

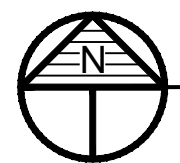
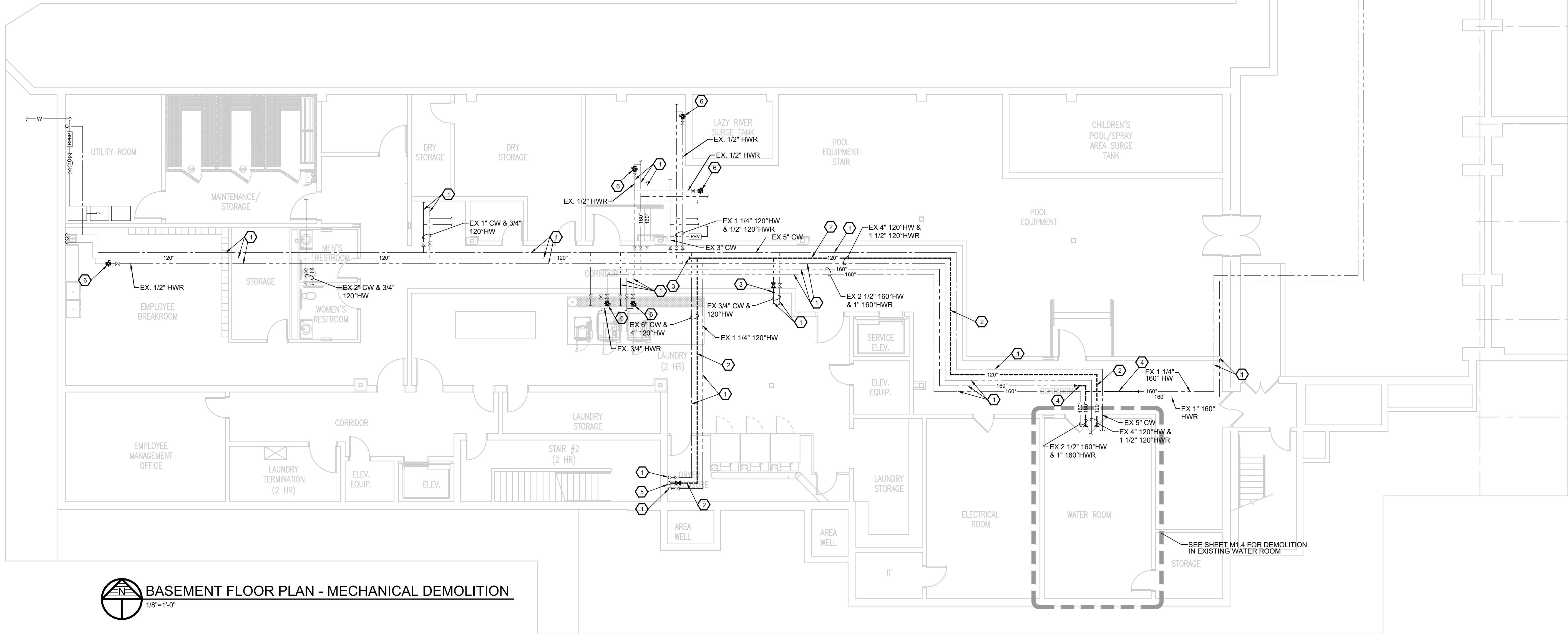
12/20/2025 9:11 AM SHAYNE JAGUIRE SJMAGUIRE@MACMILLANASSOCIATES.COM F:\21-TSFP\2025-270-ZEHNDERS SPLASH VILLAGE - DOMESTIC WATER HEATER UPGRADE\2025-270-M1.1-BEMT.DWG

KEYED NOTES

- EXISTING PIPING SHOWN LIGHT TO REMAIN. (TYP.)
- REMOVE EXISTING 120°F DOMESTIC HOT WATER PIPING SHOWN DARK. (TYP.)
- REMOVE EXISTING PIPING TO LOCATION SHOWN. PREP EXISTING PIPE TO REMAIN FOR CONNECTION TO NEW PIPING.
- REMOVE EXISTING 160°F DOMESTIC HOT WATER PIPING SHOWN DARK.
- EXISTING 4" 120°F DOMESTIC HOT WATER RISER SHALL REMAIN ABANDONED IN WALL ABOVE. REMOVE PIPING TO BOTTOM OF FIRST FLOOR ABOVE AND CAP PIPING TO BE ABANDONED AT FIRST FLOOR. SUPPORT ABANDONED PIPING APPROPRIATELY.
- REMOVE EXISTING HOT WATER RECIRCULATION BALANCE VALVE. PIPING SHALL REMAIN FOR REPLACEMENT.

GENERAL NOTES

- DEMOLITION OF PIPING SHALL INCLUDE ALL ASSOCIATED SUPPORTS, HANGERS, INSULATION, FITTINGS, AND VALVES.
- CONTRACTOR SHALL FIELD VERIFY ALL MATERIALS AND EQUIPMENT SHOWN TO BE REMOVED BEFORE STARTING WORK.
- COORDINATE ALL DEMOLITION WORK WITH NEW WORK, ESPECIALLY IN REGARDS TO NEW CONNECTIONS.
- THE INTENT OF THE DRAWINGS IS TO REMOVE ALL MATERIALS AND EQUIPMENT WITH A DASHED AND DARKER LINE TYPE.
- SEE SHEET M2.4 FOR CONSTRUCTION PHASING INFORMATION.



BASEMENT FLOOR PLAN - MECHANICAL DEMOLITION

1/8"=1'-0"

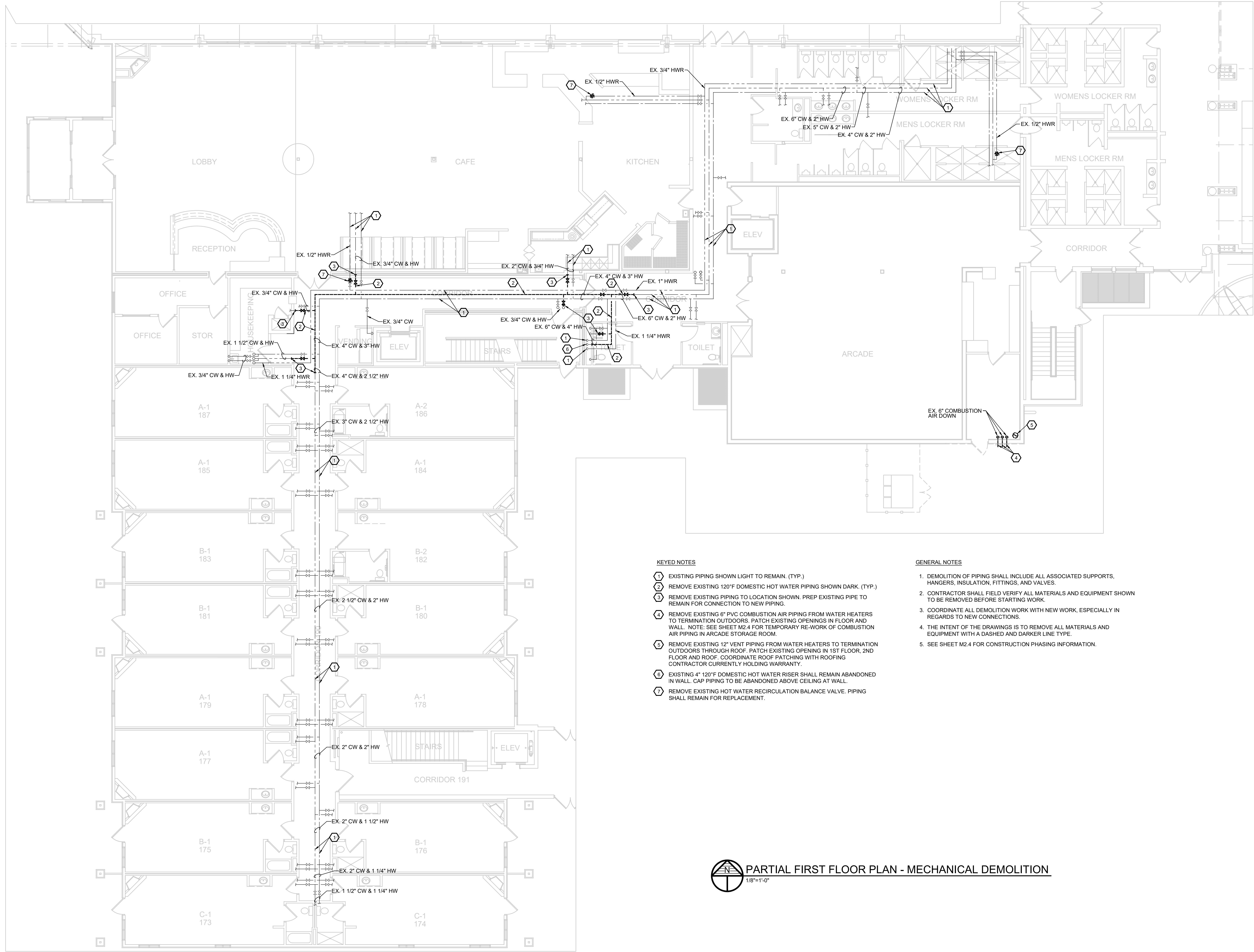
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DATE 12/05/25
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SHEET NO.

M1.1

PROJECT NO.
2529

12/05/2025 9:11 AM SHAYNE JAGUIRE SJMAGUIRE@MACMILLANASSOCIATES.COM F:\07-TSFR\0025-2700-ZEHNDERS SPLASH VILLAGE - DOMESTIC WATER HEATER UPGRADE\0025-2704-M1.2-1ST DEMO

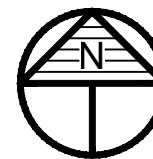


KEYED NOTES

- EXISTING PIPING SHOWN LIGHT TO REMAIN. (TYP.)
- REMOVE EXISTING 120°F DOMESTIC HOT WATER PIPING SHOWN DARK. (TYP.)
- REMOVE EXISTING PIPING TO LOCATION SHOWN. PREP EXISTING PIPE TO REMAIN FOR CONNECTION TO NEW PIPING.
- REMOVE EXISTING 6" PVC COMBUSTION AIR PIPING FROM WATER HEATERS TO TERMINATION OUTDOORS. PATCH EXISTING OPENINGS IN FLOOR AND WALL. NOTE: SEE SHEET M2.4 FOR TEMPORARY RE-WORK OF COMBUSTION AIR PIPING IN ARCADE STORAGE ROOM.
- REMOVE EXISTING 12" VENT PIPING FROM WATER HEATERS TO TERMINATION OUTDOORS THROUGH ROOF. PATCH EXISTING OPENING IN 1ST FLOOR, 2ND FLOOR AND ROOF. COORDINATE ROOF PATCHING WITH ROOFING CONTRACTOR CURRENTLY HOLDING WARRANTY.
- EXISTING 4" 120°F DOMESTIC HOT WATER RISER SHALL REMAIN ABANDONED IN WALL. CAP PIPING TO BE ABANDONED ABOVE CEILING AT WALL.
- REMOVE EXISTING HOT WATER RECIRCULATION BALANCE VALVE. PIPING SHALL REMAIN FOR REPLACEMENT.

GENERAL NOTES

- DEMOLITION OF PIPING SHALL INCLUDE ALL ASSOCIATED SUPPORTS, HANGERS, INSULATION, FITTINGS, AND VALVES.
- CONTRACTOR SHALL FIELD VERIFY ALL MATERIALS AND EQUIPMENT SHOWN TO BE REMOVED BEFORE STARTING WORK.
- COORDINATE ALL DEMOLITION WORK WITH NEW WORK, ESPECIALLY IN REGARDS TO NEW CONNECTIONS.
- THE INTENT OF THE DRAWINGS IS TO REMOVE ALL MATERIALS AND EQUIPMENT WITH A DASHED AND DARKER LINE TYPE.
- SEE SHEET M2.4 FOR CONSTRUCTION PHASING INFORMATION.



PARTIAL FIRST FLOOR PLAN - MECHANICAL DEMOLITION

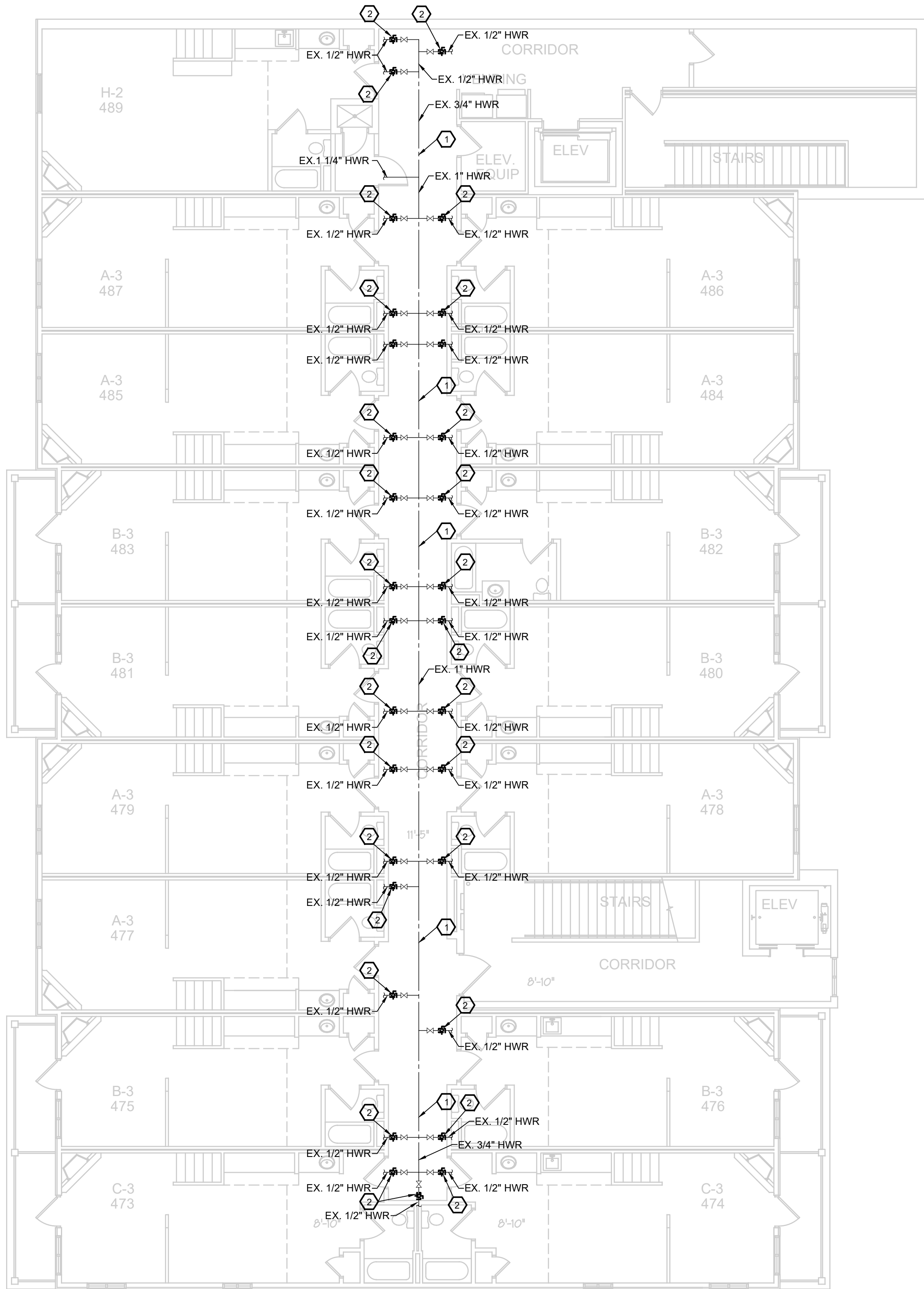


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PROJECT NO.
2529



KEYED NOTES

1. EXISTING 120°F DOMESTIC HOT WATER RETURN PIPING SHOWN LIGHT TO REMAIN. (TYP.)
2. REMOVE EXISTING HOT WATER RECIRCULATION BALANCE VALVE. ONLY REMOVE ENOUGH PIPING AS NEEDED TO REPLACE EXISTING BALANCE VALVE WITH NEW. ALL OTHER HOT WATER RECIRCULATION PIPING IS INTENDED TO REMAIN.

GENERAL NOTES

1. DEMOLITION OF PIPING SHALL INCLUDE ALL ASSOCIATED SUPPORTS, HANGERS, INSULATION, FITTINGS, AND VALVES.
2. CONTRACTOR SHALL FIELD VERIFY ALL MATERIALS AND EQUIPMENT SHOWN TO BE REMOVED BEFORE STARTING WORK.
3. COORDINATE ALL DEMOLITION WORK WITH NEW WORK, ESPECIALLY IN REGARDS TO NEW CONNECTIONS.
4. THE INTENT OF THE DRAWINGS IS TO REMOVE ALL MATERIALS AND EQUIPMENT WITH A DASHED AND DARKER LINE TYPE.
5. SEE SHEET M2.4 FOR CONSTRUCTION PHASING INFORMATION.



