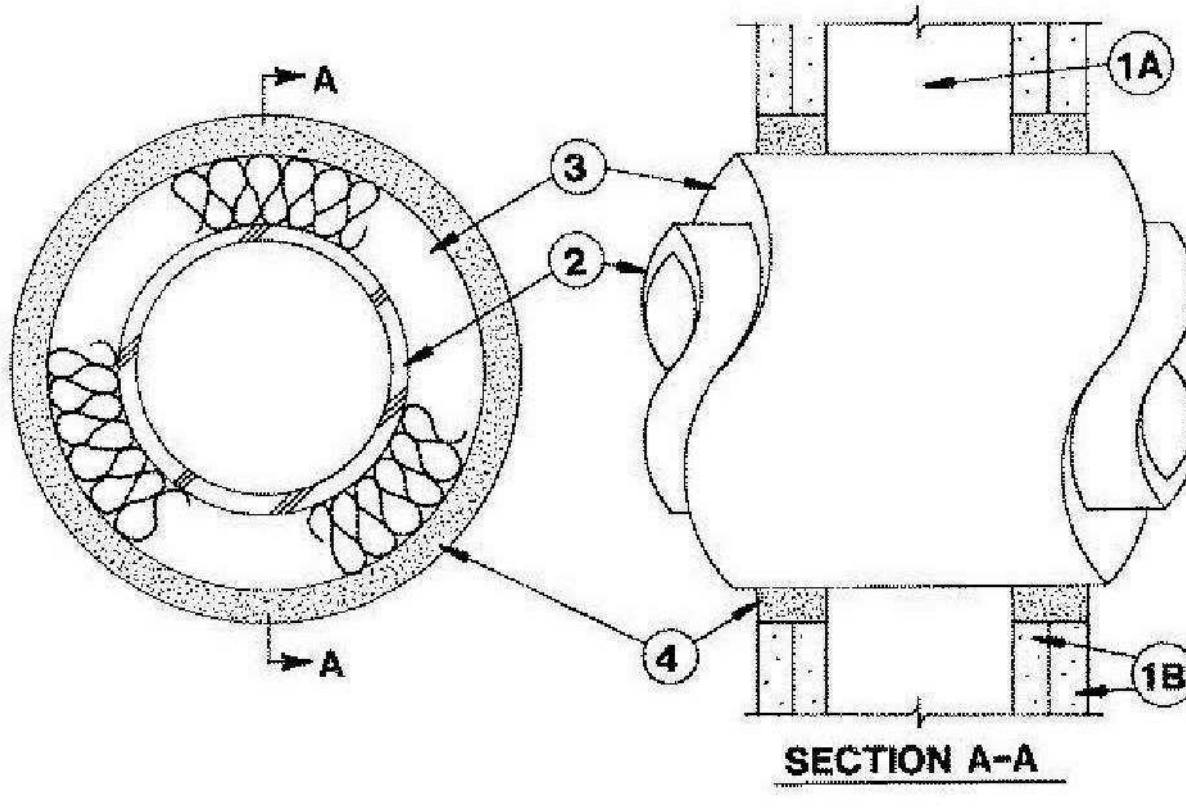
See General Information for Through-penetration Firestop Systems

System No. W-L-5012

January 08, 2010

F Ratings — 1 and 2 Hr (See Item 1)

T Ratings — 1 and 1-1/2 Hr (See Item 1)



1. **Wall Assembly** — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. OC. Steel studs to be min 2 1/2 in. wide and spaced max 24 in. OC.

B. **Gypsum Board**® — 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 7 1/2 in.

The hourly F and T Ratings of the firestop system are dependent on the hourly fire rating of the wall assembly in which it is installed as shown in the table below:

Rating of Wall Hr	F Rating Hr	T Rating Hr
2	2	1-1/2
1	1	1

2. **Through-Penetrants** — One metallic pipe or tube to be centered within the firestop system. Through-penetrant to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipe or tubing may be used:

A. **Copper Tubing** — Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.

B. **Copper Pipe** — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.

C. **Steel Pipe** — Nom 4 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.

2. **Pipe and Equipment Covering — Materials**® — Nom 1 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units (located on the outside with an in. service jacket. Longitudinal joints sealed with metal fasteners or with fast tape applied with the product. The annular space between the insulated through penetrant and periphery of opening shall be a nom 5/8 in.

See **Pipe and Equipment Covering — Materials** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

3A. **Pipe Covering Materials**® — (Not Shown) — As an alternate to Item 3, Nom 1 in. thick unfaced mineral fiber pipe insulation sealed to the outside diam of pipe or tube. Pipe insulation secured with min 8 AWG steel wire spaced max 12 in. OC. The annular space between the insulated through penetrant and periphery opening shall be a nom 5/8 in.

1IG MINWOOL L L C — High Temperature Pipe Insulation 1200, High Temperature Pipe Insulation BWT or High Temperature Pipe Insulation Thermaic

3B. **Sheathing Material**® — (Not shown) — Used in conjunction with Item 3A. Full-scrim-lift or all service jacket material shall be wrapped around the outer circumference of the pipe insulation (Item 3A) with the kraft side exposed. Longitudinal joints and transverse joints sealed with metal fasteners or full tape.

See **Sheathing Materials** (BRVU) category in the Building Materials Directory for names of manufacturers. Any sheathing material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4. **Firestop System** — The firestop system shall consist of the following:

A. **Fill, Void or Cavity Material**® — **Putty** — In 2 hr fire-rated assemblies, min 1 1/4 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. In 1 hr fire-rated assemblies, min 5/8 in. thickness of fill material applied within the annulus on both surfaces of wall. Additional fill material to be installed such that a min 5/8 in. thick crown is formed around the penetrating item and lapsing a min 1/2 in. beyond the periphery of the opening.

