



J-SQUARED
ENGINEERING

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:

Sedalia Parks Convention Hall Boiler Replacement

1500 W 3rd St.
Sedalia, MO 65301

GENERAL MEP SPECIFICATIONS

- GENERAL**
 - ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH LOCALLY ADOPTED CODES AND ORDINANCES. IT IS THE RESPONSIBILITY OF CONTRACTOR TO REVIEW AND UNDERSTAND ALL DRAWINGS AND SPECIFICATIONS IN CONTRACT DOCUMENTS. EACH CONTRACTOR IS RESPONSIBLE FOR ALL WORK ASSOCIATED WITH THEIR TRADE, REGARDLESS OF WHERE WORK IS DEPICTED IN PROJECT DRAWINGS OR SPECIFICATIONS.
 - LAYOUT OF SYSTEMS SHOWN ON PLANS ARE APPROXIMATE AND SCHEMATIC IN NATURE. ALL SYSTEMS WILL NEED TO BE FIELD-COORDINATED. CONTRACTOR SHALL INCLUDE THIS COORDINATION IN THEIR SCOPE AND INCLUDE ALL COSTS OF MODIFYING LAYOUT AS REQUIRED IN THEIR BID. PLANS ARE NOT INTENDED TO BE SHOP DRAWINGS FROM WHICH MATERIALS CAN BE ORDERED, FABRICATED, OR INSTALLED WITHOUT ADDITIONAL FIELD MEASUREMENTS AND COORDINATION.
 - NOT ALL SPECIFIC PIECES AND COMPONENTS OF EACH SYSTEM ARE DETAILED OR OUTLINED ON PLANS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY PARTS AND LABOR TO PRODUCE A COMPLETE AND FULLY OPERATIONAL SYSTEM UNLESS STATED OTHERWISE ON PLANS. CONTRACTOR IS TO PROVIDE AND INCLUDE ALL EQUIPMENT AND MATERIAL NEEDED TO COMPLETE WORK ASSOCIATED WITH THEIR BID UNLESS ANY ITEMS ARE SPECIFICALLY NOTED ON PLANS AS PROVIDED BY OTHERS. ALL MATERIALS TO BE NEW, FIRST CLASS, AND INSTALLED PER MANUFACTURER'S PUBLISHED INSTRUCTIONS.
 - WHERE CONFLICTS EXIST BETWEEN MEP PLANS AND CIVIL, ARCHITECTURAL, OR STRUCTURAL PLANS, NOTIFY MEP ENGINEER OF DISCREPANCIES FOR CLARIFICATION PRIOR TO PERFORMING ANY WORK THAT MAY CONTRADICT INFORMATION ELSEWHERE IN THE PROJECT PLANS.
 - THESE PLANS ARE NOT TO BE SCALED. SEE ARCHITECTURAL PLANS FOR DIMENSIONS. WHERE THERE IS A CONFLICT BETWEEN ARCHITECTURAL DIMENSIONS AND MEP DIMENSIONS, ARCHITECTURAL SHALL GOVERN.
 - CONTRACTOR IS TO INCLUDE IN THEIR SCOPE THE COST OF ALL PERMITS, INSPECTIONS, METERING, TAPS, ETC. ASSOCIATED WITH THEIR WORK.
 - CONTRACTOR IS RESPONSIBLE FOR ALL EXCAVATION, CUTTING, CORING, PATCHING, AND BACKFILL REQUIRED TO COMPLETE THEIR WORK, UNLESS NOTED OTHERWISE ON PLANS.
 - SPECIFIC EQUIPMENT MANUFACTURERS AND/OR MODEL NUMBERS LISTED ON PLANS ARE TO ESTABLISH A BASIS-OF-DESIGN FOR QUALITY AND PERFORMANCE, VERIFY THAT SUBSTITUTIONS WILL BE ACCEPTABLE PRIOR TO PURCHASE & INSTALLATION.
 - NOTIFY ENGINEER OF ANY MAJOR PLAN DISCREPANCIES OR CONFLICTS PRIOR TO PROVIDING BIDS OR COMPLETING ANY WORK.
 - SEE DISCIPLINE SHEETS FOR ADDITIONAL TRADE SPECIFIC SPECIFICATIONS.
 - WHERE SHUTDOWN OF ANY EXISTING UTILITY OR SERVICE TO BUILDING IS REQUIRED FOR COMPLETION OF WORK, COORDINATE OUTAGE WITH OWNER AS TO NOT DISRUPT TYPICAL OPERATIONS.
- WORKMANSHIP**
 - SYSTEMS SHALL BE INSTALLED IN A FIRST-CLASS MANNER USING BEST ACCEPTABLE METHODS AND PRACTICES.
 - ALL SYSTEMS SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BUILDING ORIENTATION. COMPONENTS SHALL BE INSTALLED LEVEL AND PLUMB WITH ATTENTION GIVEN TO OVERALL AESTHETICS.
 - CONTRACTOR IS RESPONSIBLE FOR COORDINATING EQUIPMENT LOCATIONS AND SYSTEM ROUTING WITH OTHER TRADES PRIOR TO INSTALLATION.
 - CONTRACTOR TO GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE THE COMPLETED PROJECT IS RELEASED TO THE OWNER, UNLESS NOTED OTHERWISE ON PLANS.
 - DURING INSTALLATION OF MATERIALS OR ACTIVITIES IN NEW WORK SCOPE, AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN. ANY DAMAGE TO EXISTING SURFACES OR EQUIPMENT SHALL BE CORRECTED AT NO COST TO OWNER.

REFERENCED CODES IN EFFECT

- PROJECT HAS BEEN DESIGNED IN COMPLIANCE WITH THE FOLLOWING CODES LISTED BELOW, BUT THIS IS NOT AN EXHAUSTIVE LIST. PROJECT SHALL COMPLY WITH ALL APPLICABLE CODES, STANDARDS, AND LOCAL REQUIREMENTS.
- 2021 INTERNATIONAL MECHANICAL CODE
 - 2021 INTERNATIONAL PLUMBING CODE
 - 2021 INTERNATIONAL FUEL GAS CODE
 - 2020 NATIONAL ELECTRIC CODE

SHEET INDEX

SHEET NUMBER	SHEET TITLE
MEP1	MECHANICAL & ELECTRICAL COVERSHEET
D101	DEMO PLAN
M101	MECHANICAL PLAN
M501	MECHANICAL SCHDULES AND DETAILS
E101	ELECTRICAL PLAN
E501	ELECTRICAL SCHDULES AND DETAILS



Keaton E. Leisinger, P.E. April 10th, 2025
PE-2021035875
MO Certificate of Authority # 2018029680