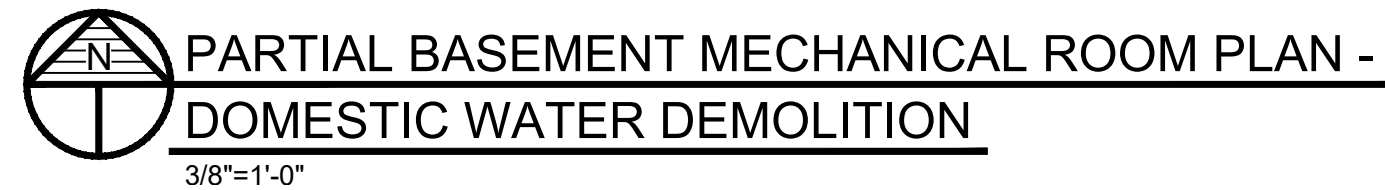
PARTIAL FOURTH FLOOR PLAN - MECHANICAL DEMOLITION

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M1.3

PROJECT NO.
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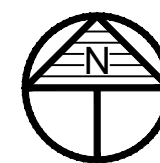


- ① REMOVE EXISTING WATER HEATER AND ASSOCIATED PIPING, CONTROLS, WIRING, CIRCULATION PUMPS, ETC. REMOVE EXISTING HOUSE KEEPING PAD BELOW WATER HEATERS.
- ② REMOVE EXISTING DOMESTIC HOT WATER EXPANSION TANK.
- ③ REMOVE EXISTING DOMESTIC HOT WATER STORAGE TANK. CUT EXISTING TANK PIPES TO FIT THROUGH EXISTING DOORS FOR REMOVAL FROM THE BUILDING. NO EXISTING STRUCTURES SHALL BE REWORKED TO REMOVE EXISTING TANK.
- ④ REMOVE EXISTING ELECTRONIC TEMPERING STATION/MIXING VALVE. RETAIN THE INSTALLATION IN FAN WATER HEATER MECHANICAL ROOM. CARE SHALL BE TAKEN NOT TO DAMAGE THE EXISTING ELECTRONIC TEMPERING STATION/MIXING VALVE. REMOVE ALL CONTROLS, PIPING, VALVES, WIRING, AND STRUCTURE SUPPORTING PIPING ASSOCIATED WITH THE TEMPERING STATION FOR REUSE. VERIFY ALL EQUIPMENT TO REMAIN WITH TEMPERING STATION BEFORE REMOVAL.
- ⑤ EXISTING PIPING SHOWN LIGHT TO REMAIN. (TYP.)
- ⑥ REMOVE EXISTING PIPING SHOWN DARK. (TYP.)
- ⑦ REMOVE EXISTING 6" PVC COMBUSTION AIR PIPING FROM WATER HEATERS TO TERMINATION OUTDOORS. PATCH EXISTING OPENINGS IN FLOOR AND WALL ABOVE. NOTE: SEE SHEET M2.3 FOR TEMPORARY RE-WORK OF COMBUSTION AIR PIPING IN ARCADE STORAGE ROOM ABOVE.
- ⑧ REMOVE EXISTING VENT PIPING FROM WATER HEATERS TO TERMINATION OUTDOORS. PATCH EXISTING OPENING IN FLOOR AND ROOF. COORDINATE ROOF PATCHING WITH ROOFING CONTRACTOR CURRENTLY HOLDING WARRANTY.
- ⑨ REMOVE EXISTING EXHAUST FAN AND ASSOCIATED CONTROLS, WIRING, ETC.
- ⑩ REMOVE EXISTING DOMESTIC HOT WATER RECIRCULATION PUMP AND ASSOCIATED CONTROLS, WIRING, ETC.

1. DEMOLITION OF PIPING SHALL INCLUDE ALL ASSOCIATED SUPPORTS, HANGERS, INSULATION, FITTINGS, VALVES, CONTROL DEVICES, AND CONTROL WIRING.
2. CONTRACTOR SHALL FIELD VERIFY ALL MATERIALS AND EQUIPMENT SHOWN TO BE REMOVED BEFORE STARTING WORK.
3. COORDINATE ALL DEMOLITION WORK WITH NEW WORK, ESPECIALLY IN REGARDS TO NEW CONNECTIONS.
4. THE INTENT OF THE DRAWINGS IS TO REMOVE ALL MATERIALS AND EQUIPMENT WITH A DASHED AND DARKER LINE TYPE.
5. SEE SHEET M2.4 FOR CONSTRUCTION PHASING INFORMATION.

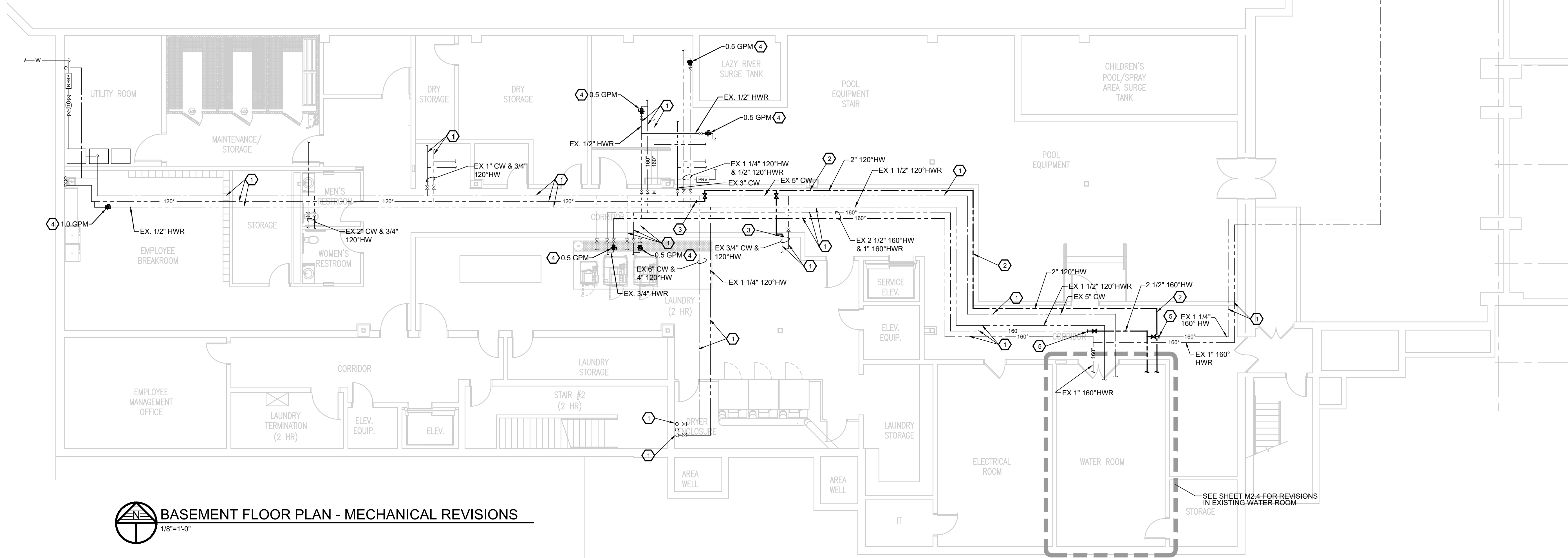


12/20/2025 11:00 AM SHAYNE JAGUIRE SJMAGUIRE@MACMILLANASSOCIATES.COM F:\21-TSFR0025-270-ZEHNDERS SPLASH VILLAGE - DOMESTIC WATER HEATER UPGRADES\2025-270-M2.1-REMT-REVISIONS



BASEMENT FLOOR PLAN - MECHANICAL REVISIONS

1/8"=1'-0"



KEYED NOTES

- EXISTING PIPING SHOWN LIGHT TO REMAIN. (TYP.)
- NEW 120°F DOMESTIC HOT WATER PIPING ROUTED HIGH IN CORRIDOR SPACE TO MATCH ELEVATION OF EXISTING PIPING TO REMAIN. FIELD VERIFY EXACT ROUTING. (TYP.)
- CONNECT NEW 120°F DOMESTIC HOT WATER PIPING TO EXISTING 120°F DOMESTIC HOT WATER PIPING. INCLUDE ISOLATION SHUT-OFF VALVE AT EACH CONNECTION POINT. SIZE OF VALVE SHALL MATCH EXISTING PIPE SIZE.
- FURNISH AND INSTALL NEW MANUAL BALANCE VALVE AT LOCATION SHOWN. SET TO GPM SHOWN ON DRAWING.
- CONNECT NEW 160°F DOMESTIC HOT WATER PIPING TO EXISTING 160°F DOMESTIC HOT WATER PIPING. INCLUDE ISOLATION SHUT-OFF VALVE AT EACH CONNECTION POINT. SIZE OF VALVE SHALL MATCH EXISTING PIPE SIZE.

GENERAL NOTES

- DO NOT ROUTE ANY PIPING DIRECTLY ABOVE OR WITHIN 42" OF THE FACE OF ELECTRICAL DISCONNECTS, OR CONTROL PANELS, OR ELECTRICAL EQUIPMENT.
- WORK SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL CODES AND REGULATIONS. ALL INSTALLATIONS SHALL FOLLOW INDUSTRY STANDARD BEST PRACTICES AND MANUFACTURER'S IOM AND RECOMMENDED PROCEDURES.
- COORDINATE ROUTING AND LOCATIONS OF PIPING PRIOR TO INSTALLING. THE MECHANICAL TRADE SHALL BE RESPONSIBLE FOR REMOVAL AND REINSTALLATION OF ANY PIPING, DUCTWORK, ETC. THAT HAS NOT BEEN PROPERLY COORDINATED AS NECESSARY, TO ALLOW PROPER COORDINATION/LOCATION OF ALL SYSTEMS.
- FURNISH AND INSTALL ISOLATION BALL VALVES ON ALL BRANCH CW AND HW PIPING SERVING EACH FIXTURE OR PIECE OF EQUIPMENT.
- SEE SHEET M2.4 FOR CONSTRUCTION PHASING INFORMATION.

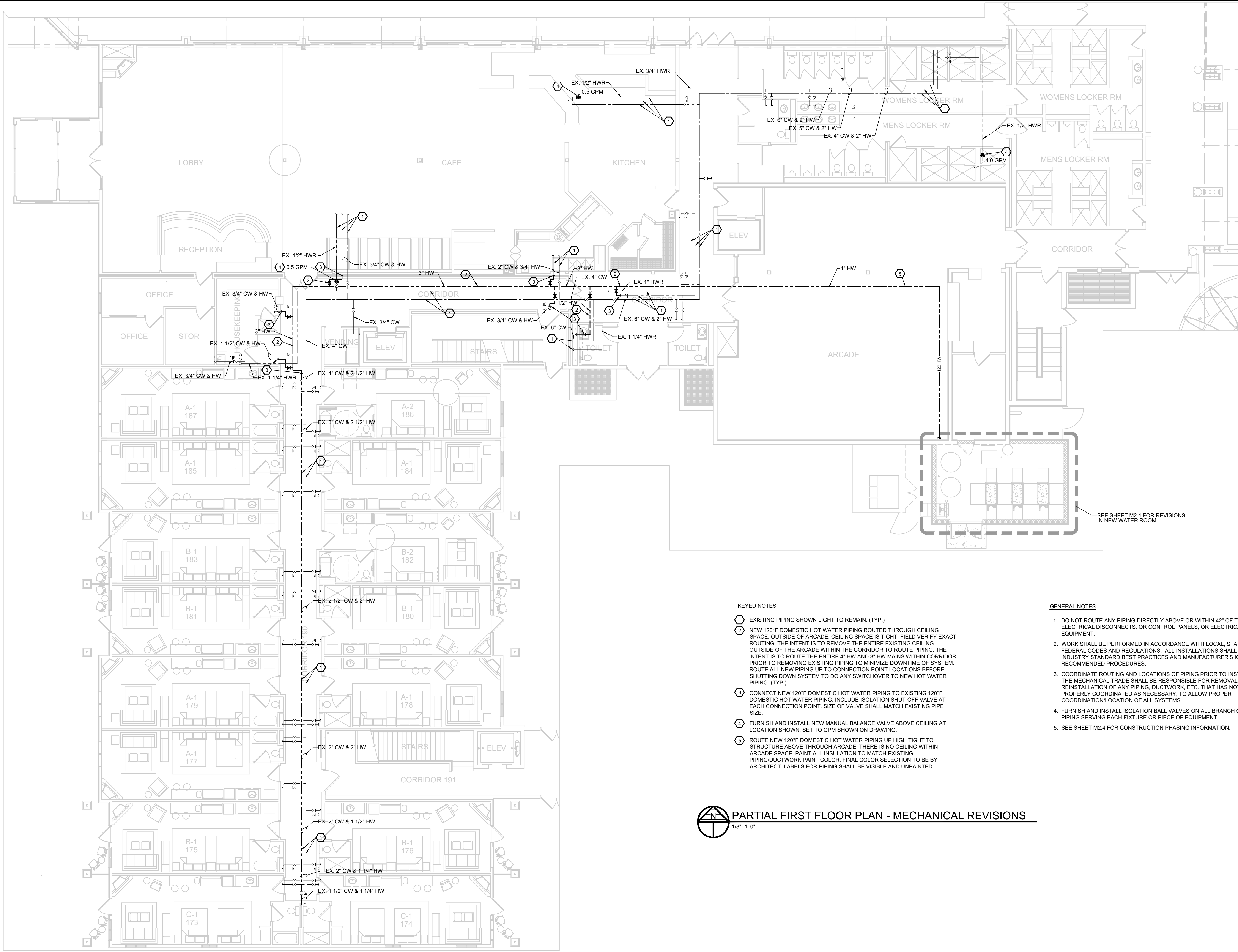
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PROJECT NO.
2529

12/20/2025 11:01 AM SHAYNE JAGUIRE SJMAGUIRE@MACMILLANASSOCIATES.COM F:\07-TSFR0025-2700-ZEHNDERS'SPLASH VILLAGE - DOMESTIC WATER HEATER UPGRADES\0025-2704-M2.2-1ST REVISIONS



KEYED NOTES

- 1 EXISTING PIPING SHOWN LIGHT TO REMAIN. (TYP.)
- 2 NEW 120°F DOMESTIC HOT WATER PIPING ROUTED THROUGH CEILING SPACE. OUTSIDE OF ARCADE, CEILING SPACE IS TIGHT. FIELD VERIFY EXACT ROUTING. THE INTENT IS TO REMOVE THE ENTIRE EXISTING CEILING OUTSIDE OF THE ARCADE WITHIN THE CORRIDOR TO ROUTE PIPING. THE INTENT IS TO ROUTE THE ENTIRE 4" HW AND 3" HW MAINS WITHIN CORRIDOR PRIOR TO REMOVING EXISTING PIPING TO MINIMIZE DOWNTIME OF SYSTEM. ROUTE ALL NEW PIPING UP TO CONNECTION POINT LOCATIONS BEFORE SHUTTING DOWN SYSTEM TO DO ANY SWITCHOVER TO NEW HOT WATER PIPING. (TYP.)
- 3 CONNECT NEW 120°F DOMESTIC HOT WATER PIPING TO EXISTING 120°F DOMESTIC HOT WATER PIPING. INCLUDE ISOLATION SHUT-OFF VALVE AT EACH CONNECTION POINT. SIZE OF VALVE SHALL MATCH EXISTING PIPE SIZE.
- 4 FURNISH AND INSTALL NEW MANUAL BALANCE VALVE ABOVE CEILING AT LOCATION SHOWN. SET TO GPM SHOWN ON DRAWING.
- 5 ROUTE NEW 120°F DOMESTIC HOT WATER PIPING UP HIGH TIGHT TO STRUCTURE ABOVE THROUGH ARCADE. THERE IS NO CEILING WITHIN ARCADE SPACE. PAINT ALL INSULATION TO MATCH EXISTING PIPING/DUCTWORK PAINT COLOR. FINAL COLOR SELECTION TO BE BY ARCHITECT. LABELS FOR PIPING SHALL BE VISIBLE AND UNPAINTED.

GENERAL NOTES

1. DO NOT ROUTE ANY PIPING DIRECTLY ABOVE OR WITHIN 42" OF THE FACE OF ELECTRICAL DISCONNECTS, OR CONTROL PANELS, OR ELECTRICAL EQUIPMENT.
2. WORK SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL CODES AND REGULATIONS. ALL INSTALLATIONS SHALL FOLLOW INDUSTRY STANDARD BEST PRACTICES AND MANUFACTURER'S IOM AND RECOMMENDED PROCEDURES.
3. COORDINATE ROUTING AND LOCATIONS OF PIPING PRIOR TO INSTALLING. THE MECHANICAL TRADE SHALL BE RESPONSIBLE FOR REMOVAL AND REINSTALLATION OF ANY PIPING, DUCTWORK, ETC. THAT HAS NOT BEEN PROPERLY COORDINATED AS NECESSARY. TO ALLOW PROPER COORDINATION/LOCATION OF ALL SYSTEMS.
4. FURNISH AND INSTALL ISOLATION BALL VALVES ON ALL BRANCH CW AND HW PIPING SERVING EACH FIXTURE OR PIECE OF EQUIPMENT.
5. SEE SHEET M2.4 FOR CONSTRUCTION PHASING INFORMATION.



