



Allen & Hoshall



Memphis/Shelby County Codes

2015 International Building Code w/ Amendments
2015 International Existing Building Code w/ Amendments
2015 International Mechanical Code w/ Amendments
2015 International Energy Conservation Code w/ Amendments
2015 International Plumbing Code w/ Amendments
2015 International Fuel Gas Code w/ Amendments
2015 International Fire Code w/ Amendments
2014 National Electric Code & 2018 Joint Electrical Code
2009 ICC A117.1 Accessibility and Useable Buildings and Facilities

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State of Tennessee Codes

2012 International Existing Building Code
2012 International Mechanical Code
2012 International Energy Conservation Code
2012 International Plumbing Code
2012 International Fuel Gas Code
2012 International Fire Code
2017 National Electric Code
2012 NFPA 101 Life Safety Code
2010 ADA Standards for Accessible Design

HVAC RENOVATIONS FOR GERMANTOWN HIGH SCHOOL

MEMPHIS, TENNESSEE

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M-E1.1 BLDG. M - AHU, BOILER & PUMP REPLACEMENTS - ELECTRICAL
MA-E1.1 BLDG. MA - 1ST FLOOR AHU & PUMPS, 2ND FLOOR AHU, AND ROOF CHILLER REPLACEMENTS - ELECTRICAL

NOVEMBER 2, 2020

**HVAC RENOVATIONS
 FOR GERMANTOWN
 HIGH SCHOOL**

7653 OLD POPLAR PIKE
 GERMANTOWN, TN 38138

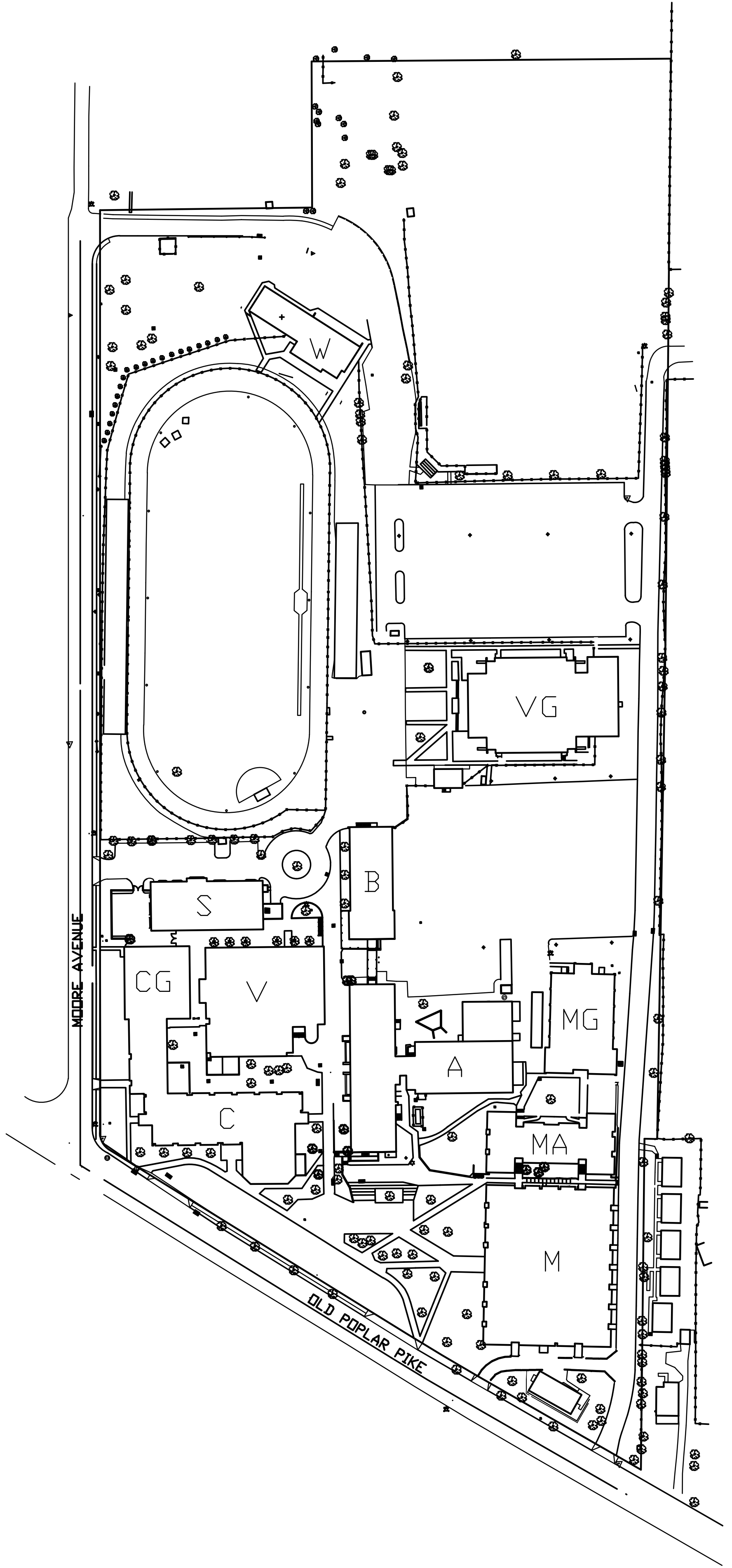
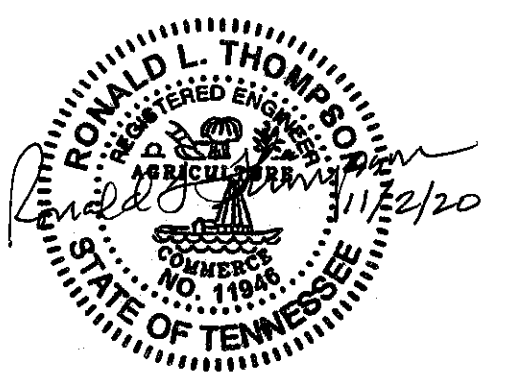


SHELBY COUNTY SCHOOLS

No.	Revision	Date

OVERALL CAMPUS SITE PLAN

JOB NO: 62992
 DATE: 11.02.2020
 DRAWN: MDC
 CHECKED: RLT
 CAD FILE: SP-1.1



1 OVERALL CAMPUS SITE PLAN
 SCALE: 1" = 100'

LEGEND

—CHWS—	CHILLED WATER SUPPLY		EXISTING TO BE REMOVED
—CHWR—	CHILLED WATER RETURN		NEW WORK
—HWS—	HEATING WATER SUPPLY		INDICATES DISCHARGE AIR
—HWR—	HEATING WATER RETURN		INDICATES SUCTION SIDE AIR
—G—	NATURAL GAS		MANUAL VOLUME DAMPER
—S-15—	15 PSIG STEAM		FIRE DAMPER (EXISTING)
	KEYNOTE		MOTORIZED DAMPER
	APPROX. POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK		DIRECTION OF FLOW
	THERMOSTAT		TOP CONNECTION
	REFRIGERANT SENSOR		BOTTOM CONNECTION
	DUCT SMOKE DETECTOR		SIDE CONNECTION
	DUCT SMOKE DETECTOR		CAPPED OUTLET
	BUTTERFLY VALVE		90° ELBOW
	BUTTERFLY VALVE		45° ELBOW
	SHUT-OFF VALVE		RISER OR DROP IN PIPE
	PLUG VALVE		UNION
	GATE VALVE		MOTOR-ACTUATED BUTTERFLY VALVES
	BALL VALVE		TWO-WAY MODULATING CONTROL VALVE
	BUTTERFLY VALVE IN RISER		THREE-WAY MODULATING CONTROL VALVE
	GATE VALVE IN RISER		WATER FLOW MEASURING DEVICE
	STRAINER		IMMERSION TEMPERATURE SENSOR
	CHECK VALVE		FLOW SWITCH
	PRESSURE REDUCING VALVE		STEAM TRAP
	BALANCING VALVE		
	THERMOMETER		
	GAUGE		

ABBREVIATIONS

A.F.F.	ABOVE FINISHED FLOOR 123	ROOM NUMBER
ACC	AIR COOLED CHILLER	
AHU	AIR HANDLING UNIT	
AS	AIR SEPARATOR	
B	BOILER	
BFP	BACKFLOW PREVENTER	
BFU	BOILER FEED UNIT	
CFM	CUBIC FEET PER MINUTE	
CWP	CHILLED WATER PUMP	
CW	DOMESTIC COLD WATER	
EF	EXHAUST FAN	
ET	EXPANSION TANK	
FD	FLOOR DRAIN	
HWP	HEATING WATER PUMP	
IN.	INCH	
MAX.	MAXIMUM	
MIN.	MINIMUM	
MU	MAKEUP WATER	
MZU	MULTIZONE UNIT	
N/A	NOT APPLICABLE	
NP	NEOPRENE PAD	
P	PUMP	
PRV	PRESSURE REDUCING VALVE	
TYP.	TYPICAL	
VFD	VARIABLE FREQUENCY DRIVE	

GENERAL NOTES:

- TO AVOID INTERFERENCE WITH THE NORMAL OPERATION OF EXISTING SYSTEMS, DO NOT INTERRUPT ANY OF THE EXISTING SERVICES OR EQUIPMENT AT ANYTIME WITHOUT THE OWNER'S PRIOR APPROVAL.
- THE INDICATED NEW DUCTWORK AND PIPING SYSTEM LOCATIONS ARE APPROXIMATE. EXAMINE CAREFULLY EXISTING CONDITION AT THE PROJECT SITE AND INSTALL THE NEW DUCTWORK AND PIPING SYSTEMS TO CONFORM AS NEARLY AS POSSIBLE TO LOCATIONS AND ARRANGEMENT INDICATED, WITH ONLY MINOR ADJUSTMENTS AS NECESSARY TO AVOID INTERFERENCES WITH THE EXISTING CONDITIONS. ALL PIPING OR DUCTWORK OFFSETS, RISES, AND FITTINGS ARE NOT NECESSARILY SHOWN; PROVIDE THESE AS REQUIRED BY THE CONDITIONS INVOLVED. NOTIFY A/E OF ANY CONFLICTS PRIOR TO PROCEEDING WITH THE CORRECTION OF THE PROBLEMS.
- REMOVE ALL PIPING OR DUCTWORK AS INDICATED ON DRAWING AND OTHER PIPING OR DUCTWORK NOT REQUIRED FOR PROPER FUNCTION OF HVAC SYSTEMS.
- WHERE EQUIPMENT IS REMOVED, PATCH CEILING, FLOOR, AND WALL AS REQUIRED TO MATCH EXISTING.
- ALL DUCT SIZES ARE NET INSIDE CLEAR DIMENSIONS MEASURED INSIDE BARE DUCT OR INSIDE DUCT LINER.
- DUCT DIMENSIONS GIVEN ARE WIDTH X HEIGHT.
- VOLUME CONTROL DAMPER WITH MANUAL QUADRANT AND LOCK SHALL BE INSTALLED AT EACH DUCT TAKEOFF.
- LOCATE SPACE SENSOR ON WALL AT APPROXIMATELY 5'-0" ABOVE FINISHED FLOOR.
- VERIFY ROOF AND WALL OPENING SIZES WITH EQUIPMENT MANUFACTURER. THE LOCATION OF THESE OPENINGS AND EQUIPMENT SHALL BE COORDINATED WITH STRUCTURAL FOR FRAMING.
- ALL PIPING SHALL BE SLOPED TO DRAIN POINTS AND TO AIR VENT POINTS.
- WATER LINES SHALL SLOPE UP 1" IN 40 FEET WITH FLOW. INSTALL MANUAL AIR VENTS AT HIGH POINTS. AIR VENTS SHALL BE EXTENDED TO ACCESSIBLE POINTS WHERE NECESSARY.
- WATER PIPE CONNECTIONS TO HEATING / COOLING COILS SHALL BE MADE SO THERE WILL BE COUNTER FLOW BETWEEN WATER AND AIR.
- CAULK ALL OPENINGS AROUND DUCTS AND PIPES, THROUGH RATED WALLS AND PARTITIONS AND FIREPROOF PER NFPA.
- ALL PIPING IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN FURRED CHASES OR SUSPENDED CEILING UNLESS OTHERWISE NOTED.
- VERIFY LOCATION OF NEW EQUIPMENT AND APPURTENANCES.
- ALL NEW EQUIPMENT AND PIPING SHALL BE PROVIDED WITH SEISMIC BRACING IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AND ASCE 07-2010.
- COORDINATE PIPING INSTALLATION WITH ALL OTHER TRADES. OFFSET NEW AND EXISTING WORK AS REQUIRED.
- FIELD VERIFY ALL EXISTING PIPING AND DUCTWORK DIMENSIONS AND LOCATIONS PRIOR TO START OF WORK.
- CONTROLS BY SIEMENS TO BE SIEMENS FURNISHED AND SIEMENS INSTALLED.
- ALL EQUIPMENT SHALL BE LOCATED TO ALLOW ACCESS FOR GENERAL MAINTENANCE. CONFORM TO MFR'S RECOMMENDATIONS ON EQUIPMENT CLEARANCES.
- DURING DEMOLITION, COVER ALL EQUIPMENT TO REMAIN WITH PROTECTIVE COVERING. ALL PIPING, EQUIPMENT, AND DUCTWORK TO BE PROTECTED AGAINST CONTAMINATION.

BUILDING DATA

BUILDING ADDRESS

- GERMANTOWN HIGH SCHOOL
- 7653 OLD POPLAR PIKE
- GERMANTOWN, TN 38138

SCOPE OF PROJECT

BUILDING B

- REPLACEMENT OF ONE EXISTING STEAM BOILER

OCCUPANCY CLASSIFICATION

IBC - SINGLE, E
NFPA 101 - SINGLE, EXISTING EDUCATIONAL

EXISTING CONSTRUCTION TYPE

IIB, NON-SPRINKLERED

BUILDING AREA

7630 SQ FT LARGEST FLOOR
TOTAL BUILDING AREA - 16400 SQ FT ALL FLOORS (INCL 1140 SQ FT BASEMENT)

BUILDING STORIES/HEIGHT

2 STORIES PLUS PARTIAL BASEMENT/ APPROX. 35 FEET INCLUDING BASEMENT

BUILDING C

- REPLACEMENT OF ONE HOT WATER BOILER

OCCUPANCY CLASSIFICATION

IBC - E AND ASSEMBLY
NFPA 101 - EXISTING EDUCATIONAL AND ASSEMBLY

EXISTING CONSTRUCTION TYPE

IIB, E (NON-SPRINKLERED) AND ASSEMBLY (SPRINKLERED)

BUILDING AREA

28995 SQ FT LARGEST FLOOR
TOTAL BUILDING AREA - 44900 SQ FT ALL FLOORS

BUILDING STORIES/HEIGHT

2 STORIES / APPROX. 30 FEET

BUILDING M

- REPLACEMENT OF TWO HOT WATER BOILERS
- REPLACEMENT OF TWO AIR HANDLING UNITS

OCCUPANCY CLASSIFICATION

IBC - SINGLE, E
NFPA 101 - SINGLE, EXISTING EDUCATIONAL

EXISTING CONSTRUCTION TYPE

IIB, NON-SPRINKLERED

BUILDING AREA

TOTAL BUILDING AREA - 31800 SQ FT

BUILDING STORIES/HEIGHT

1 STORY/ APPROX. 15 FEET

BUILDING MA

- REPLACEMENT OF TWO AIR HANDLING UNITS
- REPLACEMENT OF ONE AIR COOLED CHILLER

OCCUPANCY CLASSIFICATION

IBC - SINGLE, E
NFPA 101 - SINGLE, EXISTING EDUCATIONAL

EXISTING CONSTRUCTION TYPE

IIB, SPRINKLERED

BUILDING AREA

9710 SQ FT LARGEST FLOOR
TOTAL BUILDING AREA - 19420 SQ FT ALL FLOORS

BUILDING STORIES/HEIGHT

2 STORIES/ APPROX. 30 FEET

ASBESTOS NOTES:

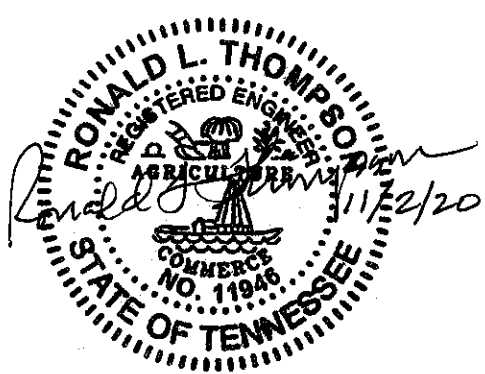
- THE ABATEMENT OF ASBESTOS CONTAINING MATERIALS (ACM) LOCATED WITHIN THE AREAS OF RENOVATION IN BUILDING MA IS INCLUDED IN THE SCOPE OF THIS PROJECT AND SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
- REFER TO THE PROJECT SPECIFICATIONS FOR ITEMS THAN HAVE IDENTIFIED TO CONTAIN ACM FOR REMOVAL.

NOTE

THE ORIGINAL CONSTRUCTION DOCUMENTS FOR THESE BUILDINGS ARE UNAVAILABLE. THE CONSTRUCTION PRE-DATES 1990 AND THE BUILDINGS WERE MOST LIKELY DESIGNED UNDER THE STANDARD BUILDING CODE. THE CONSTRUCTION TYPES SHOWN ARE FOR THE CLOSEST TYPE AVAILABLE UNDER THE INTERNATIONAL BUILDING CODE.

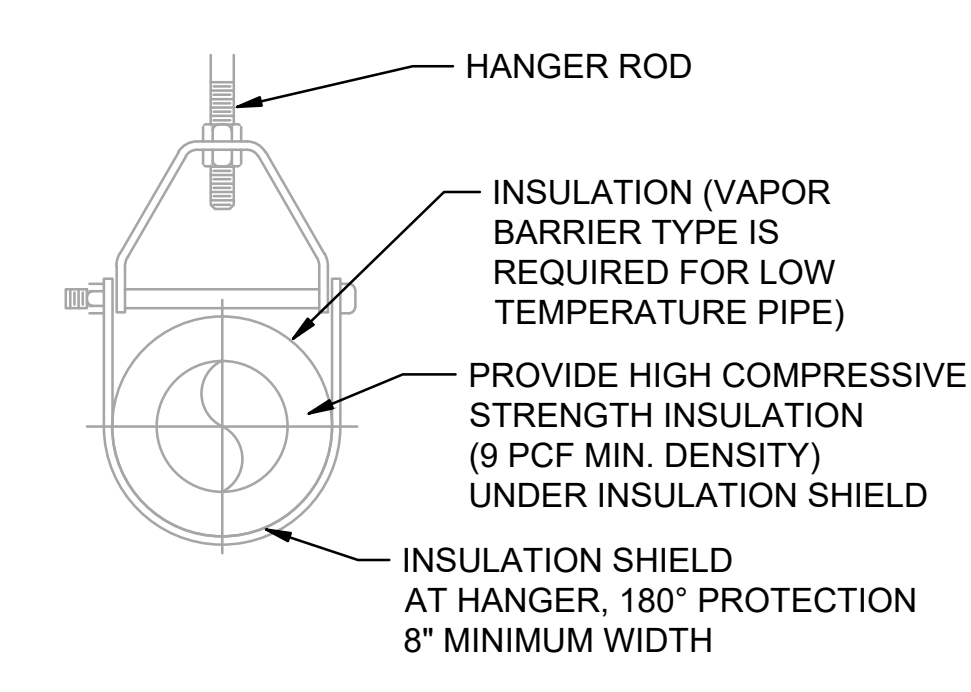


No.	Revision	Date

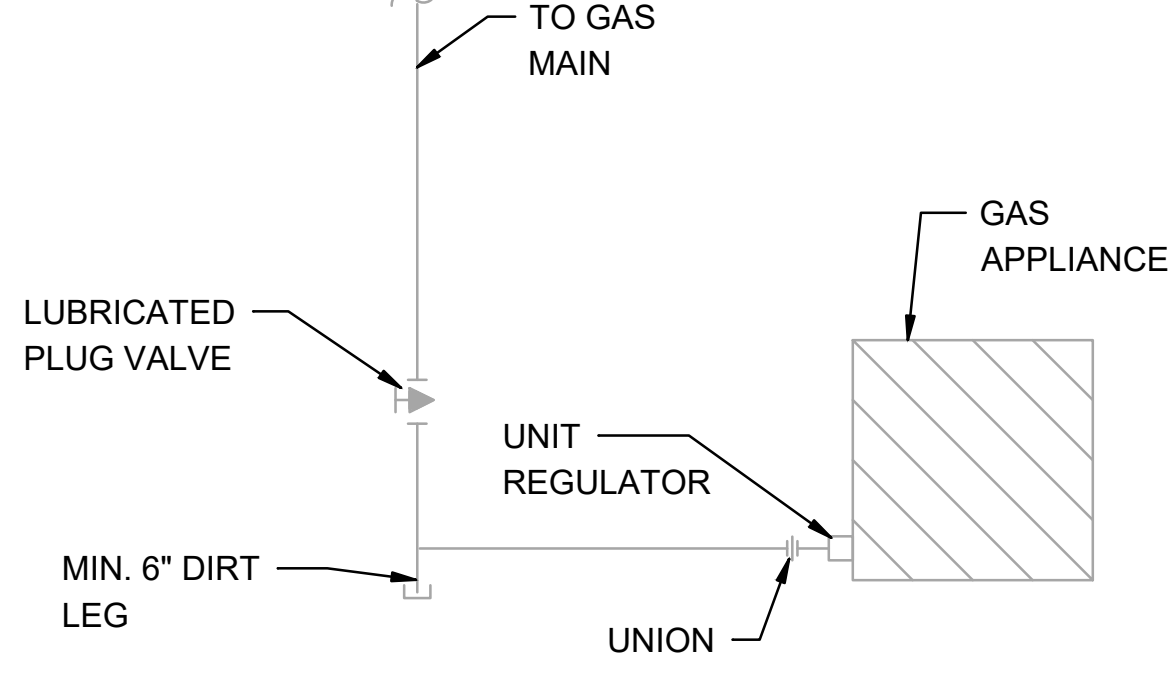




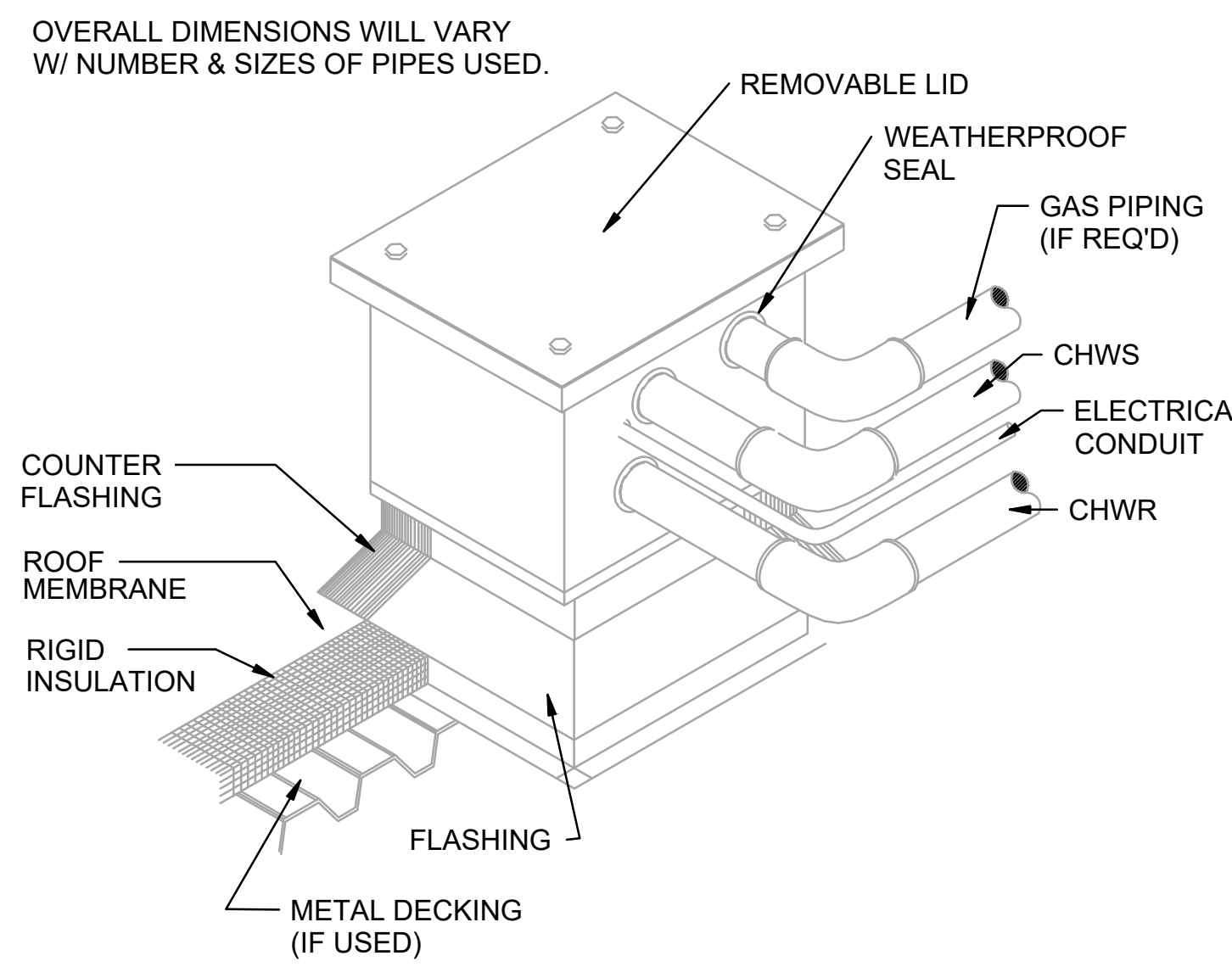
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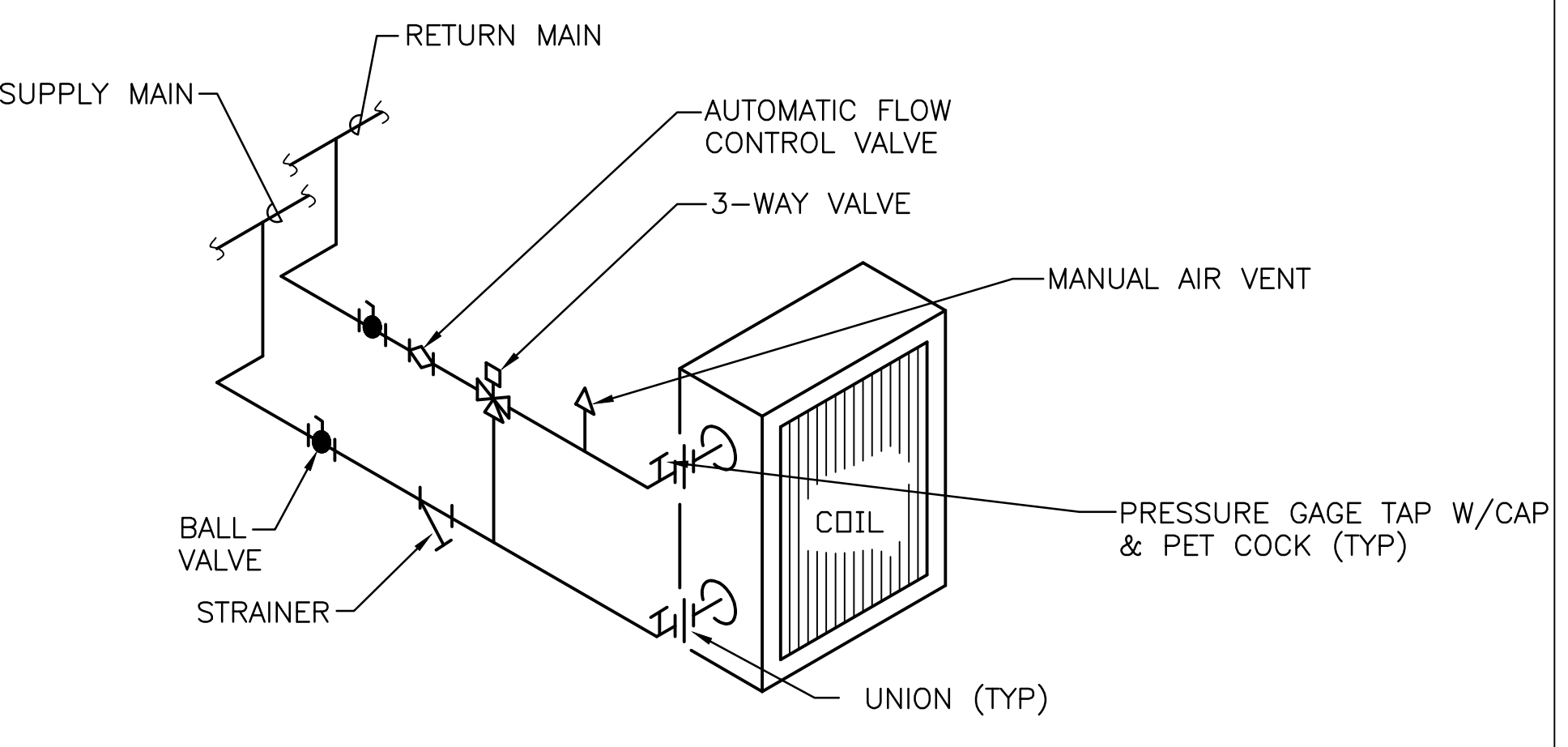
1 CLEVIS HANGER DETAIL
NTS



