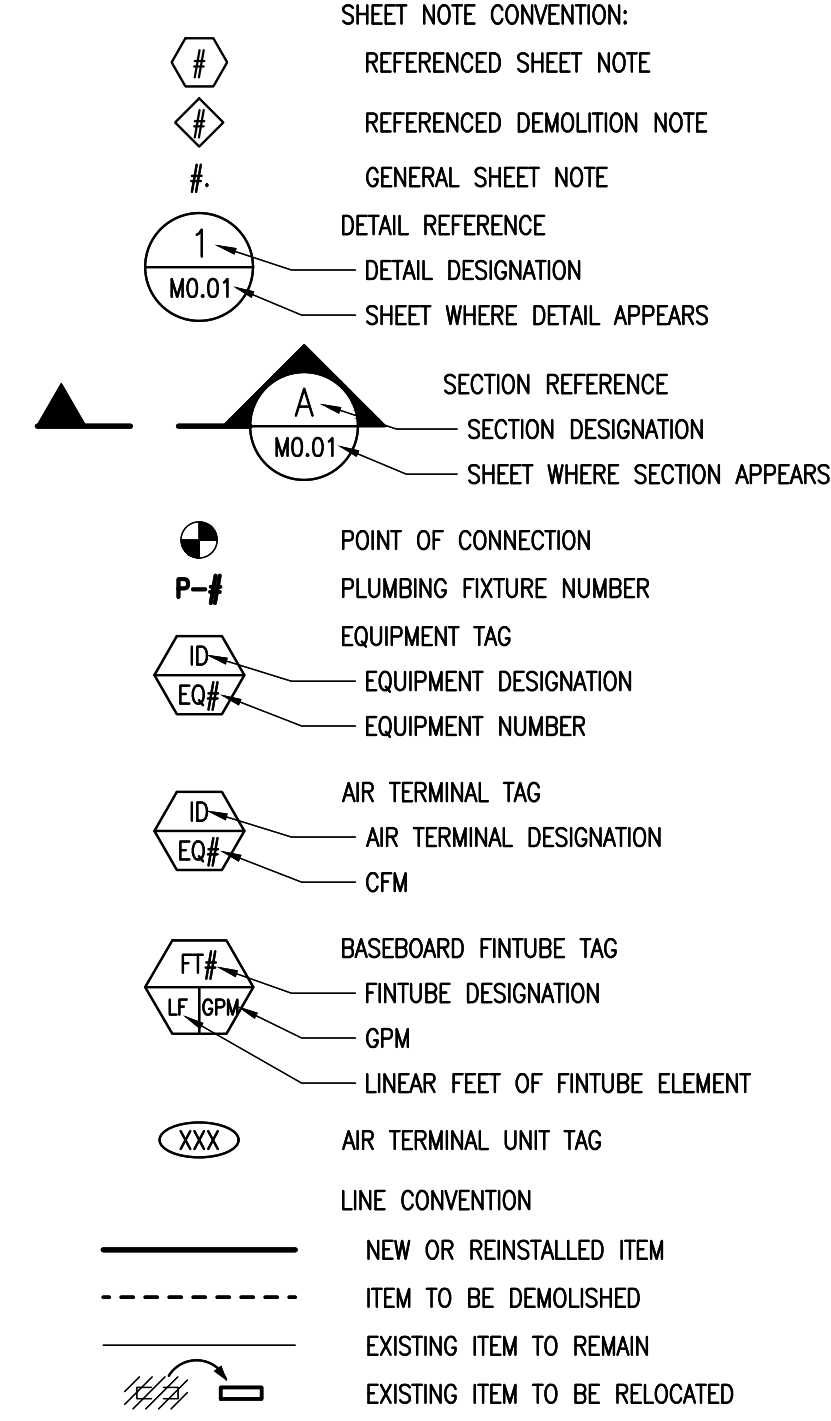


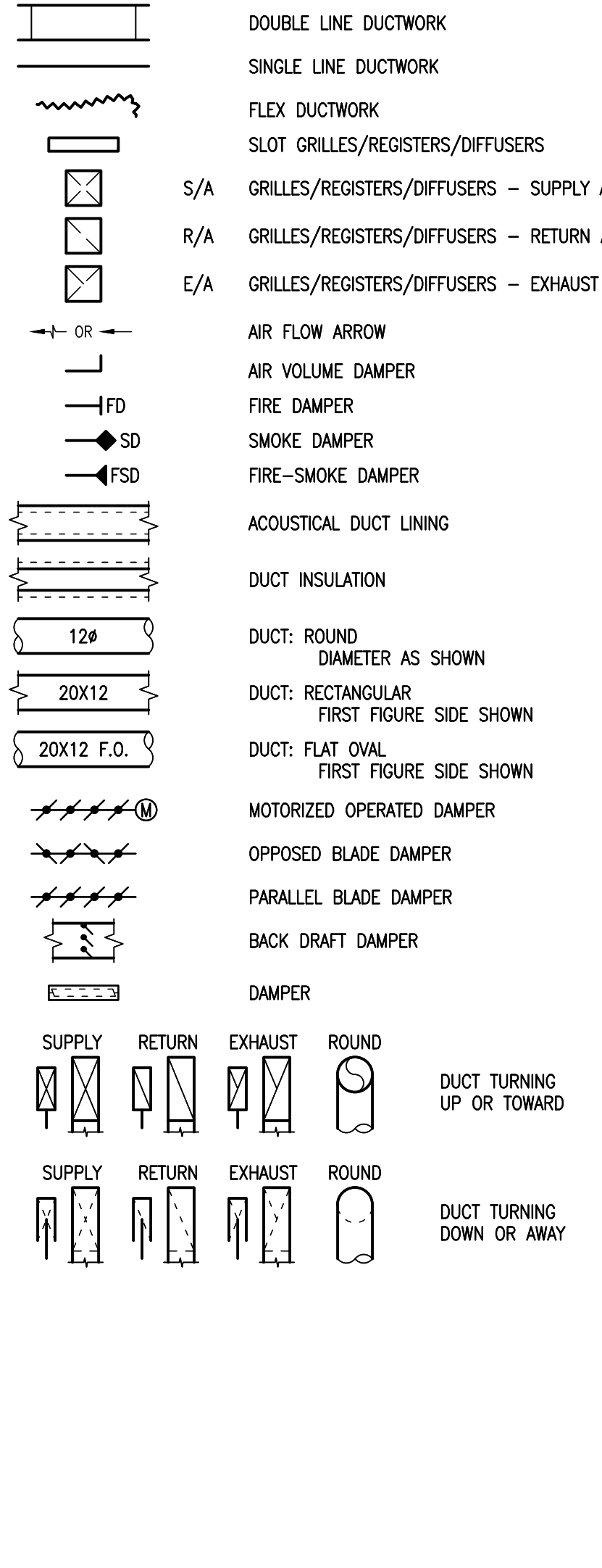
ABBREVIATIONS

Ø	AT	IN OR *	INCH OR INCHES
±	AND	IN HG	INCHES MERCURY
#	NUMBER	IN WC	INCHES WATER COLUMN
%	PERCENT	INSUL	INSULATION
AD	ACCESS DOOR	IPS	INTERNATIONAL PIPE STANDARD
AAP	AREA ALARM PANEL	K	THERMAL CONDUCTIVITY
ADA	AMERICANS WITH DISABILITIES ACT	KW	KILOWATT
AFF	ABOVE FINISHED FLOOR	KWH	KILOWATT HOUR
AFG	ABOVE FINISHED GRADE	LAT	LEAVING AIR TEMPERATURE
AHJ	AUTHORITY HAVING JURISDICTION	LB/HR	POUNDS PER HOUR
AHU	AIR-HANDLING UNIT	LBS	POUNDS
ALT	ALTERNATE	LF	LINEAR FEET
AMB	AMBIENT	L	LENGTH
AMCA	AIR MOVEMENT AND CONTROL ASSOCIATION	LWT	LEAVING WATER TEMPERATURE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	LOC	LOCATION, LOCATED
APD	AIR PRESSURE DROP	LP	LOW PRESSURE
APPROX	APPROXIMATE	LR	LONG RADIUS
AR	ACID RESISTANT	MAN	MANUAL
ARCH	ARCHITECTURAL	MAT	MIXED AIR TEMPERATURE
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	MAV	MANUAL AIR VENT
ATM	ATMOSPHERE	MAX	MAXIMUM
AUTO	AUTOMATIC	MBH	THOUSAND BTU PER HOUR
AVG	AVERAGE	MECH	MECHANICAL
AWG	AMERICAN WIRE GAUGE	MFR	MANUFACTURER
BAS	BUILDING AUTOMATION SYSTEM	MH	MANHOLE
BDD	BACKDRAFT DAMPER	MIN	MINIMUM, MINUTE
BHP	BRAKE HORSEPOWER, BOILER HORSEPOWER	MPH	MILES PER HOUR
BLDG	BUILDING	MTD	MOUNTED
BLW	BELOW	N/A	NOT APPLICABLE
BOD	BOTTOM OF DUCT	NC	NOISE CRITERIA, NORMALLY CLOSED
BOP	BOTTOM OF PIPE	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
BTU	BRITISH THERMAL UNIT	NO	NOT IN CONTRACT
BTUH	BTU PER HOUR	NTS	NORMALLY OPEN, NUMBER NOT TO SCALE
C	COMMON, CONDENSATE	OD	OUTSIDE DIAMETER
C-C	CENTER TO CENTER	OFOI	OWNER FURNISHED, OWNER INSTALLED
CAP	CAPACITY, END CAP	OSA	OUTSIDE AIR
CCW	COUNTER-CLOCKWISE	OZ	OUNCE
CF	COOLING FAN, CIRCULATING FAN, CUBIC FOOT	PD	PRESSURE DROP OR DIFFERENCE
CFM	CUBIC FEET PER MINUTE	PG	PROPYLENE GLYCOL
CI	CAST IRON	PL	PLATE
CL	CENTER LINE	PLBG	PLUMBING
CLG	CILING	POC	POINT OF CONNECTION
CMRPR	COMPRESSOR	PNL	PANEL
COEF	COEFFICIENT	PH	PHASE (ELECTRICAL)
CONC	CONCRETE	PPM	PARTS PER MILLION
COND	CONDENSER	PSI	POUNDS PER SQUARE INCH
CTR	CENTER	PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
CU	COPPER, CONDENSING UNIT	PSID	POUNDS PER SQUARE INCH - DIFFERENTIAL
CU IN	CUBIC INCH	PSIG	POUNDS PER SQUARE INCH - GAUGE
CV	VALVE FLOW COEFFICIENT	PRESS	PRESSURE
CW	CLOCKWISE	PR1	PRIMARY
DB	DECIBEL	R-407C	REFRIGERANT (407C,410A,ETC.)
DBT	DRY-BULB TEMPERATURE	R-410A	REFRIGERANT (407C,410A,ETC.)
DDC	DIRECT DIGITAL CONTROL	R/A	RETURN AIR
DEG OR °	DEGREE	RAD	RADIANT OR RADIATION
DEG C	DEGREE CENTIGRADE	RCVR	RECEIVER
DEG F	DEGREE FAHRENHEIT	RECIRC	RECIRCULATE
DEMO	DEMOLITION	RED	REDUCER
DENS	DENSITY	REFRIG	REFRIGERATION
DGM	DIAGRAM	REV	REVOLUTIONS
DI	DUCTILE IRON	RF	RELIEF FAN OR RETURN FAN
DIA OR Ø	DIAMETER	RH	RELATIVE HUMIDITY
DIFT	DIFFERENCE OR DELTA	RM	ROOM
DIP	DUCTILE IRON PIPE	RPM	REVOLUTIONS PER MINUTE
DISS	DIAMETER-INDEX SAFETY SYSTEM	RPS	REVOLUTIONS PER SECOND
DN	DOWN	S/A	SUPPLY AIR
DO	DITTO	SAT	SATURATION
DTL	DETAIL	SCHD	SCHEDULE
DWDI	DOUBLE WIDTH DOUBLE INLET	SCFM	STANDARD CUBIC FEET PER MINUTE
DWG	DRAWING	SD	STORM DRAIN
(E)	EXISTING	SEC	SECONDARY
EACH	EACH	SF	SQUARE FEET
E/A	EXHAUST AIR	SH	SENSIBLE HEAT
EAT	ENTERING AIR TEMPERATURE	SHG	SENSIBLE HEAT GAIN
EF	EXHAUST FAN	SHR	SENSIBLE HEAT RATIO
EFF	EFFICIENCY	SHT	SHEET
EG	ETHYLENE GLYCOL, EXHAUST GRILLE	SHWR	SHOWER
ELEC	ELECTRICAL	SP	STATIC PRESSURE
ELEV	ELEVATION	SPD	STATIC PRESSURE DROP
EMB	EMBEDMENT	SPEC	SPECIFICATION, SPECIFIED
ENT	ENTERING	SPKLR	SPRINKLER
EQV FT	EQUIVALENT FEET	SR	SHORT RADIUS
ESP	EXTERNAL STATIC PRESSURE	SWSI	SINGLE WIDTH SINGLE INLET
EVAP	EVAPORATOR	SQ	SQUARE
EXP	EXPANSION	SS	STAINLESS STEEL, SANITARY SEWER
EWT	ENTERING WATER TEMPERATURE	STD	STANDARD
F	FAHRENHEIT	SUCT	SUCTION
FA	FACE AREA	TA	TRANSFER AIR
F-F	FACE TO FACE	TEMP	TEMPERATURE, TEMPORARY
FD	FIRE DAMPER	THRU	THROUGH
FLEX	FLEXIBLE	TOD	TOP OF DUCT
FLR	FLOOR	TOD	TOP OF DUCT
FOB	FLAT ON BOTTOM	TONS	TONS OF REFRIGERATION
FOT	FLAT ON TOP	TOP	TOP OF PIPE
FP	FREEZING POINT	TYP	TYPICAL
FPM	FEET PER MINUTE	UG	UNDERGROUND
FPS	FEET PER SECOND	UNO	UNLESS NOTED OTHERWISE
FSD	FIRE-SMOKE DAMPER	UPC	UNIFORM PLUMBING CODE
FSDM	FIRE-SMOKE DAMPER, MODULATING	V	VOLTS OR VOLTAGE
FT OR '	FOOT OR FEET	VAC	VACUUM
FV	FACE VELOCITY	VAC	VOLTS (ALTERNATING CURRENT)
GA	GAGE OR GAUGE	VAL	VALVE
GAL	GALLONS	VAP	VAPOR PRESSURE
GPD	GALLONS PER DAY	VAR	VARIABLE
GPH	GALLONS PER HOUR	VAV	VARIABLE AIR VOLUME
GPM	GALLONS PER MINUTE	VDC	VOLTS (DIRECT CURRENT)
GR	GRAINS	VEL	VELOCITY
GRD	GRILLES, REGISTERS, DIFFUSERS	VERT	VERTICAL
HD	HEAD	VFD	VARIABLE FREQUENCY DRIVE
HDPPE	HIGH DENSITY POLYETHYLENE	VOL	VOLUME
HC	HEAT GAIN	VP	VELOCITY PRESSURE
HT	HEIGHT	VSD	VARIABLE SPEED DRIVE
HP	HORSEPOWER	VTR	VENT THROUGH ROOF
HR	HOUR(S)	W	WATT
HVAC	HEATING, VENTILATING & AIR-CONDITIONING	W/	WITH
HZ	FREQUENCY	W/O	WITHOUT
IAW	IN ACCORDANCE WITH	WB	WET BULB TEMPERATURE
ID	INSIDE DIAMETER	WC	WATER COLUMN
IE	INVERT ELEVATION	WH	WATT-HOUR
IBC	INTERNATIONAL BUILDING CODE	WP	WEATHER PROOF, WATER PROOF
IFC	INTERNATIONAL FIRE CODE	WPD	WATER PRESSURE DROP
IMC	INTERNATIONAL MECHANICAL CODE	WT	WEIGHT
		YD	YARD
		ZVB	ZONE VALVE BOX