J-SQUARED
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J2 PROJECT No: J21534

J2 DESIGN: KEL

ISSUE TITLE DATE

BID SET 04 - 10 - 2025

MECHANICAL - ELECTRICAL - PLUMBING DESIGN DRAWINGS FOR:
Sedalia Parks Convention Hall Boiler Replacement

1500 W 3rd St.
Sedalia, MO 65301

AHJ APPROVAL STAMP

SHEET TITLE

MECHANICAL &
ELECTRICAL
COVERSHEET

SHEET NUMBER

MEP1

DEMO PLAN SYMBOL LEGEND

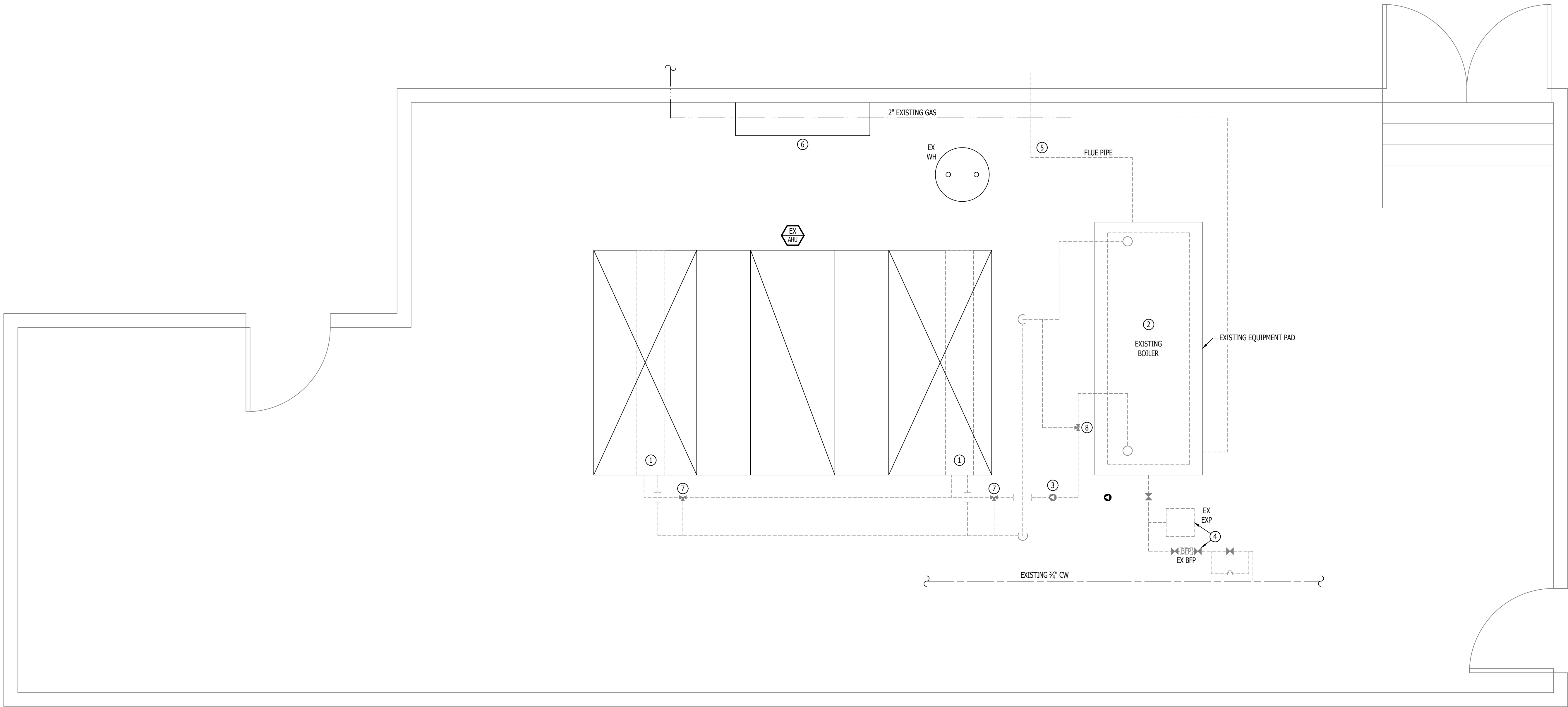
- DEMOLISHED PIPING
- EXISTING GAS PIPING
- EXISTING HWS
- EXISTING HWR
- PUMP
- ✕ 3-WAY VALVE
- ✕ VALVE

DEMO PLAN GENERAL NOTES:

1. REFER TO M500 AND/OR M600 SERIES SHEETS FOR ADDITIONAL MECHANICAL NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. MECHANICAL CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, PIPING, CONDENSATE PIPING, HANGERS / SUPPORTS, ETC. WITH PLUMBING AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.
3. ANY EXISTING EQUIPMENT OR DUCTWORK SHOWN IS FOR REFERENCE ONLY. CONTRACTOR TO FIELD VERIFY EXACT EQUIPMENT/PIPE SIZE, LOCATIONS, CONDITION, ETC. PRIOR TO INSTALLATION OF ANY MATERIAL AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

DEMO PLAN KEY NOTES:

- ① EXISTING HEATING COILS SHALL BE DEMOLISHED. SEE SHEET M101 FOR NEW COIL INFORMATION.
- ② EXISTING BOILER SHALL BE DEMOLISHED. SEE SHEET M101 FOR NEW BOILER LAYOUT AND INFORMATION.
- ③ EXISTING CIRCULATOR PUMP AND ASSOCIATED POWER AND CONTROL CONNECTIONS SHALL BE RELOCATED TO NEW PIPING SYSTEM.
- ④ EXISTING EXPANSION TANK AND BACK FLOW PREVENTOR SHALL BE REUSED. SEE SHEET M101 FOR NEW INFORMATION.
- ⑤ EXISTING BOILER FLUE SHALL BE DEMOLISHED. CONTRACTOR SHALL CAP FLUE OPENING AT EXTERIOR WALL.
- ⑥ EXISTING CONTROLS SHALL REMAIN. DEMOLISH EXISTING H.O.A. SWITCH FOR CIRCULATOR PUMP.
- ⑦ REMOVE AND REUSED THREE WAY VALVE AND ASSOCIATED CONTROLS. SEE SHEET M101 FOR NEW VALVE LOCATION.
- ⑧ DEMOLISH EXISTING THREE WAY VALVE AND ELECTRICAL CONTROLS.