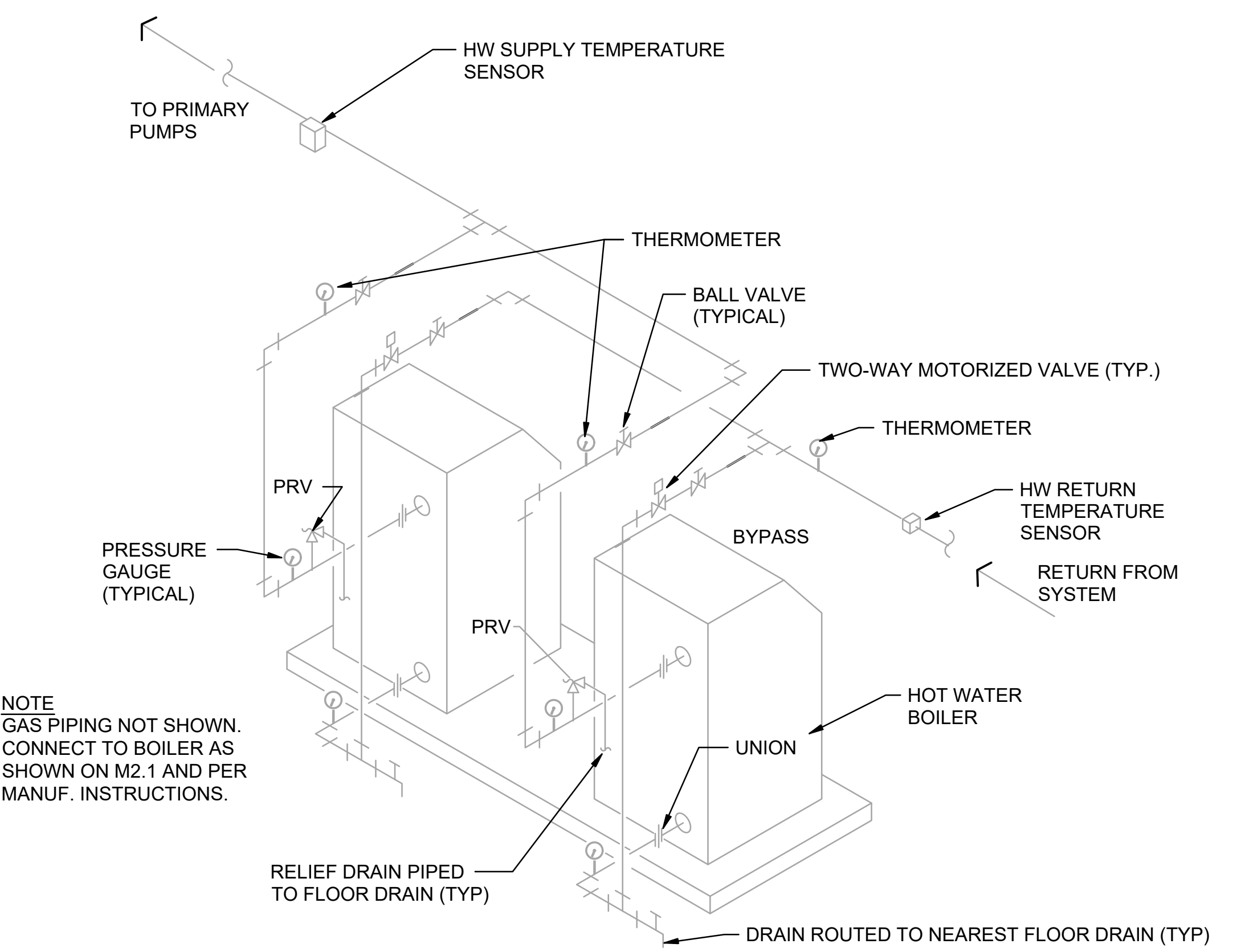
2 GAS APPLIANCE CONNECTION DETAIL
NTS



3 PIPE PENETRATION - THRU ROOF DETAIL
NTS

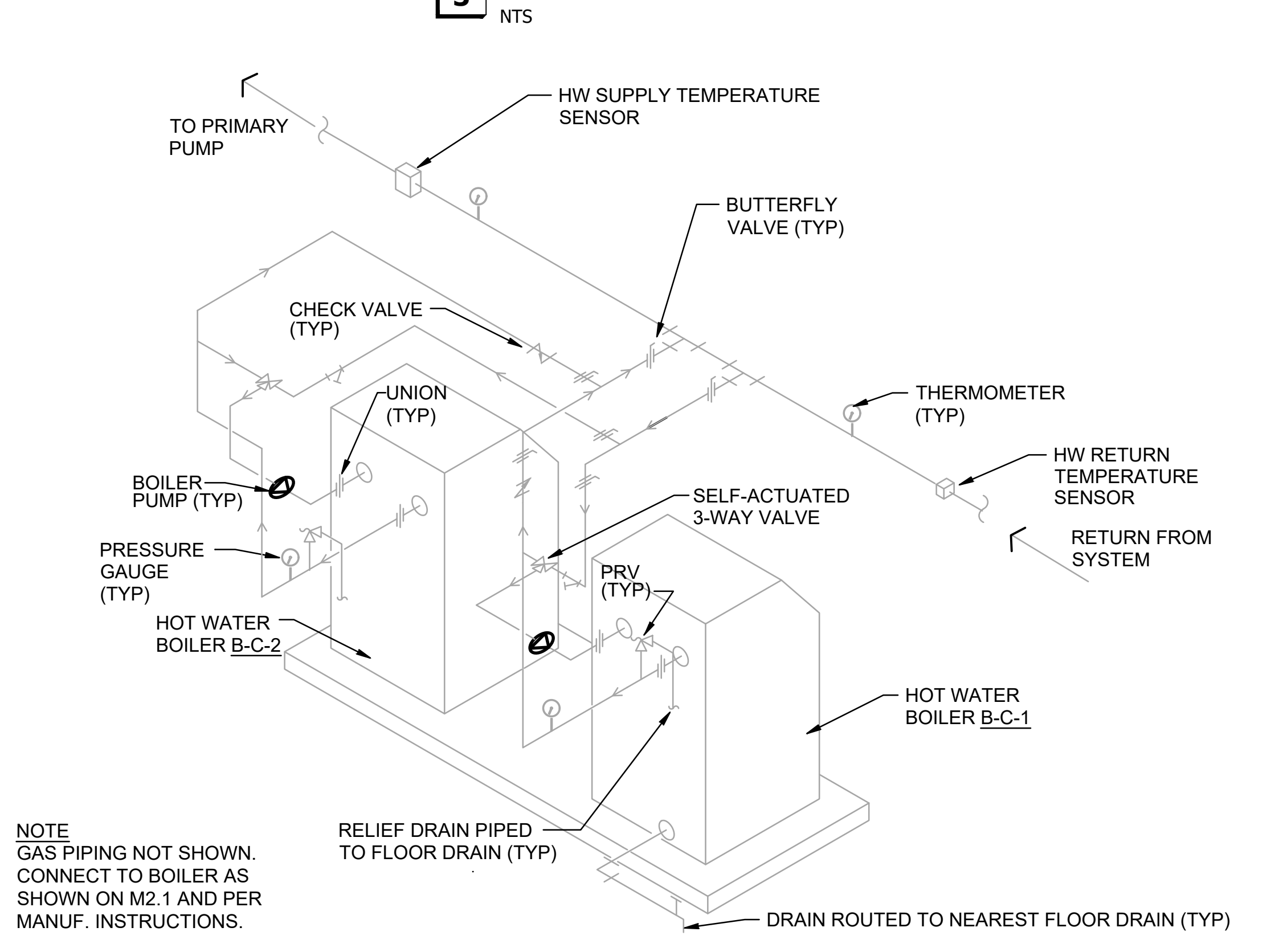


4 TYPICAL AHU CHW AND HW PIPING DETAIL
NTS
3-WAY VALVE PIPING CONFIGURATION
AHU PIPING SHALL INCLUDE A THERMOMETER IN SUPPLY AND RETURN MAIN.



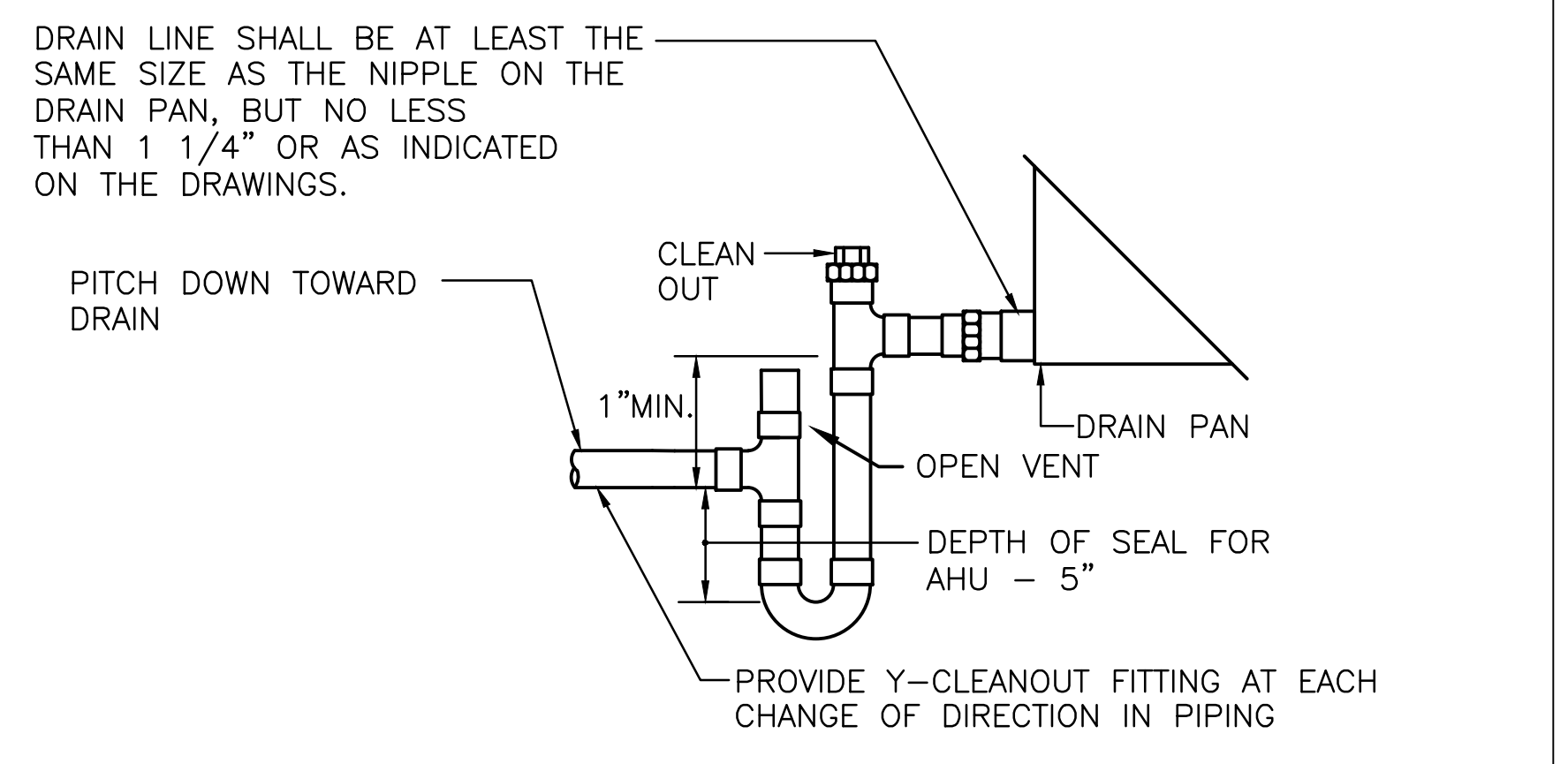
5 GAS FIRED HOT WATER BOILER DETAIL (CONDENSING BOILERS)
NTS

NOTE: GAS PIPING NOT SHOWN. CONNECT TO BOILER AS SHOWN ON M2.1 AND PER MANUF. INSTRUCTIONS.

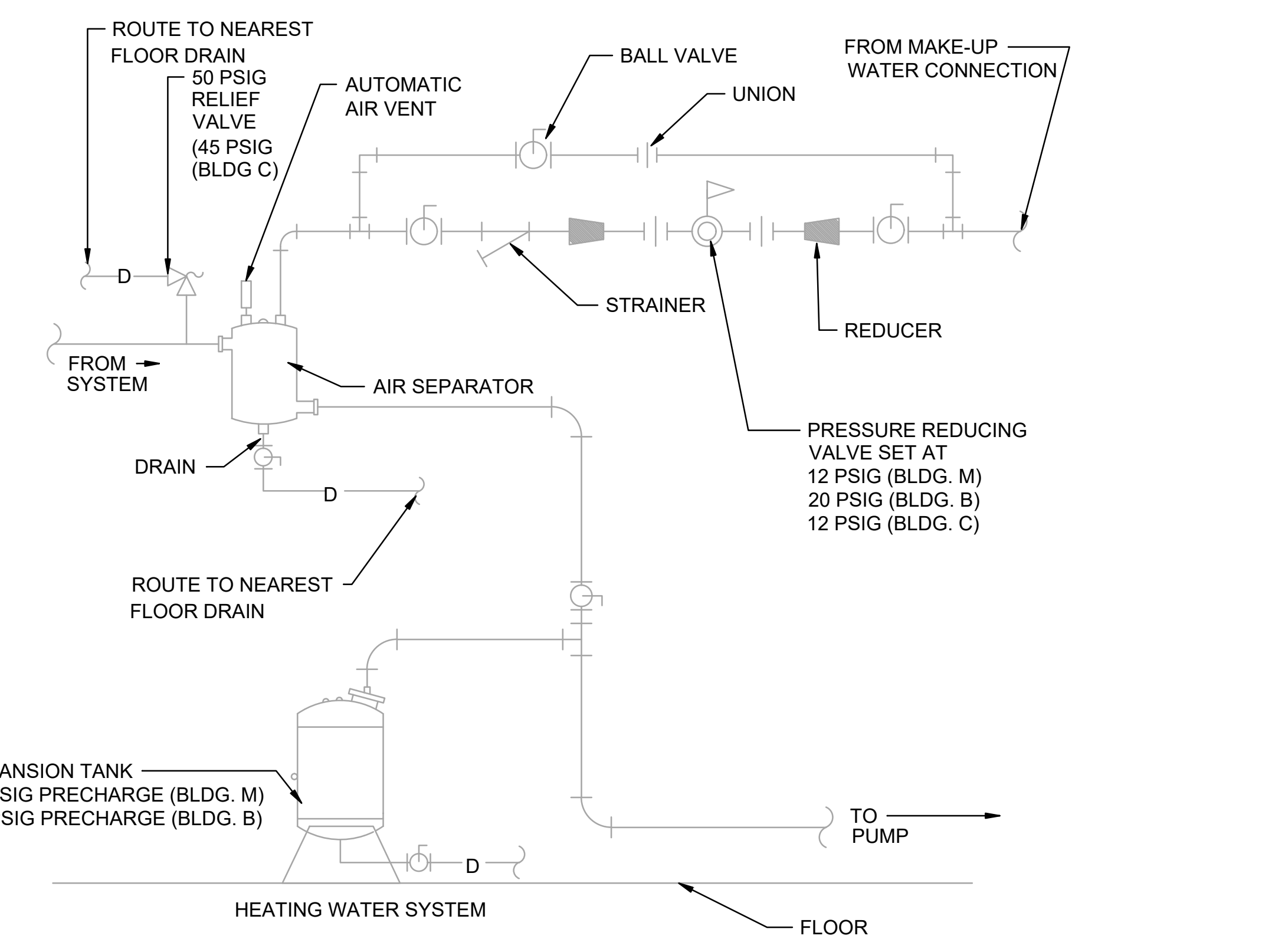


6 GAS FIRED HOT WATER BOILER DETAIL (NON-CONDENSING BOILERS) - ALT. #1
NTS

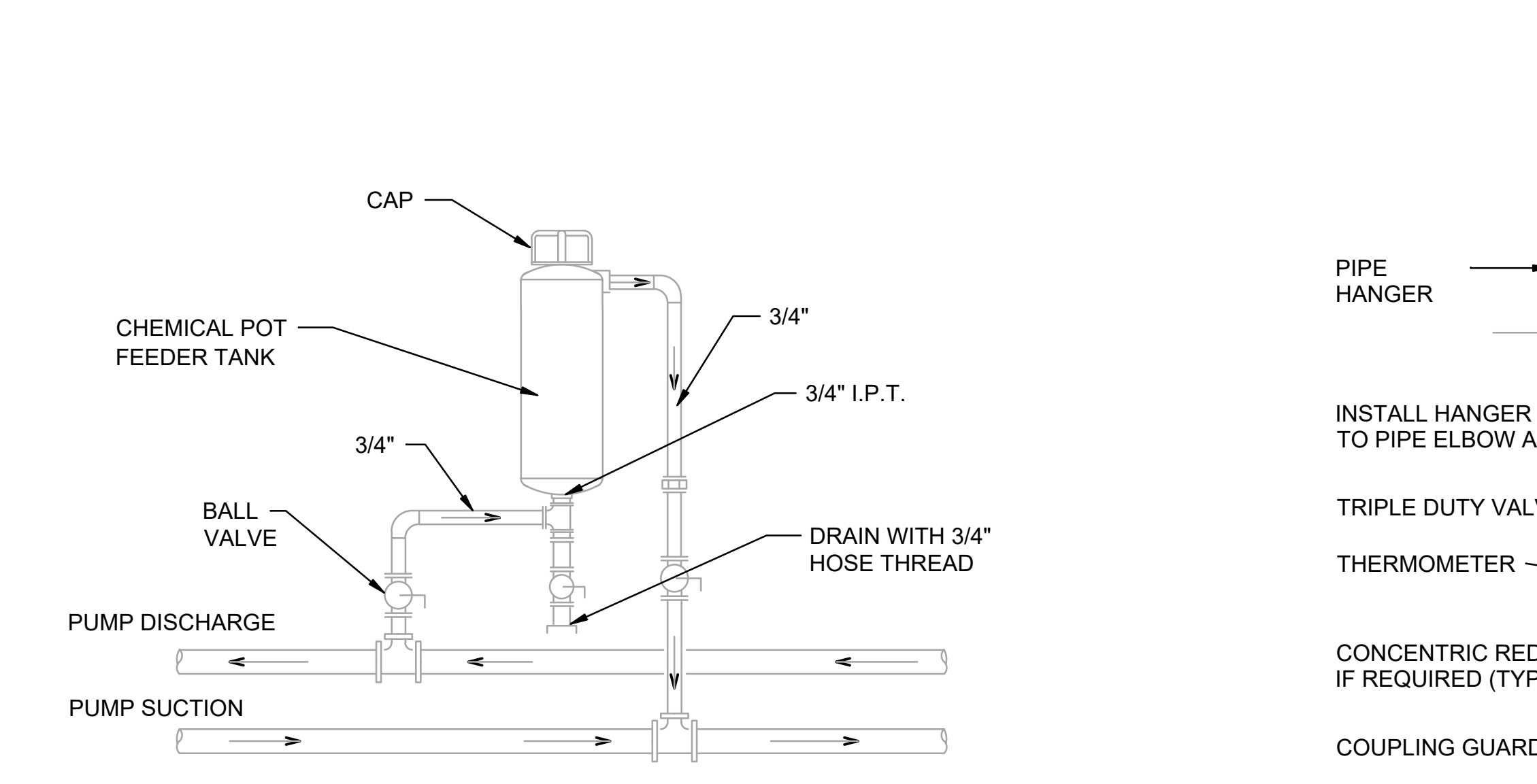
NOTE: GAS PIPING NOT SHOWN. CONNECT TO BOILER AS SHOWN ON M2.1 AND PER MANUF. INSTRUCTIONS.



7 CONDENSATE DRAIN DETAIL
NTS

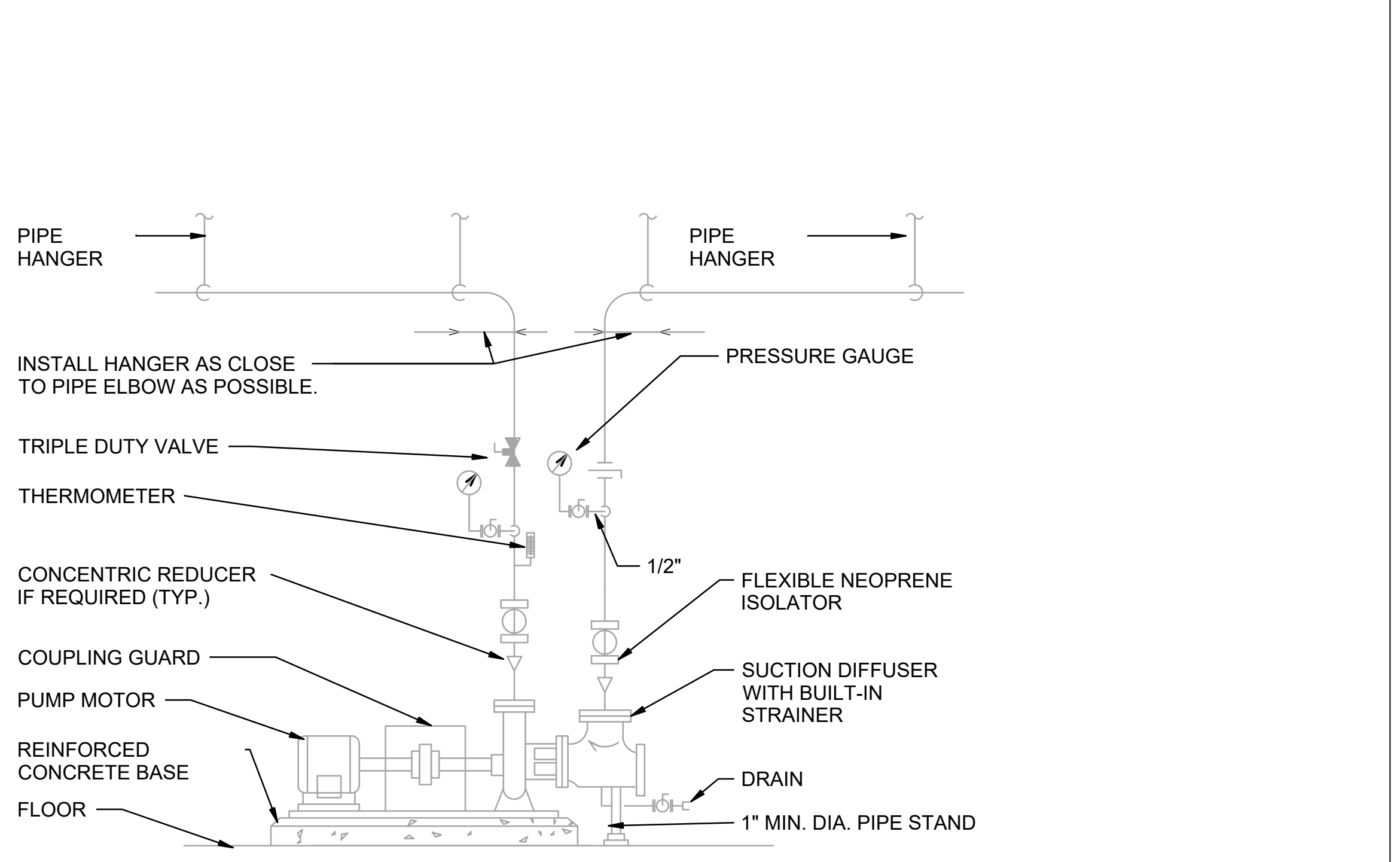


8 AIR SEPARATOR/EXPANSION TANK PIPING SCHEMATIC
NTS



NOTES:
1. INSTALL CHEMICAL POT FEEDER TANK ON FLOOR.
2. TANK SHALL BE 2 GALLON CAPACITY SIZE ON ALL HOT WATER SYSTEMS AND CHILLED WATER SYSTEMS 300 TONS AND UNDER. TANK SHALL BE EQUAL TO NEPTUNE MODEL FTF-2DB WITH A FINE 5 MICRON RING TOP BAG.

9 WATER TREATMENT FOR CLOSED SYSTEMS DETAIL
NTS



10 END SUCTION WATER PUMP DETAIL
NTS

CENTRAL STATION MODULAR MULTI-ZONE AIR HANDLING UNITS																																													
UNIT					SUPPLY FAN										CHILLED WATER COIL										HOT WATER COIL								FILTERS												
TAG	QTY	TOTAL AIRFLOW (CFM)	OSA AIRFLOW (CFM)	MAXIMUM AHU DIMENSIONS			FAN					MOTOR					SENSIBLE CAPACITY (BTUH)	TOTAL CAPACITY (BTUH)	EAT DB (°F)	EAT WB (°F)	LAT DB (°F)	LAT WB (°F)	F.V. (FPM)	MAX A.P.D. (INH2O)	EWT (°F)	FLOW RATE (GPM)	MAX W.P.D. (RH2O)	MIN ROWS	MAX FPI	TOTAL CAPACITY (BTUH)	EAT DB (°F)	LAT DB (°F)	MAX A.P.D. (INH2O)	EWT (°F)	FLOW RATE (GPM)	W.P.D. (RH2O)	MIN ROWS	MAX FPI	TYPE	FILTER QTY SIZES	DEPTH	EFFIC.	MEAN PD (INH2O)		
				MAX LENGTH (IN)	MAX HEIGHT INCLUDING ZONE DAMPERS (IN)	MAX WIDTH (IN)	TYPE	QTY	AIRFLOW EACH (CFM)	BHP (EA)	E.S.P. (INH2O)	T.S.P. (RH2O)	VOLTAGE	QTY	TOTAL POWER (BHP)	MCA																												MOCP	CONTROL
AHU-M-1 (SOUTH)	1	4300	810	110	62.5	90	DD-ECM	2	2150	1.62	2.00	3.31	460/3/60	2	3.2	6.8	15	REMOTE VFD	124788	195841	79.3	67.1	52.8	52.1	383	0.44	44	60	5.1	6	8	153590	60.3	92.9	0.61	140	10.9	3.7	2	11	Pleated (MERV 8)	4 - 24.00 x 20.00	2	MERV 8	0.6
AHU-M-2 (NORTH)	1	7380	1350	144	68.5	100	DD-ECM	2	3690	3.49	2.00	4.07	460/3/60	2	7.0	18	25	REMOTE VFD	217506	325813	79.1	66.6	52.1	51.9	509	1.29	44	60	11.4	6	10	251746	60.7	91.9	0.85	140	18.5	7.6	2	11	Pleated (MERV 8)	4 - 24.00 x 20.00	2	MERV 8	0.6
AHU-MA-1 (FIRST FL)	1	5600	1200	96	62.5	90	DD-ECM	2	2800	2.14	1.50	3.27	460/3/60	2	4.3	9.2	15	REMOTE VFD	164282	262646	79.9	67.9	53	52.6	498	0.82	44	65	5.8	6	11	192531	58.7	90.2	0.95	140	14.8	6.4	2	11	Pleated (MERV 8)	4 - 24.00 x 20.00	2	MERV 8	0.61
AHU-MA-2 (SECOND FL)	1	7130	1500	106	68.5	96	DD-ECM	3	2376	1.91	1.50	3.53	460/3/60	3	5.7	9.8	15	REMOTE VFD	209217	319385	79.8	67.3	53	52.6	515	1.22	44	75	6.7	6	9	249803	59	91	0.87	140	18.7	7.5	2	11	Pleated (MERV 8)	4 - 24.00 x 20.00	2	MERV 8	0.64

- AIR HANDLING UNIT SHALL HAVE MODULAR 2" DOUBLE WALL PANELS WITH R-13 FOAM INSULATION. PROVIDE 6 INCH BASE RAIL FOR EACH MODULE.
- AHU DIMENSIONS SHALL NOT EXCEED LISTED VALUES. CONTRACTOR IS RESPONSIBLE FOR ANY CHANGES. MAXIMUM SECTION LENGTH NOT TO EXCEED 30' LONG.
- COILS SHALL HAVE STAINLESS STEEL DRAIN PAN. PROVIDE HINGED ACCESS DOORS FOR EVERY SECTION.
- AIR HANDLING UNIT SHALL HAVE FILTER MIXING BOX WITH LOW LEAK DAMPERS, FAN SECTION WITH DD ECM FANS, 24" ACCESS SECTION, CHILLED WATER COIL, HOT WATER COIL, LOW LEAK ZONE DAMPERS.
- PROVIDE AND INSTALL IONIZER BAR WITH SELF-CLEANING OPTION UPSTREAM OF CHILLED WATER COIL. IONIZER SHALL HAVE UL-2998 ZERO-OZONE CERTIFICATE. PROVIDE MANUFACTURER TEST RESULT FOR COVID VIRUS.
- EVERY MODULE SHALL BE SHRINK WRAPPED.
- PROVIDE EBTRON GOLD OR APPROVED EQUAL AIRFLOW STATION FOR OUTSIDE AIR FOR FIELD INSTALLATION. PROBE SHALL HAVE BOTH TEMP AND HUMIDITY SENSORS.
- PROVIDE ONE SPARE SET OF FILTERS. AHUS SHALL HAVE THE SAME SIZE FILTERS. PROVIDE MAGNETIC GAUGE ACROSS FILTER BANK.
- PROVIDE DIRECT DRIVE PLENUM ECM MOTORS. EACH FAN SHALL HAVE A DEDICATED VFD AND DISCONNECT SWITCH. VFD ARRAY SHALL HAVE SINGLE POINT POWER CONNECTION WITH A MAIN DISCONNECT. PROVIDE H-O-A FOR EACH FAN VFD. PANEL TO BE MOUNTED ON THE MECHANICAL ROOM WALL AND WIRED TO THE FAN SECTION. BELT DRIVE MOTORS ARE NOT ACCEPTABLE.
- ALL COILS SHALL HAVE STAINLESS STEEL CASING. MINIMUM TUBE THICKNESS OF 0.025" AND MINIMUM FIN THICKNESS OF 0.095".
- CONTRACTOR SHALL INSTALL ALL MODULES LEVEL AND PER MANUFACTURER'S RECOMMENDATION WITHOUT ANY AIR LEAK WHERE MODULES CONNECT.
- INSTALL SECTIONS ON RUBBER VIBRATION ISOLATION PADS.
- HEATING AND COOLING DAMPERS SHALL BE CONNECTED TO A SINGLE ACTUATOR SHAFT.
- REFER TO SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS.

