

FLORENCE RECREATION CENTER EQUIPMENT REPLACEMENTS

CITY OF MESQUITE



100% CONSTRUCTION DOCUMENTS
Halff AVO# 55881

FLORENCE REC. CENTER
EQUIPMENT REPLACEMENTS
CITY OF MESQUITE
2501 Whitson Way, Mesquite, TX 75150
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PROJECT TEAM

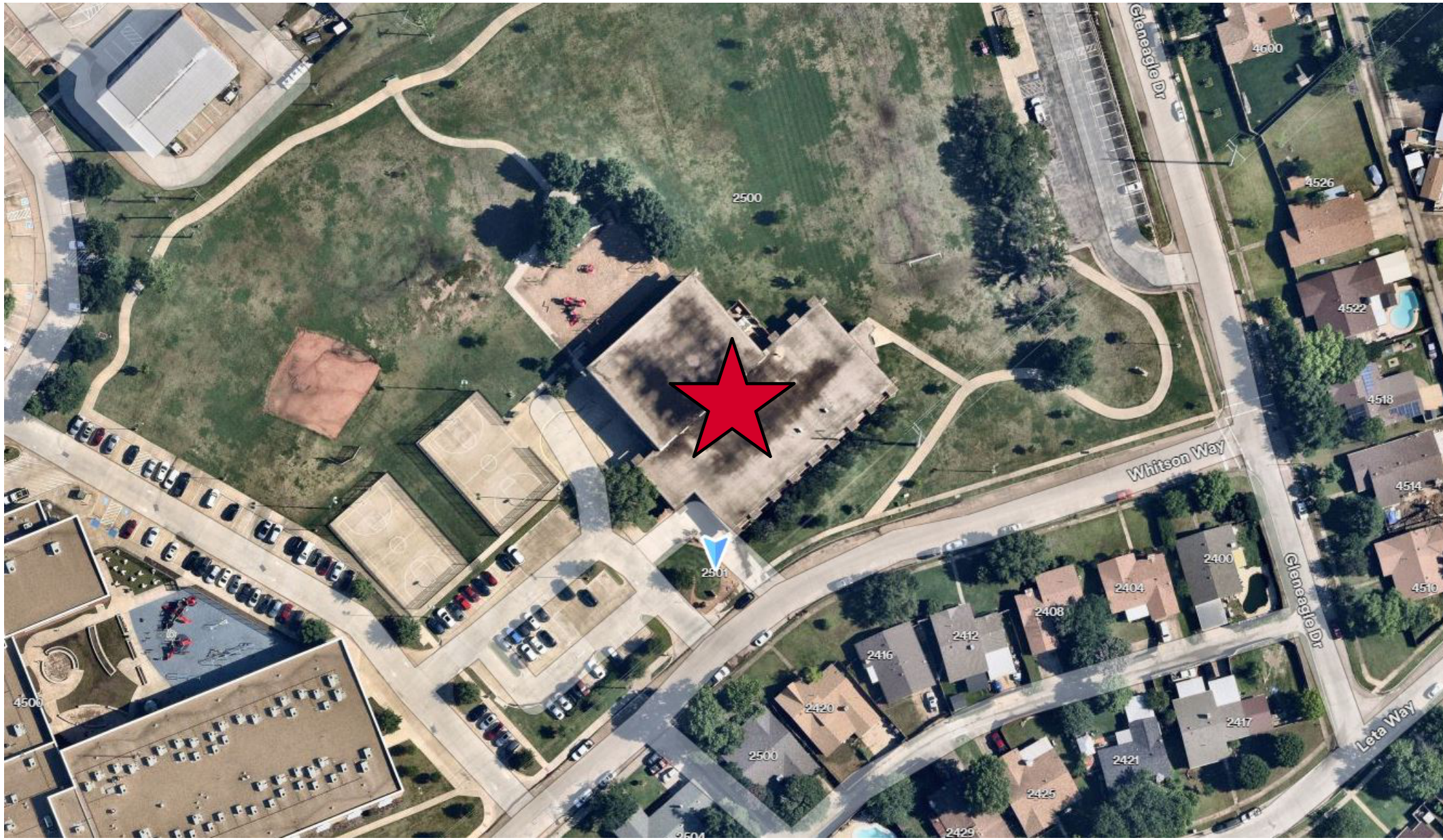
MEP

Half Associates, Inc. 5000 West
Military Highway, Ste. 100 McAllen, Texas 78503-7446
Tel:956.664.0286
Fax:956.664.0282

Lizabeth Guerra, P.E., (Electrical)
Email:LGuerra@Half.com

William Pryor, P.E., (Mechanical)
Email:bPryor@half.com

LOCATION



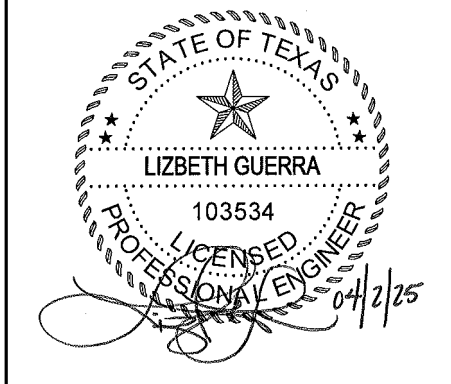
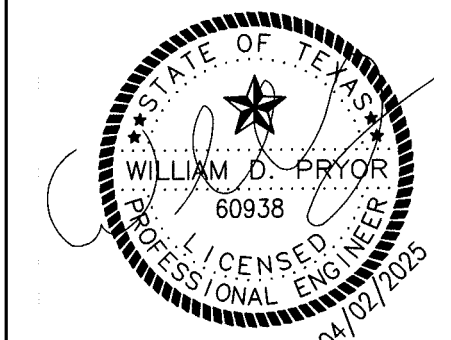
2501 WHITSON WAY,
MESQUITE, TX 75150

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TEXAS BOILER CODE NOTES

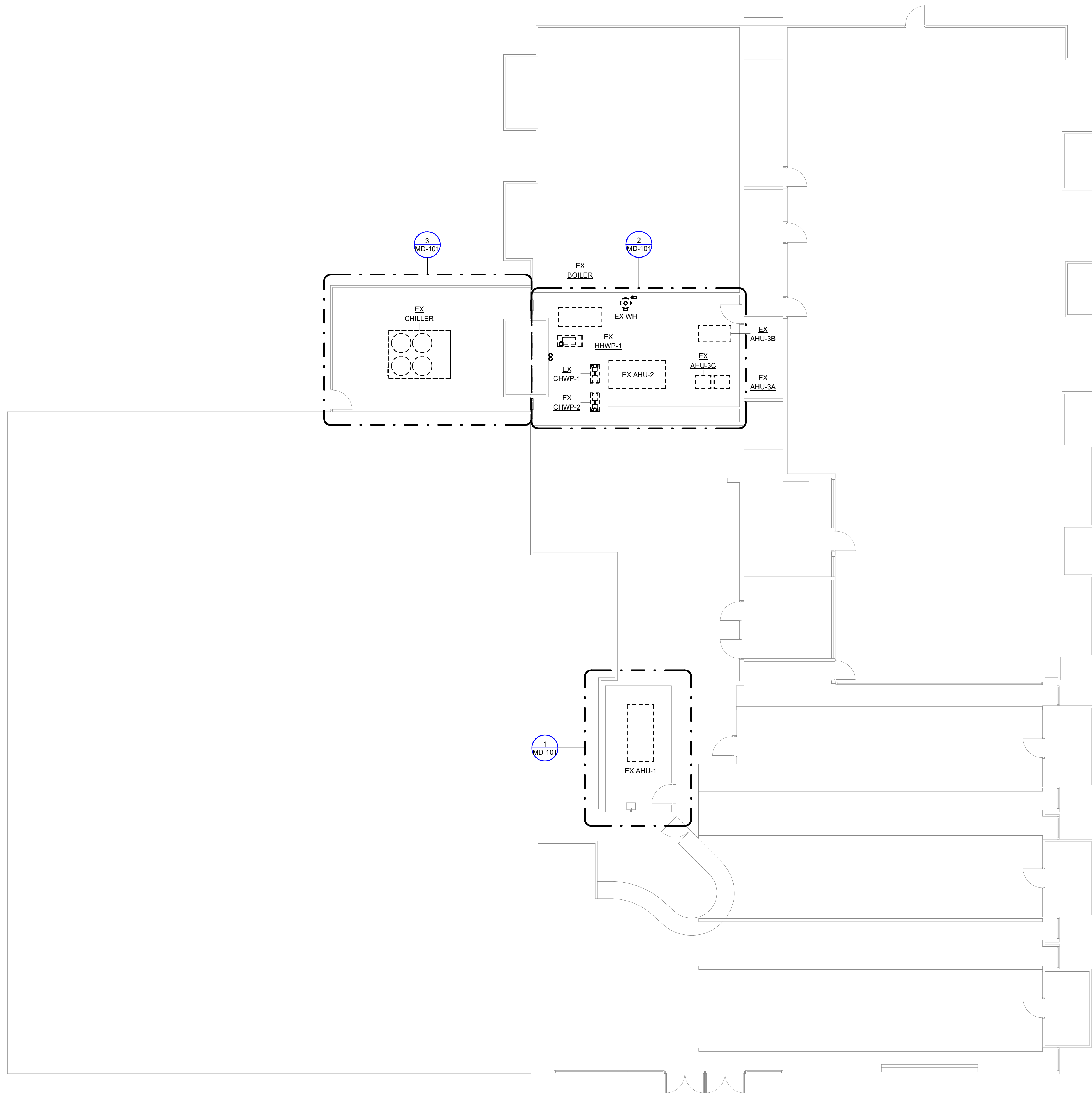
1. IF BOILER START-UP OCCURS PRIOR TO FINAL INSPECTION, A TEMPORARY OPERATING PERMIT IS REQUIRED.
2. TO BE ELIGIBLE FOR A BOILER CERTIFICATE OF OPERATION, THE FOLLOWING REQUIREMENTS MUST BE MET:
 - A. COMPLIANCE WITH NEW BOILER INSTALLATION SECTION 65.200
 - B. COMPLETION AND SUBMISSION OF THE APPLICABLE INSPECTION REPORT.
 - C. REQUIRED REPAIRS COMPLETED.
 - D. PAYMENT OF FEES UNDER SECTION 65.300
3. TEXAS HEALTH AND SAFETY CODE BOILERS SHALL BE CONSTRUCTED, INSPECTED AND STAMPED IN CONFORMITY WITH THE APPLICABLE SECTION OF THE ASME CODE
4. NEW BOILER SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST REVISION OF THE APPLICABLE SECTION OF THE MANUFACTURER'S RECOMMENDATIONS. ASME CODE. BOILER SHALL BE INSPECTED PRIOR TO OPERATION OR TEST-FIRING. A TEMPORARY OPERATING PERMIT HAS TO BE FILED AND APPROVED PRIOR TO TEST-FIRING.
5. ALL CHIMNEY AND VENTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

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AVO:	55881.001
Issued:	04/2/2025
Drawn By:	MH
Checked By:	WP
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MECHANICAL DEMOLITION OVERALL PLAN

1/8" = 1'-0"

REFER TO SPECIFICATIONS, SHEET SPECIFIC NOTES, AND NOTES OF OTHER DISCIPLINES FOR ADDITIONAL INFORMATION AND REQUIREMENTS

B. INFORMATION ON THE PLANS HAS BEEN OBTAINED FROM EXISTING DRAWINGS AND SITE SURVEY. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK. ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND CONSTRUCTION DOCUMENTS SHALL BE REPORTED IMMEDIATELY TO THE OWNER'S REPRESENTATIVE.

C. ANY INSTRUCTION TO DEMOLISH OR REMOVE AN ITEM, DEVICE, MATERIAL, OR EQUIPMENT IS INTENDED TO REQUIRE THE CONTRACTOR TO DISCONNECT, REMOVE, AND DISPOSE OF THE ITEM COMPLETELY UNLESS OTHERWISE NOTED.

D. ANY AREAS ADJACENT TO DEMOLITION AREAS IN WHICH NO DEMOLITION IS TO TAKE PLACE MUST BE PROTECTED FROM DAMAGE, DUST, AND DEBRIS.

E. ALL DUST PRODUCTION, SMOKE PRODUCTION AND NOISE SHALL BE SUBJECT TO REAL TIME REVIEW BY THE OWNER'S REPRESENTATIVE. WORK SHALL BE SHUT DOWN DURING CRITICAL ACTIVITIES BY FORMAL REQUEST FROM THE OWNER'S REPRESENTATIVE. WORK IN DUSTY AREAS SHALL BE CONTROLLED WITH TEMPORARY PARTITIONS. FLAME CUTTING SHALL BE MINIMIZED TO ELIMINATE SMOKE PRODUCTION. PROVIDE FIRE EXTINGUISHERS IN THE IMMEDIATE AREA OF ANY FLAME CUTTING ACTIVITIES.

F. DEMOLITION WORK INDICATED BY THE CONTRACT DOCUMENTS MUST BE CLOSELY COORDINATED WITH THE OWNER'S REPRESENTATIVE AND OTHER TRADES. NO DEMOLITION OR ASSOCIATED SHUTDOWNS OF SERVICES IS TO TAKE PLACE IN ANY AREA OR BUILDING UNTIL THE CONTRACTOR HAS BEEN GIVEN APPROVAL TO PROCEED IN THAT SPECIFIC LOCATION. ALL DEMOLITION WORK MUST BE SCHEDULED AT LEAST 48 HOURS PRIOR TO START OF DEMOLITION. REFERENCE TO DEMOLITION DRAWINGS AND/OR NOTES FOR ADDITIONAL INFORMATION AND DEMOLITION SCOPE OF WORK.

G. IF IT BECOMES NECESSARY DURING DEMOLITION TO TEMPORARILY REMOVE ANY EXISTING WORK NOT SPECIFICALLY NOTED TO BE REMOVED OR RELOCATED (THEREBY IMPLYING THAT THEY ARE TO BE LEFT AS-IS FOR FUTURE USE), THE CONTRACTOR MUST REINSTATE SAID WORK TO FULLY OPERABLE CONDITION IN THE ORIGINAL LOCATION. FINISHES AFFECTED BY THE WORK MUST BE RESTORED TO MATCH EXISTING CONDITIONS.

G. SCHEDULE UTILITY AND/OR SYSTEM SHUTDOWNS A MINIMUM OF ONE WEEK IN ADVANCE OF THE START OF THE WORK REQUIRING SHUTDOWN. SCHEDULE SHUTDOWNS WITH THE UTILITY AND THE OWNER'S REPRESENTATIVE. KEEP DOWNTIME TO A MINIMUM AND DO NOT INTERFERE WITH THE FACILITY'S DAILY SCHEDULE, IF POSSIBLE.

H. ANY EXISTING WORK DESIGNATED TO BE REUSED WHICH IS FOUND TO BE DAMAGED OR NON-OPERABLE MUST BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE IMMEDIATELY. INSPECT THE EXISTING STRUCTURE AND INTENT OF ANY SUCH DAMAGED OR NON-OPERATING CONDITIONS APPLICABLE TO THE SCOPE OF WORK BEFORE PROCEEDING.

I. THE CONTRACTOR IS FULLY RESPONSIBLE FOR PERFORMING THE DEMOLITION WORK UNDER THIS SECTION OF THE PROJECT IN FULL COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES. IF THE CONTRACTOR DETERMINES THAT THE CONTRACT DOCUMENTS AND PLANS ARE NOT IN COMPLIANCE WITH THE APPLICABLE CODES, SHALL INFORM THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION START. FAILURE TO DO SO SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO MEET CODE REQUIREMENTS AND REWORK SHALL BE AT THE CONTRACTOR'S EXPENSE. APPLICABLE CODES AND STANDARDS ON DEMOLITION WORK SHALL INCLUDE THOSE PUBLISHED BY OSHA AND EPA.

J. THE CONTRACTOR IS RESPONSIBLE FOR SEALING ALL ROOF AND WALL OPENINGS THAT REMAIN AFTER ITEMS ARE DEMOLISHED. SUCH OPENINGS ARE TO BE SEALED WATERTIGHT.