PARTIAL FIRST FLOOR PLAN - MECHANICAL REVISIONS

1/8"=1'-0"



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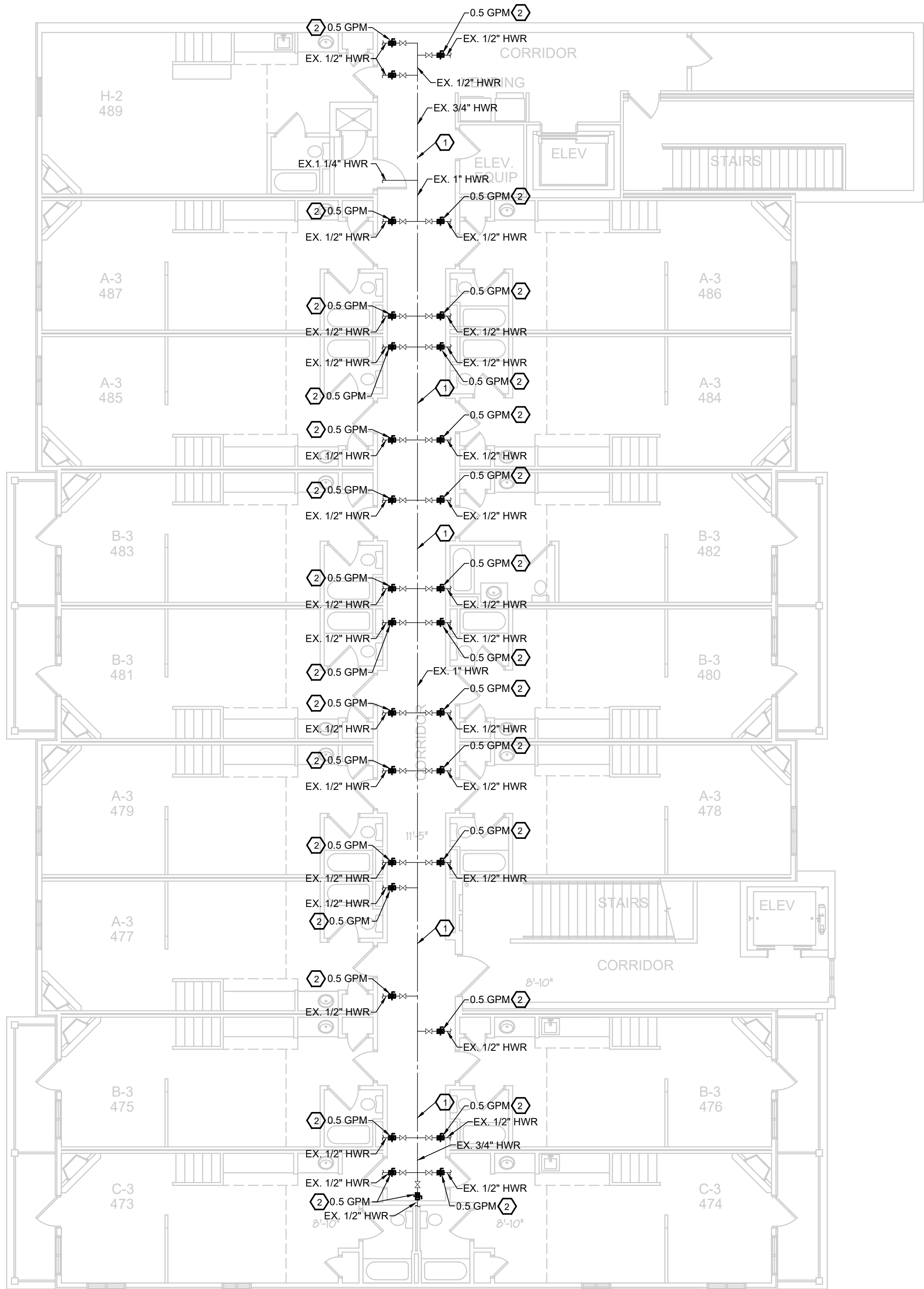
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M2.2

PROJECT NO.
2529

12/20/2025 9:09 AM F:\07-TSIFR0025-2700-ZEHNDERS SPLASH VILLAGE - DOMESTIC WATER HEATER UPGRADE\2025-2704-M2.3-1TH REVISIONS SHAYNE JAGUIRE SJMAGUIRE@MACMILLANASSOCIATES.COM



PARTIAL FOURTH FLOOR PLAN - MECHANICAL DEMOLITION

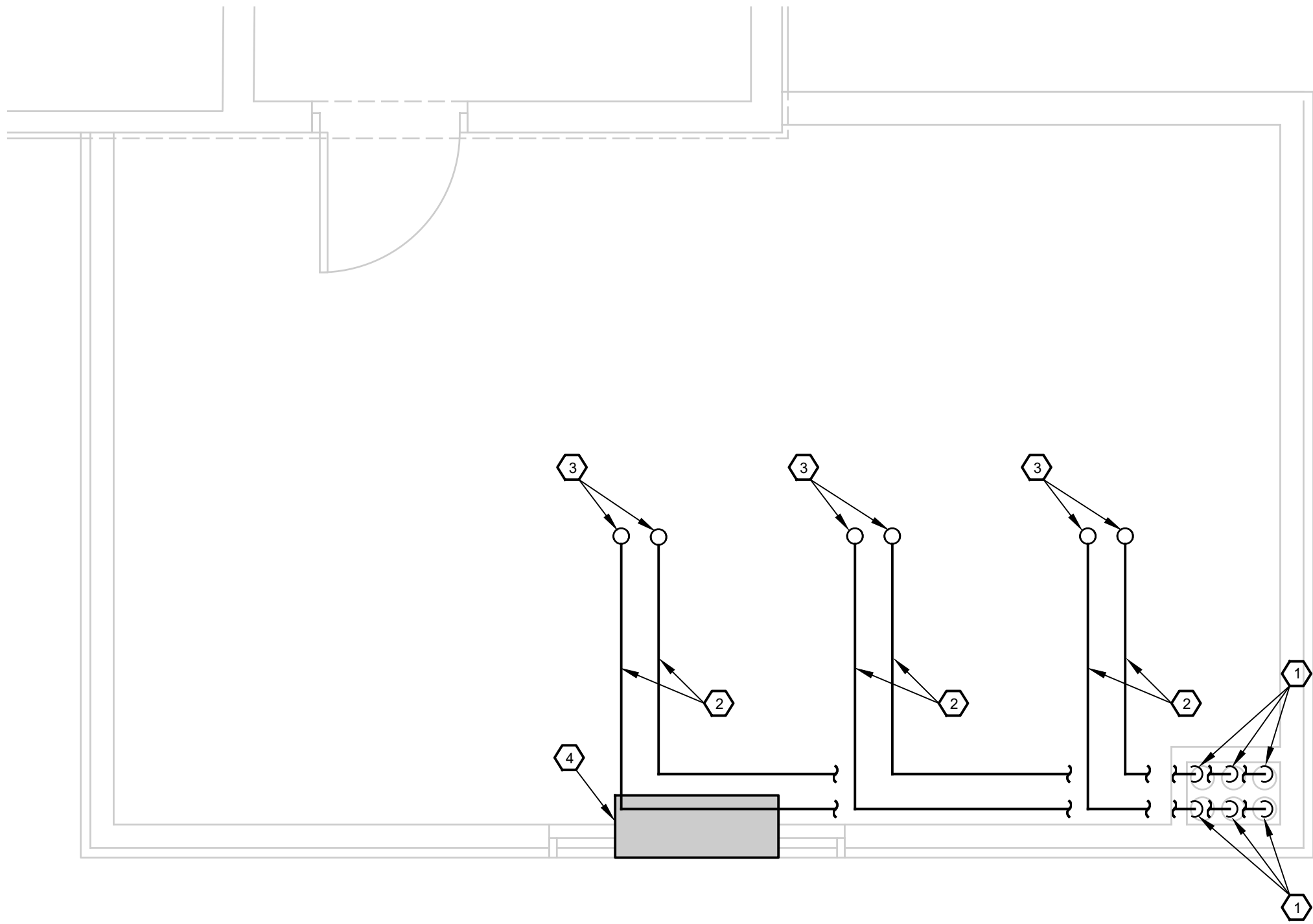
KEYED NOTES

1. EXISTING 120°F DOMESTIC HOT WATER RETURN PIPING SHOWN LIGHT TO REMAIN. (TYP.)
2. FURNISH AND INSTALL NEW MANUAL BALANCE VALVE ABOVE CEILING AT LOCATION SHOWN. SET TO GPM SHOWN ON DRAWING.

GENERAL NOTES

1. DO NOT ROUTE ANY PIPING DIRECTLY ABOVE OR WITHIN 42" OF THE FACE OF ELECTRICAL DISCONNECTS, OR CONTROL PANELS, OR ELECTRICAL EQUIPMENT.
2. WORK SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL CODES AND REGULATIONS. ALL INSTALLATIONS SHALL FOLLOW INDUSTRY STANDARD BEST PRACTICES AND MANUFACTURER'S IOM AND RECOMMENDED PROCEDURES.
3. COORDINATE ROUTING AND LOCATIONS OF PIPING PRIOR TO INSTALLING. THE MECHANICAL TRADE SHALL BE RESPONSIBLE FOR REMOVAL AND REINSTALLATION OF ANY PIPING, DUCTWORK, ETC. THAT HAS NOT BEEN PROPERLY COORDINATED AS NECESSARY, TO ALLOW PROPER COORDINATION/LOCATION OF ALL SYSTEMS.
4. FURNISH AND INSTALL ISOLATION BALL VALVES ON ALL BRANCH CW AND HW PIPING SERVING EACH FIXTURE OR PIECE OF EQUIPMENT.
5. SEE SHEET M2.4 FOR CONSTRUCTION PHASING INFORMATION.

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PARTIAL SECOND FLOOR STORAGE ROOM PLAN -
HVAC AND VENTING REVISIONS

3/8"=1'-0"

KEYED NOTES

- 1 NEW 6" COMBUSTION AIR AND VENT PIPING ROUTED UP THROUGH CHASE FROM WATER ROOM BELOW.
- 2 NEW 6" COMBUSTION AIR AND VENT PIPING ROUTED THROUGH CEILING SPACE.
- 3 ROUTE NEW 6" COMBUSTION AIR AND VENT PIPING UP. PENETRATE ROOF AND TERMINATE PER MANUFACTURERS REQUIREMENTS. FLASH OPENINGS PER ROOF MANUFACTURER'S REQUIREMENTS.
- 4 INSTALL OWNER FURNISHED PTAC UNIT BELOW WINDOW. INSTALL PER MANUFACTURERS REQUIREMENTS. COORDINATE WITH OWNER.

GENERAL NOTES

- 1. TERMINATE SEPARATED BOILER COMBUSTION AIR INTAKES WITH THE OPENING OF THE PIPING DOWN TURNED 180 DEGREES. THE OPENING OF THE COMBUSTION AIR INTAKE SHALL BE A MINIMUM OF 22" ABOVE THE ROOF.
- 2. TERMINATE SEPARATED BOILER AND WATER HEATER FLUE VENTS A MINIMUM OF 24" ABOVE THE INLET OF THE COMBUSTION AIR INTAKE.
- 3. DO NOT ROUTE ANY PIPING DIRECTLY ABOVE OR WITHIN 42" OF THE FACE OF ELECTRICAL DISCONNECTS, OR CONTROL PANELS, OR ELECTRICAL EQUIPMENT.
- 4. WORK SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL CODES AND REGULATIONS. ALL INSTALLATIONS SHALL FOLLOW INDUSTRY STANDARD BEST PRACTICES AND MANUFACTURER'S IOM AND RECOMMENDED PROCEDURES.
- 5. COORDINATE ROUTING AND LOCATIONS OF PIPING PRIOR TO INSTALLING. THE MECHANICAL TRADE SHALL BE RESPONSIBLE FOR REMOVAL AND REINSTALLATION OF ANY PIPING, DUCTWORK, ETC. THAT HAS NOT BEEN PROPERLY COORDINATED AS NECESSARY. TO ALLOW PROPER COORDINATION/LOCATION OF ALL SYSTEMS.
- 6. SEE SHEET M2.4 FOR CONSTRUCTION PHASING INFORMATION.

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1/20/2025 4:16 PM SHAYNE IMAGUIRE (BAGUIRE@MACMILLANASSOCIATES.COM) F:\27-TSFP\2025-270-ZEHNDERS SPLASH VILLAGE - DOMESTIC WATER HEATER (UPGRADE)2025-2704-M3.1-SCHED.DETAILS

GENERAL MECHANICAL NOTES

- THE MECHANICAL TRADES SHALL FAMILIARIZE THEMSELVES WITH ALL EXISTING AND NEW CONDITIONS, THESE DRAWINGS, ADDENDA & RELATED SPECIFICATIONS. THEY SHALL COMPLETELY SATISFY THEMSELVES AS TO THE CONDITIONS TO WHICH THE WORK IS TO BE PERFORMED BEFORE SUBMITTING THEIR BID. NO ALLOWANCES OR CONSIDERATIONS WILL BE GIVEN AT A LATER DATE FOR ALLEGED MISUNDERSTANDINGS AS TO THE REQUIREMENTS OF THE WORK. MATERIALS TO BE FURNISHED OR CONDITIONS REQUIRED BY THE NATURE OF THIS PROJECT SITE DUE TO NEGLECT ON THE BIDDERS PART TO MAKE SUCH AN EXAMINATION AND COORDINATION.
- DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW APPROXIMATE LOCATION AND GENERAL ARRANGEMENT OF SYSTEMS AND EQUIPMENT. DRAWINGS SHALL NOT BE SCALED FOR LOCATION OF SYSTEMS, EQUIPMENT, ETC. ALL LOCATIONS OF SYSTEMS AND EQUIPMENT SHALL BE VERIFIED IN FIELD AND COORDINATED WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS. SOME SYSTEMS (PIPING, DUCTWORK, ETC.) AND EQUIPMENT LOCATIONS MAY REQUIRE CHANGES IN LOCATION DUE TO FIELD CONDITIONS AND COORDINATION WITH OTHER TRADES. THESE CHANGES SHALL BE MADE WITH NO ADDITIONAL COST TO THE OWNER. FAILURE TO VERIFY AND COORDINATE WILL BE NO REASON FOR ADDITIONAL COMPENSATION.
- THE INSTALLATION OF ALL SYSTEMS, EQUIPMENT, ETC., IS SUBJECT TO CLARIFICATION WITH SUBMITTED SHOP DRAWINGS AND FIELD COORDINATION REQUIREMENTS. EQUIPMENT OUTLINES SHOWN ON DRAWINGS OR DIMENSIONED ON DRAWINGS ARE LIMITING DIMENSIONS. ANY EQUIPMENT THAT REDUCES THE INDICATED CLEARANCES OR EXCEEDS SPECIFIED OR SCHEDULED EQUIPMENT DIMENSIONS SHALL NOT BE USED.
- THE MECHANICAL CONTRACTOR SHALL COORDINATE FINAL LOCATION OF ALL EQUIPMENT WITH PIPING, DUCTWORK, ETC., AT THE TIME OF ROUGH-IN. ALL EQUIPMENT TO BE SERVICEABLE. ABOVE CEILING EQUIPMENT SHALL BE WITHIN 18" OF CEILING WITHOUT ANY OBSTRUCTIONS AND SHALL HAVE ALL SERVICE AND ACCESS SPACES KEPT CLEAR. PERFORM ABOVE CEILING COORDINATION WITH ALL TRADES.
- THESE DRAWINGS AND THE ASSOCIATED SPECIFICATIONS ARE INTENDED TO PROVIDE COMPLETELY FURNISHED, INSTALLED AND OPERATIONAL MECHANICAL SYSTEM (HEATING, VENTILATING, AIR CONDITIONING, PLUMBING AND PIPING, ETC.). IF THESE DRAWINGS AND ASSOCIATED SPECIFICATIONS HAVE INFORMATION OMITTED THAT WOULD NOT ALLOW A COMPLETELY OPERATIONAL SYSTEM AS IS THE INTENT OF THE ENGINEER, THE BIDDER SHALL NOTIFY THE ENGINEER A MINIMUM ONE WEEK PRIOR TO THE BID DATE TO ALLOW FOR ADDENDA. ONCE BIDS HAVE BEEN RECEIVED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MATERIAL, LABOR, ETC., TO FURNISH AND INSTALL A COMPLETELY OPERATIONAL MECHANICAL SYSTEM AS IS THE INTENT OF THESE DRAWINGS AND ASSOCIATED SPECIFICATION. ALL EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS. IF ANY DISCREPANCIES ARE ON DRAWINGS, AS COMPARED TO MANUFACTURER'S INSTALLATION INSTRUCTIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND INSTALL EQUIPMENT AS REQUIRED AT NO ADDITIONAL COST TO THE PROJECT.
- THE MECHANICAL TRADES SHALL TAKE OUT ALL PERMITS AND ARRANGE FOR NECESSARY INSPECTIONS AND SHALL PAY ALL FEES AND COSTS.
- THE MECHANICAL TRADES SHALL VERIFY AMOUNT OF EXISTING PIPING, VALVES, DUCTWORK, ETC. TO BE REMOVED OR RELOCATED TO ALLOW FOR INSTALLATION OF NEW PIPING, DUCTWORK, VALVES, EQUIPMENT, WALLS, ETC. ALL ABANDONED PIPING, VALVES, ETC., SHALL BE REMOVED.
- THE MECHANICAL TRADES SHALL COORDINATE ALL WORK WITH OTHER TRADES AND SHALL COORDINATE ANY SYSTEMS SHUT-DOWN WITH THE ARCHITECT/ENGINEER AND OWNER.
- ALL EXISTING EQUIPMENT, PIPING, DUCTWORK, ETC. THAT IS TO BE REMOVED SHALL REMAIN THE PROPERTY OF THE OWNER, THE CONTRACTOR SHALL REMOVE AND LOCATE THIS MATERIAL THAT REMAINS THE PROPERTY OF THE OWNER TO A LOCATION DETERMINED BY THE OWNER SOMEWHERE ON SITE. IF THE OWNER DOES NOT WANT TO MAINTAIN POSSESSION OF THE REMOVED MATERIAL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING MATERIAL FROM THE SITE AND DISPOSING OF THIS MATERIAL AS NECESSARY TO MEET ALL CODES AND REQUIREMENTS AND SHALL PAY ALL COSTS AS REQUIRED FOR ANY DISPOSAL FEES, INSPECTIONS, PERMITS, ETC.
- ATTACHMENTS OF MECHANICAL OR ELECTRICAL EQUIPMENT TO STRUCTURAL MEMBERS ARE THE RESPONSIBILITY OF THE INSTALLING TRADE. STRUCTURAL MEMBERS SHALL NOT BE FIELD CUT, WELDED OR OTHERWISE MODIFIED WITHOUT APPROVAL OF THE ARCHITECT/ENGINEER. ATTACHMENT TO STEEL JOISTS SHALL BE MADE AT PANEL POINTS WHENEVER POSSIBLE. STEEL JOISTS SHALL BE REINFORCED FOR NON-PANEL POINT CONCENTRATED LOADS IN ACCORDANCE WITH THE STRUCTURAL DETAILS; THIS WORK SHALL BE PERFORMED BY CERTIFIED WELDERS AND IS THE RESPONSIBILITY OF THE TRADE INSTALLING THE SUBJECT LOAD. STRUCTURAL MEMBERS SHALL NOT BE OVERLOADED AS A RESULT OF ATTACHMENTS. ATTACHMENT/EQUIPMENT LOADING FOR ALL TRADES RESULTING IN TOTAL LOAD GREATER THAN AN EQUIVALENT UNIFORM 5 PSF FOR ANY MEMBER SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW.
- THE MECHANICAL TRADES SHALL FURNISH AND LOCATE CEILING AND/OR WALL ACCESS DOORS AS REQUIRED TO GIVE ACCESS TO VALVES, EQUIPMENT, ETC. COORDINATE WITH WALL OR CEILING FIRE RATINGS AND FURNISH ACCESS DOOR WITH RATING AS NECESSARY. THE GENERAL TRADES SHALL INSTALL ACCESS DOORS.
- SEE SPECIFICATION FOR FURTHER INFORMATION.