AIR COOLED SCROLL CHILLER																				
CHILLER				EVAPORATOR				CONDENSER		ELECTRICAL				MAX DIMENSIONS		MAX WEIGHT				
TAG	MIN OUTPUT CAPACITY (TONS)	REFRIGERANT	COMPRESSORS	REFRIGERATION CIRCUITS (QTY)	COMPRESSORS (QTY)	PERFORMANCE (IEER)	IPLV (EER)	FLOW (GPM)	PD (FT H ₂ O)	EWT (°F)	LWT (°F)	AMBIENT (°F)	FANS	VOLTAGE	POWER CONNECTIONS	SCCR (KA)	MCA	MOCP	L x W x H	LBS
CH-MA-1	56.5	R-410A	SCROLL	2	4	9.9	16.0	140	18	54	44	100	4	460/3/60	1	65	132	150	94" X 88" X 100"	3155

- CHILLER SHALL HAVE SCROLL COMPRESSORS WITH TWO INDEPENDENT REFRIGERATION CIRCUITS AND FACTORY MOUNTED HOT GAS BYPASS VALVES ON BOTH CIRCUITS WITH 6 STAGES OF CAPACITY. DIMENSIONS SHALL NOT EXCEED LISTED VALUES.
- FACTORY MOUNTED HAL GUARD AND WIND BAFFLE LOUVERS FOR ENTIRE CHILLER.
- FACTORY MOUNTED CONTROL TRANSFORMER.
- CHILLER SHALL HAVE A DX TYPE EVAPORATOR WITH 0.75" THICK INSULATION AND FACTORY MOUNTED Y-STRAINER.
- FACTORY MOUNTED SINGLE NON-FUSED DISCONNECT SWITCH WITH HIGH 65 KA CIRCUIT BREAKER AND 115V GFI CONVENIENCE OUTLET (FIELD POWERED).
- FACTORY MOUNTED BACNET MSTP INTERFACE.
- PRIMARY FACTORY MOUNTED THERMAL DISPERSION CHILLED WATER FLOW SENSOR. PADDLE TYPE FLOW SWITCH IS NOT ACCEPTABLE. CHILLER SHALL BE SHIPPED WITH FACTORY MOUNTED Y-STRAINER.
- CHILLER CONTROL PANEL SHALL BE SELECTED FOR 125 F AMBIENT TEMPERATURE WITH EXHAUST FAN FOR THE CONTROL PANEL.
- CHILLER SHALL HAVE CONDENSER FANS WITH VARIABLE SPEED ECM FAN MOTORS TO ALLOW LOW AMBIENT COOLING OPERATION.
- FACTORY MOUNTED COOLER HEATER FREEZE PROTECTION TO -20F OUTDOOR AMBIENT.
- MECHANICAL CONTRACTOR SHALL HARD WIRE INTERLOCK CHILLED WATER PUMP WITH EACH CHILLER. CHILLER SHALL CONTROL ITS PUMP.
- PROVIDE CHILLER ISOLATION PADS.
- FACTORY MOUNTED LIQUID LINE SOLENOID VALVE WITH SUCTION AND DISCHARGE SERVICE ISOLATION VALVES. CHILLER SHALL HAVE REPLACEABLE CORE FILTER DRYER FOR EACH CIRCUIT WITH ISOLATION VALVES.
- FACTORY START-UP AND PROGRAMMING. FIVE YEARS COMPLETE PARTS, REFRIGERANT, AND LABOR WARRANTY. INCLUDE 5 YEARS FACTORY SERVICE MAINTENANCE CONTRACT.
- CHILLER SHALL BE CERTIFIED BASED ON AHRI STANDARD 550/590 WITH APPROVAL FROM ETI/CETL AND ASHRAE 90.1-07,10,13/16 AND PASS FEMP RATING.
- CHILLER SHALL HAVE FACTORY MOUNTED PHASE PROTECTION WITH LED AND GROUND FAULT PROTECTION.
- CHILLER SHALL HAVE FACTORY MOUNTED LOW SOUND FANS AND COMPRESSOR SOUND REDUCTION KIT WITH MAX OVERALL 60 DBA SOUND PRESSURE RATING.
- CHILLER SHALL BE SHIPPED COMPLETELY WRAPPED IN HEAVY DUTY BAG TO PROTECT FROM ROAD DAMAGE AND CONSTRUCTION DIRT.
- MECHANICAL CONTRACTOR SHALL PROVIDE MOTORIZED ISOLATION VALVE TO PREVENT WATER FLOW WHEN CHILLER IS OFF. INTERLOCK TO CHILLER.
- CHILLER SHALL HAVE FACTORY MOUNTED CLOUD BASED INTELLIGENT EQUIPMENT OPTION WITH 5 YEARS CELLULAR SUBSCRIPTION FOR REMOTE CONNECTION.
- PROVIDE FACTORY SUPPLIED AND INSTALLED HEAVY DUTY COTTONWOOD FILTERS.
- REFER TO SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS.

GAS-FIRED HOT WATER BOILER SCHEDULE											
MARK	TYPE	FUEL	BOILER H.P.	INPUT BTU/HR	MINIMUM OUTPUT BTU/HR	GPM	MAX. PRESS. DROP FT.	ENT. WATER TEMP. °F	L.V.G. WATER TEMP. °F	RELIEF VALVE PSIG	REMARKS
B-B-1	CONDENSING	NAT. GAS	-	600,000	525,000	31	3.0	146.0	180.0	75	1,2,4,8,10
B-B-2	CONDENSING	NAT. GAS	-	600,000	525,000	31	3.0	146.0	180.0	75	1,2,4,8,10
B-C-1	HIGH EFFIC.	NAT. GAS	-	1,700,000	1,428,000	90	11.8	150.0	180.0	50	1,5,6,7,9,10
B-C-2	HIGH EFFIC.	NAT. GAS	-	1,700,000	1,428,000	90	11.8	150.0	180.0	50	1,5,6,7,9,10
B-M/MA-1	CONDENSING	NAT. GAS	-	600,000	585,000	39	4.0	110.0	140.0	75	1,2,3,8,10
B-M/MA-2	CONDENSING	NAT. GAS	-	600,000	585,000	39	4.0	110.0	140.0	75	1,2,3,8,10

- REMARKS
- BOILER SHALL BE FURNISHED WITH A BACNET MSTP COMMUNICATIONS MODULE.
 - PROVIDE CONDENSATE NEUTRALIZATION KIT, M13-CSD CONTROLS AND MOTORIZED ISOLATION VALVE.
 - 4" CPVC PIPE SHALL BE USED FOR FLUE FROM EACH BOILER.
 - 4" SS VENT PIPE (UL 1738 CAT IV) SHALL BE USED FOR FLUE FROM EACH BOILER. PROVIDE MOTORIZED VENT DAMPER FOR EACH BOILER FLUE.
 - PROVIDE B13-CSD CONTROLS, BOILER CIRCULATING PUMP, CHECK VALVE, Y-STRAINER AND SELF-ACTUATED THERMOSTATIC MIXING VALVE IN EACH BOILER LOOP.
 - BOILERS SHALL UTILIZE CAT I VENTING (TYPE B FLUE) AND SHALL BE COMMON VENTED WITH BAROMETRIC DAMPER IN EACH BOILER FLUE.
 - BOILERS SHALL BE FURNISHED AND INSTALLED UNDER ALTERNATE #1.
 - PROVIDE ONE (1) SPARE SPARK IGNITER FOR EACH BOILER.
 - PROVIDE ONE (1) SPARE HOT SURFACE IGNITER FOR EACH BOILER.
 - REFER TO SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS.

EXPANSION TANK SCHEDULE									
MARK	TYPE	SERVICE	MOUNTING	TANK VOLUME GAL.	ACCEPTANCE VOLUME GAL.	DIMENSIONS DIA. x HEIGHT IN.	PRECHARGE PSIG	REMARKS	
ET-B-1	FULL ACCEPT. BLADDER	HEATING WATER	VERT.	-	-	-	20	3,5	
ET-C-1	DIAPHRAGM	HEATING WATER	HORIZ.	44.4	22.6	16 x 57	12	1,2,4,5	
ET-M/MA-1	FULL ACCEPT. BLADDER	HEATING WATER	VERT.	53	53	24 x 37	12	1,2,5	
ET-MA-1	BLADDER	CHILLED WATER	VERT.	13	11	12 x 37	17	1,2,5	

- REMARKS
- TANK SHALL BE OF ASME CONSTRUCTION.
 - PROVIDE WITH SEISMIC RESTRAINTS IN ACCORDANCE WITH SPECIFICATIONS.
 - VERIFY PRECHARGE PRESSURE.
 - FURNISH AND INSTALL UNDER ALTERNATE #1.
 - REFER TO SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS.

AIR SEPARATOR SCHEDULE							
MARK	SERVICE	DESIGN GPM	INLET / OUTLET IN.	MAX. W.P.D. FT.	DIMENSIONS DIA. x HEIGHT IN.	REMARKS	
AS-B-1	HEATING WATER	61	2.5	2	8.375 x 17.375	1,2,4	
AS-C-1	HEATING WATER	180	4.0	1	12.75 x 31.4375	1,2,3,4	
AS-M/MA-1	HEATING WATER	70	2.5	2	8.375 x 17.375	1,2,4	
AS-MA-1	CHILLED WATER	140	3	1	10.75 x 26.875	1,2,4	

- REMARKS
- AIR SEPARATOR SHALL BE OF ASME CONSTRUCTION.
 - PROVIDE MODEL WITHOUT STRAINER.
 - FURNISH AND INSTALL UNDER ALTERNATE #1.
 - REFER TO SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS.

VARIABLE FREQUENCY DRIVES			
TAG	QTY	HP	VOLTAGE
VFD-HWP-B-1	1	1.5	460/3/60
VFD-HWP-B-2	1	1.5	460/3/60
VFD-HWP-C-1	1	7.5	460/3/60
VFD-HWP-M/MA-1	1	3	460/3/60
VFD-HWP-M/MA-2	1	3	460/3/60
VFD-CWP-MA-1	1	3	460/3/60
VFD-CWP-MA-2	1	3	460/3/60

- NEMA-1 CIRCUIT BREAKER DISCONNECT SWITCH
- 2 YEARS PARTS AND LABOR WARRANTY
- FACTORY STARTUP AND PROGRAMMING
- 5% INPUT IMPEDANCE
- VFD-HWP-C-1 TO BE FURNISHED AND INSTALLED UNDER ALTERNATE #1
- BACNET MSTP COMMUNICATION PROTOCOL
- REFER TO SPECIFICATIONS FOR ACCEPTABLE MANUFACTURERS

HVAC RENOVATIONS FOR GERMANTOWN HIGH SCHOOL

7653 OLD POPLAR PIKE
GERMANTOWN, TN 38138



SHELBY COUNTY SCHOOLS

No. _____ Revision _____ Date _____

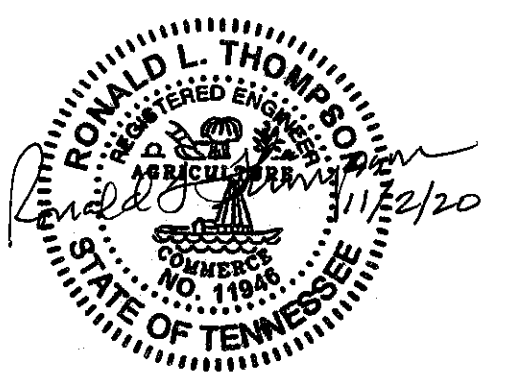
SCHEDULES - HVAC

JOB NO: 62992
DATE: 11.02.2020
DRAWN: MDC
CHECKED: RLT
CAD FILE: M3.1





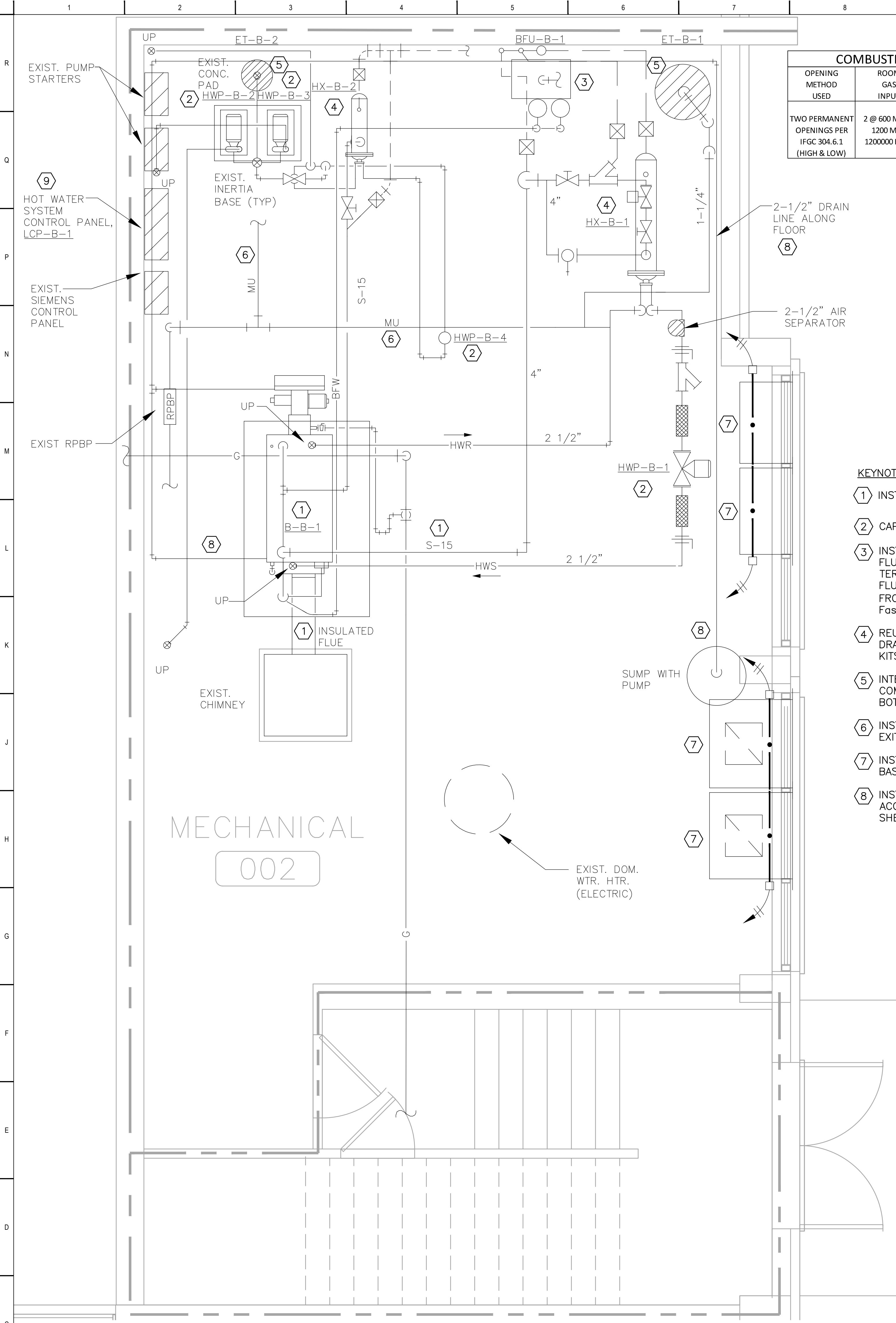
No.	Revision	Date



OPENING METHOD USED	ROOM GAS INPUT	REQUIRED FREE AREA PER OPENING	REQUIRED LOUVER AREA PER OPENING	ACTUAL FREE AREA PER OPENING
TWO PERMANENT OPENINGS PER IFGC 304.6.1 (HIGH & LOW)	2 @ 600 MBH = 1200 MBH 1200000 BTUH	1 IN ² /4000 BTUH 1200000/4000 = 300 IN ²	300 IN ² /0.5 = 600 IN ² (50% FREE AREA)	770 IN ² (HIGH & LOW)

KEYNOTE LEGEND:

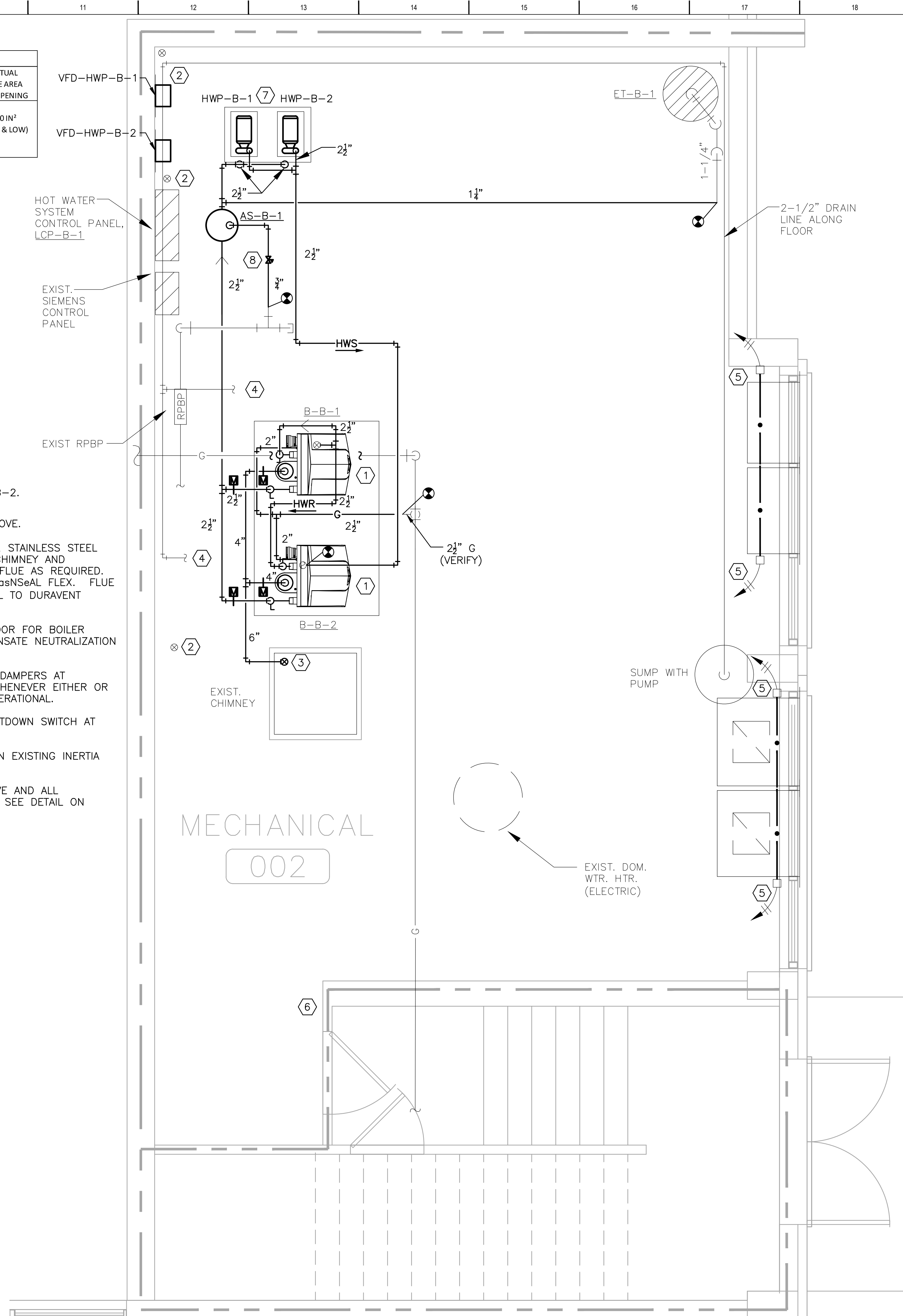
- ① INSTALL NEW BOILERS B-B-1 AND B-B-2.
- ② CAP PIPE JUST BELOW FLOOR SLAB ABOVE.
- ③ INSTALL 6" DIA. FLEXIBLE, SINGLE WALL, STAINLESS STEEL FLUE INSIDE CHIMNEY UP TO TOP OF CHIMNEY AND TERMINATE WITH VENT CAP. SUPPORT FLUE AS REQUIRED. FLUE SHALL BE EQUAL TO DURAVENT FasNSeal FLEX. FLUE FROM BOILERS SHALL BE 4" DIA. EQUAL TO DURAVENT FasNSeal SINGLE WALL.
- ④ REUSE EXISTING DRAIN PIPE ALONG FLOOR FOR BOILER DRAINS AND DRAIN LINES FROM CONDENSATE NEUTRALIZATION KITS.
- ⑤ INTERLOCK EXISTING MOTOR-OPERATED DAMPERS AT COMBUSTION AIR OPENINGS TO OPEN WHENEVER EITHER OR BOTH BOILERS ARE ENERGIZED AND OPERATIONAL.
- ⑥ INSTALL CSD-1 COMPLIANT BOILER SHUTDOWN SWITCH AT EXIT FROM BOILER ROOM.
- ⑦ INSTALL NEW PUMPS HWP-B-1 & 2 ON EXISTING INERTIA BASES.
- ⑧ INSTALL NEW PRESSURE REDUCING VALVE AND ALL ACCESSORIES IN MAKEUP WATER LINE. SEE DETAIL ON SHEET M2.1.



1 BLDG. B - BASEMENT - BOILER ROOM DEMOLITION PLAN
SCALE: 1/2" = 1'-0"

DEMOLITION KEYNOTE LEGEND:

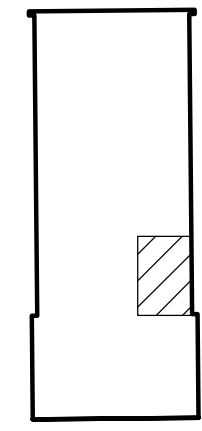
- ① REMOVE EXISTING BOILER B-B-1, FLUE CONNECTION TO CHIMNEY AND ALL STEAM PIPING. DISCONNECT GAS PIPING AND MODIFY FOR NEW BOILERS
- ② REMOVE HOT WATER PUMPS HWP-B-1, 2, 3 & 4 AND ALL ASSOCIATED HOT WATER PIPING.
- ③ REMOVE BOILER FEED UNIT BFU-B-1 AND ALL ASSOCIATED FEEDWATER PIPING.
- ④ REMOVE HEAT EXCHANGERS HX-B-1 & 2 AND ALL ASSOCIATED CONDENSATE PIPING.
- ⑤ REMOVE EXPANSION TANK ET-B-2. EXPANSION TANK ET-B-1 TO REMAIN. MODIFY ET-B-1 PIPING AS SHOWN
- ⑥ REMOVE MAKEUP WATER PRV AND ALL ACCESSORIES (TWO LOCATIONS). MODIFY PIPING AS SHOWN.
- ⑦ EXISTING COMBUSTION AIR INTAKES WITH MOTOR-OPERATED DAMPERS TO REMAIN.
- ⑧ EXISTING 2-1/2" DRAIN LINE TO REMAIN. MODIFY AS REQUIRED FOR NEW BOILER DRAINS.
- ⑨ REMOVE ALL EXISTING CONTROLS ASSOCIATED WITH BOILER, PUMPS, HEAT EXCHANGERS AND BOILER FEED UNIT.



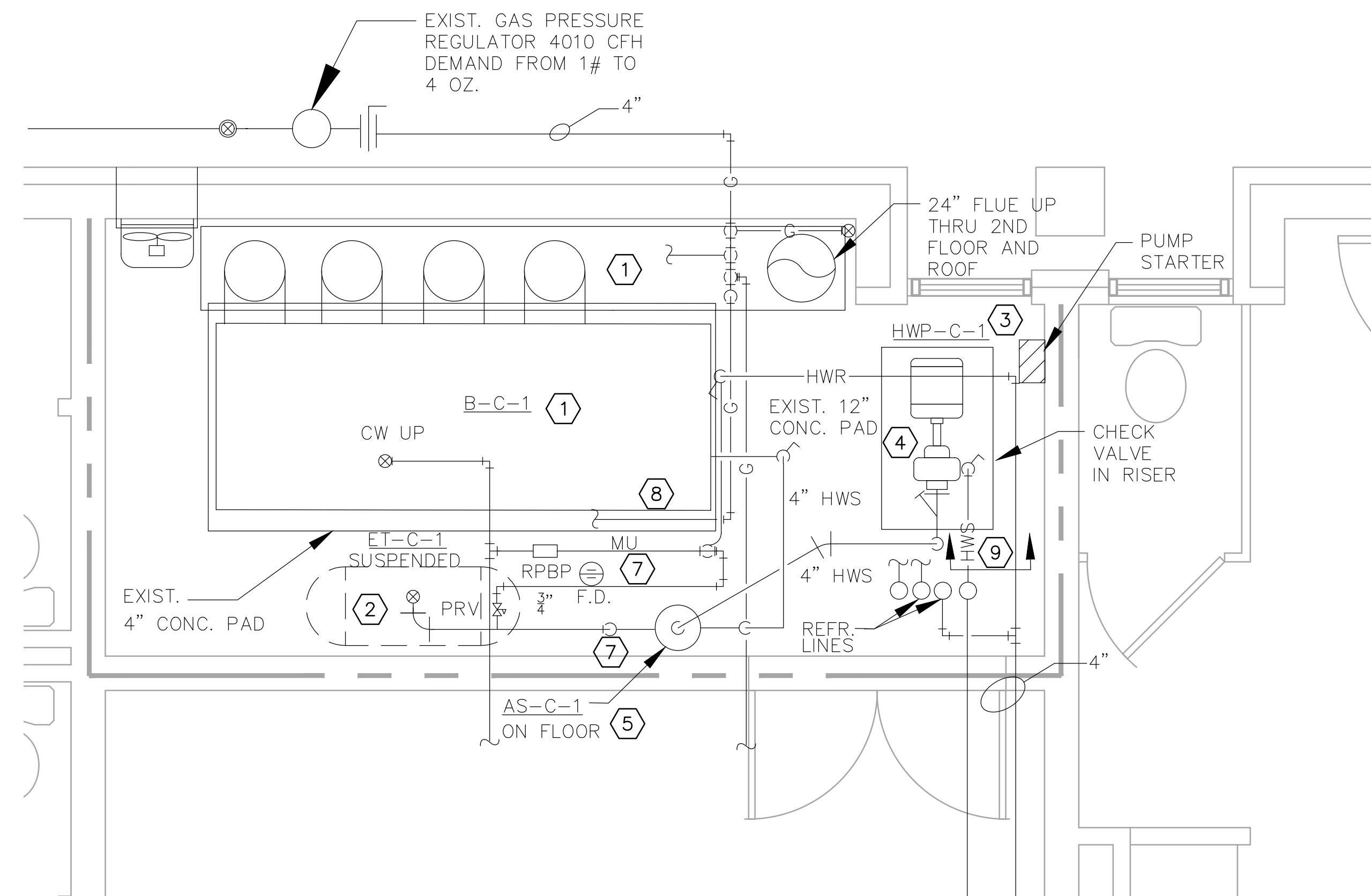
2 BLDG. B - BASEMENT - BOILER ROOM NEW WORK
SCALE: 1/2" = 1'-0"

BLDG. B KEYPLAN

LIFE SAFETY LEGEND
----- 2 HR FIRE WALL



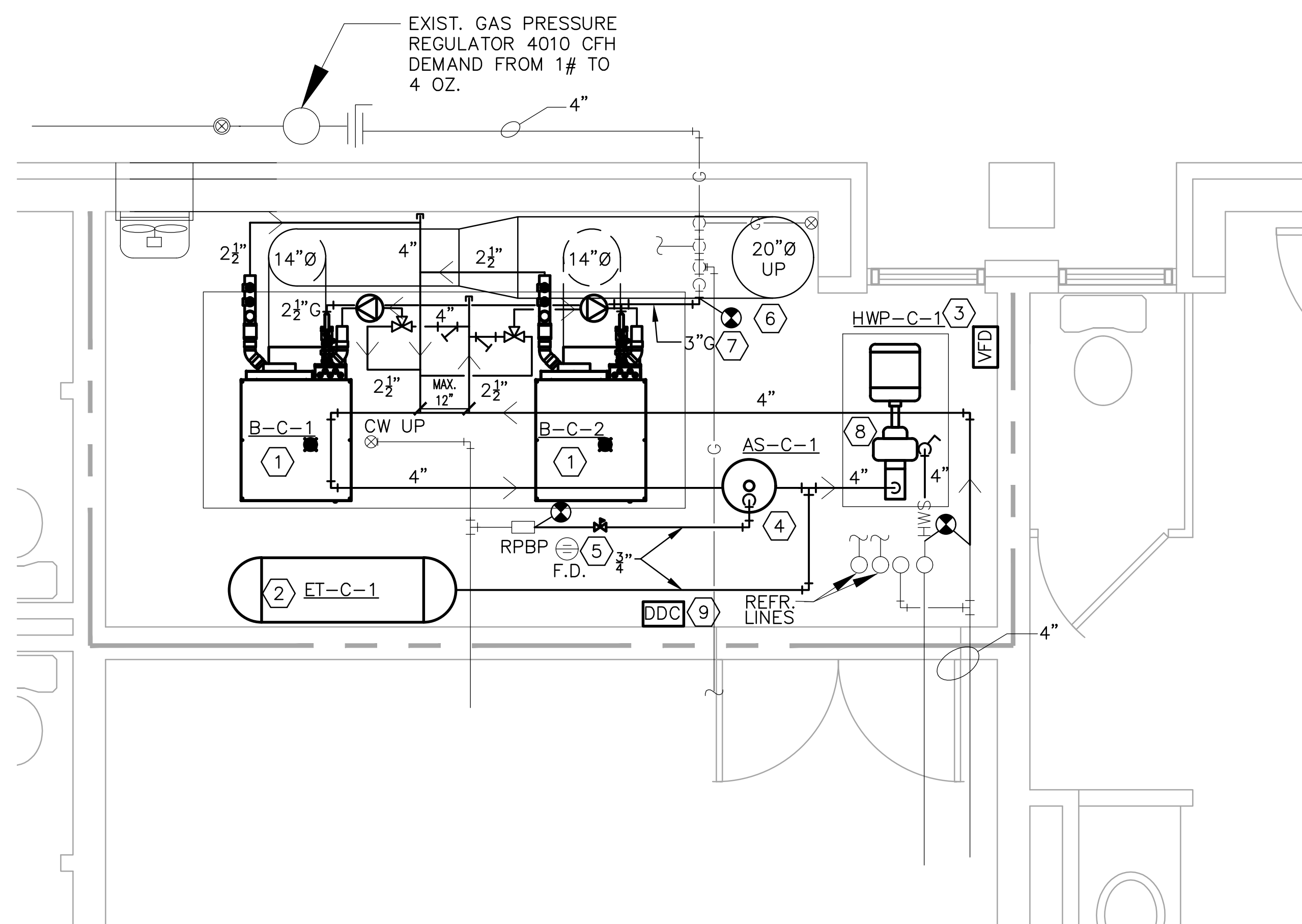
COMBUSTION AIR OPENING CALCULATIONS				
OPENING METHOD USED	ROOM GAS INPUT	REQUIRED FREE AREA	REQUIRED LOUVER AREA	ACTUAL LOUVER AREA
ONE PERMANENT OPENING PER IFGC 304.6.2	2 @ 1700 MBH = 3400 MBH 3400000 BTUH	1 IN ² /3000 BTUH 3400000/3000 = 1133.3	1133.3/0.5 = 2266 IN ² GROSS (@ 50% FREE AREA)	25.5' x 90' = 2295 IN ²



DEMOLITION KEYNOTE LEGEND:

- ① REMOVE EXISTING BOILER B-C-1 AND ASSOCIATED FLUE THRU ROOF.
- ② REMOVE EXISTING SUSPENDED EXPANSION TANK AND ASSOCIATED PIPING.
- ③ REMOVE A 12" HIGH STRIP OF THE EXISTING SHEET METAL BLANKOFF LOCATED AT THE BOTTOM OF THE COMBUSTION AIR LOUVER (INSIDE ROOM) TO PROVIDE A 90" HIGH OPENING. THOROUGHLY CLEAN SCREEN.
- ④ REMOVE EXISTING HOT WATER PUMP HWP-C-1 AND ASSOCIATED VALVES AND ACCESSORIES.
- ⑤ REMOVE EXISTING FLOOR MOUNTED AIR SEPARATOR.
- ⑥ REMOVE ALL CONTROLS ASSOCIATED WITH BOILER AND PUMP.
- ⑦ REMOVE PRV AND MAKEUP WATER PIPING BACK TO EXISTING RPB.
- ⑧ REMOVE EXISTING GAS PIPING SERVING EXISTING BOILER BACK TO TAKEOFF FROM HEADER.
- ⑨ REMOVE ALL HWS AND HWR PIPING WITHIN BOILER ROOM BACK FROM THIS LOCATION.