K. ALL OPENINGS CUT IN MASONRY AND PLASTER WALLS OR CONCRETE FLOORS SHALL BE CORE DRILLED OR SAWED WHEN POSSIBLE. CONTRACTOR SHALL CHECK BUILDING CONSTRUCTION WITH STRUCTURAL ENGINEER BEFORE MAKING PENETRATIONS TO AVOID CUTTING THROUGH STRUCTURAL BEAMS AND REINFORCING. CONTRACTOR SHALL INFORM THE OWNER'S REPRESENTATIVE IF REINFORCING IS CUT OR DAMAGED WHILE MAKING OPENINGS AS REQUIRED BY DRAWINGS AND SPECIFICATIONS. PATCH AND SEAL OPENINGS WITH 8000 PSI CEMENT GROUT. INSTALL DECORATIVE TRIM (EQUIPMENT FLANGES, FRAMING, OR ESCUTCHEONS) AROUND OPENINGS IN FINISHED AREAS. COORDINATE ALL CUTTING AND PATCHING WITH THE OTHER TRADES.

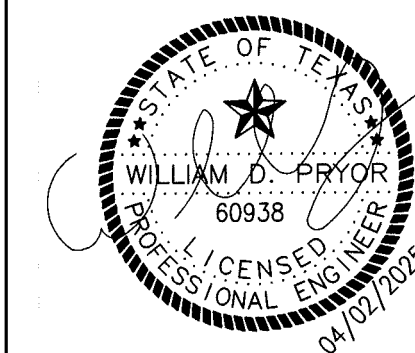
L. ALL SURFACES COVERED BY "SPRAY POLY" AND PROTECTED BY TEMPORARY PARTITIONS SHALL REMAIN PROTECTED THROUGHOUT THE PROJECT. REMOVE THE PROTECTIVE BARRIERS ONLY AFTER THE NEW EQUIPMENT PIPING AND DUCTWORK IS INSTALLED. PATCH AND MAINTAIN THE PROTECTIVE BARRIERS DURING CONSTRUCTION. COVER ALL EQUIPMENT OPENINGS WITH A 4 MIL. POLY AND DUCT TAPE IN PLACE.

M. ALL NEW ROOF PENETRATIONS SHALL BE ROUTED THRU EXISTING OPENINGS WHEREVER POSSIBLE. LARGER AND NEW OPENINGS SHALL BE KEPT TO A MINIMUM.

N. CONTRACTOR SHALL KEEP THE ENTIRE MEP DEMOLITION SITE CLEAN AT ALL TIMES.

O. COORDINATION AMONG OTHER CONSTRUCTION DISCIPLINES PRIOR TO DEMOLITION IS MANDATORY.

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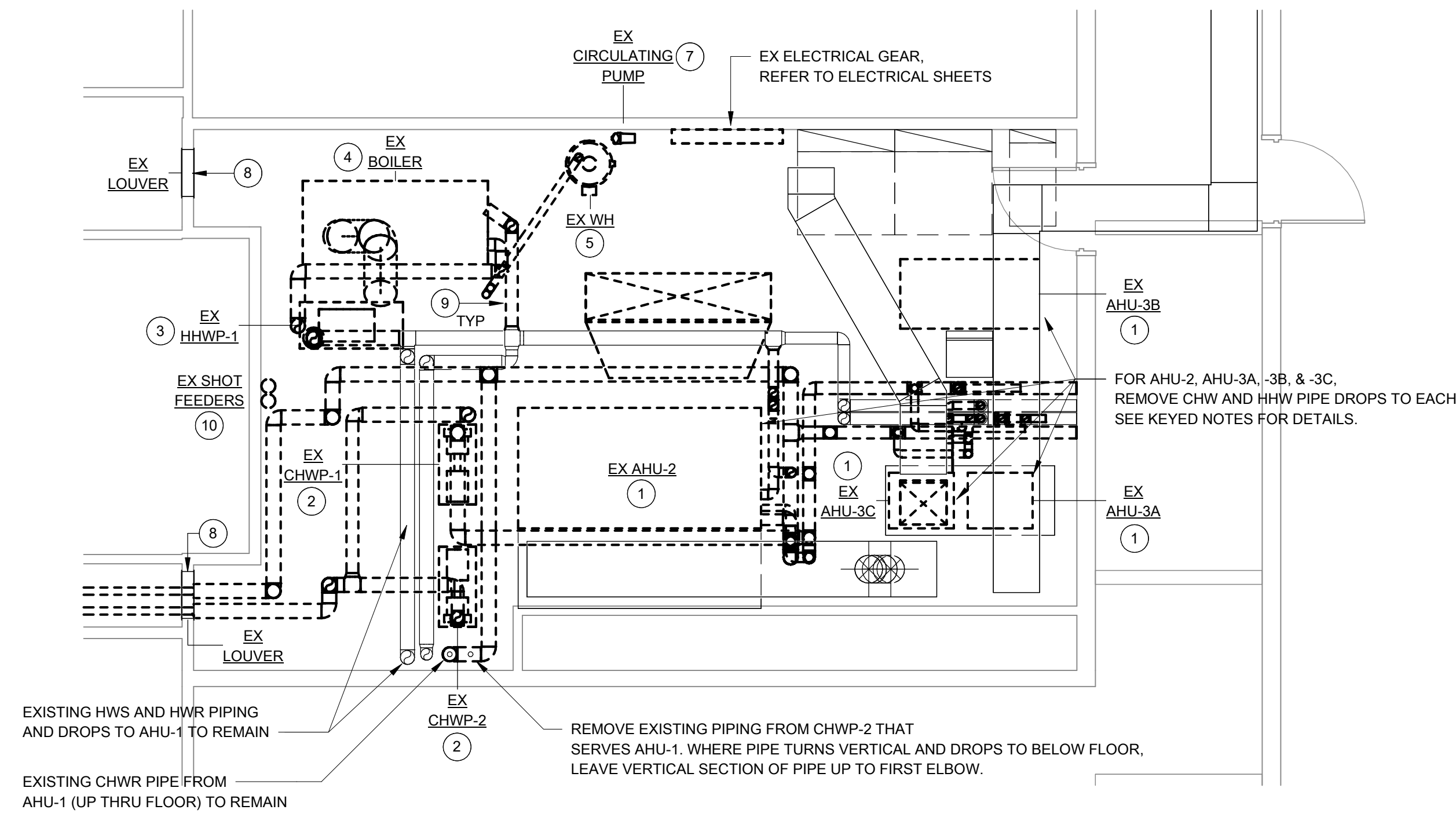
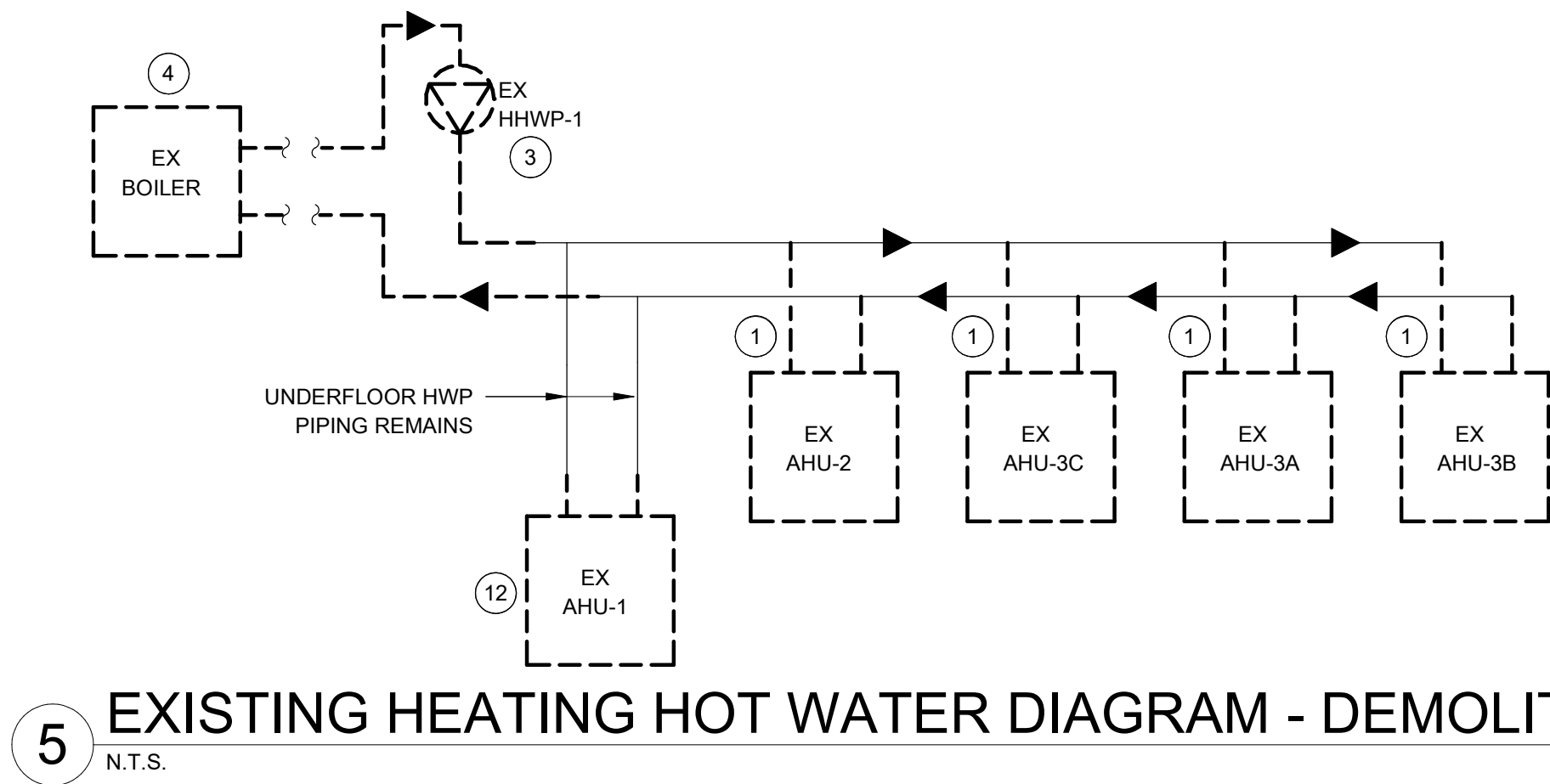
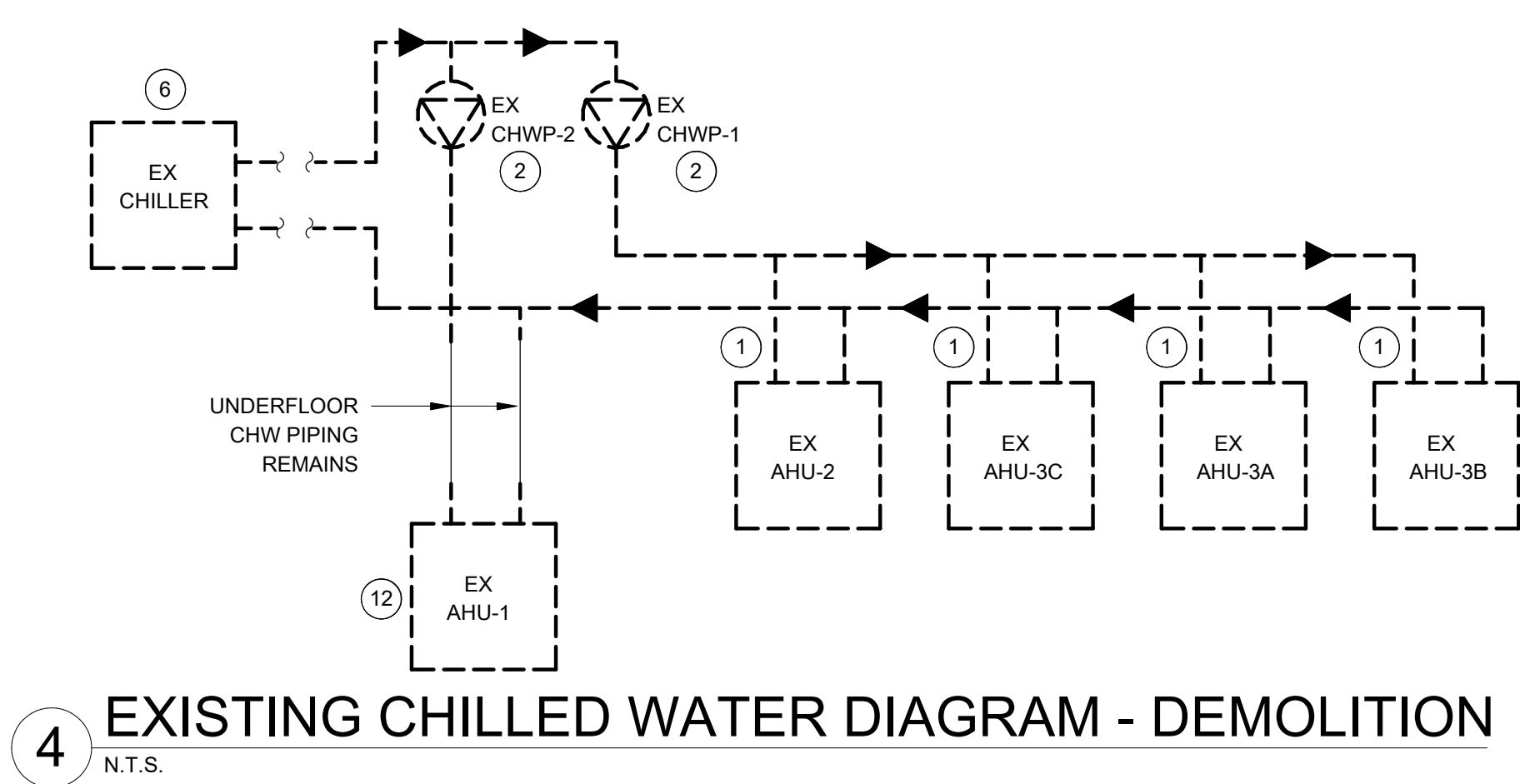
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Issued:	04/2/2025
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Scale:	As indicated