DEMO PLAN

SCALE: 1/2" = 1'-0"



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DEMO PLAN

SHEET NUMBER

D101

MECHANICAL PLAN SYMBOL LEGEND

- X

7

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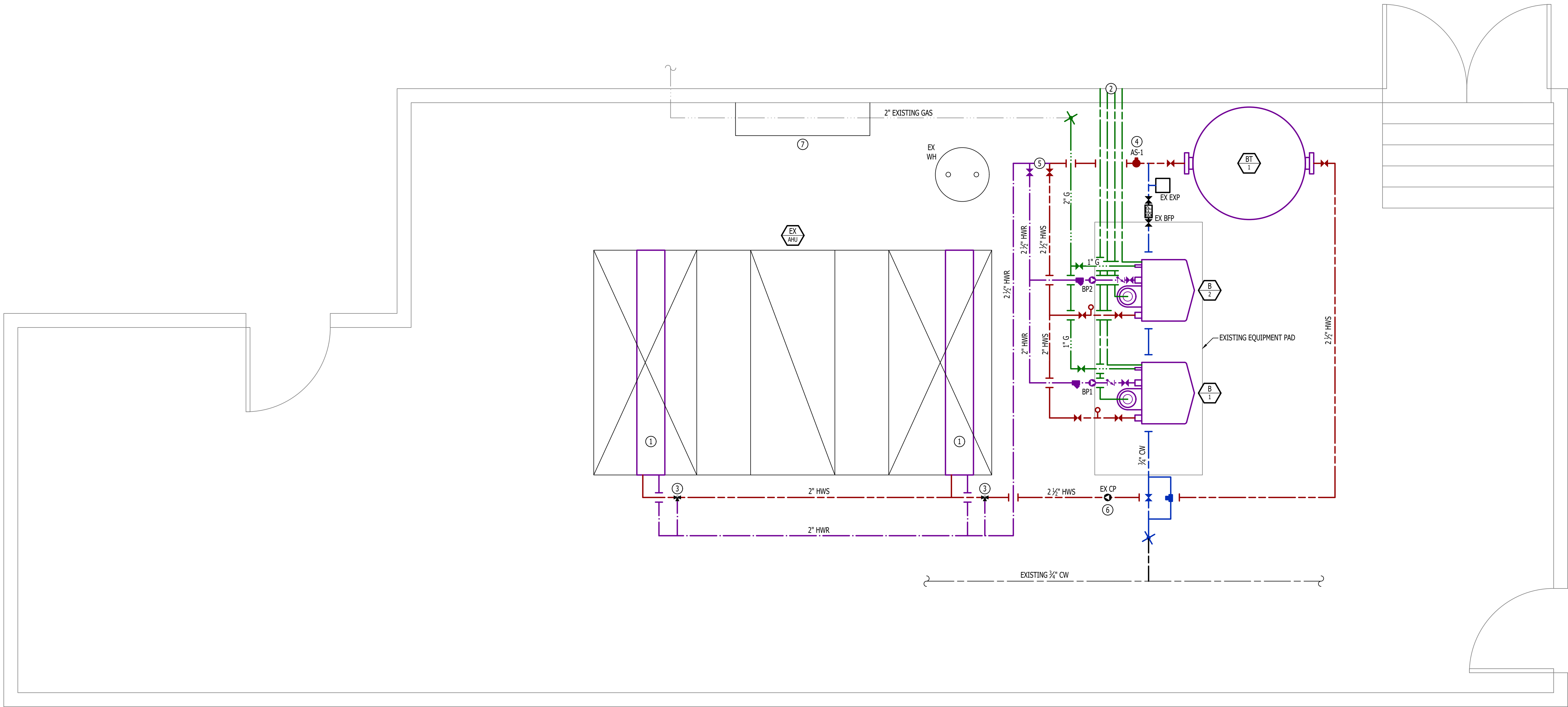
EQUIPMENT TYPE (REFER TO EQUIPMENT SCHEDULE)
- —
- EQUIPMENT REFERENCE NUMBER
-
- VENT / COMBUSTION AIR
-
- CONDENSATION LINE
- X
- TIE INTO EXISTING
-
- HOT WATER SUPPLY
-
- HOT WATER RETURN
-
- COLD WATER
- ~
- CHECK VALVE
-
- PRESSURE REDUCING VALVE
-
- PRESSURE GAUGE
-
- STRAINER

MECHANICAL PLAN GENERAL NOTES:

1. REFER TO M500 AND/OR M600 SERIES SHEETS FOR ADDITIONAL MECHANICAL NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. MECHANICAL CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL EQUIPMENT, PIPING, CONDENSATE PIPING, HANGERS / SUPPORTS, ETC. WITH PLUMBING AND ELECTRICAL TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.
3. ANY EXISTING EQUIPMENT OR DUCTWORK SHOWN IS FOR REFERENCE ONLY. CONTRACTOR TO FIELD VERIFY EXACT EQUIPMENT/PIPE SIZE, LOCATIONS, CONDITION, ETC. PRIOR TO INSTALLATION OF ANY MATERIAL AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
4. CONTRACTOR SHALL REINSTALL EXISTING FLOW AND TEMPERATURE SENSORS ASSOCIATED WITH EXISTING CONTROL SYSTEM INTO NEW PIPING SYSTEM AS REQUIRED.
5. CONTRACTOR SHALL RECONNECT EXISTING FLOW AND TEMPERATURE SENSORS THAT HAVE BEEN RELOCATED DUE TO NEW PIPING SYSTEM INTO EXISTING CONTROL SYSTEM AS REQUIRED.
6. MECHANICAL CONTRACTOR TO PROVIDE ALL MODIFICATIONS TO EXISTING TRANE BAS SYSTEM TO FACILITATE NEW BOILER INSTALLATION. CONTRACTOR TO COORDINATE WITH TRANE PRIOR TO BID.

MECHANICAL PLAN KEY NOTES:

- ① CONTRACTOR SHALL PROVIDE AND INSTALL NEW HEATING COIL. SEE SCHEDULE FOR FURTHER DETAILS.
- ② THROUGH WALL CONCENTRIC VENT KIT FOR EACH BOILER. INSTALL PER MANUFACTURER SPECIFICATIONS. TERMINATIONS SHALL BE A MINIMUM OF 3'-0" AWAY FROM DOORS.
- ③ REUSE EXISTING THREE WAY VALVE.
- ④ AIR SEPARATOR SHALL BE INSTALLED AT THE HIGHEST PART OF THE HOT WATER LOOP PIPING.
- ⑤ NOT TO EXCEED 4 PIPE DIAMETERS OR MAXIMUM OF 12" APART
- ⑥ REINSTALL EXISTING CIRCULATOR PUMP.
- ⑦ EXISTING CONTROLS TO BE ADJUSTED TO MATCH SEQUENCE OF OPERATIONS SHOWN ON SHEET M501.