RECTORSEAL — FSP 1100 Putty

*Bearing the UL Classification Mark

Last Updated on 2010-01-08

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XHEZ.W-L-1001

Through-penetration Firestop Systems

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Through-penetration Firestop Systems

See General Information for Through-penetration Firestop Systems

System No. W-L-1001

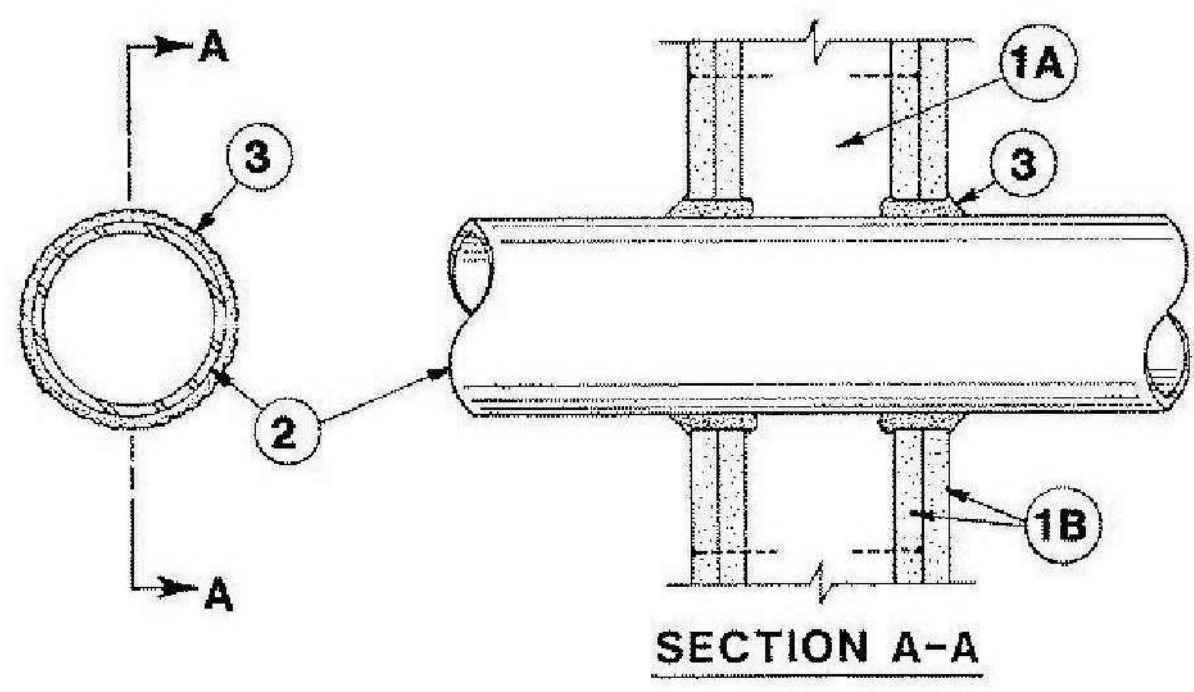
June 15, 2005

F Ratings — 1, 2, 3 and 4 Hr (See Items 2 and 3)

T Ratings — 0, 1, 2, 3, and 4 Hr (See Item 3)

L Rating At Ambient — less than 1 CFM/sq ft

L Rating At 400 F — less than 1 CFM/sq ft



1. **Wall Assembly** — The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** — Wall framing may consist of either wood studs (max 2 hr fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. OC with nom 2 by 4 in. (51 by 102 mm) lumber and plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.

B. **Gypsum Board**® — Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm).

2. **Through-Penetrant** — One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (0 mm) (point contact) to max 2 in. (51 mm) pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Steel Pipes** — Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipes.

B. **Iron Pipe** — Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipes.

C. **Conduit** — Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.

D. **Copper Tubing** — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.

E. **Copper Pipe** — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

F. **Through Penetrating Product**® — Flexible Metal Filing The following types of steel flexible metal gas piping may be used:

1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC

2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

GASTITE, DIV OF TITFLEX

3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

WARD MFG INC

3. **Fill, Void or Cavity Material**® — **Caulk or Sealant** — Min 5/8 in. 1-1/4 1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam In (mm)	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0 1, or 2
1 (25)	3 or 4	3 or 4
4 (102)	1 or 2	0
6 (152)	3 or 4	0
12 (305)	1 or 2	0

+When copper pipe is used, T Rating is 0 hr.

3M COMPANY — CP 25WB® or FB-3000 WT.

*Bearing the UL Classification Mark

Last Updated on 2005-06-15

Questions?

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Dobo Hall Renovation - Package A

SCO PROJECT NO. 18-19798-01A

UNC Wilmington

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10. Grease Duct & Ventilation Air Duct Installation Techniques cont.

3M™ Fire Barrier Duct Wrap 615+ Elbow and Banding Installations (Figure 15) Suggested Elbow Pattern Installation (A)

1. Perimeter
2. 3" (76.2mm) min. overlap
3. Hole cut (off-center)
Note: Place overlap on opposite side of horizontal pattern.

Suggested Banding Pattern Installation (B)

1. Grease or ventilation duct
2. 1 or 2 layers of 3M™ Fire Barrier Duct Wrap 615+ (application dependent)
3. Steel or stainless steel banding 1/2" (12.7mm) wide min. typical for permanent fastening with max. 10-1/2" (267mm) spacing
4. 3" (76.2mm) overlap (typical throughout application)
5. Min. 3" (76.2mm) perimeter overlap (not shown)
Note: 1-layer application depicted. When 2-layer application is required, replicate these steps with outer joints staggered a min. 3" (76.2mm) from inner joints. Banding is required on outermost layer only.

Note: System integrity is limited by quality of installation. Consult current independent testing laboratories (e.g. Intertek, UL) for Design or System Details.

3M™ Fire Barrier Duct Wrap 615+ Suggested Installation for 90° Turn (Figure 16) A-F (representative field-cut duct wrap sections)

1. Duct
2. 1 or 2 layers of 3M™ Fire Barrier Duct Wrap 615+ (application dependent)
3. Scotch® Filament Tape 898 (or equivalent)
4. Steel banding 1/2" (12.7mm) wide min. typical for permanent fastening
5. Min. 3" (76.2mm) overlap
6. Min. 3" (76.2mm) longitudinal overlap
Note: 2-layer application depicted. When 1-layer application is used, install banding (item 4) as a permanent hold.

Note: System integrity is limited by quality of installation. Consult current independent testing laboratories (e.g. Intertek, UL) for Design or System Details.

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10. Grease Duct & Ventilation Air Duct Installation Techniques cont.

3M™ Fire Duct Wrap 615+ Typical Through Penetration Firestop System (Figure 21) 1- or 2-Hour Through Penetration Systems 4-1/2" (114mm) Concrete Floor or Wall

1. Floor/ceiling or wall assembly
2. Duct
3. One or two layers 3M™ Fire Barrier Duct Wrap 615+ (application dependent)
4. Banding or pinning
5. 3M™ Fire Barrier Packing Material PM 4, 4 pcf mineral wool or scrap duct wrap (min. 33% compressed)
6. 3M™ Fire Barrier Water Tight Sealant 1000 NS, 3M™ Fire Barrier Water Tight Sealant 1003 SL, or 3M™ Fire Barrier Silicone Sealant 2000+
Note: Sealant to be applied at a minimum 5/8" (15.9mm) depth.
For wall assembly apply sealant to both sides of wall. (3M™ Fire Barrier Water Tight Sealant 1003 SL not suited for wall applications.)

