



YORK COUNTY PRISON WATER HEATING SYSTEM UPGRADES

778 JUSTICE BLVD
YORK, SC 29745

VICINITY MAP

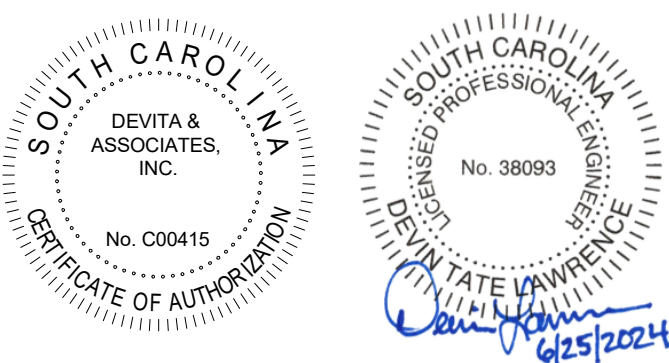


PROJECT SCOPE

THE PROJECT SCOPE OUTLINED IN THIS SET OF DOCUMENTS INCLUDES A FULL WATER HEATER REPLACEMENT.

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CODE INFORMATION
2021 SOUTH CAROLINA BUILDING CODE
2021 SOUTH CAROLINA FIRE CODE
2021 SOUTH CAROLINA PLUMBING CODE
2021 SOUTH CAROLINA FUEL GAS CODE
2021 SOUTH CAROLINA MECHANICAL CODE
2020 NATIONAL ELECTRICAL CODE (NFPA 70)
2009 INTERNATIONAL ENERGY CONSERVATION CODE



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PROJECT INFORMATION:

YORK COUNTY PRISON WATER HEATING SYSTEM UPGRADES

778 JUSTICE BLVD
YORK, SC 29745

ISSUE DATE: 06/25/2024

REVISIONS		
NO.	DATE	DESCRIPTION

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DRAWING NAME
TITLE SHEET

DRAWING NO.
T0.1
Drawn By: DTL Checked By: SLE

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HOT WATER FIXTURE LOAD CALCULATION - 125°F				
FIXTURE/EQUIPMENT	QUANTITY	EQUIPMENT GPM	WATER HWFU PER FIXTURE	TOTAL HWFU
COMBINATION FIXTURE	27	-	0.5	13.5
LAVATORY	39	-	1.0	39.0
MOP SINK	6	-	2.25	13.5
MOP SINK/CAN WASH	1	-	1.5	1.5
WALL SHOWER	32	-	3.0	96.0
SHOWER	2	-	1.0	2.0
EMERGENCY EYE/FACE WASH	1	-	10.0	10.0
DENTAL SINK	1	-	1.0	1.0
HAND SINK	2	-	1.0	2.0
TOTAL 125°F HWFU				178.5
EQUIPMENT 125°F = GPM	0.0	GPM 125°F HWFU		60.7
TOTAL 125°F DEMAND				60.7 GPM
41.0 GPM OF 160°F WATER REQUIRED TO DELIVER 60.7 GPM OF 125°F WATER				

HOT WATER FIXTURE LOAD CALCULATION - 140°F					
FIXTURE/EQUIPMENT	QUANTITY	EQUIPMENT GPM	WATER		
			HWFU PER FIXTURE	TOTAL HWFU	
BEVERAGE COUNTER	1	-	0.5	0.5	
HOSE REEL	1	-	2.25	2.25	
3-COMP. SINK	3	-	3.0	9.0	
SOILED DISHTABLE	1	-	1.0	1.0	
DISHWASHER	1	5.0	-	-	
TOTAL 140°F HWFU				12.75	
EQUIPMENT 140°F = GPM	5.0	GPM 140°F HWFU		16.4	
TOTAL 140°F DEMAND				21.4 GPM	
17.0 GPM OF 160°F WATER REQUIRED TO DELIVER 21.4 GPM OF 140°F WATER					

HOT WATER FIXTURE LOAD CALCULATION - 160°F					
FIXTURE/EQUIPMENT	QUANTITY	EQUIPMENT GPM	HWFU PER FIXTURE	TOTAL HWFU	
WASHER/EXTRACTOR, 30 LB	2	2.3	-	-	
LAUNDRY SINK	1	-	1.5	1.5	
TOTAL 160°F HWFU				1.5	
EQUIPMENT 160°F = GPM		4.6	GPM 160°F HWFU	4.0	
TOTAL 160°F DEMAND				8.6 GPM	

HOT WATER FIXTURE LOAD CALCULATION TOTALS				
SYSTEM DESCRIPTION		TOTAL 125° F WATER REQUIRED	TOTAL 140° F WATER REQUIRED	QUANTITY OF 160° F WATER NEEDED
125° F SYSTEM		60.7 GPM	-	41.0 GPM
140° F SYSTEM		-	21.4 GPM	17.0 GPM
160° F SYSTEM		-	-	8.6 GPM
TOTAL 160° F WATER REQUIRED				66.6 GPM
TOTAL 160° F WATER PRODUCED @ 100° F RISE				3.8 GPM
TOTAL REQUIRED TANKLESS HEATERS				18
BASED ON 199,000 BTUH RATING OF EACH CONDENSING HEATER AS SCHEDULED				


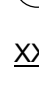






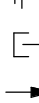













HOT WATER RECIRCULATION PUMP SCHEDULE								
MARK	SERVES	MANUFACTURER	MODEL	GPM	HEAD (FEET)	DISCHARGE SIZE (INCHES)	ELECTRICAL V/PH/Hz	NOTES
RCP-1	125°F WATER HEATER A152	TACO	DHW VR194H	30	50	2" FLANGED	120V/160	A thru D
RCP-2	140°F WATER HEATER A152	TACO	0011-SF	4	27	3/4" FLANGED	120V/60	A thru D
RCP-3	160°F WATER HEATER A152	TACO	0011-SF	4	23	3/4" FLANGED	120V/60	A thru D
NOTES: A. ELECTRICAL CONTRACTOR SHALL PROVIDE STARTERS AND DISCONNECTS FOR ALL RCP AS REQUIRED. COORDINATE ELECTRICAL REQUIREMENTS WITH ELECTRICAL CONTRACTOR. B. RCP SHALL BE CONTROLLED BY AUTOMATIC SET FOR 5 DEG TEMPERATURE DIFFERENTIAL. C. PROVIDE WALL MOUNTING BRACKET, VIBRATION ISOLATION AND FLEXIBLE FLANGED CONNECTION TO PUMPS. D. PUMP CONSTRUCTION TO BE STAINLESS STEEL, COMPATIBLE FOR USE WITH DOMESTIC WATER SYSTEMS AND NSF 61 COMPLIANT.								

GAS DEMAND LOAD CALCULATIONS						
MARK	FIXTURE / EQUIPMENT	QUANTITY	EACH UNIT DEMAND BTUH	TOTAL DEMAND BTUH	TOTAL CFH	UNIT CONNECTION SIZE
QWH-1 THRU QWH-6	INSTANTANEOUS GAS WATER HEATER GROUP (6 HEATERS)	1	199,000	1,194,000	1,194.0	1-1/2"
QWH-7 THRU QWH-12	INSTANTANEOUS GAS WATER HEATER GROUP (6 HEATERS)	1	199,000	1,194,000	1,194.0	1-1/2"
QWH-13 THRU QWH-15	INSTANTANEOUS GAS WATER HEATER GROUP (3 HEATERS)	1	199,000	597,000	597.0	1-1/4"
QWH-16 THRU QWH-18	INSTANTANEOUS GAS WATER HEATER GROUP (3 HEATERS)	1	199,000	597,000	597.0	1-1/4"
TOTAL EXISTING LOAD				7,499,000	7,499.0	
DEMOLISHED LOAD (EXISTING WATER HEATERS)				<2,599,000>	<2,599.0>	
ADDED NEW LOAD (QWH1 - QWH18)				3,582,000	3,582.0	
TOTAL COMBINED NEW LOAD				8,482,000	8,482.0	

3" MAIN BUILDING FEED GAS LINE REQUIRED BASED ON 816 FT EQUIVALENT LENGTH OF PIPE AT 2 PSI, 1.0" WC DROP	
2" WATER HEATER BRANCH FEED GAS LINE REQUIRED BASED ON 816 FT EQUIVALENT LENGTH OF PIPE AT 2 PSI, 1.0" WC DROP	
GAS LOAD BASED ON 2021 SOUTH CAROLINA FUEL GAS CODE	
NOTE: GAS LOAD BASED ON 2021 SOUTH CAROLINA FUEL GAS CODE, SECTION 402 (FGS) PIPE SIZING, 402.2 MAXIMUM GAS DEMAND AND TABLES: 2021 SCFGC TABLE 404.4(2) - LESS THAN 2 PSI, 0.5" WC PRESSURE DROP, .60 SPECIFIC GRAVITY, BASED ON 90 FEET EQUIVALENT LENGTH. 2021 SCFGC TABLE 404.4(5) - 2 PSI, 1.0" WC PRESSURE DROP, .60 SPECIFIC GRAVITY, BASED ON 816 FEET (850FT) EQUIVALENT LENGTH.	

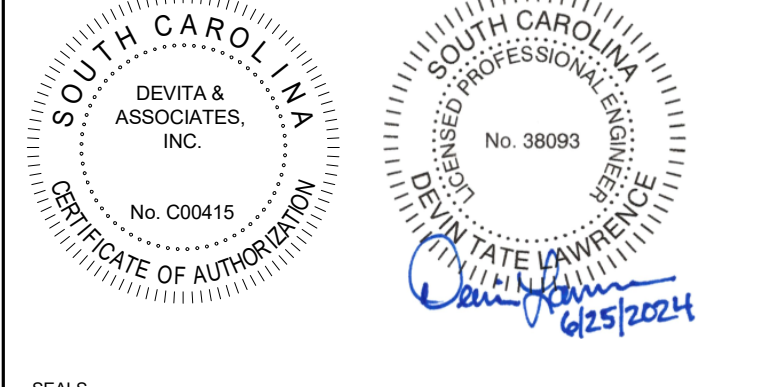
THERMOSTATIC MIXING VALVE SCHEDULE							
MARK	LOCATION	MANUFACTURER	MODEL	MAX PRESSURE DROP	GPM FLOW RATE (MAX/MIN)	NOTES	
TMV-1	125°F - WATER HEATER A152	LEONARD ASSE 1017	PNV-125-LF-R125 2.0 Controller	15 PSI	66 / 0.25	A, B, D	
TMV-2	140°F - WATER HEATER A152	LEONARD ASSE 1017	PNV-100-LF-R34 2.0 Controller	10 PSI	25 / 0.5	A, C, E	
TMV-3	100°F - WATER GANG SHOWER	LEONARD ASSE 1069	269-LF	5 PSI	3.5 / 1.0	F, G, J	
TMV-4	100°F - WATER GANG SHOWER	LEONARD ASSE 1069	369-LF	15 PSI	6.8 / 1.0	F, G, K	
TMV-5	100°F - WATER GANG SHOWER	LEONARD ASSE 1069	XL-690-LF-DT-TC	20 PSI	35 / 1.0	F, G, L	
TMV-6	105°F - WATER LAVATORY	LEONARD ASSE 1070	270-LF	5 PSI	3.5 / 0.25	F, J	
POU	POINT-OF-USE SEE PLANS	LEONARD ASSE 1070	1700-LF	10 PSI	1.25 / 0.25	H, I	

NOTES: A. MOUNT AT 6'-0" AFF. (SEE SECTIONS FOR INSTALLATION CONFIGURATION) B. SET OUTLET TEMPERATURE AT 125°F (ADJUST IN FIELD AS REQUIRED TO DESIRED DELIVERY TEMPERATURE AT EXISTING FIXTURES.) C. SET OUTLET TEMPERATURE AT 140°F (ADJUST IN FIELD AS REQUIRED TO DESIRED DELIVERY TEMPERATURE AT EXISTING FIXTURES.) D. PRE-ASSEMBLED ELECTRONIC MIXING STATION, PRE-PIPED, 3-WAY MIXING VALVE WITH UNION CONNECTIONS SERVICEABLE CHECK VALVES RECIRCULATION CONNECTION AND ISOLATION VALVES, ENHANCED CONTROLLER (PRE-MOUNTED AND PRE-WIRED) WITH WATER TEMPERATURE SENSORS, 100% FACTORY TESTED FOR PLUG-AND-PLAY IN A PACKAGED WALL MOUNT CONFIGURATION, PROVIDE 120 VAC PLUG-IN POWER SUPPLY WITH 6FT CORD TO THE CONTROLLER, CONNECTION: 1" INLET, 1-1/4" OUTLET AND 1-1/4" RETURN, COPPER PIPE CONNECTIONS. E. PRE-ASSEMBLED ELECTRONIC MIXING STATION, PRE-PIPED, 3-WAY MIXING VALVE WITH UNION CONNECTIONS SERVICEABLE CHECK VALVES RECIRCULATION CONNECTION AND ISOLATION VALVES, ENHANCED CONTROLLER (PRE-MOUNTED AND PRE-WIRED) WITH WATER TEMPERATURE SENSORS, 100% FACTORY TESTED FOR PLUG-AND-PLAY IN A PACKAGED WALL MOUNT CONFIGURATION, PROVIDE 120 VAC PLUG-IN POWER SUPPLY WITH 6FT CORD TO THE CONTROLLER, CONNECTION: 3/4" INLET, 1" OUTLET AND 3/4" RETURN, COPPER PIPE CONNECTIONS. F. MOUNT CENTERLINE OF MIXING VALVE 4'-0" A.F.F. IN CHASE WITH WALL MOUNTING BRACKET OR WITHIN 12" OF LAVIN CEILING AS APPLICABLE. PROVIDE REDUCING FITTINGS AS REQUIRED FOR CONNECTION TO PLAN INDICATED PIPE SIZE. G. SET OUTLET TEMPERATURE AT 100°F (ADJUST IN FIELD AS REQUIRED FOR MAXIMUM DELIVERY TEMPERATURE AT EXISTING SHOWERS.) H. 3/8" COMPRESSION CONNECTIONS - PROVIDE WITH WALL MOUNTING BRACKET, MOUNT HIGH AS POSSIBLE BENEATH SINK, PROVIDE NEW STAINLESS STEEL FLEXIBLE SUPPLY, COORDINATE WITH EXISTING STOPS AND FIXTURES. I. SET POU - POINT-OF-USE MIXING VALVE @ 105°F J. 1/2" MNPT CONNECTIONS - WITH INTEGRAL CHECK VALVES K. 3/4" MNPT CONNECTIONS - WITH INTEGRAL CHECK VALVES L. 1" FNPT INLETS AND 1-1/2" FNPT OUTLET - INTEGRAL CHECK VALVES AND INLET AND OUTLET DIAL THERMOMETERS.	
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PLUMBING SYMBOLS LEGEND	
PIPING LEGEND	
---CW---	DOMESTIC COLD WATER - CW
---(E)CW---	EXISTING DOMESTIC COLD WATER - (E)CW
---HW---	DOMESTIC HOT WATER - HW - 125°F
---(E)HW---	EXISTING DOMESTIC HOT WATER - (E)HW - 125°F
---HWR---	DOMESTIC HOT WATER RETURN - HWR - 125°F
---(E)HWR---	EXISTING HOT WATER RETURN - (E)HWR - 125°F
---HW(140°F)---	DOMESTIC HOT WATER - HW - 140°F
---(E)HW(140°F)---	EXISTING DOMESTIC HOT WATER - HW - 140°F
---HWR(140°F)---	DOMESTIC HOT WATER RETURN - 140°F
---(E)HWR(140°F)---	EXISTING HOT WATER RETURN - (E)HWR - 140°F
---HW(160°F)---	DOMESTIC HOT WATER - HW - 160°F
---(E)HW(160°F)---	EXISTING DOMESTIC HOT WATER - HW - 160°F
---HWR(160°F)---	DOMESTIC HOT WATER RETURN - 160°F
---(E)HWR(160°F)---	EXISTING HOT WATER RETURN - (E)HWR - 160°F
---IN---	COMBUSTION AIR - IN
---EX---	EXHAUST AIR - EX
---SS---	SANITARY SEWER PIPING - SS
---G---	NATURAL GAS PIPING - G
---(E)G---	EXISTING NATURAL GAS PIPING - (E)G
SYMBOL LEGEND	
	CONNECT TO EXISTING
	PLUMBING NOTE
	FIXTURE / EQUIPMENT DESIGNATION
	FLOOR DRAIN
	HUB DRAIN
	FLOOR/GRADE CLEANOUT
	WALL CLEANOUT
	P-TRAP
	PIPING TURNING UP
	PIPING TURNING DOWN
	VENT THRU ROOF
	GATE VALVE
	PRESS. REDUCING VALVE
	BACKFLOW PREVENTER
	STRAINER
	UNION
	WALL HYDRANT
	PIPE CAP
	FLOW INDICATOR
	REDUCER
	T&P VALVE
	CHECK VALVE
ABBREVIATIONS	
A	AMPS
ABF	ABOVE FINISHED FLOOR
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
CD	CONDENSATE DRAIN PIPING
CFH	CUBIC FEET PER HOUR
CO	CLEANOUT
CTE	CONNECT TO EXISTING
CW	COLD WATER (DOMESTIC)
CWFU	COLD WATER FIXTURE UNIT
DFU	DRAINAGE FIXTURE UNIT
DN	DOWN
ECO	EXTERIOR CLEANOUT
ELEV	ELEVATION
EWC	ELECTRIC WATER COOLER
E / EX	EXISTING
FD	FLOOR CLEANOUT
FD	FLOOR DRAIN
FLA	FULL LOAD AMPS
FOG	FATS, OIL, AND GREASE
FPM	FROSTPROOF WALL HYDRANT
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOOR SINK
FT / FT	FOOT / FEET
FT	FLUSH TANK
FV	FLUSH VALVE
G	GAS PIPING
GAL	GALLON
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GW	GREASE WASTE
GW&T	GREASE WASTE AND TRAP
HB	HOSE BIBB
HD	HUB DRAIN
HP	HORSE POWER
HW	HOT WATER (DOMESTIC)
HWFU	HOT WATER FIXTURE UNIT
HWR	HOT WATER RETURN (DOMESTIC)
HERZ	HERTZ
IN / "	INCH / INCHES
INV	INVERT
IW	INDIRECT WASTE
KW	KILOWATT
LRA	LOCKED ROTOR AMPS
MBH	THOUSAND BRITISH THERMAL UNITS
MAX	MAXIMUM
MIN	MINIMUM
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OST	OVERFLOW (EMERGENCY) STORM
PRV	PRESSURE REDUCING VALVE
RD	ROOF DRAIN
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE
SD	STORM DRAIN
SG	SPECIFIC GRAVITY
SS	SANITARY SEWER
SQFT	SQUARE FEET
TD	TRENCH DRAIN
TDH	TOTAL DYNAMIC HEAD
TMV	THERMOSTATIC MIXING VALVE
TOP	TOP OF PIPE
TP	TRAP PRIMER
V	VOLTS
VB	VACUUM BREAKER
VIV	VALVE IN VERTICAL
VTR	VENT THRU ROOF
W&T	WASTE AND TRAP
WC	WATER COLUMN
WCO	WALL CLEANOUT
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTER
WSFU	WATER SUPPLY FIXTURE UNIT