Sheet Title

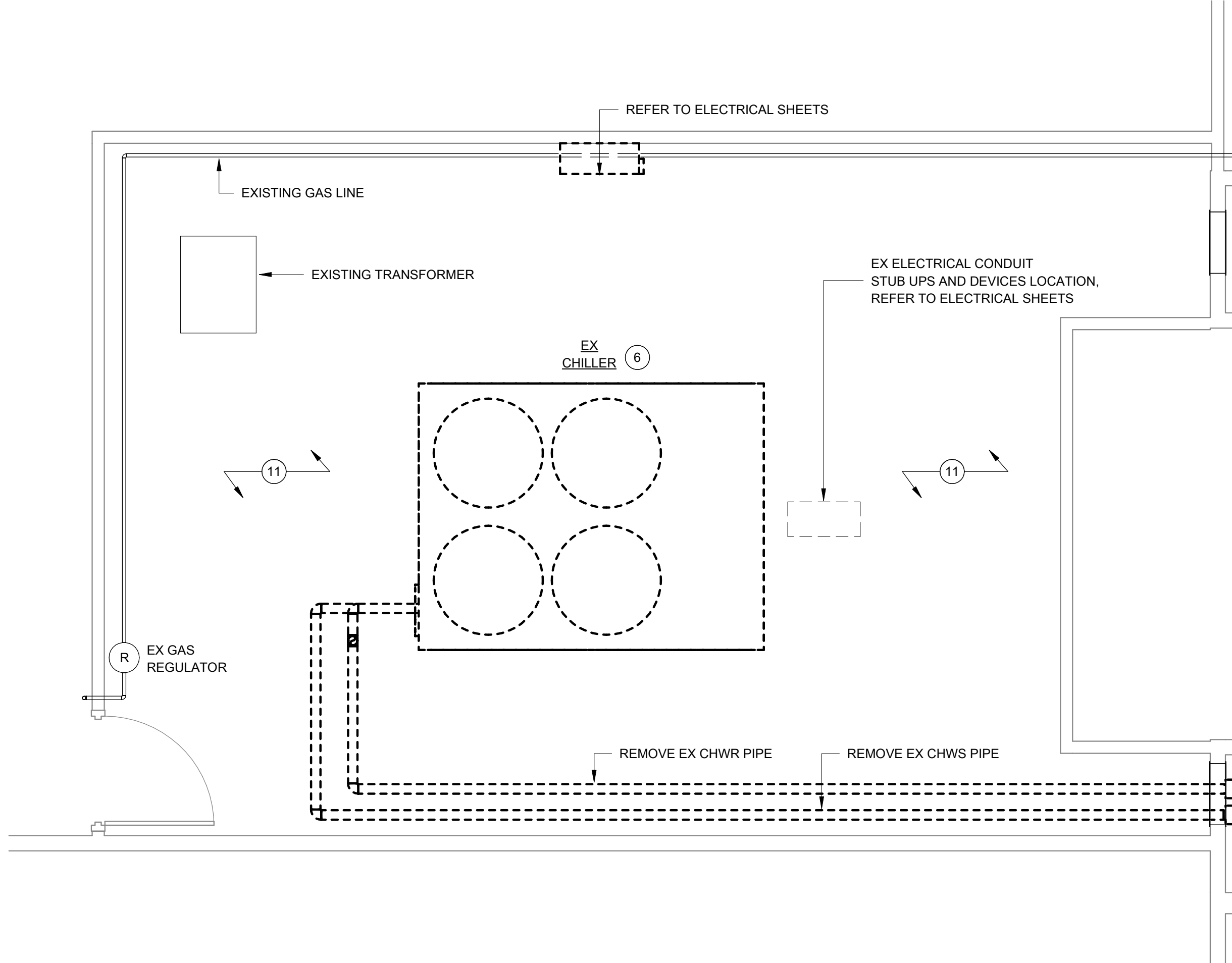
**MECHANICAL DEMOLITION
OVERALL PLAN**

MD-100

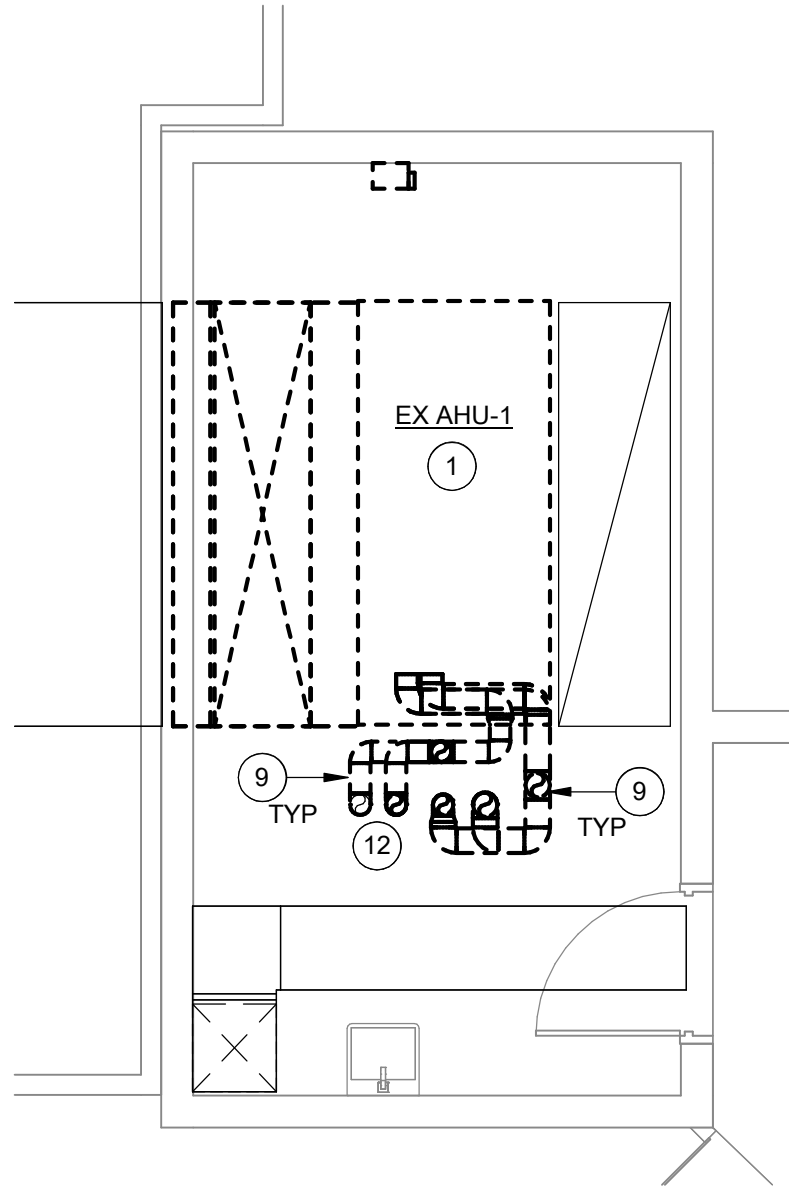
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2 MECHANICAL DEMOLITION PLAN - MECHANICAL ROOM 2
1/4" = 1'-0"



3 MECHANICAL DEMOLITION - CHILLER YARD
3/8" = 1'-0"



1 MECHANICAL DEMOLITION PLAN - MECHANICAL ROOM 1
1/4" = 1'-0"

GENERAL DEMOLITION NOTES:

- REFER TO SHEET MD-100 FOR GENERAL DEMOLITION NOTES.
- NOTE THAT SOME EXISTING PIPE LABELING IS INCORRECT EITHER IN DIRECTION OF FLOW OR IN FLUID TYPE. CONTRACTOR SHALL VERIFY ALL DIRECTIONS OF FLOW AND FLUID TYPES BY TRACING PIPING FROM PUMP AND ALSO FROM PRIMARY EQUIPMENT CONNECTIONS.

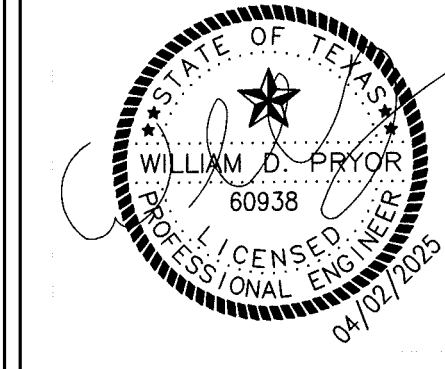
KEY NOTES:

- REMOVE EXISTING AHU AND ASSOCIATED DUCTWORK AND HYDRONIC PIPING AS FOLLOWS:
 - REMOVE AHU IN ITS ENTIRETY. HOUSEKEEPING PAD TO REMAIN.
 - REMOVE DUCTWORK AS REQUIRED FOR THE REMOVAL OF EXISTING AHU AND INSTALLATION OF NEW AHU.
 - FOR THE DUCTWORK THAT IS REMOVED, ALSO REMOVE DUCT MOUNTED SMOKE DETECTORS AND OTHER DUCT MOUNTED DEVICES AND STORE FOR REINSTALLATION.
 - DISCONNECT EXISTING OUTSIDE AIR DUCT ONLY IF OUTSIDE AIR DUCT CONNECTION IS AFFECTED BY DEMOLITION. OTHERWISE, OUTSIDE AIR DUCT AND BALANCING DAMPER ARE TO REMAIN.
 - REMOVE HYDRONIC PIPING AS REQUIRED FOR AHU REMOVAL AND REPLACEMENT, AND FOR INSTALLATION OF NEW PIPE, VALVES, AND FITTINGS AS DETAILED ON SHEET M-301. REMOVE CONDENSATE PIPING.
- REMOVE EXISTING CHILLED WATER PUMPS AS FOLLOWS:
 - REMOVE EACH PUMP IN ITS ENTIRETY. HOUSEKEEPING PAD TO REMAIN.
 - REMOVE ASSOCIATED PIPING, VALVES, AND FITTINGS.
- REMOVE EXISTING HEATING HOT WATER WATER PUMP AS FOLLOWS:
 - REMOVE PUMP IN ITS ENTIRETY. HOUSEKEEPING PAD TO REMAIN.
 - REMOVE ASSOCIATED PIPING, VALVES, AND FITTINGS UP TO WHERE PIPING TURNS HORIZONTAL.
 - TEMPORARILY CAP OR COVER PIPE OPENING TO PREVENT ENTRY OF DEBRIS.
- REMOVE EXISTING HOT WATER BOILER AS FOLLOWS:
 - REMOVE BOILER IN ITS ENTIRETY. HOUSEKEEPING PAD TO REMAIN.
 - REMOVE ASSOCIATED HEATING HOT WATER PIPING, VALVES, AND FITTINGS UP TO WHERE INDICATED ON PLANS.
 - TURN GAS OFF TO BUILDING AN REMOVE ASSOCIATED FUEL GAS PIPING BACK TO WHERE GAS ENTERS THE BUILDING AT THE WALL LOUVER. TEMPORARILY CAP GAS PIPING
 - REMOVE ASSOCIATED FLUE IN ITS ENTIRETY. CAP EXISTING ROOF PENETRATION WATERTIGHT. NOTE: IF EXISTING ROOF PENETRATION IS TO BE REUSED, THEN ROOF PENETRATION CAN BE TEMPORARILY CAPPED.
 - TEMPORARILY CAP OR COVER GAS AND WATER PIPE OPENINGS TO PREVENT THE ENTRY OF DEBRIS.
- REMOVE EXITING WATER HEATER AS FOLLOWS:
 - REMOVE WATER HEATER IN ITS ENTIRETY. ANY HOUSEKEEPING PAD TO REMAIN.
 - REMOVE PIPING FROM CIRC PUMP BACK TO THE VALVED TEE FOR THE EXPANSION TANK.
 - EXISTING EXPANSION TANK AND VALVED CONNECTION IS TO REMAIN.
 - REMOVE OTHER ASSOCIATED PIPING BACK TO ISOLATION VALVE.
 - REMOVE ASSOCIATED HOT WATER CIRCULATING COLD WATER PIPING BACK TO ISOLATION VALVE.
 - ASSOCIATED FUEL GAS PIPING BACK TO WHERE GAS ENTERS THE BUILDING AT THE WALL LOUVER.
 - REMOVE ASSOCIATED FLUE IN ITS ENTIRETY. CAP EXISTING ROOF PENETRATION WATERTIGHT. NOTE: IF EXISTING ROOF PENETRATION IS TO BE REUSED, THEN ROOF PENETRATION CAN BE TEMPORARILY CAPPED.
 - TEMPORARILY CAP OR COVER GAS AND WATER PIPE OPENINGS TO PREVENT THE ENTRY OF DEBRIS.
- REMOVE EXISTING AIR COOLED CHILLER AS FOLLOWS:
 - REMOVE CHILLER IN ITS ENTIRETY. EQUIPMENT PAD TO REMAIN.
 - REMOVE ASSOCIATED CHILLED WATER PIPING, VALVES, AND FITTINGS AS INDICATED ON PLANS.
- REMOVE EXISTING DOMESTIC HOT WATER CIRCULATING PUMP AS FOLLOWS:
 - REMOVE PUMP IN ITS ENTIRETY.
 - REMOVE ASSOCIATED PIPING, VALVES, AND FITTINGS UP TO ISOLATION VALVE LOCATED ADJACENT TO THE FLOOR.
 - REMOVE PIPING ABOVE PUMP SUFFICIENT TO INSTALL NEW PUMP WITH ISOLATION VALVES ON EACH SIDE.
 - TEMPORARILY CAP OR COVER PIPE OPENING TO PREVENT ENTRY OF DEBRIS.
- EXISTING WALL LOUVER TO REMAIN. SEE NEW WORK PLANS REGARDING PARTIAL OR TOTAL BLANK-OFFS REQUIRED AS PART OF THIS PROJECT.
- FOR EXISTING CHILLED WATER AND HEATING HOT WATER PIPING THAT IS TO REMAIN, REMOVE ALL PIPE LABELING STICKERS (PIPE IDENTIFICATION AND DIRECTION OF FLOW ARROWS). WHERE REMOVAL OF EXISTING PIPE LABELS IS NOT POSSIBLE OR COULD DAMAGE EXISTING INSULATION, COVER EXISTING LABELS WITH WHITE ADHESIVE LABEL COVERING.
- EXISTING SHOT FEEDERS TO BE DEMOLISHED.
- CLEAN THE ENTIRE CHILLER YARD AREA OF ALL DEBRIS, GRAVEL, TRASH, AND EXTRANEIOUS MATERIAL AND ITEMS AFTER DEMOLITION IS COMPLETE IN THIS AREA. POWER WASH SLAB PRIOR TO THE PLACEMENT OF NEW ITEMS OR NEW WORK.
- FOR AHU-1, CONTRACTOR SHALL REMOVE CHILLED WATER AND HEATING HOT WATER PIPING TO WHERE VERTICAL PIPES COME UP THRU FLOOR, AND INSTALL NEW SHUT-OFF VALVES AT EACH STUB-UP. INSTALL VALVES OF SUFFICIENT HEIGHT ABOVE FLOOR FOR VALVE OPERATION CLEARANCE. TEMPORARILY CAP PIPE TO PREVENT ENTRY OF DIRT AND DEBRIS. SEE KEYED NOTES AND DETAILS.

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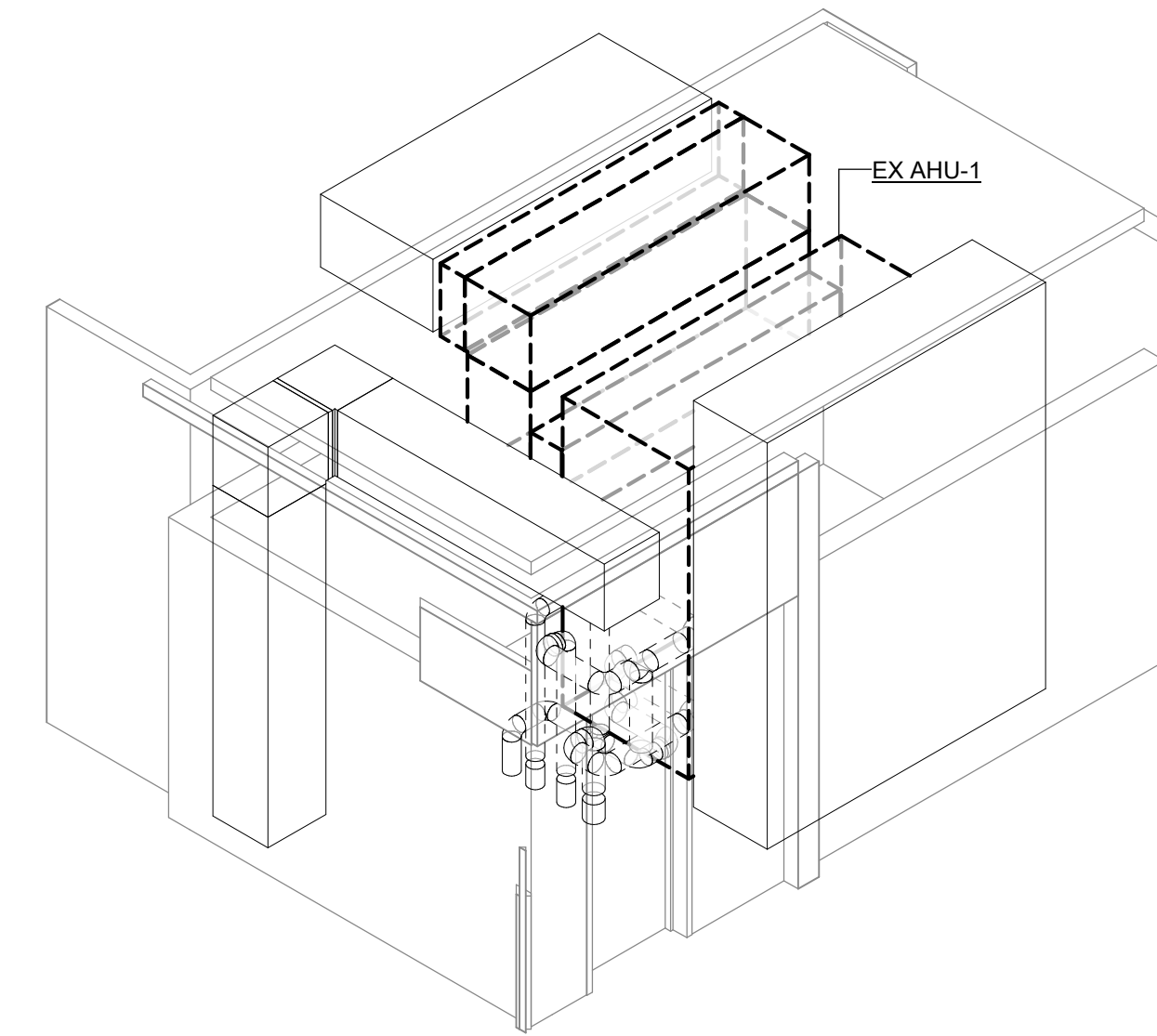
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AVO:	55881.001
Issued:	04/2/2025
Drawn By:	MH
Checked By:	WP
Scale:	As indicated

Sheet Title
MECHANICAL DEMOLITION
ENLARGED PLANS

MD-101
Sheet Number



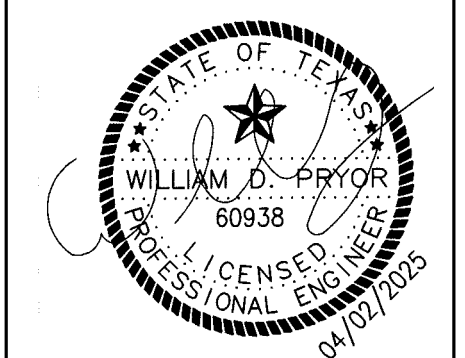
1 MECHANICAL DEMOLITION - ISOMETRIC VIEW - MECHANICAL RM 1

A. REFER TO SHEET MD-100 FOR GENERAL DEMOLITION NOTES.

B. NOTE THAT SOME EXISTING PIPE LABELING IS INCORRECT EITHER IN DIRECTION OF FLOW OR IN FLUID TYPE. CONTRACTOR SHALL VERIFY ALL DIRECTIONS OF FLOW AND FLUID TYPE BY TRACING PIPING FROM PUMP AND ALSO FROM PRIMARY EQUIPMENT CONNECTIONS.