Note: System integrity is limited by quality of installation. Consult current independent testing laboratories (e.g. Intertek, UL) for Design or System Details.

11. Maintenance

No maintenance is expected when installed in accordance with the applicable Intertek, UL or other third-party listed system and in accordance with 3M™ Fire Barrier Duct Wrap 615+ Installation Guidelines. Once installed, if any section of the 3M™ Fire Barrier Duct Wrap 615+ is damaged such that the blanket requires repair, the following procedure will apply:

- If the blanket has not been damaged but the foil has ripped, seal the rips with aluminum foil tape.
- If the blanket has been damaged:
 - The damaged section should be removed by cutting the steel banding or removing the clips holding it in place.
 - A new section of the same dimension should be cut from a roll of 3M™ Fire Barrier Duct Wrap 615+, either 24" (60.9cm) or 48" (121cm) wide.
 - The new section should be placed and fitted ensuring the same overlap that existed previously (i.e. the original installation method).
 - The steel banding should be placed around the material and tensioned so as to sufficiently hold the 3M™ Fire Barrier Duct Wrap 615+ in place.

12. Availability

3M™ Fire Barrier Duct Wrap 615+ is available from 3M Authorized Fire Protection Products Distributors and Dealers. 3M™ Fire Barrier Duct Wrap 615+ is available in 24" x 25 ft. Roll (1 case), 48" x 25 ft. Roll (1 case). 3M™ Fire Barrier Duct Wrap Collars 615+ are available in 1 1/2" x 6" x 25 ft. Rolls (4/case). For additional technical and purchasing information regarding this and other 3M™ Fire Protection Products, please call: 1-800-328-1687 or visit www.3M.com/firestop.

13. Safe Handling Information

Prior to handling or disposal of 3M™ Fire Protection Products, consult all relevant Material Safety Data Sheets (MSDS).

10. Grease Duct & Ventilation Air Duct Installation Techniques cont.

3M™ Fire Barrier Duct Wrap 615+ Suggested Branching Duct Details (Figure 17)

1. Duct
2. Full width pieces of 1 or 2 layers of 3M™ Fire Barrier Duct Wrap 615+ (application dependent)
3. Steel banding 1/2" (12.7mm) wide min. typical for permanent fastening
4. 3M™ Fire Barrier Duct Wrap 615+ (field cut)
Note: Install first piece onto the inside of the inner duct area and then install the adjacent pieces so they overlap at the edges a minimum of 3" (76.2mm). When an application requires a second layer of duct wrap, install the second piece over the first piece and overlap at the edges a minimum of 3" (76.2mm).

Note: System integrity is limited by quality of installation. Consult current independent testing laboratories (e.g. Intertek, UL) for Design or System Details.

3M™ Fire Barrier Duct Wrap 615+ Suggested Duct Wrap / Shaft Transition Installations (Figure 18)

1. Fire barrier gypsum shaft assembly
2. 5/8" (15.88mm) depth of 3M™ Fire Barrier Sealant 1000NS, 1003SL, or 2000+
3. 1 or 2 layers of 3M™ Fire Barrier Duct Wrap 615+ (application dependent)
4. 3M™ Fire Barrier Duct Wrap 615+ (use small scrap piece)
5. Fire barrier concrete floor assembly
6. Air gap as required by local mechanical code (grease duct)
7. Extend duct wrap into shaft a min. distance that meets local code requirements for clearance to combustibles

Note: System integrity is limited by quality of installation. Consult current independent testing laboratories (e.g. Intertek, UL) for Design or System Details.

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10. Grease Duct & Ventilation Air Duct Installation Techniques cont.

Penetrations

When the duct penetrates a fire rated wall, ceiling or floor, an approved firestop system must be employed. Figures 19-21 illustrate typical conditions. To firestop the wrapped duct, follow the installation parameters detailed in a compatible ASTM E 814 tested through-penetration firestop design. Note: Through-penetration designs in which the duct is bare where it passes through combustible or limited-combustible construction (e.g. gypsum walls or wood joist floor-ceiling assemblies) are appropriate for ventilation duct scenarios only. It is not appropriate for bare, uninsulated grease ducts to pass through combustible assemblies. Intertek 3M/UL design listings contain through penetration details. See system details of UL System HXLI V-27, Section 1.C. for applicable UL through penetration systems.

3M™ Fire Barrier Duct Wrap 615+ Typical Through Penetration Firestop System (Figure 19) 1-Hour Through Penetration Systems: Fire-Rated Wood/Gypsum Floor/Ceiling Assembly

1. Floor/ceiling assembly
2. Duct
3. One or two layers 3M™ Fire Barrier Duct Wrap 615+
4. Banding or pinning
5. 3M™ Fire Barrier Packing Material PM 4, 4 pcf mineral wool, or scrap duct wrap (min. 33% compressed)
6. 3M™ Fire Barrier Water Tight Sealant 1000 NS, 3M™ Fire Barrier Water Tight Sealant 1003 SL, or 3M™ Fire Barrier Silicone Sealant 2000+
Note: Sealant to be applied at a minimum 5/8" (15.9mm) depth.

Note: System integrity is limited by quality of installation. Consult current independent testing laboratories (e.g. Intertek, UL) for Design or System Details.

3M™ Fire Barrier Duct Wrap 615+ Typical Through Penetration Firestop System (Figure 20) 1- or 2-Hour Through Penetration Systems — Gypsum Wall or Gypsum Shaftwall

1a. Gypsum wall assembly
1b. Gypsum shaftwall assembly
2. Duct
3. One or two layers 3M™ Fire Barrier Duct Wrap 615+ (layering dependent on application)
4. Banding or pinning
5. 3M™ Fire Barrier Packing Material PM 4, 4 pcf mineral wool, or scrap duct wrap (min. 33% compressed)
6. 3M™ Fire Barrier Sealant 1000NS or 2000+ applied at a min. 5/8" (15.9mm) depth
Note: The assembly can be either a symmetrical gypsum wall or an asymmetrical gypsum shaftwall.

Note: System integrity is limited by quality of installation. Consult current independent testing laboratories (e.g. Intertek, UL) for Design or System Details.

For technical data and properties of 3M™ Fire Barrier Water Tight Sealant 1000 NS, 3M™ Fire Barrier Water Tight Sealant 1003 SL or 3M™ Fire Barrier Silicone Sealant 2000+, see separate product data sheets available from your 3M representative or go to www.3M.com/firestop.