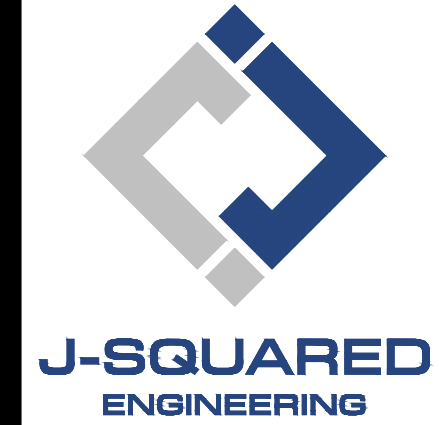


MECHANICAL PLAN

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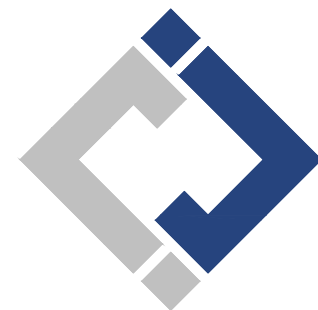
AHJ APPROVAL STAMP

SHEET TITLE

MECHANICAL PLAN

SHEET NUMBER

M101

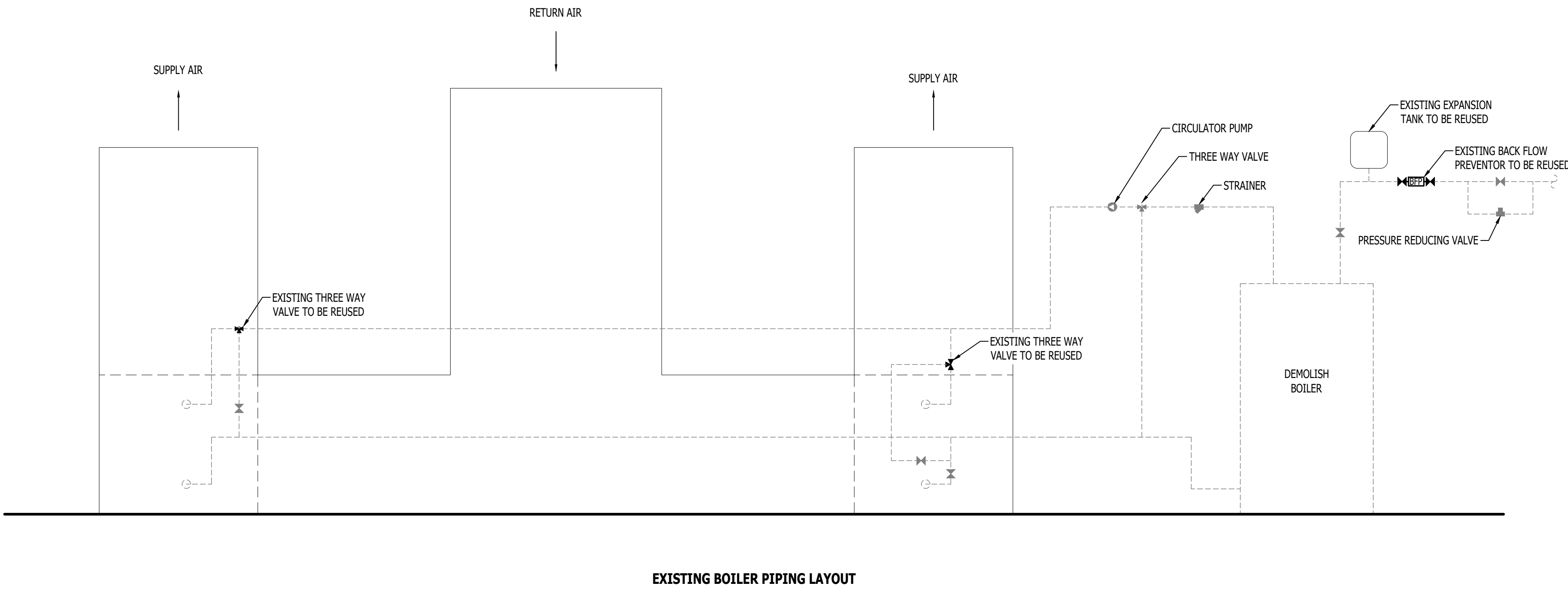
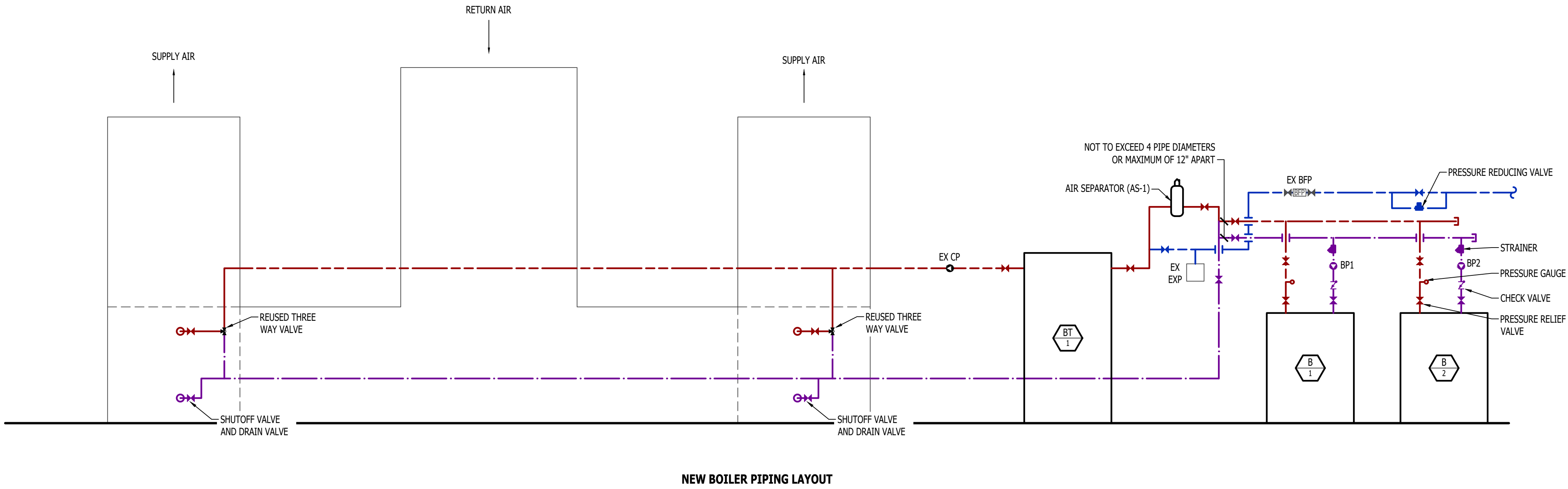


HYDRONIC PUMP SCHEDULE									
TAG	DESCRIPTION	MANUFACTURER (OR EQUAL)	MODEL (OR EQUAL)	FLOWRATE (GPM)	DUTY HEAD (FEET)	ELECTRICAL			NOTES
						VOLT/PH	HP	MOCP	
BP1	BOILER PUMP	LOCHINVAR	100208411	57	6.7	120	1/4	15	1
BP2	BOILER PUMP	LOCHINVAR	100208411	57	6.7	120	1/4	15	1
NOTES: 1. PUMP SHALL BE CONTROLLED BY BOILER CONTROLLER.									