SPECIFIED AND SCHEDULED EQUIPMENT NOTE

EQUIPMENT MANUFACTURERS AND MATERIALS SPECIFIED OR SCHEDULED ON THESE PROJECT DRAWINGS AND SPECIFICATIONS SHALL BE INCLUDED UNDER THE BASE BID PRICE. SUBSTITUTE OR ALTERNATE EQUIPMENT SHALL BE PRICED AS AN ADD OR DEDUCT PRICE TO THE CONTRACTOR'S BASE BID PRICE. IF ONE OR MORE SUBSTITUTIONS ARE ACCEPTED WITH THE PROPOSAL AT THE CORRESPONDING ALTERNATE PRICE, IT SHALL BE UNDERSTOOD THAT APPROVAL OF SAID EQUIPMENT SHALL BE SUBJECT TO STRICT ADHERENCE TO THE PLANS AND SPECIFICATIONS. SHOULD ANY OF THE SUBSTITUTE EQUIPMENT FAIL TO MEET THE SPECIFICATIONS AFTER THE PROPOSAL HAS BEEN ACCEPTED, REGARDLESS IF EQUIPMENT HAS BEEN SHIPPED TO THE SITE AND INSTALLED, THE CONTRACTOR SHALL FURNISH AT NO EXTRA COST TO THE OWNER, THE SPECIFIED EQUIPMENT MEETING THE REQUIREMENTS AS STATED IN THESE SPECIFICATIONS AND COVER ALL COSTS NECESSARY FOR REMOVAL AND REINSTALLATION OF EQUIPMENT.

MECHANICAL SYMBOL LIST

— SAN —	SANITARY PIPING BELOW FLOOR OR GRADE	ABV	MOTORIZED DAMPER
— SAN —	SANITARY PIPING ABOVE FLOOR	ABV	ABOVE
— SAN —	CO ABOVE FLOOR	AFF	ABOVE FINISHED FLOOR
— SAN —	CO UP TO GRADE	BFG	BELOW FINISHED GRADE
— SAN —	CO UP TO FLOOR	CFM	CUBIC FEET PER MINUTE
— G —	NATURAL GAS PIPING	CI	CAST IRON
— V —	VENT PIPING	CO	CLEAN OUT
— V —	DOMESTIC COLD WATER PIPING	COND	CONDENSATE
— V —	DOMESTIC HOT WATER PIPING	CP	CIRCULATING PUMP
— V —	DOMESTIC HOT WATER RETURN PIPING	CW	COLD WATER
— D —	REDUCER	EA	EXHAUST AIR
— J —	UNION	EF	EXHAUST FAN
— C —	CAP	EX	EXISTING
— F —	CHECK VALVE	FCV	FLOW CONTROL VALVE
— I —	ISOLATION GATE VALVE	FD	FLOOR DRAIN
— R —	GAS REGULATOR	GPM	GALLONS PER MINUTE
— F —	FLOW ARROW	HB	INTERIOR HOSE BIB
— F —	GRISWOLD AUTOMATIC FLOW LIMITING VALVE	HW	HOT WATER
— S —	STRAINER	HWR	HOT WATER RETURN
— S —	BALL VALVE	HWRP	HOT WATER RETURN PUMP
— S —	INTERIOR HOSE BIB	NC	NORMALLY CLOSED
— S —	EXTERIOR WALL HYDRANT	NO	NORMALLY OPENED
— S —	VALVE IN RISER	OA	OUTSIDE AIR
— S —	ELBOW RISING UP	PSI	POUNDS PER SQUARE INCH
— S —	ELBOW DROPPING DOWN	PSIG	POUNDS PER SQUARE INCH GAUGE
— S —	TEE WITH PIPE UP	PTAC	PACKAGED TERMINAL AIR CONDITIONER
— S —	TEE WITH PIPE DOWN	SA	SUPPLY AIR
— S —	TEMPERATURE & PRESSURE RELIEF VALVE	SP	STATIC PRESSURE
— S —	IN-LINE PUMP	UH	UNIT HEATER
— S —	PRESSURE SENSOR OR SWITCH	UNO	UNLESS NOTED OTHERWISE
— S —	FLOW SWITCH	V	VENT
— S —	THERMOMETER	VA	VALVE
— S —	PRESSURE GAUGE W/COCK	VFD	VARIABLE FREQUENCY DRIVE
— S —	MANUAL AIR VENT	VS	VENT STACK
— S —	AUTOMATIC AIR VENT	VTR	VENT THRU ROOF
— S —	PIPE ANCHOR	WCO	WALL CLEAN OUT
— S —	FLOOR DRAIN	WH	WATER HEATER
— S —	CARBON MONOXIDE SENSOR	WHYD	EXTERIOR WALL HYDRANT
— S —	THERMOSTAT OR WALL SENSOR		

WATER HEATER SCHEDULE

MARK	MANUFACTURER	MODEL NUMBER	TYPE	FUEL	FIRE RATE MBH	GPH RISE @ 100' F	ELECTRICAL		NOTES
							VOLTS	PHASE	
WH-1,2,3	LOCHINVAR	AWH-1000NPM	DOMESTIC HOT WATER	N. GAS	1000	1.187	120	1	SEE BELOW

NOTES:

- BASE BID PRICING SHALL BE BASED AROUND THE SCHEDULED LOCHINVAR WATER HEATERS. VOLUNTARY ALTERNATIVE PRICING MAY BE SUBMITTED FOR ACCEPTABLE ALTERNATIVE MANUFACTURER'S INCLUDING AERCO AND THERMAL SOLUTIONS.
- WATER HEATER AND ACCESSORIES SHALL BE INSTALLED IN ACCORDANCE TO ALL APPLICABLE CODES, REQUIREMENTS AND MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS
- WATER HEATER SUPPLIER SHALL PROVIDE STARTUP, BOILOUT, COMBUSTION EFFICIENCY TEST, OPERATOR TRAINING AND ONE-YEAR WARRANTY SERVICE WITH MATERIAL AND LABOR.
- WATER HEATER SUPPLIER SHALL PROVIDE INITIAL CHECK TEST AND START-UP OF BOILER, VERIFY PROPER OPERATION, INSTRUCT OWNER'S PERSONNEL ON PROPER OPERATION AND MAINTENANCE, WIRING DIAGRAM SHOWING BOTH FACTORY AND FIELD WIRING, ONE YEAR WARRANTY WITH MATERIAL AND LABOR, AND SHALL PROVIDE TECHNICAL ASSISTANCE AS REQUIRED TO ASSURE THAT THE SYSTEM IS WIRED AND OPERATING AS RECOMMENDED BY THE MANUFACTURER.
- CONTRACTOR SHALL CLEAN STRAINERS AND FLUSH PIPING SYSTEM BEFORE PLACING IN OPERATION.
- THE ELECTRICAL CONTRACTOR SHALL UTILIZE CONTACTS ON THE WATER HEATER TO ALLOW THE WATER HEATER TO CONTROL THE ASSOCIATED DOMESTIC HOT WATER CIRCULATION PUMP.
- ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH WATER HEATER MANUFACTURER'S RECOMMENDATIONS. SEE SPECIFICATION FOR FURTHER INFORMATION.
- WATER HEATER SHALL HAVE 5 YEAR WARRANTY AND 150 PSI ASME PRESSURE RELIEF VALVE.
- EACH WATER HEATER SHALL BE PROVIDED WITH A CONDENSATE NEUTRALIZATION KIT FROM MANUFACTURER.
- WATER HEATERS SHALL BE PROVIDED WITH HIGH AND LOW PRESSURE GAS SWITCHES.
- WATER HEATER SHALL BE PROVIDED WITH SMART TOUCH CONTROLS. THE MANUFACTURER SHALL PROVIDE A TANK SENSOR. THE MECHANICAL CONTRACTOR SHALL INSTALL THE TANK SENSOR IN ONE OF THE STORAGE TANKS PER MANUFACTURER'S RECOMMENDATIONS AND THEN CONNECT THE SENSOR TO THE LEAD WATER HEATER. CONNECT THE LEAD WATER HEATER AND MEMBER WATER HEATERS WITH 2-WIRE TWISTED SHIELDED PAIR COMMUNICATION CABLE. ALL CONTROL WIRING FOR WATER HEATERS AND SENSORS SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.
- DESIGN INTENT IS FOR THE WATER HEATERS TO OPERATE STAND-ALONE WITH OEM CONTROLS.FURNISH WITH BACNET MSTP COMMUNICATION CARD FOR POSSIBLE CONNECTION IN FUTURE TO BUILDING MANAGEMENT SYSTEM.

STORAGE TANK SCHEDULE

MARK	MANUFACTURER	MODEL	TANK VOLUME (GAL)	REMARKS
ST-1,2	LOCHINVAR	RG0504	504	LOCK-TEMP BAFFLE, MAGNESIUM ANODE, ASME CERTIFIED, GLASS LINED, 150 PSI WORKING PRESSURE, 150 PSI TEMPERATURE AND PRESSURE RELIEF VALVE, TEMPERATURE AND PRESSURE GAUGE, LIFTING LUGS

ELECTRIC UNIT HEATER SCHEDULE

MARK	SERVING	TYPE	KW	MBH	FAN HP	AMPS	VOLTS/PH/HZ	MANUFACTURER MODEL NUMBER	REMARKS
EUH-1	WATER ROOM	ELECTRIC	7.5	25.6	1/30	36.0	208/3/60	QMARK MUH07-8	1, 2, 3, 4

NOTES:

- FURNISH UNIT WITH FACTORY PROVIDED DISCONNECT. DISCONNECT SHALL BE INSTALLED BY ELECTRICAL CONTRACTOR.
- FURNISH ALL MOUNTING HARDWARE REQUIRED FOR WALL MOUNTED UNIT HEATER INSTALLATION.
- INSTALL UNIT HEATERS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND ALL APPLICABLE CODES.
- CONTROLS SHALL INCLUDE REMOTE MOUNTED 24V THERMOSTAT.

PUMP SCHEDULE

MARK	MANUFACTURER	LOCHINVAR PART #	TYPE	DESIGN GPM	DESIGN HEAD (FT HD)	SUCTION SIZE	DISCHARGE SIZE	ELECTRICAL		
								VOLTS	LOAD	PHASE
HWRP-1	GRUNFOS MAGNA3-40-120FN SS	N/A	IN-LINE	20	40"	1 1/2" FLANGE	1 1/2" FLANGE	120	1/2 HP	1
HWRP-2	GRUNFOS MAGNA3-32-120FN SS	N/A	IN-LINE	5	15"	1" FLANGE	1" FLANGE	120	1/2 HP	1
CP-1,2,3	GRUNFOS TP 50-80	100330240	IN-LINE	90	21"	2 1/2"	2 1/2"	120	3/4 HP	1

NOTES:

- ALL PUMPS, VALVES, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.
- FURNISH CONCENTRIC PIPE REDUCER AT PUMP DISCHARGE AND SUCTION AS REQUIRED TO REDUCE FROM LISTED PIPE SIZE ON DRAWINGS TO PUMP CONNECTORS.

EXPANSION TANK SCHEDULE

MARK	SERVING	MANUFACTURER	MODEL	TANK VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	TYPE	REMARKS
ET-1	WH-1, WH-2,WH-3	AMTROL	ST400CL	106	53	FLOOR MOUNTED BLADDER TANK	ASME, PAINTED CARBON STEEL TANK, HEAVY-DUTY BUTYL BLADDER APPROVED FOR POTABLE HOT WATER SYSTEMS, THREE YEAR TANK WARRANTY. TANK COMES PRE-CHARGED AT 25 PSI. CURRENT INCOMING WATER PRESSURE IS ASSUMED TO BE 75 PSI. CONTRACTOR SHALL FIELD VERIFY INCOMING WATER PRESSURE AND ADJUST CHARGE TO MATCH.

SUPPLY FAN SCHEDULE

MARK	SERVING	TYPE	MAX CFM	BALANCED CFM	E.S.P. (IN. W.C.)	FAN RPM	DRIVE	SONE S	ELECTRICAL				BASIS OF DESIGN		NOTES
									BHP	HP	V/Hz/PH	FLA	MAKE	MODEL	
SF-1	WATER ROOM	WALL MOUNTED	800	750	0.125	379	DIRECT	2.9	0.02	0.25	115/60/1	2.85	GREENHECK	AER-24-VG	1,2,3,4,5,6,7

NOTES:

- FURNISH WITH MOTORIZED DAMPER INSTALLED AT DISCHARGE OF FAN. DAMPER SHALL BE GREENHECK MODEL #VCD-23 DAMPER, 16 GA GALVANIZED STEEL 3V TYPE WITH THREE LONGITUDINAL GROOVES FOR REINFORCEMENT. BLADE SEALS SHALL BE TPE. LINKAGE SHALL BE BLADE TO BLADE CONCEALED IN JAMB. DAMPER FRAME SHALL BE 16 GA GALVANIZED STEEL FORMED INTO A STRUCTURAL HAT CHANNEL. BEARINGS SHALL BE CORROSION RESISTANT. DAMPER SHALL HAVE EXTERNAL MOUNT FOR ELECTRIC ACTUATOR. DAMPER SHALL BE NORMALLY CLOSED AND OPEN WHEN SF-1 IS OPERATING. ACTUATOR SHALL BE 120V.
- FURNISH SPEED CONTROLLER TO BE MOUNTED ON FAN HOUSING TO ALLOW AIR BALANCING OF EXHAUST FAN.
- FURNISH WITH 90° WEATHER HOOD AND WALL HOUSING WITH INLET/DISCHARGE GUARD. PROVIDE WALL HOUSING WITH FILTER BANK AND 2" THICK ALUMINUM FILTERS.
- FURNISH WITH GREENHECK HOA CONTROLLER AND 24V REVERSE ACTING THERMOSTAT TO TURN ON SF-1, OPEN MOTORIZED DAMPER ON SF-1 AND OPEN MOTORIZED DAMPER ON L-1 WHEN SPACE TEMP EXCEEDS 85° (adj.).
- FANS SHALL BE RATED FOR CONTINUOUS OPERATION.
- NEMA 1 DISCONNECT SWITCH, MOUNTED AND WIRED.
- FAN SHALL BE U.L.-705 LISTED.