PLUMBING GENERAL NOTES	
A. CONTRACTOR SHALL FURNISH ALL LABOR AND MATERIALS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM IN ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL CODES AND HEALTH REGULATIONS HAVING JURISDICTION. CONTRACTOR SHALL PAY ALL FEES AND PERMITS REQUIRED.	
B. CONTRACTOR SHALL GUARANTEE INSTALLATION AGAINST DEFECTS IN WORKMANSHIP, EQUIPMENT AND MATERIAL FURNISHED ON PROJECT FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE. PROVIDE EXTENDED GUARANTEES FOR EQUIPMENT SUCH AS WATER HEATERS WHEN REQUIRED.	
C. SUBMIT FOR APPROVAL TO THE ENGINEER THE NUMBER OF SHOP DRAWINGS AND MANUFACTURERS LITERATURE ON ALL PLUMBING FIXTURES & MATERIALS AS REQUIRED BY THE SPECIFICATIONS.	
D. CONTRACTOR SHALL VISIT THE JOB SITE AND EXAMINE PREMISES AT AND ADJACENT TO PROPOSED WORK. VERIFY EXISTING PIPE SIZES, LOCATION AND SUITABILITY FOR CONNECTION TO THE NEW SYSTEM PRIOR TO BID.	
E. DRAWINGS ARE DIAGRAMMATIC AND INTEND TO SHOW APPROXIMATE LOCATION OF PIPING, FIXTURES, ETC. CONTRACTOR SHALL REQUEST AND REVIEW ALL AVAILABLE AS-BUILT DRAWINGS AND COORDINATE WITH OTHER TRADES FOR PIPE ROUTING AND EQUIPMENT PLACEMENT. INSTALL ALL WORK WITHOUT CONFLICT WITH OTHER TRADES AND MAKE MINOR ALTERATIONS AS REQUIRED WITHOUT ADDITIONAL COST TO OWNER.	
F. CONTRACTOR SHALL COOPERATE FULLY WITH OWNER IN SCHEDULING AND MAKING CONNECTIONS TO EXISTING SERVICE LINES SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND SHORTEST POSSIBLE INTERRUPTION OF SERVICE.	
G. CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR ALL VOLTAGES, ELECTRICAL LOADS, ETC., OF ELECTRICALLY OPERATED EQUIPMENT PRIOR TO PURCHASING EQUIPMENT. ALL EQUIPMENT SHALL BE U.L. AND NEMA APPROVED.	
H. MAINTAIN A MINIMUM CLEARANCE OF 3'-0" IN FRONT OF ALL ELECTRICAL PANELS AND 1'-0" EITHER SIDE OF PANEL TO STRUCTURE. ALL PIPING SHALL BE ROUTED AROUND THIS AREA.	
I. MAINTAIN A MINIMUM CLEARANCE OF 3'-0" IN FRONT OF ALL TANKLESS WATER HEATERS. CLEARANCES CAN BE SHARED.	
J. CONTRACTOR SHALL FURNISH AND INSTALL ACCESS PANELS AS REQUIRED FOR PLUMBING DEVICE ACCESS WHEN CONCEALED.	
K. ALL EXISTING SANITARY VENT ROOF PENETRATIONS SHALL BE A MINIMUM DISTANCE OF 10'-0" AWAY FROM ALL ROOF TOP MECHANICAL EQUIPMENT, INTAKE AND FLUE TERMINATIONS AND OTHER BUILDING AIR INTAKE DEVICES.	
L. ALL HORIZONTAL AND VERTICAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS. SUPPORTS SHALL SECURELY HOLD PIPING, PREVENT VIBRATION, COMPENSATE FOR STATIC AND OPERATIONAL CONDITIONS OF THE VARIOUS SYSTEMS, AND SHALL NOT BE SUBJECT TO ELECTROLYTIC ACTION.	
M. ALL DOMESTIC HOT WATER AND COLD WATER PIPING ABOVE SLAB SHALL BE TYPE "L" HARD COPPER WITH WROUGHT COPPER FITTINGS USING "NO-LEAD" SOLDER. PRESS FIT COPPER FITTING SYSTEM ACCEPTABLE. DOMESTIC WATER PIPING BELOW CONCRETE SLAB SHALL BE TYPE "K" SOFT COPPER. NO SOLDER JOINTS ARE ALLOWED BELOW CONCRETE SLAB. COPPER PIPING PASSING UNDER AND THROUGH CONCRETE SLAB OR WALLS SHALL BE PROTECTED WITH A PROTECTIVE SHEATHING OR WRAPPING TO PREVENT CORROSION TO THE COPPER PIPING.	
N. VALVES SERVING DOMESTIC WATER SYSTEMS SHALL BE FULL PORT BALL VALVES. ALL VALVES SHALL BE LOCATED SO AS TO BE ACCESSIBLE BY MAINTENANCE PERSONNEL.	
O. PROVIDE 1" THICK FIBERGLASS PIPE INSULATION WITH SERVICE JACKET ON ALL DOMESTIC WATER PIPING. DOMESTIC COLD WATER PIPE INSULATION SHALL HAVE A CONTINUOUS VAPOR BARRIER.	
P. ALL WATER PIPING SHOWN ROUTED IN EXTERIOR WALLS SHALL BE LOCATED INSIDE THE BUILDING INSULATION AND FINISHED WALL TO PREVENT FREEZE DAMAGE.	
Q. FLUSH EXISTING HOT WATER SYSTEM PRIOR TO BEGINNING DEMOLITION. SEE SPECIFICATION FOR PROCEDURE. ONCE ALL WORK IS COMPLETE, DISINFECT ENTIRE EXISTING AND NEW SYSTEM. SEE SPECIFICATIONS FOR PROCEDURE.	

UNIT PRICING:	
CONTRACTOR SHALL PROVIDE LINE ITEM UNIT PRICING IN BID FOR THE REPLACEMENT OF EXISTING DEVICES THAT HAVE THE POTENTIAL FOR NOT HOLDING CALIBRATION OR PROVIDING POSITIVE SHUTOFF, SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION ON UNIT PRICING.	
A. MATERIAL AND LABOR TO REPLACE ONE (1) EXISTING CIRCUIT SETTER THAT IS NOT FUNCTIONING CORRECTLY OR CANNOT BE ADJUSTED DUE TO AGE OR OTHER CIRCUMSTANCES. REPLACE IN LIKE. PROVIDE ALL REQUIRED APPURTENANCES AND REPLACE/REPAIR ALL DAMAGED OR REMOVED INSULATION TO MATCH EXISTING.	
B. MATERIAL AND LABOR TO REPLACE ONE (1) EXISTING ISOLATION OR SHUTOFF VALVE THAT IS NOT FUNCTIONING CORRECTLY OR DOES NOT PROVIDE POSITIVE SHUTOFF DUE TO AGE OR OTHER CIRCUMSTANCES. REPLACE IN LIKE. PROVIDE ALL REQUIRED APPURTENANCES AND REPLACE/REPAIR ALL DAMAGED OR REMOVED INSULATION TO MATCH EXISTING. MEET SPECIFICATIONS FOR NEW VALVES.	



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PROJECT INFORMATION:

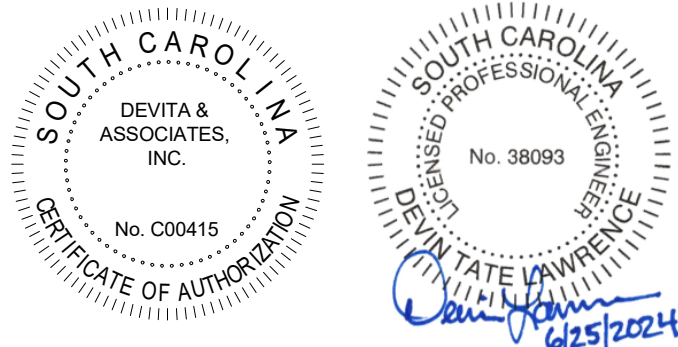
YORK COUNTY PRISON WATER HEATING SYSTEM UPGRADES

778 JUSTICE BLVD
YORK, SC 29745

ISSUE DATE: 06/25/2024		
REVISIONS		
NO.	DATE	DESCRIPTION

GAS FIRED WATER HEATER SCHEDULE								
MARK	LOCATION	BASIS OF DESIGN MANUFACTURER	HEATER MODEL	RACKING SYSTEM	INPUT (BTUH)	FLOW RATE (100°F RISE)	ELECTRICAL V/PH/Hz	NOTES
GWH1 - GWH6	WATER HEATER A152	RINNAI	CU-199H	6-UNIT FREE STANDING MODEL TRS06CUN	1,194,000 199,000 EA	3.8 GPM EACH UNIT 22.8 GPM TOTAL FOR RACK	120V/160 CONTROLS	A THRU P
GWH7 - GWH12	WATER HEATER A152	RINNAI	CU-199H	6-UNIT FREE STANDING MODEL TRS06CUN	1,194,000 199,000 EA	3.8 GPM EACH UNIT 22.8 GPM TOTAL FOR RACK	120V/160 CONTROLS	A THRU P
GWH13 - GWH15	WATER HEATER A152	RINNAI	CU-199H	3-UNIT WALL MOUNTED MODEL TRW03CUN	597,000 199,000 EA	3.8 GPM EACH UNIT 11.4 GPM TOTAL FOR RACK	120V/160 CONTROLS	A THRU N AND Q
GWH16 - GWH18	WATER HEATER A152	RINNAI	CU-199H	3-UNIT WALL MOUNTED MODEL TRW03CUN	597,000 199,000 EA	3.8 GPM EACH UNIT 11.4 GPM TOTAL FOR RACK	120V/160 CONTROLS	A THRU N AND Q
					68.4 GPM TOTAL SYSTEM			
NOTES: A. EQUIPMENT, ALL ASSOCIATED WATER SIDE PIPING, VALVES, AND ACCESSORIES SHALL BE PROVIDED BY PLUMBING CONTRACTOR. B. SET HOT WATER OUTLET TEMPERATURE TO 160° FAHRENHEIT. C. EQUIPMENT SHALL MEET ASHRAE 90.1 STANDARDS FOR THERMAL EFFICIENCY AND STANDBY LOSS. D. PROVIDE FACTORY INSTALLED TEMPERATURE AND PRESSURE SAFETY RELIEF VALVE (T&P VALVE). E. PLUMBING CONTRACTOR SHALL PROVIDE HARD COPPER DRAIN LINE FROM T&P VALVE DOWN TO 6" A.F.F. PIPING TO BE FULL SIZE OF T&P VALVE DISCHARGE CONNECTION. F. PROVIDE AND INSTALL ISOLATION VALVE KIT AT EACH UNIT. G. UNIT SHALL MEET SCQAQMD RULE 1146.2 FOR LOW-NOx EMISSIONS. H. PROVIDE WITH FACTORY 5' LONG POWER CORD WITH NEMA 5-20P PLUG. PLUMBING CONTRACTOR SHALL COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR. I. REFER TO GAS WATER HEATER SCHEMATIC FOR ADDITIONAL INSTALLATION INFORMATION. J. PROVIDE AND INSTALL DRAIN DOWN KIT, CONTROLLERS AND CASCADE CABLES AS REQUIRED FOR A FULLY FUNCTIONING SYSTEM. COORDINATE WITH MANUFACTURER'S RECOMMENDATIONS. K. PROVIDE AND INSTALL THREE (3) RINNAI PN 103000067 ACID NEUTRALIZER TANKS, ONE FOR EACH RACK, COLLECT CONDENSATE FROM EACH HEATER ON RACK TO TANK AND THEN TO FLOOR DRAIN, TERMINATE WITH 2" AIR GAP. LOCATE TANKS AS SHOWN ON PLAN. L. ETL - PROVIDE AMTROL ST-60VC, ASME, 150 PSI EXPANSION TANK, 25 GALLON, 44 ACCEPTANCE FACTOR (11 GALLONS), MEETS ASHRAE 188 AND IJS 2.2801 LEGIONELLA GUIDELINES. M. FLUE AND AIR INTAKE PIPE, FITTINGS, HANGERS AND ACCESSORIES SHALL BE IN ACCORDANCE WITH WATER HEATER MANUFACTURER RECOMMENDATIONS AND LOCAL A.H.J. PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR, FOR A FULLY FUNCTIONING AIR INTAKE AND FLUE SYSTEM. N. UTILIZE THREE (3) EXISTING AND ONE (1) NEW ROOF PENETRATION FOR FLUE AND AIR INTAKE. MODIFY OPENINGS AS REQUIRED FOR INSTALLATION OF NEW PIPING. PROVIDE ALL MATERIALS REQUIRED FOR A WATER TIGHT PENETRATION. SEE ROOFING SCOPE ON SHEET P2.2 FOR ADDITIONAL INFORMATION. FLUE AND AIR INTAKE TERMINATIONS AT ROOF SHALL MAINTAIN CODE AND MANUFACTURER REQUIRED CLEARANCES. O. PROVIDE INSULATION PADS UNDER MOUNTING LOCATIONS OF FLOOR MOUNTED UNITS. RACK SHALL NOT BE IN DIRECT CONTACT WITH CONCRETE PAD. P. PROVIDE WITH FACTORY ELECTRICAL ASSEMBLY, (3) NEMA 5-20R RECEPTACLES FACTORY WIRED FOR SINGLE-POINT CONNECTION. Q. POWER TO BE PROVIDED BY WALL RECEPTACLE. COORDINATE WITH ELECTRICAL CONTRACTOR LOCATION OF RECEPTACLES.								