BOILER SCHEDULE														
TAG	EQUIPMENT TYPE	MANUFACTURER (OR EQUAL)	MODEL (OR EQUAL)	GAS HEAT			EFF.	PIPE CONNECTIONS			ELECTRICAL			NOTES
				INPUT (MBH)	OUTPUT (MBH)	TURNDOWN		WATER (INCHES)	VENT (INCHES)	AIR INTAKE (INCHES)	VOLT/PH	MCA	OCF	
B-1	BOILER	LOCHINVAR	FTX600	600	585	7:1	97%	2	4	4	120	10	15	30.5x26x54 470
B-2	BOILER	LOCHINVAR	FTX600	600	585	7:1	97%	2	4	4	120	10	15	30.5x26x54 470
NOTES: 1. WITH SIDEWALL CONCENTRIC VENT KIT														

BOILER SCHEDULE															
TAG	EQUIPMENT TYPE	ROWS	AIR PRESSURE DROP (IN H2O)	AIRFLOW (CFM)	COIL VOLUME (GAL)	TOTAL CAPACITY (KBTU)	HEATING WATER				PHYSICAL			NOTES	
							EWI (°F)	LWT (°F)	FLOW (GPM)	CONNECTION SIZE (IN)	WATER PRESSURE DROP (FEET H2O)	HEIGHT (IN)	WIDTH (IN)		LENGTH (IN)
CL-1	HEATING COIL	2	0.34	12000	6	575	170	141	40	1.5	1.4	39	5	97.26	1
CL-2	HEATING COIL	2	0.34	12000	6	575	170	141	40	1.5	1.4	39	5	97.26	1
NOTES:															
1. SYSTEM OPERATING PARAMETERS BASED ON 100% WATER.															

HYDRONIC ACESSORIES SCHEDULE				
PLAN MARK	MANUFACTURER	PART NO.	DESCRIPTION	NOTES
BT-1	TACO	BT10400F-125NN	BUFFER TANK	400 GAL., 2-1/2" CONNECTIONS
AS-1	TACO	49025ADHM-125	ASME - AIR/DIRT SEPARATOR	2-1/2", 80 GPM



HVAC SPECIFICATIONS

- GENERAL**
 - REFER TO GENERAL MEP SPECIFICATIONS SECTION FOR ADDITIONAL REQUIREMENTS.
- WORKMANSHIP**
 - COORDINATE WITH ALL OTHER TRADES SO THAT HVAC EQUIPMENT AND DUCT WORK DOES NOT BLOCK REQUIRED ACCESS OR CLEARANCE TO ANY EQUIPMENT, ACCESS PANELS, ELECTRICAL JUNCTION BOXES, ELECTRICAL PANELS, ETC.
 - ALL HVAC EQUIPMENT IS TO BE INSTALLED PER MANUFACTURER'S PUBLISHED RECOMMENDATIONS AND/OR INSTALLATION INSTRUCTIONS.
 - ALL EQUIPMENT TO BE INSTALLED LEVEL AND PLUMB, PARALLEL OR PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.
 - ROOFTOP MOUNTED RTUS & EXHAUST FANS SHALL BE INSTALLED ON CURBS PER MANUFACTURER'S INSTRUCTIONS. CURB HEIGHT SHALL PROVIDE A MINIMUM OF 12" BETWEEN EQUIPMENT AND TOP OF ROOF IN ALL LOCATIONS.
 - GRADE MOUNTED RTUS, CONDENSING UNITS, AND HEAT PUMPS TO BE INSTALLED ON 4" REINFORCED CONCRETE PAD EXTENDING 4" BEYOND EACH EDGE OF THE EQUIPMENT, OR A MANUFACTURER APPROVED PRE-MANUFACTURED BASE.
 - APPROPRIATE ATTENTION SHALL BE GIVEN TO INDOOR AIR QUALITY THROUGHOUT CONSTRUCTION; PROTECT INSIDE OF NEW DUCTWORK & AIR-HANDLING EQUIPMENT FROM DUST, DIRT, DEBRIS, PAINT, MOISTURE, ETC. INSULATION SHALL BE REPLACED IF EXPOSED TO MOISTURE. AN INDEPENDENT, PROFESSIONAL DUCT CLEANING COMPANY SHALL CLEAN ALL NEW DUCTWORK IF EQUIPMENT WAS USED DURING CONSTRUCTION, AND EQUIPMENT/COILS SHALL ALSO BE THOROUGHLY CLEANED. FIELD COORDINATE LOCATIONS OF ALL DIFFUSERS, GRILLES, REGISTERS, ETC. WITH LIGHT FIXTURE LOCATIONS AND ADJUST AS NECESSARY.
- EQUIPMENT**
 - ALL EQUIPMENT SHOWN ON MECHANICAL PLANS SHALL BE PROVIDED & INSTALLED BY MECHANICAL CONTRACTOR UNLESS NOTED OTHERWISE.
 - ALL EQUIPMENT MUST PROVIDE PERFORMANCE AS SPECIFIED ON PLANS. WHERE SPECIFIC MANUFACTURERS AND/OR MODELS ARE INDICATED ON PLANS, CONTRACTOR TO PROVIDE MODEL INDICATED OR APPROVED EQUAL. VERIFY SUBSTITUTION APPROVAL PRIOR TO PURCHASE OR INSTALLATION OF EQUIPMENT.
 - CONTRACTOR TO SUPPLY SUBMITTALS FOR ALL EQUIPMENT FOR REVIEW BY ARCHITECT AND ENGINEER. FORMAL APPROVAL SHALL BE RECEIVED BY CONTRACTOR PRIOR TO EQUIPMENT PURCHASE.
 - CONTRACTOR TO SHARE APPROVED EQUIPMENT SUBMITTALS WITH ANY PERTINENT ELECTRICAL OR PLUMBING REQUIREMENTS WITH RESPECTIVE CONTRACTORS WITHIN TWO WEEKS OF RECEIVING APPROVED SUBMITTALS FROM ARCHITECT/ENGINEER.
 - ALL EQUIPMENT SHOWN ON PLANS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS WITH ADEQUATE ACCESS AND CLEARANCE FOR SERVICING OR REPLACEMENT.
 - ALL HORIZONTAL FURNACES WITH AC COILS SHALL BE EQUIPPED WITH CORROSION RESISTANT DRAIN PAN. DRAIN PAN TO DISCHARGE TO SANITARY WASTE VIA INDIRECT CONNECTION WITH AIR GAP. DRAIN PAN TO PROVIDE SECONDARY OVERFLOW OR FLOAT SWITCH INTERLOCKED WITH UNIT TO SHUT DOWN UNIT ON HIGH WATER SIGNAL.
 - ALL EXTERIOR REFRIGERANT COILS TO BE PROTECTED BY FACTORY EQUIPPED HAIL GUARDS.
 - REFRIGERANT PIPING TO BE ACR COPPER OR TYPE L COPPER.
 - ALL AIR HANDLING EQUIPMENT SHALL BE EQUIPPED WITH MERV-8 FILTRATION AT RETURN OPENING UNLESS OTHERWISE NOTED.
 - ALL AIR FILTERS SHALL BE SIZED FOR A MAXIMUM FACE VELOCITY OF 500FPM.
 - PROVIDE & INSTALL ALL EQUIPMENT FLUES/VENTS PER MANUFACTURER'S SPECIFICATIONS. TERMINATIONS SHALL BE AT LEAST 10' FROM ANY FRESH AIR INTAKE.
 - PROVIDE NEW AIR FILTERS IN ALL EQUIPMENT PRIOR TO TESTING & BALANCING AND BEFORE TURNING OVER SYSTEM(S) TO OWNERSHIP.
 - IF ANY EXISTING EQUIPMENT IS TO BE REUSED, CLEAN AND INSPECT EQUIPMENT PRIOR TO BEGINNING WORK. VERIFY THAT EQUIPMENT IS IN GOOD WORKING CONDITION, REPORT ANY DEFICIENCIES TO ENGINEER.
- PIPING**
 - ALL INTERIOR HYDRONIC PIPING SHALL BE STEEL PIPE (ASTM A53 OR ASTM A106).
 - ALL PIPE FITTINGS SHALL COMPLY WITH SECTION 1203.3 OF THE IMC (2021).
 - ALL INTERIOR PIPING SHALL BE INSULATED WITH 1" CELLULAR GLASS JACKETED INSULATION.