LOUVER SCHEDULE

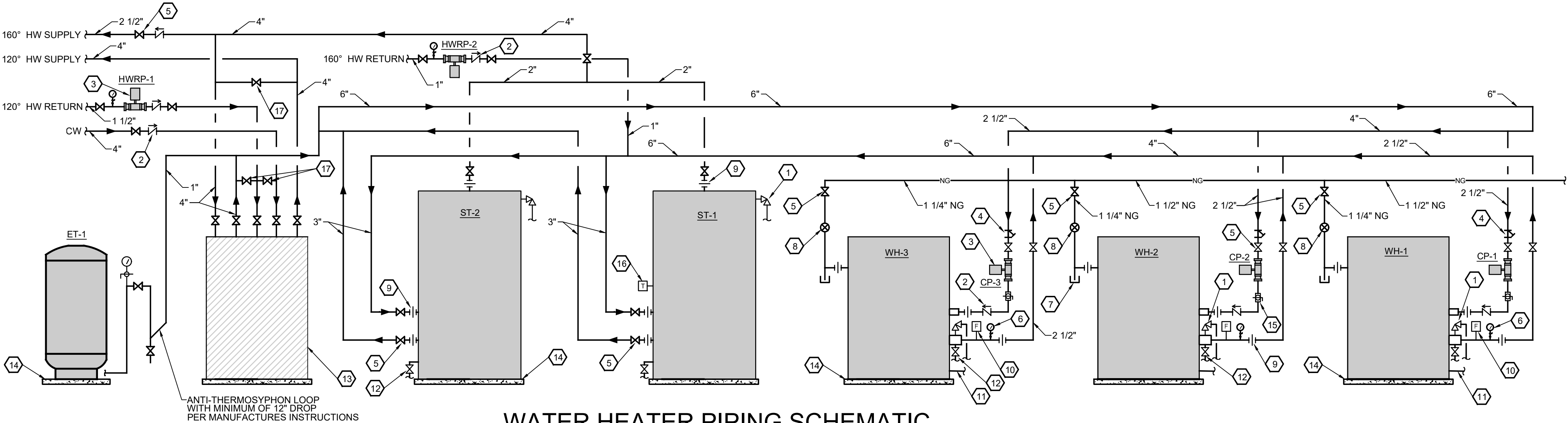
MARK	SERVING	DIMENSIONS			CFM	PRESS DROP (IN W.C.)	VELOCITY FPM	BPWP FPM	FREE AREA S.F.	FRAME TYPE	DAMPER TYPE	BASIS OF DESIGN		NOTES
		WIDTH (IN)	HEIGHT (IN)	DEPTH (IN)								MAKE	MODEL	
L-1	WATER ROOM	24"	18"	4"	750	0.05	609	989	1.23	CHANNEL	MOTORIZED	GREENHECK	ESD-435	1,2,3,4

NOTES

- PROVIDE WITH BIRDSCREEN.
- DAMPER ACTUATOR SHALL BE 120V. DAMPER ACTUATOR SHALL BE NORMALLY CLOSED AND OPEN WHEN EXHAUST FAN SF-1 IS OPERATING.DAMPER SHALL FAIL IN THE NORMALLY CLOSED POSITION.
- LOUVER SHALL BE GREENHECK MODEL #ESD-435 EXTRUDED ALUMINUM, 4" DEEP, DRAINABLE TYPE BLADES. FRAME SHALL BE 4" DEEP, 0.081" THICK 6063-T5 EXTRUDED ALUMINUM ALLOY. BIRDSCREEN SHALL BE PROVIDED ON THE INTERIOR, BE REMOVABLE FOR CLEANING AND CONSIST OF 1/2" EXPANDED ALUMINUM WITH EXTRUDED ALUMINUM FRAME. LOUVER SHALL CARRY THE AMCA CERTIFIED RATINGS SEAL FOR BOTH WATER PENETRATION AND AIR PERFORMANCE. FURNISH FACTORY FINISH ENAMEL PAINT WITH COLOR SELECTED BY THE ARCHITECT/ENGINEER.
- DAMPER SHALL BE GREENHECK MODEL #VCD-23 DAMPER, 16 GA GALVANIZED STEEL 3V TYPE WITH THREE LONGITUDINAL GROOVES FOR REINFORCEMENT. BLADE SEALS SHALL BE TPE. LINKAGE SHALL BE BLADE TO BLADE CONCEALED IN JAMB. DAMPER FRAME SHALL BE 16 GA GALVANIZED STEEL FORMED INTO A STRUCTURAL HAT CHANNEL. BEARINGS SHALL BE CORROSION RESISTANT. DAMPER SHALL HAVE EXTERNAL MOUNT FOR ELECTRIC ACTUATOR.

KEYED NOTES

- ASME TEMPERATURE AND PRESSURE RELIEF VALVE. EXTEND DRAIN TO FLOOR DRAIN (TYP.)
- CHECK VALVE (TYP.)
- CIRCULATION PUMP (TYP.)
- Y STRAINER (TYP.)
- SHUT OFF VALVE (TYP.)
- PRESSURE/TEMPERATURE GAUGE (TYP.)
- DIRT LEG (TYP.)
- NATURAL GAS REGULATOR, PROVIDE 12" MINIMUM OF STRAIGHT 1 1/4" PIPE UPSTREAM AND DOWNSTREAM OF REGULATOR WITHOUT ANY FITTINGS, ELBOWS, VALVES, ETC. (TYP.)
- UNION (TYP.)
- FLOW SWITCH (TYP.)
- ROUTE (2) CONDENSATE DRAINS FROM EACH WATER HEATER THROUGH FACTORY PROVIDED CONDENSATE TRAP, ROUTE OUTLET OF TRAP THROUGH CONDENSATE NEUTRALIZATION KIT. AIR GAP AT FLOOR DRAIN (TYP.)
- DRAIN DOWN VALVE W/ HOSE CONNECTION (TYP.)
- EXISTING RELOCATED ELECTRONIC TEMPERING STATION/MIXING VALVE.
- 4" THICK REINFORCED CONCRETE HOUSE KEEPING PAD (TYP.)
- VENTURI MANUAL BALANCE VALVE. (TYP.)
- TANK TEMPERATURE SENSOR.
- 4" TEMPORARY BYPASS PIPING. PROVIDE VALVE WITH LOCKING CAPABILITY TO LOCK OUT BYPASS AFTER INSTALLATION OF ELECTRONIC TEMPERING STATION/MIXING VALVE.



NOTES:

- INSTALL WATER HEATER AND ACCESSORIES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PER ALL APPLICABLE CODES.
- TEMPORARY BY-PASS PIPING SHALL BE USED ONLY UNTIL ELECTRONIC TEMPERING STATION/MIXING VALVE CAN BE RELOCATED. ONCE THE ELECTRONIC TEMPERING STATION/MIXING VALVE IS INSTALLED THE VALVES ON THE BY-PASS PIPING SHALL BE LOCKED OUT TO ENSURE 160°F WATER IS NOT INTRODUCED INTO THE 120°F SYSTEM. SEE SHEET M2.4 FOR CONSTRUCTION PHASING INFORMATION.

MECHANICAL SPECIFICATIONS	
REFERENCE INSTRUCTIONS TO BIDDERS, CONDITIONS OF THE CONTRACT, DIVISION 1, AND THIS SECTION SHALL APPLY TO THIS DIVISION.	
CODES, PERMITS & INSPECTIONS CONTRACTOR SHALL SECURE PERMITS, INSPECTIONS AND TESTS, PAY ALL FEES, DEPOSITS, AND COSTS FOR ALL MECHANICAL UTILITIES AND SERVICES INVOLVED AND PRESENT THE OWNER A CERTIFICATE OF INSPECTION AND APPROVAL FROM THE DEPARTMENT HAVING JURISDICTION OVER HIS WORK. SHOULD ANY CHANGE IN THE DRAWINGS AND SPECIFICATIONS BE REQUIRED TO COMPLY WITH ALL APPLICABLE CODES, RULES, REGULATIONS, ETC., CONTRACTOR SHALL NOTIFY THE ENGINEER BEFORE SUBMITTING BID. AFTER ENTERING INTO CONTRACT, ALL WORK NECESSARY TO MEET THE REQUIREMENTS SHALL BE COMPLETED WITHOUT ADDITION TO THE CONTRACT AMOUNT. WHERE WORK INDICATED IS MORE THAN REQUIRED BY CODES, ETC., SUCH WORK SHALL BE AS INDICATED.	
JOB OBSERVATION NOTWITHSTANDING ANY REFERENCE TO ANY CODE, RULE OR REGULATION, ENGINEER SHALL HAVE NO RESPONSIBILITY FOR SAFETY ON THE JOB SITE. SHALL HAVE NO RIGHT TO CHANGE OR STOP THE WORK, SHALL NOT CONTROL THE MEANS OF THE WORK, AND SHALL NOT HAVE ANY DUTY TO PROVIDE SUPERVISION OF MEANS, METHODS, PROCESSES OR PROCEDURES OF CONSTRUCTION.	
FIRST-CLASS WORKABLE SYSTEMS FIRST CLASS WORKABLE SYSTEMS SHALL BE PROVIDED BY THE CONTRACTOR. IF, IN THE OPINION OF THE CONTRACTOR, CHANGES IN THE DRAWINGS OR SPECIFICATIONS ARE REQUIRED TO PRODUCE FIRST-CLASS WORKABLE SYSTEMS, CONTRACTOR SHALL REQUEST AN INTERPRETATION FROM THE ENGINEER BEFORE PROCEEDING WITH THE WORK. IF THE CONTRACTOR FAILS TO MAKE SUCH A REQUEST, NO EXCUSE WILL THEREAFTER BE ENTERTAINED FOR FAILURE TO PROVIDE FIRST-CLASS WORKABLE SYSTEMS.	
DRAWINGS DRAWINGS ARE INTENDED TO SHOW THE GENERAL ARRANGEMENT, DESIGN, AND EXTENT OF THE WORK AND ARE DIAGRAMMATIC. THEY ARE NOT INTENDED TO BE SCALED FOR ROUGH-IN MEASUREMENTS NOR TO SERVE AS SHOP DRAWINGS. THE ENGINEERS AND OWNER RESERVE THE RIGHT TO MAKE MINOR CHANGES IN THE LOCATION OF EQUIPMENT, DUCTWORK, PIPING, ETC. AT THE TIME OF ROUGH-IN WITHOUT ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, LOCATIONS, ETC. FOR ACCURACY AND POSSIBILITY OF INTERFERENCES DUE TO FIELD CONDITIONS AND ACTUAL BUILDING STRUCTURE. FAILURE TO CHECK WILL BE NO REASON FOR ADDITIONAL COMPENSATION.	
SHOP DRAWINGS SUBMIT ELECTRONIC SET OF COMPLETE SHOP DRAWINGS FOR ALL MECHANICAL EQUIPMENT AND MATERIALS TO THE ENGINEER FOR REVIEW BEFORE FABRICATION OF WORK OR ORDERING OF EQUIPMENT. DRAWINGS MUST BE REVIEWED BY THE ENGINEER BEFORE ORDERING EQUIPMENT. ALL SHOP DRAWINGS REJECTED SHALL BE CORRECTED AND RESUBMITTED TO THE ENGINEER BEFORE ORDERING.	
STANDARDS OF INDUSTRY STANDARDS OF INDUSTRY SHALL BE FOLLOWED WHEN APPLICABLE.	
GUARANTEE CONTRACTOR SHALL GUARANTEE EQUIPMENT, MATERIALS AND WORKMANSHIP IN HIS CONTRACT AND SHALL MAKE GOOD AT HIS OWN EXPENSE ANY DEFECTS WHICH MAY DEVELOP WITHIN ONE YEAR AFTER START-UP OF EACH PIECE OF EQUIPMENT, OCCUPANCY BY OWNER, OR FINAL ACCEPTANCE OF THE JOB, WHICHEVER OCCURS FIRST.	
CONTRACTORS RECORDS/BUILT DRAWINGS CONTRACTOR SHALL MAINTAIN AND KEEP AN UP-TO-DATE SET OF "RECORD" DRAWINGS REFLECTING "AS-BUILT" CONDITIONS OF THEIR WORK. CONTRACTOR SHALL INDICATE EXACT DIMENSIONS AND ELEVATIONS FOR ALL UNDERGROUND WORK. UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL DELIVER TO THE ENGINEER THE "RECORD" DRAWINGS.	
LOCAL CONDITIONS BEFORE SUBMITTING BIDS AND/OR PROCEEDING WITH THE PROJECT, THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS, SPECIFICATIONS AND ADDENDA ISSUED FOR THE PROJECT AND SHALL EXAMINE THE PROJECT SITE. THE CONTRACTOR SHALL THOROUGHLY INVESTIGATE THE PROJECT SITE AND BECOME FULLY INFORMED AS TO THE EXTENT OF HIS WORK AND COORDINATION OF THIS WORK WITH ALL OTHER TRADES AND INCLUDE ALL COST TO PERFORM AND COMPLETE WORK FOR THIS PROJECT PER DRAWINGS AND SPECIFICATION AND ALL CODES.	
OPERATION AND MAINTENANCE MANUALS CONTRACTOR SHALL FURNISH TO THE ARCHITECT/ENGINEER TWO (2) COPIES OF AN APPROVED BOUND (3-RING BINDER) BOOK WITH TABS FOR SECTIONS COVERING EACH ITEM OF EQUIPMENT. THESE NOTEBOOKS SHALL INCLUDE SHOP DRAWINGS, MAINTENANCE MANUALS, OPERATING MANUALS AND PARTS LIST AS NECESSARY TO INSTRUCT THE OWNER ON PROPER OPERATION AND USE AS WELL AS MAINTENANCE FOR EACH PIECE OF EQUIPMENT FOR THIS PROJECT. THESE BOOKS SHALL ALSO INCLUDE CONTRACTORS' SUBCONTRACTORS AND MANUFACTURERS NAMES, TELEPHONE NUMBERS AND ADDRESSES. MANUALS SHALL ALSO INCLUDE SEQUENCE OF OPERATION, CONTROL EQUIPMENT LITERATURE, WIRING AND CONTROL DIAGRAMS, CERTIFICATES OF GUARANTEES, CERTIFICATES OF INSPECTION, MECHANICAL SYSTEM TEST AND BALANCING REPORTS. THE CONTRACTOR SHALL ACCUMULATE AND SUMMARIZE THE CONTROL AND MAINTENANCE SEQUENCE IN TYPEWRITTEN SHEET TO BE INCLUDED IN THE REPORT. THESE MANUALS SHOULD BE HARD BOUND IN BEST QUALITY BINDERS AND TURNED OVER TO THE ARCHITECT/ENGINEER FOR APPROVAL AT COMPLETION OF PROJECT.	
START-UP SERVICE CONTRACTOR SHALL ARRANGE WITH EQUIPMENT MANUFACTURERS FOR PROVIDING COMPLETE START-UP SERVICE FOR ALL EQUIPMENT ON THIS PROJECT. ALL START-UP SERVICES SHALL BE PERFORMED IN THE PRESENCE OF THE OWNER AND/OR ENGINEER. A WRITTEN REPORT SHALL BE SUBMITTED TO THE ENGINEER STATING DATE OF START-UP, MANUFACTURER APPROVAL OF SYSTEM OPERATION AND INSTALLATION.	
CUTTING AND PATCHING CUTTING AND PATCHING SHALL BE BY TRADES REGULARLY ENGAGED IN THIS TYPE OF WORK, EXCEPT DRILLING OF HOLES SHALL BE DONE BY THE TRADES REQUIRING SAME. STRUCTURAL MEMBERS SHALL NOT BE CUT OR DRILLED.	
SALVAGEABLE MATERIAL SALVAGEABLE MATERIAL SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE STORED AT LOCATIONS AS DIRECTED BY THE OWNER, EXCEPT THE OWNER RESERVES THE RIGHT TO DESIGNATE CERTAIN ITEMS OF SALVAGEABLE MATERIAL TO BE REMOVED FROM THE PROJECT SITE.	
RIGGING AND HOISTING PERFORM ALL REQUIRED RIGGING, HOISTING, TRANSPORTATION, MOVING, ETC. OF ALL EQUIPMENT, MATERIALS, ETC. TO BE FURNISHED AND/OR INSTALLED AS SHOWN ON DRAWINGS, WHETHER FURNISHED BY THIS CONTRACTOR OR BY THE OWNER OR OTHER TRADES.	
STORAGE FACILITY FURNISH AND MAINTAIN A WEATHERPROOF STORAGE FACILITY ON THE SITE OF ADEQUATE SIZE TO STORE MISCELLANEOUS EQUIPMENT AND/OR MATERIALS TO PREVENT EXPOSURE TO THE WEATHER. LOCATION OF SHED SHALL BE DETERMINED BY THE OWNER AND ARCHITECT/ENGINEER. THE OWNER RESERVES THE RIGHT TO DENY STORAGE OF MATERIALS OR EQUIPMENT IN ANY EXISTING OR NEW BUILDINGS.	
PROTECTION FROM DAMAGE THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MATERIALS, EQUIPMENT, ETC. AND ALL WORK INSTALLED BY HIMSELF AND SHALL PROTECT IT FROM DAMAGE UNTIL FINAL ACCEPTANCE OF THIS PROJECT BY THE OWNER. FURNISH ALL COVERINGS AND PROTECTION FROM DIRT, DUST, RAIN, STORM, HEAT, TRAFFIC, WEAR, ETC. AND ALL POSSIBLE INJURY INCLUDING THAT BY OTHER WORKMEN. ANY EQUIPMENT, WORKMANSHIP, MATERIALS, ETC. DAMAGED PRIOR TO FINAL ACCEPTANCE BY THE OWNER OF THIS PROJECT SHALL BE PROPERLY REPAIRED AT NO EXPENSE TO THE OWNER. PROTECT ALL PLUMBING FIXTURES AND OTHER EQUIPMENT FROM DAMAGE BY COVERING OR COATING. ANY DENTED, SCRATCHED, RUSTED OR MARRED SURFACE FINISHES WILL NOT BE ACCEPTED. PROTECT ALL EQUIPMENT, MATERIALS, ETC. FROM FREEZING.	
PLUMBING AND PIPING BASIC MATERIALS AND METHODS:	
BELOW GROUND SANITARY, STORM AND DRAINAGE (MUST BE APPROVED BY GOVERNING AUTHORITIES) UNDER BUILDING AND TO 5'-0" OUTSIDE THE BUILDING, SCHEDULE 40 PVC OR SERVICE WEIGHT CAST IRON. FROM 5'-0" OUTSIDE THE BUILDING, SCHEDULE 40 PVC EXCEPT DRAINS UNDER DRIVE OR PARKING AREAS SHALL BE CAST IRON UNLESS NOTED OTHERWISE.	
ABOVE GROUND SANITARY, STORM AND DRAINAGE (MUST BE APPROVED BY GOVERNING AUTHORITIES) SCHEDULE 40 PVC OR FOR 3" AND LARGER SERVICE WEIGHT CAST IRON HUBLESS WITH SS CLAMP-AND-SHIELD ASSEMBLIES OR HUB AND SPIGOT WITH NEOPRENE JOINING GASKET AND FOR 2 1/2" AND SMALLER SCHEDULE 40 GALVANIZED PIPE WITH SCREWED FITTINGS. NOTE: LOCAL AUTHORITY APPROVAL (INCLUDING FIRE MARSHAL) SHALL BE OBTAINED IN WRITING FOR USE OF PVC PIPING ABOVE GRADE.	
DOMESTIC WATER PIPING, ABOVE GRADE INSIDE BUILDING (MUST BE APPROVED BY GOVERNING AUTHORITIES).	
DOMESTIC WATER PIPING INCLUDES COLD WATER, HOT WATER AND HOT WATER RETURN PIPING.	
PIPING: 6" AND SMALLER SHALL BE: COPPER TUBING: ASTM B88, TYPE L, HARD DRAWN, SEAMLESS. FITTINGS: ASME B16.18 CAST BRONZE; TEE, TAP OR ASME B16.22 WROUGHT COPPER WITH ASTM B32 SOLDER JOINTS AND LEAD FREE GRADE 95-A TIN - ANTIMONY OR TIN AND SILVER WITH MELTING RANGE 430 TO 535 DEGREES F OR AWS A5BCUP SILVER BRAZE.	
NATURAL GAS PIPING, ABOVE GRADE INSIDE BUILDING NATURAL GAS PIPING 2" AND SMALLER SHALL BE SCHEDULE 40 BLACK CARBON STEEL ASTM A53, SEAMLESS WITH BLACK MALLEABLE IRON FITTINGS, 150 PSIG SCREWED ASME B16.3.	
NATURAL GAS PIPING 2 1/2" AND LARGER SHALL BE SCHEDULE 40 BLACK CARBON STEEL ASTM A53 SEAMLESS WITH WELDED FITTINGS ASTM A234.	
PIPING FOR 1 PSIG OR HIGHER GAS PRESSURE SHALL BE IN ACCORDANCE WITH CODE FOR PRESSURE PIPING ANSI B31.1.	
FURNISH LUBRICATED PLUG SHUT-OFF VALVES ON MAIN BRANCHES AND AT DOMESTIC PRESSURE REGULATORS. LOCATE WRENCH NEAR METER. STOP VALVES AT EQUIPMENT AND OUTLETS SHALL BE BALL VALVES WHERE 2" AND SMALLER. GAS PIPING SHALL HAVE DIPS AT BOTTOM OF RISERS WITH BRANCHES TAKEN FROM TOP OR SIDE OF HORIZONTAL PIPE. CAP ALL GAS PIPE OUTLETS UNTIL CONNECTED TO GAS EQUIPMENT. ALL GAS PIPING SHALL BE RUN IN SPACES WHICH ARE ACCESSIBLE FOR INSPECTION AND SERVICE.	
PIPE SUPPORTS AND ANCHORS: CONFORM TO ASME B31.5, ASTM F708, MSS SP58, MSS SP69 AND MSS SP89. HANGERS FOR PIPE SIZES 1/2 TO 1 1/2 INCH: MALLEABLE IRON, ADJUSTABLE SWIVEL, SPLIT RING. HANGERS FOR PIPE SIZES 2 INCHES AND OVER: CARBON STEEL, ADJUSTABLE, CLEVIS. MULTIPLE OR TRAPEZE HANGERS: STEEL CHANNELS WITH WELDED SPACERS AND HANGER RODS. WALL SUPPORT FOR PIPE SIZES TO 3 INCHES: CAST IRON HOOK. WALL SUPPORT FOR PIPE SIZES 4 INCHES AND OVER: WELDED STEEL BRACKET AND WROUGHT STEEL CLAMP. VERTICAL SUPPORT: STEEL RISER CLAMP. FLOOR SUPPORT: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT. COPPER PIPE SUPPORT: CARBON STEEL RING, ADJUSTABLE, COPPER PLATED. HANGER RODS: MILD STEEL THREADED BOTH ENDS, THREADED ONE END, OR CONTINUOUS THREADED, INSERTS: MALLEABLE IRON CASE OF STEEL SHELL AND EXPANDER PLUG FOR THREADED CONNECTION WITH LATERAL ADJUSTMENT, TOP SLOT FOR REINFORCING RODS, LUGS FOR ATTACHING TO FORMS; SIZE INSERTS TO SUIT THREADED HANGER RODS.	
REAM PIPE AND TUBE ENDS. REMOVE BURRS. LEVEL PLAIN END FERROUS PIPE. REMOVE SCALE AND DIRT ON INSIDE AND OUTSIDE BEFORE ASSEMBLY. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES OR UNIONS.	
WHERE MORE THAN ONE PIPING SYSTEM MATERIAL IS SPECIFIED ENSURE SYSTEM COMPONENTS ARE COMPATIBLE AND JOINED TO ENSURE THE INTEGRITY OF THE SYSTEM IS NOT JEOPARDIZED. PROVIDE NECESSARY JOINING FITTINGS. ENSURE FLANGES, UNION, AND COUPLINGS FOR SERVICING ARE CONSISTENTLY PROVIDED.	
FIELD INSPECTION AND TESTING WILL BE PERFORMED. TEST REFRIGERATION SYSTEM IN ACCORDANCE WITH ASME B31.5. PRESSURE TEST SYSTEM WITH DRY NITROGEN TO 200 PSIG. PERFORM FINAL TESTS AT 27 INCHES VACUUM AND 200 PSIG USING HALIDE TORCH. TEST TO NO LEAKAGE.	