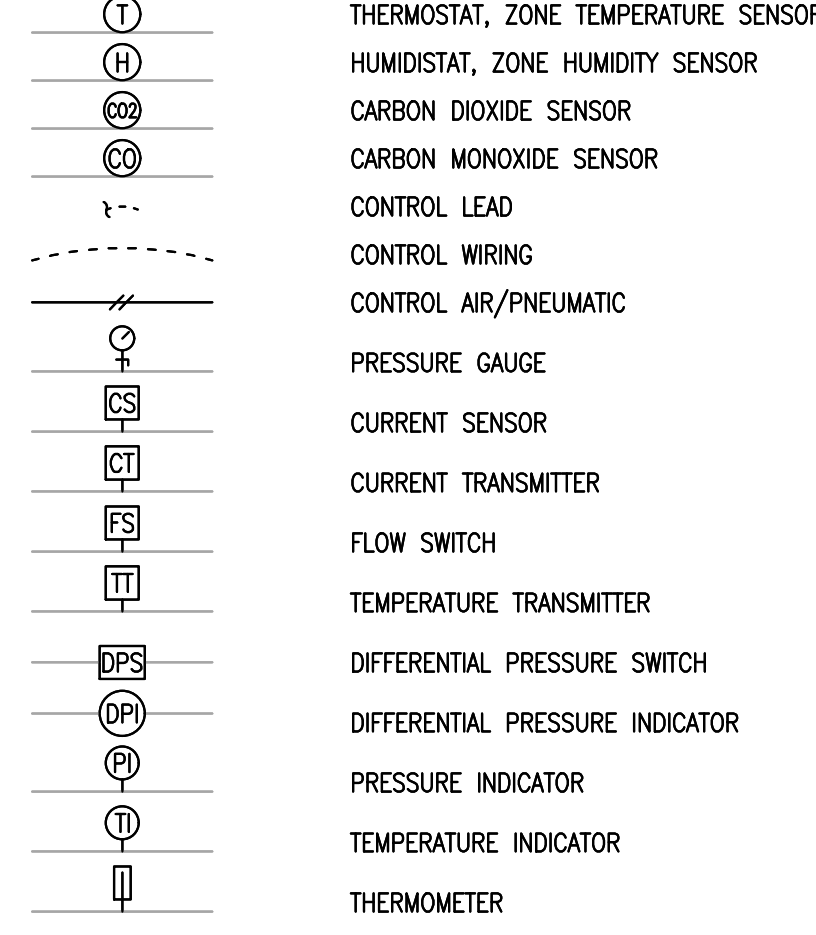
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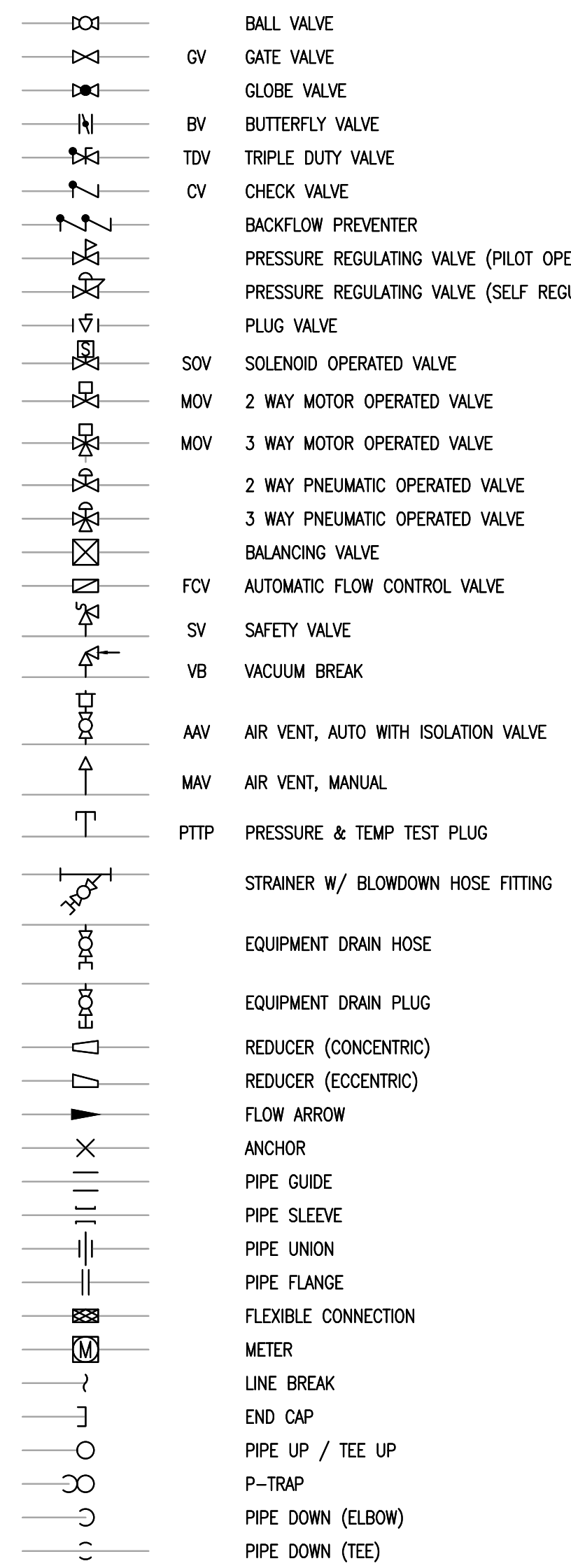
VENTILATION



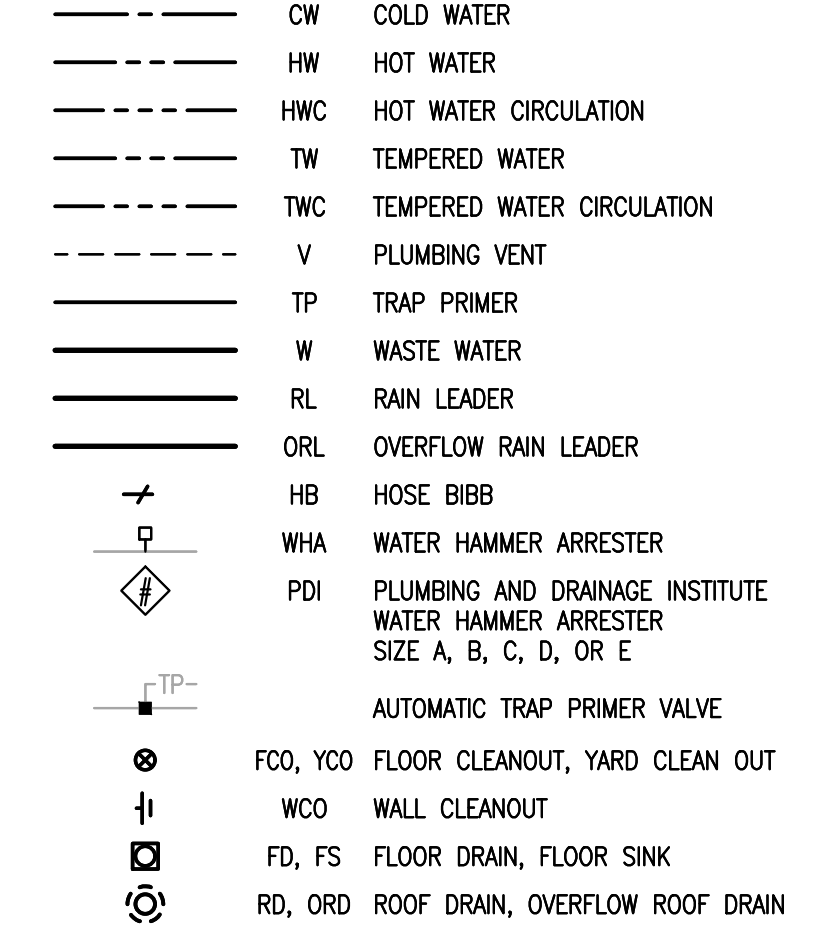
MONITORING AND CONTROLS



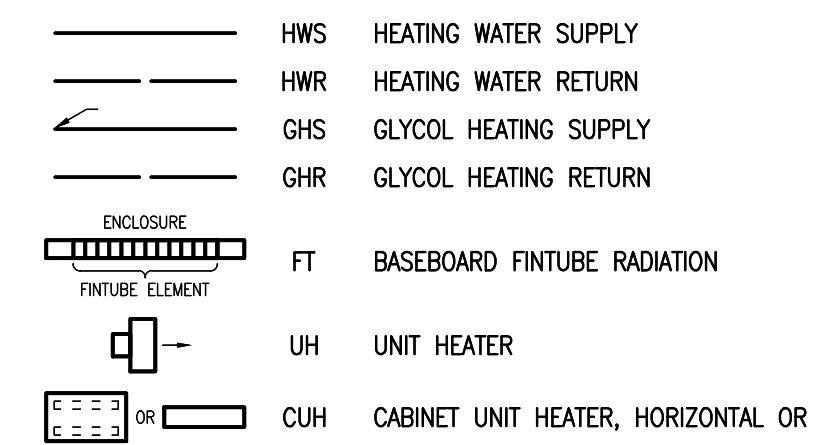
GENERAL PIPING



PLUMBING PIPING



HYDRONIC PIPING



DRAWING INDEX

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M3.2	DETAILS - HEATING



ANCHORAGE COURT SYSTEM
TRAINING CENTER HEATING PIPING REPLACEMENT

Revisions		
No.	Date	Description
1	5/16/24	RM 603 HT

1 INCH AT FULL SIZE
 ACTUAL
 IF NOT 1 INCH,
 SCALE ACCORDINGLY

Designed by: CRH
 Checked by: TDH
 AMC Project: 24801
 Date: 05/01/2024
 Project Phase
PERMIT DRAWINGS

Sheet Title
 MECHANICAL
 LEGEND AND
 ABBREVIATIONS

Sheet Number
MO.1

MECHANICAL SPECIFICATIONS

TERMINAL HEATING UNIT SCHEDULE										
SYMBOL	LOCATION	OUTPUT (MBH)	FLUID	FLOW (GPM)	MAX WPD (FT)	FLUID TEMP IN/OUT (DEG. F)	MOTOR (HP,V,PH)	WEIGHT (LBS)	REMARKS, BASIS OF DESIGN	
FT-1 (EXISTING) (1)	SEE PLANS	940 BTU/LF	50% PG	-	-	180/160	-	-	EXISTING FINTUBE BASEBOARD: IN ARCHITECTURAL ENCLOSURE, 1-1/4" COPPER PIPE, SINGLE TIER OF 4-1/4" X 4-1/4" ALUMINUM FINNS, 50 FINS/FOOT. PROVIDE 2 WAY CONTROL VALVE.	
FT-2 (EXISTING) (1)	SEE PLANS	520 BTU/LF	50% PG	-	-	180/160	-	-	EXISTING FINTUBE BASEBOARD: SLOPE TOP ENCLOSURE, 3/4 IN COPPER PIPE, SINGLE TIER OF 3" X 2" ALUMINUM FINNS, 60 FINS/FOOT. PROVIDE 2 WAY CONTROL VALVE.	
FT-3 (EXISTING) (1)	SEE PLANS	450 BTU/LF	50% PG	-	-	180/160	-	-	EXISTING FINTUBE BASEBOARD: SLOPETOP ENCLOSURE, 3/4" COPPER PIPE, SINGLE TIER OF 2-3/4" X 2-1/2" ALUMINUM FINNS, 60 FINS/FOOT. PROVIDE 2 WAY CONTROL VALVE.	
FT-4	SEE PLANS	910 BTU/LF	50% PG	-	-	180/160	-	-	FINTUBE BASEBOARD: IN ARCHITECTURAL ENCLOSURE, 3/4" COPPER PIPE, SINGLE TIER OF 4-1/4" X 4-1/4" ALUMINUM FINNS, 50 FINS/FOOT. PROVIDE 2 WAY CONTROL VALVE.	
CUH-2	NORTH STAIRS	24.9	50% PG	3.0	2.8	180/163	0.25,115,1	90	CABINET UNIT HEATER: WALL MOUNTED CABINET. 2 ROW COIL; ARRANGEMENT 96. PROVIDE 3 WAY CONTROL VALVE. MODINE MODEL CW SIZE 003.	
CUH-3	SOUTH STAIRS	39.9	50% PG	3.0	1.0	180/152	0.25,115,1	120	CABINET UNIT HEATER: WALL MOUNTED CABINET. 3 ROW COIL; ARRANGEMENT 96. PROVIDE 3 WAY CONTROL VALVE. MODINE MODEL CW SIZE 004.	

NOTE:
 (1) VACUUM EXISTING FINTUBE ELEMENTS. WIPE DOWN FINTUBE ENCLOSURE/GRILLES.

EXPANSION TANK SCHEDULE						
SYMBOL	LOCATION	ACCEPTANCE VOL (GAL)	TANK VOL (GAL)	PRE-CHARGE (PSIG)	WEIGHT (LBS)	REMARKS, BASIS OF DESIGN
ET-1	BOILER ROOM	11.3	33	20	400	HYDRONIC HEATING SYSTEM EXPANSION TANK: ASME STAMPED, STEEL SHELL WITH HEAVY DUTY BUTYL DIAPHRAGM. PARTIAL ACCEPTANCE. 125 PSIG MAXIMUM WORKING PRESSURE, 240 DEG F MAXIMUM OPERATING TEMPERATURE. BASE MOUNTED IN VERTICAL POSITION. AMTROL AX-60V.

MISCELLANEOUS EQUIPMENT SCHEDULE				
SYMBOL	LOCATION	MOTOR (HP,V,PH)	WEIGHT (LBS)	REMARKS, BASIS OF DESIGN
AS-1	BOILER ROOM	-	60	CENTRIFUGAL AIR SEPARATOR: 2" FLANGED CONNECTIONS, MAXIMUM OPERATING PRESSURE 150 PSI, PRESSURE DROP 1.0 FT AT 40 GPM. SPIROTHERM VSR200 FA.

PUMP SCHEDULE								
SYMBOL	LOCATION	SERVICE	FLUID	TEMP. (DEG. F)	GPM	HEAD (FT)	MOTOR (HP,V,PH)	REMARKS, BASIS OF DESIGN
PMP-1	BOILER ROOM	BUILDING HEATING CIRC	50% PG	180	40	40	0.9,208,1	INLINE CIRCULATOR PUMP: ECM MOTOR, SELF-SENSING, CAST IRON CONSTRUCTION, TACO VR15H.
PMP-2	BOILER ROOM	BUILDING HEATING CIRC	50% PG	180	40	40	0.9,208,1	INLINE CIRCULATOR PUMP: ECM MOTOR, SELF-SENSING, CAST IRON CONSTRUCTION, TACO VR15H.

HEATING COIL SCHEDULE												
SYMBOL	LOCATION	MBH	SCFM	AIR TEMP (IN/OUT)	SIZE WIDTH X HT (INCHES)	MAX VEL (FPM)	MAX APD (INCH WC)	FLUID	GPM	FLUID TEMP IN/OUT (DEG. F)	MAX WPD (FT)	REMARKS, BASIS OF DESIGN
VAV-5(E)	LEVEL 2	19.0	750	55/80	-	-	-	50% PG	2.0	180/160	-	EXISTING REHEAT COIL: PROVIDE THREE WAY CONTROL VALVE. BALANCE FLOWRATE TO 2 GPM.

MECHANICAL GENERAL REQUIREMENTS

THESE DRAWINGS DESCRIBE AND PROVIDE FOR THE FURNISHING, INSTALLING, TESTING AND PLACING IN SATISFACTORY AND FULLY OPERATIONAL CONDITION EQUIPMENT, MATERIALS, DEVICES, AND NECESSARY APPURTENANCES TO PROVIDE FOR A COMPLETE MECHANICAL SYSTEM, TOGETHER WITH SUCH OTHER MISCELLANEOUS INSTALLATIONS AND EQUIPMENT.

WORK SHALL INCLUDE MATERIALS, APPLIANCES, AND APPARATUS NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE, OPERATIONAL INSTALLATION OF MECHANICAL SYSTEMS SHOWN ON THE DRAWINGS OR DESCRIBED.

PORTIONS OF THE DRAWINGS ARE PARTLY DIAGRAMMATIC AND DO NOT SHOW EXACT LOCATIONS OR OFFSETS AND FITTINGS REQUIRED TO INSTALL THE WORK. PROVIDE FITTINGS, OFFSETS, AND ACCESSORIES AS REQUIRED TO INSTALL THE WORK. PROVIDE SYSTEMS COMPLETE AND IN PROPER OPERATING CONDITION. WHERE THE WORK OF SEVERAL CRAFTS ARE INVOLVED, COORDINATE RELATED WORK TO PROVIDE EACH SYSTEM IN COMPLETE AND PROPER OPERATING ORDER.

DRAWING INFORMATION IS BASED UPON AVAILABLE OWNER DRAWINGS AND LIMITED FIELD VERIFICATION. DRAWING INFORMATION DOES NOT REPRESENT AS-BUILT CONDITIONS. FIELD VERIFY INFORMATION INCLUDING PIPES, DUCTS, AND EQUIPMENT LOCATIONS, ROUTING, CONTROLS, AND APPURTENANCES PRIOR TO START OF WORK.

FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT, PIPING, DUCT WORK, AND CONTROLS WITH EXISTING AND NEW WORK, INCLUDING RATED ASSEMBLIES, CONSTRUCTION PHASING AND STRUCTURAL REQUIREMENTS.