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McALLEN, TX 78503-7466
(956) 684-0286

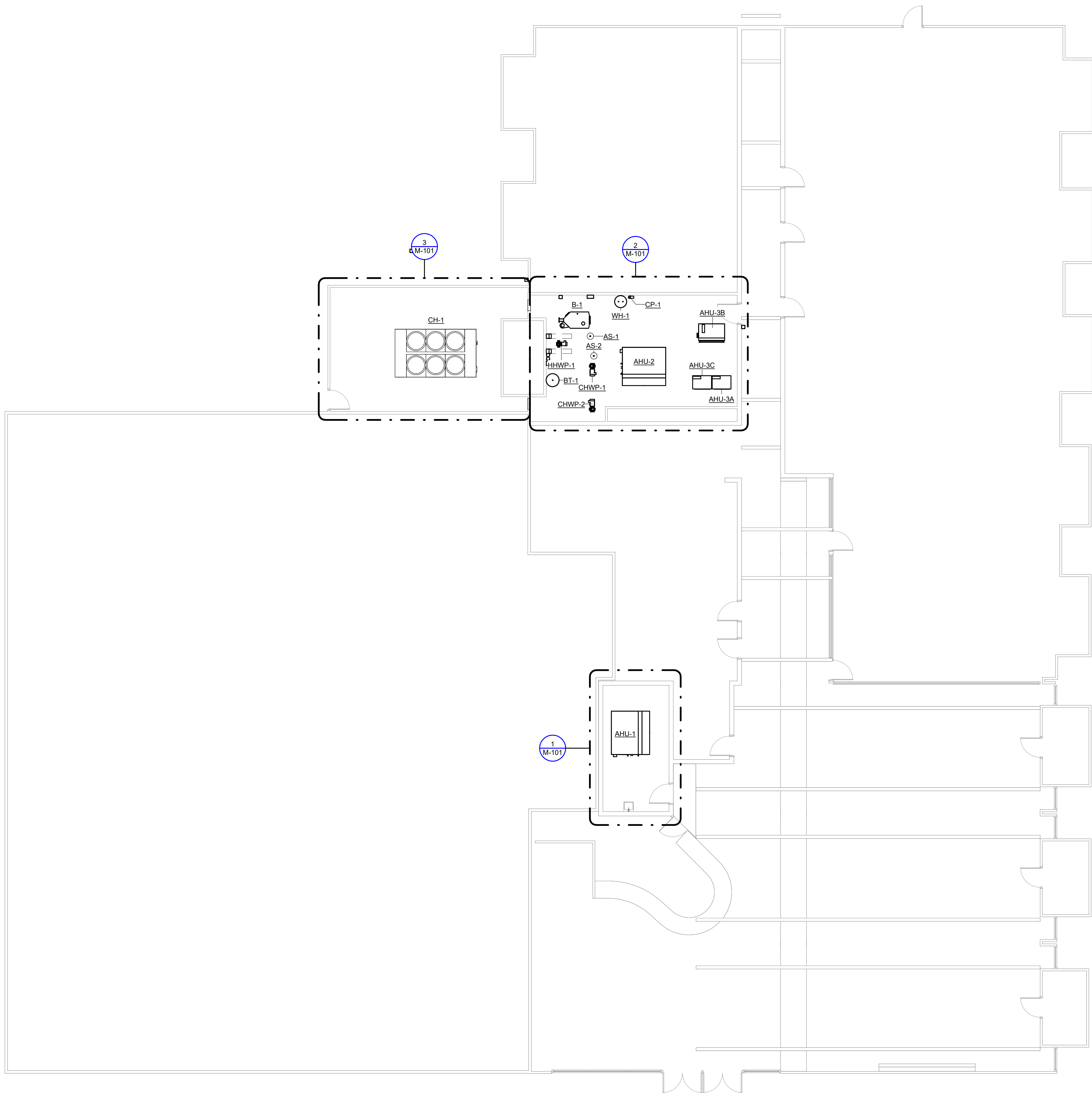
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AVO:	55881.001
Issued:	04/2/2025
Drawn By:	MH
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Scale:	12" = 1'-0"

Sheet Title

**MECHANICAL DEMOLITION
PLANS - ISOMETRIC VIEWS**

MD-102
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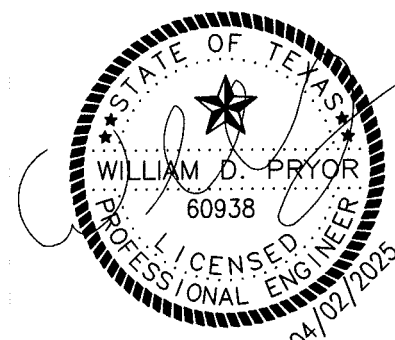


A. REFER TO SHEET M-002 FOR GENERAL MECHANICAL NOTES

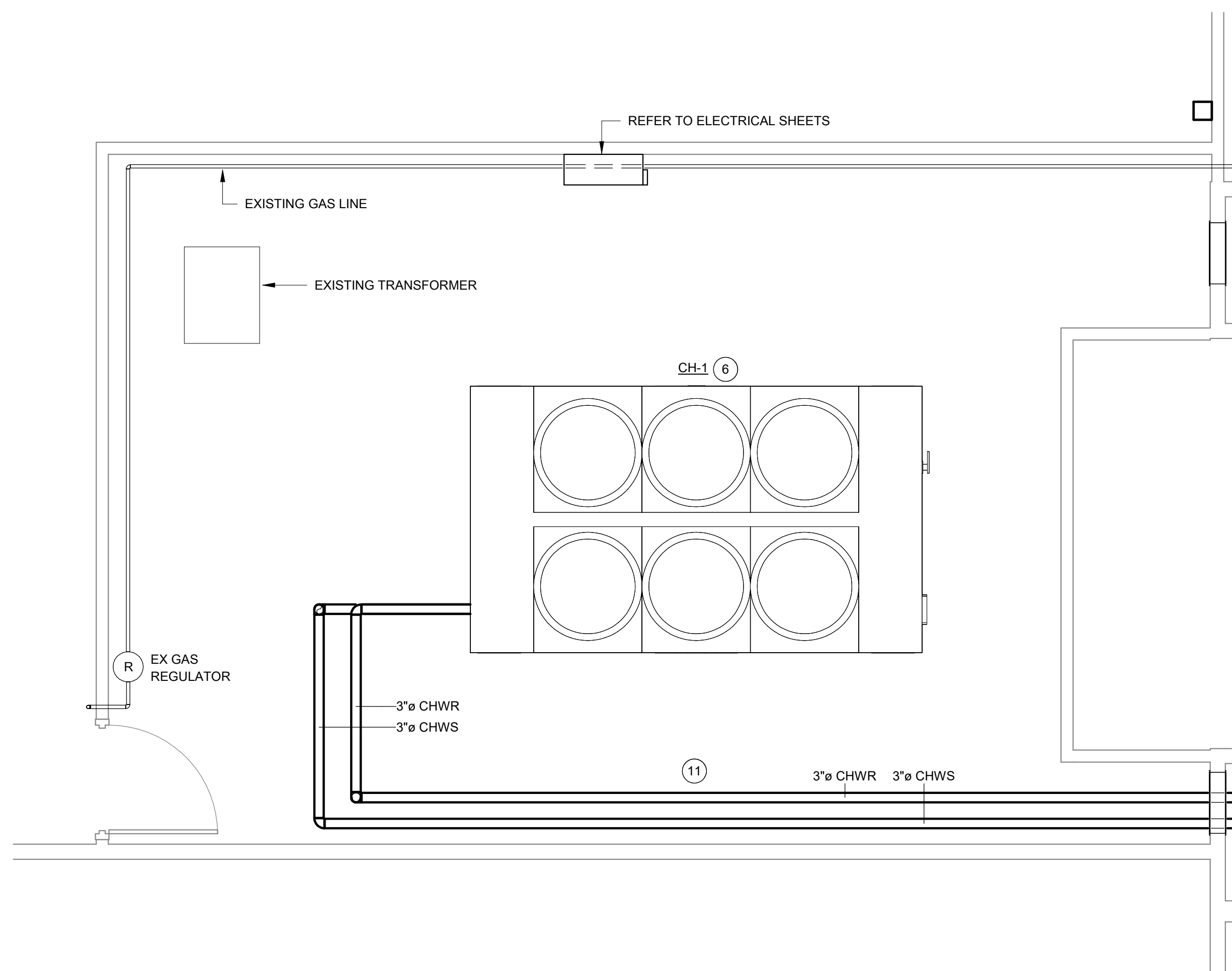
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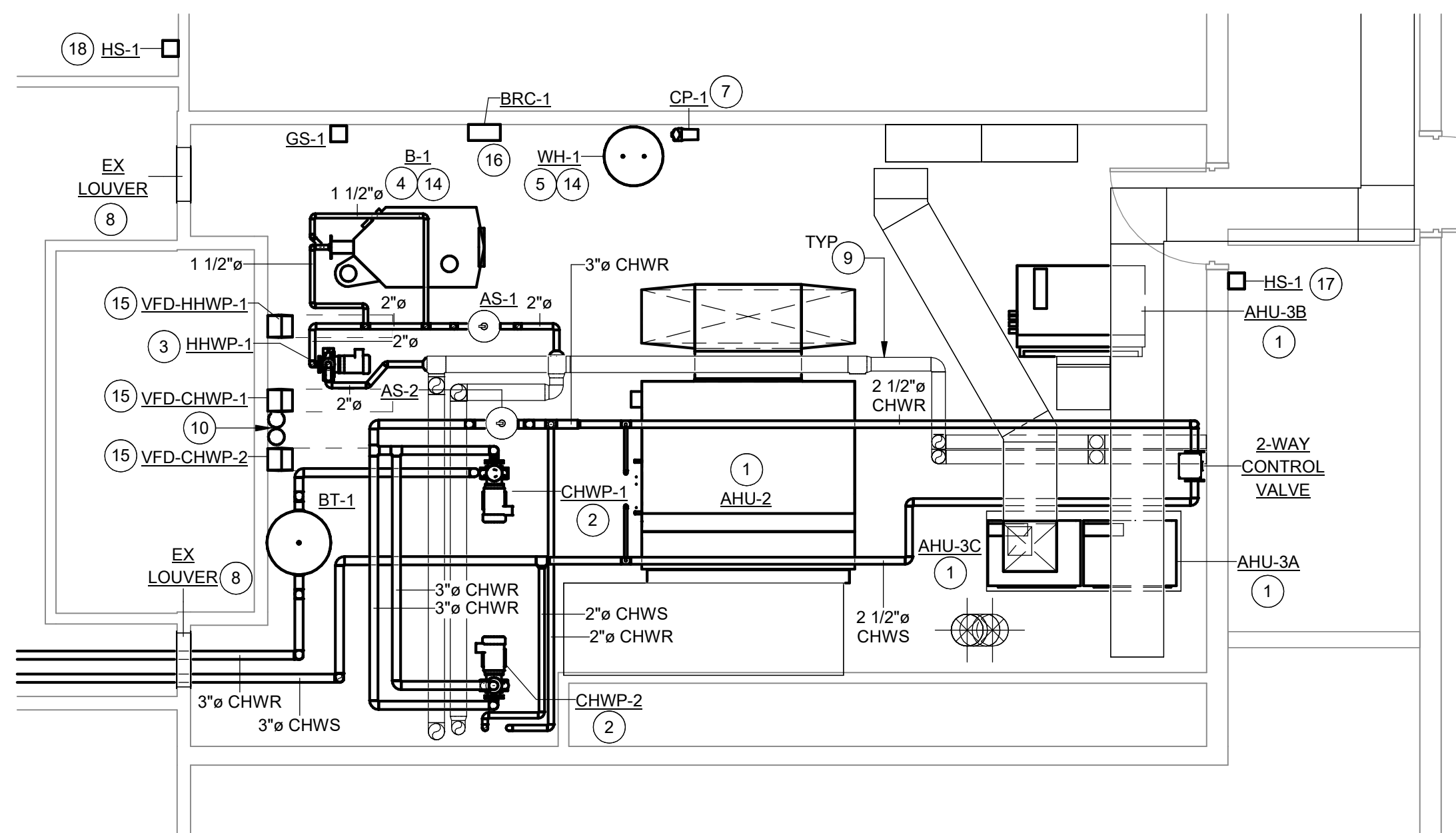
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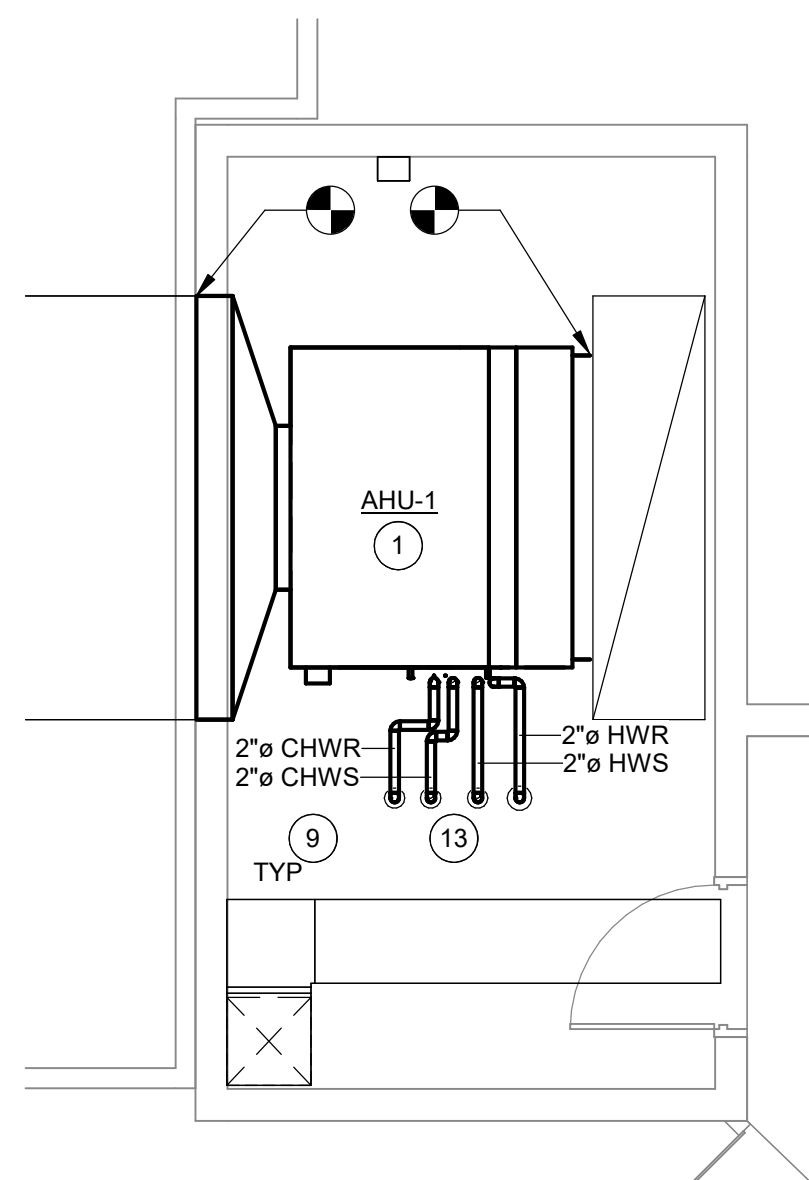
AVO:	55881.001
Issued:	04/2/2025
Drawn By:	MH
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Scale:	As indicated
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MECHANICAL OVERALL PLAN	
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 3 MECHANICAL PLAN - CHILLER YARD
3/8" = 1'-0"