PLUMBING PIPE MATERIAL SCHEDULE						
SYSTEM:	LOCATION:	SIZE:	MATERIAL:	PIPING STANDARD:	JOINING METHOD:	FITTING STANDARD:
DOMESTIC WATER DISTRIBUTION:	ABOVE GRADE	ALL SIZES	TYPE "L" HARD DRAWN TEMPER COPPER	ASTM B88	WROUGHT COPPER SOLDER JOINT SEAMLESS	ASTM B75 AND ASME B16.22
					SOLDER: 95-5 (95% TIN AND 5% ANTIMONY) NO LEAD OR CORED SOLDER.	ASTM B 32, ALLOY GRADE SB5
					SILVER SOLDER NO LEAD OR CORED SOLDER.	AMS 4773C
NATURAL GAS:	ABOVE GRADE	ALL SIZES	SCHEDULE 40 BLACK STEEL		THREADED MALLEABLE IRON FITTINGS.	
WATER HEATER VENT & AIR INTAKE: (BASIS OF DESIGN - CENTROTHERM) SEE NOTE E	ABOVE GRADE	3" AND SMALLER	POLYPROPYLENE	UL-1738	PUSH FIT FITTINGS	UL-1738
	ABOVE GRADE	4" AND LARGER	POLYPROPYLENE	UL-1738	PUSH FIT FITTINGS	UL-1738
CONDENSATE:	ABOVE GRADE	ALL SIZES	SCH-40 CPVC		SCH-40 CPVC SOCKET FITTINGS AND CEMENT.	
NOTES:						
A. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING PIPE AND FITTINGS.						
B. ALL HOT AND COLD WATER PIPING SHALL BE INSULATED WITH ALL SERVICE JACKET. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.						
C. PROVIDE FULL WRAP AROUND PIPE MARKERS IN COLOR AND SYSTEM TO MATCH OWNER'S EXISTING SYSTEM.						
D. PROVIDE BRASS VALVE TAPS, MATCHING OWNER'S EXISTING SYSTEM. CREATE NEW VALVE SCHEDULE FOR WATER HEATER ROOM AND MOUNT TO WALL. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.						
E. EQUALS IN ACCORDANCE WITH APPROVED WATER HEATER MANUFACTURER RECOMMENDATIONS.						



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DEVITA Project No. 23501-04

CONSULTANT

PROJECT INFORMATION:

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778 JUSTICE BLVD
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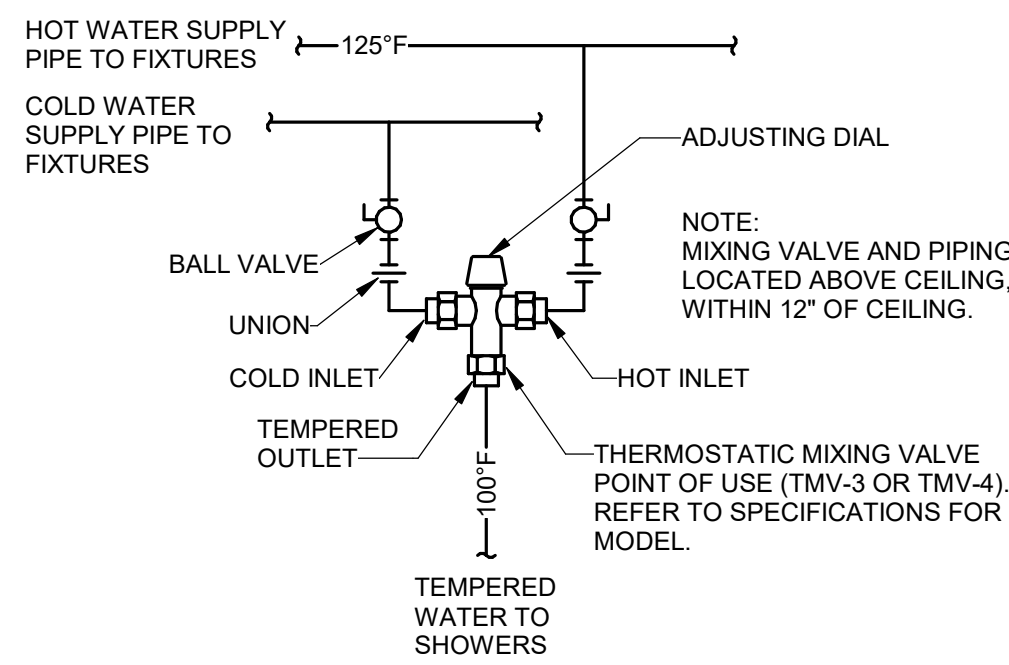
PLUMBING DETAILS

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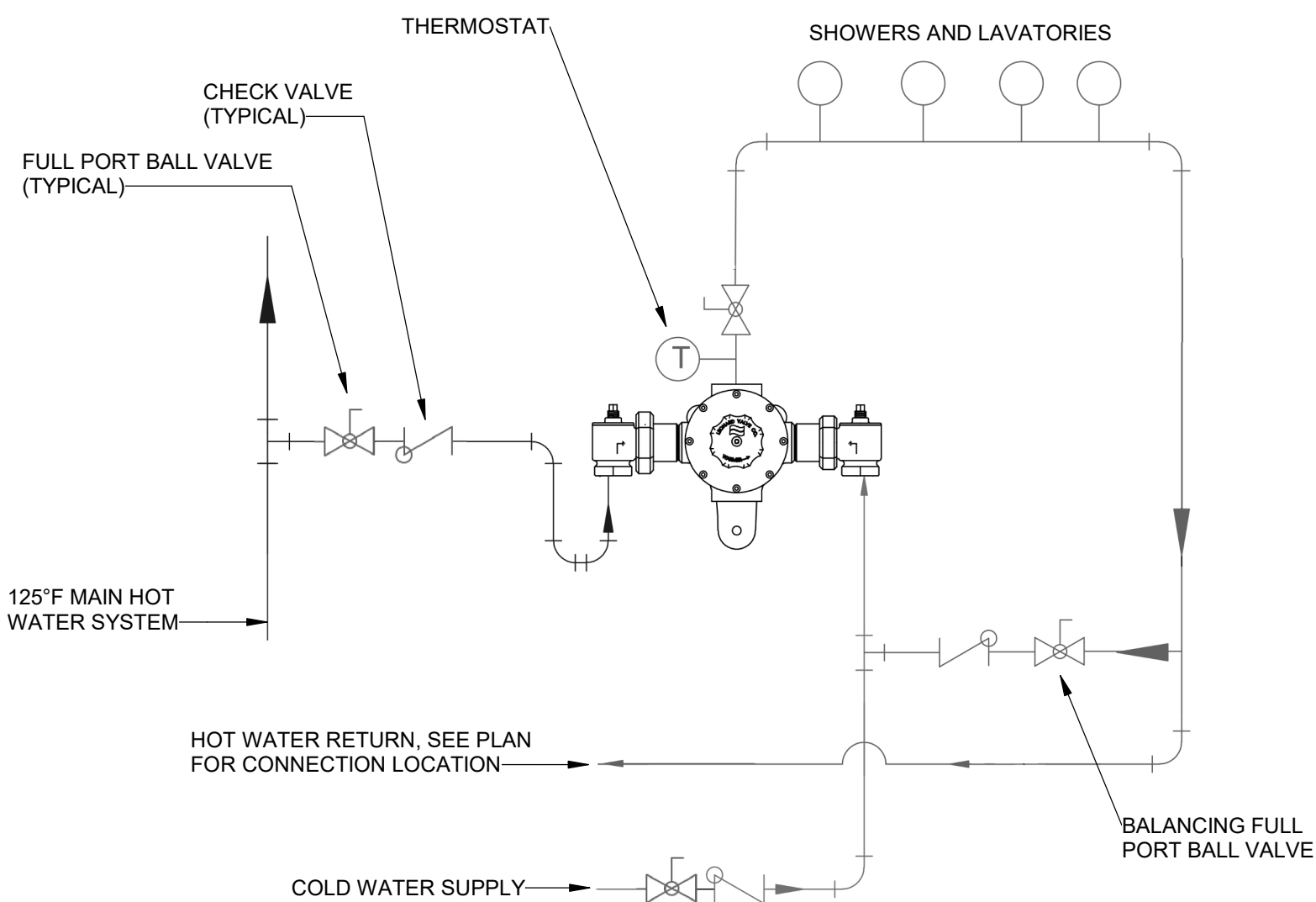
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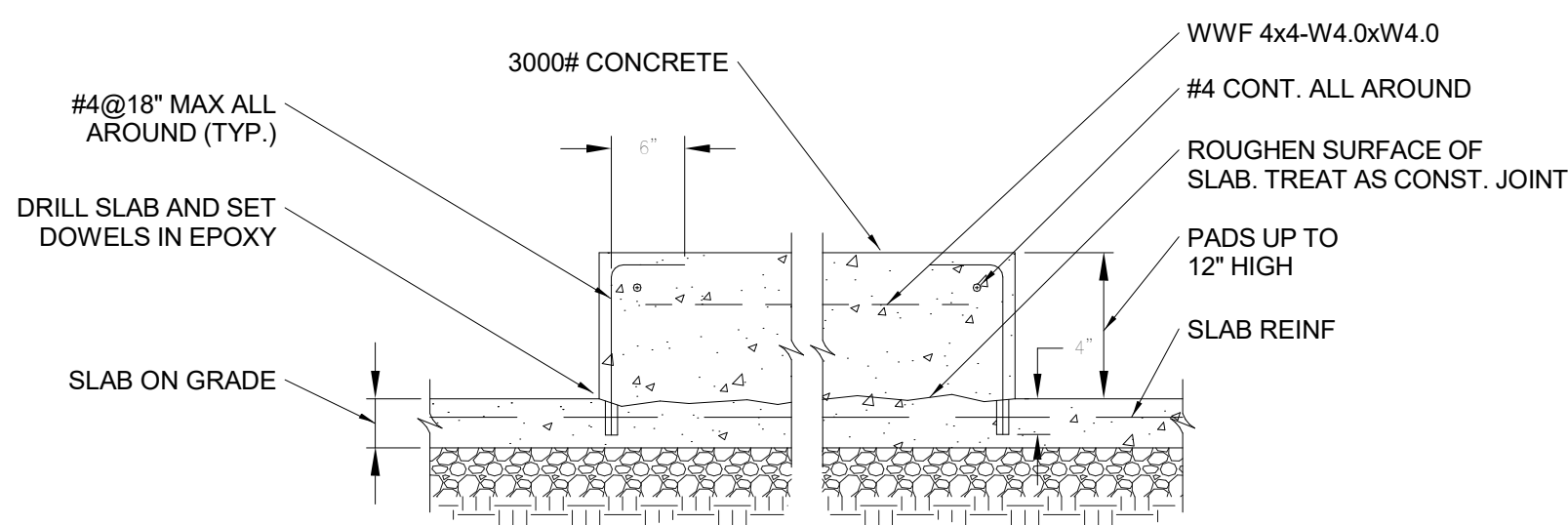
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11 MIXING VALVE ABOVE CEILING
P0.2 NOT TO SCALE

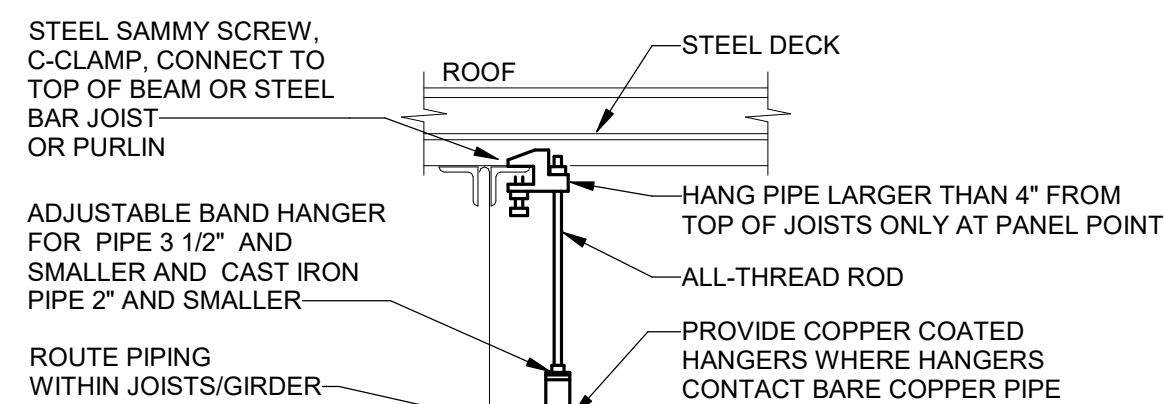


10 MIXING VALVE SCHEMATIC - GANG SHOWERS
P0.2 NOT TO SCALE



THE EXACT SIZE, SHAPE, AND LOCATION OF EQUIPMENT (HOUSEKEEPING) PADS(S) SHALL BE DETERMINED BY THE CONTRACTOR AFTER APPROVAL OF SHOP DRAWINGS FOR EQUIPMENT. ANCHOR BOLTS WHERE REQUIRED SHALL BE SIZED AND LOCATED ACCORDING TO MANUFACTURER'S REQUIREMENTS.

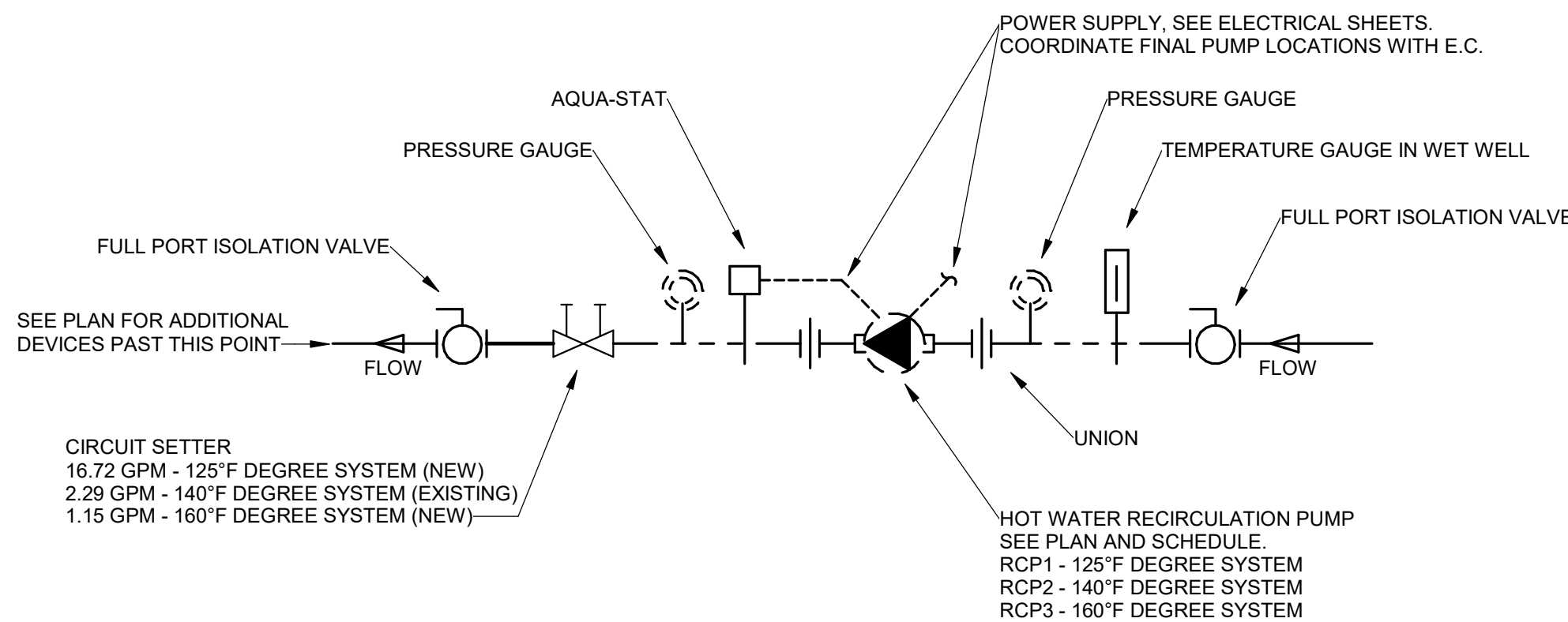
7 EQUIPMENT PAD DETAIL
P0.2 NOT TO SCALE