COORDINATE PHASING REQUIREMENTS AND SERVICE DISRUPTIONS WITH THE OWNER AND OBTAIN SPECIFIC AGREEMENT OF THE TIMES AND DURATIONS OF SYSTEM DISRUPTIONS BEFORE STARTING WORK. FACILITY WILL BE OPERATIONAL DURING CONSTRUCTION.

OBTAIN AND PAY FOR LICENSES, PERMITS, AND INSPECTIONS REQUIRED BY LAWS, ORDINANCES, AND RULES GOVERNING THE WORK. ARRANGE FOR INSPECTION OF WORK BY INSPECTORS.

COMPLY WITH APPLICABLE LOCAL AND STATE CODES, ORDINANCES, AND REGULATIONS INCLUDING 2021-IBC, 2021-IMC, 2021-IFC, 2021-UFC, 2021-JFC, AND 2020-NEC, AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION (AHJ) WHICH IS THE MUNICIPALITY OF ANCHORAGE AS MINIMUM REQUIREMENT AND MAY BE EXCEEDED BY PROJECT DOCUMENTS.

SEISMIC RESTRAINT DESIGN: PROVIDE SEISMIC DESIGN, ANCHORS, AND RESTRAINT DEVICES TO RESIST LOADS PER IBC, CHAPTER 16 AND ASCE 7-16. PROVIDE STRUCTURAL DESIGN TO ENSURE ATTACHMENT POINTS CAN ACCOMMODATE FORCES. CONTRACTOR'S SEISMIC DESIGN SHALL BE A DEFERRED SUBMITTAL AND SUBMITTED TO AHJ. COORDINATE WITH SPECIAL INSPECTIONS PER IBC CHAPTER 17 AND AHJ, MUNICIPALITY OF ANCHORAGE, REQUIREMENTS.

EXCEPT IN CASES WHERE STATUTES GOVERN FOLLOW THE RECOMMENDED PRACTICES OF ASME, SMACNA, ASHRAE, NFPA, AND OSHA, AS THEY APPLY TO THIS PROJECT, AS MINIMUM REQUIREMENT.

FIXTURES, FITTINGS, VALVES, EQUIPMENT, ASSEMBLIES, AND DEVICES SHALL BE LISTED FOR THE INTENDED SERVICE BY IAPMO, FM, UL, OR OTHER NRTL. FURNISH AND INSTALL APPLIANCES, EQUIPMENT, MATERIALS, AND APPARATUS IN ACCORDANCE WITH APPLICABLE CODES, LISTINGS, AND MANUFACTURER'S INSTRUCTIONS.

UNLESS DIRECTED OTHERWISE, PRODUCTS SHALL BE NEW, UNUSED, AND UNDAMAGED, OF STANDARD MANUFACTURE, OF LATEST DESIGN AND QUALITY, AND SUITABLE FOR THE PARTICULAR INSTALLATION. EQUIPMENT AND MATERIALS SHALL BE ASBESTOS AND LEAD FREE. ITEMS EXPOSED TO EXTERIOR, WET, OR CORROSIVE ENVIRONMENTS SHALL BE SELECTED FOR SERVICE CONDITIONS AND BE CORROSIVE RESISTANT.

ARRANGE WORK TO PROVIDE WORKABLE ACCESS TO SERVICEABLE OR OPERABLE EQUIPMENT. LOCATION OF VALVES, TRAPS, STRAINERS, MOTORS, DAMPER OPERATORS, ETC., SHALL BE EASILY ACCESSIBLE BY A PERSON STANDING ON THE FLOOR. ITEMS NOT IN THE OPEN SHALL BE READILY ACCESSIBLE THROUGH ACCESS OPENINGS IN THE BUILDING CONSTRUCTION. PROVIDE UL LISTED ACCESS PANELS TO MATCH FIRE RATING OF ASSEMBLIES. NEW WORK TO ALLOW FOR FLUSHING, CLEANING, AND TESTING INDEPENDENT OF EXISTING SYSTEMS. PIPING SYSTEMS TO BE INSTALLED FOR SECTION ISOLATION, LOW POINT DRAINAGE, AND HIGH POINT AIR REMOVAL.

FIELD VERIFY PIPE, DUCTS, AND EQUIPMENT: SIZE, LOCATION, ROUTING, TERMINAL UNITS, CONTROLS, AND APPURTENANCES. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT, DUCTS, PIPES, AND CONTROLS WITH EXISTING AND NEW WORK, INCLUDING CONSTRUCTION PHASING, STRUCTURAL ELEMENTS, AND ARCHITECTURAL REQUIREMENTS.

WALL, FLOOR, AND CEILING PENETRATIONS SHALL BE SLEEVED. PENETRATIONS THROUGH FIRE RATED CONSTRUCTION SHALL BE UL 1479 OR ASTM E 814 LISTED FIRE STOP ASSEMBLIES.

REMOVE EXPOSED ABANDONED OR INDICATED FOR DEMOLITION CONTROLS, EQUIPMENT, PIPES, AND DUCT. CUT CONCEALED PIPES AND DUCTS FLUSH WITH WALLS AND FLOORS. REMOVE CONDUCTORS, CONDUIT, BRACKETS, STEMS, HANGERS, AND OTHER ACCESSORIES. REMOVE ABANDONED CONTROLS AND ASSOCIATED WIRING & CONDUIT TO SOURCE OF SIGNAL AND SUPPLY.

COORDINATE INSULATION AT FIRE RATED WALL AND FLOOR PENETRATIONS TO COMPLY WITH SELECTED, UL LISTED, FIRESTOPPING SYSTEMS.

INSULATION SHALL PASS CONTINUOUSLY THROUGH NON-FIRE RATED WALLS AND FLOORS.

HYDRONIC HEATING AND COOLING SYSTEMS

PROVIDE INHIBITED PROPYLENE GLYCOL/WATER 50% SOLUTION. FILL THE GLYCOL MAKE-UP TANK.

PIPING: TYPE L COPPER WITH BRAZED TYPE WROUGHT COPPER FITTINGS, OR COPPER PRESS FITTING SYSTEMS IN APPROVED ACCESSIBLE LOCATIONS.

PIPING SYSTEMS SHALL BE CLEANED, FLUSHED, AND MEET OR EXCEED ASME B31.9 MATERIALS, INSTALLATION, AND TESTING REQUIREMENTS.

PLUG, PATCH, AND REPAIR PENETRATIONS, SURFACES, AND FINISHES DAMAGED DURING DEMOLITION AND NEW WORK. RESTORE TO ORIGINAL CONDITION OR BETTER INCLUDING ASSEMBLY FIRE AND SMOKE RATINGS TO MATCH EXISTING. RETEXTURE AND PAINT SURFACES TO MATCH SURROUNDING WITH EXTENT TO INCLUDE ADJACENT SURFACES TO NEXT WALL OR OTHER CLEAN BREAK TO AVOID MISMATCHED FINISHED. REPAIR OR REPLACE DAMAGED SURFACES, CEILING TILES, INSULATION, AND FIREPROOFING. SEAL ROOM PENETRATIONS TO MAINTAIN ROOM PRESSURE RELATIONSHIPS TO ADJACENT SPACES.

CLEAN, REPAIR, OR REPLACE EXISTING IDENTIFICATION TAGS, LABELS, HANGERS, SUPPORTS, INSULATION, MATERIALS, INSTRUMENTATION, AND EQUIPMENT THAT REMAIN, TO BE REUSED, OR ARE AFFECTED BY THIS WORK. UPON COMPLETION OF INSTALLATION AND PRIOR TO INITIAL OPERATION, REMOVE DEBRIS, AND CLEAN AND WIPE DOWN EQUIPMENT, PIPING, DUCTWORK, AND SURFACES TO ELIMINATE DUST AND DIRT.

PROVIDE SUBMITTALS FOR REVIEW AND OBTAIN OWNER'S APPROVAL OF PRODUCTS PRIOR TO ORDERING OR INSTALLING PART OF SYSTEM, DEFERRED SUBMITTALS SHALL BE APPROVED BY AHJ.

SUBMITTALS, INCLUDING O & M MANUALS, SHALL BE SUBMITTED IN 3-RING BINDER, REFERENCED TO CONTRACT DOCUMENTS, REVIEWED AND STAMPED BY CONTRACTOR, CLEARLY AND PROPERLY IDENTIFIED AND SUBSTITUTIONS SHALL BE ANNOTATED TO DEMONSTRATE THAT THEY MEET OR EXCEED SPECIFIED ITEMS. PROVIDE ELECTRONIC, PDF, FILES WITH BOOKMARKS SEPARATING EQUIPMENT, SYSTEMS, AND SHOP DRAWINGS WITH EACH SUBMITTAL.

CONTINUALLY RECORD THE ACTUAL MECHANICAL SYSTEM(S) INSTALLATION ON A FULL SIZE SET OF HARD COPY PRINTS KEPT READILY AVAILABLE AT THE PROJECT DURING CONSTRUCTION. AT THE END OF THE PROJECT SUBMIT COMPLETED RECORD DRAWINGS SHOWING AS-BUILT CONDITIONS FOR NEW AND EXISTING MECHANICAL SYSTEMS IN THE PROJECT WORK AREA.

PROVIDE INSTALLATION AND OPERATING AND MAINTENANCE MANUALS FOR EQUIPMENT. PROVIDE INFORMATION NEEDED TO OPERATE AND MAINTAIN THE EQUIPMENT INCLUDING CHANGES TO THE CONTROL SYSTEM. IN ADDITION TO ELECTRONIC SUBMITTAL BIND FINAL MANUALS IN HARD BACKED, 3-RING LOOSE-LEAF BINDER. OBTAIN FACILITY'S EQUIPMENT TAG NUMBERS AND INCORPORATE INTO MANUALS AND AS-BUILTS. MANUALS SHALL INCLUDE MAINTENANCE INSTRUCTIONS, MANUFACTURER'S BROCHURES, CUT SHEETS, SHOP DRAWINGS, CONTROLS, AND FINAL BALANCE REPORTS.

PROVIDE SCALED SHOP DRAWINGS (HAND DRAWN OR IN CAD FORMAT) OF THE WORK IN THE BOILER ROOM TO INCLUDE EQUIPMENT, PIPING, AND SUPPORTS FOR REVIEW AND APPROVAL. PROVIDE PLAN AND ELEVATION VIEWS TO CLEARLY SHOW PLANNED INSTALLATION.

ITEMS REQUIRING RELOCATION OR TEMPORARILY SUPPORTED DURING DEMOLITION OR NEW WORK SHALL BE MAINTAINED AND RE-INSTALLED TO MAINTAIN THEIR LISTING, SERVICEABILITY, AND FUNCTION. VERIFY THAT EQUIPMENT AND SYSTEMS ARE FULLY OPERATIONAL UPON COMPLETION OF WORK.

MECHANICAL BASIC MATERIALS AND METHODS

IDENTIFICATION: PROVIDE MECHANICAL IDENTIFICATION CONSISTING OF LABELS, TAGS, AND FLOW ARROWS FOR DUCTS, PIPES, VALVES, AND EQUIPMENT INSTALLED UNDER THIS CONTRACT. IN NON-PUBLIC AREAS PLACE ID AT WALLS, FLOORS, DIRECTION CHANGE, AND 20' INTERVALS ALONG STRAIGHT RUNS.

HANGERS AND SUPPORTS: PIPE HANGERS AND SUPPORTS SHALL BE IN ACCORDANCE WITH MSS SP-58, SPACING AND ADDITIONAL CRITERIA SHALL BE PER APPLICABLE CODES, AND ASME B31.9 BUILDING SERVICES PIPING. SUPPORT, BRACE, AND ANCHOR PIPES, EQUIPMENT, AND DEVICES TO BUILDING STRUCTURE TO RESIST GRAVITY, OPERATIONAL, AND VIBRATION FORCES, COORDINATE WITH SEISMIC RESTRAINTS.

PIPE GUIDES: B-LINE PIPE GUIDE OR EQUAL.

EXPANSION LOOPS: METRAFLEX COPPER METRALOOP; SWEAT ENDS, 1.5 INCH MOVEMENT.

INSULATION: INSULATE HYDRONIC PIPING. EQUIPMENT, VALVES, AND FITTINGS SHALL BE FIBERGLASS INSULATED.

INSULATION PRODUCTS SHALL MEET OR BE LOWER THAN FLAME SPREAD 25, FUEL CONTRIBUTED 50, AND SMOKE DEVELOPED 50.

PROVIDE REMOVABLE INSULATION AT VALVES AND EQUIPMENT REQUIRING ACCESS. NEOINSULATION NEO 2.0 OR EQUAL.

PROVIDE INSERTS TO PERMIT THE PIPE HANGARS AND SUPPORTS TO BE LOCATED OUTSIDE OF THE INSULATION AND VAPOR BARRIER.

FOR HEATING SYSTEMS PIPING AND APPURTENANCES INSULATION THICKNESS SHALL BE 1" FOR 1" AND SMALLER PIPES AND 1-1/2" FOR LARGER LINES. EQUIPMENT, VALVES, AND FITTINGS SHALL BE SAME THERMAL RESISTANCE AS PIPES.

INSULATION TYPE SHALL BE SHALL BE PREFORMED FIBERGLASS WITH ALL SERVICE JACKET, 4 LBS/CF DENSITY, MINUS 20F TO 850F OPERATING TEMPERATURE RANGE. THERMAL CONDUCTIVITY K=0.23 AT 75F MEAN TEMPERATURE AND HAVING A FACTORY APPLIED FLAME RETARDANT VAPOR BARRIER JACKET WITH PERMEABILITY RATING = 0.02 PERMS.

INSULATION SHALL PASS CONTINUOUSLY THROUGH NON-FIRE RATED WALLS AND FLOORS.

HYDRONIC HEATING AND COOLING SYSTEMS

PROVIDE INHIBITED PROPYLENE GLYCOL/WATER 50% SOLUTION. FILL THE GLYCOL MAKE-UP TANK.

PIPING: TYPE L COPPER WITH BRAZED TYPE WROUGHT COPPER FITTINGS, OR COPPER PRESS FITTING SYSTEMS IN APPROVED ACCESSIBLE LOCATIONS.

PIPING SYSTEMS SHALL BE CLEANED, FLUSHED, AND MEET OR EXCEED ASME B31.9 MATERIALS, INSTALLATION, AND TESTING REQUIREMENTS.

FLUSH AND CLEAN PIPING TO REMOVE GREASE AND MAGNETIC OXIDE. PRESSURE TEST PIPING TO 100 PSIG WITH CLEAN FLUID. SYSTEM MUST HOLD TEST PRESSURE FOR TWO HOUR PERIOD WITH NO PRESSURE DROP TO PASS TEST. INSPECT SYSTEM DURING TEST AND REPAIR LEAKS.

EXPANSION TANK: AS SCHEDULED.

PUMPS: AS SCHEDULED.

AIR SEPARATOR: AS SCHEDULED.

STRAINERS: CAST IRON BODY Y-STRAINER WITH 304 STAINLESS STEEL SCREEN. 20 MESH SCREEN FOR STRAINERS 2 INCH AND LESS, STYLE B7 OR EQUAL.

CHECK VALVES: Y-PATTERN, SWING-TYPE, BRONZE FOR VALVES 2 INCHES AND LESS, NIBCO S-413 OR EQUAL.

BALL VALVES: BRASS OR BRONZE BODY, 2 PIECE, FULL PORT, 600 PSIG WOG AND BALL TFE SEATS, -20F TO 400F TEMPERATURE RANGE. MANUFACTURER: NIBCO 585-70-66 OR EQUAL.

TERMINAL REHEAT COIL ASSEMBLIES WITH GRISWOLD FLOW CONTROL VALVE KITS WITH STRAINER, UNIONS, MANUAL AIR VENT, TEST TEES, AND SIEMENS PROVIDED BALL TYPE CONTROL VALVE WITH ACTUATOR.

TESTING, ADJUSTING, AND BALANCING

OBTAIN THE SERVICES OF A NEBB CERTIFIED TESTING, ADJUSTING, AND BALANCING AGENCY TO PERFORM TESTING AND BALANCING WORK. PERFORM WORK IN ACCORDANCE WITH THE RECOMMENDED PROCEDURES SPECIFIED IN THE NEBB STANDARDS.

TEST, ADJUST, AND BALANCE HEATING SYSTEM PUMPS AND HEATING TERMINAL UNIT FLOWRATES. RECORD PUMP SUCTION AND DISCHARGE PRESSURE AND PROVIDE PUMP CURVE AND GPM. BALANCE AIR FLOW RATES TO WITHIN +/- 10% OF FLOW RATES INDICATED.

SUBMIT A FINAL TAB REPORT.