 **2** MECHANICAL HVAC PLAN - MECHANICAL ROOM 2
1/4" = 1'-0"



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

GENERAL NOTES:

A. REFER TO SHEET M-002 FOR GENERAL MECHANICAL NOTES.

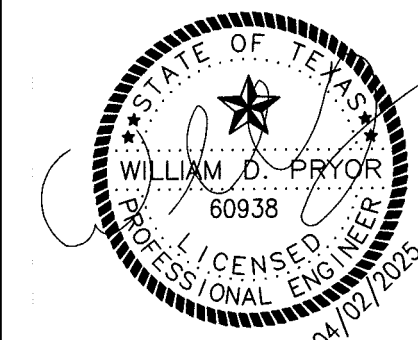
KEY NOTES:

- | | | | |
|----|--|-----|---|
| 1. | FOR EACH NEW AHU: | 8. | AT EXISTING WALL LOUVERS, INSTALL INSULATED TWO-SIDED GALV. SHEET METAL BLANK-OFF. INSULATION TO GRID TYPE, 2" THICK, R-10 MINIMUM. |
| a. | INSTALL NEW AHU ON EXISTING PAD AT LOCATION INDICATED. CONTRACTOR MAY ADJUST LOCATIONS SLIGHTLY TO ACCOMMODATE CONNECTION TO EXISTING DUCTS AND PIPING. NEW AHU'S MAY REQUIRE BREAKDOWN AND REBUILD BY THE CONTRACTOR (SEE NOTES ON AHU SCHEDULE). | a. | BLANKOFF OF LOUVER ADJACENT TO BOILER B-1 IS TO BE FULL SIZE OF LOUVER. |
| b. | TRANSITION NEW DUCTS AS REQUIRED TO MAKE DUCT CONNECTIONS TO EXISTING SUPPLY AND RETURN DUCTS (TYPICAL FOR ALL AHU'S). TRANSITIONS TO BE BASED ON APPROVED SUBMITTALS AND ON FIELD MEASUREMENTS OF EXISTING DUCTS. | b. | BLANKOFF OF LOUVER WHERE CHILLED WATER LINES PENETRATE IS TO BE FULL SIZE OF OPEN LOUVER AREA, BUT THE LOUVER SECTION SERVING AS VENTILATION AIR INTAKE FOR AHU-2, 3A, 3B, AND 3C IS NOT TO BE BLANKED OFF. |
| c. | INSTALL FLEX CONNECTIONS AT SUPPLY AND RETURN OF EACH NEW AHU. SEE DETAILS. | c. | EACH BLANKOFF IS TO ALLOW FOR PIPE AND CONDUIT PENETRATIONS. ALL PIPE AND CONDUIT PENETRATIONS ARE TO BE SEALED AIRTIGHT. THIS INCLUDES CHILLED WATER PIPING, GAS PIPING, ELECTRICAL CONDUITS, AND OTHER PENETRATIONS. |
| d. | FIELD ROUTE AND INSTALL NEW INSULATED CHILLED AND HOT WATER PIPING TO AHU COIL CONNECTIONS. SEE DETAILS FOR REQUIRED CONTROL VALVE CONFIGURATIONS, VALVES AND DEVICE REQUIREMENTS AND FITTINGS. | d. | PERIMETER OF EACH BLANKOFF IS TO BE SEALED AIRTIGHT. |
| e. | EXISTING OUTSIDE AIR DROPS TO EACH AHU ARE TO REMAIN. DAMPERS ARE TO REMAIN AT EXISTING SETTINGS. | 9. | FOR EXISTING AND NEW CHILLED WATER AND HEATING HOT WATER PIPING, INSTALL STICK-ON IDENTIFICATION LABELS THAT IDENTIFY THE FOLLOWING: |
| f. | REINSTALL ANY DUCT MOUNTED SMOKE DETECTORS THAT WERE REMOVED DURING DEMOLITION AND RECONNECT TO THE EXISTING ALARM SYSTEM AND ALSO INTERLOCK TO SHUT ASSOCIATED AHU ON ALARM. | a. | CHILLED WATER SUPPLY AND DIRECTION OF FLOW. |
| g. | INSTALL NEW CONDENSATE PIPING ROUTED TO NEAREST FLOOR DRAIN. MINIMUM SIZE OF CONDENSATE PIPING TO BE 1-1/4" DIAMETER OR THE SIZE OF THE DRAIN PAN CONNECTION, WHICHEVER IS LARGER. | b. | CHILLED WATER RETURN AND DIRECTION OF FLOW. |
| h. | INSULATE NEW PIPING, VALVES, AND FITTINGS COMPLETELY. | c. | HEATING HOT WATER SUPPLY AND DIRECTION OF FLOW. |
| i. | COORDINATE WITH ELECTRICAL AND CONTROLS. | d. | HEATING HOT WATER SUPPLY AND DIRECTION OF FLOW. |
| 2. | INSTALL NEW CHILLED WATER PUMPS AS FOLLOWS: | 10. | ASSURE NEW SHOT FEEDERS ARE CONNECTED TO PUMPING SYSTEMS. SEE DETAILS AND ONE LINE DIAGRAMS. |
| a. | INSTALL NEW PUMPS ON EXISTING CONCRETE PADS. | 11. | IN CHILLER YARD, SUPPORT NEW CHILLED WATER PIPING WITH PRE-MANUFACTURED PIPE SUPPORTS. |
| b. | INSTALL NEW INSULATED CHILLED WATER PIPING. SEE PUMP DETAILS FOR PIPE, VALVE, AND FITTING REQUIREMENTS. PROVIDE NEW PIPE AS REQUIRED TO MAKE COMPLETE CONNECTION TO NEW PUMP. | 12. | FIELD LOCATE EXPANSION TANKS FOR CHILLED AND HEATING HOT WATER SYSTEMS, WITH TANKS PIPED AS SHOWN ON RESPECTIVE PIPING DIAGRAMS AS INDICATED ON M-401 AND M-402. SEE DETAILS FOR ADDITIONAL REQUIREMENTS. |
| c. | INSULATE NEW PUMP, PIPING, VALVES, AND FITTINGS COMPLETELY. | 13. | AT AHU-1, CONNECT NEW CHW AND HHW PIPES TO VALVED EXISTING PIPES UP THROUGH FLOOR AND FIELD ROUTE TO COIL CONNECTIONS. SEE DETAILS FOR COIL PIPING REQUIREMENTS. |
| d. | COORDINATE WITH ELECTRICAL AND CONTROLS. | 14. | EXTEND GAS PIPING TO NEW BOILER AND NEW WH-1. MATCH EXISTING GAS PIPE SIZES TO EACH. |
| 3. | INSTALL NEW HEATING HOT WATER PUMP AS FOLLOWS: | 15. | VFDs SHALL BE FURNISHED BY MECHANICAL CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR. FIELD COORDINATE FINAL LOCATION OF VFDs. PROVIDE A MINIMUM 3-FEET OF CLEARANCE IN FRONT OF EACH VFD. |
| a. | INSTALL NEW PUMP ON EXISTING CONCRETE PAD. | 16. | APPROXIMATE LOCATION OF NEW BRC-1. WALL MOUNT GAS DETECTION CONTROL PANEL, BRC-1, +/- 48 INCHES TO BOTTOM OF PANEL. COORDINATE WITH ELECTRICAL CONTRACTOR FOR POWER REQUIREMENTS. REFER TO MECHANICAL CONTROLS DRAWINGS FOR INTERLOCK TO BOILER SHUT-DOWN. FIELD COORDINATE FINAL LOCATION. |
| b. | REMOVE TEMPORARY CAP ON EXISTING PIPE THAT WAS INSTALLED DURING DEMOLITION. INSTALL NEW ISOLATION VALVES IN PLACE OF CAP. | 17. | WALL MOUNTED HORN/STROBE ASSEMBLY. |
| c. | INSTALL NEW INSULATED HEATING HOT WATER PIPING BETWEEN THE PUMP AND THE NEW ISOLATION VALVES. SEE PUMP DETAILS FOR PIPE, VALVE, AND FITTING REQUIREMENTS. PROVIDE PIPE AS REQUIRED TO MAKE COMPLETE CONNECTION TO NEW PUMP. | 18. | EXTERIOR WALL MOUNTED HORN/STROBE ASSEMBLY FOR GAS DETECTION SYSTEM. DEVICE SHALL BE MOUNTED AT 78-INCHES ABOVE GRADE LEVEL OR SIDEWALK. DEVICE SHALL BE RATED FOR OUTDOOR APPLICATIONS. DEVICE SHALL BE MOUNTED ON EXTERIOR BUILDING WALL AT VISIBLE LINE OF SIGHT. FIELD COORDINATE FINAL LOCATION. |
| 4. | INSTALL NEW SEALED COMBUSTION GAS FIRED BOILER AS FOLLOWS: | | |
| a. | INSTALL BOILER ON EXISTING EQUIPMENT PAD. | | |
| b. | REMOVE TEMPORARY CAPS ON EXISTING HOT WATER PIPING AND ON EXISTING GAS PIPING THAT WERE INSTALLED DURING DEMOLITION. INSTALL IN PLACE OF CAPS. INSTALL NEW ISOLATION VALVES ON HEATING HOT WATER PIPING, AND NEW GAS COCK ON GAS PIPING. | | |
| c. | INSTALL NEW INSULATED HEATING HOT WATER PIPING, GAS PIPING, VALVES, AND FITTINGS BETWEEN BOILER AND EXISTING PIPING CONNECTIONS. SEE BOILER DETAILS FOR PIPE, VALVE, AND FITTING REQUIREMENTS. | | |
| d. | REMOVE TEMPORARY CAP ON EXISTING GAS PIPE THAT WAS INSTALLED DURING DEMOLITION. INSTALL NEW GAS COCK IN PLACE OF CAP. GAS LINE SIZE TO MATCH EXISTING BOILER GAS PIPE SIZE. | | |
| e. | INSTALL NEW FLUE AND COMBUSTION INTAKE UP THRU ROOF. ROOF PENETRATION TO BE WATERTIGHT. FLASH AND COUNTER-FLASH AS REQUIRED. PROTECT ROOF. | | |
| f. | INSULATE NEW PIPING, VALVES, AND FITTINGS COMPLETELY. | | |
| g. | COORDINATE WITH ELECTRICAL AND CONTROLS. | | |
| 5. | INSTALL NEW DOMESTIC WATER HEATER AS FOLLOWS: | | |
| a. | MOUNT WATER HEATER ON FLOOR WITH DRIP PAN BENEATH. | | |
| b. | CONNECT TO EXISTING CW AND HW PIPING (MATCH EXISTING SIZES). INSTALL NEW PIPING, VALVES AND FITTINGS AS INDICATED ON DETAILS. | | |
| c. | EXISTING EXPANSION TANK AND VALVED CONNECTION IS TO REMAIN. | | |
| d. | INSTALL NEW GAS LINE AND CONNECT TO EXISTING GAS LINE ENTERING AT WALL LOUVER. PROVIDE A QUARTER TURN GAS SHUTOFF VALVE. | | |
| e. | INSTALL NEW FLUE AND COMBUSTION INTAKE UP THRU ROOF. ROOF PENETRATION TO BE WATERTIGHT. FLASH AND COUNTER-FLASH AS REQUIRED. PROTECT ROOF. | | |
| f. | INSULATE NEW PIPING, VALVES, AND FITTINGS COMPLETELY. | | |
| g. | COORDINATE WITH ELECTRICAL. | | |
| 6. | INSTALL NEW AIR-COOLED CHILLER AS FOLLOWS: | | |
| a. | INSTALL CHILLER IN IN CHILLER YARD AS INDICATED. CHILLER TO BE LEVEL, WITH ELASTOMERIC ISOLATORS BENEATH CHILLER FRAMING. SEE DETAILS. | | |
| b. | INSTALL NEW INSULATED CHILLED WATER PIPING. SEE DETAILS FOR PIPE, VALVE, AND FITTING REQUIREMENTS. | | |
| c. | INSULATE, PIPING, VALVES, AND FITTINGS COMPLETELY. | | |
| d. | COORDINATE WITH ELECTRICAL AND CONTROLS. | | |
| 7. | INSTALL NEW DOMESTIC HOT WATER CIRCULATING PUMP AS FOLLOWS: | | |
| a. | MOUNT PUMP IN-LINE. PROVIDE REDUCERS AND ENLARGERS AS REQUIRED. | | |
| b. | PROVIDE VALVES AND FITTINGS AS DETAILED. | | |
| c. | COORDINATE INSTALLATION OF AQUASTAT AND TIMER WITH DIVISION 26. | | |

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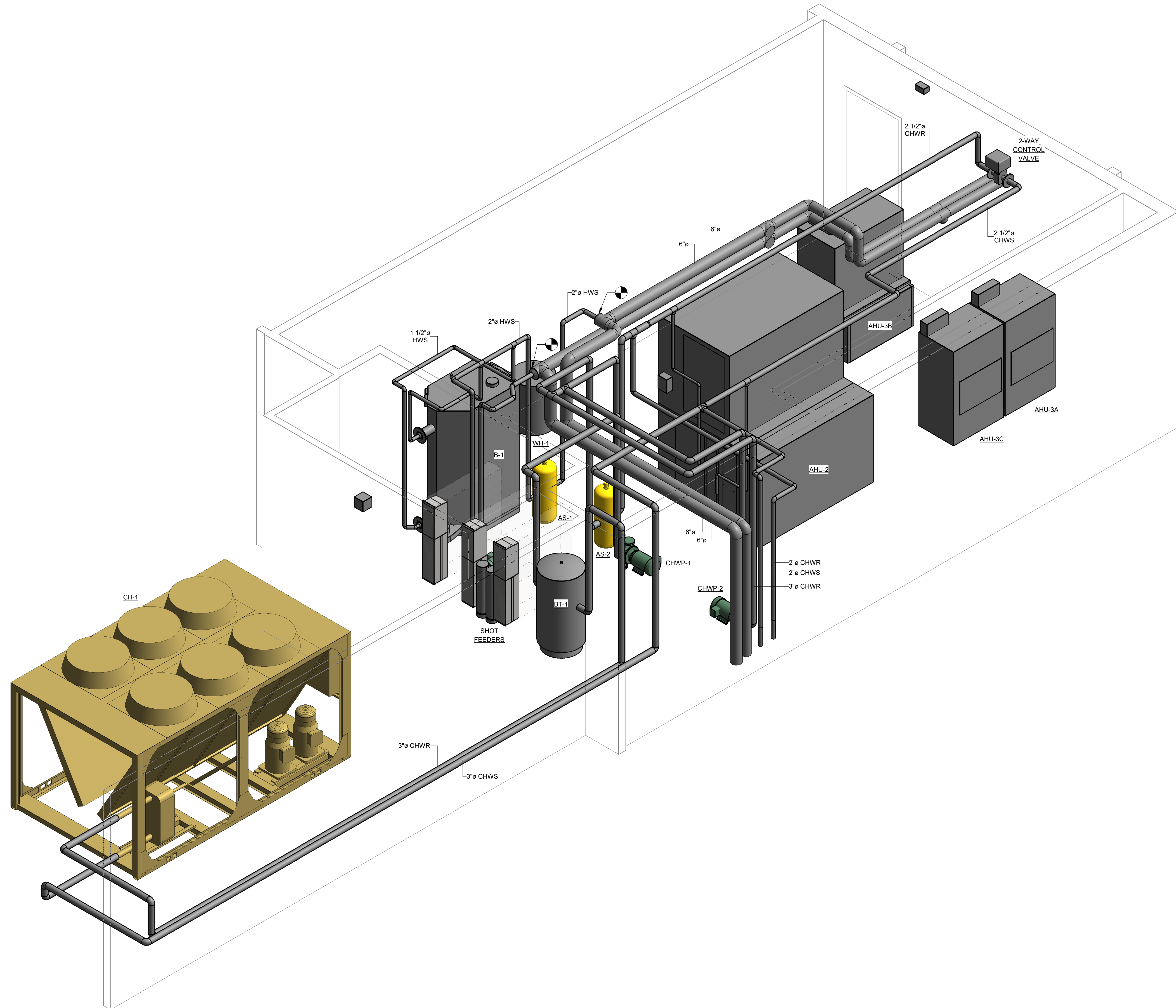
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MECHANICAL ENLARGED PLANS