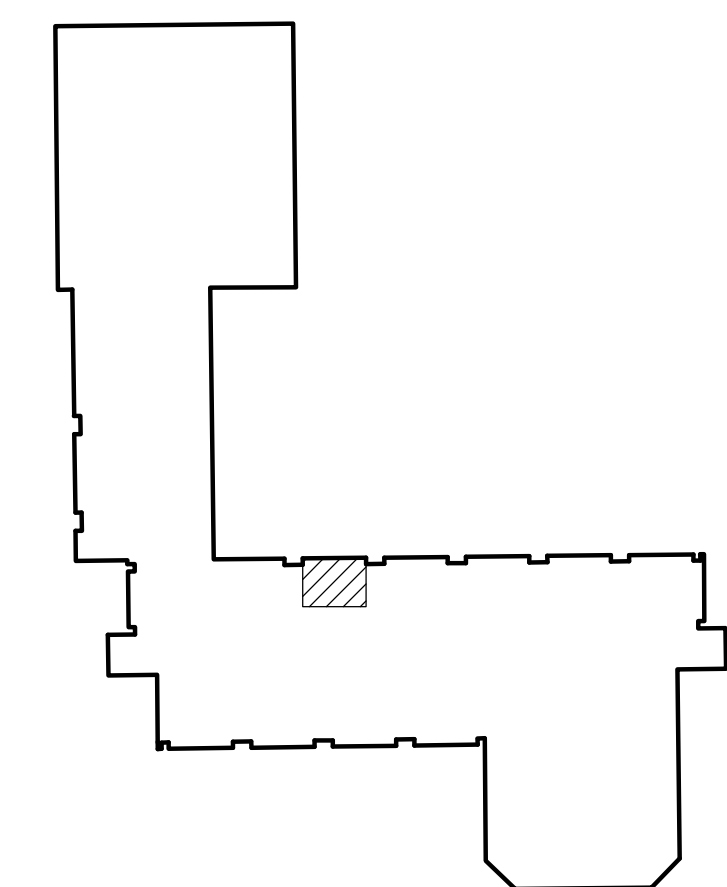
① BLDG. C - FIRST FLOOR - BOILER ROOM DEMOLITION PLAN - ALT. #1
SCALE: 1/2" = 1'-0"



KEYNOTE LEGEND:

- ① INSTALL NEW BOILERS B-C-1 & 2 AS SHOWN ON PLAN AND PER DETAIL 6 ON SHEET M2.1.
- ② INSTALL NEW SUSPENDED EXPANSION TANK AND ASSOCIATED PIPING.
- ③ INSTALL NEW HOT WATER PUMP HWP-C-1, ASSOCIATED VALVES AND ACCESSORIES AND VFD.
- ④ INSTALL NEW IN-LINE AIR SEPARATOR.
- ⑤ INSTALL NEW PRV, BYPASS, PIPING AND ACCESSORIES AS SHOWN ON SHEET M2.1.
- ⑥ INSTALL 14" TYPE B FLUE FROM EACH BOILER AND COMMON VENT WITH A 20" TYPE B FLUE UP THRU EXISTING CHASE ON 2ND FLOOR. EXTEND FLUE THRU EXISTING ROOF CURB, PROVIDE FLASHING AND TERMINATE 3 FEET ABOVE ROOF WITH VENT CAP. INSTALL BAROMETRIC DAMPER IN FLUE FROM EACH BOILER.
- ⑦ CONNECT TO EXISTING 3" GAS PIPING SERVING EXISTING BOILER AND RUN 2-1/2" TO EACH BOILER. SEE DETAIL ON SHEET M2.1.
- ⑧ INSTALL BYPASS CHEMICAL FEEDER AT NEW SYSTEM PUMP AS SHOWN ON SHEET M2.1.
- ⑨ INSTALL CSD-1 COMPLIANT BOILER SHUTDOWN SWITCH AT EXIT FROM BOILER ROOM.

BLDG. C KEYPLAN



LIFE SAFETY LEGEND	
-----	2 HR FIRE WALL

② BLDG. C - FIRST FLOOR - BOILER ROOM NEW WORK - ALT. #1
SCALE: 1/2" = 1'-0"

**HVAC RENOVATIONS
FOR GERMANTOWN
HIGH SCHOOL**

7653 OLD POPLAR PIKE
GERMANTOWN, TN 38138

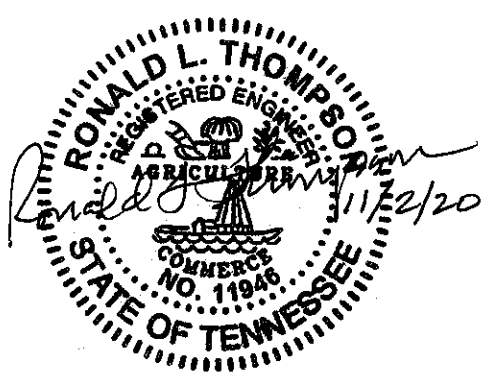


SHELBY COUNTY SCHOOLS

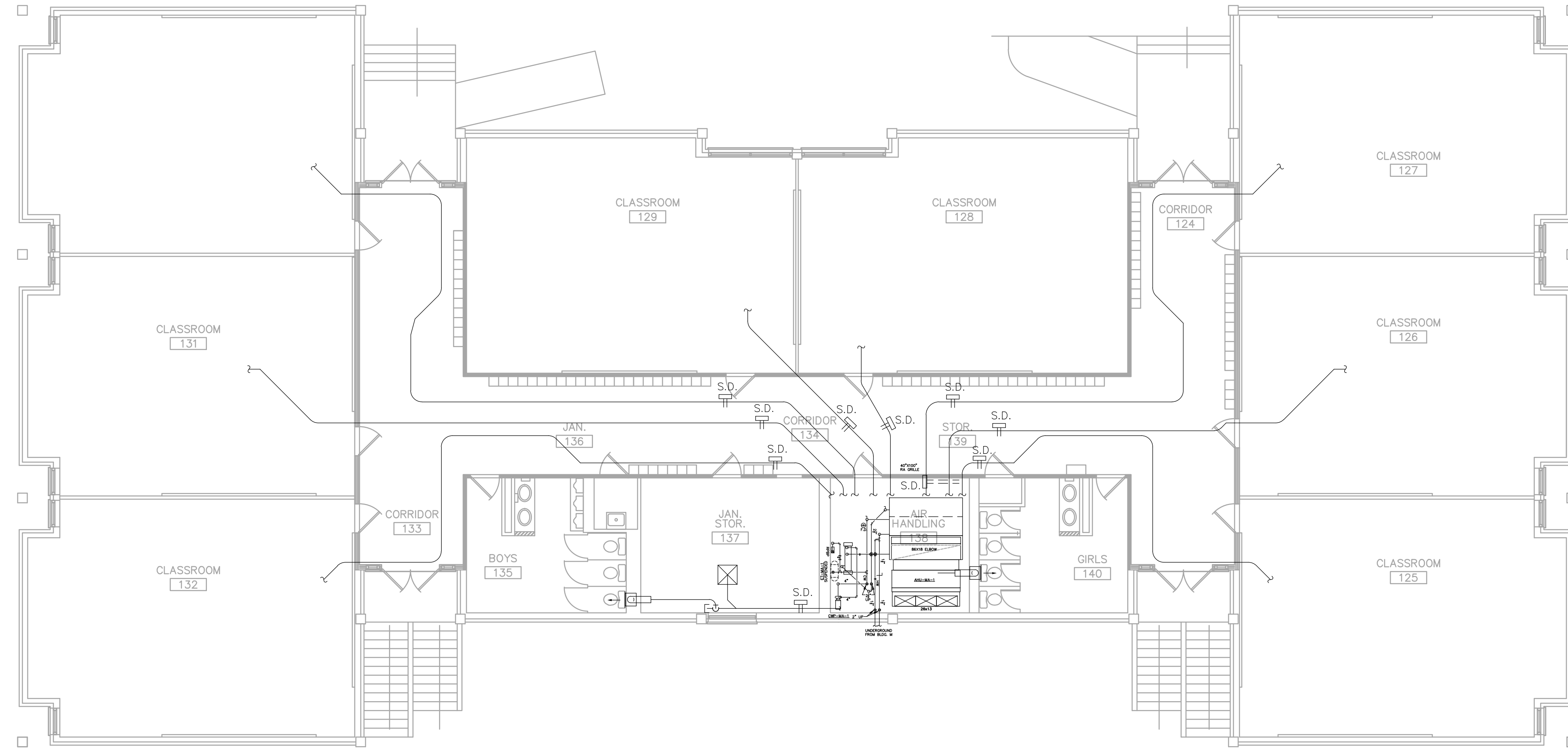
No.	Revision	Date

**BLDG. C - 1ST FLOOR BOILER
REPLACEMENT
ALTERNATE #1**

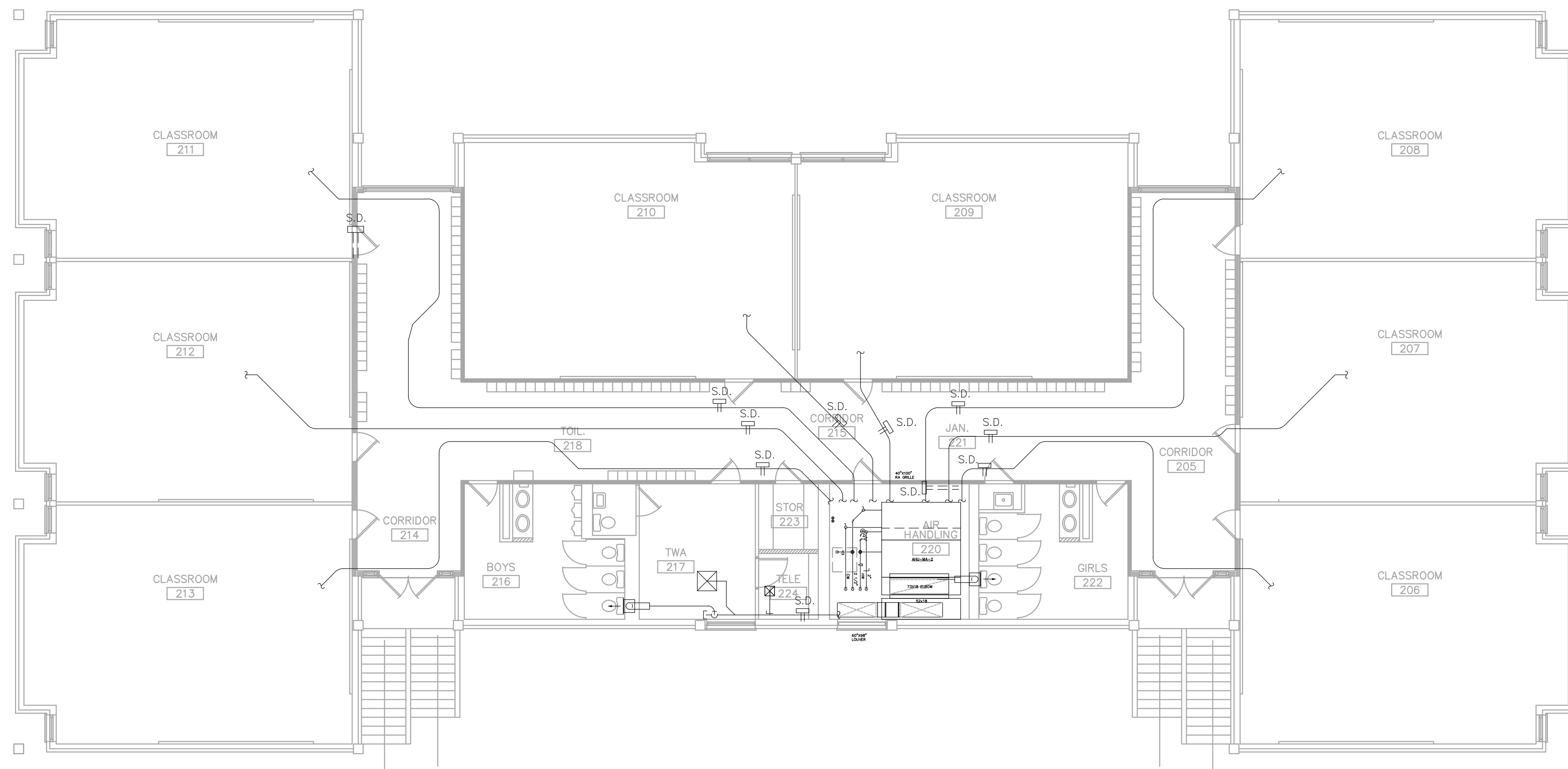
JOB NO: 62992
DATE: 11.02.2020
DRAWN: MDC
CHECKED: RLT
CAD FILE: C-M1.1



- GENERAL NOTES:**
1. TAB CONTRACTOR SHALL MEASURE AND RECORD ALL EXISTING AIR FLOWS ASSOCIATED WITH THE MULTIZONE UNIT AND REPORT TO THE ENGINEER.
 2. AFTER INSTALLATION OF THE NEW MULTIZONE UNIT, THE TAB CONTRACTOR SHALL PROPORTIONALLY BALANCE THE AIR FLOWS BASED UPON THE PREVIOUSLY RECORDED AIR FLOWS AND THE NEW TOTAL AIR FLOW SCHEDULED FOR THE NEW MULTIZONE UNIT.

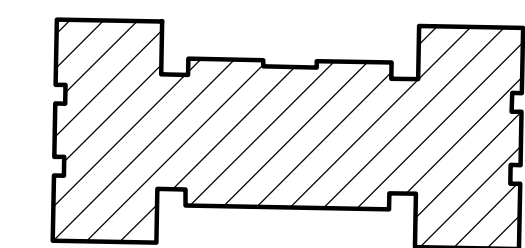


1 BLDG. MA - FIRST FLOOR - MULTIZONE DUCTWORK PLAN
SCALE: 1/8" = 1'-0"



1 BLDG. MA - SECOND FLOOR - MULTIZONE DUCTWORK PLAN
SCALE: 1/8" = 1'-0"

BLDG. MA KEYPLAN



**HVAC RENOVATIONS
FOR GERMANTOWN
HIGH SCHOOL**

7653 OLD POPLAR PIKE
GERMANTOWN, TN 38138



SHELBY COUNTY SCHOOLS

No.	Revision	Date

BLDG. MA - MULTIZONE DUCTWORK

JOB NO: 62992
DATE: 11.02.2020
DRAWN: MDC
CHECKED: RLT
CAD FILE: MA-M1.1



**HVAC RENOVATIONS
FOR GERMANTOWN
HIGH SCHOOL**

7653 OLD POPLAR PIKE
GERMANTOWN, TN 38138

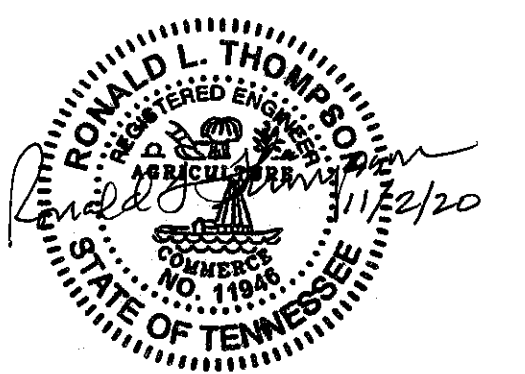


SHELBY COUNTY SCHOOLS

No.	Revision	Date

BLDG. MA - 1ST AND 2ND FLOOR
AHU REPLACEMENTS

JOB NO: 62992
DATE: 11.02.2020
DRAWN: MDC
CHECKED: RLT
CAD FILE: MA-M1.1



MA-M1.2

DEMOLITION KEYNOTE LEGEND:

- ① REMOVE EXISTING MULTIZONE UNIT AHU-MA-1 AND 89x24 OUTSIDE AIR DUCT. DUCTWORK FROM MULTIZONE DISCHARGE SHALL REMAIN. REMOVE ALL DAMPER ACTUATORS.
- ② REMOVE ALL HEATING WATER PIPING AND VALVES FROM AHU-MA-1 BACK TO WHERE PIPING ENTERS ROOM THRU WALL.
- ③ REMOVE ALL CHILLED WATER PIPING AND VALVES WITHIN AHU ROOM.
- ④ REMOVE ALL CONTROLS ASSOCIATED WITH AHU-MA-1.
- ⑤ REMOVE CHILLER EVAPORATOR BARREL, CONCRETE PADS AND ALL ASSOCIATED REFRIGERANT PIPING UP TO CHILLER ON ROOF.
- ⑥ REMOVE CHILLED WATER PUMP CWP-MA-1, CONCRETE PAD AND ALL ASSOCIATED PIPING WITHIN AHU ROOM.
- ⑦ REMOVE SUSPENDED CHILLED WATER EXPANSION TANK AND ASSOCIATED PIPING, INCLUDING MAKEUP WATER PRESSURE REDUCING VALVE BACK TO THE RBPB.

KEYNOTE LEGEND:

- ① MOUNT AHU BASE RAIL ON RUBBER-IN-SHEAR ISOLATOR PADS.
- ② INSTALL 76x8 ELBOW AT RETURN AIR OPENING. RA OPENING SHALL FACE SOUTH AND BE COVERED WITH 1/2" MESH HARDWARE CLOTH.
- ③ CONNECT 76x8 OA OPENING TO EXISTING PLENUM.
- ④ RECONNECT DUCTWORK AT AHU DISCHARGE PLENUM. INSTALL OFFSETS IN DUCTWORK AS REQUIRED TO RECONNECT TO ACTUAL LOCATION OF NEW AHU DISCHARGE OPENING. ZONES WITH MULTIPLE DAMPERS SHALL BE INTERCONNECTED AS CURRENTLY INSTALLED. INSTALL NEW ACTUATORS AT AHU AND DDC THERMOSTATS IN EACH ZONE.
- ⑤ REFER TO DETAIL ON SHEET M2.1 FOR HOT WATER AND CHILLED WATER COIL PIPING.
- ⑥ INSTALL NEW CHILLED WATER PUMPS CWP-MA-1 AND CWP-MA-2 ALONG WITH VFD'S. VFD'S ARE FOR SOFT START AND BALANCING ONLY.
- ⑦ INSTALL NEW EXPANSION TANK ON 4" CONC. PAD.
- ⑧ INSTALL NEW PRV AND 3/4" PIPING FROM EXISTING RBPB TO NEW AIR SEPARATOR. SEE DETAIL ON SHEET M2.1.

DEMOLITION KEYNOTE LEGEND:

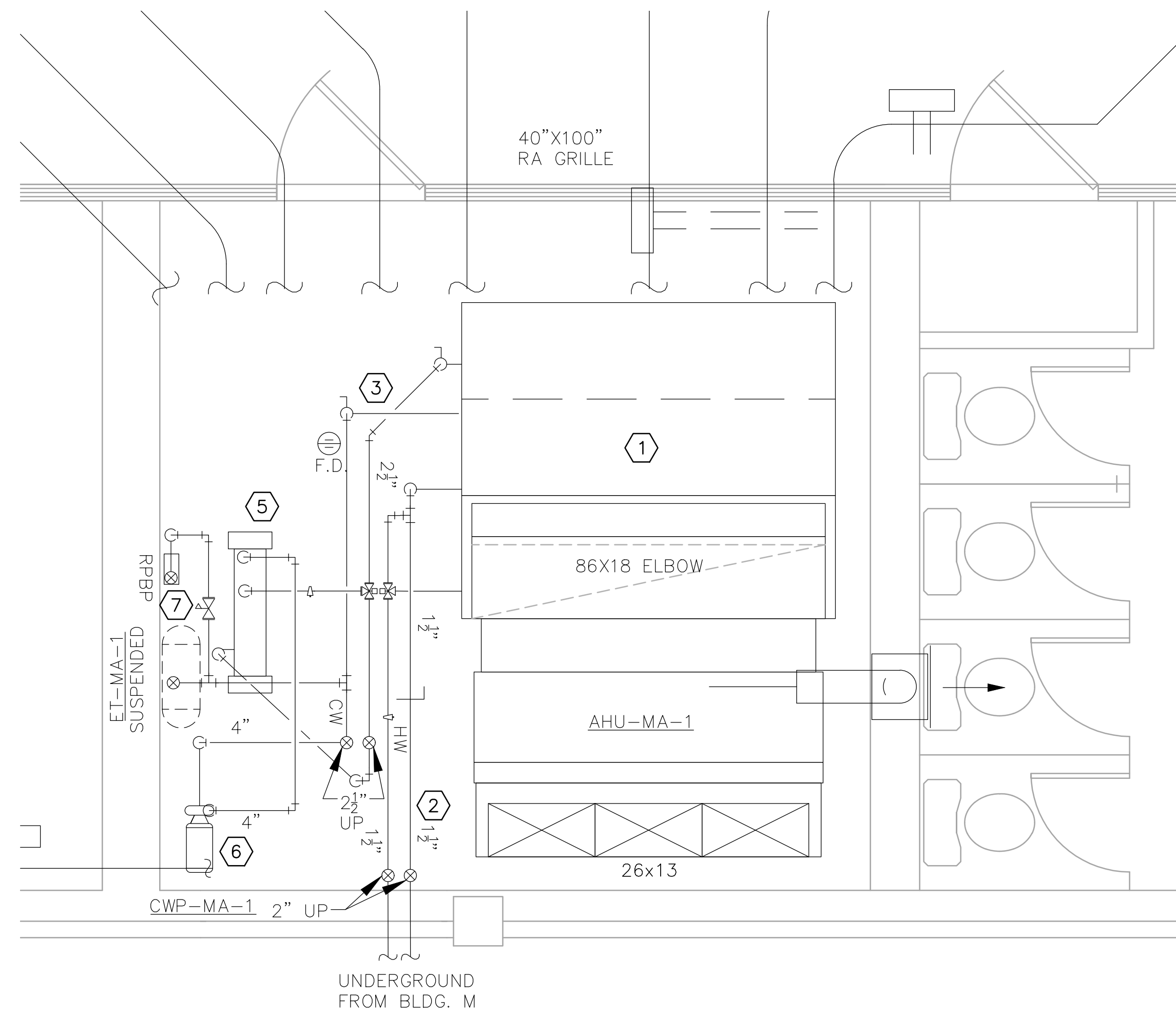
- ① REMOVE EXISTING MULTIZONE UNIT AHU-MA-2. DUCTWORK FROM MULTIZONE DISCHARGE SHALL REMAIN. REMOVE ALL DAMPER ACTUATORS.
- ② REMOVE HEATING WATER PIPING FROM AHU-MA-2 BACK TO AND INCLUDING THE RISER THRU FLOOR.
- ③ REMOVE CHILLED WATER PIPING FROM AHU-MA-2 BACK TO AND INCLUDING THE RISER THRU THE FLOOR.
- ④ REMOVE ALL CONTROLS ASSOCIATED WITH AHU-MA-2.

KEYNOTE LEGEND:

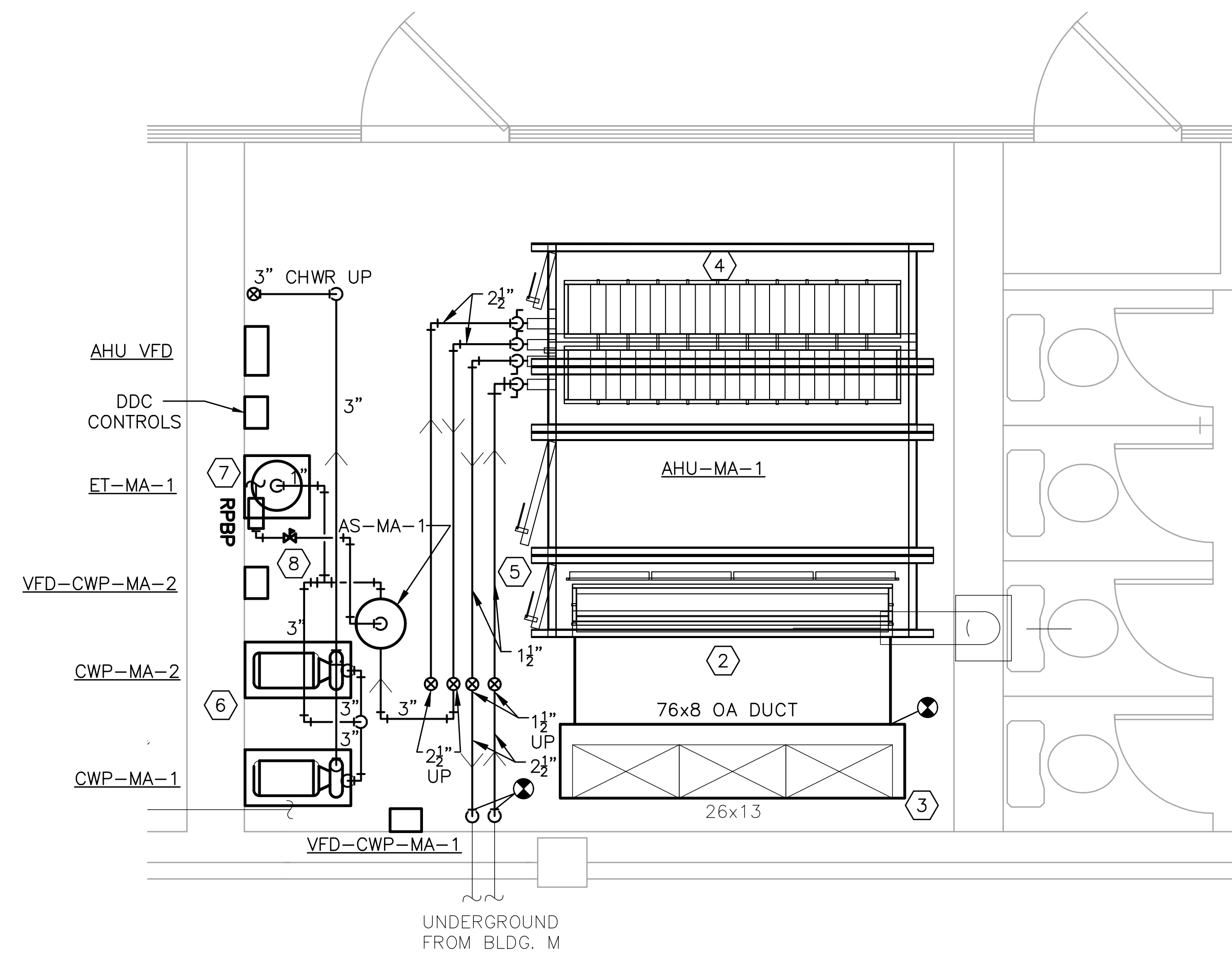
- ① MOUNT AHU BASE RAIL ON RUBBER-IN-SHEAR ISOLATOR PADS.
- ② INSTALL 82x12 ELBOW AT RETURN AIR OPENING. RA OPENING SHALL FACE SOUTH AND BE COVERED WITH 1/2" MESH HARDWARE CLOTH.
- ③ CONNECT 82x12 OA OPENING TO EXISTING PLENUM.
- ④ RECONNECT DUCTWORK AT AHU DISCHARGE PLENUM. INSTALL OFFSETS IN DUCTWORK AS REQUIRED TO RECONNECT TO ACTUAL LOCATION OF NEW AHU DISCHARGE OPENING. ZONES WITH MULTIPLE DAMPERS SHALL BE INTERCONNECTED AS CURRENTLY INSTALLED. INSTALL NEW ACTUATORS AT AHU AND DDC THERMOSTATS IN EACH ZONE.
- ⑤ REFER TO DETAIL ON SHEET M2.1 FOR HOT WATER AND CHILLED WATER COIL PIPING.

GENERAL NOTES:

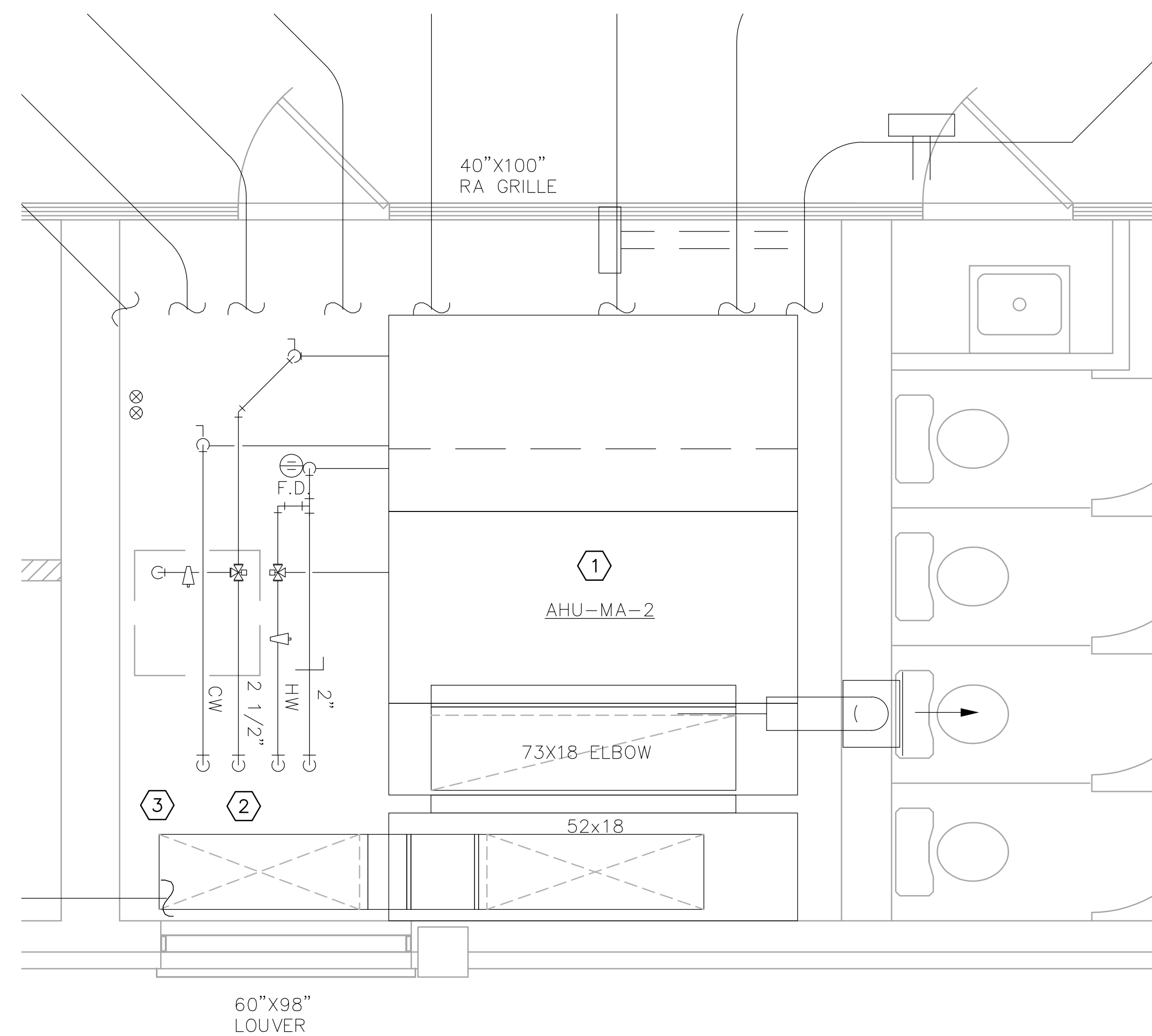
1. EXISTING AHU ROOM HAS A GYPBOARD CEILING. MAKE NECESSARY PENETRATIONS FOR INSTALLATION OF NEW HANGERS AND PATCH. REUSE EXISTING HANGERS WHERE POSSIBLE.
2. COORDINATE LOCATIONS OF NEW VFD'S AND HVAC CONTROLS WITH EXISTING WALL MOUNTED EQUIPMENT.