BUILDING AUTOMATION SYSTEM (BAS)

TEMPERATURE AND SYSTEM CONTROL MATERIALS AND WORK SHALL BE BY SIEMENS BUILDING TECHNOLOGIES, AND SHALL BE COMPATIBLE WITH, AND AN EXTENSION OF, FACILITY'S EXISTING BUILDING AUTOMATION SYSTEM (BAS). SYSTEM COMPONENTS, EXCEPT WHERE SPECIFIED OTHERWISE SHALL BE AS MANUFACTURED AND INSTALLED BY SIEMENS, NO SUBSTITUTIONS ALLOWED. REQUIRED SUBMITTALS INCLUDE: CONTROL PRODUCTS, SHOP DRAWINGS WITH SEQUENCE OF OPERATIONS, GRAPHIC DISPLAYS, O&M MANUAL, AND TRENDRING VERIFICATION. ALL SET POINTS AND DELAYS TO BE ADJUSTABLE.

PROVIDE A COMPLETE AND OPERATIONAL CONTROL SYSTEM FOR NEW WORK AND IN ACCORDANCE WITH THE MECHANICAL AND ELECTRICAL DRAWINGS. PROVIDE TEMPORARY CONTROLS TO MAINTAIN COMFORT AND PRESSURE CONTROL IN AREAS TO REMAIN OPERATIONAL AND TO MEET PHASING REQUIREMENTS.

SPACE TEMPERATURE CONTROL SHALL BE DIRECT DIGITAL CONTROL (DDC) WITH ELECTRIC ACTUATED VALVES AND DAMPERS.

PROVIDE CONTROL VALVES AND ACTUATORS. SIZE CONTROL VALVES FOR A MAXIMUM OF 3 PSIG PRESSURE DROP.

ROOM TEMPERATURE SENSOR SHALL INCLUDE A TERMINAL JACK, OCCUPANT ADJUSTABLE SETPOINT DEVICE, VISIBLE TEMPERATURE THERMOMETER OR DISPLAY AND PROGRAMMABLE OVERRIDE SWITCH INTEGRAL TO THE ASSEMBLY. THE SENSOR SHALL HAVE AN ACCURACY OF +/- 0.5F AT CALIBRATION POINT AND A SENSING RANGE OF 50F TO 100F AND A SETPOINT SCALE RANGE OF 60F TO 90F.

VERIFY FUNCTION, CALIBRATION, AND SYSTEM ACCURACY OF EXISTING SENSORS, DEVICES, AND EQUIPMENT TO BE USED.

REMOVE DDC SOFTWARE PROGRAMS, VIRTUAL OR REAL POINTS, STORED DATA, REGISTERS, AND GRAPHIC DISPLAY FILES WHICH WILL BE SUPERSEDED, REDUNDANT, OR UNUSED BY THIS PROJECT.

INTEGRATE BAS GRAPHICS CONTROL WORK. PROVIDE A SUMMARY OF SOFTWARE FEATURES, REGISTRIES, AND GRAPHIC DISPLAYS TO BE ADDED, ALTERED, OR DELETED BY THIS PROJECT. INCORPORATE INFORMATION INTO SYSTEM ACCEPTANCE FOR VERIFICATION AND OWNER TRAINING.

UPON COMPLETION OF THE INSTALLATION, INITIATE OPERATION OF THE CONTROL SYSTEM AND PERFORM TRENDRING, TESTING, AND DIAGNOSTICS FOR PROPER SYSTEMS OPERATION AND AS REQUIRED BY THE ENGINEER. AN ACCEPTANCE TEST IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE SHALL BE PERFORMED.

SEQUENCE OF OPERATIONS:

COORDINATE WITH EXISTING HEATING SYSTEM EQUIPMENT FOR BAS MONITORING AND CONTROL POINTS AND SEQUENCES.

PUMP (PMP-1 AND PMP-2): MAIN BUILDING HEATING CIRCULATION PUMPS ARE ARRANGED IN A LEAD, STANDBY ARRANGEMENT, WITH ONLY ONE PUMP OPERATING AT A TIME. ENABLE THE LEAD PUMP TO OPERATE WHEN THE BOILERS ARE ENABLED TO OPERATE. LEAD PUMP OPERATES CONTINUOUSLY.

MONITOR PUMP STATUS AND IF LEAD PUMP FAILS TO OPERATE WHEN COMMANDED ON, COMMAND THE STANDBY PUMP TO OPERATE AND INITIATE A MAINTENANCE ALARM.

ROTATE LEAD AND STANDBY PUMP ASSIGNMENT ON A MONTHLY BASIS TO EVEN PUMP RUNTIME.

PROVIDE A PRESSURE SENSOR. MONITOR SYSTEM PRESSURE AND INITIATE A MAINTENANCE ALARM IF SYSTEM PRESSURE IS LESS THAN 10 PSIG (ADJUSTABLE).

HEATING TERMINAL UNITS: CABINET UNIT HEATERS: WHEN SPACE CALLS FOR HEAT, OPEN THREE WAY CONTROL VALVE TO FLOW TO THE UNIT AND START FAN. WHEN SPACE TEMPERATURE SET POINT IS SATISFIED, CLOSE THREE WAY CONTROL VALVE TO BYPASS FLOW TO UNIT AND STOP FAN.

FINTUBE BASEBOARD: WHEN SPACE CALLS FOR HEAT, OPEN CONTROL VALVE. WHEN SPACE TEMPERATURE SET POINT IS SATISFIED, CLOSE CONTROL VALVE.

Revisions		
No.	Date	Description
1	5/16/24	RM 603 HT

1 INCH AT FULL SIZE
 IF NOT 1 INCH,
 SCALE ACCORDINGLY

Designed by: CRH

Checked by: TDH

AMC Project: 24801

Date: 05/01/2024

Project Phase

PERMIT DRAWINGS

Sheet Title

MECHANICAL SHEET SPECIFICATIONS AND SCHEDULES

Sheet Number

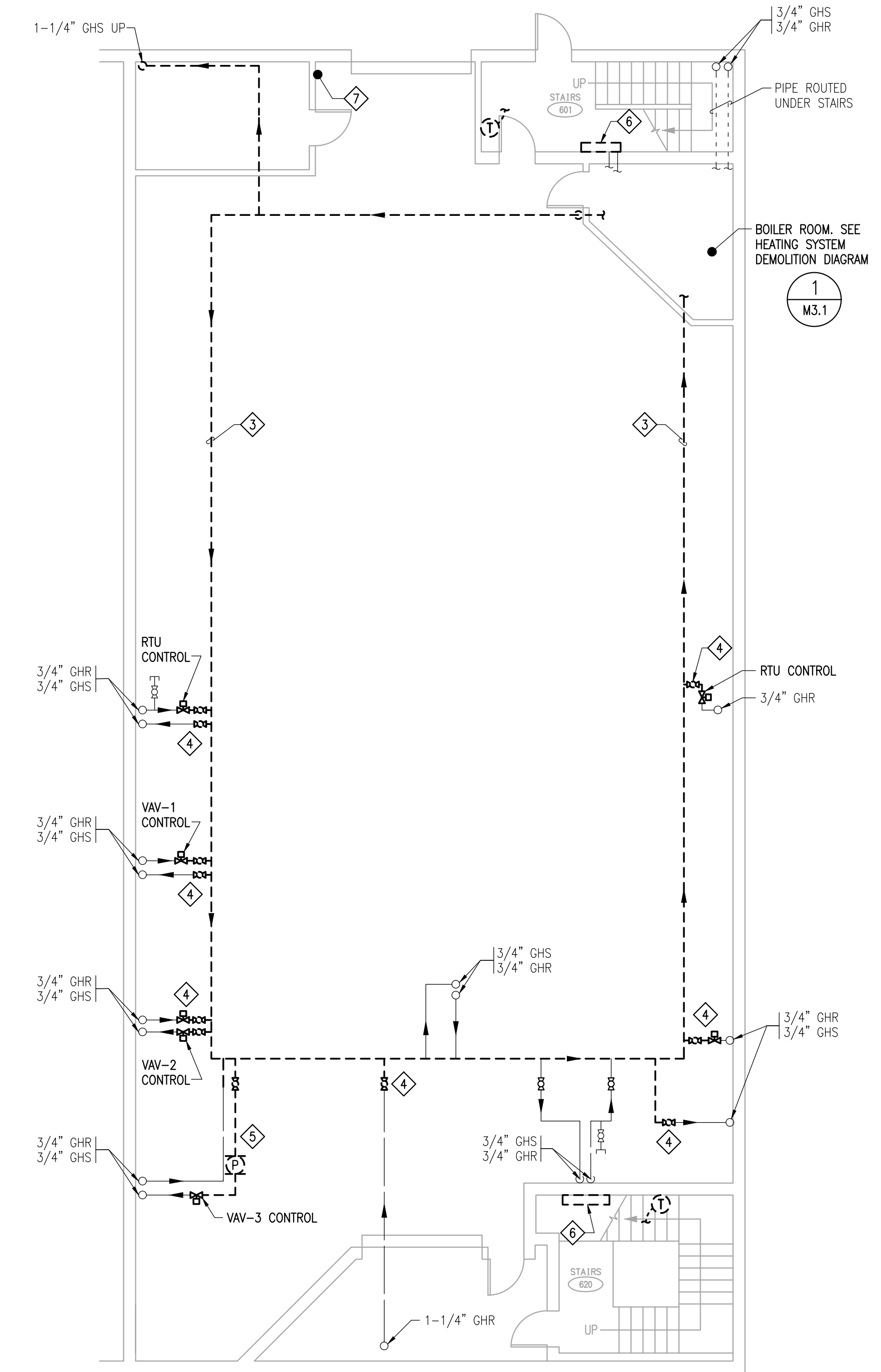
M0.2

GENERAL NOTES

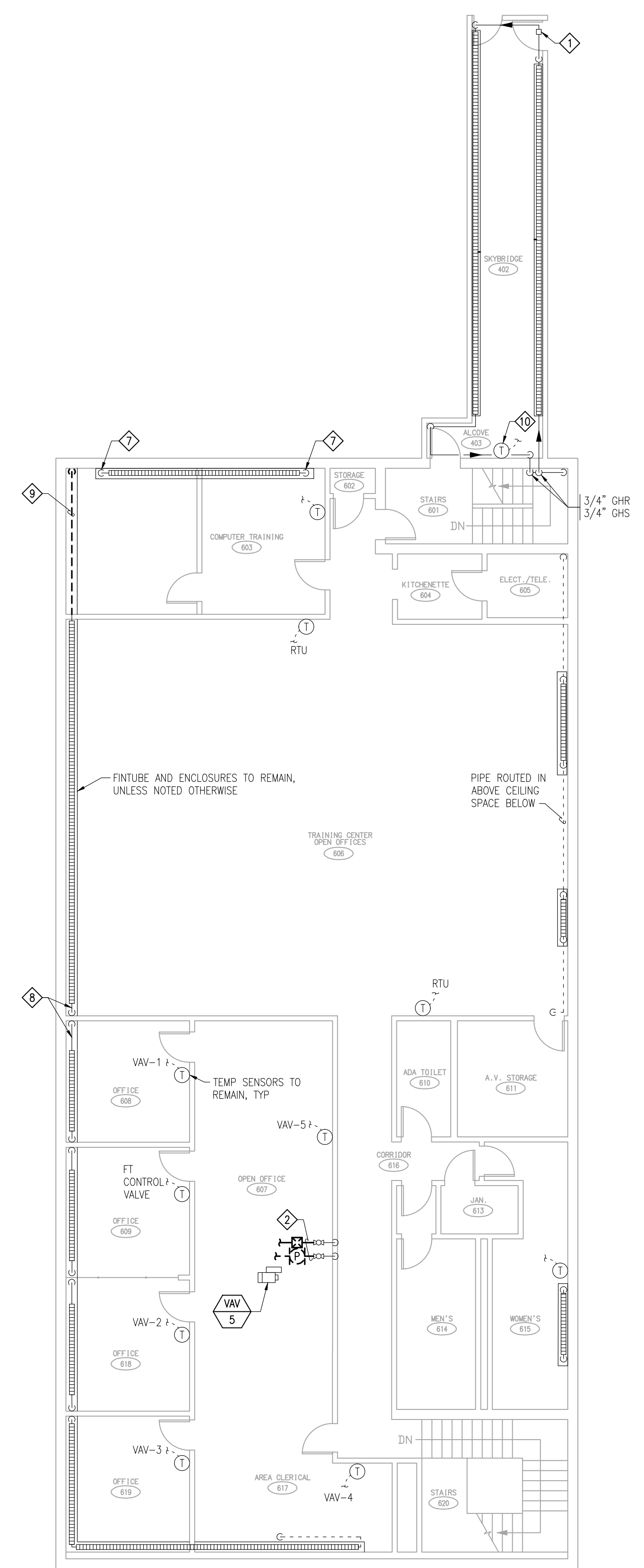
1. FIELD VERIFY EXISTING CONDITIONS.
2. COORDINATE LIMITS OF DEMOLITION WITH NEW WORK.

DEMOLITION NOTES

- 1. DEMOLISH AIR SEPARATOR AND MANUAL AIR VENT.
- 2. DEMOLISH PUMP, SUPPORTS, VALVING, AND CONTROL VALVE. COORDINATE WITH ELECTRICAL.
- 3. DEMOLISH PIPING AND SUPPORTS
- 4. DEMOLISH BRANCH PIPING INCLUDING ISOLATION VALVES AND CONTROL VALVE.
- 5. DEMOLISH PUMP AND SUPPORTS. COORDINATE WITH ELECTRICAL.
- 6. DEMOLISH CABINET UNIT HEATER AND CONTROLS.
- 7. DEMOLISH HARD LID CEILING IN LEVEL 1 TO DETERMINE PIPE ROUTING TO FINITUBE, FT-3. REPORT FINDINGS TO THE OWNER.
- 8. DEMOLISH GATE VALVE AND BALANCE VALVE WITHIN ARCHITECTURAL ENCLOSURE.
- 9. DEMOLISH PIPING WITHIN ARCHITECTURAL ENCLOSURE.
- 10. FIELD VERIFY TEMPERATURE SENSOR LOCATION.



1 LEVEL 1 PLAN - PIPING DEMOLITION
 M1.1 SCALE: 1/8" = 1'-0"



2 LEVEL 2 PLAN - PIPING DEMOLITION
 M1.1 SCALE: 1/8" = 1'-0"

**ANCHORAGE COURT SYSTEM
 TRAINING CENTER HEATING PIPING REPLACEMENT**

Revisions		
No.	Date	Description
1	5/16/24	RM 603 HT

1 INCH AT FULL SIZE
 — ACTUAL —
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 SCALE ACCORDINGLY

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Sheet Title
 LEVEL 1 AND 2 PLAN
 - PIPING DEMOLITION