M-101

Sheet Number



1 MECHANICAL PLAN - ISOMETRIC

AVO:	55881.001
Issued:	04/2/2025
Drawn By:	MH
Checked By:	WP
Scale:	
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MECHANICAL PLAN - ISOMETRIC	
M-102	
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AIR HANDLING UNITS

UNIT			SUPPLY FAN												CHILLED WATER COIL												HEATING WATER COIL												NOTES
MARK	BASIS OF DESIGN		AIRFLOW CONFIG	SERVES	WEIGHT (LB)	FAN(S)				MOTOR (EACH FAN)				TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EAT DB/WB (°F)	LAT DB/WB (°F)	APD (in H2O)	EWT (°F)	EWT (°F)	FLOW RATE (GPM)	WPD (ft H2O)	ROWS	CONTROL VALVE	CAPACITY (MBH)	EAT (°F)	LAT (°F)	APD (in H2O)	EWT (°F)	EWT (°F)	FLOW RATE (GPM)	WPD (ft H2O)	ROWS	CONTROL VALVE					
	MFR	MODEL				DRIVE TYPE	FAN TYPE	QTY FANS	TOT.FLOW (CFM)	RPM	BHP	ESP (in H2O)	VOLTS/ PHASE																						POWER (HP)	RPM	CONTROL		
AHU-1	TRANE	CSAA030	UPFLOW	GYM	2,646	DIRECT	PLENUM	2	12,500	1,882	8.05	1.0	208/3	10	1,882	BMS	474.9	355.1	81/67	55/54.5	0.82	44	56	79.1	4.77	8	2-WAY	570.4	61.8	104	0.20	150	120	38.0	3.07	2	2-WAY	1,2,3,4,5,6,7,8,9,10,11	
AHU-2	TRANE	CSAA025	UPFLOW	LOBBY	2,622	DIRECT	PLENUM	2	11,200	1,839	8.05	1.0	208/3	10	1,839	BMS	425.5	318.1	81/67	55/54.5	0.65	44	56	70.1	5.55	8	2-WAY	511.1	61.8	104	0.19	150	120	34.1	1.94	2	2-WAY	1,2,3,4,5,6,7,8,9,10,11	
AHU-3A	MAGIC AIRE	BVE12ABAA	UPFLOW	MULTI-USE	-	DIRECT	CENT	1	1,200	1,261	0.69	0.4	115	0.75	1,261	BMS	37.0	25.8	80/67	55/54.5	-	44	56	9.0	5.20	6	2-WAY	54.8	61.8	104	-	150	120	4.0	9.80	2	2-WAY	5,6,7,8,9,10,11	
AHU-3B	MAGIC AIRE	BMB30DCAA	DOWNFLOW	COMMUNITY RM	-	DIRECT	CENT	1	2,600	975	1.67	1.0	208/1	2	975	BMS	98.8	73.9	80/67	55/54.5	-	44	56	16.5	7.39	6	2-WAY	118.6	61.8	104	-	150	120	8.0	2.45	2	2-WAY	5,6,7,8,9,10,11	
AHU-3C	MAGIC AIRE	BVE12ABAA	UPFLOW	MULTI-USE	-	DIRECT	CENT	1	1,200	1,261	0.69	0.4	115	0.75	1,261	BMS	37.0	25.8	80/67	55/54.5	-	44	56	9.0	5.20	6	2-WAY	54.8	61.8	104	-	150	120	4.0	9.80	2	2-WAY	5,6,7,8,9,10,11	

NOTES:

1. FOR AHU-1 & AHU-2, PROVIDE 2-INCH DOUBLE WALL R-13 CONSTRUCTION FOR PANELS AND DOORS, WITH ALL AHU PANELS AND DOORS CONSTRUCTED OF GALVANIZED STEEL.
2. FOR AHU-1 & AHU-2, COORDINATE CONFIGURATION TO MATCH EXISTING AHUs WITH REGARD TO INTAKE AND DISCHARGE CONNECTIONS.
3. AHU-1 & AHU-2 REQUIRE FIELD BREAKDOWN AND RE-ASSEMBLY IN THE AHU ROOM. BREAKDOWN AND REASSEMBLY IS THE RESPONSIBILITY OF THE CONTRACTOR.
4. FOR AHU-1 & AHU-2, PROVIDE EACH UNIT WITH FACTORY MOUNTED VFD.
5. PROVIDE EACH UNIT WITH FILTER FRAME AND 2" PLEATED MERV 8 FILTERS. FILTER FRAME TO HAVE HINGED SIDE DOOR FOR FILTER ACCESS.
6. ALL ACCESS DOORS (INCLUDING FILTER ACCESS) ARE TO BE HINGED.
7. MAXIMUM FACE VELOCITY ON ALL COOLING COILS IS 525 FPM.
8. UNLESS OTHERWISE INDICATED, EACH AHU IS DRAW-THRU CONFIGURATION - POSITION 1 - FILTER, POSITION 2 - COOLING COIL, POSITION 3 - HEATING COIL, POSITION 4 - FAN SECTION
9. INTERLOCK AHU'S VIA BMS TO DE-ENERGIZE ON ANY FIRE ALARM/SMOKE DETECTION.
10. PROVIDE EACH UNIT WITH FACTORY MOUNTED FREEZE STAT.
11. ALL AHU'S SHALL BE FACTORY CONFIGURED FOR SINGLE POINT POWER CONNECTIONS.

AIR COOLED CHILLERS

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NOTES:

1. SINGLE POINT POWER CONNECTION, UNIT MOUNTED STARTER
2. FIELD POWER INTERFACE SHALL BE TO WIRE LUGS. COORDINATE WITH MFR FOR LUG SIZE
3. COMPRESSOR ISOLATION SERVICE VALVES
4. CONDENSER COIL CORROSION PROTECTION PER ASTM-B117, 5000 HOUR SALT SPRAY RATING
5. PROVIDE BACNET CONTROLS DEVICE FOR INTERFACE WITH DDC SYSTEM
6. FACTORY INSULATE (ALL COLD PARTS)
7. PROVIDE PHASE REVERSAL PROTECTION.

PUMP SCHEDULE

MARK	BASIS OF DESIGN		TYPE	SERVES	FLUID DATA					MINIMUM EFF%	MIN. NPSH REQ.	MOTOR DATA			NOTES
	MFR	MODEL			IMPELLER SIZE	FLOW (GPM)	HEAD (FT)	RPM	FLUID			HP	AMPS	VOLTS/ PHASE	
CHWP-1	TACO	2007D	END SUCTION	CHW	7.20	130.2	43.6	1,760.0	H2O	78	3 FT	3	---	208/3	1,2,3,4,5,6,7,9,10
CHWP-2	TACO	2007D	END SUCTION	CHW	7.20	130.2	43.6	1,760.0	H2O	78	3 FT	3	---	208/3	
HWP-1	TACO	1207D	END SUCTION	HHW	7.05	90.2	47.8	1,760.0	H2O	71	3 FT	2	---	208/3	
CP-1	TACO	009 SF5	IN-LINE	DOM. HW CIRC	---	4.0	---	---	H2O			1/8	1.4	120	8

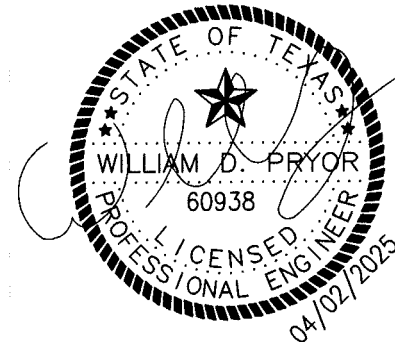
NOTES:

1. ALL PUMP SELECTIONS ARE TO BE NON-OVERLOADING AT ANY POINT ON THE PUMP CURVE.
2. PROVIDE END SUCTION PUMPS WITH RIGID ALUMINUM COUPLING THAT REQUIRES NO FIELD ALIGNMENT. IF NOT AVAILABLE, LASER ALIGNMENT SHALL BE REQUIRED.
3. PROVIDE WITH NEMA PREMIUM EFFICIENCY, INVERTER DUTY, AND TEFC MOTOR.
4. PROVIDE LIFETIME WARRANTY ON PUMP ALIGNMENT.
5. PROVIDE SHAFT GROUNDING RINGS.
6. PROVIDE INERTIA BASE SIZED SPECIFICALLY FOR SUBMITTED PUMP.
7. PROVIDE INLINE PUMP ISOLATION BASE THAT MOUNTS TO PUMP FLANGE. PROVIDE VIBRO ACOUSTICS NEO+, NEOPRENE PAD BASE WITH STEEL FLANGE MOUNTS.
8. FOR CP-1: STAINLESS STEEL BODY, ALUMINUM STATOR HOUSING, STAINLESS STEEL CARTRIDGE, NON-METALLIC IMPELLER, CERAMIC SHAFT, CARBON BEARINGS, EPDM O-RINGS AND GASKETS. PROVIDE WITH AQUASTAT AND TIMER FOR CONTROL.
9. PROVIDE CHWP-1, CHWP-2, AND HHWP-1 WITH VFD. FIELD MOUNT VFD'S. NOTE THAT VFD'S WILL BE CONTROLLED BY BAS SYSTEM. SEE BAS NOTES ON M-302.
10. PROVIDE ALL END-SUCTION PUMPS WITH END-SUCTION DIFFUSERS
11. PROVIDE VFD'S WITH INTEGRAL DISCONNECTS FOR CHWP-1, CHWP-2, AND HHWP-1

HVAC PIPING MATERIALS SCHEDULE

SERVICE	SIZE	PIPE	FITTINGS	JOINTS	HANGERS	INSULATION			NOTES
						CONDITIONED SPACES	UNCONDITIONED SPACES	OUTDOORS	
Chilled Water Above Grade	0-2"	Type L Copper	Wrot copper	95-5 Solder	Copper Plated	1.5" Cellular Glass PVC Jacket(Exposed) / FSP Factory (Concealed)	1.5" Cellular Glass PVC Jacket(Exposed) / FSP Factory (Concealed)	3" Cellular Glass Alum Jacket	
Chilled Water Above Grade	2 1/2-4"	Blk. Std. Schl 40 P. E.	Butt Weld	Welded	Galvanized	1.5" Cellular Glass PVC Jacket(Exposed) / FSP Factory (Concealed)	1.5" Cellular Glass PVC Jacket(Exposed) / FSP Factory (Concealed)	3" Cellular Glass Alum Jacket	
Condensate	All	Type K Copper	Wrot copper	95-5 Solder	Copper Plated	3/4" Flexible Elastomeric - PVC Jacket	3/4" Flexible Elastomeric - PVC Jacket	3/4" Flexible Elastomeric - Aluminum Jacket	

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M-201	
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WATER HEATERS

MARK	BASIS OF DESIGN		TYPE	SERVES	FUEL	RATED CAPACITY	INPUT (MBH)	RECOVERY	EXPANSION TANK	UNIFORM ENERGY FACTOR	ELECTRICAL		NOTES
	MFR	MODEL									VOLTS/ PHASE	BRKR	
WH-1	RHEEM	PRO050-36N RH60 DV	DIRECT VENT	DOM. HOT WTR LOOP	N GAS	48 GALLON	36.0	36.4 GPH @ 90°F Rise	(SEE BELOW)	0.61	120	20	ALL NOTES APPLY

NOTES:

1. PROVIDE W/HORIZONTAL ROOF VENT KIT W/ ALUMINUM VENT & CAP. ADJUSTING VENT KIT LENGTH FOR FINAL PLACEMENT OF HEATER (DO NOT EXCEED MFR MAX. VENTING DISTANCE).
2. PROVIDE WITH PREMIUM GRADE ANODE, DRAIN VALVE, T&P RELIEF VALVE, GLASS TANK, PIEZO IGNITION (NO STANDING PILOT LIGHT).
3. PROVIDE WITH OPTIONAL 10 YEAR WARRANTY.
4. ET-1 IS THE EXISTING EXPANSION TANK WHICH IS TO BE REUSED.

PLUMBING PIPING MATERIALS SCHEDULE									
SERVICE	SIZE	PIPE	FITTINGS	JOINTS	HANGERS	INSULATION			NOTES
						CONDITIONED SPACES	UNCONDITIONED SPACES	OUTDOORS	
Domestic Water Above Grade	0-3"	Type L Copper	Propress	Compression	Copper plated	1/2" MINERAL FIBER	1/2" MINERAL FIBER	Heat Trace	
Makeup Water Above Grade	0-3"	Type L Copper	Propress	Compression	Copper plated	1/2" MINERAL FIBER	1-1/2" MINERAL FIBER	Heat Trace	Piping serving mechanical system makeup

EXPANSIONS TANKS

ET-1 (SERVES COLLAPSED WATER LOOP)
BELL & GOSSETT BLADDER STYLE, 20 GALLON. TANK SHALL BE PRE-CHARGED TO 12 PSI.
CONTRACTOR TO SET INITIAL TANK PRESSURE TO HEIGHT OF BUILDING PLUS 5 PSI TO HOLD PRESSURE. TANK TO BE COMPLIANT WITH ASME SECTION VIII, DIVISION 1.
FLANGED INLET & OUTLET. VESSEL SHALL BE RATED FOR 125 PSI MAX WORKING PRESSURE.

ET-2 (SERVES HEATING HOT WATER LOOP)
BELL & GOSSETT BLADDER STYLE, 30 GALLON. TANK SHALL BE PRE-CHARGED TO 12 PSI.
CONTRACTOR TO SET INITIAL TANK PRESSURE TO HEIGHT OF BUILDING PLUS 5 PSI TO HOLD PRESSURE. TANK TO BE COMPLIANT WITH ASME SECTION VIII, DIVISION 1.
FLANGED INLET & OUTLET. VESSEL SHALL BE RATED FOR 125 PSI MAX WORKING PRESSURE.

AIR SEPARATORS

AS-1 (SERVES CHILLED WATER LOOP)
BELL & GOSSETT ROLAIRTROL MODEL R-3F CENTRIFUGAL AIR SEPARATOR, WITH STRAINER. CHILLED WATER FLOW RATE OF 130.2 GPM. COMPLIANT WITH ASME SECTION VIII, DIVISION 1. FLANGED INLET & OUTLET. VESSEL SHALL BE RATED FOR 125 PSI MAX WORKING PRESSURE AND 350 DEG F MAX OPERATING TEMPERATURE.

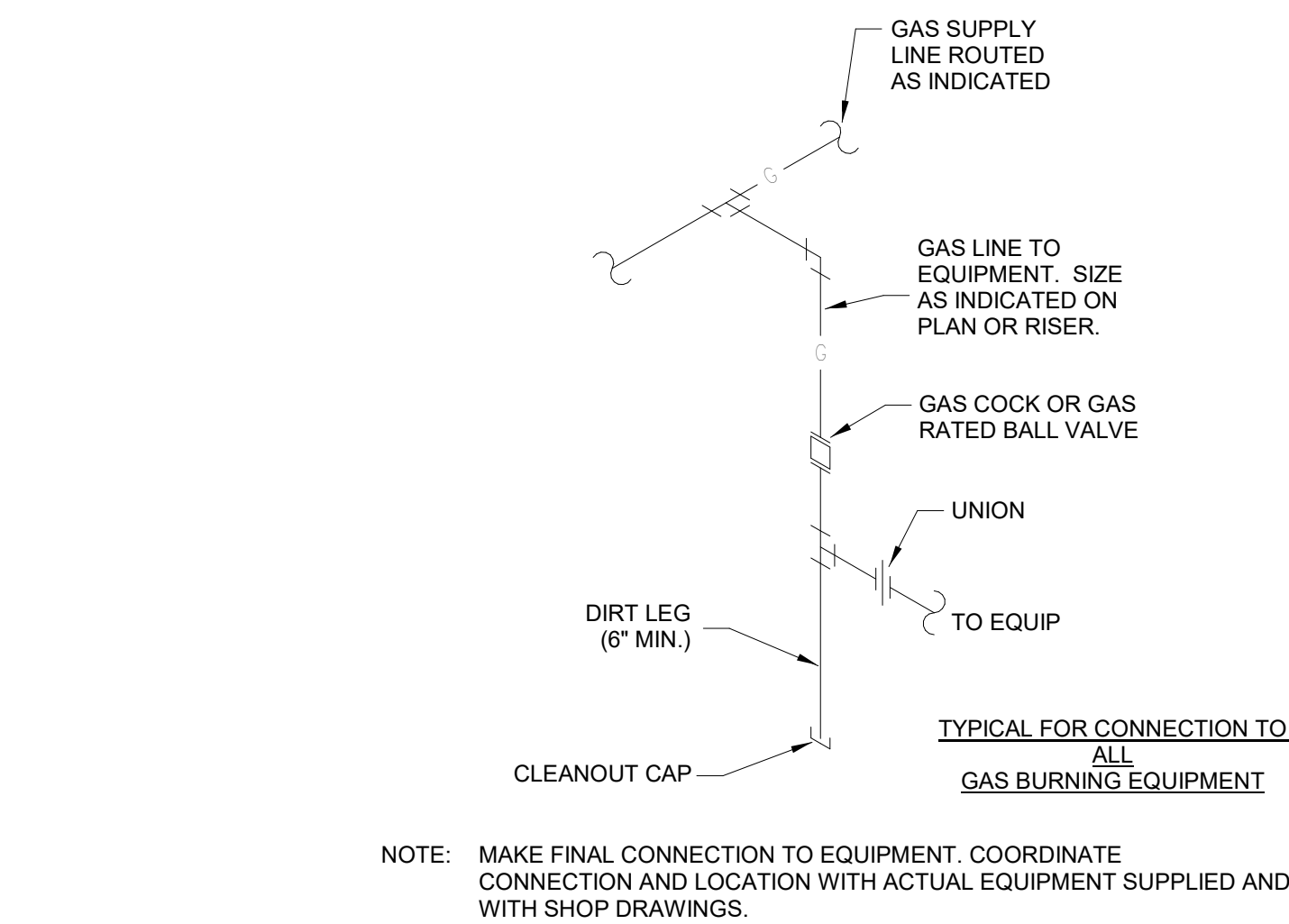
AS-2 (SERVES HEATING HOT WATER LOOP)
BELL & GOSSETT ROLAIRTROL MODEL R-3F CENTRIFUGAL AIR SEPARATOR, WITH STRAINER. HEATING HOT WATER FLOW RATE OF 90.2 GPM. COMPLIANT WITH ASME SECTION VIII, DIVISION 1. FLANGED INLET & OUTLET. VESSEL SHALL BE RATED FOR 125 PSI MAX WORKING PRESSURE AND 350 DEG F MAX OPERATING TEMPERATURE.