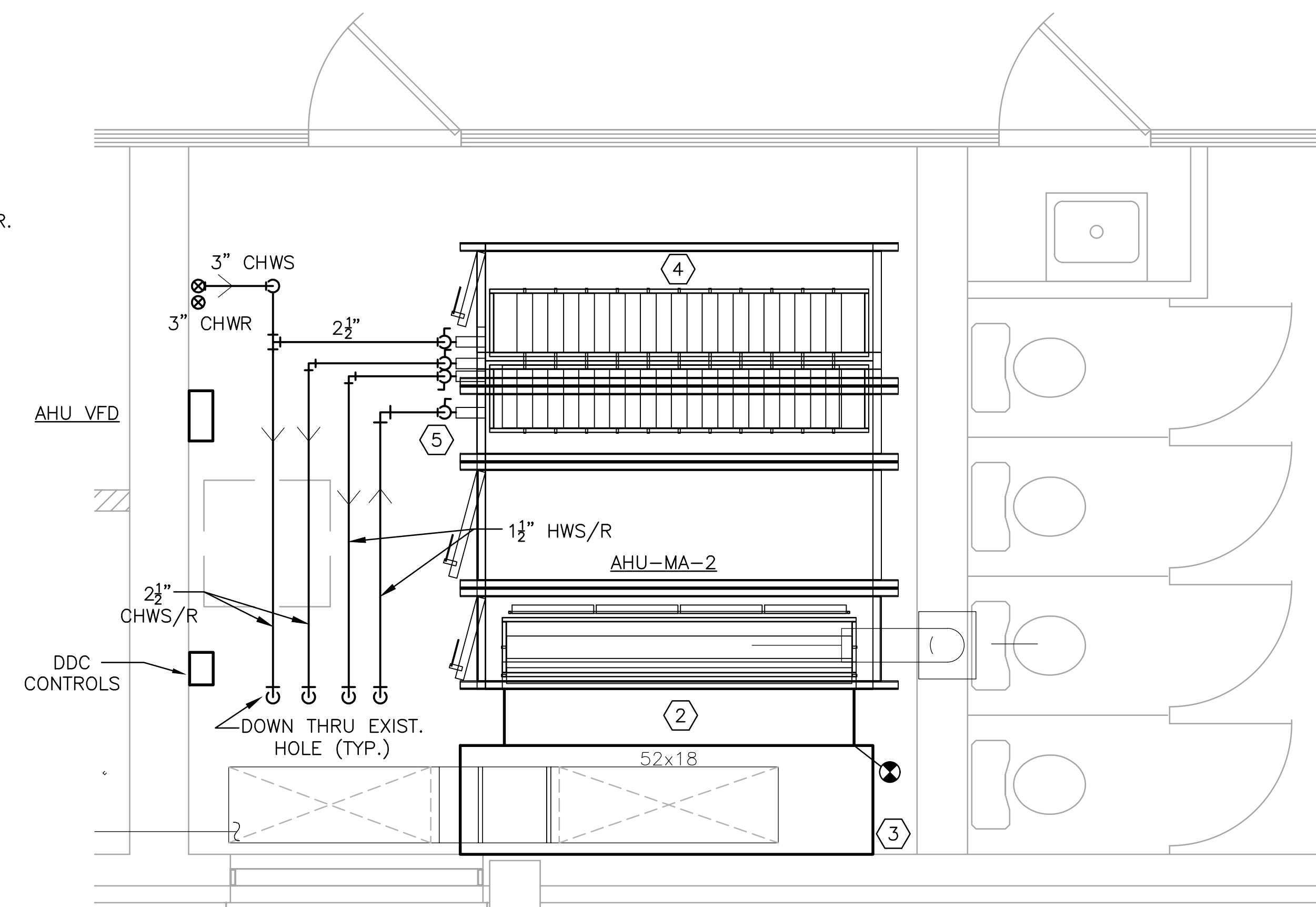
① BLDG. MA - FIRST FLOOR - AHU ROOM 138 DEMOLITION PLAN
SCALE: 1/2" = 1'-0"



② BLDG. MA - FIRST FLOOR - AHU ROOM 138 NEW WORK
SCALE: 1/2" = 1'-0"

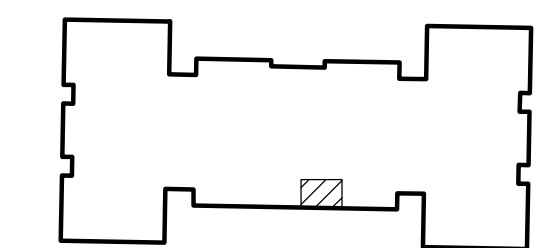


③ BLDG. MA - SECOND FLOOR - AHU ROOM 220 DEMOLITION PLAN
SCALE: 1/2" = 1'-0"



④ BLDG. MA - SECOND FLOOR - AHU ROOM 220 NEW WORK
SCALE: 1/2" = 1'-0"

BLDG. MA KEYPLAN



**HVAC RENOVATIONS
FOR GERMANTOWN
HIGH SCHOOL**

7653 OLD POPLAR PIKE
GERMANTOWN, TN 38138



SHELBY COUNTY SCHOOLS

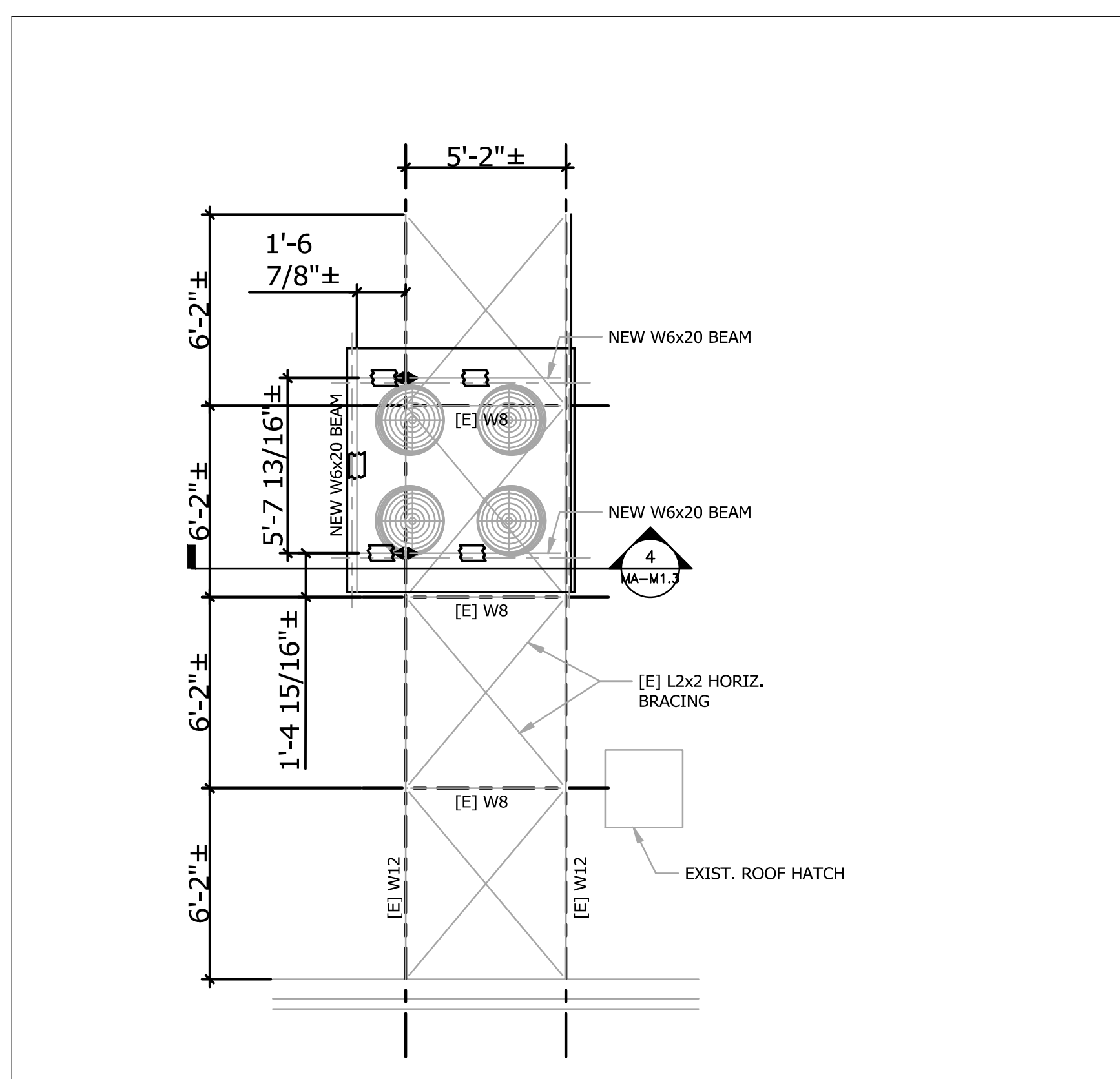
No.	Revision	Date

**BLDG. MA - ROOF - CHILLER
REPLACEMENT & STRUCTURAL
MODIFICATIONS**

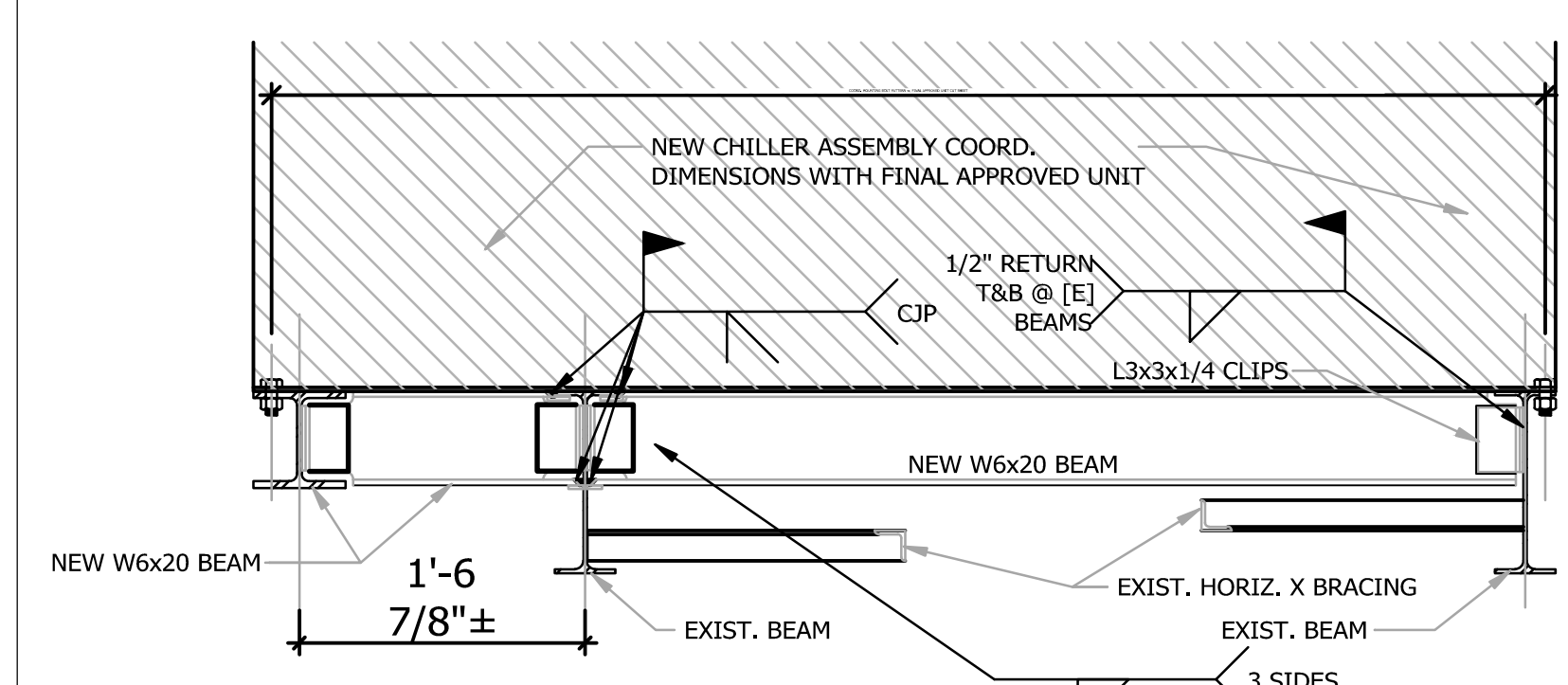
JOB NO: 62992
DATE: 11.02.2020
DRAWN: MDC
CHECKED: RLT
CAD FILE: MA-M1.1



MA-M1.3

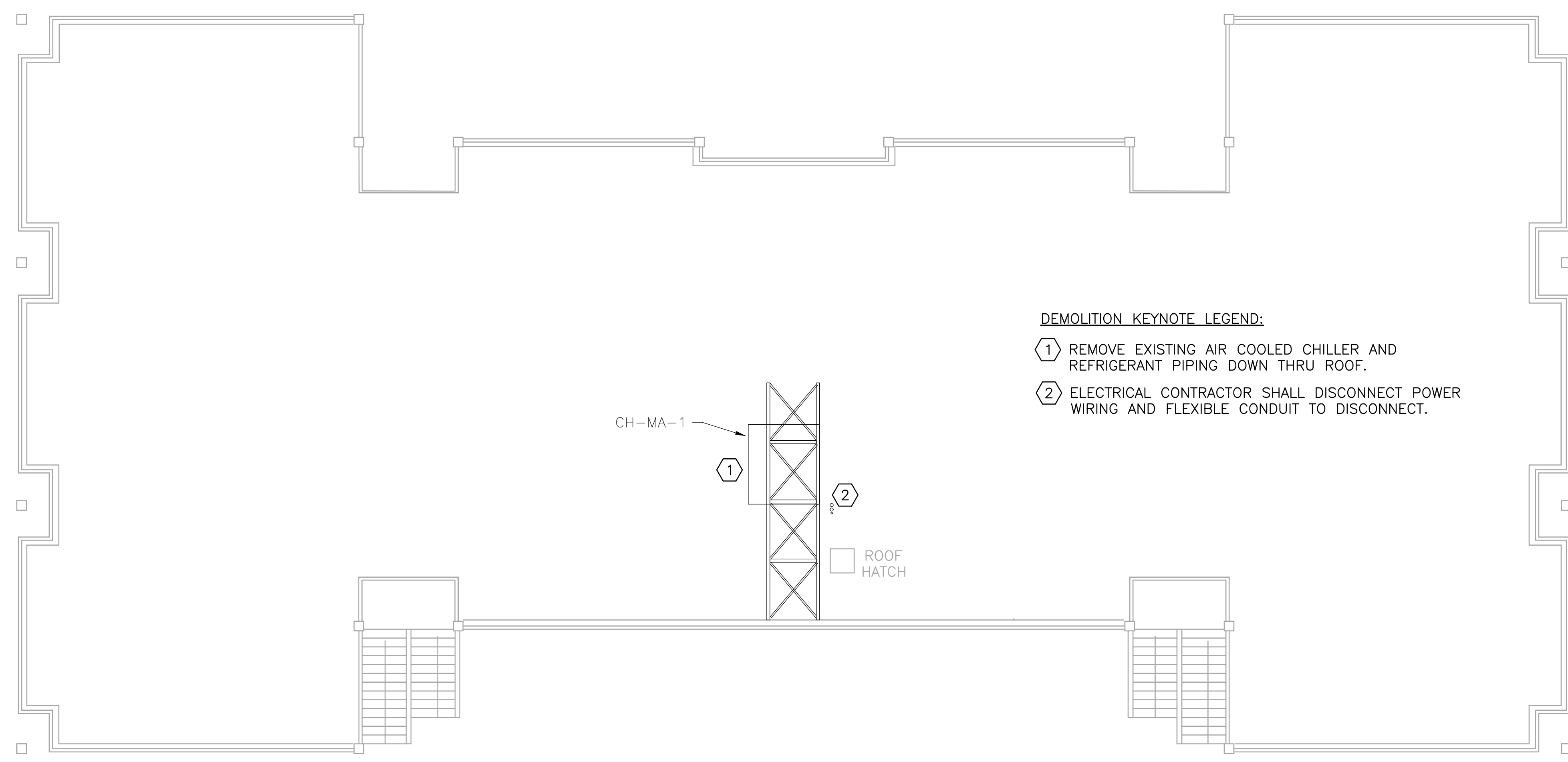
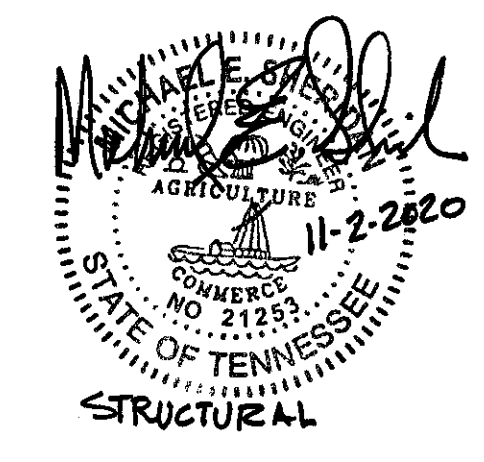


3 CHILLER SUPPORT MODIFICATIONS
SCALE: 1/8" = 1'-0"



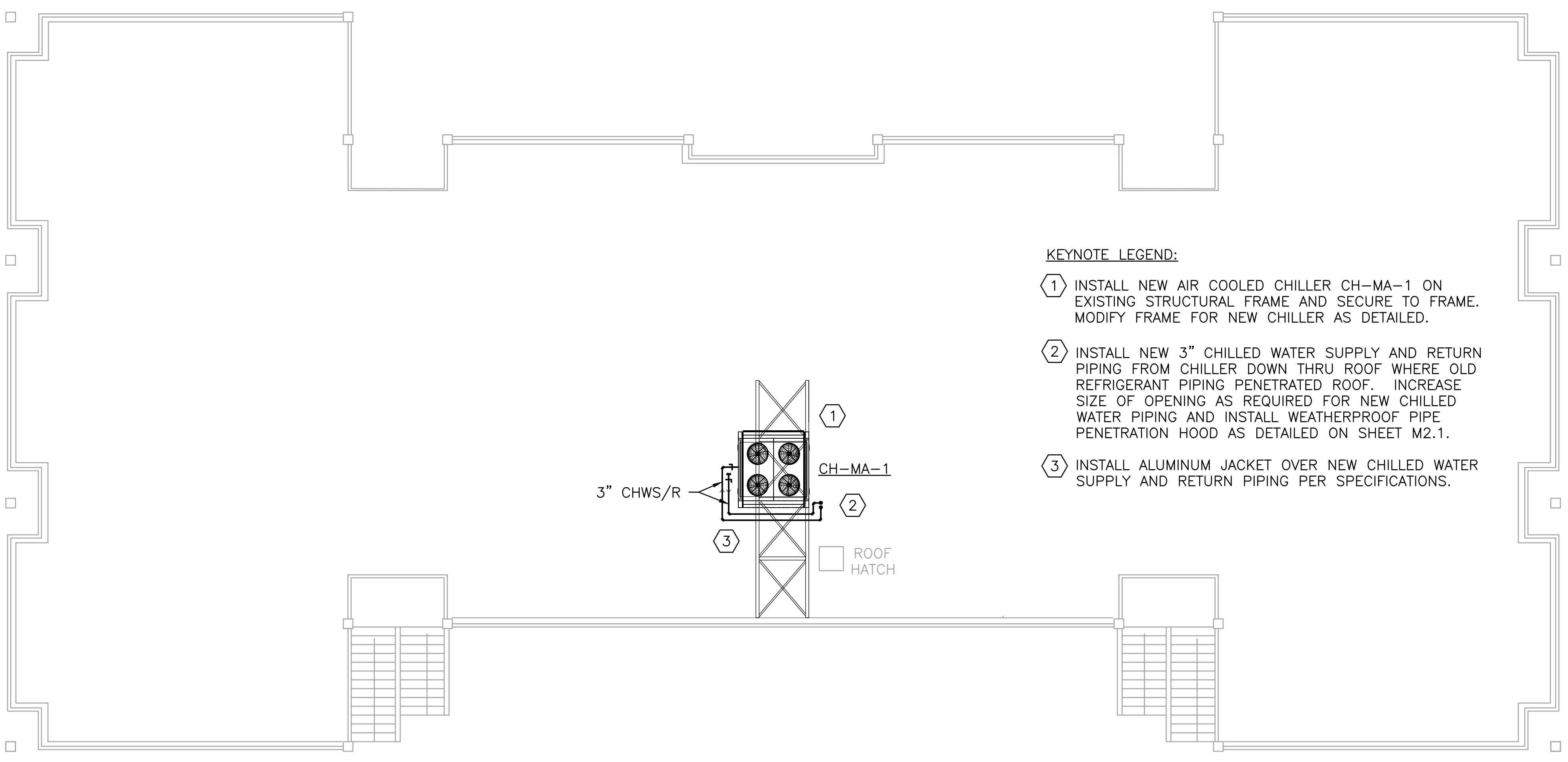
CONTRACTOR NOTES:
1. CONTRACTOR SHALL FIELD MEASURE ALL EXISTING CONDITIONS.
2. CONTRACTOR SHALL CLEAN AND PREP ALL EXISTING STEEL BEAMS IN ACCORDANCE WITH AISC SPECIFICATIONS.
3. CONTRACTOR SHALL FIELD PAINT ALL WELDED CONNECTIONS AT THE WELD AND OPPOSITE SIDE OF BEAM AS WELL.
4. BEAMS SHALL BE ASTM A992, ANGLES & PLATES SHALL MEET ASTM A36.
5. BOLTS SHALL BE ASTM A325-N.
6. WALL ELECTRODES SHALL BE E70XX.

4 SECTION THRU CHILLER SUPPORT FRAME
SCALE: 1" = 1'-0"



DEMOLITION KEYNOTE LEGEND:
① REMOVE EXISTING AIR COOLED CHILLER AND REFRIGERANT PIPING DOWN THRU ROOF.
② ELECTRICAL CONTRACTOR SHALL DISCONNECT POWER WIRING AND FLEXIBLE CONDUIT TO DISCONNECT.

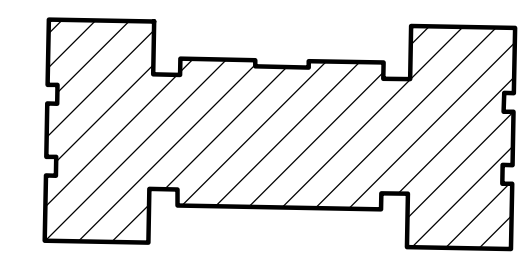
1 BLDG. MA - ROOF PLAN - CHILLER DEMOLITION
SCALE: 1/8" = 1'-0"



KEYNOTE LEGEND:
① INSTALL NEW AIR COOLED CHILLER CH-MA-1 ON EXISTING STRUCTURAL FRAME AND SECURE TO FRAME. MODIFY FRAME FOR NEW CHILLER AS DETAILED.
② INSTALL NEW 3" CHILLED WATER SUPPLY AND RETURN PIPING FROM CHILLER DOWN THRU ROOF WHERE OLD REFRIGERANT PIPING PENETRATED ROOF. INCREASE SIZE OF OPENING AS REQUIRED FOR NEW CHILLED WATER PIPING AND INSTALL WEATHERPROOF PIPE PENETRATION HOOD AS DETAILED ON SHEET M2.1.
③ INSTALL ALUMINUM JACKET OVER NEW CHILLED WATER SUPPLY AND RETURN PIPING PER SPECIFICATIONS.

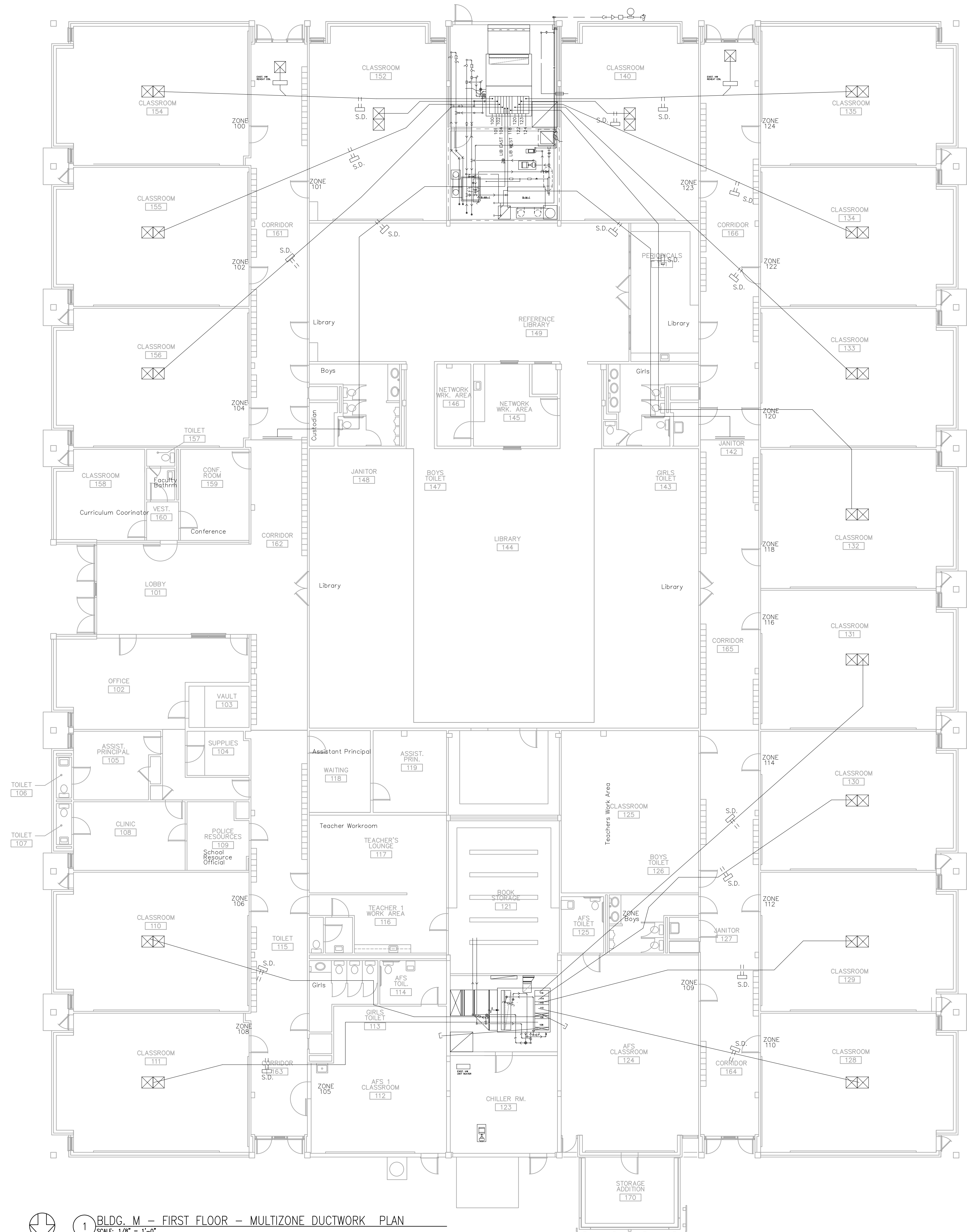
2 BLDG. MA - ROOF PLAN - CHILLER NEW WORK
SCALE: 1/8" = 1'-0"

BLDG. MA KEYPLAN



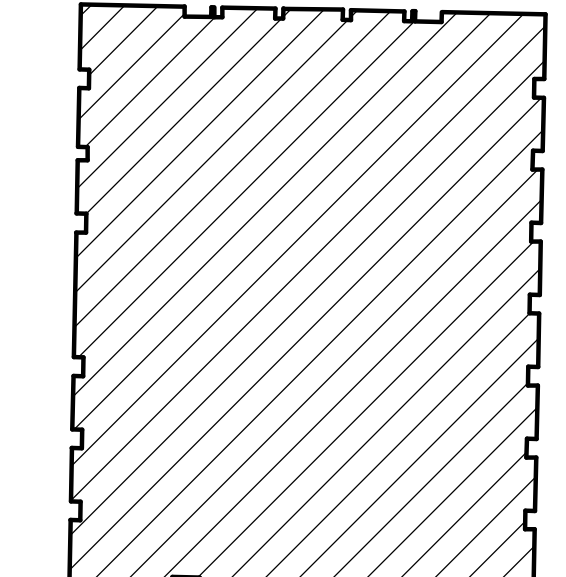
GENERAL NOTES:

1. TAB CONTRACTOR SHALL MEASURE AND RECORD ALL EXISTING AIR FLOWS ASSOCIATED WITH THE MULTIZONE UNIT AND REPORT TO THE ENGINEER.
2. AFTER INSTALLATION OF THE NEW MULTIZONE UNIT, THE TAB CONTRACTOR SHALL PROPORTIONALLY BALANCE THE AIR FLOWS BASED UPON THE PREVIOUSLY RECORDED AIR FLOWS AND THE NEW TOTAL AIR FLOW SCHEDULED FOR THE NEW MULTIZONE UNIT.
3. TAB CONTRACTOR SHALL MEASURE AND RECORD THE HOT WATER FLOW THRU THE REHEAT COILS LOCATED IN CORRIDORS 161 AND 166 AND THE HOT WATER UNIT HEATER IN CHILLER ROOM 123. WATER FLOWS SHALL BE REBALANCED TO EXISTING FLOWS AFTER INSTALLATION OF NEW BOILERS AND PUMPS.