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3M Center, Building 223-2N-21
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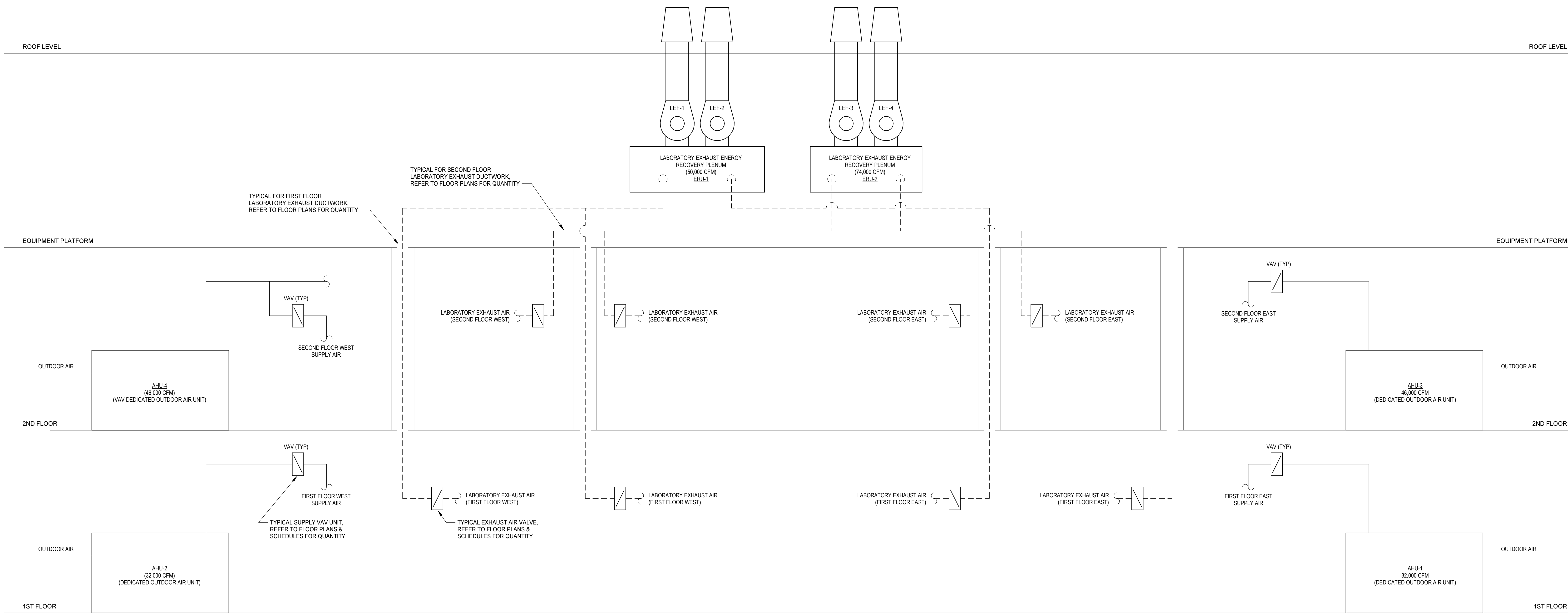
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DUCTWORK RISER DIAGRAM
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SCHEMATICS

M6.1

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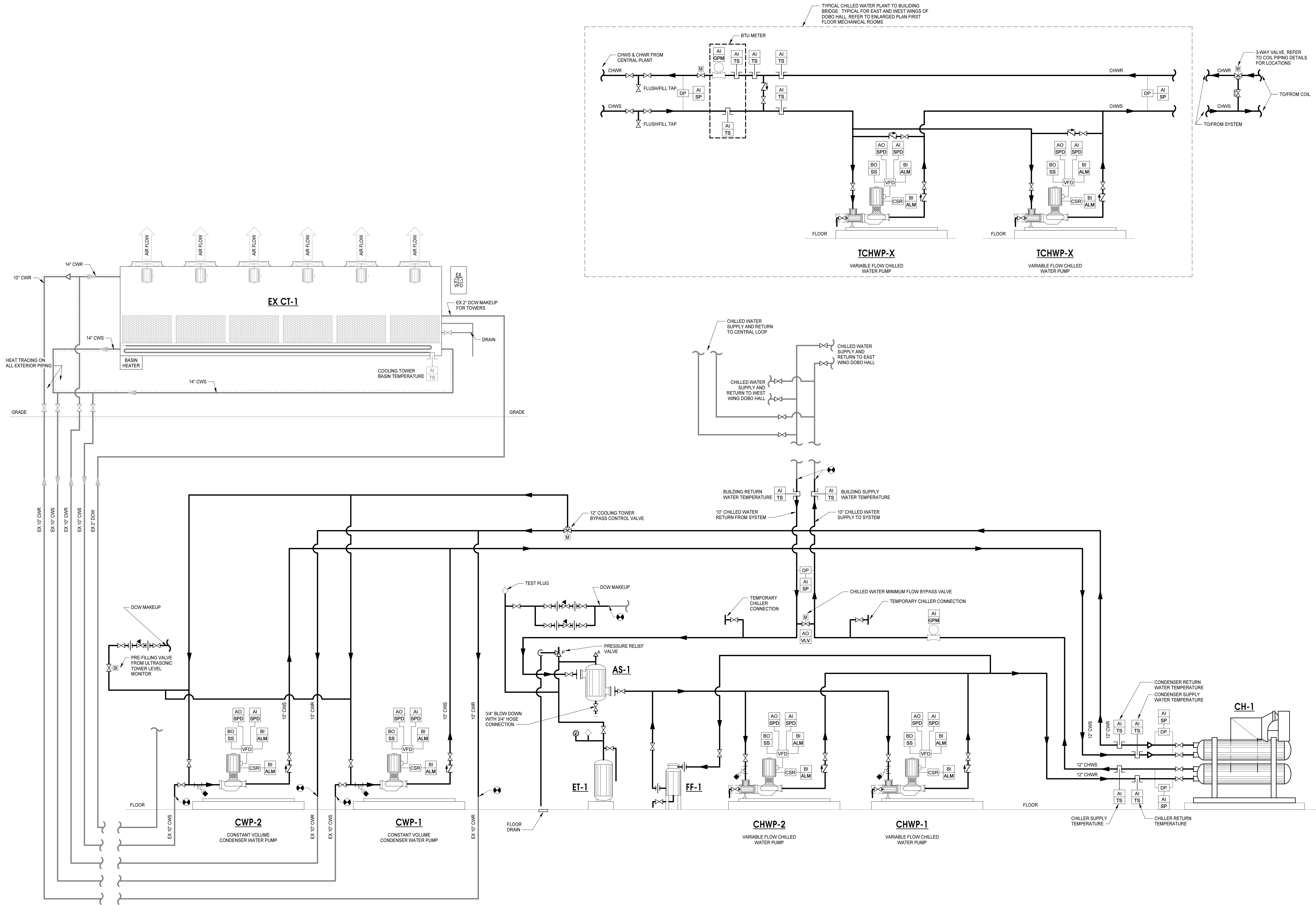
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CHILLED WATER SYSTEM SCHEMATIC