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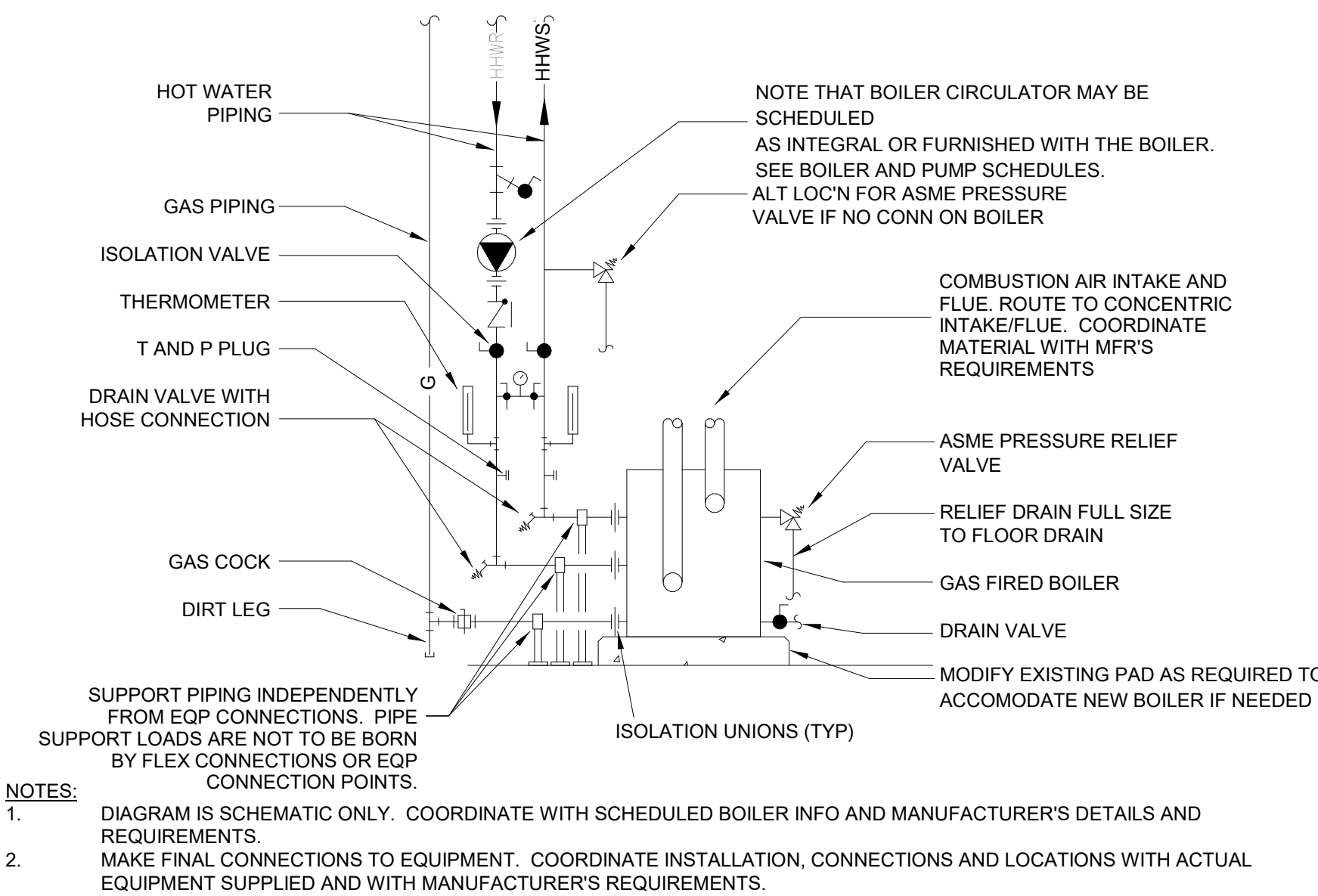
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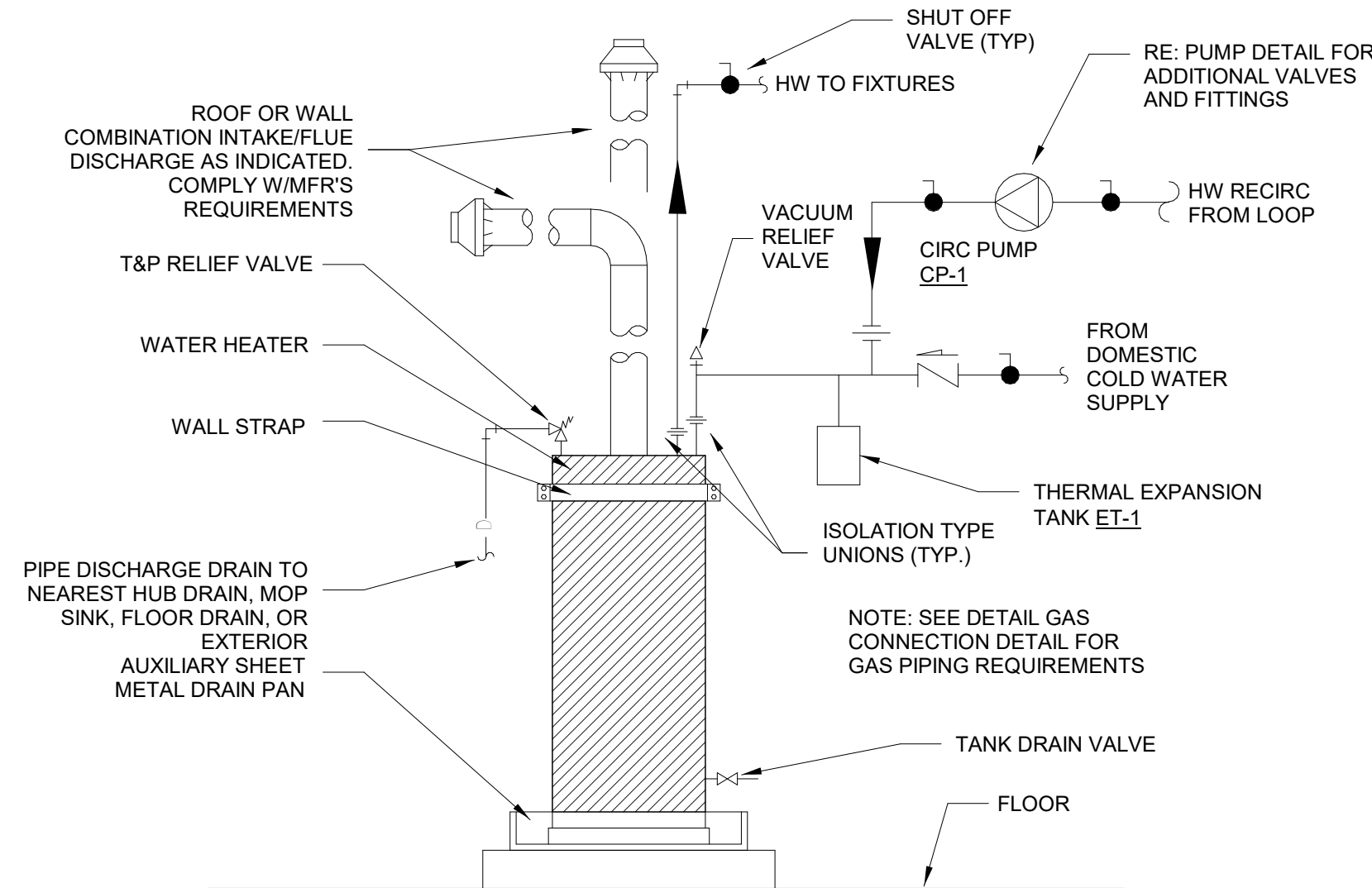
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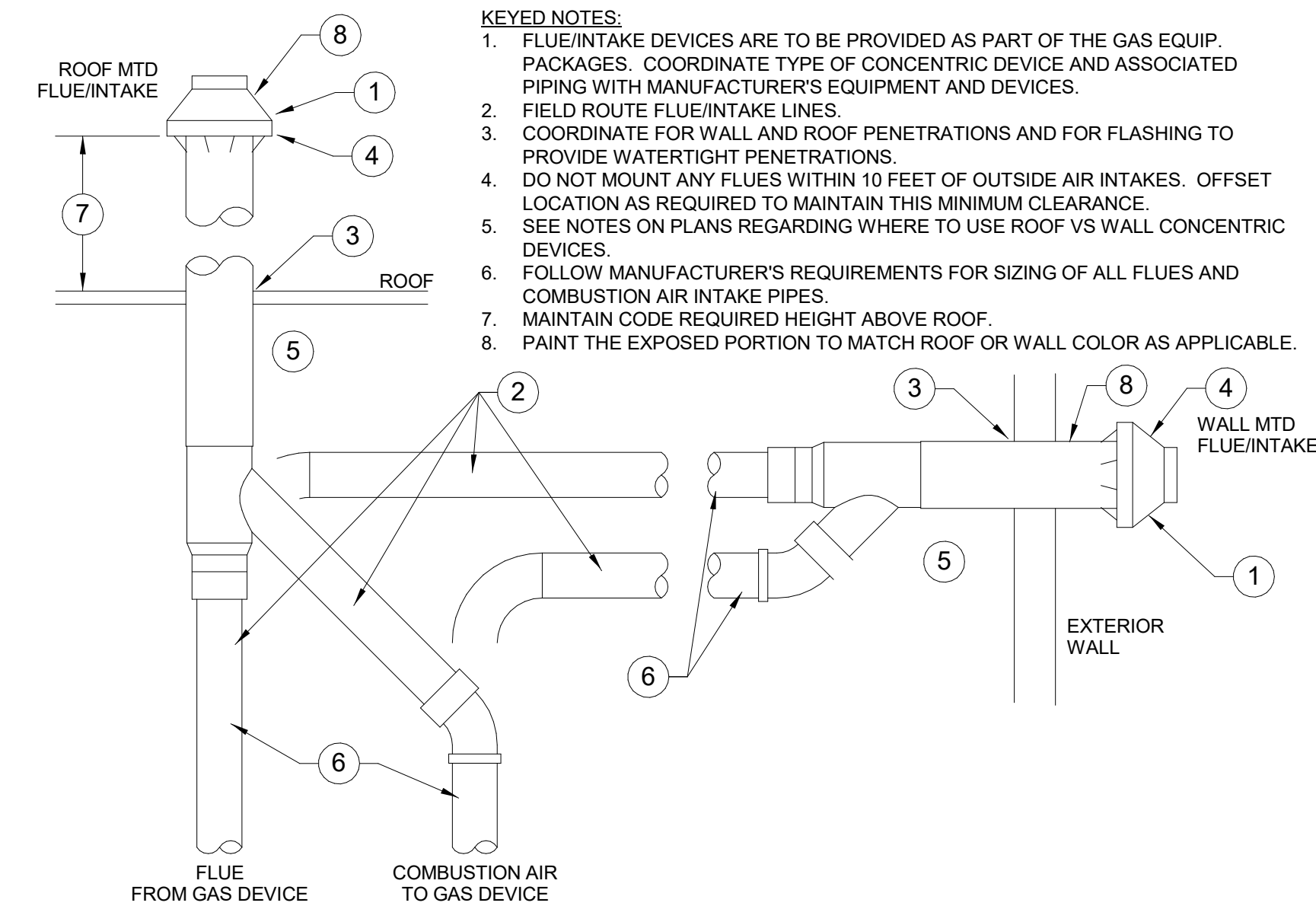
5 DOMESTIC WATER HEATER

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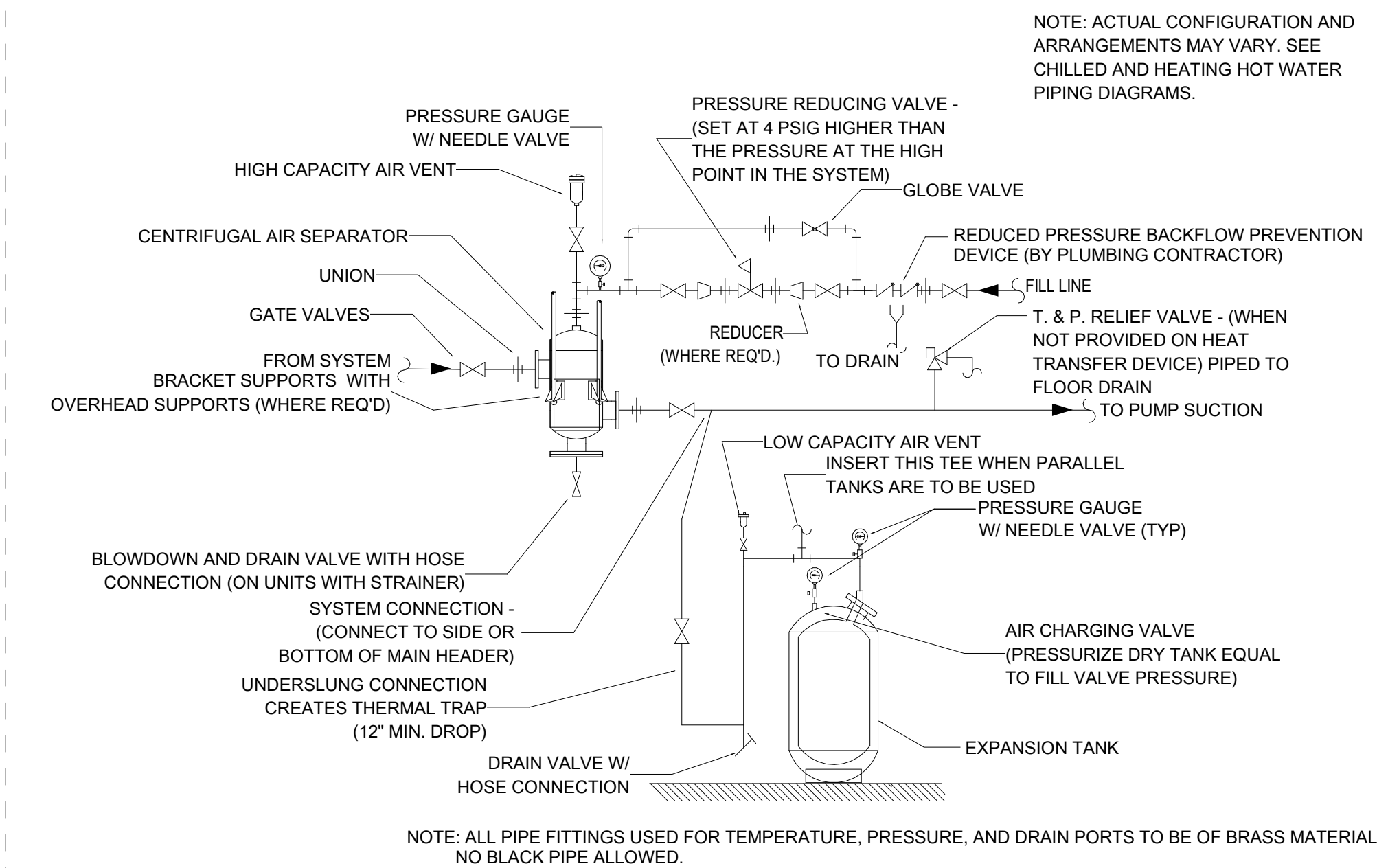
6 ROOF OR WALL MOUNTED CONCENTRIC FLUE/INTAKE