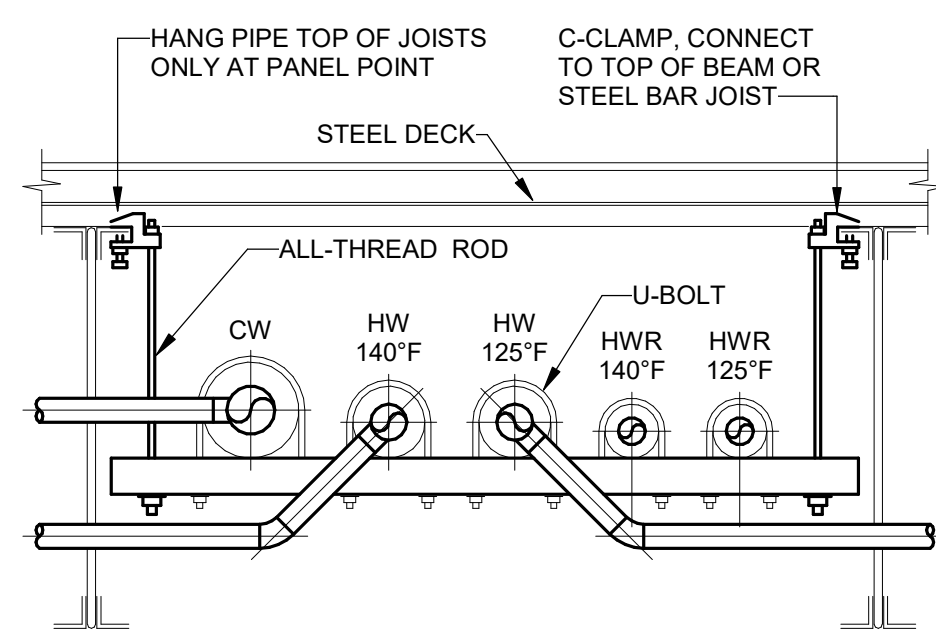
- PROVIDE UPPER ATTACHMENT AS REQUIRED FOR CASES NOT SHOWN HERE. DO NOT INSTALL HANGER INSIDE INSULATION OR OTHERWISE PENETRATE VAPOR BARRIER.
- DO NOT HANG ONE PIPE FROM ANOTHER EXCEPT IN CHASES. SLOPE ALL WATER PIPING SLIGHTLY TOWARD DRAINABLE LOCATIONS. HANGER SPACING FOR PIPE SIZE: AS INDICATED ON TABLE.
- CAST IRON: 10" AND WITHIN 1'-0" OF ALL JOINTS. ROD SIZES FOR PIPE SIZE: 2" AND SMALLER = 3/8", 2 1/2" TO 3" = 1/2", 4" = 5/8", 6" = 3/4", 8" AND LARGER = 7/8".
- LOCATE HANGERS WITHIN 1'-0" OF VALVES AND FITTINGS. PROVIDE SUPPLEMENTARY STEEL STRUTS BETWEEN JOISTS IF REQUIRED.
- LOCATE HANGERS WITHIN 1'-0" OF EQUIPMENT CONNECTIONS. ANCHOR WATER PIPE AGAINST SWAYING DUE TO CHANGES IN WATER VELOCITY. CHAINS AND PERFORATED STRAP IRON AND STEEL ARE NOT ACCEPTABLE.
- DO NOT SUSPEND PIPE FROM JOIST BRACING MEMBERS. REFER TO CODE AND SPECIFICATIONS FOR FURTHER INFORMATION. PROVIDE SEISMIC BRACING IF/AS REQUIRED BY LOCAL AUTHORITIES. TRAPEZE HANGERS MAY BE USED FOR MULTIPLE PARALLEL PIPES.

PIPE SIZE	COPPER PIPE HANGER SPACING	STEEL PIPE HANGER SPACING
1/2"	5'-0"	7'-0"
3/4"	5'-0"	7'-0"
1"	6'-0"	7'-0"
1 1/4"	7'-0"	8'-0"
1 1/2"	8'-0"	9'-0"
2"	8'-0"	10'-0"
2 1/2"	10'-0"	11'-0"
3"	11'-0"	12'-0"
4"	12'-0"	12'-0"

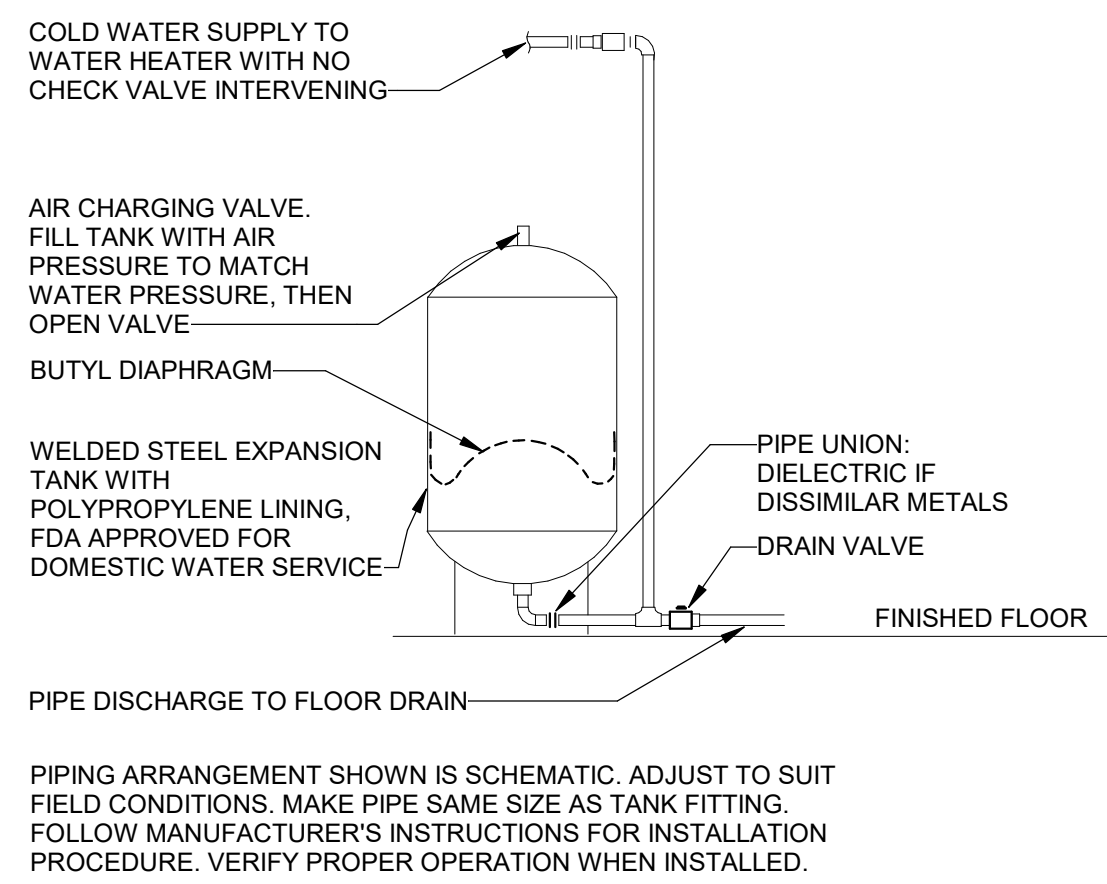
1 PIPE HANGER - BAR JOIST
P0.2 NOT TO SCALE



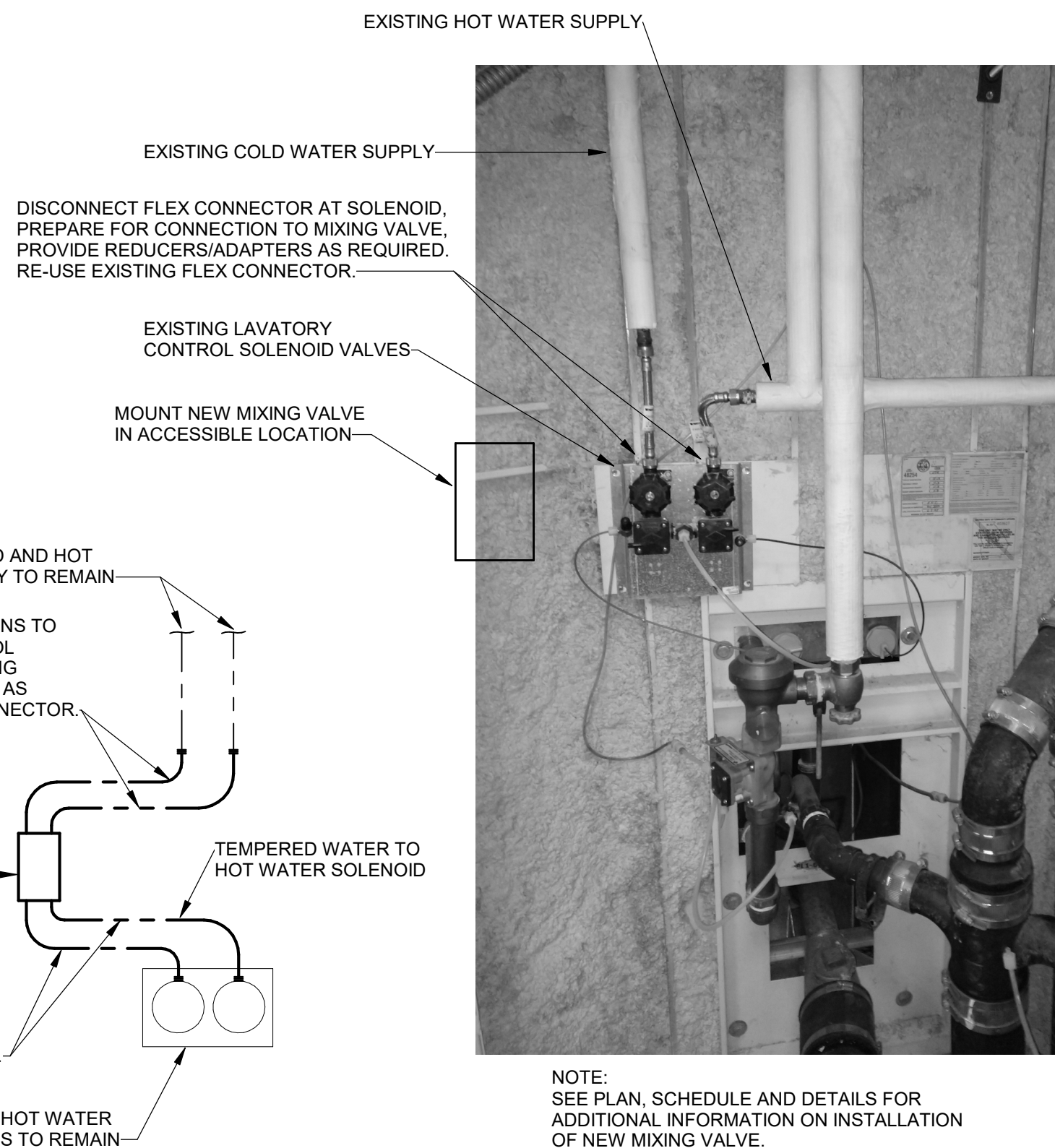
6 HOT WATER RECIRCULATING PUMP SCHEMATIC
P0.2 NOT TO SCALE