SEQUENCE OF OPERATION: HEATING SYSTEM

SYSTEM GENERAL DESCRIPTION:

THE HEATING SYSTEM SHALL BE INTEGRATED INTO THE EXISTING CONTROLS SYSTEM. THE CONTROL SYSTEM SHALL ENABLE/DISABLE THE HEATING SYSTEM'S BOILERS, BOILER PUMPS, CIRCULATOR PUMP, AND CONTROL VALVES AS SHOWN ON THE "NEW BOILER PIPING LAYOUT".

THE HEATING SYSTEM CONSISTS OF TWO HOT WATER BOILERS, BOILER PUMPS, AND BOILER TANK WITH ITS PIPING CONFIGURATION ARRANGED AS A PRIMARY/SECONDARY LOOP. BOILERS AND TANK ARE CONNECTED TO THE PRIMARY LOOP.

THE HEATING SYSTEM INCLUDES TWO HEATING COILS AND CIRCULATOR PUMP IN THE SECONDARY LOOP. ONE COIL FOR EACH AIR HANDLER WITH A COMMON RETURN.

HEATING SYSTEM ENABLE/DISABLE:

THE HEATING SYSTEM SHALL BE ENABLED/DISABLED BY THE EXISTING CONTROL SYSTEM HUMAN INTERFACE. WHEN ENABLED, THE SYSTEM SHALL ENABLE THE BOILERS. BOILERS SHALL MAINTAIN PRIMARY LOOP TEMPERATURE OF 170°F.

ZONE CONTROL:

WHEN HEATING SYSTEM IS ENABLED, THE THREE-WAY VALVES AND CIRCULATOR PUMP SHALL CONTROL THE SECONDARY LOOP TO MAINTAIN SPACE TEMPERATURE SET POINT.

POWER PLAN SYMBOL LEGEND

- CIRCUIT WIRING
- CIRCUIT TAG
- JUNCTION BOX
- XX

+42

RECEPTACLE

INDICATES MOUNTING HEIGHT TO BOTTOM OF BOX
(STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)

"WP" = WEATHERPROOF OUTDOOR RECEPTACLE

"AW" = ABOVE WINDOW RECEPTACLE

"AC" = ABOVE CEILING RECEPTACLE

"EX" = EXISTING RECEPTACLE TO REMAIN

GFCT PROTECTED DUPLEX CONVENIENCE RECEPTACLE

208V RECEPTACLE

QUADPLEX CONVENIENCE RECEPTACLE

USB OUTLET
WITH USB-A & USB-C CHARGING PORT

DATA / PHONE JACK
BOX WITH 1" CONDUIT & PULL STRING UP TO CEILING SPACE
(STANDARD @ 18" AFF UNLESS NOTED OTHERWISE)