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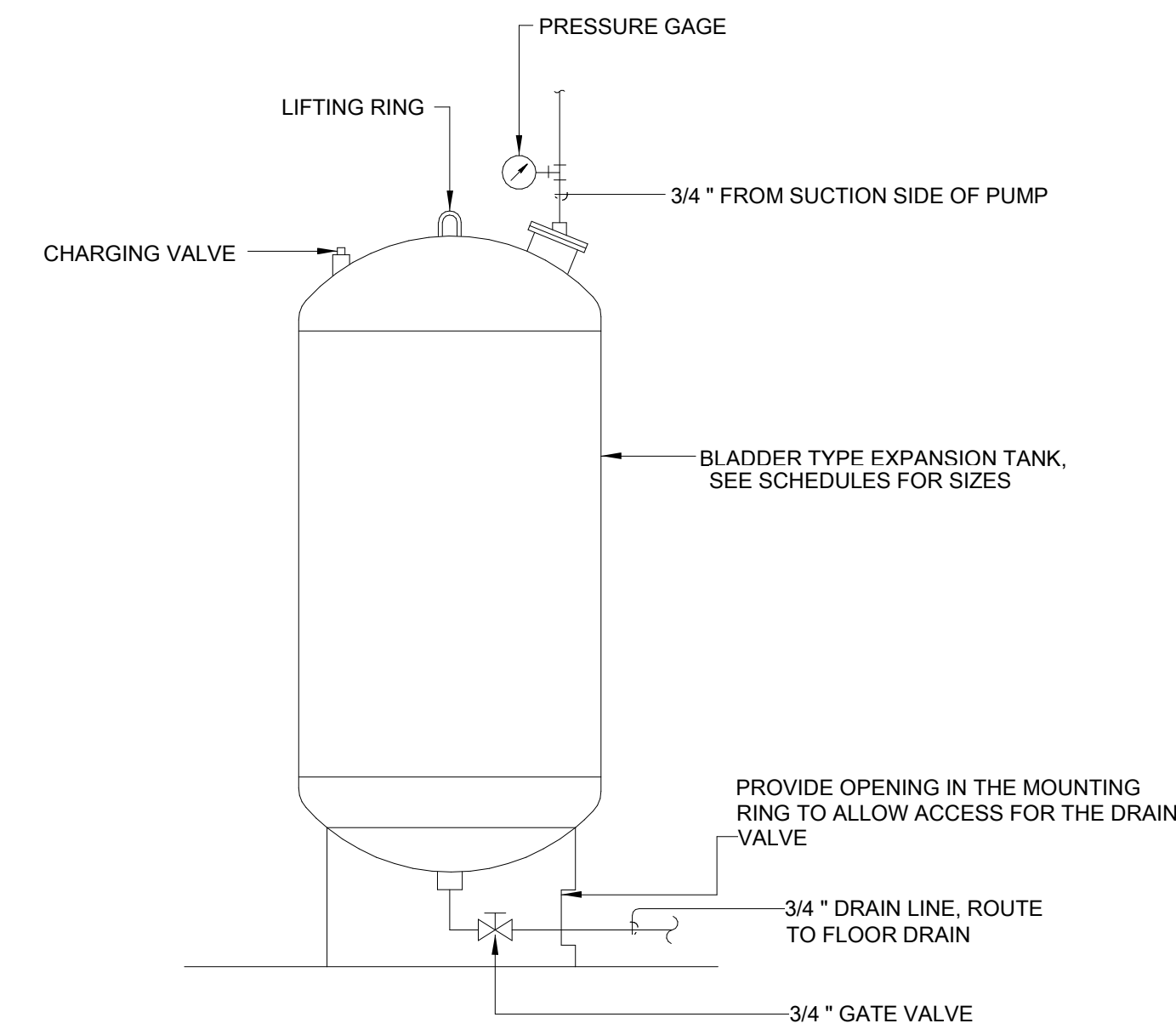
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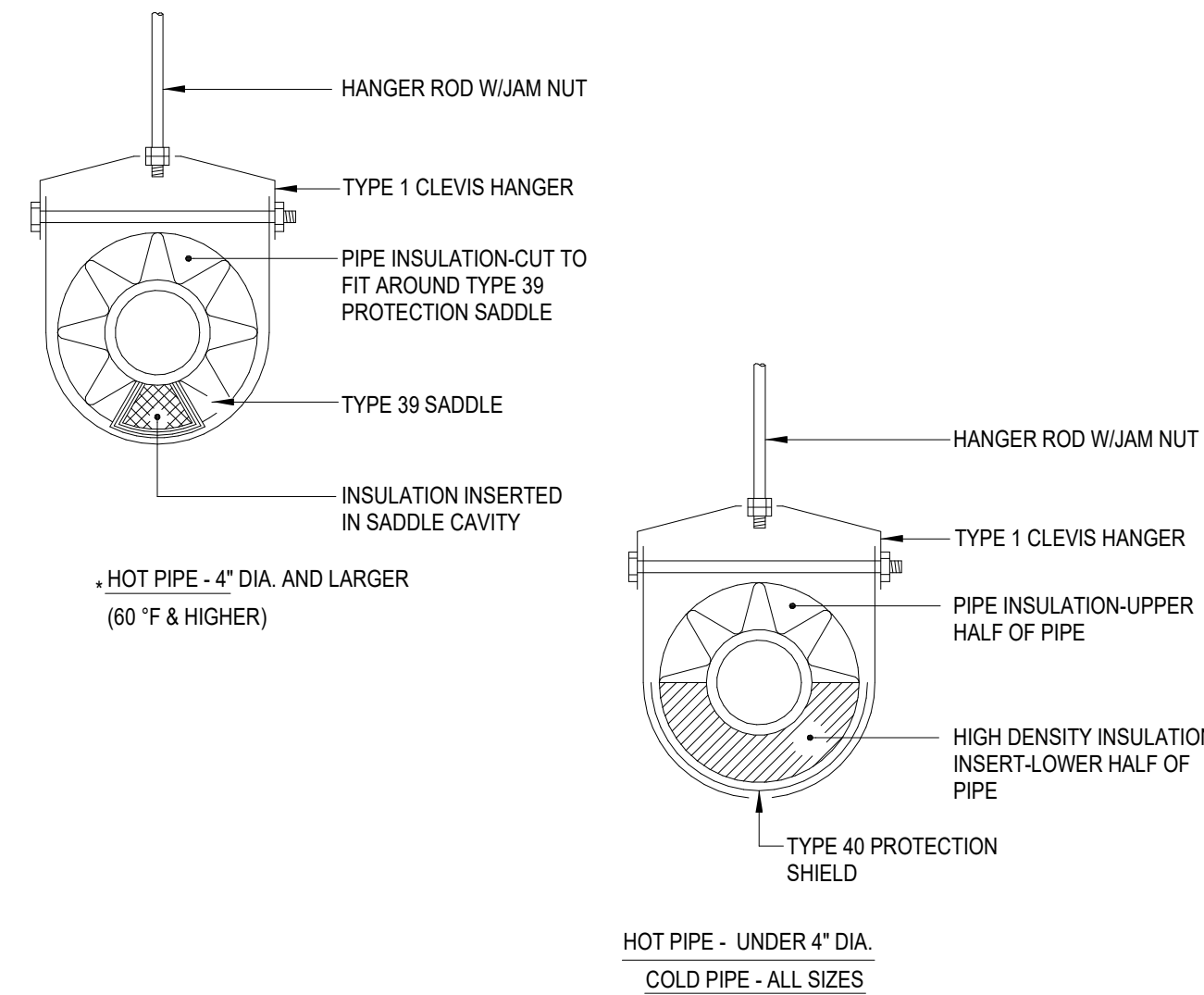
2 EXPANSION TANK

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3 PIPE HANGER INSULATED

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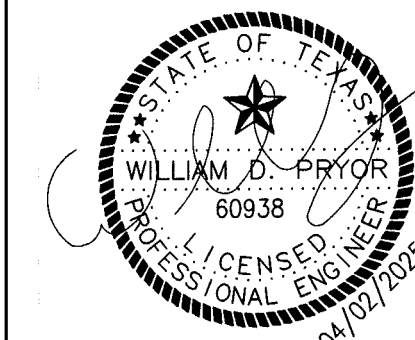


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











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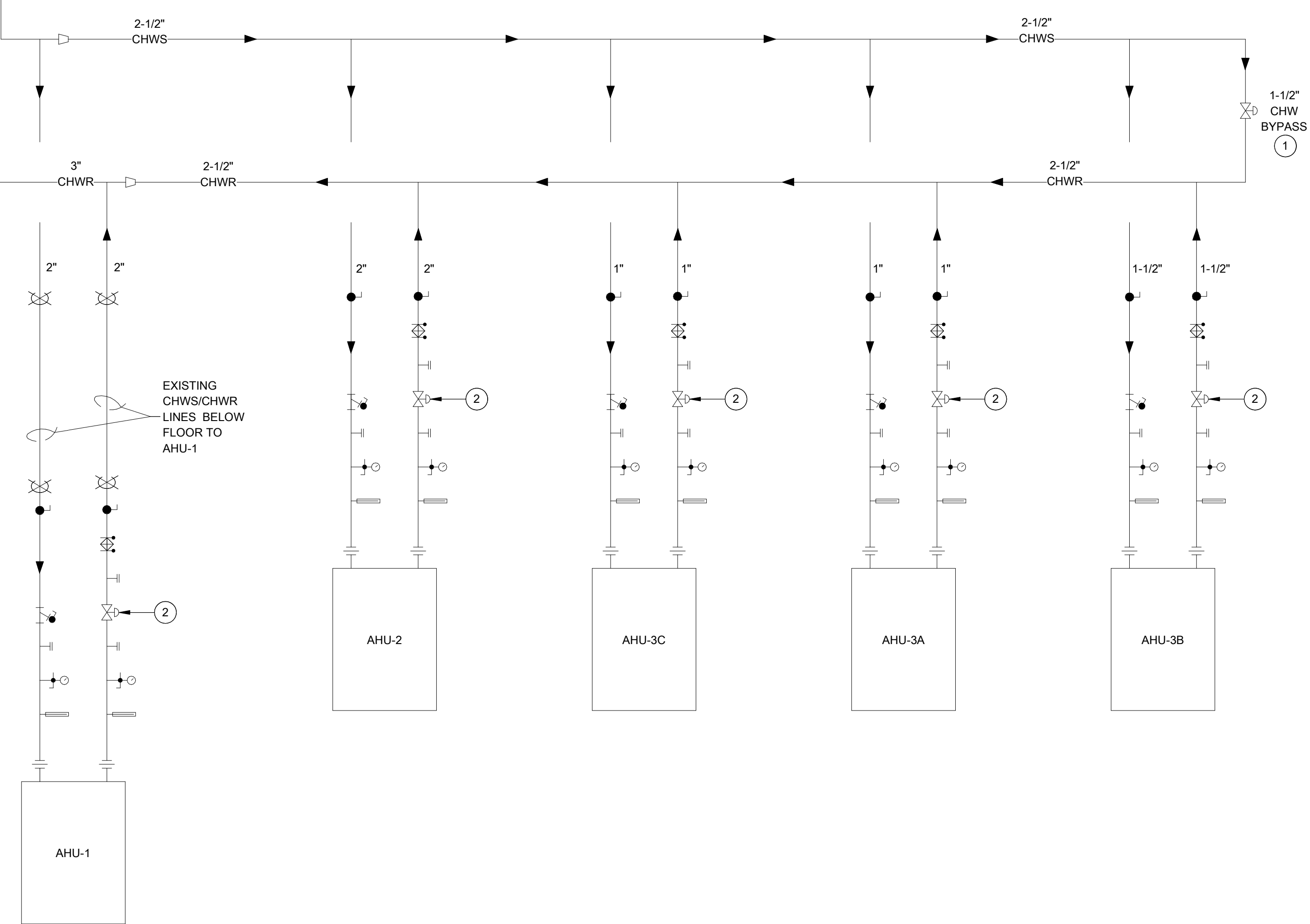
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Issued:	04/2/2025
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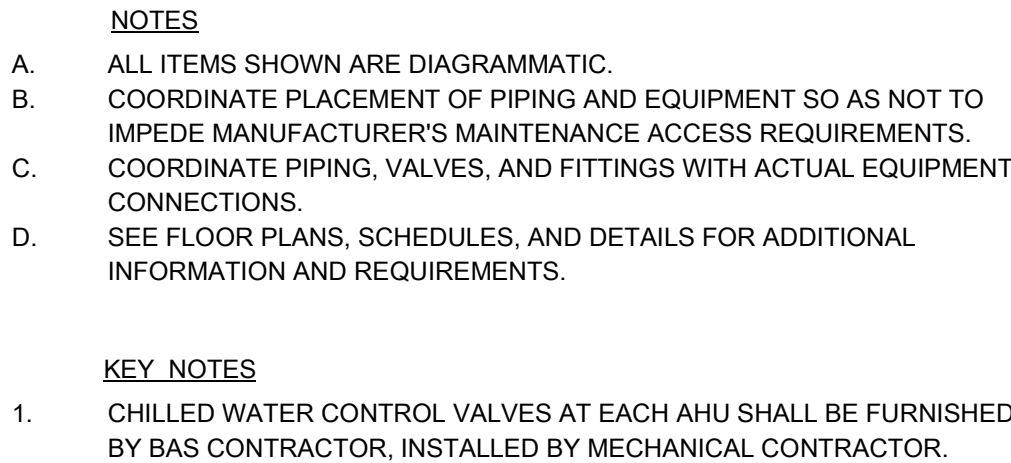
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


SYMBOL	DESCRIPTION
	THERMOMETER
	PRESSURE GAUGE
	TO DRAIN
	FLEXIBLE CONNECTION
	SUCTION DIFFUSER WITH STRAINER
	CHECK VALVE
	BALL VALVE W/CALIBRATED PRESSURE PORTS
	BALANCING VALVE
	BALL VALVE (3" MAX)
	BUTTERFLY VALVE
	GAUGE COCK
	PIPE REDUCER/ENLARGER
	PUMP - FIELD INSTALLED
	PUMP - INTEGRAL TO EQP

- KEY NOTES**
1. BYPASS VALVE SHALL BE FURNISHED BY BAS CONTRACTOR, INSTALLED BY MECHANICAL CONTRACTOR.
 2. CHILLED WATER CONTROL VALVES AT EACH AHU SHALL BE FURNISHED BY BAS CONTRACTOR, INSTALLED BY MECHANICAL CONTRACTOR.

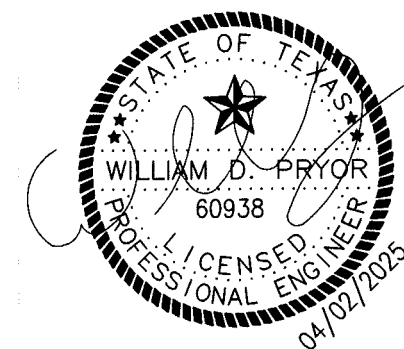


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SYMBOL	DESCRIPTION
	THERMOMETER
	PRESSURE GAUGE
	TO DRAIN
	FLEXIBLE CONNECTION
	SUCTION DIFFUSER WITH STRAINER
	CHECK VALVE
	BALL VALVE W/CALIBRATED PRESSURE PORTS
	BALANCING VALVE
	BALL VALVE (3" MAX)
	BUTTERFLY VALVE
	GAUGE COCK
	PIPE REDUCER/ENLARGER
	PUMP - FIELD INSTALLED
	PUMP - INTEGRAL TO EQP

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AVO:	55881.001
Issued:	04/2/2025
Drawn By:	MH
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Scale:	1/8" = 1'-0"
Sheet Title	
MECHANICAL HOT WATER FLOW DIAGRAM	
 M-402	
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