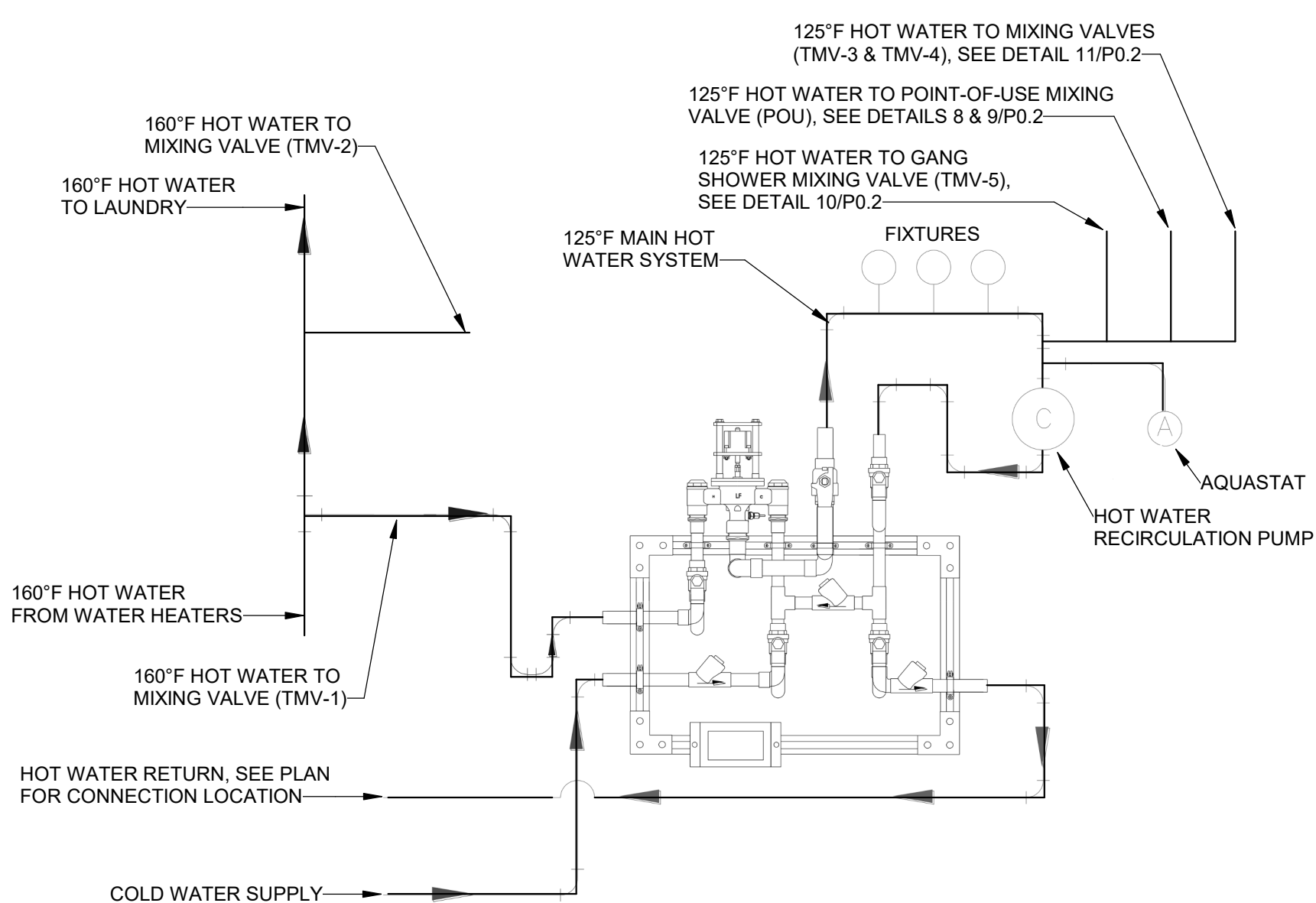
2 TRAPEZE PIPE HANGER
P0.2 NOT TO SCALE



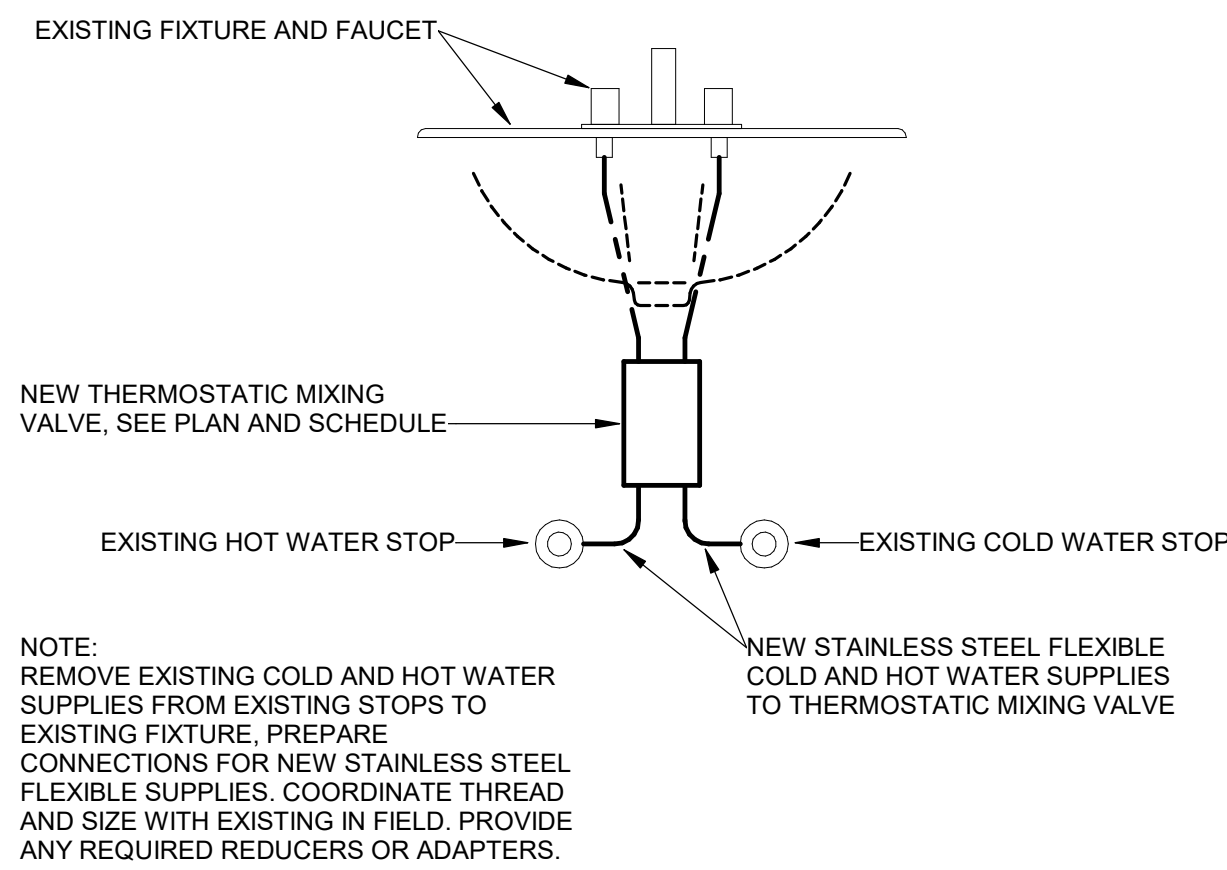
3 EXPANSION TANK - ET
P0.2 NOT TO SCALE



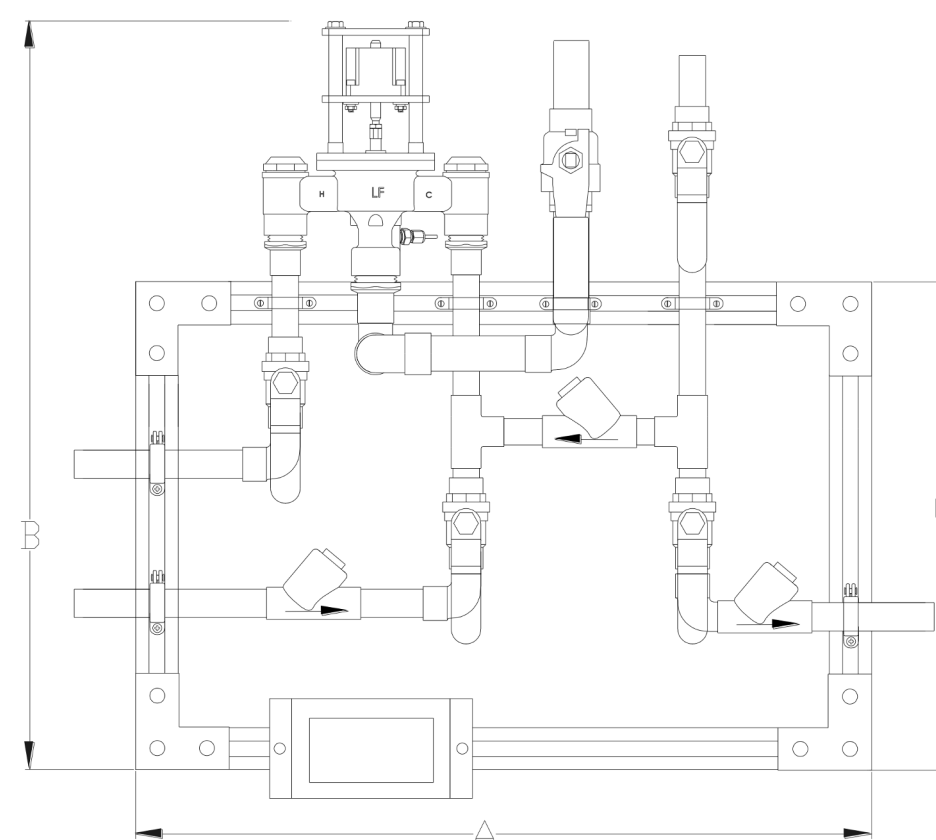
9 SINGLE CELL MIXING VALVE
P0.2 NOT TO SCALE



5 MIXING VALVE SCHEMATIC - 125°F MASTER
P0.2 NOT TO SCALE

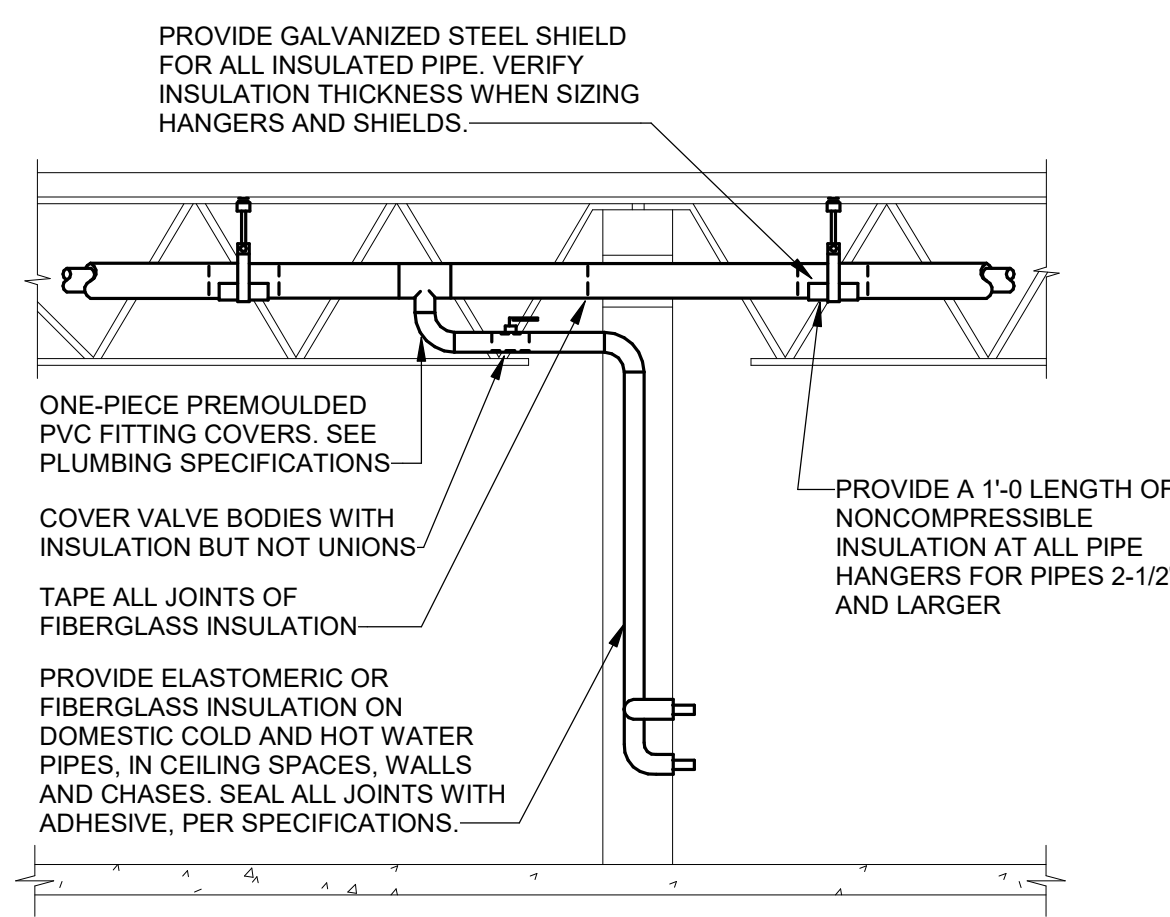


8 UNDER LAVATORY MIXING VALVE
P0.2 NOT TO SCALE



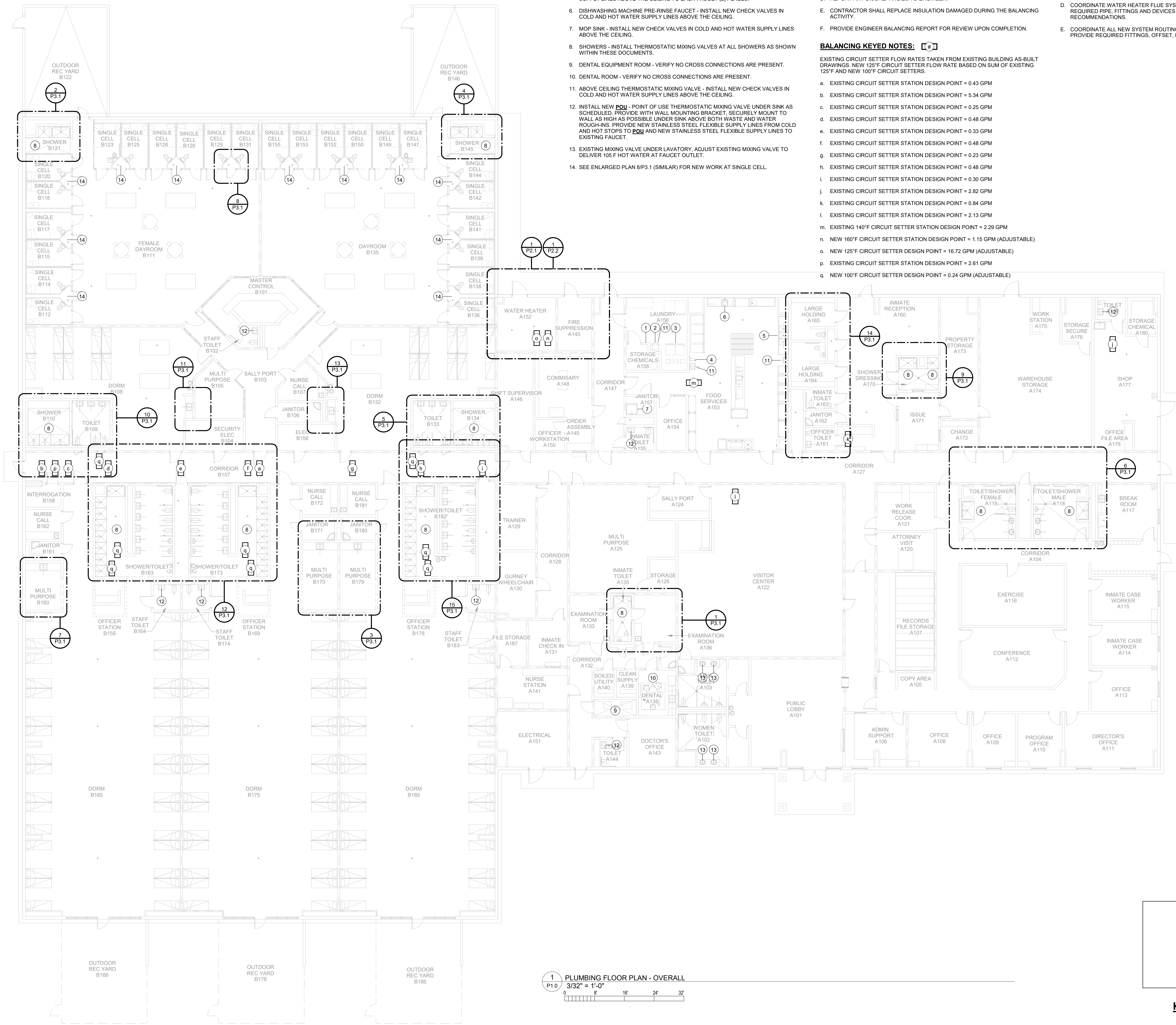
A = 28 ± 4" B = 28" ± 4"
C = 18" ± 4"

NOTE: Options will change dimensions



4 PIPE INSULATION - BAR JOIST
P0.2 NOT TO SCALE

Drawn By: DRB Checked By: DTI



KEYED NOTES: [#]

- EYEWASH - INSTALL NEW CHECK VALVES IN COLD AND HOT WATER SUPPLY LINES ABOVE THE CEILING.
- LAUNDRY - INSTALL NEW CHECK VALVES IN COLD AND HOT WATER SUPPLY LINES ABOVE THE CEILING.
- COMMERCIAL WASHERS - INSTALL NEW CHECK VALVES IN COLD AND HOT WATER SUPPLY LINES TO (E)HOSE BIBBS (2) PLACES.
- HOSE REEL - INSTALL NEW CHECK VALVES IN COLD AND HOT WATER SUPPLY LINES ABOVE THE CEILING.
- 3-COMPARTMENT SINK - INSTALL NEW CHECK VALVES IN COLD AND HOT WATER SUPPLY LINES ABOVE THE CEILING TO EACH FAUCET (2) PLACES.
- DISHWASHING MACHINE PRE-RINSE FAUCET - INSTALL NEW CHECK VALVES IN COLD AND HOT WATER SUPPLY LINES ABOVE THE CEILING.
- MOP SINK - INSTALL NEW CHECK VALVES IN COLD AND HOT WATER SUPPLY LINES ABOVE THE CEILING.
- SHOWERS - INSTALL THERMOSTATIC MIXING VALVES AT ALL SHOWERS AS SHOWN WITHIN THESE DOCUMENTS.
- DENTAL EQUIPMENT ROOM - VERIFY NO CROSS CONNECTIONS ARE PRESENT.
- DENTAL ROOM - VERIFY NO CROSS CONNECTIONS ARE PRESENT.
- ABOVE CEILING THERMOSTATIC MIXING VALVE - INSTALL NEW CHECK VALVES IN COLD AND HOT WATER SUPPLY LINES ABOVE THE CEILING.
- INSTALL NEW POU - POINT OF USE THERMOSTATIC MIXING VALVE UNDER SINK AS SCHEDULED. PROVIDE WITH WALL MOUNTING BRACKET. SECURELY MOUNT TO WALL AS HIGH AS POSSIBLE UNDER SINK ABOVE BOTH WASTE AND WATER ROUGH-INS. PROVIDE NEW STAINLESS STEEL FLEXIBLE SUPPLY LINES FROM COLD AND HOT STOPS TO POU AND NEW STAINLESS STEEL FLEXIBLE SUPPLY LINES TO EXISTING FAUCET.
- EXISTING MIXING VALVE UNDER LAVATORY. ADJUST EXISTING MIXING VALVE TO DELIVER 105 F HOT WATER AT FAUCET OUTLET.
- SEE ENLARGED PLAN #P3.1 (SIMILAR) FOR NEW WORK AT SINGLE CELL.

HOT WATER CIRCULATION SYSTEM GENERAL NOTES:

- CONTRACTOR SHALL CONTRACT A 3RD PARTY BALANCING CONTRACTOR WITH EXPERIENCE IN DOMESTIC HOT WATER CIRCULATION SYSTEMS TO BALANCE EXISTING CIRCULATION SYSTEM TO MEET EXISTING AND NEW DESIGN POINTS.
- EXISTING AND NEW CIRCUIT SETTER LOCATIONS BASED ON AS-BUILT DOCUMENTATION HAVE BEEN NOTED. CONTRACTOR SHALL FIELD INVESTIGATE THE EXACT LOCATION OF EACH EXISTING CIRCUIT SETTER LOCATION AND INDICATE ON AS-BUILT DRAWINGS.
- CONTRACTOR SHALL CONDUCT A PRE-BALANCE MEETING TO INFORM DESIGN TEAM OF FOUND CONDITIONS AND ANY POTENTIAL ISSUES PRIOR TO PERFORMING THE BALANCING.
- REPORT ANY DISCREPANCIES TO ENGINEER.
- CONTRACTOR SHALL REPLACE INSULATION DAMAGED DURING THE BALANCING ACTIVITY.
- PROVIDE ENGINEER BALANCING REPORT FOR REVIEW UPON COMPLETION.