VALVES

SWING CHECK VALVES:
UP TO AND INCLUDING 3 INCHES: BRONZE BODY, BRONZE TRIM, BRONZE ROTATING SWING DISC, WITH COMPOSITION DISC, SOLDER OR THREADED ENDS.
OVER 3 INCHES: IRON BODY, BRONZE TRIM, BRONZE OR BRONZE FACED ROTATING SWING DISC, RENEWABLE DISC AND SEAT, FLANGED ENDS OR GROOVED ENDS IF VICTAULIC GROOVED END FITTINGS ARE USED.

BALL VALVES:
UP TO AND INCLUDING 2 INCHES: BRONZE ONE PIECE BODY, STAINLESS STEEL BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE WITH BALANCING STOPS, SOLDER OR THREADED ENDS.
OVER 2 INCHES: CAST STEEL BODY, CHROME PLATED STEEL BALL, TEFLON SEAT AND STUFFING BOX SEALS, LEVER HANDLE, OR GEAR DRIVE HANDWHEEL FOR SIZES 10 INCHES AND OVER, FLANGED. DUCTILE IRON BODY, CHROME PLATED CARBON STEEL BALL AND STEM, TFE SEATS, LEVER HANDLE OR GEAR OPERATOR, GROOVED ENDS. VICTAULIC SERIES 726.

PLUG VALVES:
UP TO AND INCLUDING 3 INCHES: BRONZE BODY, BRONZE TAPERED PLUG, FULL PORT OPENING, NON-LUBRICATED, TEFLON PACKING, THREADED ENDS. OPERATOR: ONE PLUG VALVE WRENCH FOR EVERY TEN PLUG VALVES MINIMUM OF ONE.
OVER 3 INCHES: CAST IRON BODY AND PLUG, FULL PORT OPENING, PRESSURE LUBRICATED, TEFLON PACKING, FLANGED ENDS OR GROOVED ENDS IF VICTAULIC GROOVED END FITTINGS ARE USED. DUCTILE IRON BODY AND PLUG, STANDARD PORT OPENING, NON-LUBRICATED ECCENTRIC-TYPE, WELDED-IN NICKEL SEAT, GROOVED ENDS. VICTAULIC SERIES 377. OPERATOR: EACH PLUG VALVE SHALL HAVE A WRENCH HANDLE WITH SET SCREW.

BUTTERFLY VALVES:
BODY: PPS (POLYPHPHENYLENE SULFIDE) COATED CAST OR DUCTILE IRON WITH RESILIENT REPLACEABLE EPDM SEAT, WAFER OR LUG ENDS OR GROOVED ENDS IF VICTAULIC GROOVED END FITTINGS ARE USED. DISC: ALUMINUM BRONZE, EPDM ENCAPSULATED DUCTILE IRON OR STAINLESS STEEL. OPERATOR: 10 POSITION LEVER HANDLE UP TO 4". LARGER THAN 4" SHALL HAVE GEAR DRIVE HANDWHEEL.

UNIONS

UNIONS OR FLANGES SHALL BE USED AT EQUIPMENT CONNECTIONS. DIELECTRIC CONNECTIONS BETWEEN COPPER AND IRON OR STEEL PIPE SHALL BE MADE WITH DIELECTRIC NIPPLES SIMILAR TO VICTAULIC STYLE 47. A BRASS ADAPTER DIELECTRIC UNION IS NOT ACCEPTABLE.

PLATES AND SLEEVES

PROVIDE AND INSTALL PIPE SLEEVES FOR ALL PIPING AND DUCTS PASSING THROUGH WALLS, FLOORS AND CEILINGS. SLEEVES THROUGH WALLS BELOW GRADE AND AT ALL FLOOR SHALL BE BLACK STEEL. SLEEVES THROUGH WALLS AND CEILINGS MAY BE 20 GAUGE GALVANIZED SHEET METAL. WHERE PIPES ARE INSULATED, SLEEVES SHALL BE LARGE ENOUGH TO PASS THE INSULATION. ALL PENETRATION VOIDS SHALL BE SEALED SMOKE TIGHT WITH NON-COMBUSTIBLE MATERIALS SIMILAR TO 3M OR HILTI FIRESTOP SYSTEMS TO MAINTAIN THE INTEGRITY OF THE FIRE RATED STRUCTURE. IN A NON FIRE RATED ASSEMBLY, SEAL ALL VOIDS WITH NON-HARDENING SEALANT.

HANGERS AND SADDLES

SHALL BE MODERN PIPE SUPPORTS CORP., GRINNELL/ANVIL, AUTO GRIP OR M-CO. FOR COPPER PIPE WITH STEEL HANGERS, CLEAN AND WRAP PIPE WITH TWO LAYERS OF PLASTIC INSULATING TAPE AT POINTS OF CONTACT. HANGERS FOR PIPING WITH VAPOR BARRIER SEALED INSULATION SHALL BE MULTI-PURPOSE PIPE SADDLES FITTING OVER THE INSULATION. WIRE OR PERFORATED STRAP IRON WILL NOT BE PERMITTED FOR PIPE SUPPORTS. HANGERS SHALL BE CLEVIS OR SPLIT RING TYPE WITH VERTICAL ADJUSTMENT AND BEAM CLAMP SIMILAR TO GRINNELL/ANVIL FIG. 260, WITH MAXIMUM SPACING PER ASHRAE STANDARDS.

PIPE SIZE	STEEL PIPE	COPPER PIPE	PVC PIPE	ROD SIZE
1/2 TO 3/4 INCH	6 FEET	5 FEET	4 FEET	3/8"
1 INCH	7 FEET	5 FEET	4 FEET	3/8"
1 1/4 INCH	7 FEET	5 FEET	4 FEET	3/8"
1 1/2 INCH	7 FEET	7 FEET	4 FEET	1/2"
2 INCH	10 FEET	8 FEET	4 FEET	1/2"
2 1/2 INCH	11 FEET	9 FEET	4 FEET	5/8"
3 INCH	11 FEET	9 FEET	4 FEET	5/8"
3 1/2 INCH	13 FEET	11 FEET	4 FEET	5/8"
4 INCH	14 FEET	12 FEET	4 FEET	3/4"
5 INCH	14 FEET	12 FEET	4 FEET	3/4"
6 INCH	14 FEET	--	4 FEET	3/4"

TESTING, FLUSHING AND CLEANING OF PIPING SYSTEMS

DOMESTIC WATER PIPING: BEFORE ANY FIXTURES ARE CONNECTED, HYDROSTATICALLY TEST AT 100 PSIG OR 50 PSIG IN EXCESS OF THE WORKING PRESSURE WHICHEVER IS GREATER, AT THE LOWEST POINT IN THE SYSTEM FOR A MINIMUM OF (4) HOURS. THIS PRESSURE TO BE ON PIPING ONLY, NOT ON FIXTURES.

NATURAL GAS PIPING SHALL BE TESTED AS RECOMMENDED BY CONSUMERS ENERGY.

CHLORINATION OF DOMESTIC WATER PIPING:

ALL DOMESTIC WATER PIPING AND EQUIPMENT SHALL BE COMPLETELY FLUSHED OUT AND CHLORINATED BEFORE PLACING SYSTEM IN SERVICE. CHLORINATION PROCEDURE SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL CODES AND STATE DEPARTMENT OF HEALTH. CHLORINE SHALL BE ADDED AT A RATE SUFFICIENT TO PROVIDE A SOLUTION MIXTURE OF AT LEAST 50 PPM AND HELD IN SYSTEM FOR A 24 HOUR RETENTION, AFTER IT SHALL BE FLUSHED OUT UNTIL THE CHLORINE RESIDUAL DOES NOT EXCEED 0.5 PPM.

PIPE INSULATION ON INDOOR SYSTEMS

PIPE INSULATION SHALL BE AS MANUFACTURED BY ARMSTRONG, CERTAINTED, KNAUF, MANSVILLE OR OWENS-CORNING. OWENS-CORNING NUMBERS ARE GIVEN TO ESTABLISH TYPES. ALL INSULATIONS, COVERINGS, VAPOR BARRIERS, ADHESIVES, ETC. SHALL BE CLASS A, MAXIMUM OF 25 FLAME SPREAD, 35 FUEL CONTRIBUTED AND 50 SMOKE DEVELOPED RATING. INSULATION SHALL HAVE VAPOR BARRIER AND BE UL RATED. INSULATION CORNING FIBERGLAS ASJ-SSL II PIPE COVERING WITH FACTORY APPLIED DOUBLE PRESSURE SENSITIVE ADHESIVE SYSTEM TO PROVIDE POSITIVE CLOSURES AND VAPOR BARRIER INTEGRITY.

ALL LONGITUDINAL JOINTS SHALL BE SECURED WITH SELF SEALING LAPS. ALL TRANSVERSE JOINTS SHALL BE SECURED WITH SELF-SEALING BUTT STRIPS. BUTT STRIPS SHALL BE MINIMUM 3" WIDE. APPLY INSULATION TO PIPE WITH ALL JOINTS BUTTED TIGHTLY TOGETHER. FITTINGS, INCLUDING VALVES, FLANGES, UNIONS, ETC. SHALL BE INSULATED WITH THE SAME THICKNESS AS THE REQUIRED PIPE INSULATION AND COVERED WITH ZESTON OR SPEEDLINE PVC FITTINGS COVER.

INSULATION THICKNESS SHALL BE AS FOLLOWS:

PIPING SYSTEM	PIPE SIZES	INSULATION THICKNESS
DOMESTIC COLD WATER	ALL SIZES	1"
DOMESTIC HOT WATER AND HOT WATER RETURN	UP THRU 3" 4" AND LARGER	1" 1 1/2"

CLEAN ALL SURFACES BEFORE APPLYING COVERING. INSULATION SHALL BE CONTINUOUS THROUGH WALLS, FLOORS, CEILINGS, ETC. TERMINATE AND SEAL INSULATION AT BOTH ENDS OF UNINSULATED UNIONS AND FLANGES BY A NEAT 45 DEGREE BEVEL. INSTALL ALL INSULATION IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

ASBESTOS INSULATION

ALL EXISTING ASBESTOS INSULATION ON EXISTING PIPING, EQUIPMENT, ETC. WHERE TIE-INS ARE REQUIRED, SHALL BE REMOVED BY THE OWNER.