LIFE SAFETY LEGEND
----- 2 HR FIRE WALL

BLDG. M KEYPLAN



1 BLDG. M - FIRST FLOOR - MULTIZONE DUCTWORK PLAN
SCALE: 1/8" = 1'-0"

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HVAC RENOVATIONS FOR GERMANTOWN HIGH SCHOOL

7653 OLD POPLAR PIKE
GERMANTOWN, TN 38138

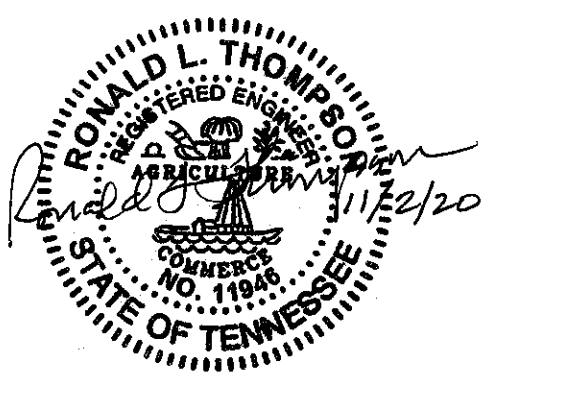


SHELBY COUNTY SCHOOLS

No.	Revision	Date

BLDG. M - MULTIZONE DUCTWORK

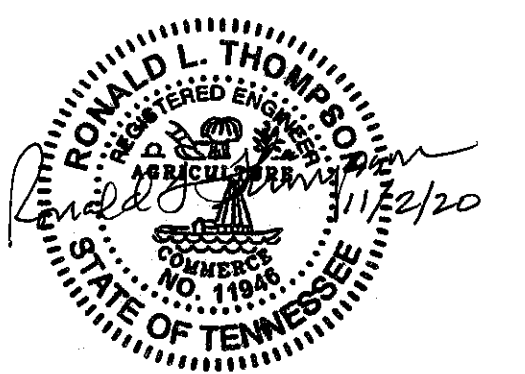
JOB NO: 62992
DATE: 11.02.2020
DRAWN: MDC
CHECKED: RLT
CAD FILE: M-M1.1



M-M1.1



No.	Revision	Date

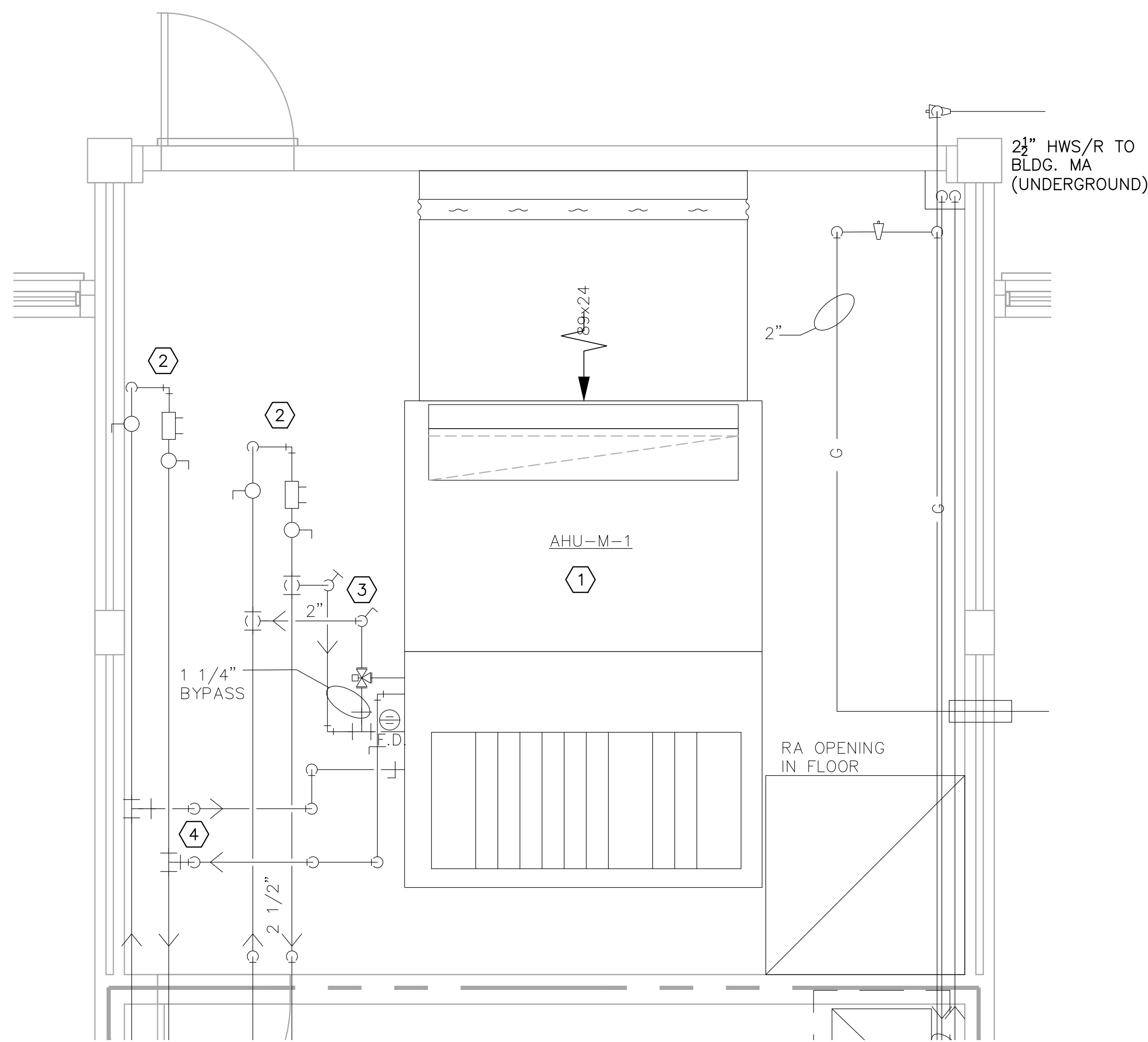


DEMOLITION KEYNOTE LEGEND:

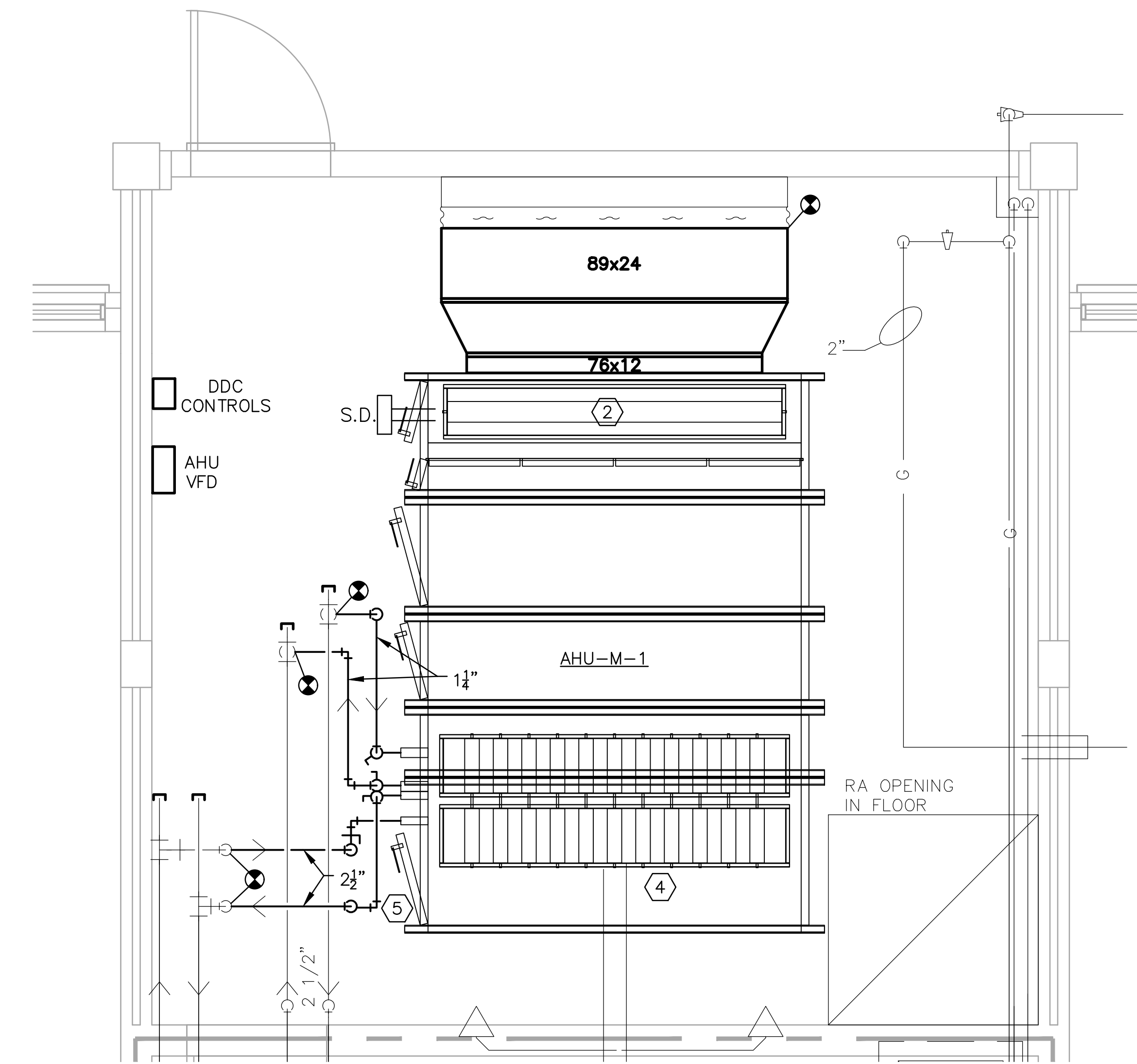
- ① REMOVE EXISTING MULTIZONE UNIT AHU-M-1 AND 89x24 OUTSIDE AIR DUCT. DUCTWORK FROM MULTIZONE DISCHARGE SHALL REMAIN. REMOVE ALL DAMPER ACTUATORS.
- ② REMOVE BALANCING VALVE AND SHUTOFF VALVES AT END OF MAIN. REMOVE PIPING BACK TO AHU TAKEOFFS AND CAP PIPING.
- ③ REMOVE ALL HEATING WATER PIPING AND VALVES BACK TO TAKEOFF AT MAIN.
- ④ REMOVE ALL CHILLED WATER PIPING AND VALVES BACK TO DROP FROM MAIN.
- ⑤ REMOVE ALL CONTROLS ASSOCIATED WITH AHU-M-1.

KEYNOTE LEGEND:

- ① MOUNT AHU BASE RAILS ON RUBBER-IN-SHEAR ISOLATOR PADS.
- ② INSTALL 86x12 ELBOW AT RETURN AIR OPENING. RA OPENING SHALL FACE SOUTH AND BE COVERED WITH 1/2" MESH HARDWARE CLOTH. INSTALL DUCT SMOKE DETECTOR FURNISHED BY ELECTRICAL CONTRACTOR.
- ③ TRANSITION FROM 86x12 OA OPENING TO 89x24 AND CONNECT TO EXISTING FLEXIBLE CONNECTOR.
- ④ RECONNECT DUCTWORK AT AHU DISCHARGE PLENUM. ZONES WITH MULTIPLE DAMPERS SHALL BE INTERCONNECTED AS CURRENTLY INSTALLED. INSTALL NEW ACTUATORS AT AHU AND DDC THERMOSTATS IN EACH ZONE.
- ⑤ REFER TO DETAIL ON SHEET M2.1 FOR HOT WATER AND CHILLED WATER COIL PIPING.



1 BLDG. M - FIRST FLOOR - SOUTH AHU ROOM 151 DEMOLITION PLAN
SCALE: 1/2" = 1'-0"



2 BLDG. M - FIRST FLOOR - SOUTH AHU ROOM 151 NEW WORK
SCALE: 1/2" = 1'-0"

DEMOLITION KEYNOTE LEGEND:

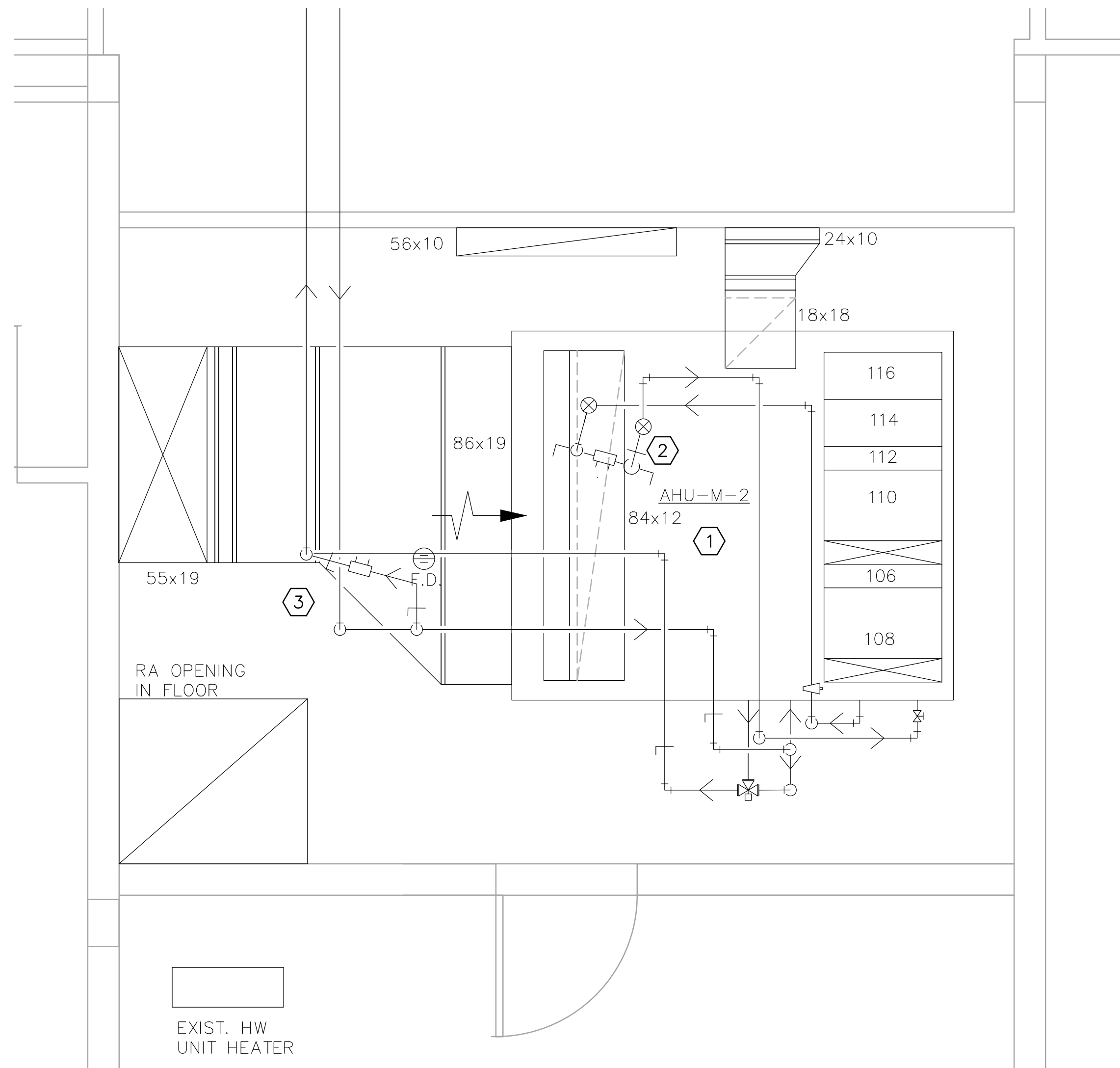
- ① REMOVE EXISTING MULTIZONE UNIT AHU-M-2, 86x19 OUTSIDE AIR DUCT AND TRANSITION TO 55x19 DUCT. DUCTWORK FROM MULTIZONE DISCHARGE SHALL REMAIN. REMOVE ALL DAMPER ACTUATORS.
- ② REMOVE HEATING WATER PIPING BACK TO AND INCLUDING THE BALANCING VALVE AND SHUTOFF VALVES IN THE RISER.
- ③ REMOVE CHILLED WATER PIPING BACK TO AND INCLUDING THE BALANCING VALVE AND SHUTOFF VALVES IN THE RISER.
- ④ REMOVE ALL CONTROLS ASSOCIATED WITH AHU-M-2.

KEYNOTE LEGEND:

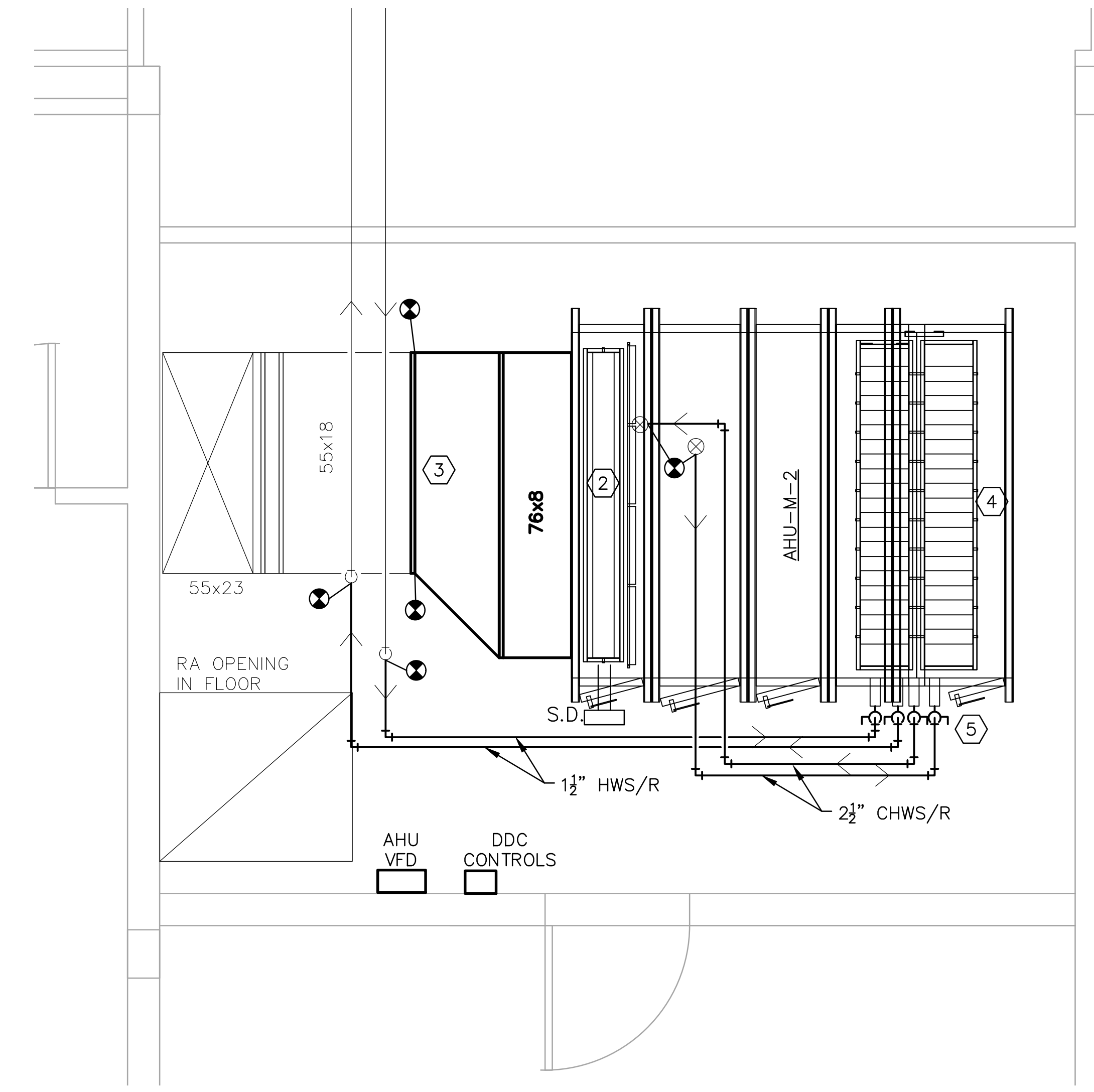
- ① MOUNT AHU BASE RAILS ON RUBBER-IN-SHEAR ISOLATOR PADS.
- ② INSTALL 76x8 ELBOW AT RETURN AIR OPENING. RA OPENING SHALL FACE EAST AND BE COVERED WITH 1/2" MESH HARDWARE CLOTH. INSTALL DUCT SMOKE DETECTOR FURNISHED BY ELECTRICAL CONTRACTOR.
- ③ CONNECT 76x8 OA OPENING TO EXISTING DUCT.
- ④ RECONNECT DUCTWORK AT AHU DISCHARGE PLENUM. ZONES WITH MULTIPLE DAMPERS SHALL BE INTERCONNECTED AS CURRENTLY INSTALLED. INSTALL NEW ACTUATORS AT AHU AND DDC THERMOSTATS IN EACH ZONE.
- ⑤ REFER TO DETAIL ON SHEET M2.1 FOR HOT WATER AND CHILLED WATER COIL PIPING.

GENERAL NOTES:

1. INSTALL PIPE INSULATION ON EXISTING TEES AND ELBOWS OF PIPING WHICH IS TO REMAIN.
2. COORDINATE LOCATIONS OF NEW VFD'S AND HVAC CONTROLS WITH EXISTING WALL MOUNTED EQUIPMENT.

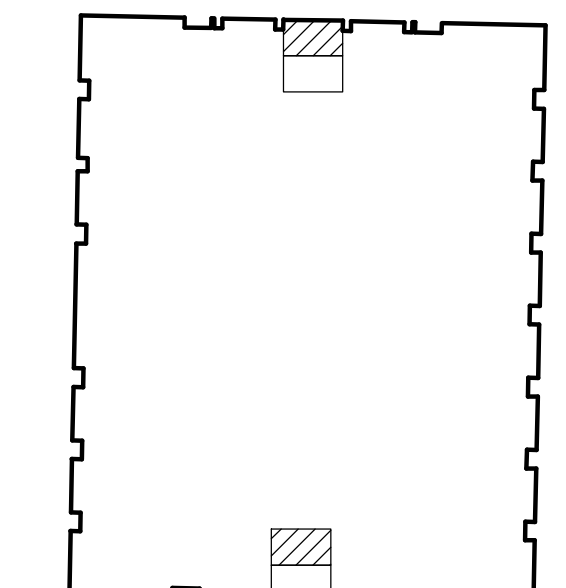


3 BLDG. M - FIRST FLOOR - NORTH AHU ROOM 122 DEMOLITION PLAN
SCALE: 1/2" = 1'-0"



4 BLDG. M - FIRST FLOOR - NORTH AHU ROOM 122 NEW WORK
SCALE: 1/2" = 1'-0"

BLDG. M KEYPLAN

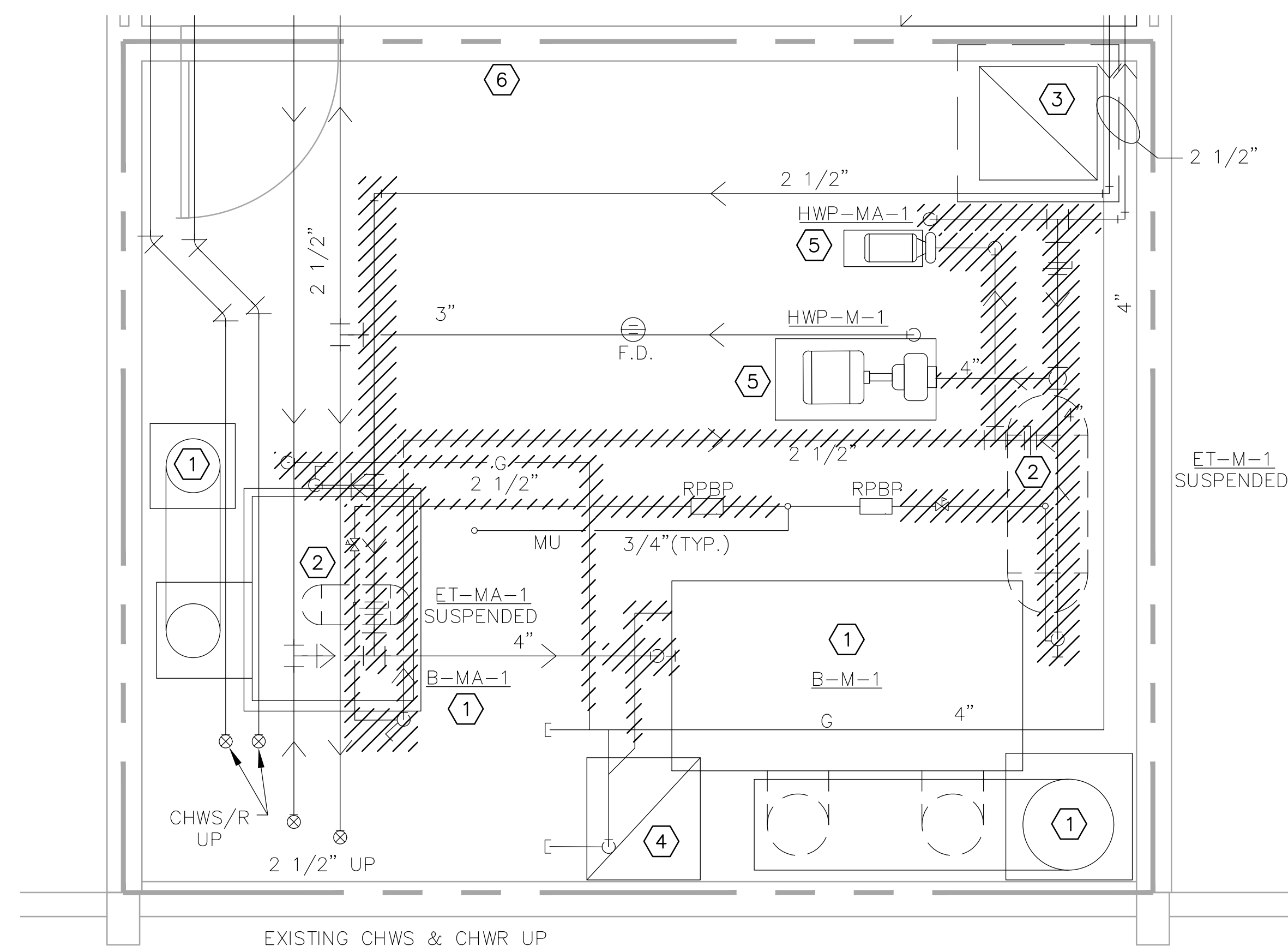


DEMOLITION KEYNOTE LEGEND:

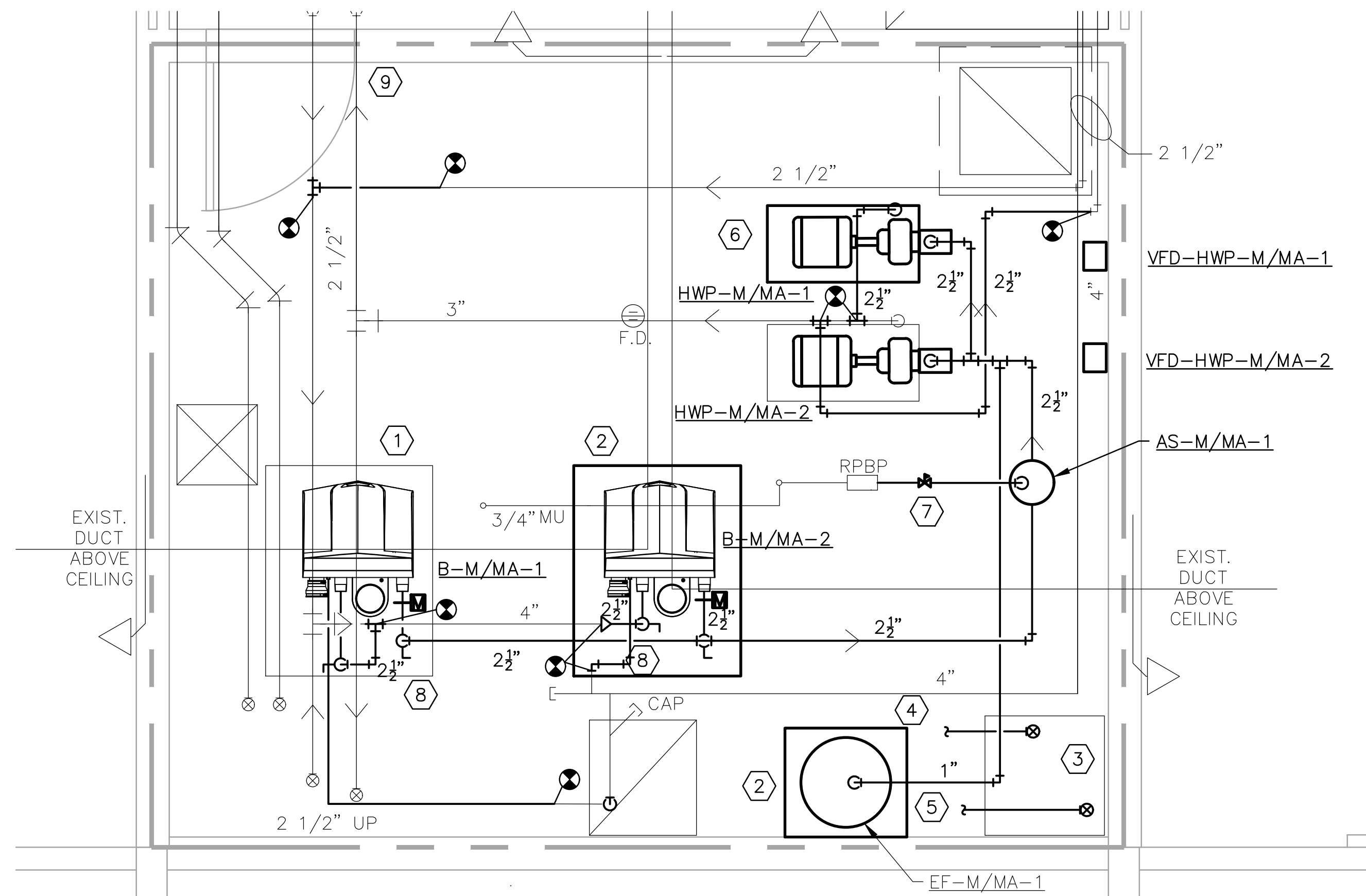
- ① REMOVE EXISTING BOILER B-M-1 AND B-MA-1 AND ASSOCIATED FLUES THRU ROOF. INSTALL A CURB CAP OVER THE EXISTING B-MA-1 ROOF CURB.
- ② REMOVE EXISTING SUSPENDED EXPANSION TANK AND ASSOCIATED PIPING.
- ③ EXISTING 27"x26" COMBUSTION DUCT DOWN TO FLOOR TO REMAIN.
- ④ EXISTING 26"x28" COMBUSTION AIR OPENING IN ROOF WITH GOOSENECK TO REMAIN.
- ⑤ REMOVE EXISTING HOT WATER PUMPS HWP-M-1 AND HWP-MA-1 AND ASSOCIATED VALVES AND ACCESSORIES. REMOVE CONCRETE PAD FOR HWP-MA-1.
- ⑥ REMOVE ALL CONTROLS ASSOCIATED WITH BOILERS AND PUMPS.