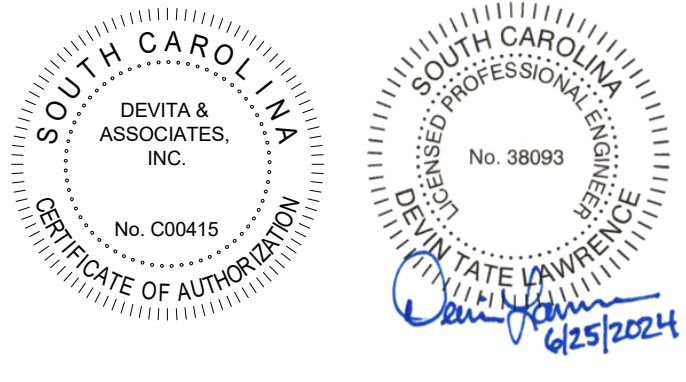
BALANCING KEYED NOTES: [#]

EXISTING CIRCUIT SETTER FLOW RATES TAKEN FROM EXISTING BUILDING AS-BUILT DRAWINGS. NEW 125°F CIRCUIT SETTER FLOW RATE BASED ON SUM OF EXISTING 125°F AND NEW 100°F CIRCUIT SETTERS.

- EXISTING CIRCUIT SETTER STATION DESIGN POINT = 0.43 GPM
- EXISTING CIRCUIT SETTER STATION DESIGN POINT = 5.34 GPM
- EXISTING CIRCUIT SETTER STATION DESIGN POINT = 0.25 GPM
- EXISTING CIRCUIT SETTER STATION DESIGN POINT = 0.48 GPM
- EXISTING CIRCUIT SETTER STATION DESIGN POINT = 0.33 GPM
- EXISTING CIRCUIT SETTER STATION DESIGN POINT = 0.48 GPM
- EXISTING CIRCUIT SETTER STATION DESIGN POINT = 0.23 GPM
- EXISTING CIRCUIT SETTER STATION DESIGN POINT = 0.48 GPM
- EXISTING CIRCUIT SETTER STATION DESIGN POINT = 0.30 GPM
- EXISTING CIRCUIT SETTER STATION DESIGN POINT = 2.82 GPM
- EXISTING CIRCUIT SETTER STATION DESIGN POINT = 0.84 GPM
- EXISTING CIRCUIT SETTER STATION DESIGN POINT = 2.13 GPM
- EXISTING 140°F CIRCUIT SETTER STATION DESIGN POINT = 2.29 GPM
- NEW 160°F CIRCUIT SETTER STATION DESIGN POINT = 1.15 GPM (ADJUSTABLE)
- NEW 125°F CIRCUIT SETTER DESIGN POINT = 16.72 GPM (ADJUSTABLE)
- EXISTING CIRCUIT SETTER STATION DESIGN POINT = 2.61 GPM
- NEW 100°F CIRCUIT SETTER DESIGN POINT = 0.24 GPM (ADJUSTABLE)

GENERAL NOTES:

- VISIT SITE, EXAMINE AND UNDERSTAND THE EXISTING CONDITIONS AT AND ADJACENT TO PROPOSED WORK. VERIFY EXISTING PIPE SIZES, LOCATIONS AND SUITABILITY FOR CONNECTION TO THE NEW SYSTEM PRIOR TO SUBMITTING BID.
- INVESTIGATE THE EXISTING OVERALL HOT WATER SYSTEM TO INSURE ALL EXISTING COLD-HOT WATER CROSS OVER SITUATIONS HAVE BEEN ADDRESSED BY THESE DOCUMENTS. SITUATIONS DISCOVERED SHALL BE PRESENTED TO ENGINEER FOR DIRECTION OF SOLUTION.
- INSULATE PIPE AND DEVICES PER SPECIFICATIONS AT EACH LOCATION WHERE REMEDIATIONS ARE PERFORMED. NEW INSULATION SHALL EXTEND 36" ON EACH SIDE OF REMEDIATION AND SEAMLESSLY CONNECT TO EXISTING INSULATION. NEW INSULATION AND JACKET SHALL MATCH EXISTING.
- COORDINATE WATER HEATER FLUE SYSTEM WITH MANUFACTURER. PROVIDE ALL REQUIRED PIPE, FITTINGS AND DEVICES REQUIRED PER INSTALLATION RECOMMENDATIONS.
- COORDINATE ALL NEW SYSTEM ROUTING WITH EXISTING CONDITIONS TO REMAIN. PROVIDE REQUIRED FITTINGS, OFFSET, ETC REQUIRED TO AVOID OBSTRUCTIONS.



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DEVITA Project No. 23501-04

PROJECT INFORMATION:

YORK COUNTY PRISON
WATER HEATING
SYSTEM UPGRADES

778 JUSTICE BLVD
YORK, SC 29745

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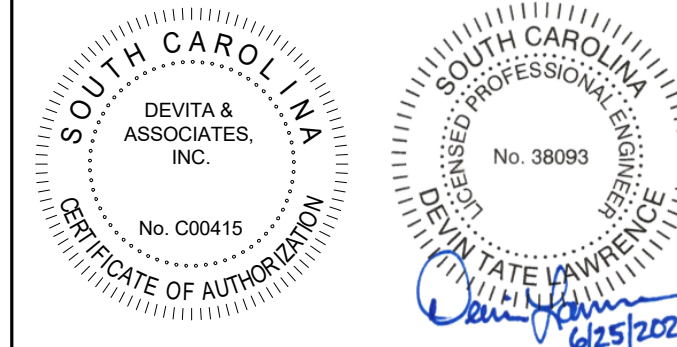
DRAWING NAME

PLUMBING FLOOR
PLAN - OVERALL

DRAWING NO.

P1.0

Drawn By: DRB Checked By: DTL



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- DEMOLITION PLAN GENERAL NOTES:**
- REMOVE EXISTING TRAP PRIMER MANIFOLD ASSEMBLY. PREPARE TO REINSTALL IN NEW LOCATION. EXISTING PRIMER LINES INTO SLAB TO FLOOR DRAINS SHALL REMAIN.
 - ALL EXISTING WATER HEATING EQUIPMENT AND ASSOCIATED PIPING IN MECHANICAL ROOM TO BE DEMOLISHED WITH THE EXCEPTION OF COLD WATER SERVICE ENTRY. EXISTING PRESSURE REDUCING VALVE AND EXISTING TRAP PRIMER MANIFOLD ASSEMBLY.
 - EACH EXISTING GAS FIRED WATER HEATER COMBUSTION AIR PIPING AND EXHAUST VENT PIPING ASSEMBLIES SHALL BE COMPLETELY REMOVED. PREPARE TO USE EXISTING ROOF PENETRATIONS FOR NEW COMBUSTION INTAKE AND EXHAUST.

- DEMOLITION PLAN KEY NOTES: (4)**
- REMOVE EXISTING TRAP PRIMER MANIFOLD. PREPARE TO REINSTALL IN NEW LOCATION. EXISTING PRIMER LINES INTO SLAB TO FLOOR DRAINS SHALL REMAIN.
 - DISCONNECT AT MAIN AND REMOVE EXISTING GAS BRANCH PIPING TO EACH EXISTING WATER HEATER. CAP OUTLET AT MAIN.
 - REMOVE EXISTING INTERIOR GAS REGULATORS, VENTS AND ASSOCIATED DEVICES AT EACH EXISTING WATER HEATER. SEAL PENETRATIONS IN BUILDING EXTERIOR WHERE VENT PIPES TERMINATED. PATCH EXTERIOR TO MATCH EXISTING. (TYPICAL 3 PLACES)
 - DISCONNECT EXISTING COLD WATER SUPPLY TO EXISTING MIXING VALVE. REMOVE EXISTING MIXING VALVE AND ALL ASSOCIATED PIPING AND DEVICES. CAP COLD WATER OUTLET AT 4" COLD WATER MAIN.
 - REMOVE EXISTING HOT WATER RECIRCULATION PUMPS AND ASSOCIATED PIPING AND DEVICES. (TYPICAL 3 PLACES)
 - REMOVE EXISTING WATER HEATER AND ASSOCIATED PIPE AND DEVICES, INCLUDING BUT NOT LIMITED TO COLD, HOT, HOT WATER RETURN, GAS, FLUE, AIR INTAKE PIPING, ETC.
 - REMOVE EXISTING EXPANSION TANK AND ASSOCIATED PIPE AND DEVICES.
 - REMOVE EXISTING FLOOR DRAIN GRATES AND CLEAN. INSTALL NEW TRAP GUARD DEVICE EQUAL TO SURESEAL MODEL SS"98V IN FLOOR DRAIN AND REPLACE CLEANED FLOOR DRAIN GRATE.
 - APPROXIMATE LOCATIONS OF EXISTING WATER HEATER FLUE ROOF PENETRATIONS. FIELD VERIFY EXACT LOCATIONS.
 - REMOVE EXISTING WATER HEATER COMBUSTION AIR INTAKE PIPING AND ASSOCIATED FITTINGS AND DEVICES. LOUVER AND PLENUM BOX TO REMAIN.
 - SEAL EXISTING LOUVER PLENUM BOX PENETRATION OPENINGS WITH SAME MATERIAL AS PLENUM BOX AND SEALANT. ANY OTHER CONNECTION SHALL REMAIN UNDISTURBED.
 - PREPARE EXISTING ROOF OPENINGS TO UTILIZE FOR NEW FLUE AND COMBUSTION AIR INTAKE, SEE NEW WORK ON SHEET P2.2.

YORK COUNTY PRISON WATER HEATING SYSTEM UPGRADES

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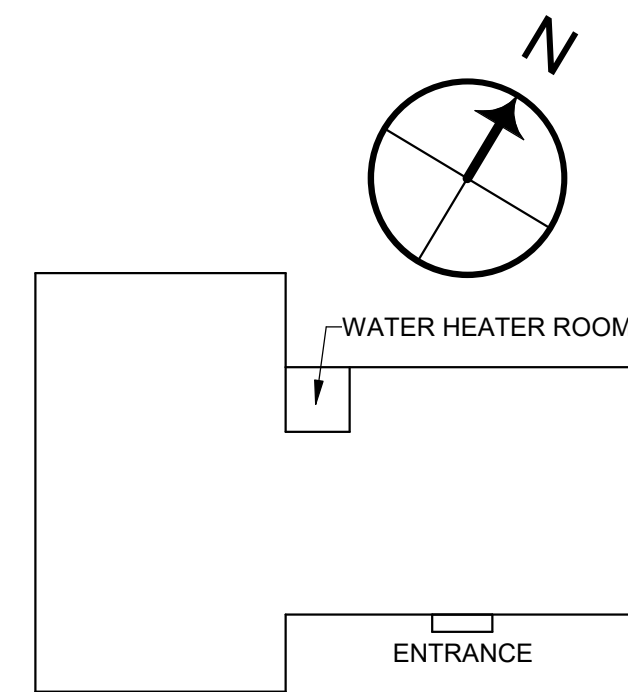
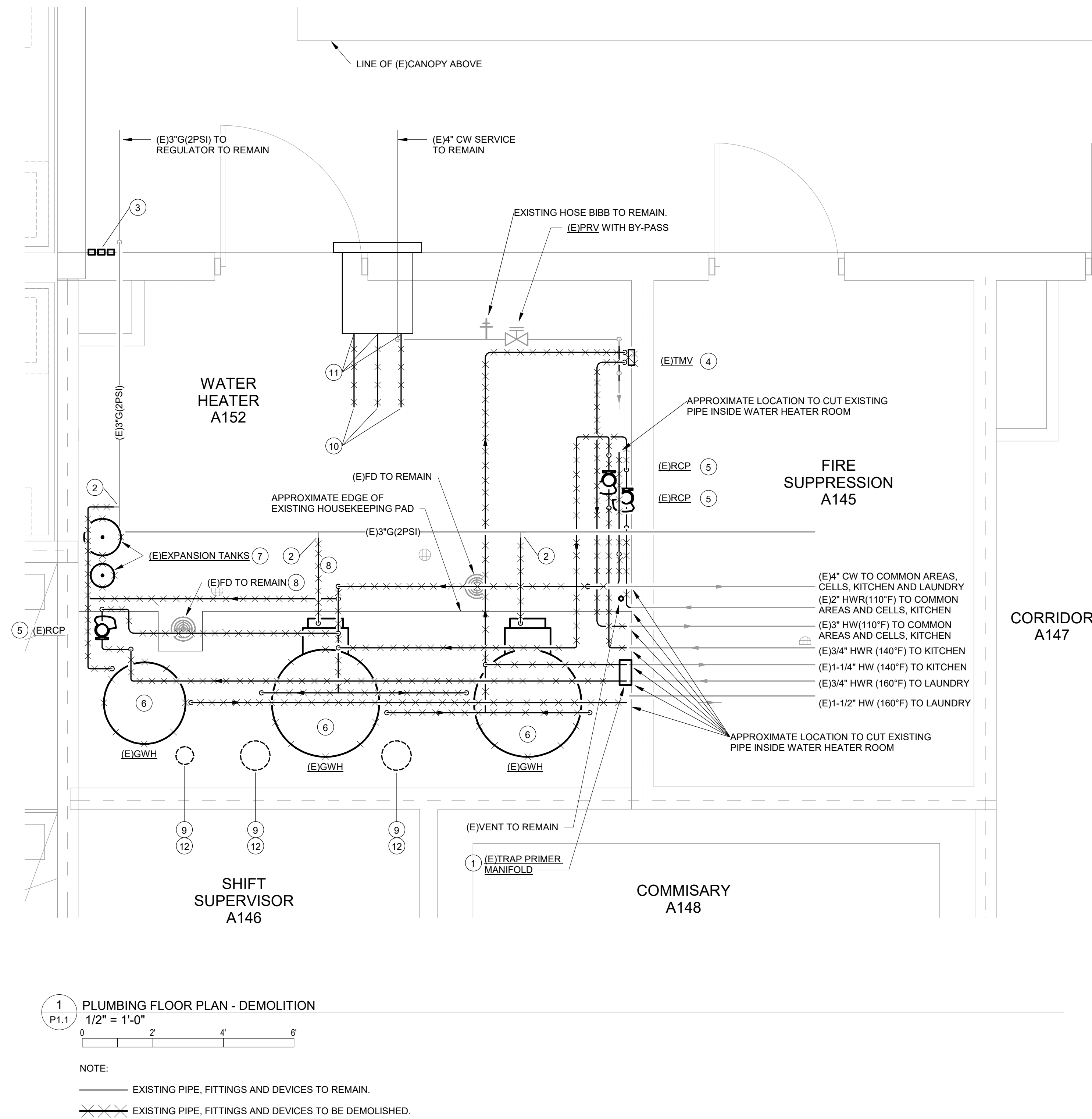
DRAWING NAME

**PLUMBING FLOOR
PLAN - DEMOLITION**

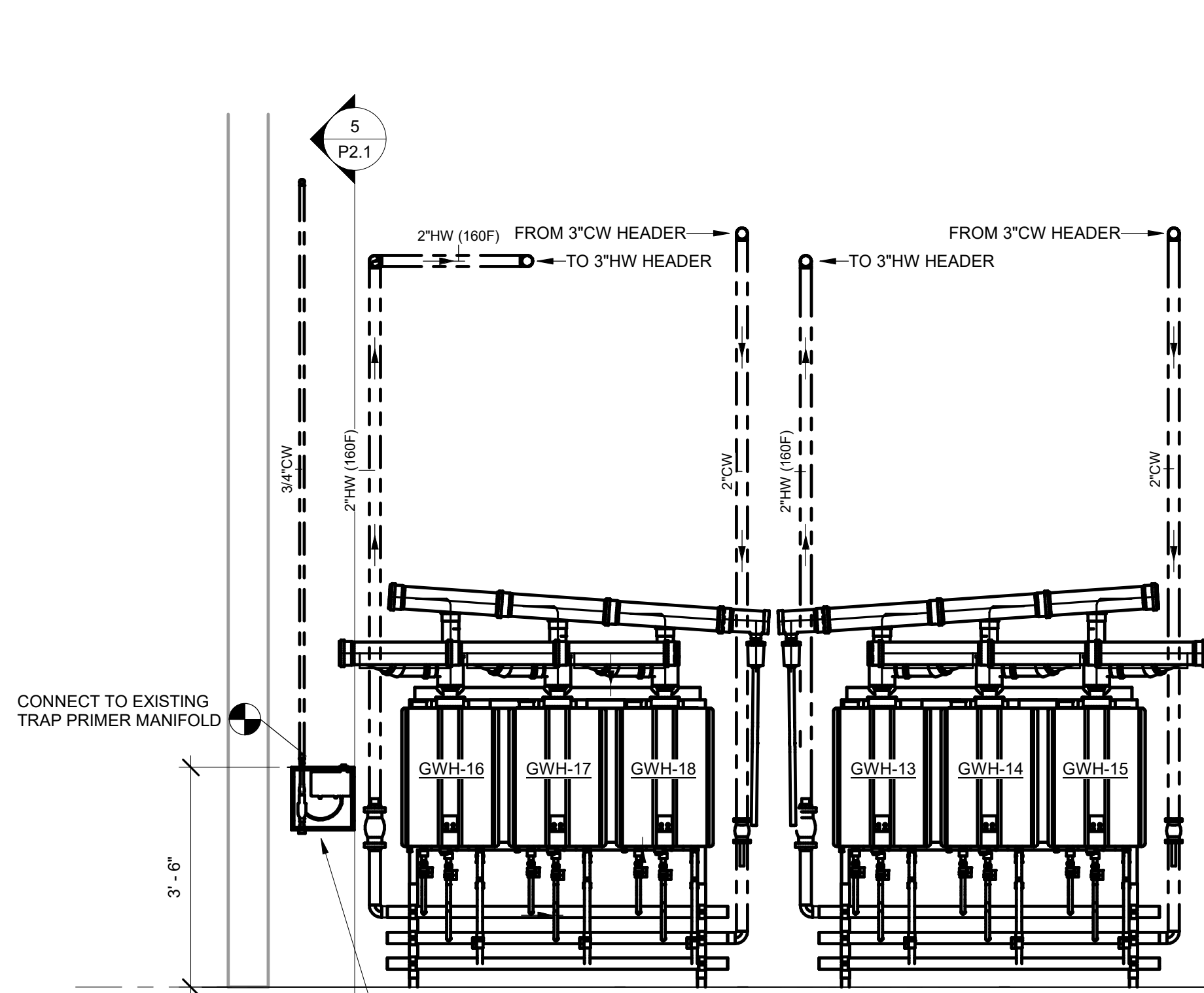
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P1.1