AP

WIRELESS ACCESS POINT, CEILING MOUNTED

FLOOR RECEPTACLE

FLOOR DATA

DISCONNECT

FUSED DISCONNECT

FUSED SWITCH

STARTER / DISCONNECT

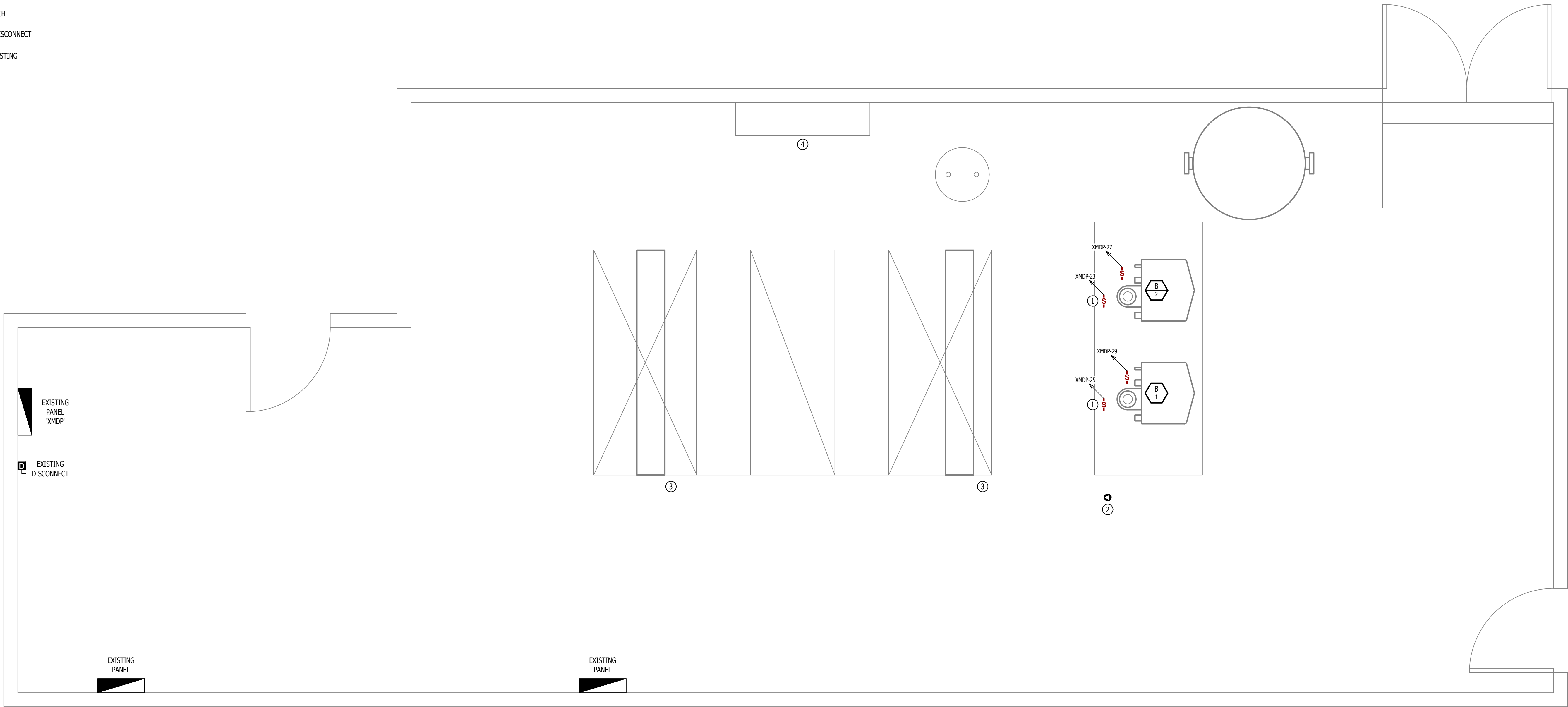
TIE INTO EXISTING

POWER PLAN GENERAL NOTES:

1. REFER TO E500 AND/OR E600 SERIES SHEETS FOR ADDITIONAL ELECTRICAL NOTES, DETAILS, REQUIREMENTS, AND SCHEDULES.
2. ELECTRICAL CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS AND COORDINATE LOCATION OF ALL ELECTRICAL EQUIPMENT, WIRING, HANGERS / SUPPORTS, ETC. WITH HVAC AND PLUMBING TRADES BEFORE INSTALLATION OF ANY MATERIAL. ADDITIONAL COSTS ASSOCIATED WITH LACK OF COORDINATION WILL NOT BE REIMBURSED.
3. ANY EXISTING ELECTRICAL EQUIPMENT, CIRCUITS, ETC. SHOWN IS FOR REFERENCE ONLY. ELECTRICAL CONTRACTOR TO FIELD VERIFY EXACT EQUIPMENT LOCATIONS, CONDITIONS, ETC. PRIOR TO BEGINNING WORK AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

POWER PLAN KEY NOTES:

- ① BOILER PUMP POWER CONNECTION. TIE INTO BOILER CONTROLS AS REQUIRED.
- ② RECONNECT EXISTING POWER AND CONTROL CONNECTIONS FOR RELOCATED CIRCULATOR PUMP.
- ③ RECONNECT EXISTING THREE-WAY VALVE CONTROL TO RELOCATED THREE-WAY VALVE.
- ④ REPLACE EXISTING H.O.A. SWITCH FOR CIRCULATOR PUMP.



ELECTRICAL PLAN

SCALE: 1/2" = 1'-0"



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EXISTING MAIN DISTRIBUTION PANEL SCHEDULE									
PANEL SPECIFICATIONS					TOTAL CONNECTED LOAD				
VOLTAGE: 208Y/120V 3-PH			NEMA RATING: 1		PHASE "A" LOAD:		5.5	AMPS	
AMPACITY: 600A			PANEL MOUNTING: SURFACE		PHASE "B" LOAD:		10	AMPS	
AIC-RATING: 10kA					PHASE "C" LOAD:		15.5	AMPS	
CIRCUIT NUMBER	DESCRIPTION	BREAKER SIZE	AMPS	PHASE	AMPS	BREAKER SIZE	DESCRIPTION	CIRCUIT NUMBER	
1	CONDENSING UNIT	200-3		A		225-3	DP PANEL	2	
3	-	-		B		-	-	4	
5	-	-		C		-	-	6	
7	CONDENSING UNIT	200-3		A		15-3	CIRCULATOR PUMP	8	
9	-	-		B		-	-	10	
11	-	-		C		-	-	12	
13	STAGE PANEL	100-2		A		20-1	SPARE	14	
15	-	-		B		20-1	SPARE	16	
17	AIR HANDLING UNIT	60-3		C		60-3	AIR HANDLING UNIT	18	
19	-	-		A		-	-	20	
21	-	-		B		-	-	22	
23	BOILER PUMP	15-1	5.5	C		200-2	GYM SERVICE PANEL	24	
25	BOILER PUMP	15-1	5.5	A		-	-	26	
27	BOILER	15-1	10	B			OPEN	28	
29	BOILER	15-1	10	C			OPEN	30	
NOTES: A: EXISTING PANEL TO REMAIN. B: ELECTRICIAN SHALL VERIFY EXACT EQUIPMENT OVERCURRENT PROTECTION REQUIREMENTS PRIOR TO PURCHASE & INSTALLATION OF EQUIPMENT. C: AFTER COMPLETION OF WORK, ELECTRICIAN SHALL PROVIDE A TYPE WRITTEN PANEL DIRECTORY IN NEW PANEL. D: <i>ITALICS</i> INDICATE EXISTING BREAKER AND/OR LABEL. BOLD INDICATES NEW BREAKER AND/OR LABEL. CONTRACTOR SHALL PROVIDE AND INSTALL ALL NEW BREAKERS INDICATED									

ELECTRICAL SPECIFICATIONS

1. GENERAL

1.1. CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL NECESSARY PIECES AND COMPONENTS TO PROVIDE A COMPLETE AND COMPLIANT ELECTRICAL SYSTEM UNLESS OTHERWISE NOTED ON PLANS.