KEYNOTE LEGEND:

- ① EXISTING CONCRETE PAD TO REMAIN.
- ② NEW 4" THICK CONCRETE PAD.
- ③ INSTALL CURB ADAPTER TO REDUCE OPENING SIZE FOR INSTALLATION OF A PATE PIPE CURB PACKAGE MODEL PCC-3. VERIFY EXISTING CURB SIZE.
- ④ RUN 4" DIA. CPVC EXHAUST FLUE FROM BOILER B-M/MA-1 TO NEW CURB CAP AND EXTEND 3 FEET ABOVE ROOF.
- ⑤ RUN 4" DIA. CPVC EXHAUST FLUE FROM BOILER B-M/MA-2 TO NEW CURB CAP AND EXTEND 3 FEET ABOVE ROOF.
- ⑥ INSTALL NEW CONCRETE PAD FOR PUMP P-M/MA-2. HEIGHT TO MATCH PAD FOR PUMP P-M/MA-1.
- ⑦ INSTALL NEW PRESSURE REDUCING VALVE AND ALL ACCESSORIES IN MAKEUP WATER LINE. SEE DETAIL ON SHEET M2.1.
- ⑧ INSTALL CONDENSATE NEUTRALIZATION KIT AT EACH BOILER AND RUN TO NEAREST FLOOR DRAIN.
- ⑨ INSTALL CSD-1 COMPLIANT BOILER SHUTDOWN SWITCH AT EXIT FROM BOILER ROOM.



1 BLDG. M - FIRST FLOOR - BOILER ROOM 150 DEMOLITION PLAN
SCALE: 1/2" = 1'-0"

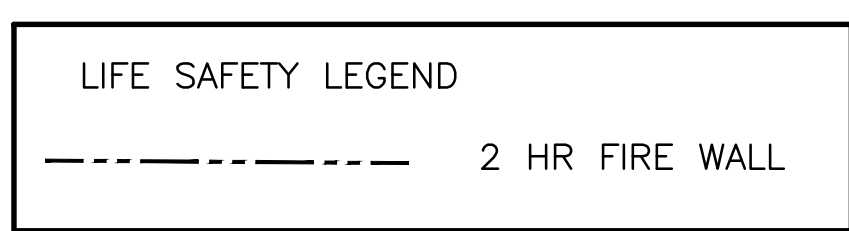


2 BLDG. M - FIRST FLOOR - BOILER ROOM 150 NEW WORK
SCALE: 1/2" = 1'-0"

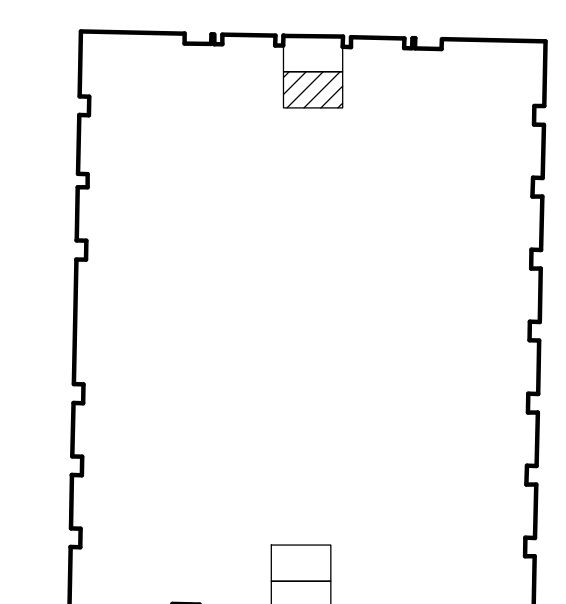
GENERAL NOTES:

1. EXISTING BOILER ROOM HAS A GYPBOARD CEILING. MAKE NECESSARY PENETRATIONS FOR INSTALLATION OF NEW HANGERS AND PATCH. REUSE EXISTING HANGERS WHERE POSSIBLE.
2. INSTALL PIPE INSULATION ON EXISTING TEES AND ELBOWS OF PIPING WHICH IS TO REMAIN.
3. COORDINATE LOCATIONS OF NEW VFD'S AND HVAC CONTROLS WITH EXISTING WALL MOUNTED EQUIPMENT.

COMBUSTION AIR OPENING CALCULATIONS				
OPENING METHOD USED	ROOM GAS INPUT	REQUIRED FREE AREA PER OPENING	REQUIRED LOUVER AREA PER OPENING	ACTUAL FREE AREA PER OPENING
TWO PERMANENT OPENINGS PER IFGC 304.6.1 (HIGH & LOW)	2 @ 600 MBH = 1200 MBH 1200000 BTUH	1 IN ² /4000 BTUH = 1200000/4000 = 300 IN ²	NO LOUVERS USED	27' x 26' = 702 IN ² (LOW) 26' x 28' = 728 IN ² (HIGH)



BLDG. M KEYPLAN



No.	Revision	Date



**HVAC RENOVATIONS
FOR GERMANTOWN
HIGH SCHOOL**

7653 OLD POPLAR PIKE
GERMANTOWN, TN 38138

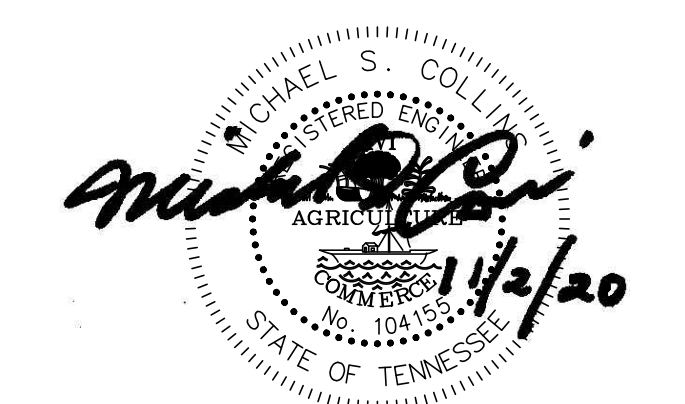


SHELBY COUNTY SCHOOLS

No.	Revision	Date

LEGEND, NOTES, DETAILS, AND
OVERALL CAMPUS SITE PLAN
- ELECTRICAL

JOB NO: 62992
DATE: 11.02.2020
DRAWN: JAB
CHECKED: MSC
CAD FILE: E0.1



GENERAL AND DEMOLITION NOTES:

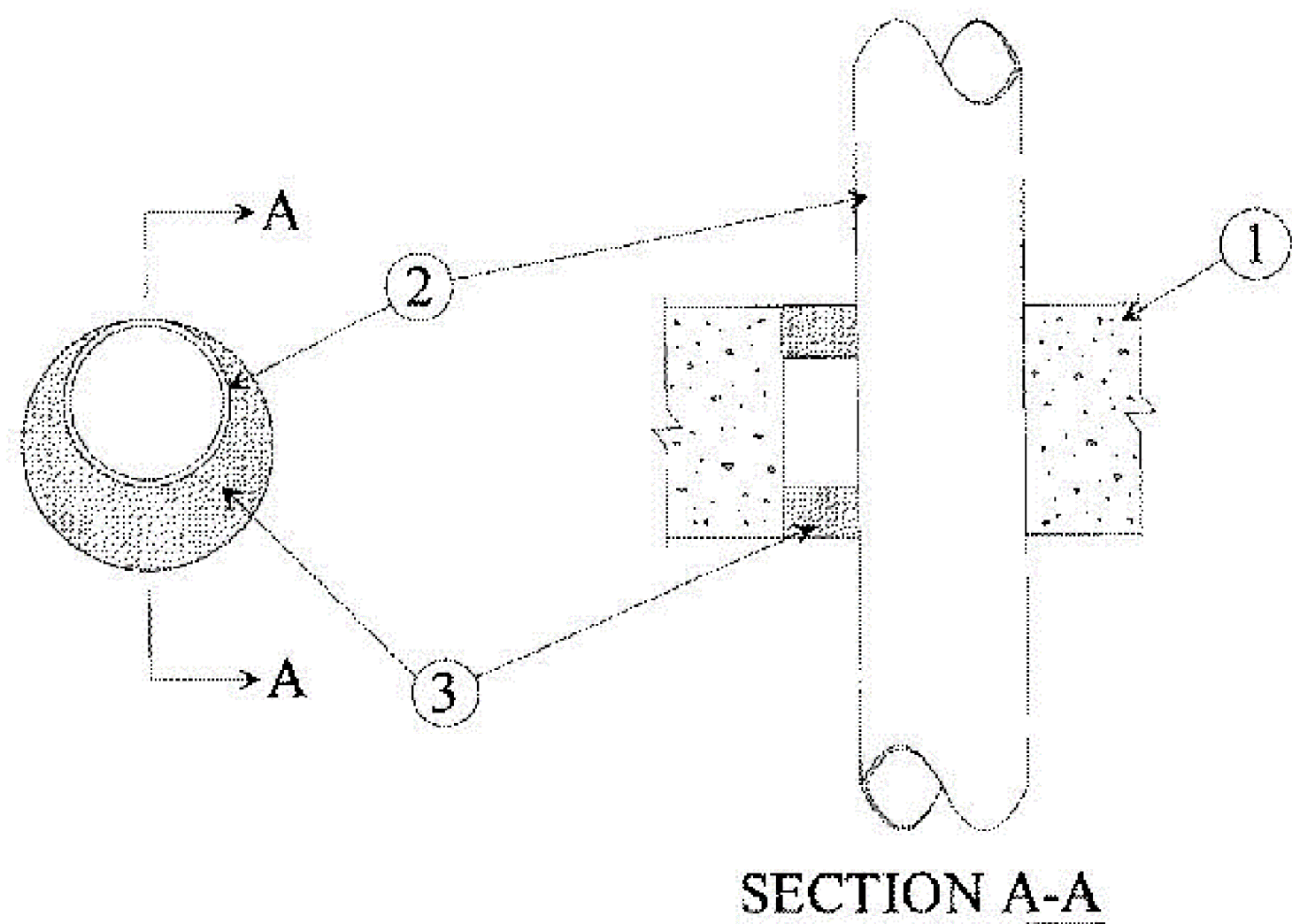
- ALL CIRCUITRY (WIRES, CONDUITS, CONTROLS, DISCONNECTS, ETC.) FOR MECHANICAL ITEMS BEING DEMOLISHED SHALL BE DEMOLISHED BACK TO THE PANEL FROM WHICH THEY ARE SERVED. UOI. SEE MECHANICAL DEMOLITION SHEETS FOR EXACT LOCATIONS AND COORDINATE WITH MECHANICAL CONTRACTOR AND SIEMENS.
- ALL LOW VOLTAGE WIRING NOT INSTALLED IN CONDUIT SHALL BE PLENUM RATED.
- DISCONNECTS AND STARTERS ARE PROVIDED BY MECHANICAL (UNLESS SHOWN ON ELECTRICAL PLANS) AND SHALL BE INSTALLED AND CIRCUITED BY ELECTRICAL CONTRACTOR. COORDINATE WITH MECHANICAL CONTRACTOR. ANY NON-FUSED DISCONNECT (REGARDLESS OF WHO PROVIDES IT) SHALL BE SERVED FROM A HACR RATED BREAKER IN THE PANEL IT IS FED FROM.
- ANY DEMOLISHED, MODIFIED OR NEW CIRCUITS SHALL BE CLEARLY RECORDED AT THE PANEL WITH NEW, TYPED DIRECTORIES. SPARE BREAKERS SHALL BE CLEARLY LABELED AS "SPARE". IN ADDITION, CONTRACTOR SHALL LABEL EACH NEW PIECE OF MECHANICAL EQUIPMENT WITH ITS CORRESPONDING CIRCUIT # AND PANEL LOCATION USING A TYPED LABEL (LOCATED WHERE EASILY VISIBLE).
- CONTRACTOR SHALL VERIFY THAT ALL NEW MECHANICAL EQUIPMENT INSTALLED HAS A SERVICE RECEPTACLE LOCATED WITHIN 75' OF IT. IF A SERVICE RECEPTACLE DOES NOT EXIST WITHIN 75', CONTRACTOR SHALL PROVIDE A SERVICE RECEPTACLE FOR ALL NEW MECHANICAL EQUIPMENT AS REQUIRED BY ALL APPLICABLE CODES AND CONTRACT SPECIFICATIONS. REQUIREMENTS SHALL BE UNDERSTOOD BY CONTRACTOR CONDUCTING SITE VISIT PRIOR TO BID.
- CONTRACTOR SHALL INSTALL ALL CIRCUITS IN THE PANELBOARD IN A BALANCED MANNER, RESULTING IN BUS LOADS THAT ARE DISTRIBUTED AS EVEN AS POSSIBLE AND DO NOT EXCEED THE BUS AMP RATING.
- MINIMUM WIRE SIZE FOR ALL NEW CIRCUITS IS #12 WIRE. FOR ALL REUSED CIRCUITS SERVING NEW EQUIPMENT, CONTRACTOR SHALL ENSURE A GROUND WIRE IS PRESENT. IF THERE IS NO GROUND WIRE PRESENT, CONTRACTOR SHALL RE-PULL THE CIRCUIT WITH A GROUND WIRE.

- 120/208V 3PH, 4W PANELBOARD
- 277/480V 3PH, 4W PANELBOARD
- TRANSFORMER
- WIRE IN CONDUIT RUN OVERHEAD - CONCEALED IN OR ABOVE CEILING IN WALL OR EXPOSED ON STRUCTURE
- WIRE IN CONDUIT RUN CONCEALED BELOW FLOOR, IN WALL OR BELOW GRADE
- INDICATES GROUNDING CONDUCTOR
- JUNCTION BOX - SIZE AS REQUIRED
- MOTOR RATED SWITCH
- NOTE INDICATION
- UOI UNLESS OTHERWISE INDICATED
- EX EXISTING
- FIRE ALARM SYSTEM - DUCT MTD. SMOKE DETECTOR - CONNECT TO EXISTING FIRE ALARM SYSTEM. PROVIDED BY ELECTRICAL CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR (CIRCUITING BY ELECTRICAL). PROVIDE A DETECTOR THAT IS COMPATIBLE WITH EXISTING FIRE ALARM SYSTEM. PROVIDE MECHANICAL UNIT SHUTDOWN.

1 LEGEND
SCALE: N.T.S.

System No. C-AJ-1201
April 01, 2013

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Rating - 1 and 2 Hr (See Item 1)
T Ratings — 0 and 1/4 Hr (See Item 2)	FT Rating - 0 and 1/4 Hr (See Item 2)
L Rating at Ambient — Less Than 1 CFM/sq ft	FH Rating - 1 and 2 Hr (See Item 1)
L Rating at 400 F — 3 CFM/sq ft	FTH Rating - 0 and 1/4 Hr (See Item 2)
	L Rating at Ambient — Less Than 1 CFM/sq ft
	L Rating at 400 F — 3 CFM/sq ft



2 1 AND 2 HOUR FIRE WALL/FLOOR PENETRATION DETAIL - ELECTRICAL
SCALE: N.T.S.

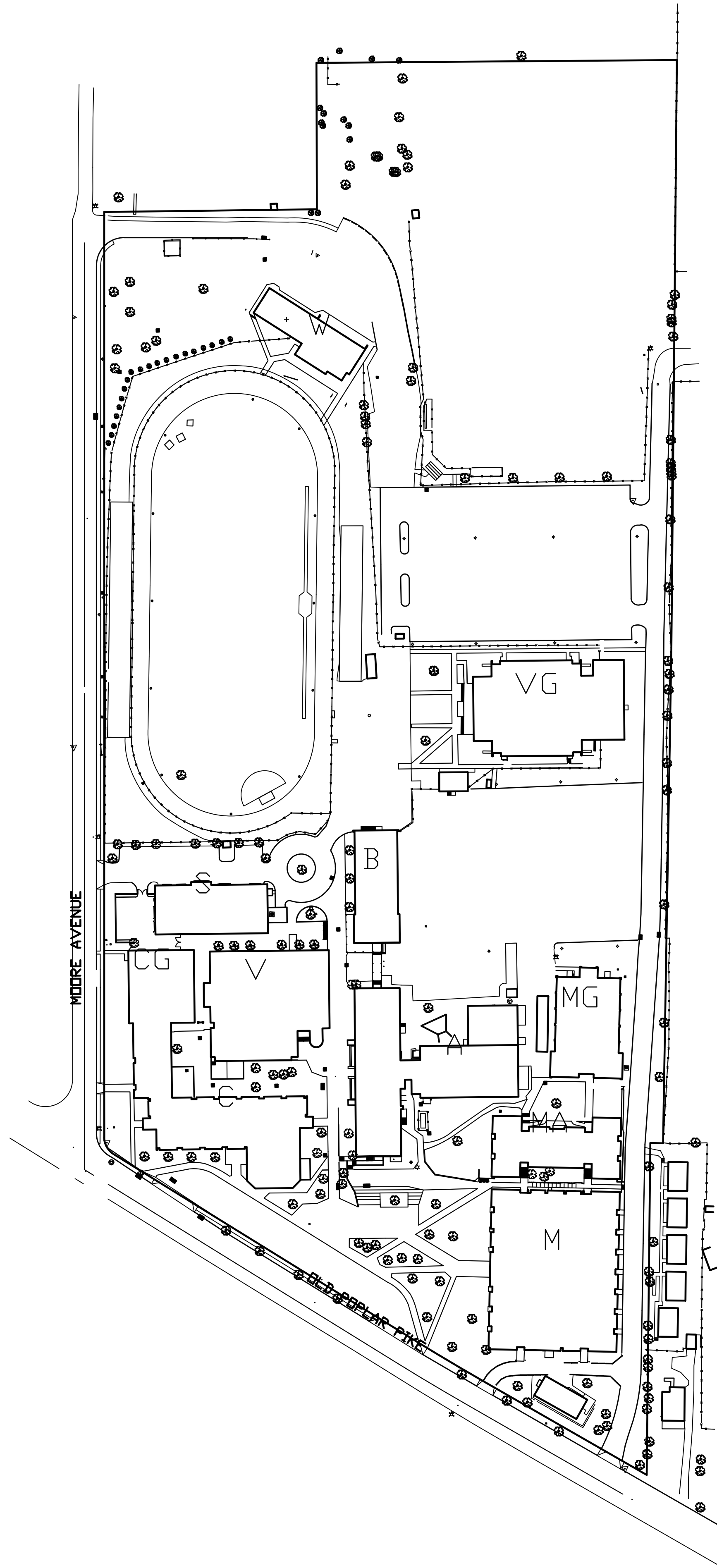
1. Floor or Wall Assembly — Min 3-3/4 in. (95 mm) and 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete for 1 and 2 hr rated assemblies, respectively. Wall may also be constructed of any UL Classified **Concrete Blocks***. Floor may also be constructed of any min 6 in. thick UL Classified hollow-core **Precast Concrete Units***. Max diam of opening is 6 in. (152 mm).
See **Concrete Blocks (CAZT)** and **Precast Concrete Units (CFTV)** categories in the Fire Resistance Directory for names of manufacturers.

2. Through-Penetrant — One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. (0 mm, point contact) to max 1-1/2 in. (38 mm). Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types of pipe, conduit or tubing may be used:

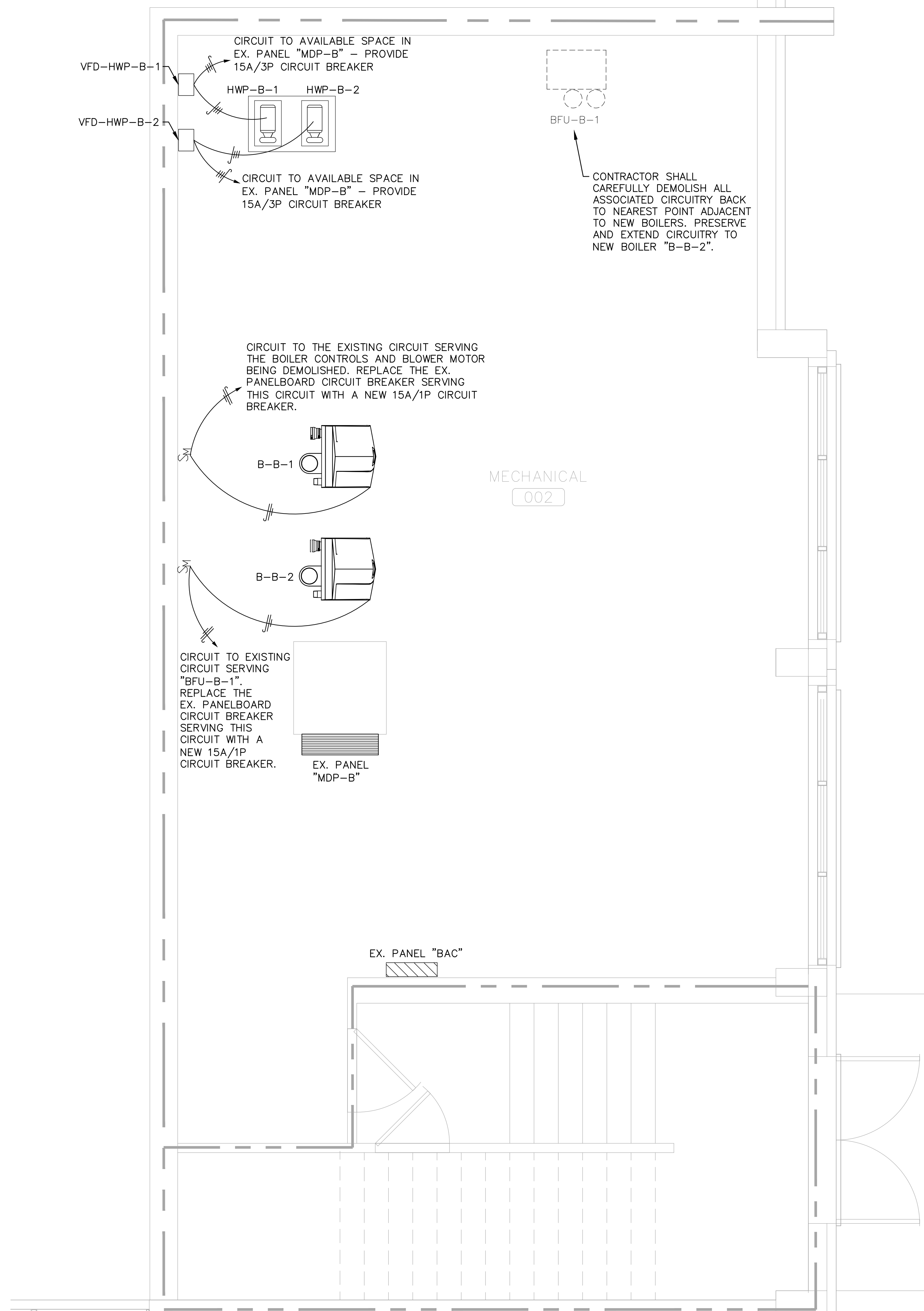
- A. **Steel Pipe** — Nom 4 in. (102 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
 - B. **Iron Pipe** — Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.
 - C. **Copper Tubing** — Nom 3 in. (76 mm) diam (or smaller) Type L (or heavier) copper tubing.
 - D. **Copper Pipe** — Nom 3 in. (76 mm) diam (or smaller) Regular (or heavier) copper pipe.
 - E. **Conduit** — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT) or steel conduit.
- T Rating is 1/4 hr Items A, B and E, 0 hr for Items C and D.**

3. Fill, Void or Cavity Material* — Sealant — Min 5/8 and 1-1/4 in. (16 and 32 mm) thickness of fill material for 1 and 2 hr rated assemblies, respectively, applied within the annulus, flush with both surfaces of floor or wall.
NUCO INC — SelfSeal GG-200, Self Seal GG-266

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



3 OVERALL CAMPUS SITE PLAN
SCALE: 1" = 100'

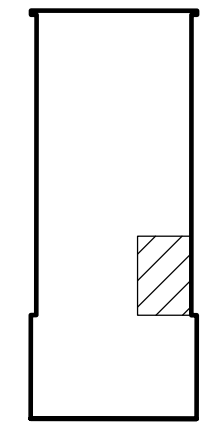


- GENERAL AND DEMOLITION NOTES:**
1. ALL CIRCUITRY 120V AND GREATER FALLS UNDER THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY.
 2. FOR ALL REUSED CIRCUITRY, CONTRACTOR SHALL PROVIDE CIRCUITRY EXTENSIONS AS REQUIRED.

LIFE SAFETY LEGEND
 - - - - - 2 HR FIRE WALL

1 BLDG. B - BASEMENT - BOILER ROOM NEW WORK
 SCALE: 1/2" = 1'

BLDG. B KEYPLAN



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HVAC RENOVATIONS FOR GERMANTOWN HIGH SCHOOL
 7653 OLD POPLAR PIKE
 GERMANTOWN, TN 38138



SHELBY COUNTY SCHOOLS

No.	Revision	Date

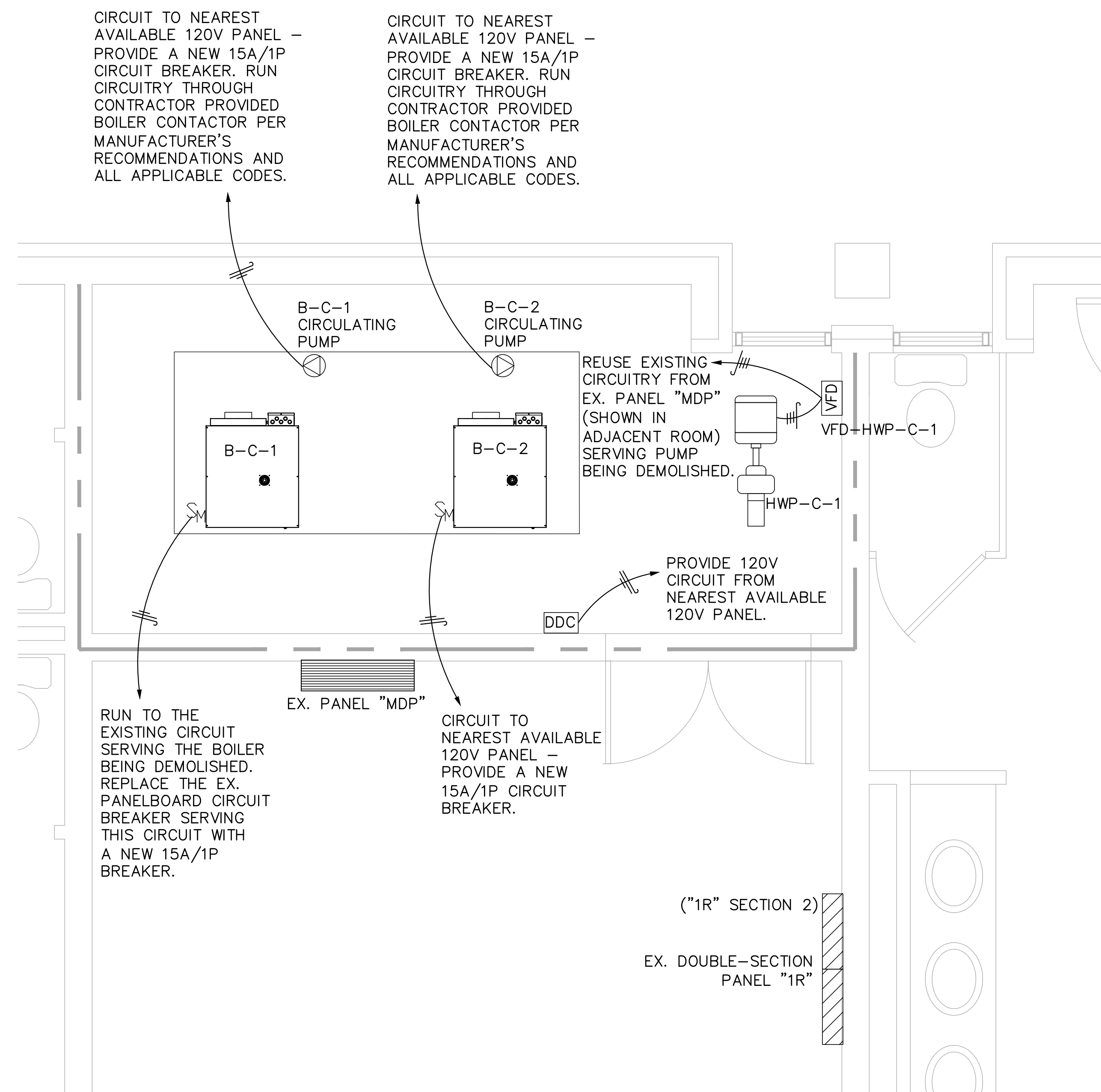
BLDG. B
 - BOILER & PUMP REPLACEMENTS
 - ELECTRICAL

JOB NO: 62992
 DATE: 11.02.2020
 DRAWN: JAB
 CHECKED: MSC
 CAD FILE: B-E1.1



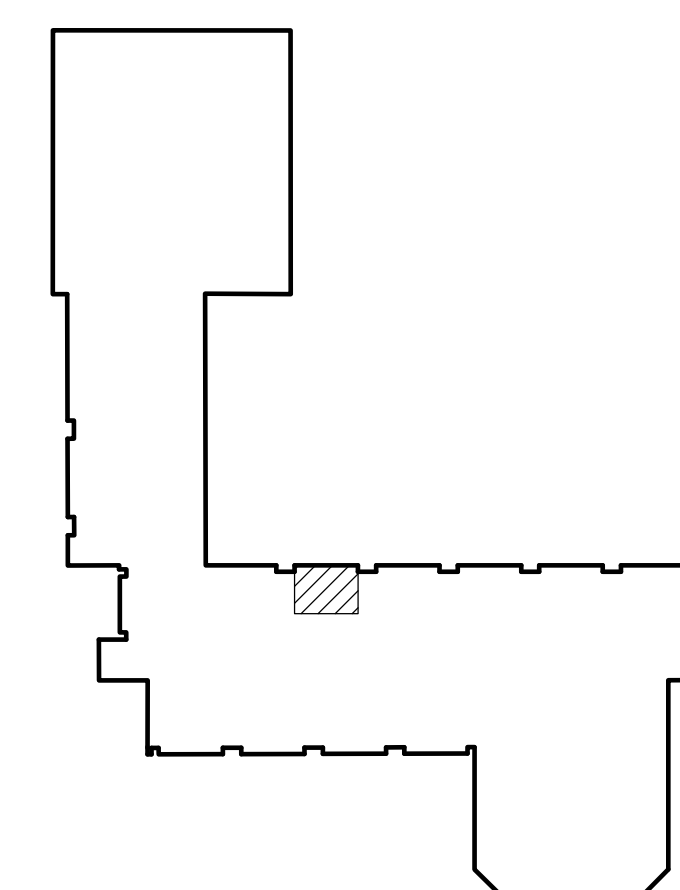
GENERAL AND DEMOLITION NOTES:

1. ALL CIRCUITRY 120V AND GREATER FALLS UNDER THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY.
2. FOR ALL REUSED CIRCUITRY, CONTRACTOR SHALL PROVIDE CIRCUITRY EXTENSIONS AS REQUIRED.