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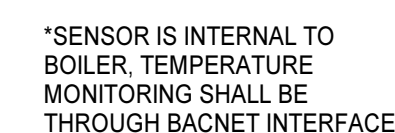
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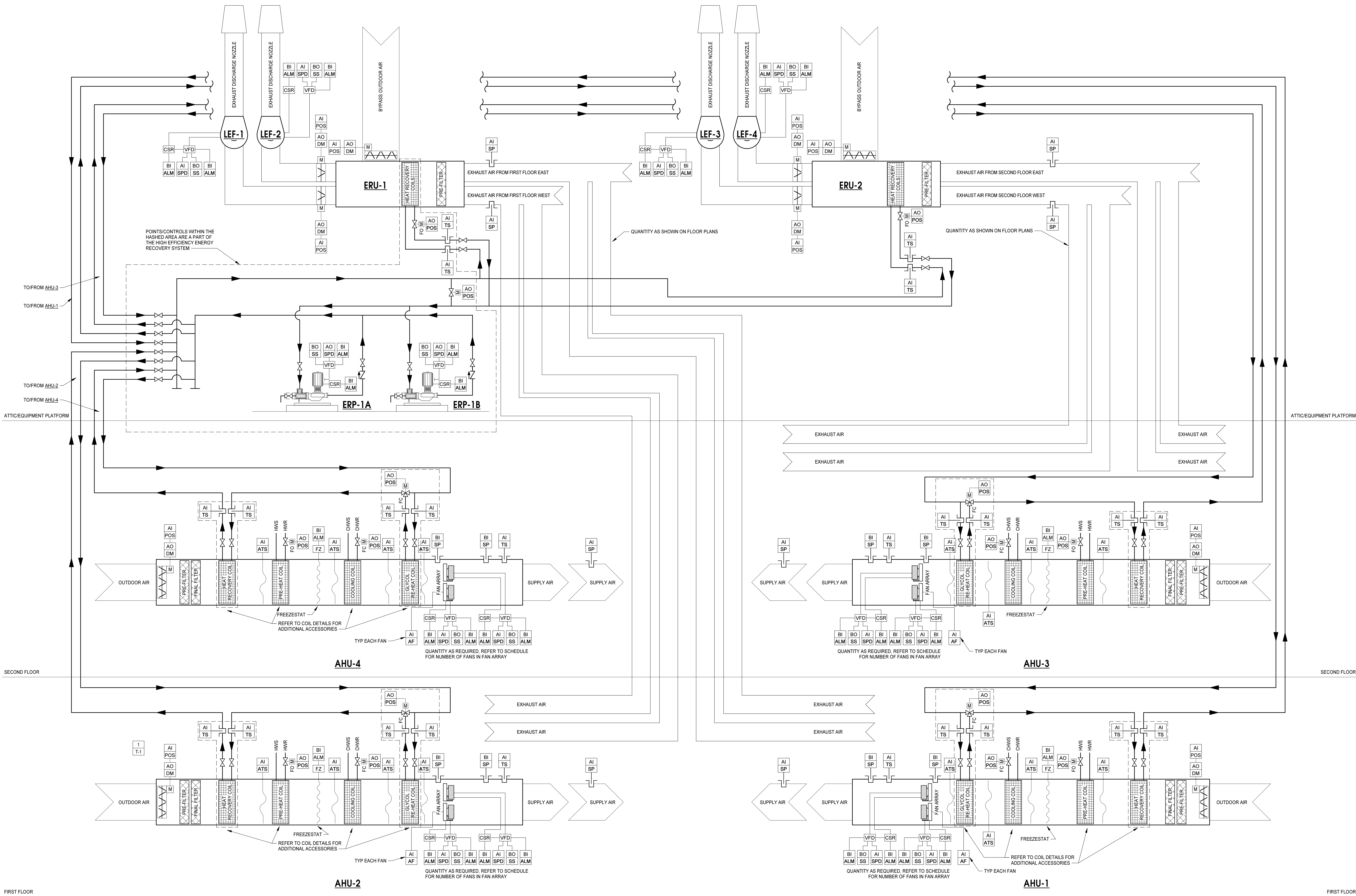
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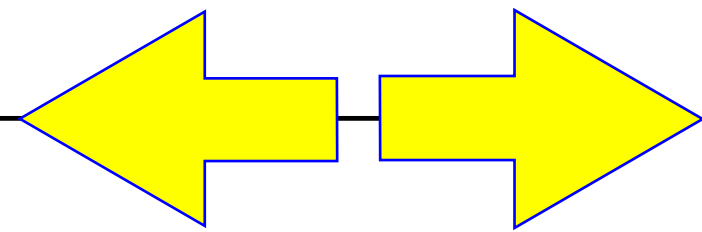
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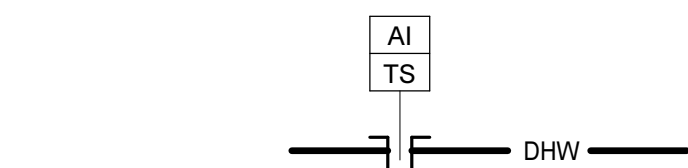
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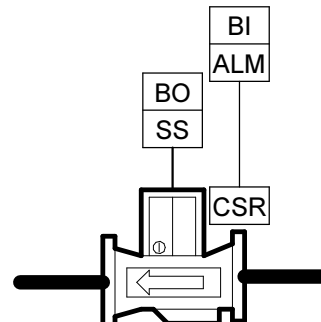