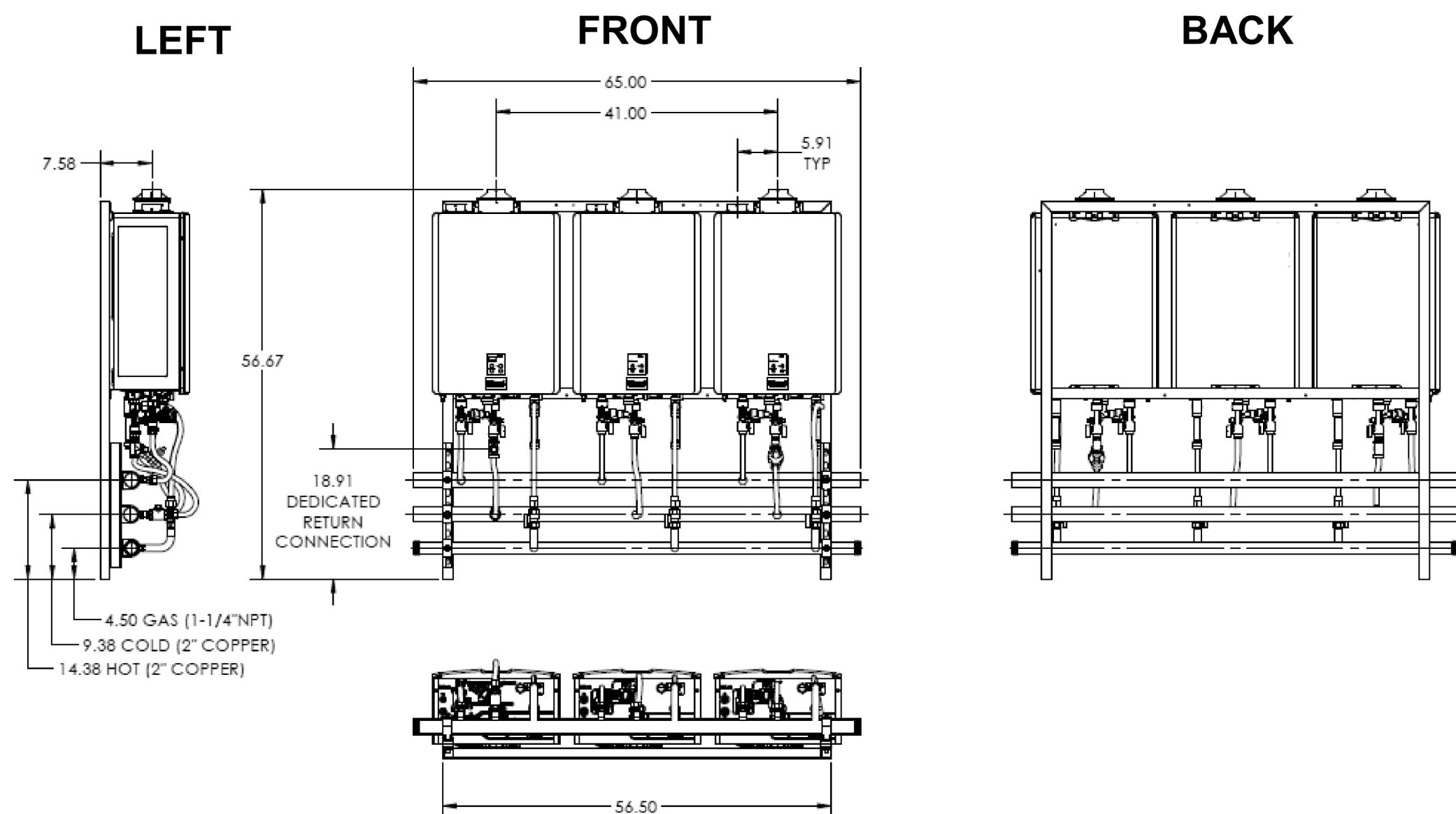
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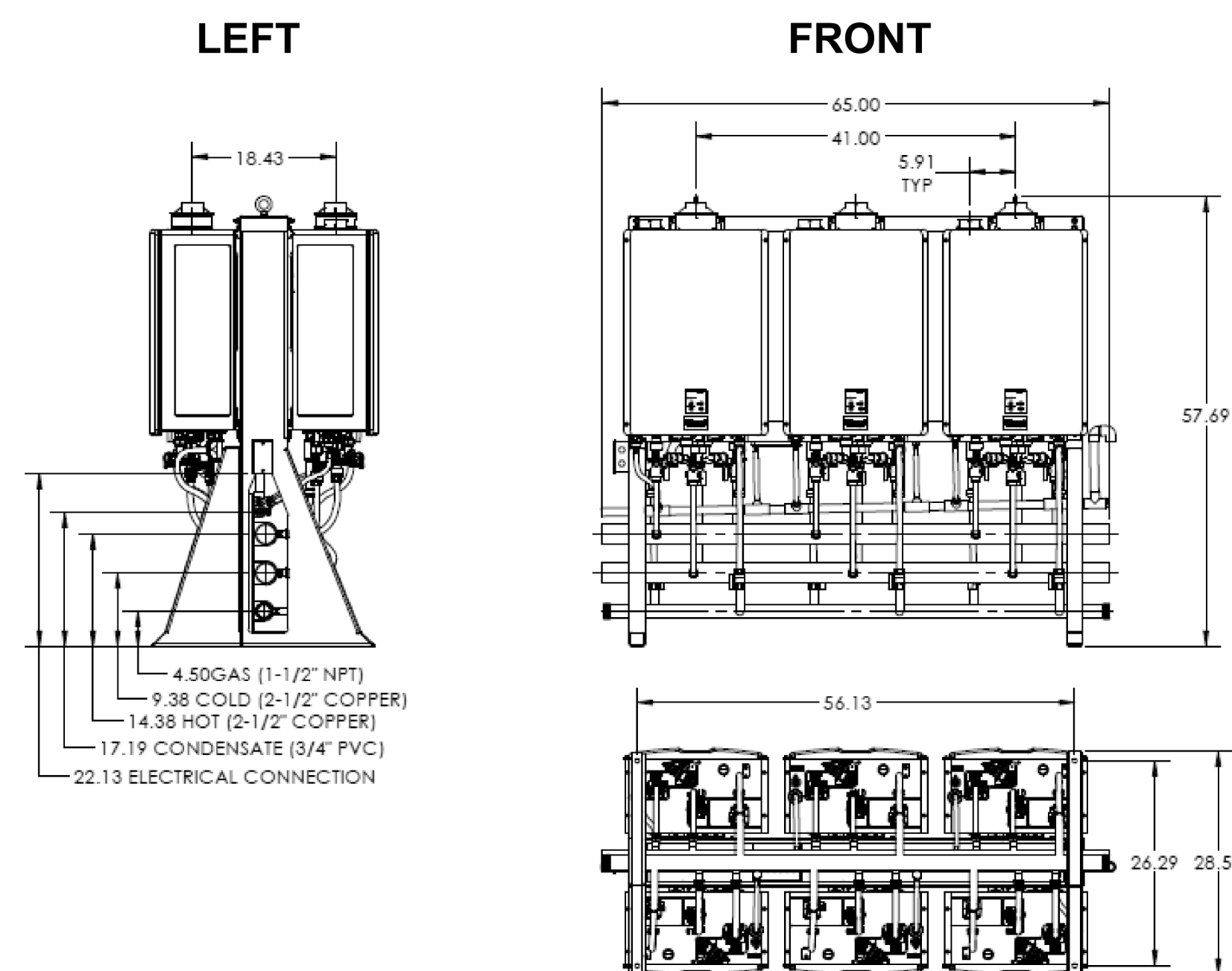
KEY PLAN



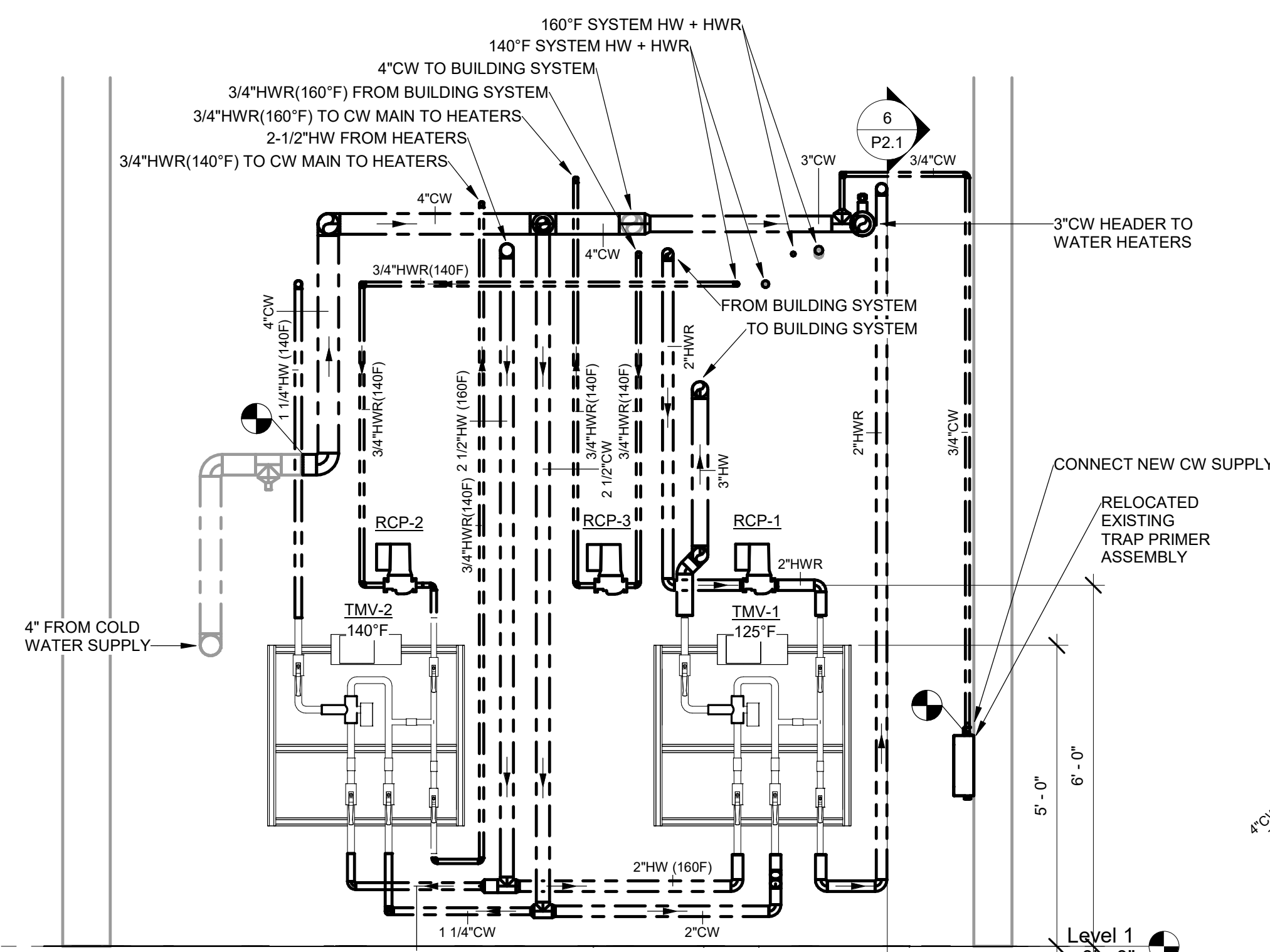
6 SECTION AT WALL MOUNTED WATER HEATERS
1/2" = 1'-0"



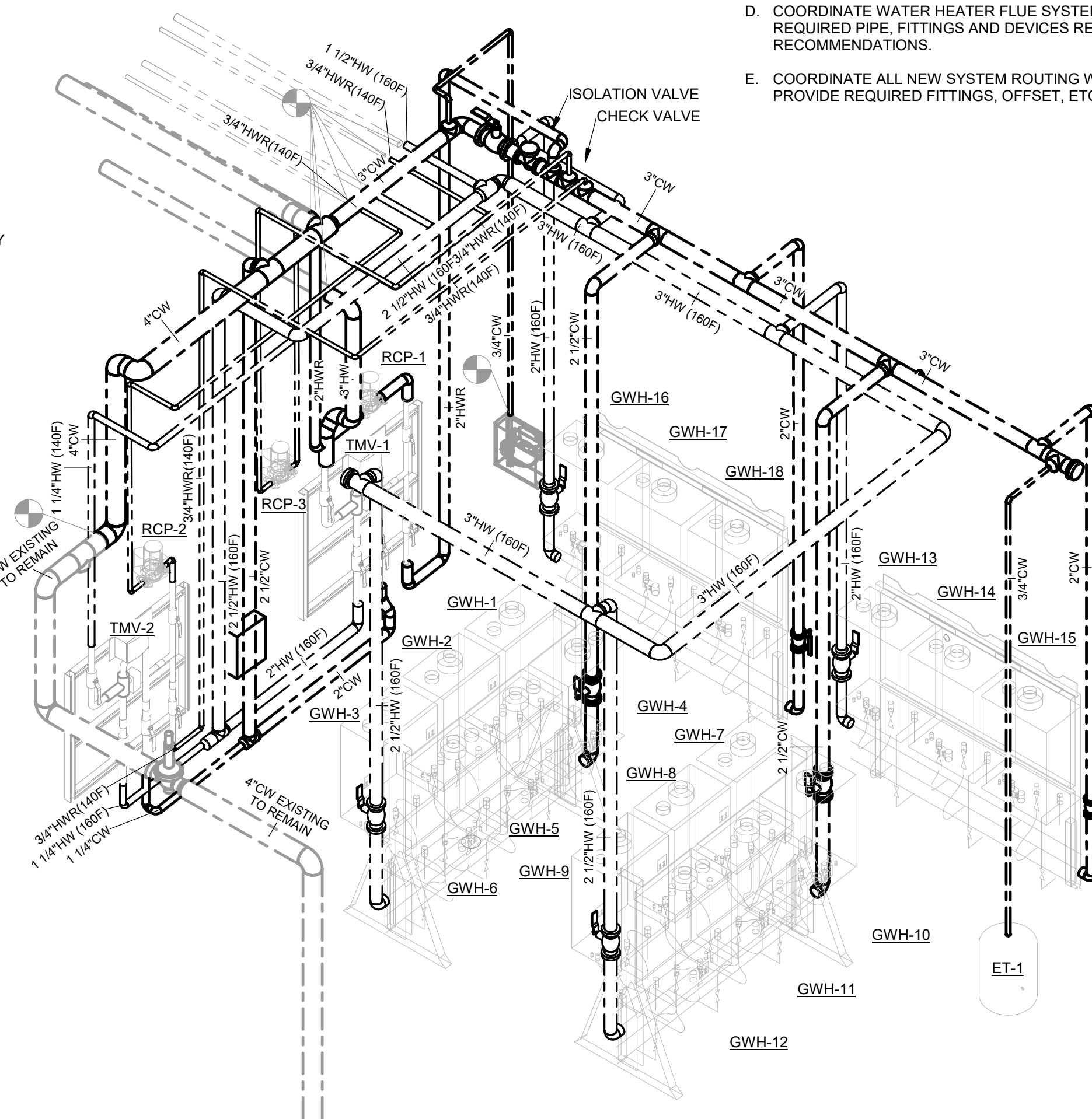
3 WALL MOUNTED SYSTEM CONNECTIONS (BASIS OF DESIGN)
NOT TO SCALE
NOTE:
PROVIDE ADEQUATE BLOCKING TO SUPPORT RACKING
SYSTEM FROM WALL, CONNECT TO WALL FRAMING MEMBERS.