1 BLDG. C - FIRST FLOOR - BOILER ROOM NEW WORK
SCALE: 1/2" = 1'

BLDG. C KEYPLAN



LIFE SAFETY LEGEND
----- 2 HR FIRE WALL

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HVAC RENOVATIONS
FOR GERMANTOWN
HIGH SCHOOL

7653 OLD POPLAR PIKE
GERMANTOWN, TN 38138



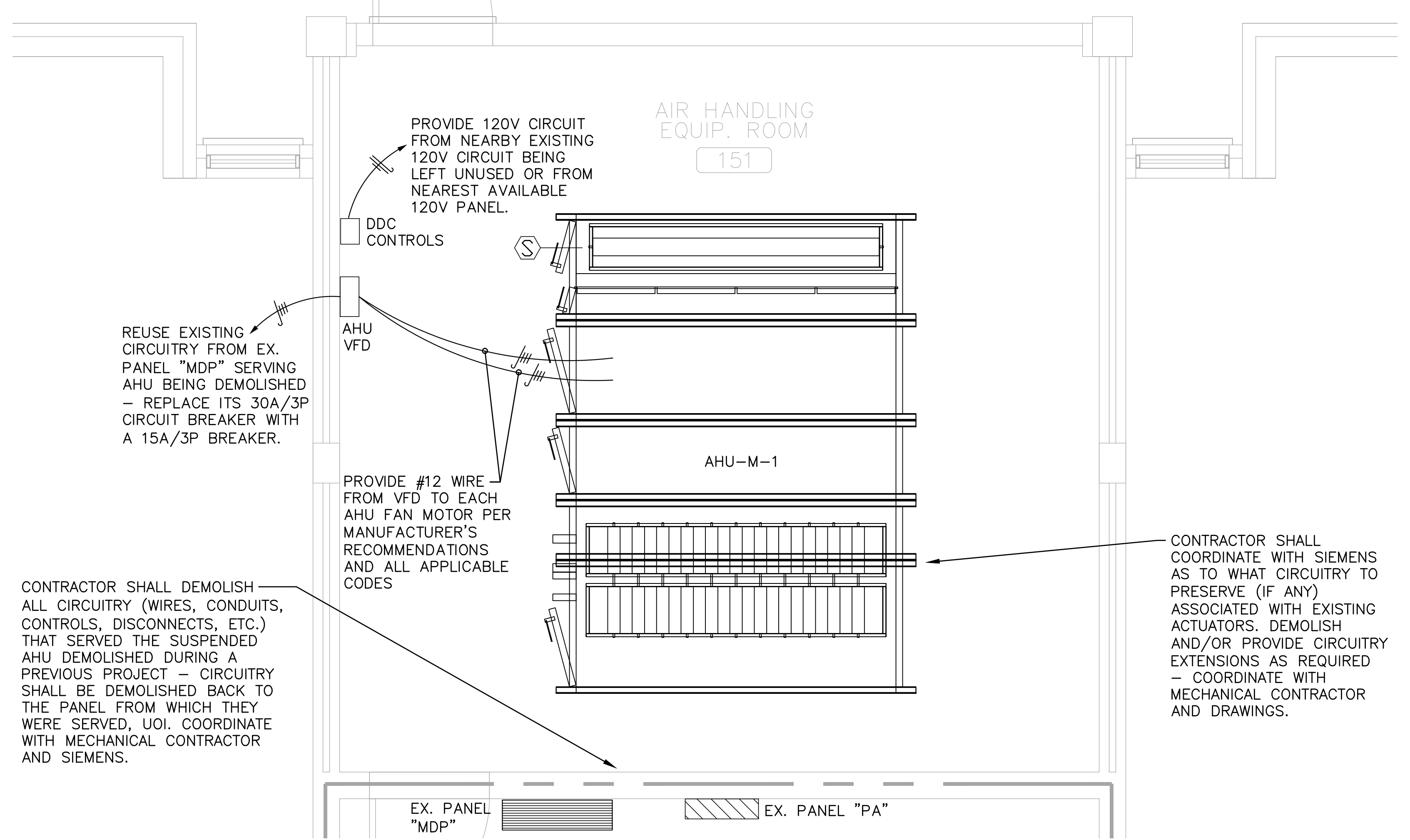
SHELBY COUNTY SCHOOLS

No.	Revision	Date

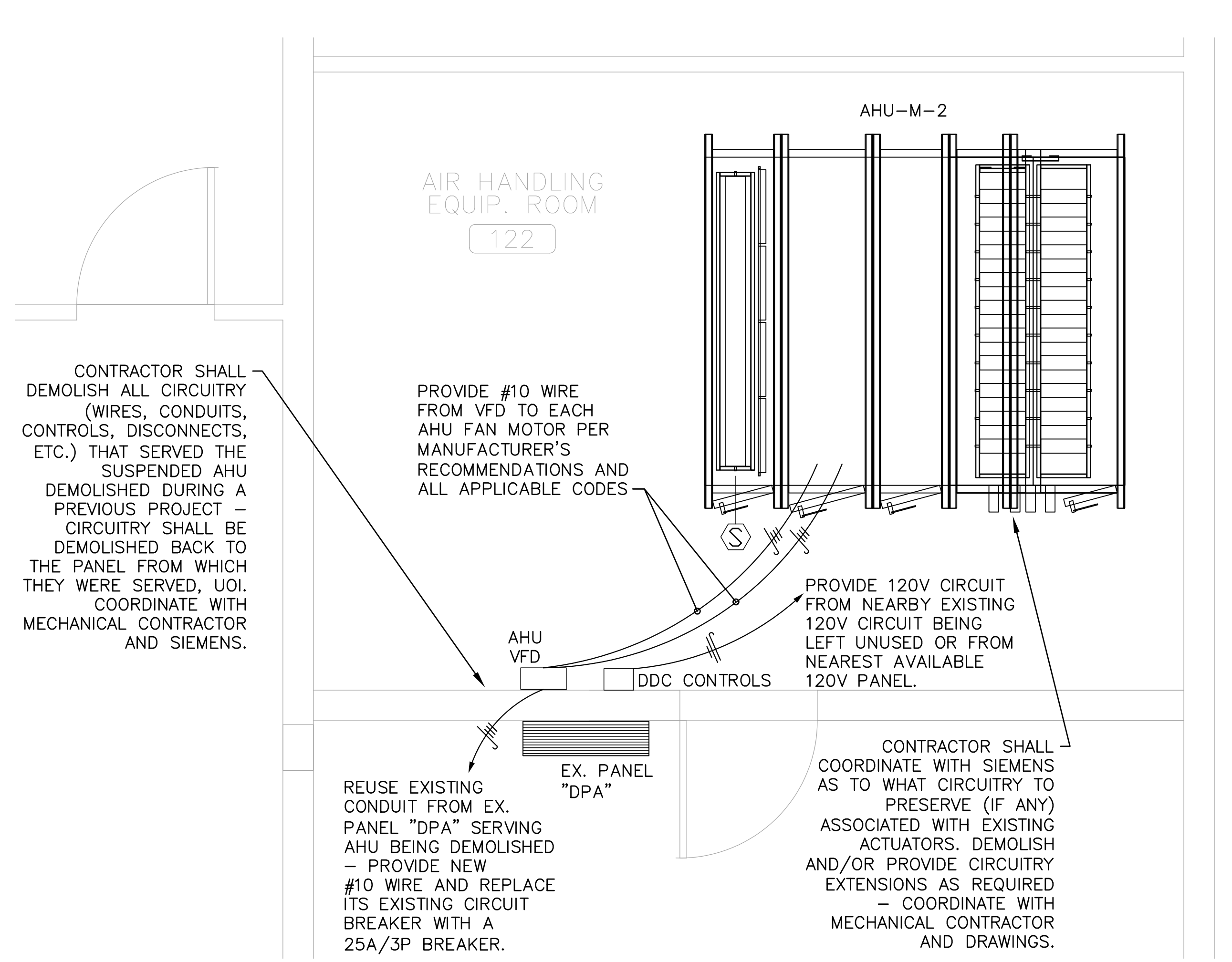
BLDG. C
- BOILER & PUMP REPLACEMENTS
- ELECTRICAL
- ALTERNATE #1

JOB NO: 62992
DATE: 11.02.2020
DRAWN: JAB
CHECKED: MSC
CAD FILE: C-E1.1

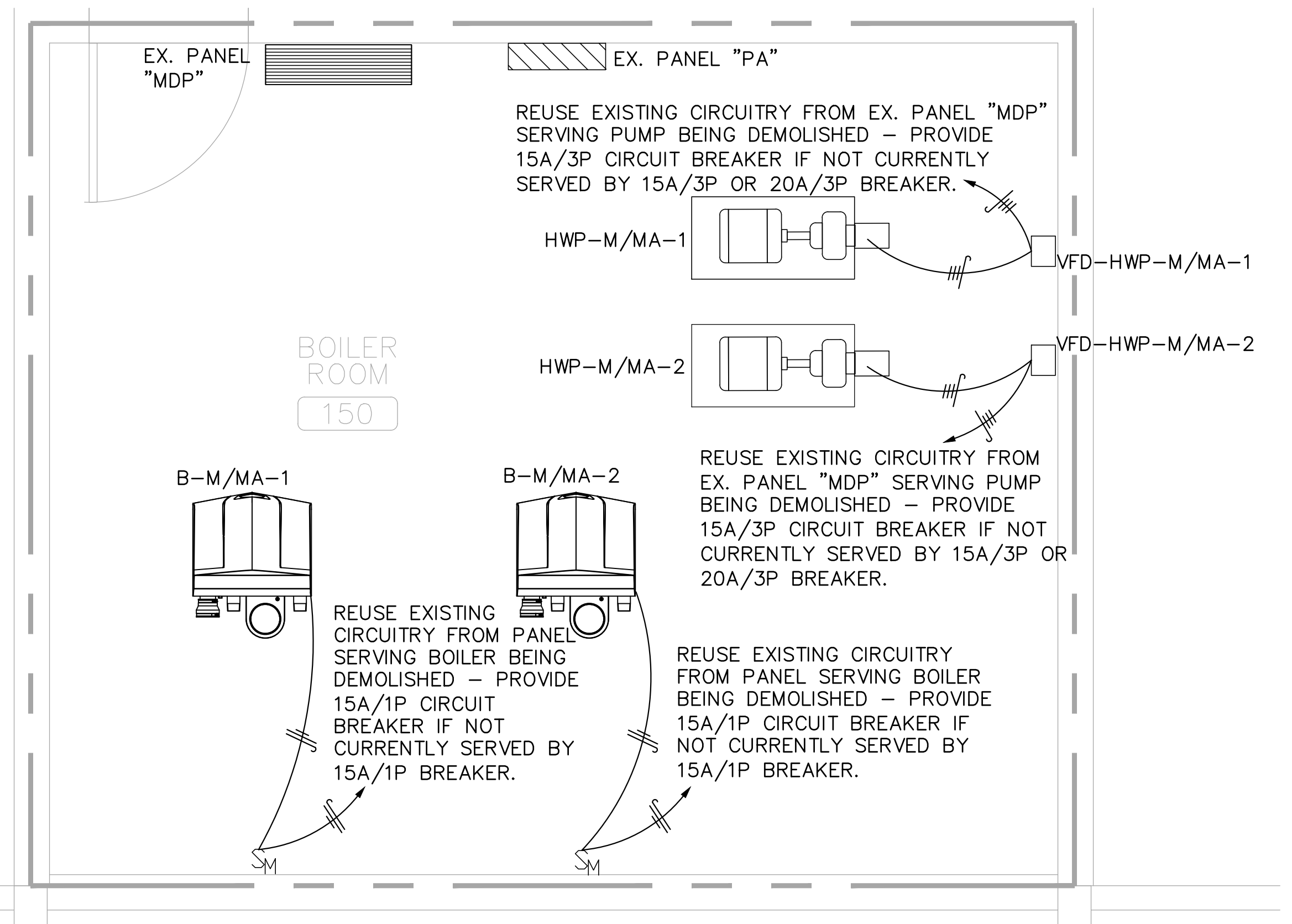




1 BLDG. M - FIRST FLOOR - SOUTH AHU ROOM NEW WORK
SCALE: 1/2" = 1'



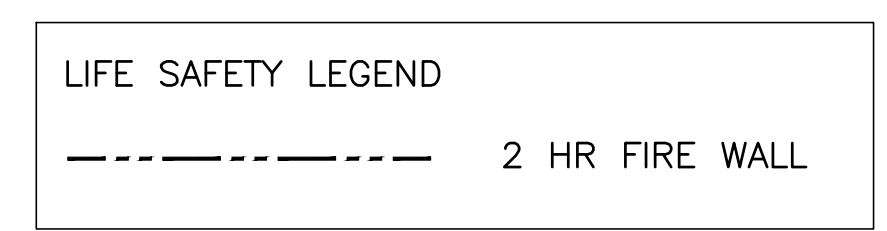
2 BLDG. M - FIRST FLOOR - NORTH AHU ROOM NEW WORK
SCALE: 1/2" = 1'



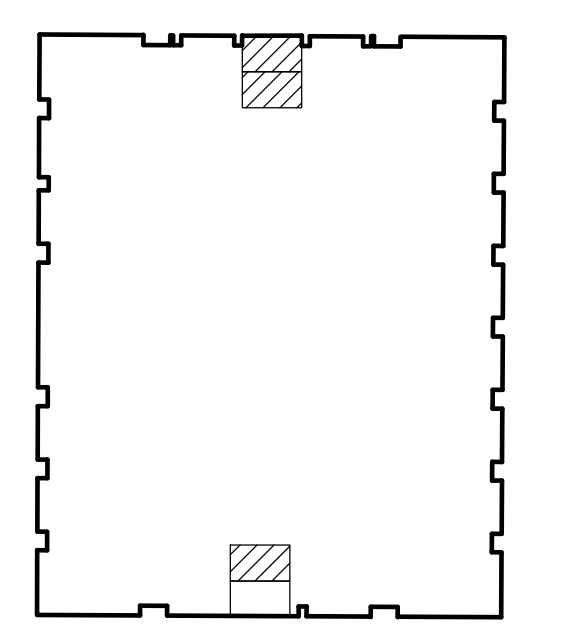
3 BLDG. M - FIRST FLOOR - BOILER ROOM NEW WORK
SCALE: 1/2" = 1'

GENERAL AND DEMOLITION NOTES:

1. ALL CIRCUITRY 120V AND GREATER FALLS UNDER THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY.
2. FOR ALL REUSED CIRCUITRY, CONTRACTOR SHALL PROVIDE CIRCUITRY EXTENSIONS AS REQUIRED.
3. CONTRACTOR SHALL ENSURE ALL EXISTING (AND NEW) DUCT DETECTORS ARE INTERLOCKED WITH THEIR CORRESPONDING NEW AHU. UPON ACTIVATION OF THE DUCT DETECTOR, THE AHU SHALL BE SHUT DOWN. PROVIDE ALL ADDITIONAL APPURTENANCES AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM PER ALL APPLICABLE CODES.



BLDG. M KEYPLAN



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HVAC RENOVATIONS FOR GERMANTOWN HIGH SCHOOL
7653 OLD POPLAR PIKE
GERMANTOWN, TN 38138



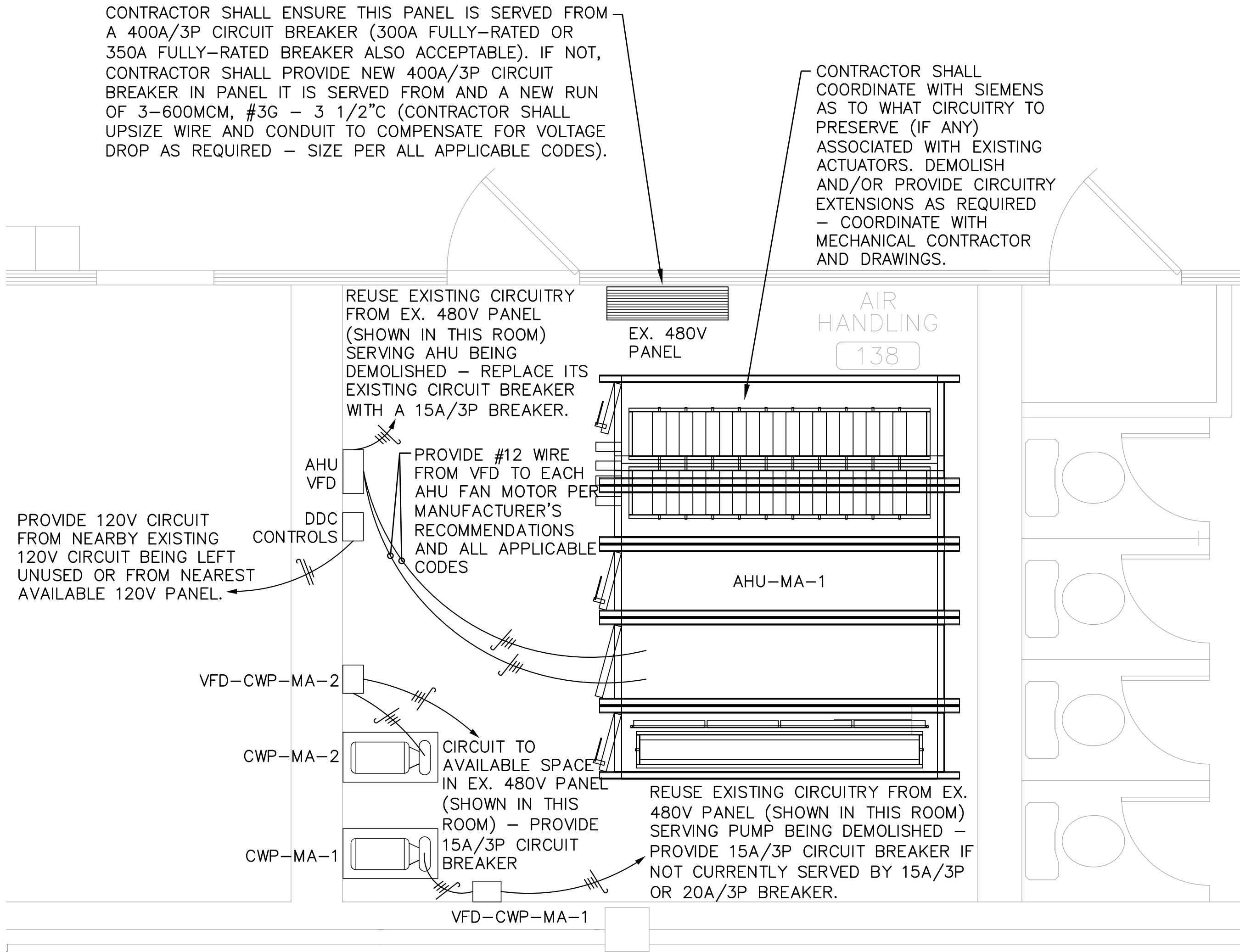
SHELBY COUNTY SCHOOLS

No.	Revision	Date

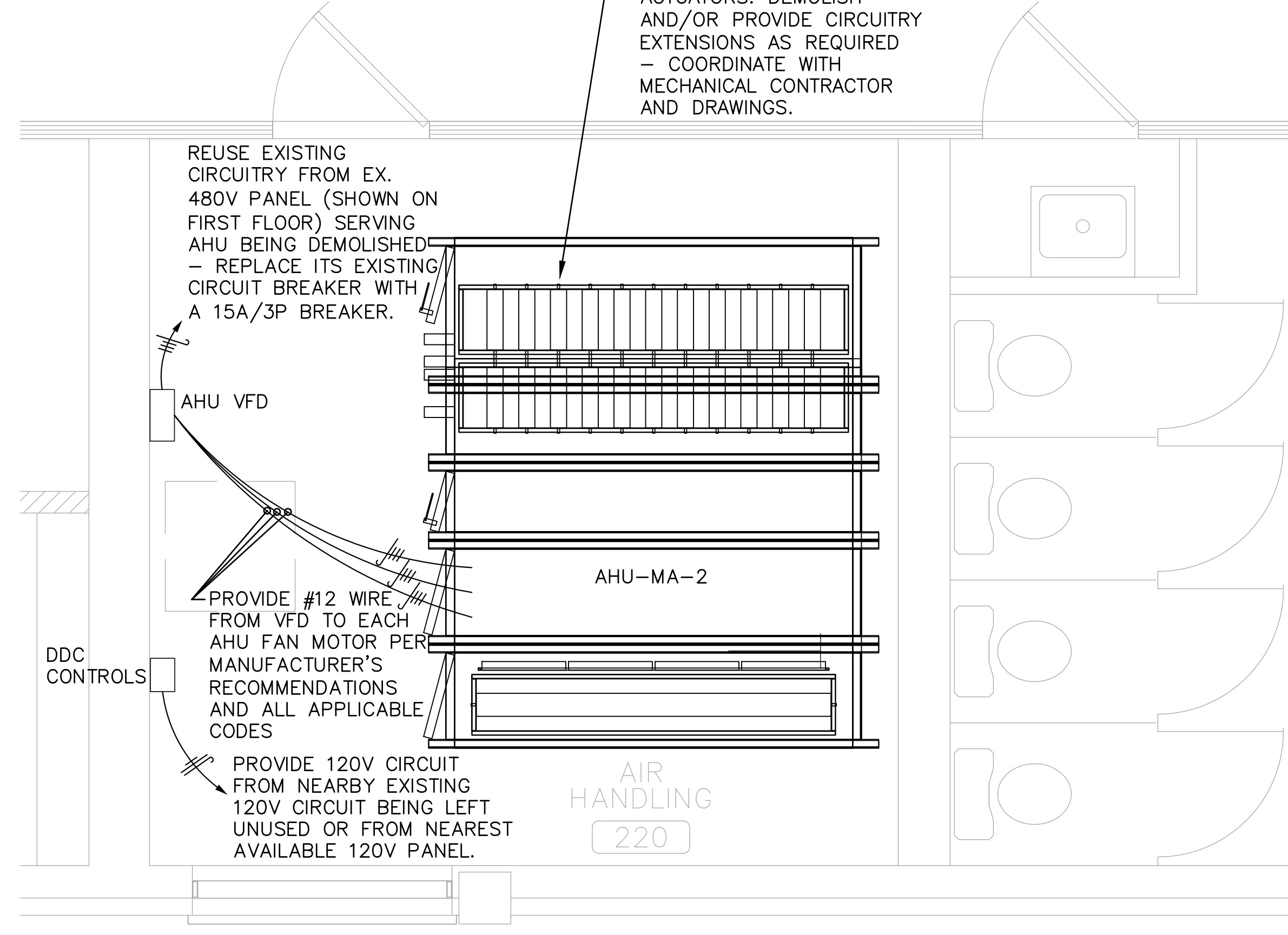
BLDG. M
- AHU, BOILER & PUMP REPLACEMENTS
- ELECTRICAL

JOB NO: 62992
DATE: 11.02.2020
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CAD FILE: M-E1.1





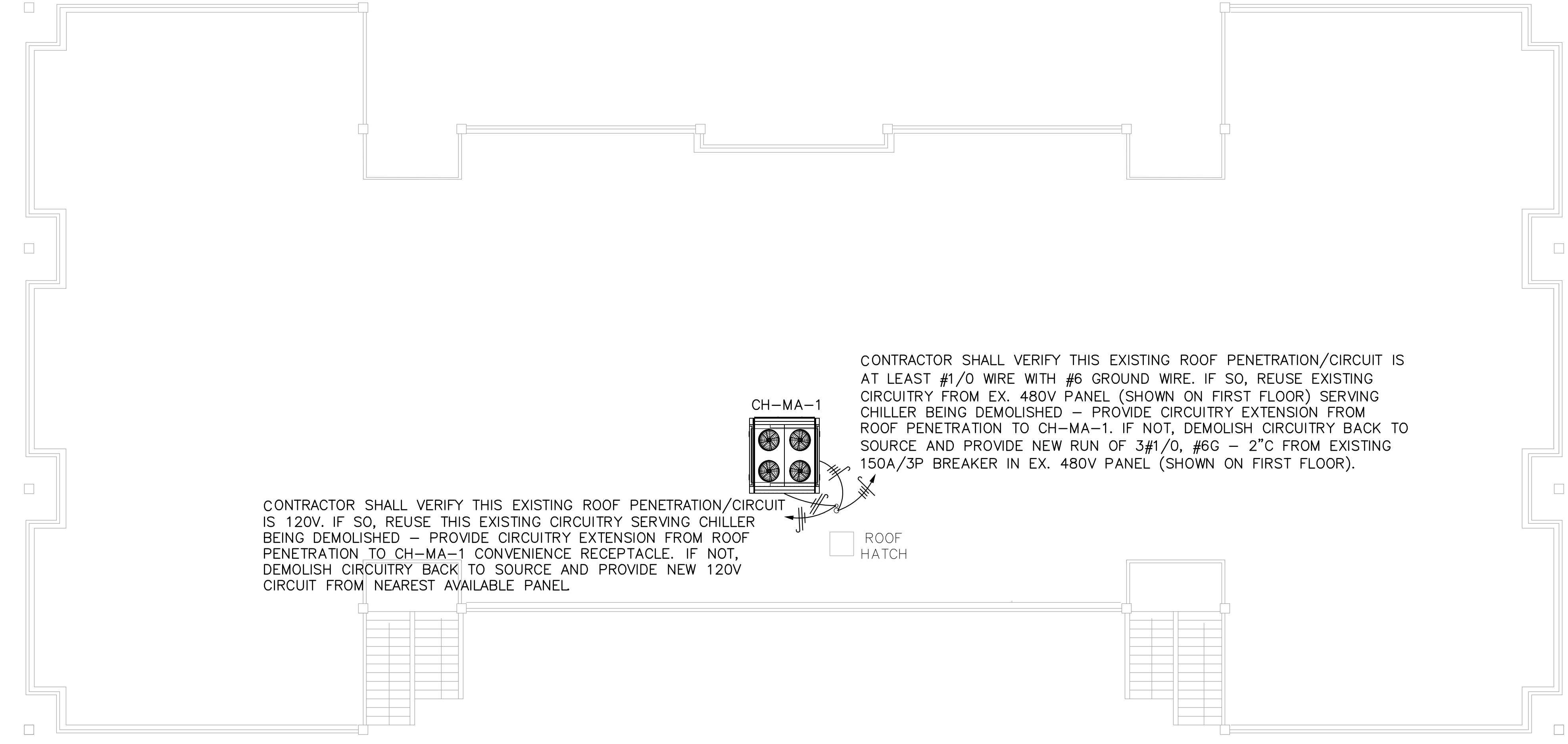
1 BLDG. MA - FIRST FLOOR - AHU ROOM NEW WORK
SCALE: 1/2" = 1'



2 BLDG. MA - SECOND FLOOR - AHU ROOM NEW WORK
SCALE: 1/2" = 1'

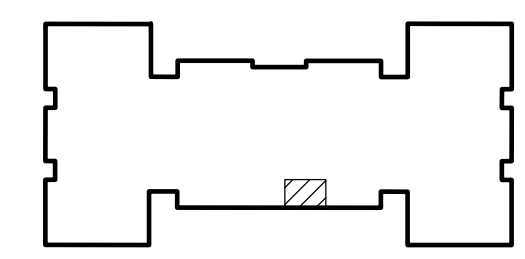
GENERAL AND DEMOLITION NOTES:

1. ALL CIRCUITRY 120V AND GREATER FALLS UNDER THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY.
2. FOR ALL REUSED CIRCUITRY, CONTRACTOR SHALL PROVIDE CIRCUITRY EXTENSIONS AS REQUIRED.
3. CONTRACTOR SHALL ENSURE ALL EXISTING DUCT DETECTORS ARE INTERLOCKED WITH THEIR CORRESPONDING NEW AHU. UPON ACTIVATION OF THE DUCT DETECTOR, THE AHU SHALL BE SHUT DOWN. PROVIDE ALL ADDITIONAL APPURTENANCES AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM PER ALL APPLICABLE CODES.



3 BLDG. MA - ROOF PLAN - CHILLER NEW WORK
SCALE: 1/8" = 1'

BLDG. MA KEYPLAN



HVAC RENOVATIONS FOR GERMANTOWN HIGH SCHOOL

7653 OLD POPLAR PIKE
GERMANTOWN, TN 38138



SHELBY COUNTY SCHOOLS

No.	Revision	Date

BLDG. MA
- 1ST FLOOR AHU & PUMPS,
2ND FLOOR AHU, AND ROOF CHILLER
REPLACEMENTS - ELECTRICAL

JOB NO: 62992
DATE: 11.02.2020
DRAWN: JAB
CHECKED: MSC
CAD FILE: MA-E1.1