PIPE IDENTIFICATION

ALL PIPING SHALL BE IDENTIFIED PER ANSI/OSH A OR OWNER'S STANDARDS WITH COLOR PIPE BANDS, IDENTIFICATION LABELS AND FLOW ARROWS. PIPES SHALL BE Banded AND LABELED ON 10'-0" CENTERS ON CONTINUOUS LINES, AT EQUIPMENT CONNECTIONS, AT BOTH SIDES OF A WALL THROUGH WHICH PIPE PASSES AT EVERY BRANCH CONNECTION, ON PIPING WITHIN SIGHT OF AN ACCESS DOOR OR PANEL. SHOW SLOPE DIRECTIONAL ARROWS AT EACH IDENTIFICATION POINT. LABELS, FLOW ARROWS AND STENCIL AND PAINT SHALL BE 1" HIGH ON PIPING UP TO 2 1/2" AND SHALL BE 2" HIGH ON PIPE SIZES OF 3" AND LARGER. BANDS SHALL BE 1 1/2" WIDE. LABELS SHALL BE AS MANUFACTURED BY SETON OR W.H. BRADY COMPANY OR EQUAL. VERIFY TYPE, SIZE AND COLORS OF PIPE IDENTIFICATION WITH OWNER.

GENERAL PLUMBING AND PIPING NOTES

WHERE DISSIMILAR MATERIAL PIPING ARE JOINED, DIELECTRIC NIPPLES SHALL BE UTILIZED AND SHALL BE NON-CONDUCTING FOR CONNECTION OF DISSIMILAR MATERIALS. DIELECTRIC NIPPLES SHALL BE SIMILAR TO VICTAULIC STYLE 47. A BRASS ADAPTOR DIELECTRIC UNION IS NOT ACCEPTABLE.

ALL PLUMBING FIXTURES SHALL BE INDEPENDENTLY VALVED WITH CHROME PLATED OR BRASS STOPS.

PIPING SHALL BE COMPLETE FROM SERVICE CONNECTION TO ALL FIXTURES, EQUIPMENT, OUTLETS, ETC.

ALL BRACKETS, CLEATS, PLATES, ANCHORS, ETC. REQUIRED TO SUPPORT FIXTURES OR PIPING SHALL BE FURNISHED.

SHUT OFF VALVES SHALL BE INSTALLED AT ALL BRANCH LINES OFF MAIN PIPING, OR WHERE MAINS DIVIDE/SEPARATE TO SERVE DIFFERENT AREAS, TO ALLOW ISOLATION OF ALL BRANCH PIPING AND SYSTEMS THEY SERVE SUCH AS TOILET ROOMS, AREAS OR WINGS OF THE BUILDING, ETC.

DUCTWORK

DUCTS, CASINGS, HOUSINGS, ETC. SHALL BE FABRICATED FROM PRIME QUALITY, HOT DIP GALVANIZED STEEL SHEET AS RECOMMENDED IN THE LATEST ISSUES OF ASHRAE GUIDE AND SMACNA DUCT MANUALS. FOR EXHAUST AIR, OUTSIDE AIR INTAKE AND RELIEF AIR DUCTS, DUCT CONSTRUCTION AND INSTALLATION SHALL MEET SMACNA STANDARDS FOR 2" W.C.

INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE IF POSSIBLE; MAXIMUM 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM. SEAL ALL EDGES WITH FIRE RETARDANT DUCT SEALER.

PLUMBING PIPING AND EQUIPMENT SUPPORT

ATTACHMENTS OF MECHANICAL EQUIPMENT TO STRUCTURAL MEMBERS ARE THE RESPONSIBILITY OF THE INSTALLING TRADE. STRUCTURAL MEMBERS SHALL NOT BE FIELD CUT, WELDED OR OTHERWISE MODIFIED WITHOUT APPROVAL OF THE ARCHITECT/ENGINEER. ATTACHMENT TO JOIST SHALL BE MADE AT JOIST. WHEN ROUTING PIPING OR DUCTWORK PERPENDICULAR TO JOIST, A SUPPORT SHALL BE PROVIDED AT EVERY STEEL JOIST; WHEN PARALLEL TO JOIST, A SUPPORT SHALL BE PROVIDED AT NO MORE THAN 6' ON CENTERS OR TWO PANEL BAYS. STRUCTURAL MEMBERS SHALL NOT BE OVERLOADED AS A RESULT OF ATTACHMENTS. ATTACHMENT/EQUIPMENT LOADING FOR ALL TRADES RESULTING IN TOTAL LOAD GREATER THAN AN EQUIVALENT UNIFORM 5 PSF FOR ANY MEMBER SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW. MECHANICAL TRADES MAY CONTACT THE PROJECT STRUCTURAL ENGINEER AS REQUIRED FOR PANEL POINT LOCATION REQUIREMENTS. ELECTRICAL TRADES ARE STILL RESPONSIBLE FOR DESIGN, LAYOUT, AND FABRICATION AND INSTALLATION OF ELECTRICAL SUPPORTS AND SUPPORT ATTACHMENT METHODS. MECHANICAL TRADES SHALL SUBMIT ATTACHMENT METHODS TO THE STRUCTURAL ENGINEER FOR REVIEW.

DUCT SEALANT

ALL DUCTWORK INCLUDING SUPPLY AIR, OUTSIDE AIR, RETURN AIR, EXHAUST AIR AND RELIEF AIR DUCT SYSTEMS SHALL HAVE ALL JOINTS SEALED. DUCTWORK DESIGNED AT SMACNA 2" PRESSURE SHALL MEET SMACNA CLASS "C" SEAL REQUIREMENTS.

DUCT HANGERS

HORIZONTAL STEEL DUCTWORK SHALL BE SUPPORTED BY MEANS OF TRAPEZE BARS AND ROUND STEEL ROD OF SIZES LISTED BELOW. ROUND STEEL RODS SHALL BE ELECTRO-GALVANIZED ALL-THREAD ROD. HANGERS SHALL BE PROVIDED AT BOTH SIDES OF FLAT SIDED DUCTWORK FOR THE FULL HEIGHT OF DUCT. ROUND DUCTWORK SHALL BE

PROVIDED WITH A BAND OF THE SAME SIZE AS THE HANGER TO COMPLETELY ENVICRICLE THE DUCT. BAND SHALL BE SECURED TO THE HANGER BY MEANS OF A MINIMUM 3/16" BOLT. MINIMUM DUCT HANGER SIZES SHALL BE AS LISTED BELOW

DUCT SIZE	MIN. UPPER ATTACHMENT RATING	STEEL ROD	MAXIMUM SPACING	NO. OF HANGERS	MINIMUM TRAPEZE SHELF ANGLE
UP TO 16"	750 LBS.	3/8"	10'	2	1 1/2" X 1 1/2" X 3/16"
16" TO 36"	1000 LBS.	3/8"	10'	2	1 1/2" X 1 1/2" X 3/16"

TESTING, ADJUSTING AND BALANCING

TESTING, ADJUSTING AND BALANCING SHALL BE PERFORMED BY AN INDEPENDENT CERTIFIED AGENCY IN ACCORDANCE WITH AABC, ADG, ASHRAE III, NEBB AND SMACNA STANDARDS. FURNISH REPORTS OF AIR AND WATER SYSTEMS BALANCE REPORTS TO THE ENGINEER INDICATING DESIGN AND ACTUAL QUANTITIES, NAMEPLATE DATA, ETC.

ACCEPTABLE TEST AND BALANCE CONTRACTORS:

- HITECH TEST AND BALANCE (FREELAND, MI)
- ABSOLUTE BALANCE COMPANY (SOUTH LYON, MI)
- ENVIRO-AIRE/TOTAL BALANCE COMPANY (ST. CLAIR SHORES, MI)
- ENER-TECH TESTING (HOLLY, MI)
- INTERNATIONAL TEST AND BALANCE (SOUTHFIELD, MI)

AIR SYSTEMS ADJUST AIR HANDLING, DISTRIBUTION SYSTEMS, AIR INLETS AND OUTLETS, ETC. TO PROVIDE SUPPLY, RETURN, EXHAUST, OUTSIDE AIR AND RELIEF AIR QUANTITIES TO WITHIN 10% OF REQUIRED OR DESIGNED AIR QUANTITIES. VERIFY THAT SYSTEMS ARE COMPLETE AND OPERABLE BEFORE COMMENCING WORK. VERIFY SYSTEMS ARE STARTED AND OPERATING AT A SAFE AND NORMAL OPERATION. TEMPERATURE CONTROL SYSTEMS ARE INSTALLED COMPLETE AND OPERABLE, PROPER THERMAL OVERLOAD PROTECTION IS IN PLACE FOR ELECTRICAL EQUIPMENT, FINAL FILTERS ARE CLEAN AND IN PLACE, DUCT SYSTEMS ARE CLEAN OF DEBRIS, FANS ARE ROTATING CORRECTLY, FIRE AND VOLUME DAMPERS ARE IN PLACE AND IN OPEN POSITIONS, AIR COIL FINS ARE CLEANED AND COMBED, ACCESS DOORS ARE CLOSED AND DUCT END CAPS ARE IN PLACE, AIR OUTLETS ARE INSTALLED AND CONNECTED, DUCT SYSTEM LEAKAGE IS MINIMIZED, ETC. MEASURE AND RECORD ALL AIR MOVING EQUIPMENT, AIR INLETS AND OUTLETS STATIC PRESSURES, RPM'S, ETC.

WATER SYSTEMS VERIFY THAT SYSTEMS ARE COMPLETE AND OPERABLE BEFORE COMMENCING WORK. VERIFY SYSTEMS ARE STARTED AT A SAFE AND NORMAL OPERATION. TEMPERATURE CONTROL SYSTEMS ARE INSTALLED COMPLETE AND OPERABLE, PROPER THERMAL OVERLOAD PROTECTION IS IN PLACE FOR ELECTRICAL EQUIPMENT, HYDRONIC SYSTEMS ARE FLUSHED, FILLED AND VENTED, PUMPS ARE ROTATING CORRECTLY, PROPER STRAINER BASKETS ARE CLEAN AND IN PLACE, SERVICE AND BALANCE VALVES ARE OPEN, ETC. ADJUST WATER SYSTEMS TO PROVIDE REQUIRED OR DESIGN QUANTITY AND TO PROVIDE SPECIFIED OR SCHEDULES PRESSURE DROPS AND FLOWS THROUGH EQUIPMENT, COILS, ETC. VERIFY FLOWS BY MEANS OF BALANCING COCKS, VALVES AND FITTINGS.

FIRE PROTECTION PIPING

SCOPE OF WORK

DESIGN AND PROVIDE AN AUTOMATIC SPRINKLER AND STANDPIPE SYSTEM FOR ALL PORTIONS OF THE NEW ADDITION. FURNISH AND INSTALL ALL PIPING, SPRINKLER AND ACCESSORIES AND APPURTENANCES FOR COMPLETE SYSTEMS AS SHOWN ON DRAWINGS AND HEREINAFTER SPECIFIED. THE ENTIRE INSTALLATION SHALL BE STRICTLY IN ACCORDANCE WITH NFPA STANDARD NO. 13, SPRINKLER SYSTEMS, AND SHALL MEET THE REQUIREMENTS OF THE OWNERS INSURANCE CARRIER, GOVERNING FIRE MARSHAL AND ALL OTHER AUTHORITIES HAVING JURISDICTION. SYSTEMS SHALL BE HYDRAULICALLY DESIGNED, DETAILED, FURNISHED AND INSTALLED BY A COMPETENT, EXPERIENCED AND LICENSED FIRE PROTECTION CONTRACTOR REGULARLY ENGAGED IN FURNISHING AND INSTALLING FIRE PROTECTION SYSTEMS.

CONTRACTOR SHALL FURNISH COMPLETE DETAILED COMPUTER AIDED DESIGN (CAD) WORKING DRAWINGS, HYDRAULIC CALCULATIONS AND EQUIPMENT SHOP DRAWINGS OF THE SYSTEM AND SHALL SUBMIT THEM TO THE OWNERS INSURANCE CARRIER AND GOVERNING FIRE MARSHAL FOR THEIR REVIEW AND APPROVAL. SHOP DRAWINGS SHALL BEAR DESIGNERS/INSTALLERS STATE OF MICHIGAN LICENSE NUMBER AND CERTIFICATION NUMBER, AND HAVE APPROVAL OF FIRE MARSHAL BEFORE BEING SUBMITTED TO THE ENGINEER. EIGHT COPIES OF APPROVED DRAWINGS, CALCULATIONS, SHOP DRAWINGS AND PRODUCT DATA SHALL BE SUBMITTED TO ARCHITECT/ENGINEER FOR REVIEW. NO WORK SHALL BE COMMENCED BEFORE SHOP DRAWINGS ARE REVIEWED BY ARCHITECT/ENGINEERS.

ALL PERMITS, LICENSES, FEES, INSPECTIONS AND ARRANGEMENTS REQUIRED FOR THE WORK UNDER THIS CONTRACT SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR. DOCUMENTATION SHALL BE PROVIDED AS REQUIRED BY THE STATE FIRE MARSHAL. AT COMPLETION OF THE PROJECT, THE FIRE PROTECTION CONTRACTOR SHALL CLEAN, LUBRICATE AND OPERATE ALL CONTROL VALVES, ALARMS AND DEVICES. PROVIDE OWNER WITH TWO COPIES OF NFPA STANDARD NO. 25 ON INSPECTION, TESTING AND MAINTENANCE OF WATER BASED FIRE PROTECTION SYSTEMS AND MAINTENANCE AND PARTS LISTS FOR ALL EQUIPMENT INSTALLED. INSTALL HYDRAULIC DESIGN PLATE ON SPRINKLER RISER AS PER SECTION 10-5 AND PROVIDE SPARE SPRINKLER HEADS WITH WRENCHES IN WALL MOUNTED BOX NEAR RISER AS PER SECTION 3-2.9 IN THE 1999 EDITION OF NFPA 13.

CONTRACTOR SHALL BE RESPONSIBLE FOR TOTAL SYSTEM DESIGN AND LAYOUT OF SPRINKLER HEADS AND PIPING. FIRE PROTECTION CONTRACTOR SHALL BE LICENSED AND CERTIFIED BY THE STATE OF MICHIGAN FOR THE DESIGN AND INSTALLATION OF FIRE PROTECTION STANDPIPE, HOSE AND SPRINKLER SYSTEMS. SPRINKLER HEADS FOR SUSPENDED CEILINGS SHALL BE: STANDARD COVERAGE SEMI-RECESSED PENDANT TYPE WITH MATCHING PUSH-ON ESCUTCHEON PLATE. USED IN FINISH AREAS UNLESS NOTED OTHERWISE ON DRAWINGS). CHROME PLATED HEAD AND ESCUTCHEON. ESCUTCHEON PLATE FINISH: CHROME PLATED. FUSIBLE LINK SHALL BE GLASS BULB TYPE. TEMPERATURE RATED FOR SPECIFIC AREA HAZARD. EXPOSED AREA SPRINKLER HEAD SHALL BE: STANDARD COVERAGE UPRIGHT TYPE WITH BRASS HEAD FINISH. FUSIBLE LINK SHALL BE: FUSIBLE SOLDER LINK TYPE. TEMPERATURE RATED FOR SPECIFIC AREA HAZARD. GUARDS: FINISH TO MATCH SPRINKLER HEAD.

PIPE HANGERS AND SUPPORTS

PIPE HANGERS SHALL:

CONFORM TO NFPA 13 AND NFPA 14.
HANGERS FOR PIPE SIZES ½ TO 1½ INCH: MALLEABLE IRON, ADJUSTABLE SWIVEL, SPLIT RING.
HANGERS FOR PIPE SIZES 2 INCHES AND OVER: CARBON STEEL, ADJUSTABLE, CLEVIS.
MULTIPLE OR TRAPEZE HANGERS: STEEL CHANNELS WITH WELDED SPACERS AND HANGER RODS.
WALL SUPPORT FOR PIPE SIZES TO 3 INCHES: CAST IRON HOOK.
WALL SUPPORT FOR PIPE SIZES 4 INCHES AND OVER: WELDED STEEL BRACKET AND WROUGHT STEEL CLAMP.
VERTICAL SUPPORT: STEEL RISER CLAMP.
FLOOR SUPPORT: CAST IRON ADJUSTABLE PIPE SADDLE, LOCKNUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT.
COPPER PIPE SUPPORT: CARBON STEEL RING, ADJUSTABLE, COPPER PLATED.

INSTALL PIPING IN ACCORDANCE WITH NFPA 13 FOR SPRINKLER SYSTEMS, NFPA 14 FOR STANDPIPE AND HOSE SYSTEMS, NFPA 24 FOR SERVICE MAINS AND NFPA 70 NATIONAL ELECTRICAL CODE AND ALL OTHER APPLICABLE CODES AND REGULATIONS. HYDROSTATICALLY TEST ENTIRE SYSTEM IN ACCORDANCE WITH NFPA 14. TEST SHALL BE WITNESSED BY AUTHORITY HAVING JURISDICTION AND ARCHITECT/ENGINEER.