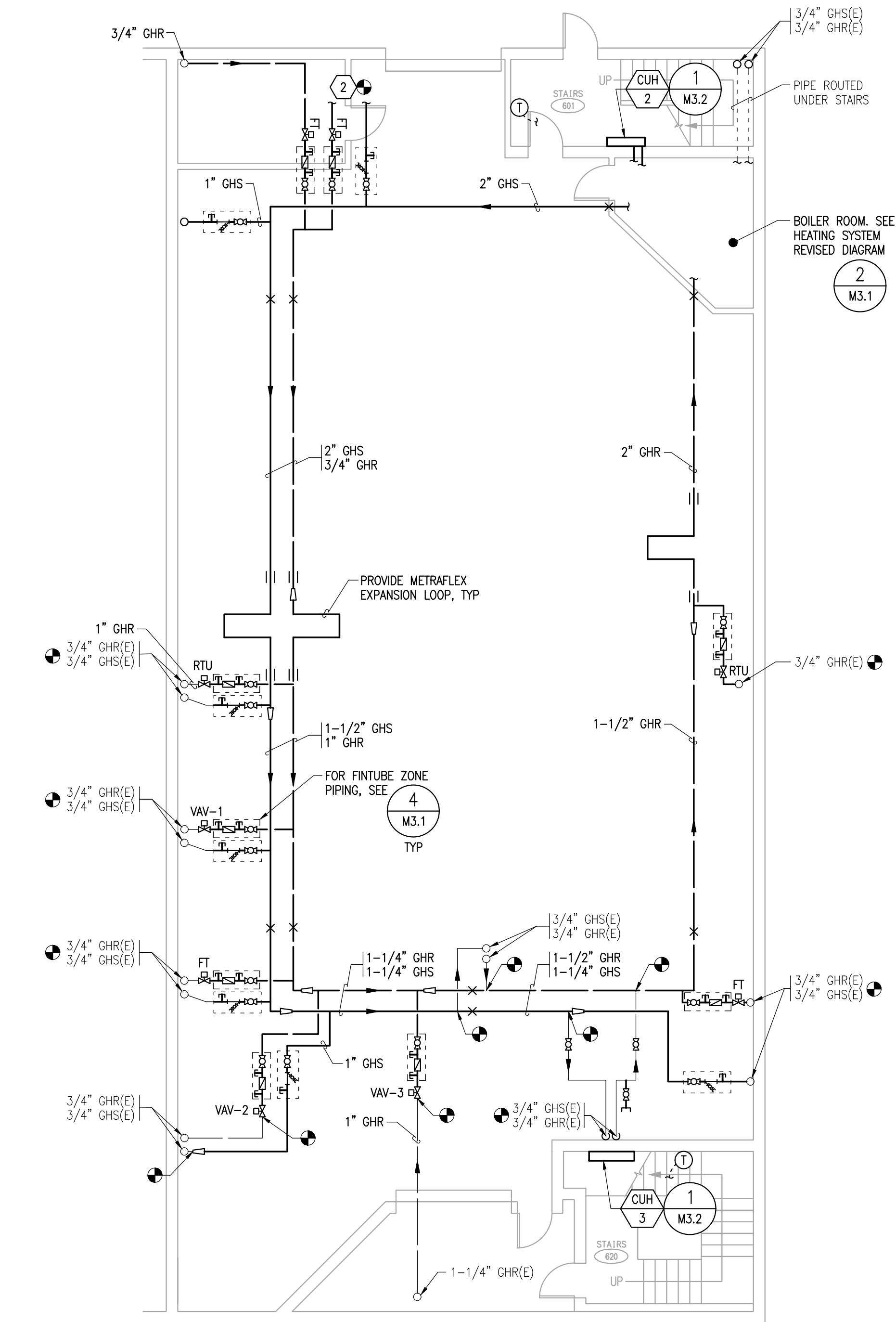
Sheet Number
M1.1

GENERAL NOTES

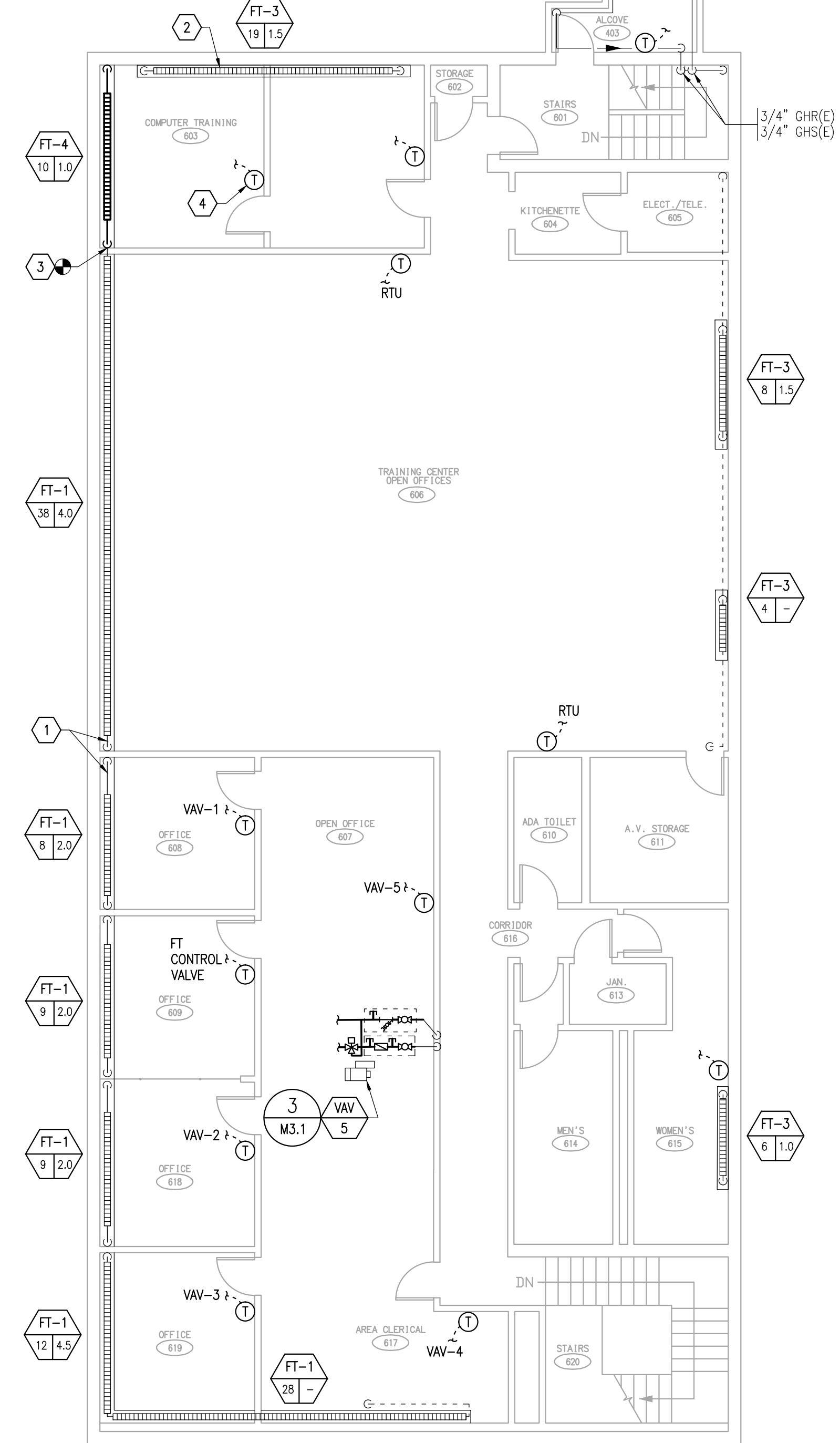
1. PROVIDE MANUAL HIGH POINT VENTS AND LOW POINT DRAINS WITH CAPPED HOSE CONNECTIONS; SLOPE PIPING TO ALLOW FOR DRAINAGE OF THE HYDRONIC SYSTEM.
2. MOUNT ZONE TEMPERATURE SENSORS AT 4" AFF.
3. MINIMUM PIPE SIZE IS 3/4" UNLESS OTHERWISE NOTED.
4. COORDINATE ELEVATION OF LEVEL 1 PIPING TO NOT INTERFERE WITH WAREHOUSE STORAGE AND OPERATIONS.

SHEET NOTES

1. REPAIR FIN TUBE PIPING WITHIN ARCHITECTURAL ENCLOSURE.
2. CONNECT FIN TUBE SEGMENT, FT-3, TO PIPING SYSTEM AS SHOWN.
3. CONNECT 1" GHS TO FT-4 AND FT-1(E) WITHIN ARCHITECTURAL ENCLOSURE.
4. PROVIDE TEMPERATURE SENSOR TO CONTROL FT-4 CONTROL VALVE.



1 LEVEL 1 PLAN - PIPING
 M2.1 SCALE: 1/8" = 1'-0"



2 LEVEL 2 PLAN - PIPING
 M2.1 SCALE: 1/8" = 1'-0"

**ANCHORAGE COURT SYSTEM
 TRAINING CENTER HEATING PIPING REPLACEMENT**

Revisions		
No.	Date	Description
1	5/16/24	RM 603 HT

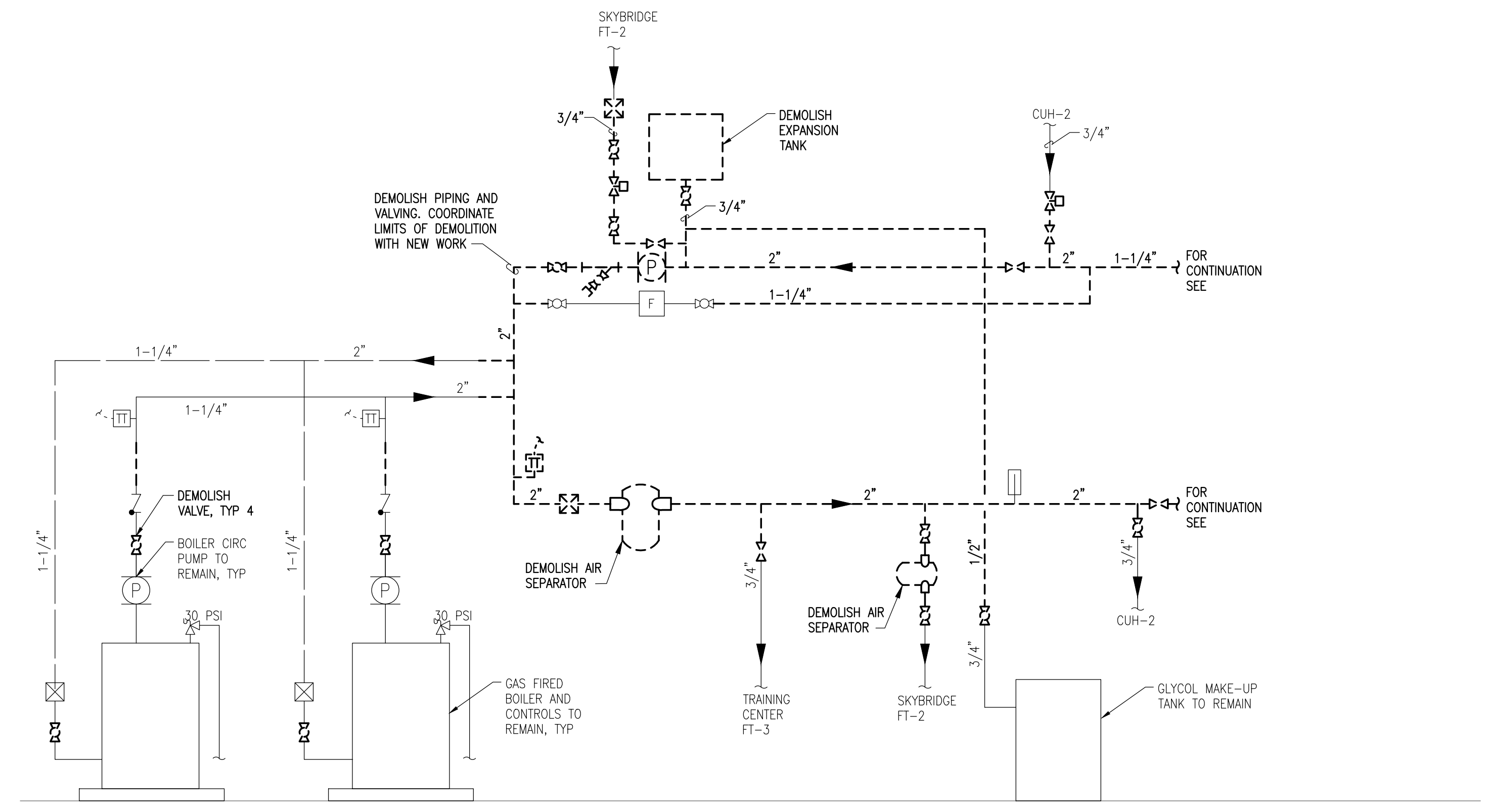
1 INCH AT FULL SIZE
 1" = ACTUAL
 IF NOT 1 INCH,
 SCALE ACCORDINGLY

Designed by: CRH
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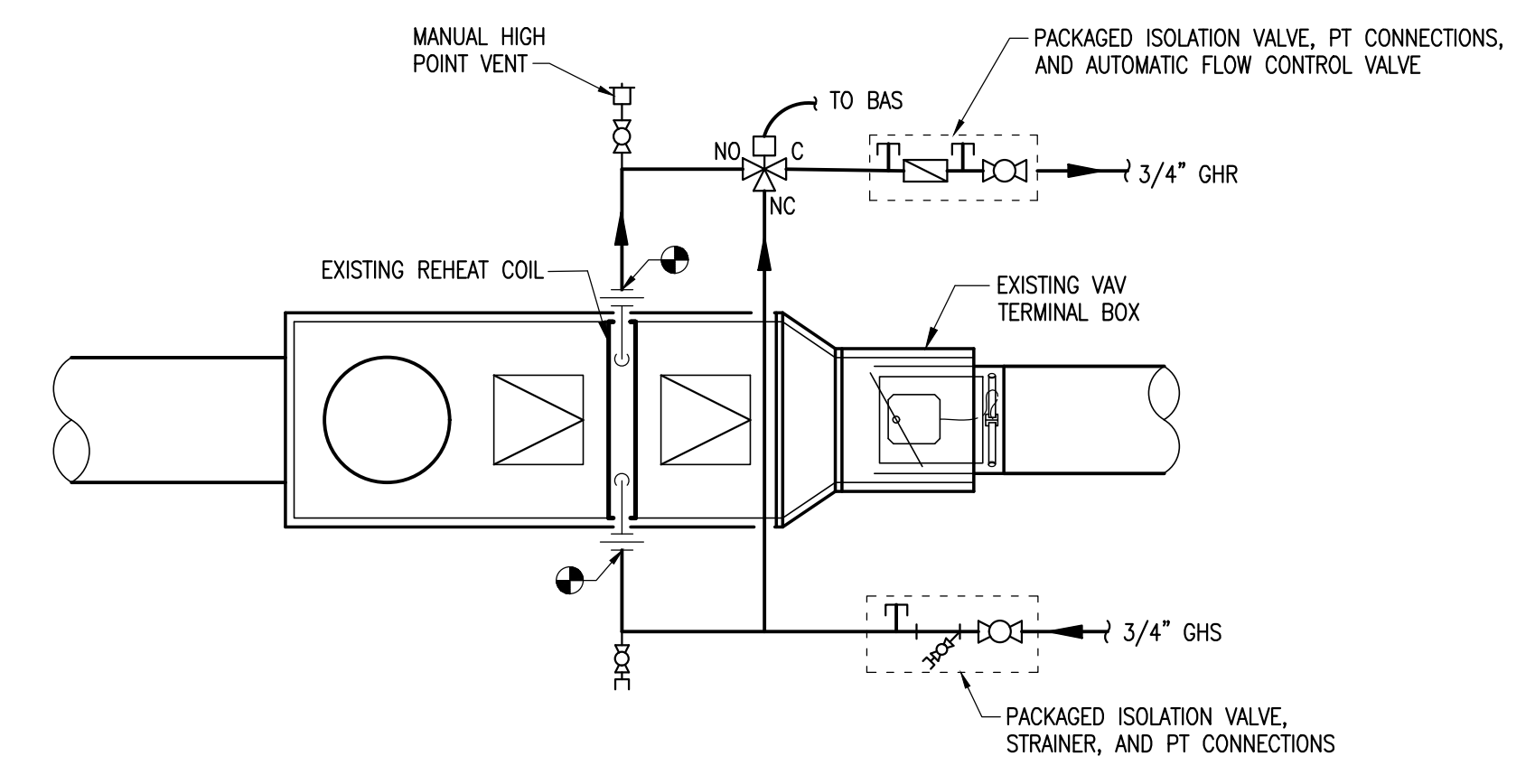
Sheet Title
 LEVEL 1 AND 2 PLAN
 - PIPING