1.2. THE ENTIRE ELECTRICAL SYSTEM SHALL BE CONTINUOUSLY GROUNDED. EVERY BRANCH CONDUIT SHALL INCLUDE A GREEN GROUND CONDUCTOR SIZED PER NEC.

1.3. ARC-FAULT CIRCUITS SHALL BE RUN WITH A DEDICATED NEUTRAL AS REQUIRED BY MANUFACTURER.

1.4. PROVIDE PERMANENT ARC-FLASH LABEL AFFIXED TO EVERY DISCONNECT AND PANEL.

1.5. PROVIDE TYPE WRITTEN PANEL SCHEDULE FOR EACH PANEL.
2. WORKMANSHIP

2.1. ALL ELECTRICAL SYSTEM COMPONENTS SHALL BE INSTALLED LEVEL, PLUMB, AND PARALLEL/PERPENDICULAR TO BUILDING ORIENTATION WHERE POSSIBLE.

2.2. ALL ELECTRICAL DEVICES AND LIGHT FIXTURES SHALL BE INSTALLED IN A SAFE, FIRST-CLASS MANNER WITH ATTENTION GIVEN TO OVERALL AESTHETICS. CARE SHOULD BE TAKEN TO ALLOW FOR FUTURE REPLACEMENT AND ACCESS FOR SERVICE.
3. MATERIALS

3.1. CONDUIT & CONDUCTORS

3.1.1. ALL CONDUCTORS SIZES INDICATED ARE COPPER UNLESS NOTED OTHERWISE ON PLANS.

3.1.2. ABOVE GRADE CONDUCTORS SHALL BE TYPE THHN.

3.1.2. BELOW GRADE CONDUCTORS SHALL BE TYPE XHHW-2.

3.1.3. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG UNLESS NOTED OTHERWISE. 120-VOLT, 20-AMP CIRCUITS WITH CONDUCTOR LENGTHS GREATER THAN 100' SHALL BE #10 AWG MINIMUM. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR MEASURING ACTUAL CONDUCTOR LENGTH AND INCREASING CONDUCTOR SIZE TO COMPENSATE FOR VOLTAGE DROP AS REQUIRED BY NEC.

3.1.4. RIGID GALVANIZED OR SCHEDULE 40 PVC CONDUIT SHALL BE USED FOR SERVICE WIRING, BELOW GRADE INSTALLATIONS, OR WHERE EXPOSED TO WEATHER.

3.1.5. IN APPLICATIONS OTHER THAN THOSE LISTED IN 3.1.4, EMT OR MC CABLE IS ACCEPTABLE. WHERE CONDUCTORS ARE PROTECTED FROM DAMAGE, ENCLOSED IN BUILDING MATERIALS, AND CONSTRUCTION IS OF A PERMITTED TYPE, NM CABLE MAY BE USED.

3.1.6. FOR CAST-IN-PLACE CONCRETE, TILT-UP WALL CONSTRUCTION, OR PRE-MANUFACTURED WALL SYSTEMS, COORDINATE EXACT LOCATIONS OF ALL DEVICES WITHIN WALLS WITH WALL SUPPLIER. CONDUIT EMBEDDED IN WALLS SHALL BE SCHEDULE 80 PVC OR LFMC, OR OTHER SYSTEM APPROVED BY WALL MANUFACTURER.

3.1.7. EXPOSED CONDUIT SHALL BE PAINTED TO MATCH ADJACENT SURFACES, VERIFY COLOR WITH ARCHITECT/OWNER.

3.2. DEVICES

3.2.1. CONTRACTOR TO PROVIDE J-BOXES, COVER PLATES, AND ANY ACCESSORIES REQUIRED TO PROVIDE A COMPLETE SYSTEM. SEE ARCHITECTURAL PLANS FOR DEVICE COLORS.

3.2.1. DUPLEX RECEPTACLES SHALL BE TAMPER RESISTANT, 20-AMP, EQUAL TO LEVITON #TBR-20.

3.2.2. SINGLE POLE TOGGLE WALL SWITCHES SHALL BE EQUAL TO LEVITON CS120-2.

3.2.2. THREE-WAY TOGGLE WALL SWITCHES SHALL BE EQUAL TO LEVITON CS320-2.

3.2.3. DIMMER SWITCHES SHALL BE TESTED WITH FIXTURES AND LAMPS FOR COMPATIBILITY. SEE LIGHTING PLANS FOR DETAILS.

3.2.4. WHERE GFCI PROTECTION IS SHOWN ON PLANS AND UNLESS OTHERWISE NOTED, PROVIDE A LISTED GFCI-PROTECTED RECEPTACLE WHERE THE RECEPTACLE IS ACCESSIBLE ON PLANS. IF THE RECEPTACLE LOCATION IS NOT ACCESSIBLE AS DEFINED BY NEC, PROVIDE GFCI PROTECTION AT CIRCUIT BREAKER.

3.2.5. DO NOT INSTALL OCCUPANCY/VACANCY SENSORS WITHIN 48" OF HVAC DIFFUSERS/GRILLES OR SIMILAR OBSTRUCTION THAT MAY AFFECT SENSOR FUNCTIONALITY. ALL SENSORS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

3.2.6. ALL APPLICABLE SWITCHES, RECEPTACLES, CONTROLS, ETC. SHALL BE MOUNTED AT ADA-ACCESSIBLE HEIGHTS.

3.2.7. WIRING DEVICES SHOWN ON PLANS NEXT TO ONE ANOTHER SHALL UTILIZE A SINGLE COVER PLATE UNLESS NOTED OTHERWISE.

3.2.8. WIRING DEVICES SHOWN BACK-TO-BACK ON EACH SIDE OF A WALL SHALL BE OFFSET TO REDUCE SOUND TRANSMISSION.

3.2.9. EACH RECEPTACLE COVER SHALL BE NEATLY AND LEGIBLY LABELED WITH CORRESPONDING PANEL AND CIRCUIT NUMBER FOR CIRCUIT IDENTIFICATION.
4. EMERGENCY LIGHTING

4.1. BRANCH CIRCUIT FEEDING EMERGENCY FIXTURE(S) SHALL BE SAME BRANCH CIRCUIT AS THAT SERVING NORMAL LIGHTING IN SAME AREA AND CONNECTED AHEAD OF ANY LOCAL SWITCHES.

4.2. EMERGENCY LIGHTING SYSTEM SHALL PROVIDE 1FC AVERAGE AND 0.1FC MINIMUM ALONG EGRESS PATHS. ADJUST ANY EMERGENCY FIXTURES AS NECESSARY TO PROVIDE PROPER ILLUMINATION WITHOUT OBSTRUCTION FROM FURNITURE OR OBSTACLES.