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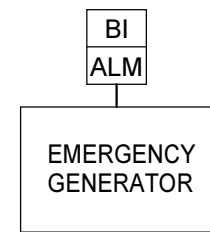
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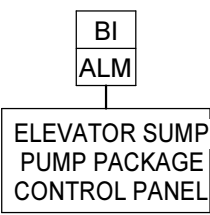
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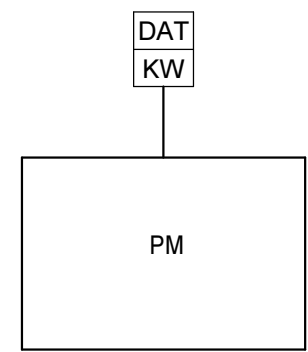
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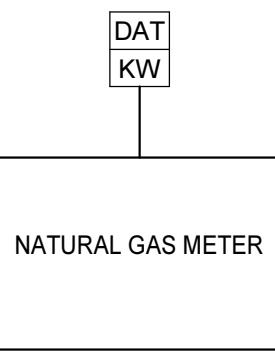
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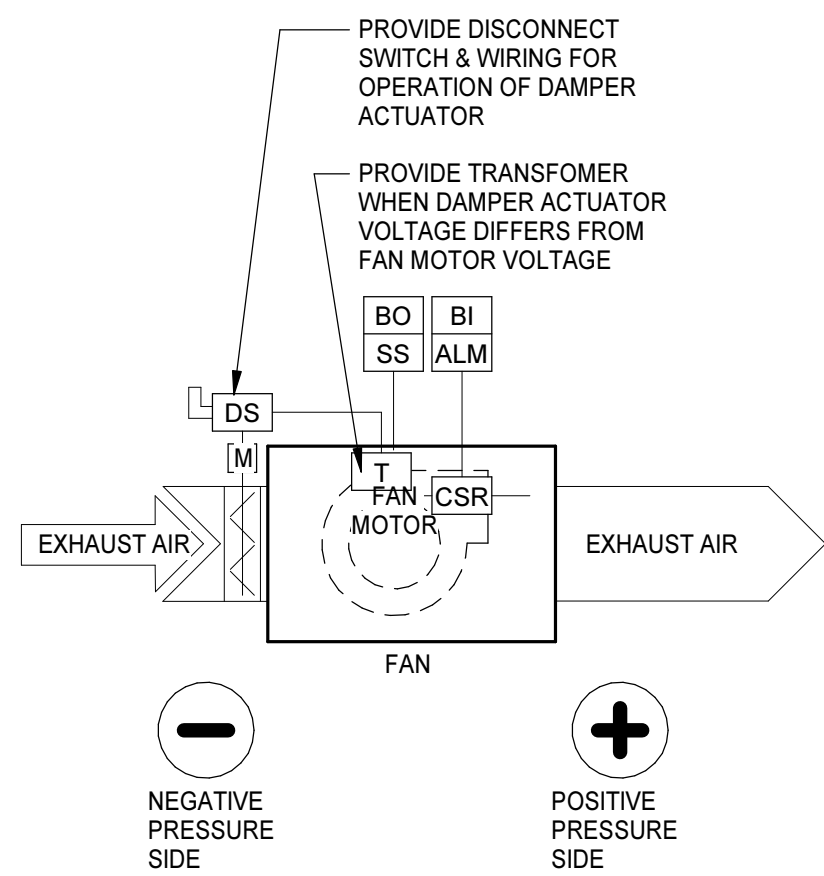
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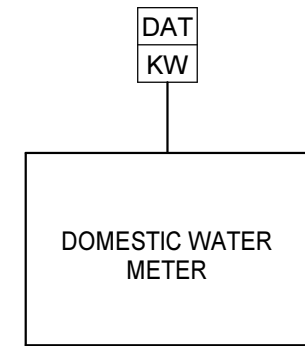
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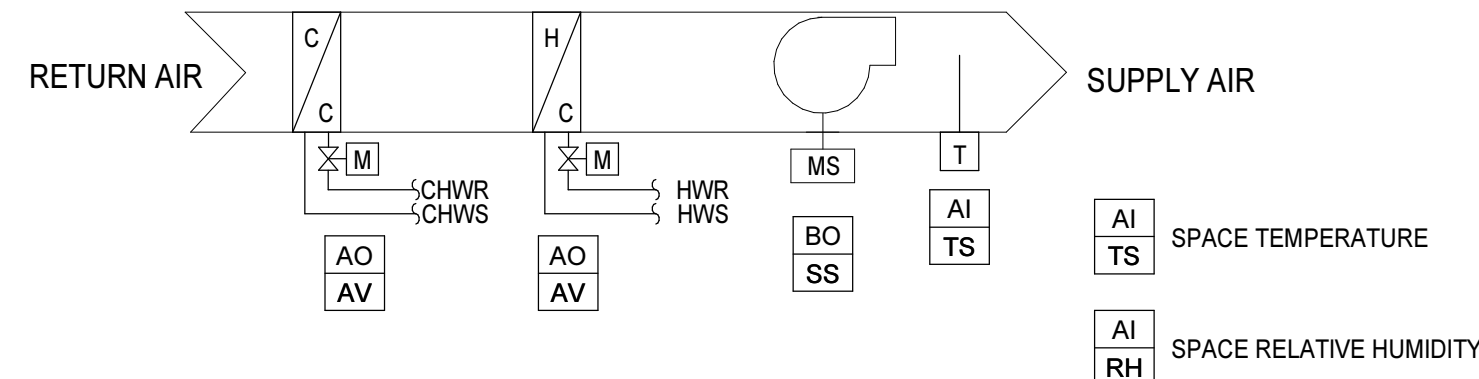
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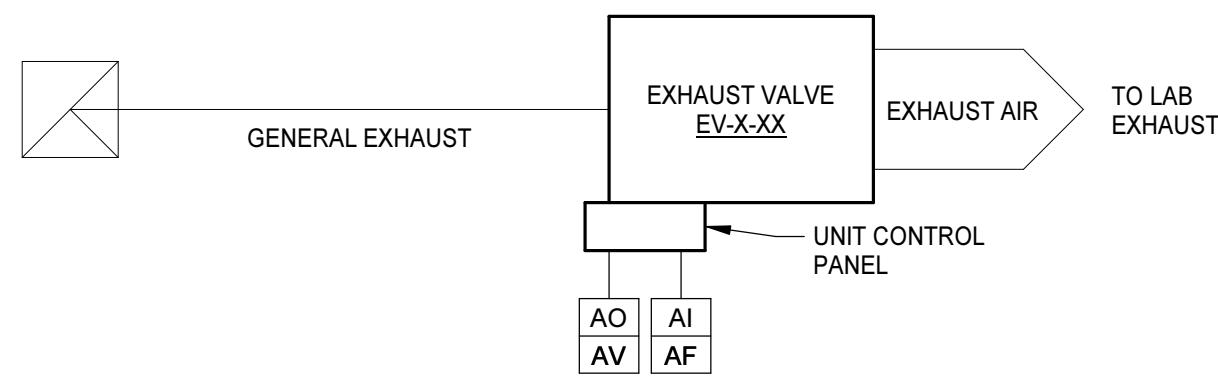
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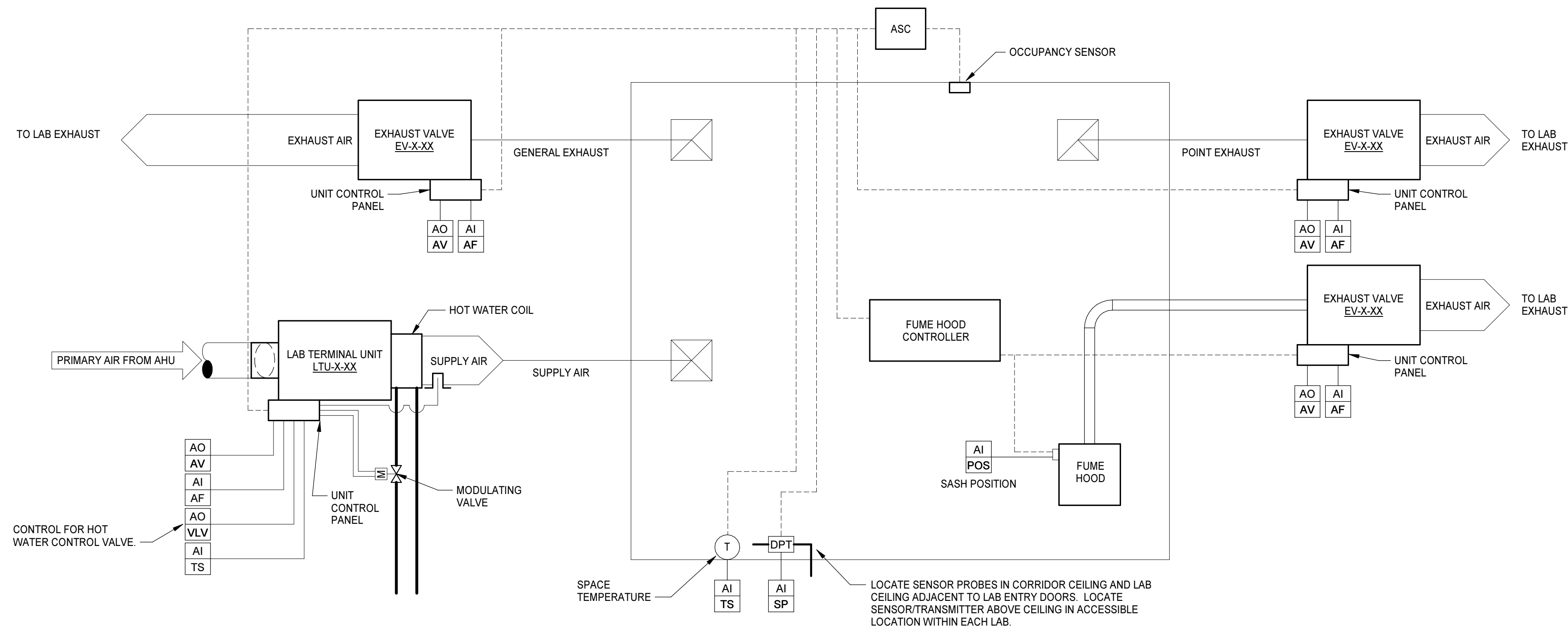