Sheet Number
M2.1

**ANCHORAGE COURT SYSTEM
 TRAINING CENTER HEATING PIPING REPLACEMENT**

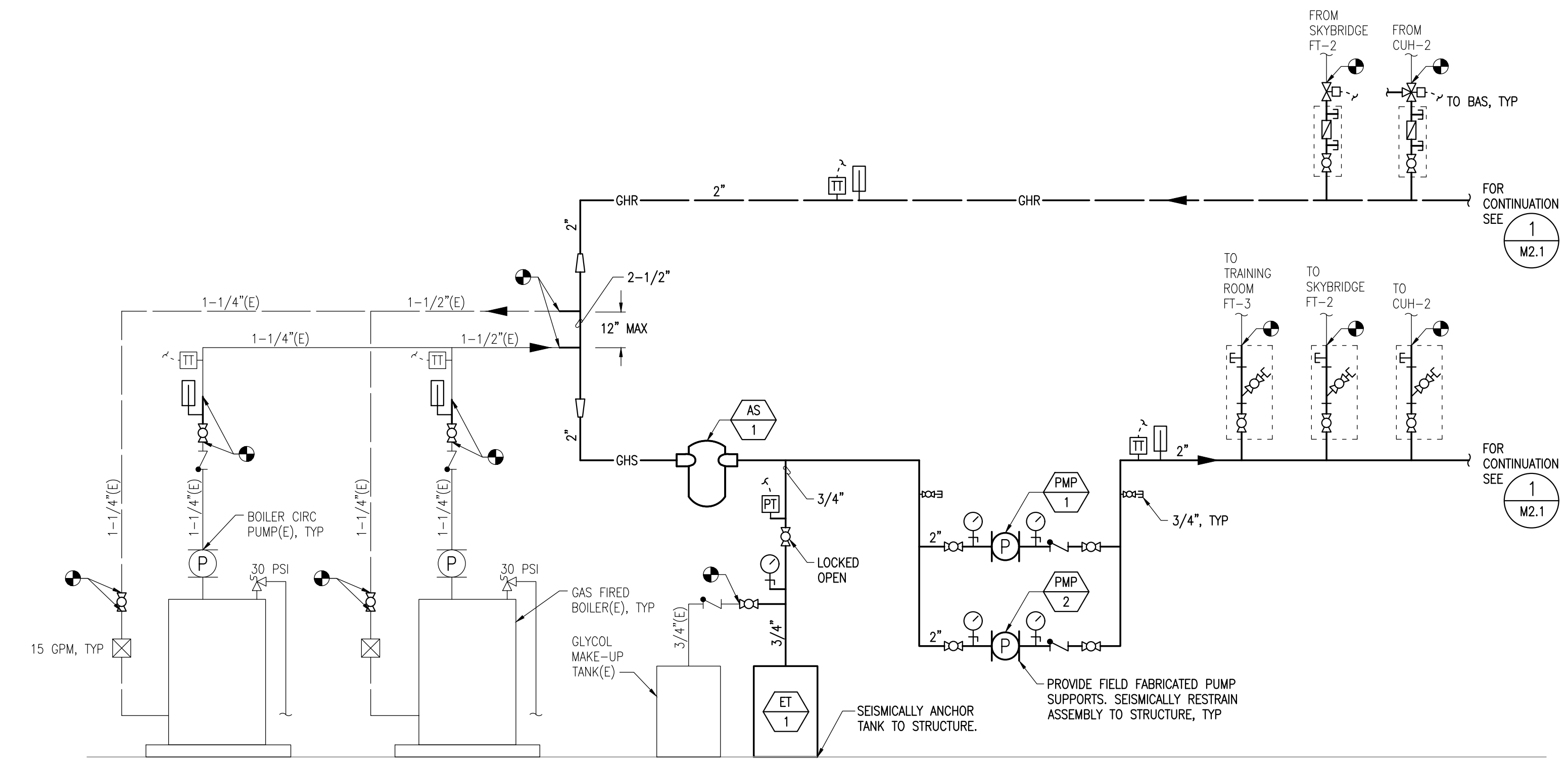


1 DIAGRAM - DEMOLITION - HEATING SYSTEM
 M3.1 SCALE: NONE

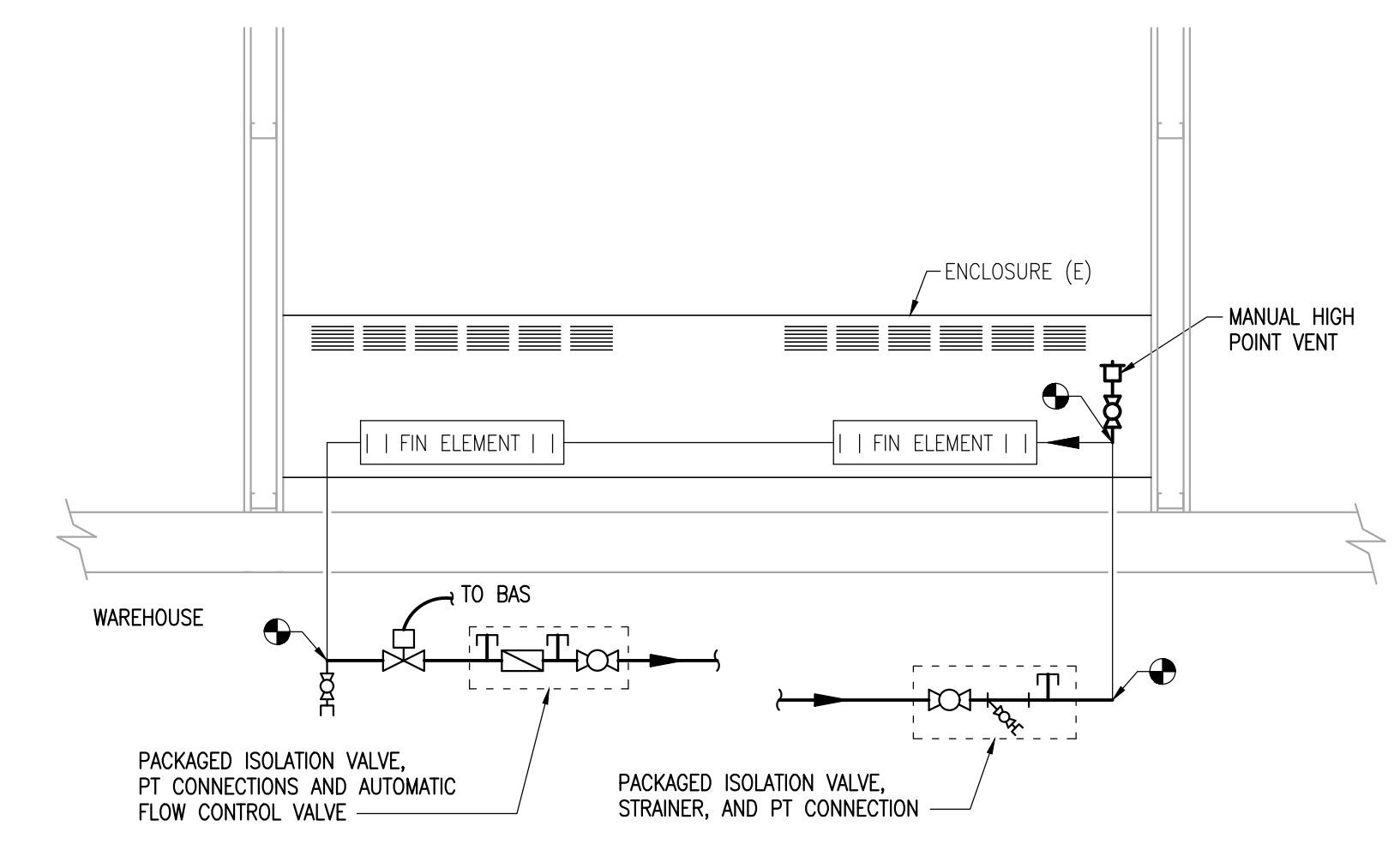


DETAIL NOTES
 1. HYDRONIC PIPING SHOWN OFFSET FOR CLARITY.

3 DETAIL - VAV-5 REHEAT COIL PIPING
 M3.1 SCALE: NONE



2 DIAGRAM - REVISED - HEATING SYSTEM
 M3.1 SCALE: NONE



4 DETAIL - FIN TUBE PIPING
 M3.1 SCALE: NONE

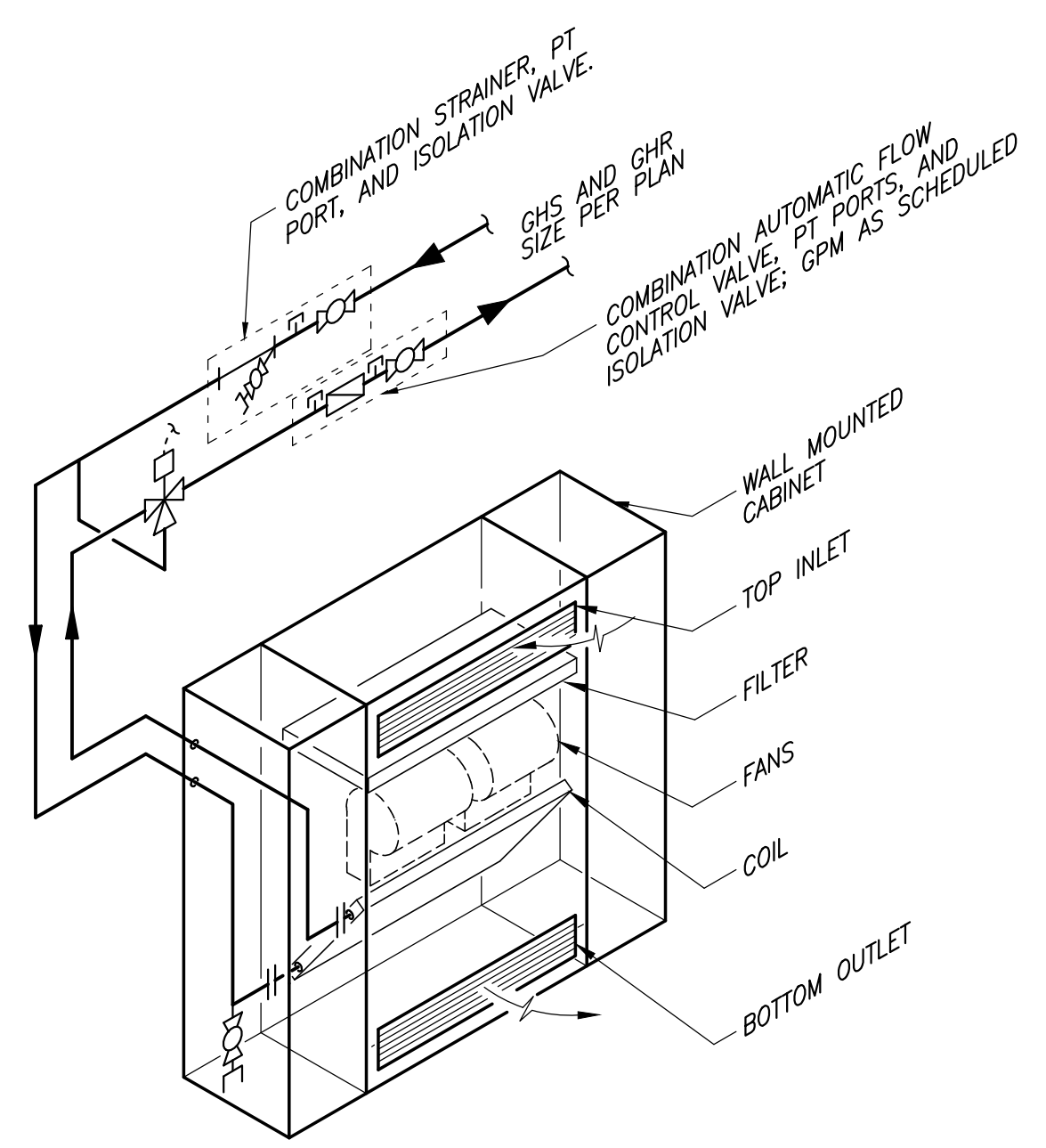
Revisions		
No.	Date	Description
1	5/16/24	RM 603 HT

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 SCALE ACCORDINGLY

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Sheet Title
 DIAGRAMS -
 HEATING

Sheet Number
M3.1



1 **DETAIL - WALL MOUNTED CUH**
M3.2 SCALE: NONE

**ANCHORAGE COURT SYSTEM
TRAINING CENTER HEATING PIPING REPLACEMENT**

Revisions		
No.	Date	Description
1	5/16/24	RM 603 HT

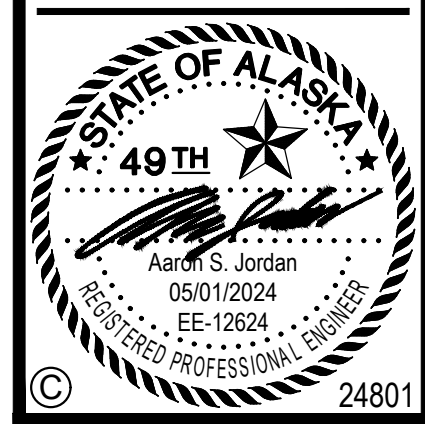
1 INCH AT FULL SIZE

 IF NOT 1 INCH,
 SCALE ACCORDINGLY

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Sheet Title
 DETAILS - HEATING

Sheet Number
M3.2



24801

**ANCHORAGE COURT SYSTEM
TRAINING CENTER HEATING PIPING REPLACEMENT**

ABBREVIATIONS		GENERAL		GENERAL	
AFF	ABOVE FINISHED FLOOR	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
AFG	ABOVE FINISHED GRADE		SHEET NOTE CONVENTION:		CONDUIT/FEEDER LINE CONVENTION:
AL	ALUMINUM		REFERENCED SHEET NOTE		CONCEALED
APPROX	APPROXIMATE		GENERAL SHEET NOTE		UNDERGROUND OR CONCEALED IN FLOOR
AHJ	AUTHORITY HAVING JURISDICTION		FEEDER IDENTIFICATION TAG		EXPOSED
C	CIRCUIT		FEEDER NUMBER		FLEXIBLE CONDUIT
C.O.	CONDUIT ONLY		DETAIL REFERENCE		
CU	COPPER		DETAIL NUMBER		
(D)	DEMOLISH		SHEET WHERE DETAIL APPEARS		
(E)	EXISTING		SECTION REFERENCE		
(F)	FUTURE		SECTION LETTER		
HZ	FREQUENCY		SHEET WHERE SECTION APPEARS		
HP	HORSEPOWER				
IAW	IN ACCORDANCE WITH				
KVA	KILO VOLT-AMPS				
KW	KILOWATT				
MDS	MAIN DISTRIBUTION SWITCHBOARD				
MIN	MINIMUM				
NEC	NATIONAL ELECTRICAL CODE				
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION				
N/A	NOT APPLICABLE				
NTS	NOT TO SCALE				
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED				
OFOI	OWNER FURNISHED, OWNER INSTALLED				
PH	PHASE (ELECTRICAL)				
TYP	TYPICAL				
UON	UNLESS OTHERWISE NOTED				
VSD	VARIABLE SPEED DRIVE				
VAC	VOLTS (ALTERNATING CURRENT)				
VDC	VOLTS (DIRECT CURRENT)				
V	VOLTS OR VOLTAGE				
W	WATT				

MDP											
LOCATION: WAREHOUSE				VOLTS: 208/120 Wye				A.I.C. RATING: EXISTING			
FED FROM: UTILITY				PHASES: 3				MAINS TYPE: LUGS			
MOUNTING: SURFACE				WIRES: 4				RATING: 400A			
CKT#	CIRCUIT DESCRIPTION	AMP	POLE	VA-PHASE A	VA-PHASE B	VA-PHASE C	POLE	AMP	CIRCUIT DESCRIPTION	CKT#	
1	SPACE			340			2	15	PMP-1 (NOTE 1)	2	
3	SPACE				340					4	
5	SPACE					340			PMP-2 (NOTE 1)	6	
7	PANEL D	100	3	340						8	
9	---	---	---						SPACE	10	
11	---	---	---						SPACE	12	
13	SPARE	20	1						SPACE	14	
15	SPARE	20	1				1	20	SPACE	16	
17	SPARE	20	1				1	20	SPACE	18	
19	SPARE	20	1				1	20	SPACE	20	
21	SPARE	20	1				1	20	SPACE	22	
23	SPARE	20	1				1	20	SPACE	24	
25	SPARE	20	3				3	30	SPACE	26	
27	---	---	---						---	28	
29	---	---	---						---	30	
31	SPARE	40	3				3	100	PANEL A	32	
33	---	---	---						---	34	
35	---	---	---						---	36	
37	PANEL C	200	3				3	200	PANEL B	38	
39	---	---	---						---	40	
41	---	---	---						---	42	

PANEL	LOAD AMPS	PHASE A	PHASE B	PHASE C
		0.7 kVA	0.3 kVA	0.3 kVA
		6 A	3 A	3 A

LOAD TYPE	CONNECTED LOAD	DEMAND FACTOR	TOTAL LOAD WITH NEC FACTORS	PANEL TOTALS	
				LOAD	AMPS
CONTINUOUS	0 VA	125%	0	TOTAL CONNECTED LOAD:	1.4 kVA
LIGHTING	0 VA	100%	0	TOTAL NEC LOAD:	1.5 kVA
MOTOR	1360 VA	113%	1530	TOTAL CONNECTED AMPS:	3.8 A
NON-CONTINUOUS	0 VA	100%	0	TOTAL NEC AMPS:	4.2 A
RECEPTACLE	0 VA	0%	0		

NOTES:
1. PROVIDE CIRCUIT BREAKER IN AVAILABLE SPACE.