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RENOVATIONS FOR

ZEHNDER'S SPLASH VILLAGE

FRANKENMUTH, MI

DRAWN BY

DATE

APPROVED

SHEET NO.

12/05/25

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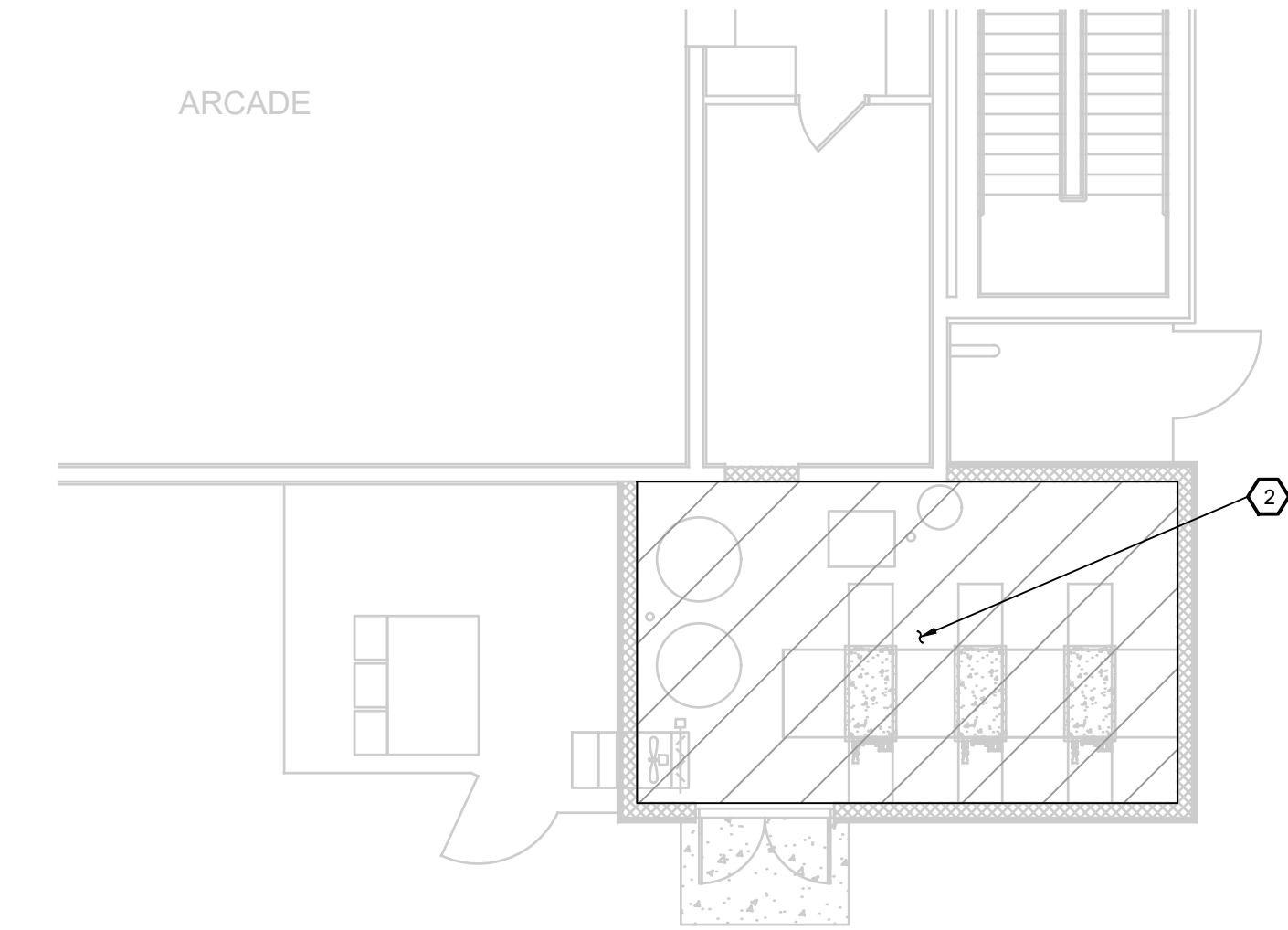
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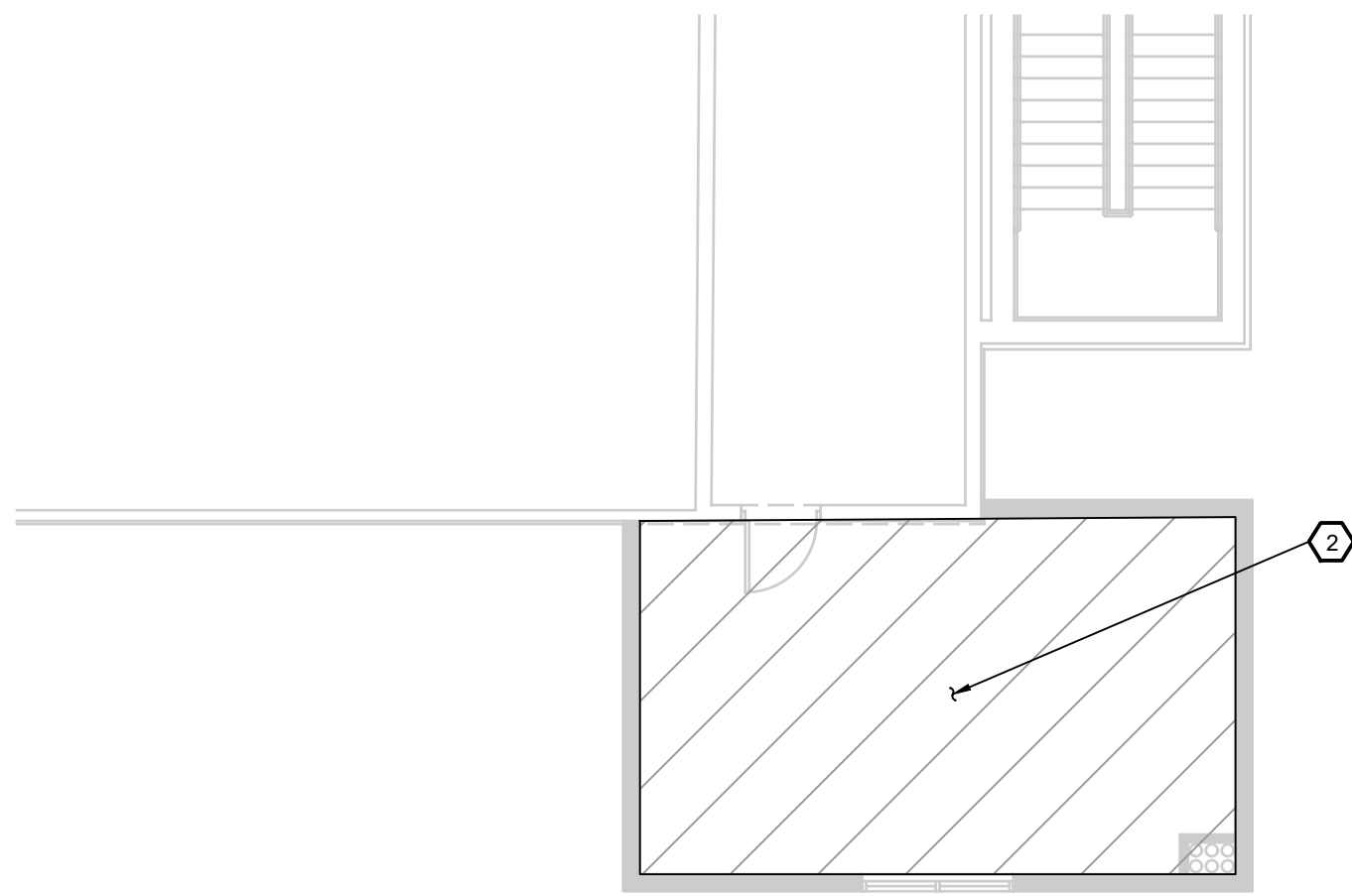
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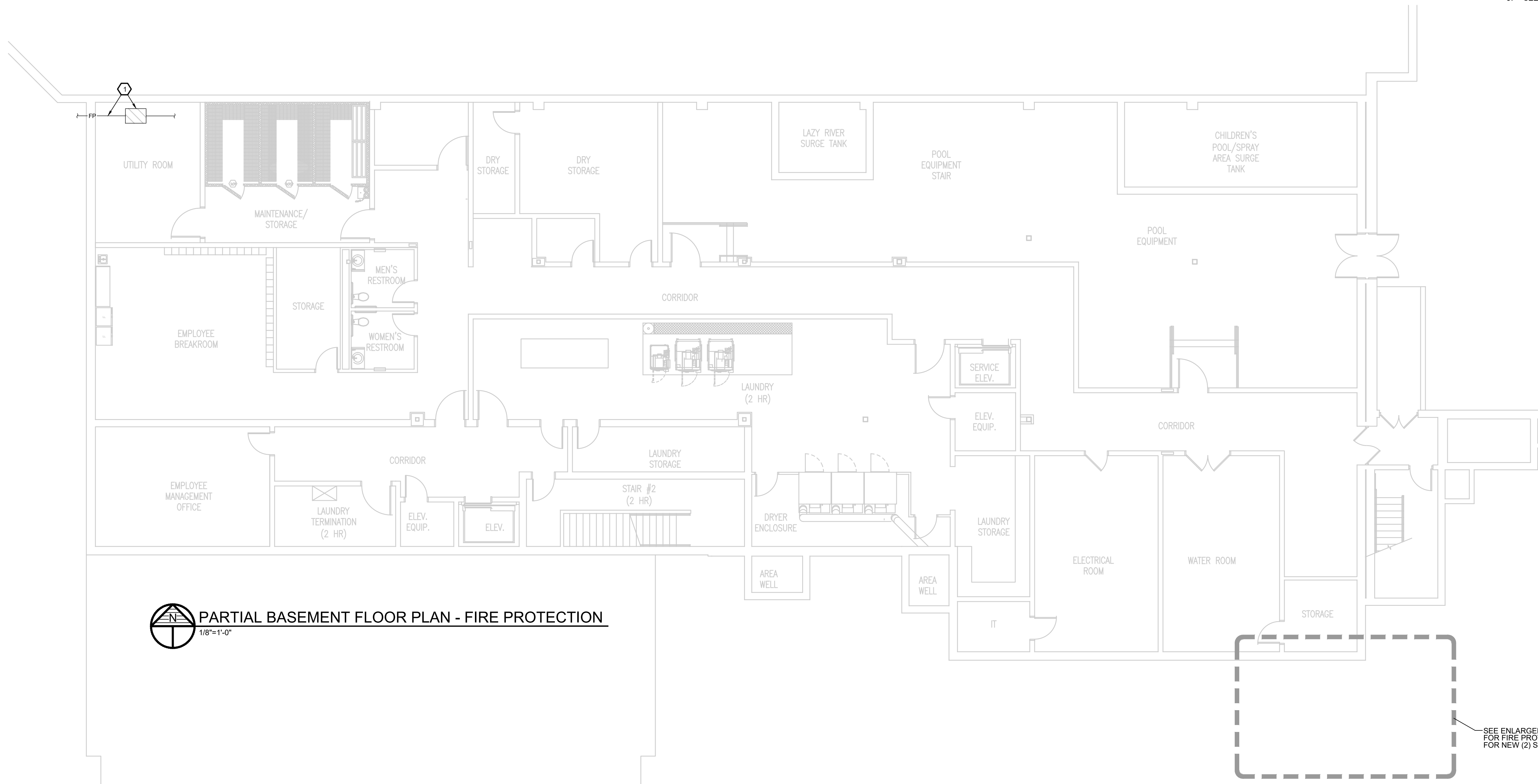
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 **PARTIAL FIRST FLOOR PLAN - FIRE PROTECTION**
1/8"=1'-0"



 **PARTIAL SECOND FLOOR PLAN - FIRE PROTECTION**
1/8"=1'-0"



 **PARTIAL BASEMENT FLOOR PLAN - FIRE PROTECTION**
1/8"=1'-0"

KEYED NOTES:

1. LOCATION OF EXISTING 8" FIRE PROTECTION MAIN AND FIRE PROTECTION PUMP.
2. THE SHADED AREA SHALL BE COVERED BY A WET FIRE PROTECTION SPRINKLER SYSTEM. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR HIRING THE SERVICES OF A LICENSED FIRE PROTECTION CONTRACTOR TO DESIGN, DETAIL AND INSTALL A FIRE PROTECTION SPRINKLER SYSTEM TO COVER THIS AREA.

FIRE PROTECTION NOTES

1. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR HIRING THE SERVICES OF A LICENSED FIRE PROTECTION CONTRACTOR TO DESIGN, DETAIL AND INSTALL A FIRE PROTECTION SPRINKLER SYSTEM TO COVER AREAS NOTED.
2. THE ENTIRE FIRE PROTECTION SYSTEM DESIGN AND INSTALLATION SHALL BE STRICTLY IN ACCORDANCE WITH NFPA 13 SPRINKLER SYSTEMS AND SHALL MEET THE REQUIREMENTS OF THE LOCAL AND STATE FIRE MARSHAL AND ALL OTHER AUTHORITIES HAVING JURISDICTION.
3. ALL PERMITS, LICENSES, FEES, INSPECTIONS AND ARRANGEMENT/COORDINATION OF SUCH SHALL BE OBTAINED AND PAID FOR BY THE FIRE PROTECTION CONTRACTOR.
4. THE FIRE PROTECTION CONTRACTOR SHALL PROVIDE A FLOW TEST AND FURNISH COMPLETE DETAILED COMPUTER AIDED DESIGN (CAD) WORKING DRAWINGS OF THE SYSTEM AND SHALL SUBMIT THEM TO THE FIRE MARSHAL, ARCHITECT/ENGINEER, AND ALL AGENCIES REQUIRED BY CODE FOR THEIR REVIEW AND APPROVAL. NO WORK OR FABRICATION SHALL COMMENCE BEFORE THE DETAILED WORKING DRAWINGS OF THE SYSTEM, WITH THE AGENCIES APPROVALS, ARE SUBMITTED TO AND ARE REVIEWED BY THE ARCHITECT/ENGINEER. SYSTEM SHALL BE COMPLETE WITH OUTSIDE ALARM BELL, FLOW SWITCH, SUPERVISORY SWITCH ON SYSTEM CONTROL VALVE, HYDRAULIC DESIGN PLATE AT MAIN RISER, SPARE HEADS AND WRENCH, DOCUMENTATION, ETC.
5. THE FIRE PROTECTION CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND VERIFY TIE-IN LOCATION, ROUTING OF PIPING, LOCATION OF SPRINKLER HEADS WITH RESPECT TO DUCTS, EQUIPMENT, LIGHT FIXTURES, ETC. SPRINKLER HEADS SHALL BE CENTERED IN CEILING TILES AND HALF TILES.
6. LAYOUT AND DESIGN OF THE SYSTEM SHALL BE BASICALLY AS DESIGNED FOR REQUIRED OCCUPANCY HAZARD. SYSTEMS SHALL BE SIZED BY HYDRAULIC CALCULATIONS PER NFPA PAMPHLET NO. 13. EXTENDED COVERAGE SPRINKLER HEAD SYSTEM WILL NOT BE ACCEPTED WITHOUT WRITTEN APPROVAL FROM ENGINEER.
7. DRAWINGS SHOW POSSIBLE LOCATION AND SIZE FOR FIRE PROTECTION WATER SERVICE. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF THE FIRE PROTECTION WATER SERVICE SIZE BY VERIFICATION OF LOCAL WATER PRESSURE AND FLOW FROM THE LOCAL AUTHORITIES. THIS VERIFICATION SHALL BE PERFORMED DURING BIDDING AND NOTIFICATION TO THE ARCHITECT/ENGINEER OF ANY NECESSARY FIRE PROTECTION SERVICE CHANGES SHALL BE MADE 5 DAYS PRIOR TO BID DATE. THE COMPLETED SYSTEM SHALL BE IN ACCORDANCE WITH NFPA-13 REQUIREMENTS.
8. THE CONTRACTOR SHALL INCLUDE IN THEIR BID ANY COST FOR REQUESTING AUTOCAD BACKGROUNDS FOR THEIR USE FROM THE ARCHITECT OR ENGINEER. THE COST WILL BE \$150.00 FOR THE FIRST PLAN, AND \$50.00 FOR EACH ADDITIONAL PLAN THAT MAY BE REQUESTED FOR AUTOCAD USE. A WAIVER OF RESPONSIBILITY FOR THE ARCHITECT AND ENGINEER RELATED TO CONTRACTOR USE OF THE CAD FILES SHALL BE SIGNED BY THE CONTRACTOR.
9. SEE SPECIFICATION FOR FURTHER INFORMATION AND REQUIREMENTS.

NO.	DATE	ISSUED FOR BID	
		NO.	REVISION
12/05/25			

DRAWN BY STM

DATE 12/05/25

APPROVED GRS

SHEET NO.

FP1.1

PROJECT NO.
2529