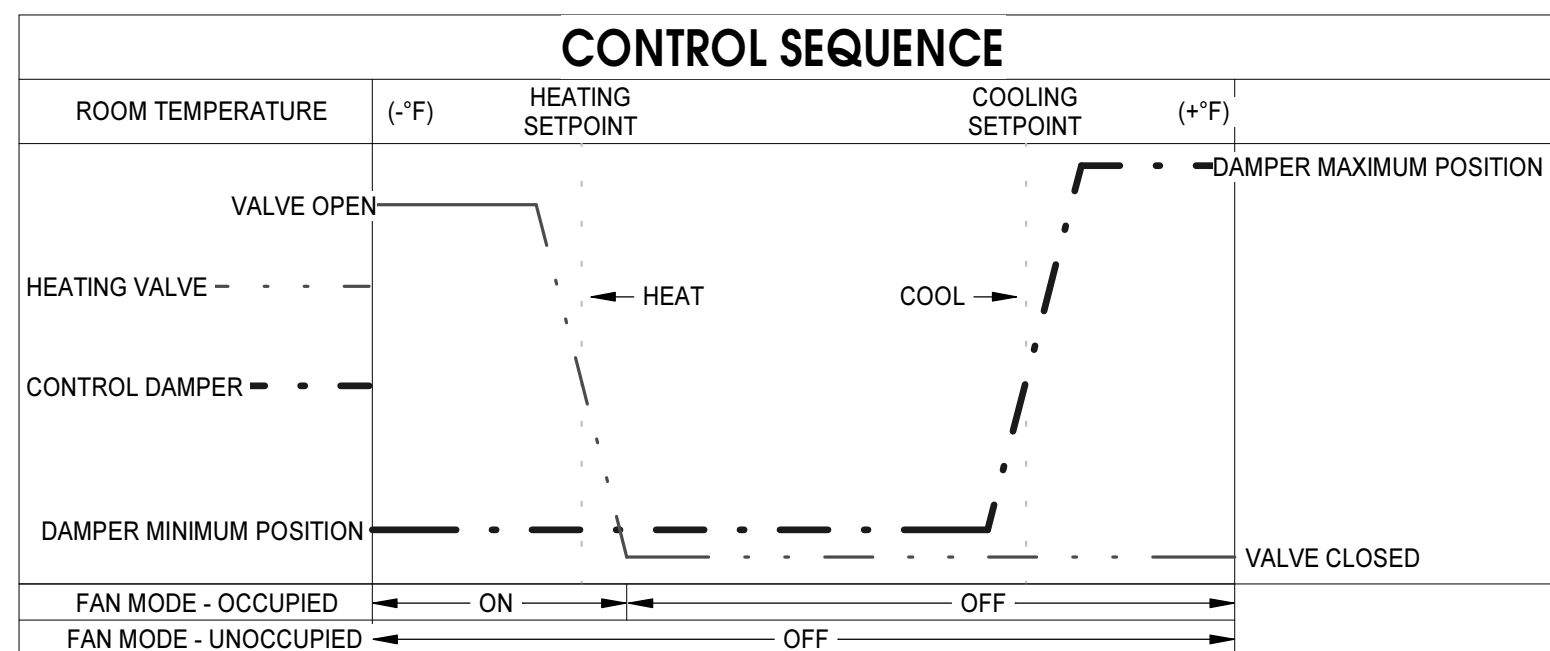
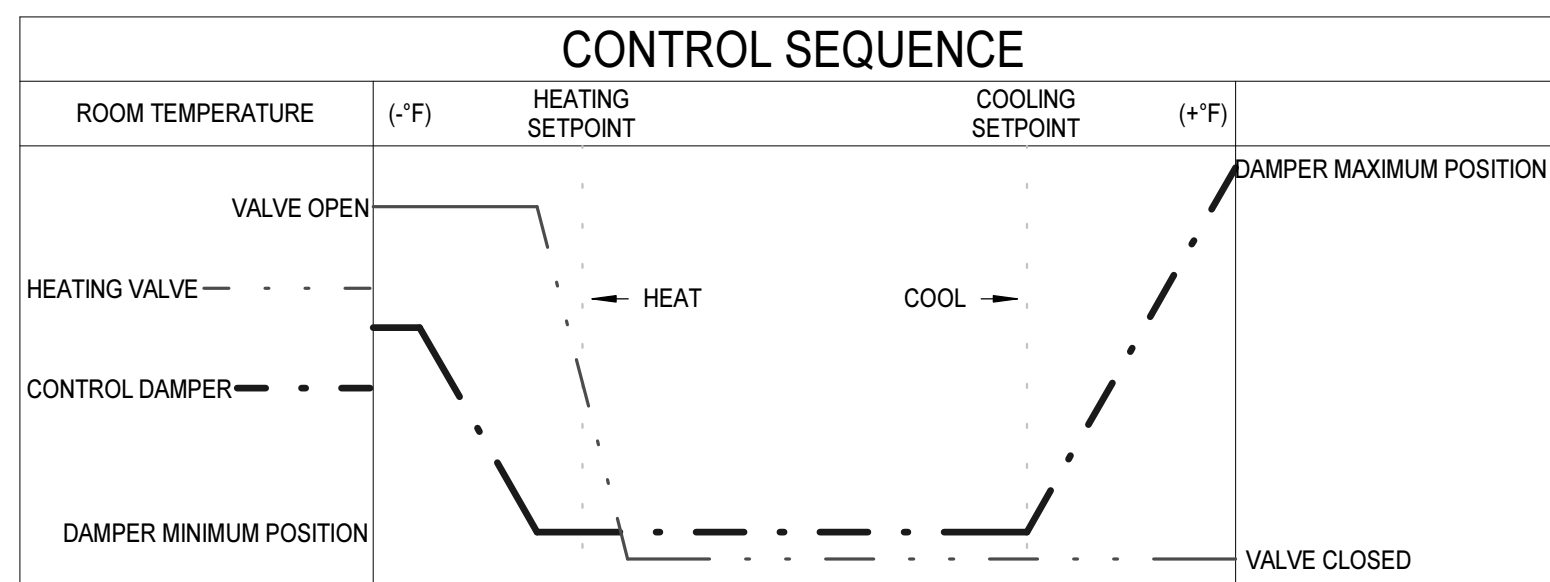
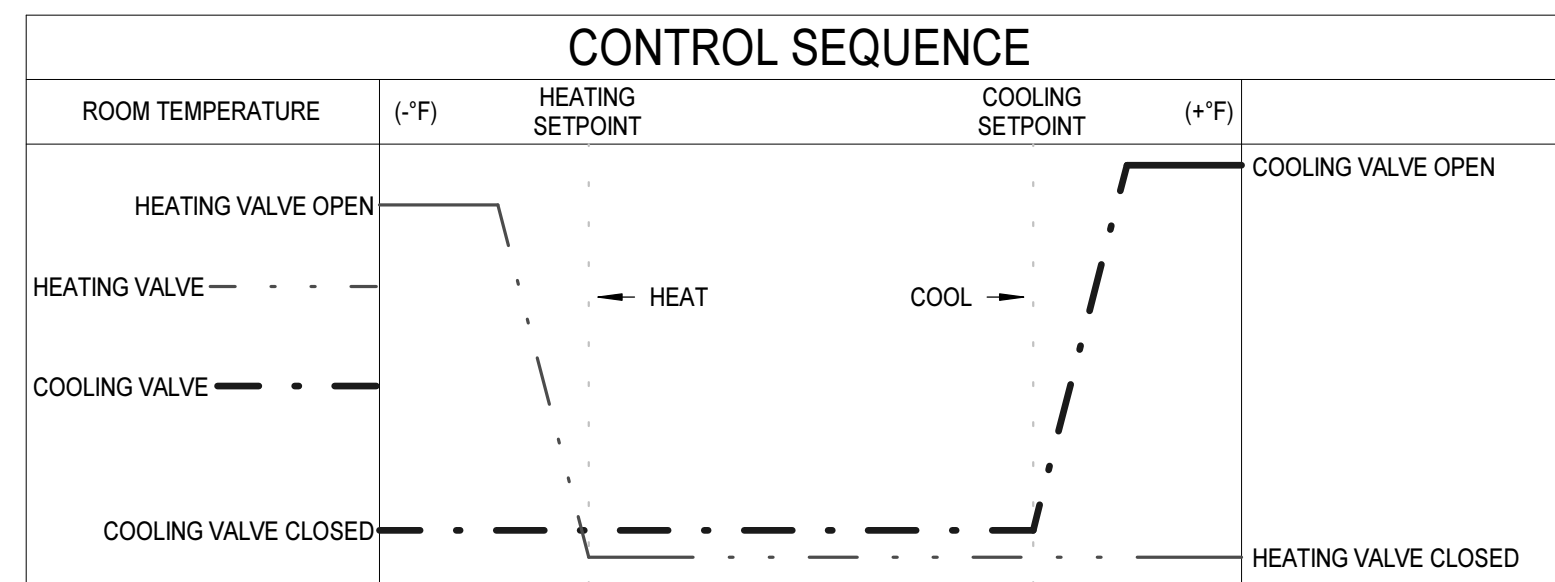
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BC-3	AHU-3	2044	MECHANICAL
BC-4	AHU-4	2107	MECHANICAL
BC-5	ERU-1, LEF-1 & 2	3001-1	Room-1
BC-6	ERU-2, LEF-3 & 4	3001-1	Room-1
BC-7	CHILLED WATER SYSTEM	0003	MECHANICAL ROOM
BC-8	HOT WATER SYSTEM	0002	BOILER ROOM

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