SPECIFICATIONS

<p>26.00.00 ELECTRICAL GENERAL REQUIREMENTS</p> <ol style="list-style-type: none"> PROVIDE A COMPLETE AND FULLY OPERATIONAL SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS. PROVIDE MATERIALS, LABOR, SERVICES, TOOLS, APPLIANCES AND APPARATUS NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS, BUT WHICH ARE REQUIRED FOR A COMPLETE AND FULLY OPERATIONAL SYSTEM. CONNECT EQUIPMENT AND DEVICES FURNISHED OR INSTALLED BY OTHER TRADES OR FURNISHED BY THE OWNER IN ACCORDANCE WITH THE REQUIREMENTS OF THIS SPECIFICATION. PROVIDE LABOR, MATERIAL AND EQUIPMENT REQUIRED FOR COMPLETE, SAFE WORKABLE ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS. COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL, STATE AND NATIONAL CODES AND STANDARDS. EMPLOY WORKMEN SKILLED IN THE TRADE AND FAMILIAR WITH TECHNIQUES REQUIRED TO COMPLETE THE WORK IN A NEAT AND WORKMANLIKE MANNER. WORKMANSHIP IS SUBJECT TO APPROVAL BY THE OWNER. OBTAIN AND PAY FOR LICENSES, PERMITS AND INSPECTIONS REQUIRED BY LAW, ORDINANCES AND RULES GOVERNING WORK SPECIFIED HEREIN. ARRANGE INSPECTION OF WORK AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION AND GIVE THE INSPECTORS NECESSARY ASSISTANCE TO COMPLETE THEIR INSPECTION. CONDUCT A SITE VISIT PRIOR TO AWARD OF CONTRACT AND EXAMINE DRAWINGS AND SPECIFICATIONS FOR DISCREPANCIES BETWEEN THIS AND OTHER DIVISIONS OF THE WORK AND EXISTING CONDITIONS. REPORT IN WRITING NO LESS THAN TWO WORK WEEKS PRIOR TO AWARD OF CONTRACT ANY DISCREPANCIES WHICH THE CONTRACTOR BELIEVES ARE CONTRARY TO CODE OR THAT WILL NOT FUNCTION AS SHOWN. OBTAIN SUBMITTALS AND SHOP DRAWINGS OF EQUIPMENT WITH ELECTRICAL CONNECTIONS FURNISHED UNDER OTHER DIVISIONS AND/OR BY THE OWNER AND COORDINATE EXACT REQUIREMENTS WITH EQUIPMENT PROVIDED. MATERIALS SHALL BE NEW, FULL WEIGHT AND BEAR THE UL LABEL. FURNISH A ONE YEAR GUARANTEE FOR ELECTRICAL MATERIALS AND LABOR. GUARANTEE SHALL COMMENCE AT FINAL PAYMENT. MAKE NECESSARY REPAIRS IN A TIMELY MANNER AT NO COST TO THE OWNER. PROVIDE DISRUPTION REQUESTS FOR WORK REQUIRING DISRUPTION TO OWNER. SUBMIT DISRUPTION REQUESTS NOT LESS THAN TWO WEEKS PRIOR TO PROPOSED DISRUPTION. ADHERE TO OWNER POLICIES FOR SERVICE DISRUPTION. SUBMITTALS AND SHOP DRAWINGS: PROVIDE SUBMITTALS AND SHOP DRAWINGS WITH ENOUGH TIME TO ALLOW FOR A TWO WEEK REVIEW BY ENGINEER PRIOR TO ORDERING PRODUCT OR BEGINNING WORK AND NO LATER THAN TWO WORKING WEEKS AFTER AWARD OF CONTRACT. PROVIDE SUBMITTALS IN ELECTRONIC (PDF) FORMAT. SUBMIT THE FOLLOWING: <ol style="list-style-type: none"> PRODUCT INFORMATION: <ol style="list-style-type: none"> INDICATE EACH PRODUCT AS "BASIS OF DESIGN", "AS SPECIFIED" OR AS "PROPOSED SUBSTITUTION." IDENTIFY CATALOG DESIGNATION AND/OR MODEL NUMBER. NEATLY ANNOTATE EACH SALIENT CHARACTERISTIC AND DESIGN OPTIONS OF THE PRODUCT TO DEMONSTRATE COMPLIANCE WITH THE CONTRACT DOCUMENTS TO INCLUDE: SCHEDULED INFORMATION, DRAWING INFORMATION AND SPECIFIED INFORMATION. CLEARLY INDICATE PRODUCT DEVIATIONS FROM THE CONTRACT DOCUMENTS AND MARK OUT NON-APPLICABLE ITEMS ON CUT-SHEETS. INCLUDE MANUFACTURER PROVIDED DIMENSIONED EQUIPMENT DRAWINGS WITH MECHANICAL AND ELECTRICAL ROUGH-IN CONNECTIONS. INCLUDE OPERATIONAL CHARACTERISTICS, PERFORMANCE CURVES AND RATED CAPACITIES. INCLUDE MOTOR CHARACTERISTICS AND WIRING DIAGRAMS FOR THE SPECIFIC SYSTEM. PROVIDE BASIC MANUFACTURER'S INSTALLATION INSTRUCTIONS. REQUIRED METERING REPORTS, TEST RESULTS, AND/OR STUDIES. O&M MANUAL(S) FOR INSTALLED EQUIPMENT 2 WEEKS PRIOR TO SUBSTANTIAL COMPLETION. INFORMATION INCLUDED SHALL BE THE EXACT EQUIPMENT INSTALLED. O&M MANUALS SHALL CONTAIN SUBMITTAL INFORMATION AND INFORMATION NEEDED TO OPERATE AND MAINTAIN SYSTEMS AND EQUIPMENT PROVIDED AND/OR MODIFIED IN THE PROJECT. COORDINATE WITH OWNER FOR MINIMUM REQUIREMENTS. AT PROJECT COMPLETION PROVIDE RECORD DRAWINGS, UPDATED PANEL SCHEDULES, TELECOM CIRCUIT LIST AND OTHER DOCUMENTATION REQUIRED IN CONTRACT DOCUMENTS. CONTINUALLY RECORD THE ELECTRICAL INSTALLATION ON A SET OF PRINTS READILY AVAILABLE AT THE PROJECT SITE. MARK RECORD DRAWINGS WITH RED ERASABLE PENCIL. ACCURATELY LOCATE ELECTRICAL DEVICES WITHIN AREA OF WORK (NEW AND EXISTING) WITH DIMENSIONS. SHOW PHYSICAL DEVICE CIRCUITING, INDICATE DEVICE CIRCUITS, JUNCTION BOX LOCATIONS, CONDUITS OVER 1 INCH IN DIAMETER, SYSTEM DEVICES, AND ELECTRICAL APPURTENANCES. 	<ol style="list-style-type: none"> BASIC MATERIALS AND METHODS <ol style="list-style-type: none"> APPLY FIRESTOPPING TO ELECTRICAL PENETRATIONS THROUGH FIRE RATED FLOOR AND WALL ASSEMBLIES TO MAINTAIN FIRE RESISTANCE RATING OF ASSEMBLY. WHERE ELECTRICAL RACEWAYS OR OTHER FEATURES PENETRATE WALLS THAT EXTEND TO STRUCTURE, THEY SHALL MAINTAIN THE INTEGRITY OF THE BUILDING SURFACE BEING PENETRATED FOR SOUND ISOLATION BY SEALING WITH FIRESTOPPING. NOTE THAT THIS REQUIREMENT EXISTS REGARDLESS OF WHETHER THE BUILDING SURFACE BEING PENETRATED HAS A FIRE RATING. BOXES (ELECTRICAL BOXES, OUTLET BOXES AND TELECOMMUNICATION BOXES, ETC) PENETRATING WALL TYPES THAT EXTEND TO STRUCTURE OR THAT CONTAIN BATTS SHALL BE SEALED AIRTIGHT USING STI SERIES SSP FIRESTOP PUTTY PADS TO REDUCE SOUND TRANSMISSION. MOLD PUTTY PADS AROUND ELECTRICAL JUNCTION BOXES AND CONDUITS TO FORM AN AIRTIGHT SEAL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE STI EZ-PATH FOR PENETRATIONS THROUGH FIRE RATED BARRIERS CONTAINING TELECOMMUNICATIONS CABLING. COMPLY WITH SEISMIC-RESTRAINT REQUIREMENTS OF THE AHJ UNLESS REQUIREMENTS IN THESE CONTRACT DOCUMENTS ARE MORE STRINGENT. MULTIWIRE BRANCH CIRCUITS SHALL NOT BE USED ON THIS PROJECT. EACH BRANCH CIRCUIT SHALL BE PROVIDED WITH ITS OWN DEDICATED NEUTRAL CONDUCTOR. EXAMINATION <ol style="list-style-type: none"> DRAWINGS INVOLVING EXISTING CONDITIONS ARE BASED ON BUILDING RECORD DRAWINGS AND/OR LIMITED FIELD OBSERVATION. CONDUCT A SITE INSPECTION PRIOR TO SUBMISSION OF BID TO BECOME THOROUGHLY FAMILIARIZED WITH THE SCOPE OF WORK. REPORT DISCREPANCIES TO THE OWNER BEFORE DISTURBING EXISTING INSTALLATION. VERIFY FIELD MEASUREMENTS AND CIRCUITING ARRANGEMENTS. VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABANDONED FACILITIES. BEGINNING OF DEMOLITION IMPLIES CONTRACTOR ACCEPTS EXISTING CONDITIONS. DEMOLITION OF EXISTING ELECTRICAL WORK <ol style="list-style-type: none"> REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION. REMOVE ABANDONED, EXPOSED OR UNUSED WIRING, CONDUIT AND HARDWARE TO SOURCE OF SUPPLY. REMOVE EXPOSED AND ACCESSIBLE CONDUIT TO THE POINT WHERE IT BECOMES INACCESSIBLE. CONCEALED CONDUIT WHICH CAN NOT BE REMOVED WITHIN REASON SHALL BE CUT FLUSH AND SURFACE PATCHED AND/OR SEALED AS APPLICABLE. DISCONNECT AND REMOVE ABANDONED DEVICES WITH ASSOCIATED CONDUIT, WIRE AND HARDWARE AS IDENTIFIED ON DRAWINGS. NOTIFY ENGINEER OF ANY DEVICES NOT SHOWN ON DRAWINGS THAT ARE WITHIN AREA OF WORK. DISCONNECT AND REMOVE ABANDONED PANELBOARDS AND DISTRIBUTION EQUIPMENT. REWORK CONDUIT, WIRE AND HARDWARE AS NEEDED TO ACCOMMODATE REMOVAL. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE. MODIFY INSTALLATION OR PROVIDE ACCESS PANELS AS APPROPRIATE. RESTORE CIRCUITS AND SYSTEMS THAT REMAIN THAT ARE AFFECTED IN ANY WAY BY DEMOLITION WORK SUCH AS LOADS DOWNSTREAM OF DEMOLISHED EQUIPMENT, SWITCHED LIGHTING CIRCUITS WHERE SELECTED LIGHT FIXTURES ARE DEMOLISHED, ETC. CLEANING AND REPAIR <ol style="list-style-type: none"> CLEAN AND REPAIR EXISTING MATERIALS AND EQUIPMENT WHICH REMAIN OR ARE TO BE REUSED OR ARE AFFECTED BY THIS WORK. PANELBOARDS: CLEAN EXPOSED SURFACES AND INTERIOR OF CABINET. PROVIDE NEATLY TYPED, FULLY DETAILED BRANCH CIRCUIT DIRECTORY IN PANELS WITH UPDATED LOADS. ODD CIRCUITS ON LEFT, EVEN ON RIGHT. <p>26.05.19 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES</p> <ol style="list-style-type: none"> BRANCH CIRCUIT WIRING SHALL BE 600 VOLT INSULATED AND SHALL HAVE THE FOLLOWING INSULATION TYPES: <ol style="list-style-type: none"> HEATED INDOOR SPACES - THHN/THWN OR XHHW FEEDER WIRING SHALL BE 600 VOLT INSULATED AND SHALL HAVE THE FOLLOWING INSULATION TYPES: <ol style="list-style-type: none"> HEATED INDOOR SPACES - THHN/THWN OR XHHW-2 CONDUCTORS SHALL BE COPPER, SOLID OR STRANDED FOR WIRING #10 OR SMALLER, STRANDED FOR #8 OR LARGER. MINIMUM CONDUCTOR SIZE AS FOLLOWS: <ol style="list-style-type: none"> #12 AWG FOR BRANCH CIRCUITS. PROVIDE PROPERLY SIZED AND BONDED GROUNDING CONDUCTORS WITH POWER CIRCUITS. 	<ol style="list-style-type: none"> BRANCH CIRCUIT CONDUCTORS SHOWN ON THE DRAWINGS ARE SIZED FOR AMPACITY ONLY UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL INCREASE FEEDER SIZES IF REQUIRED TO PREVENT FEEDER VOLTAGE DROP FROM EXCEEDING 3%. VOLTAGE DROP AT OUTLETS SHALL NOT EXCEED 5%. <p>26.05.26 GROUNDING AND BONDING OF ELECTRICAL SYSTEMS</p> <ol style="list-style-type: none"> GROUNDING CONDUCTORS, AND EQUIPMENT REQUIRED FOR GROUND SYSTEMS SHALL BE LISTED FOR THE PURPOSE INTENDED AND APPROVED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL), AND BE IN ACCORDANCE WITH U.L. 467. GROUNDING CONDUCTORS SHALL BE COPPER. UNLESS SPECIFIED OTHERWISE, RACEWAY FOR SERVICE GROUNDING CONDUCTOR SHALL BE SCHEDULE 40 PVC. CLAMPS, LUGS, CONNECTORS, BONDING BUSHINGS, AND OTHER SUCH GROUNDING DEVICES SHALL BE MADE (BOTH BODY AND HARDWARE) OF HOT DIP GALVANIZED STEEL, BRONZE, OR OTHER CORROSION RESISTANT ALLOY (EXCEPT BUSHING THROATS SHALL BE PLASTIC). CURRENT CARRYING CAPACITY OF THE GROUNDING AND BONDING CONDUCTORS SHALL BE IN CONFORMITY WITH TABLE 250.66 OF THE NEC. EXCEPTION: THE BONDING CONDUCTOR FOR METALLIC GAS PIPING SHALL BE SIZED IN ACCORDANCE WITH TABLE 250.122 BASED ON THE LARGEST OVERCURRENT DEVICE PROTECTING FEEDER CONDUCTORS EXITING THE MAIN DISTRIBUTION PANEL. THE RACEWAY SYSTEM SHALL BE BONDED IN CONFORMITY WITH NEC REQUIREMENTS TO PROVIDE A CONTINUOUS GROUND PATH. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR SIZED IN CONFORMITY WITH TABLE 250.122 OF THE NEC FOR FEEDER AND BRANCH CIRCUITS. PERMANENT GROUNDING CONNECTIONS, WHERE PERMITTED BY THE NEC TO BE CONCEALED, SHALL NOT BE SO CONCEALED UNTIL INSPECTED AND ACCEPTED BY THE CONTRACTING AGENCY. <p>26.05.29 HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS</p> <ol style="list-style-type: none"> PRE-ENGINEERED SUPPORT SYSTEMS MATERIAL SHALL BE COLD WORKED STEEL. PROVIDE TYPE 304 STAINLESS STEEL FOR USE WITH PVC, LIQUID-TIGHT FLEX, OR PLASTIC-COATED CONDUIT INSTALLED ON WOOD CONSTRUCTION IN OUTDOOR, DAMP, CORROSIVE OR MARINE ENVIRONMENTS. FINISH FOR PRE-ENGINEERED SUPPORT SYSTEMS AS FOLLOWS: <ol style="list-style-type: none"> HEATED INDOOR AREAS: PRE-GALVANIZED ZINC COATING. PAINTED AREAS: PAINTABLE GALVANIZING OR PHOSPHATIZED AND PRIMED. PROVIDE ACCESSORIES FROM THE SUPPORT SYSTEM MANUFACTURER DESIGNED FOR THE SPECIFIC EQUIPMENT TO BE SUPPORTED TO INCLUDE BUT NOT LIMITED TO: LIGHT FIXTURE HANGERS, OUTLET BOX ADAPTERS, SNAP-IN CLOSURES, CONDUIT CONNECTION PLATES, JUNCTION BOX ADAPTERS AND STRUT JOINERS. <p>26.05.33 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS</p> <ol style="list-style-type: none"> CONDUIT TYPES SPECIFICALLY APPROVED FOR USE ON THIS PROJECT SHALL BE OF THE TYPES LISTED HEREIN OR OTHER TYPES SPECIFICALLY IDENTIFIED ON THE DRAWINGS. INTERMEDIATE METAL CONDUIT - IMC. <ol style="list-style-type: none"> LOCATIONS PERMITTED: DRY INDOOR LOCATIONS CONCEALED OR EXPOSED, WHERE NOT SUSCEPTIBLE TO PHYSICAL DAMAGE. MINIMUM SIZE: 3/4 INCH. FITTINGS SHALL BE GALVANIZED STEEL OR IRON AND SHALL BE THREADED. CONDUIT BUSHINGS SHALL BE PROVIDED AND SHALL BE OF THE INSULATED TYPES. WHERE GROUNDING BUSHINGS ARE REQUIRED, PROVIDE INSULATED GROUNDING BUSHINGS WITH INTEGRAL PRESSURE TYPE GROUND LUGS. ELECTRICAL METALLIC TUBING - EMT <ol style="list-style-type: none"> LOCATIONS PERMITTED: DRY INDOOR LOCATIONS CONCEALED OR EXPOSED, WHERE NOT SUSCEPTIBLE TO PHYSICAL DAMAGE. MINIMUM SIZE: 1/2 INCH. COUPLINGS AND CONNECTORS SHALL BE MADE OF STEEL OR MALLEABLE IRON. DIE-CAST PRODUCTS SHALL NOT BE USED. CONNECTORS SHALL HAVE INSULATED THROATS. CONNECTORS AND COUPLINGS SHALL BE SETSCREW OR COMPRESSION TYPE. FLEXIBLE METAL (STEEL) CONDUIT - FMC OR FLEX. <ol style="list-style-type: none"> LOCATIONS PERMITTED: MOTOR AND EQUIPMENT FLEXIBLE CONNECTIONS WHERE INSTALLED IN PLENUM SPACES MINIMUM SIZE: 1/2 INCH, EXCEPT FIXTURE WHIPS MAY BE 3/8 INCH AS ALLOWED BY THE NEC. LENGTH OF FMC FOR CONNECTION TO EQUIPMENT SHALL NOT EXCEED 36 INCHES, EXCEPT FOR LIGHTING FIXTURE WHIPS AND WHERE SPECIFICALLY NOTED. FIXTURE WHIPS SHALL NOT EXCEED 72 INCHES. FITTINGS SHALL BE STEEL OR MALLEABLE IRON. THROATS SHALL BE INSULATED. LIQUID-TIGHT FLEXIBLE STEEL CONDUIT - LFMC. <ol style="list-style-type: none"> LOCATIONS PERMITTED: MOTOR AND EQUIPMENT FLEXIBLE CONNECTIONS MINIMUM SIZE: 1/2 INCH, EXCEPT FIXTURE WHIPS MAY BE 3/8 INCH AS ALLOWED BY THE NEC. LENGTH OF LFMC FOR CONNECTION TO EQUIPMENT SHALL NOT EXCEED 36 INCHES, EXCEPT FOR LIGHTING FIXTURE WHIPS AND WHERE SPECIFICALLY NOTED. FIXTURE WHIPS SHALL NOT EXCEED 72 INCHES. FITTINGS SHALL BE STEEL OR MALLEABLE IRON AND SHALL INCORPORATE A THREADED GROUNDING CONE, NYLON OR PLASTIC COMPRESSION RING, AND A TIGHTENING GLAND, PROVIDING A LOW RESISTANCE GROUND CONNECTION. THROATS SHALL BE INSULATED. EXTREME TEMPERATURE LFMC SHALL HAVE TEMPERATURE RATING OF -67 DEGREES F TO +220 DEGREES F, LIQUATITE "ATLA", OR AS APPROVED. EXTERNAL MOUNTING BRACKETS FOR ATTACHMENT TO FRAMING MEMBERS WITH SCREWS OR NAILS. CEILING BOXES AND WALL BOXES FOR BRACKET LIGHTS SHALL BE NOT LESS THAN 4 INCH IN DIAMETER BY 1 1/4 INCH DEEP AND SHALL HAVE 3/8 INCH MALLEABLE IRON FIXTURE STUDS IF REQUIRED. MINIMUM SIZE FOR CONDUIT RUNS TO TELECOMMUNICATIONS OUTLETS SHALL BE 1 INCH AND UNLESS OTHERWISE INDICATED ON THE DRAWINGS SHALL SERVE NO MORE THAN ONE TELECOMMUNICATIONS OUTLET. IN OCCUPIED AREAS, CONDUIT AND RACEWAYS SHALL BE CONCEALED UNLESS SPECIFICALLY NOTED OTHERWISE. IN SERVICE SPACES (MECHANICAL EQUIPMENT ROOMS, ELECTRICAL ROOMS, STORAGE CLOSETS, ETC.), RACEWAYS MAY BE SURFACE MOUNTED FOR CONNECTION TO EQUIPMENT. WHERE SPECIFICALLY NOTED ON THE DRAWINGS, RACEWAYS MAY BE MOUNTED ON THE SURFACE OF WALLS AND CEILINGS IN OCCUPIED AREAS. EXPOSED RACEWAYS SHALL BE PAINTED TO MATCH THE SURROUNDING SURFACES. PULL STRING SHALL BE PROVIDED IN SPARE AND UNUSED CONDUITS. NYLON "JET-LINE" OR AS APPROVED. TO/FROM INFORMATION SHALL BE PROVIDED AT EACH END. PROVIDE FLEXIBLE CONDUIT CONNECTION AT SEISMIC JOINTS TO ALLOW FOR DISPLACEMENT OF CONDUIT IN ALL THREE AXES. PROVIDE APPROPRIATE LENGTHS OF FLEXIBLE CONDUITS AT SEISMIC JOINTS AND APPROPRIATE AMOUNTS OF SLACK IN CONDUIT TO ALLOW MOVEMENT OF CONDUIT/CABLING IN ACCORDANCE WITH THE DESIGN OF THE SEISMIC JOINT. <p>26.28.00 LOW-VOLTAGE CIRCUIT PROTECTIVE DEVICES</p> <ol style="list-style-type: none"> MOLDED CASE CIRCUIT BREAKERS <ol style="list-style-type: none"> WHERE INSTALLED IN AN EXISTING PANELBOARD, CIRCUIT BREAKER SHALL BE OF THE SAME MANUFACTURER AS PANELBOARD AND LISTED FOR USE IN EXISTING PANELBOARD. CIRCUIT BREAKERS SHALL HAVE A PERMANENT TRIP UNIT CONTAINING INDIVIDUAL THERMAL AND MAGNETIC TRIP ELEMENTS IN EACH POLE. AMPERAGE INTERRUPT RATING SHALL BE EQUAL TO OR GREATER THAN THE SHORT CIRCUIT CURRENT RATING OF THE PANEL AND CLEARLY POSTED WITHOUT REMOVAL OF PANEL COVER. SERIES RATING SHALL BE ALLOWED ONLY BY APPROVAL OF ENGINEER OR AS INDICATED IN CONTRACT DOCUMENTS. RATINGS SHALL BE AS SHOWN ON PANEL SCHEDULES AND/OR DRAWINGS. EQUIPMENT PROTECTION DEVICE BREAKER TYPE (EPD) SHALL BE 30mA TRIP. <p>26.29.00 LOW VOLTAGE CONTROLLERS</p> <ol style="list-style-type: none"> AC FRACTIONAL HORSEPOWER MANUAL STARTERS <ol style="list-style-type: none"> PROVIDE MANUAL STARTERS FOR FRACTIONAL HORSEPOWER MOTORS CONSISTING OF A MANUALLY OPERATED TOGGLE SWITCH EQUIPPED WITH RED PILOT LIGHT AND MELTING ALLOY TYPE THERMAL OVERLOAD RELAY. THERMAL UNIT SHALL BE ONE PIECE CONSTRUCTION AND INTERCHANGEABLE. STARTER SHALL BE INOPERATIVE IF THERMAL UNIT IS REMOVED. AC COMBINATION STARTERS WITH FUSIBLE DISCONNECT SWITCH OR CIRCUIT BREAKER <ol style="list-style-type: none"> COMBINATION STARTERS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE LATEST PUBLISHED NEMA STANDARDS, SIZES AND HORSEPOWER RATINGS. COMBINATION STARTERS WITH DISCONNECT SWITCH SHALL CONSIST OF A VISIBLE BLADE DISCONNECT SWITCH AND A MOTOR STARTER. COMBINATION STARTERS SHALL BE MOUNTED IN NEMA 1 GENERAL PURPOSE ENCLOSURES UNLESS OTHERWISE INDICATED ON THE PLANS OR REQUIRED BY THE CONDITIONS OF THE AREA IN WHICH THEY ARE INSTALLED. THE DISCONNECT HANDLE USED ON COMBINATION STARTERS SHALL ALWAYS BE IN CONTROL OF THE DISCONNECT DEVICE WITH THE DOOR OPENED OR CLOSED. THE DISCONNECT HANDLE SHALL BE CLEARLY MARKED AS TO WHETHER THE DISCONNECT DEVICE IS "ON" OR "OFF".
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Revisions		
No.	Date	Description

1 INCH AT FULL SIZE
IF NOT 1 INCH, SCALE ACCORDINGLY

Designed by: TJT
Checked by: AsJ
AMC Project: 24801
Date: 05/01/2024
Project Phase
PERMIT DRAWINGS

Sheet Title
ELECTRICAL LEGEND, ABBREVIATIONS, SHEET SPECIFICATIONS & SCHEDULE
Sheet Number

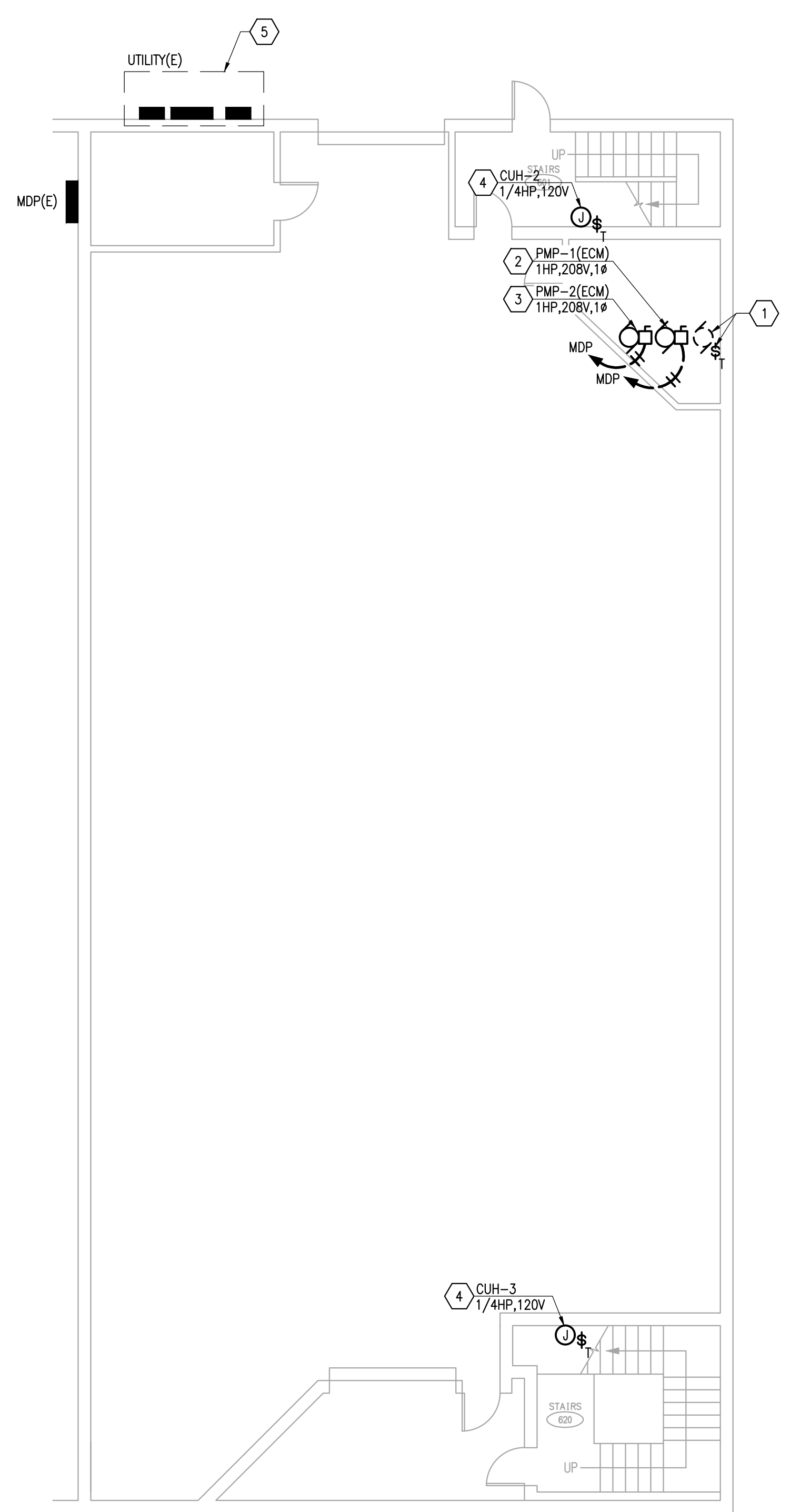
E0.1

GENERAL NOTES

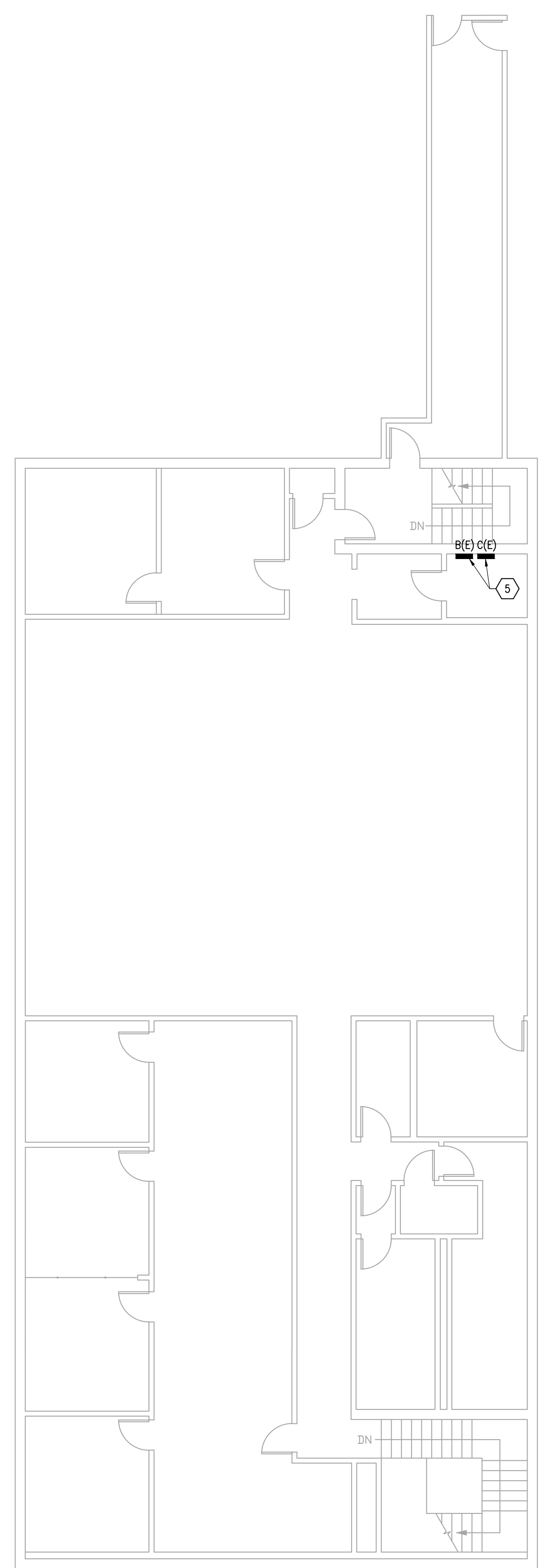
- REFER TO MECHANICAL DRAWINGS FOR FURTHER DETAILS.

SHEET NOTES

- DEMOLISH ELECTRICAL CONNECTIONS TO EXISTING PUMP INCLUDING CONDUIT AND CONDUCTORS BACK TO SOURCE PANEL AND MAKE SAFE.
- PROVIDE CONDUIT AND BRANCH CONDUCTORS TO PMP-1 FROM EXISTING MDP AS SHOWN.
- PROVIDE CONDUIT AND BRANCH CONDUCTORS TO PMP-2 FROM EXISTING MDP AS SHOWN.
- DEMOLISH CUH AND RETAIN EXISTING CIRCUIT FOR RECONNECTION. INSTALL NEW CUH AND RECONNECT TO EXISTING CIRCUIT.
- EXISTING PANELS AND ELECTRICAL EQUIPMENT SHOWN FOR REFERENCE ONLY.



1 LEVEL 1 PLAN - ELECTRICAL
 E2.1 SCALE: 1/8" = 1'-0"



2 LEVEL 2 PLAN - ELECTRICAL
 E2.1 SCALE: 1/8" = 1'-0"

ANCHORAGE COURT SYSTEM TRAINING CENTER HEATING PIPING REPLACEMENT

Revisions		
No.	Date	Description

1 INCH AT FULL SIZE
 ——— ACTUAL ———
 IF NOT 1 INCH,
 SCALE ACCORDINGLY

Designed by: T.J.T
 Checked by: ASJ
 AMC Project: 24801
 Date: 05/01/2024
 Project Phase
PERMIT DRAWINGS

Sheet Title
LEVELS 1 AND 2 PLAN

Sheet Number
E2.1