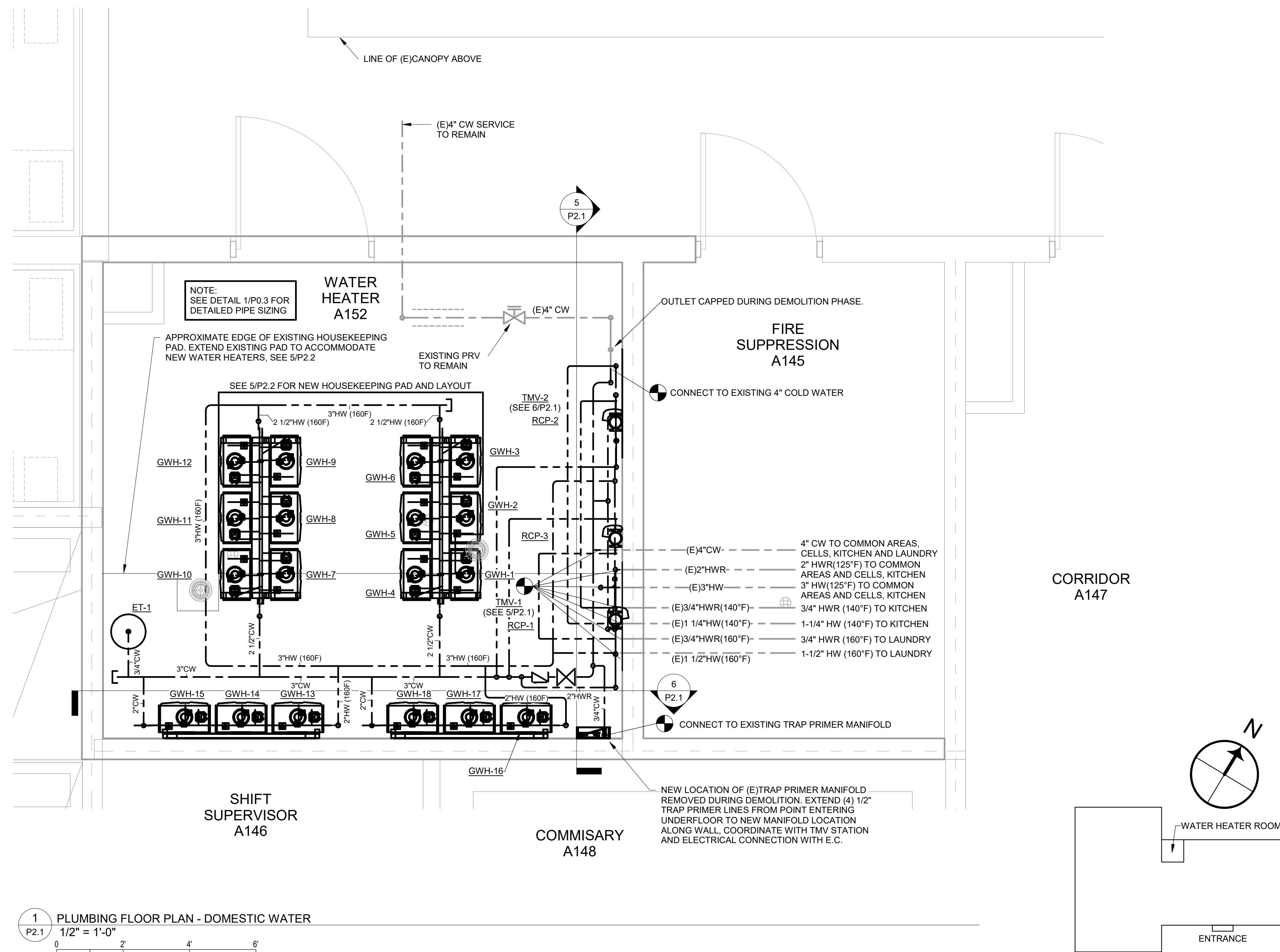
2 FLOOR MOUNTED RACK SYSTEM CONNECTIONS (BASIS OF DESIGN)
NOT TO SCALE
(GWH-1 thru GWH-6 + GWH-7 thru GWH-12)



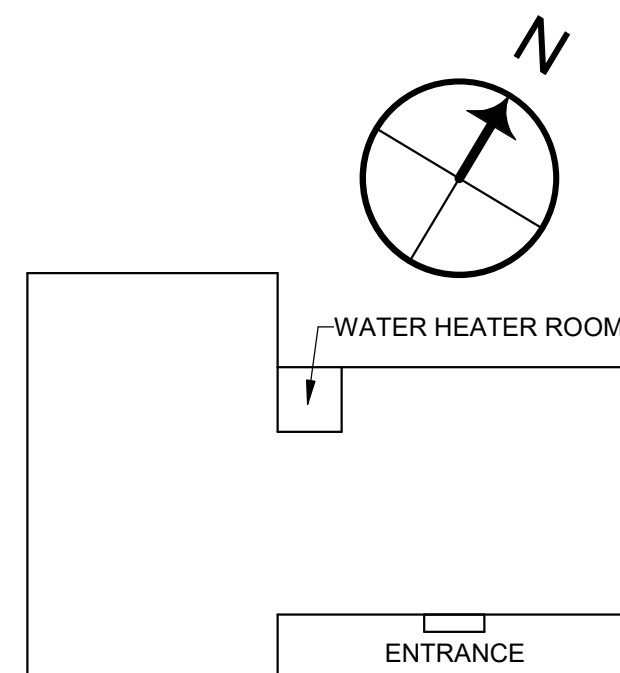
5 SECTION AT THERMOSTATIC MIXING VALVE (TMV-1 + TMV-2)
1/2" = 1'-0"



4 DOMESTIC WATER RISER DIAGRAM
NOT TO SCALE



1 PLUMBING FLOOR PLAN - DOMESTIC WATER
1/2" = 1'-0"



KEY PLAN

GENERAL NOTES:

- VISIT SITE, EXAMINE AND UNDERSTAND THE EXISTING CONDITIONS AT AND ADJACENT TO PROPOSED WORK. VERIFY EXISTING PIPE SIZES, LOCATIONS AND SUITABILITY FOR CONNECTION TO THE NEW SYSTEM PRIOR TO SUBMITTING BID.
- INVESTIGATE THE EXISTING OVERALL HOT WATER SYSTEM TO INSURE ALL EXISTING COLD-HOT WATER CROSS OVER SITUATIONS HAVE BEEN ADDRESSED BY THESE DOCUMENTS. SITUATIONS DISCOVERED SHALL BE PRESENTED TO ENGINEER FOR DIRECTION OF SOLUTION.
- INSULATE PIPE AND DEVICES PER SPECIFICATIONS AT EACH LOCATION WHERE REMEDIATIONS ARE PERFORMED. NEW INSULATION SHALL EXTEND 36" ON EACH SIDE OF REMEDIATION AND SEAMLESSLY CONNECT TO EXISTING INSULATION. NEW INSULATION AND JACKET SHALL MATCH EXISTING.
- COORDINATE WATER HEATER FLUE SYSTEM WITH MANUFACTURER, PROVIDE ALL REQUIRED PIPE, FITTINGS AND DEVICES REQUIRED PER INSTALLATION RECOMMENDATIONS.
- COORDINATE ALL NEW SYSTEM ROUTING WITH EXISTING CONDITIONS TO REMAIN. PROVIDE REQUIRED FITTINGS, OFFSET, ETC REQUIRED TO AVOID OBSTRUCTIONS.

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DEVITA Project No. 23501-04

PROJECT INFORMATION:

YORK COUNTY PRISON WATER HEATING SYSTEM UPGRADES

778 JUSTICE BLVD
YORK, SC 29745

ISSUE DATE: 06/25/2024

REVISIONS

NO.	DATE	DESCRIPTION
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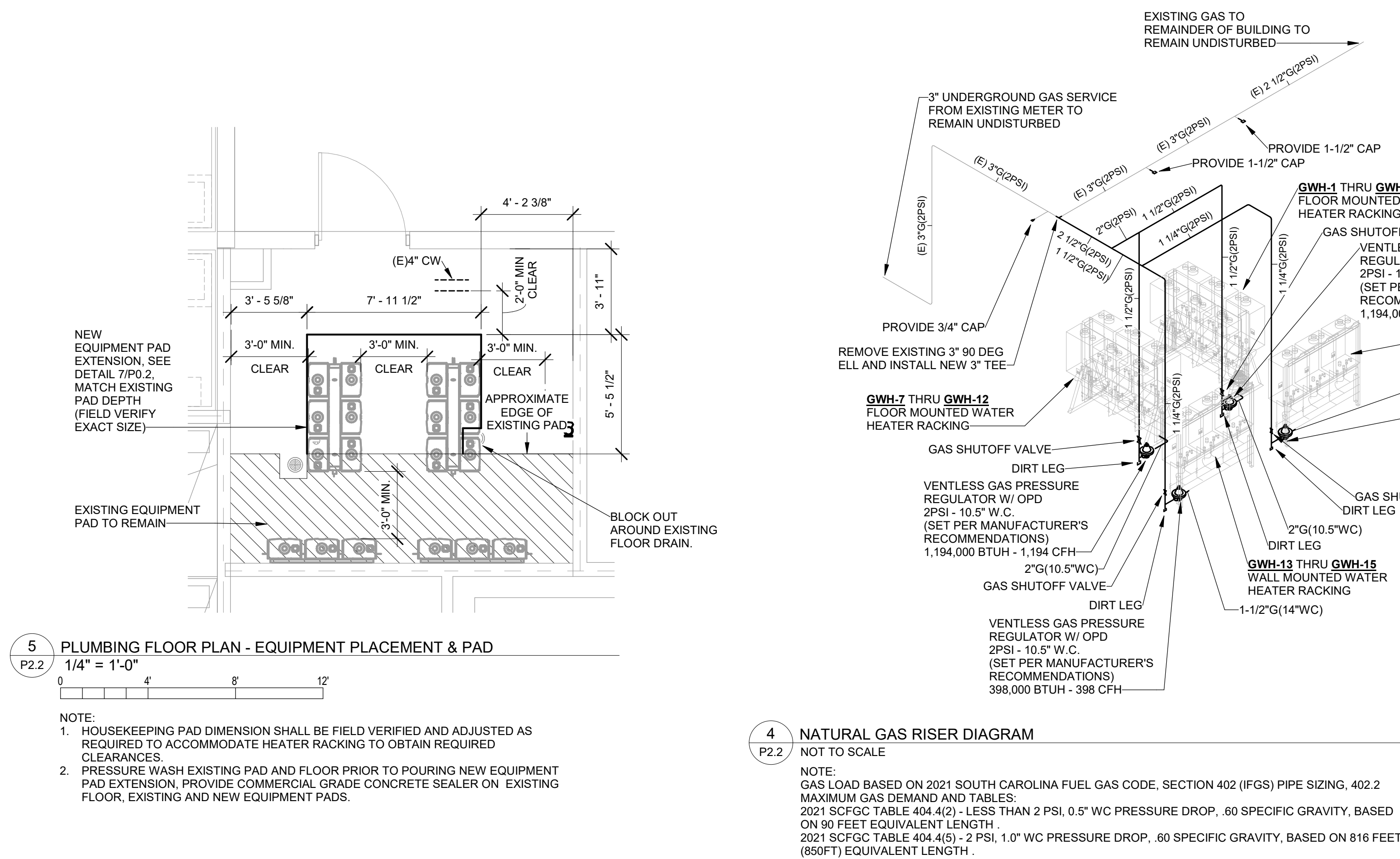
DRAWING NAME

PLUMBING FLOOR PLAN - DOMESTIC WATER

DRAWING NO.

P2.1

Drawn By: DRB Checked By: DTL



Vertical Termination Clearances (All System Sizes)

There should be a minimum of 12 in. (305 mm) between exhaust and intake terminations.

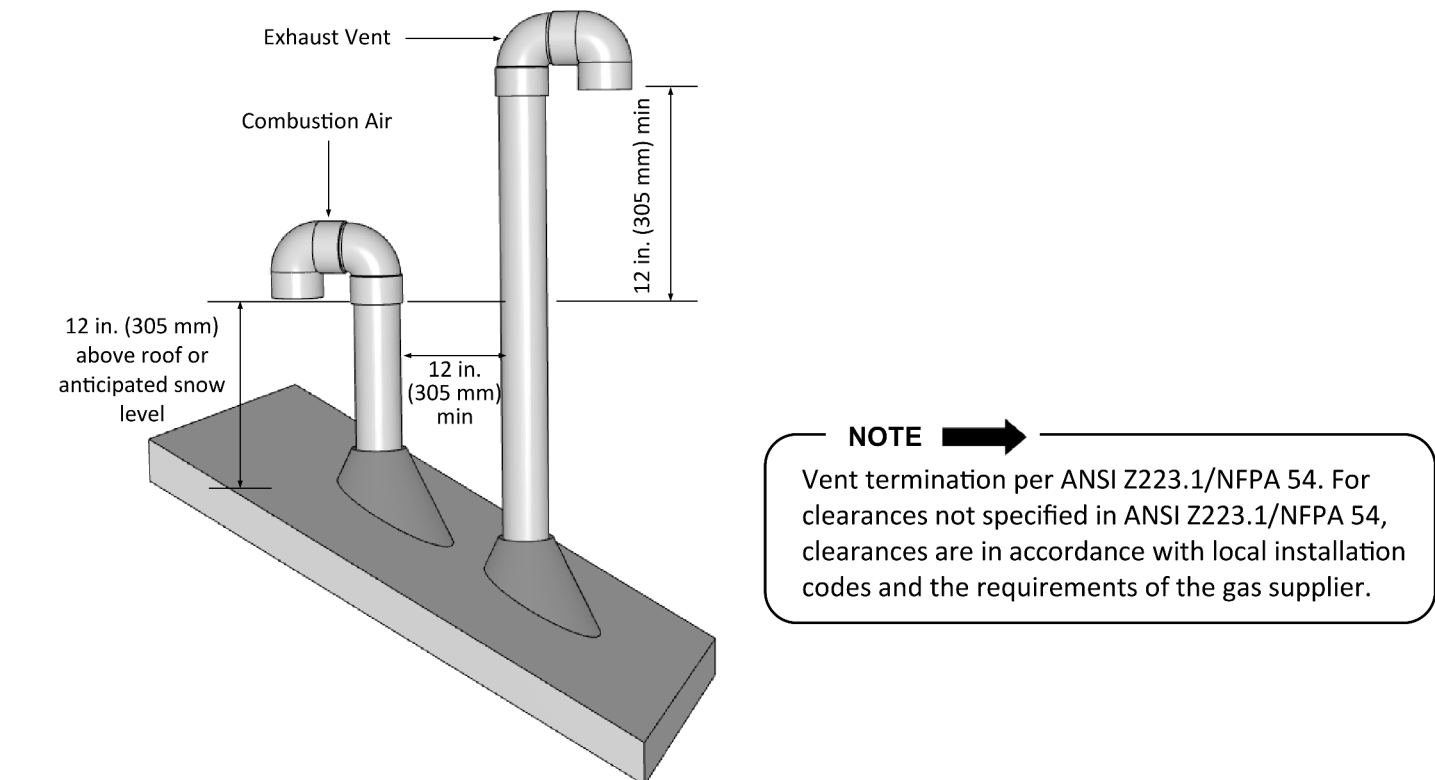
Clearances of Brackets:

All supports, such as wall brackets or spacer blocks, must be installed with a maximum distance of 78 in. (2 m) between each support. Additional supports can be installed before and after an elbow if needed.

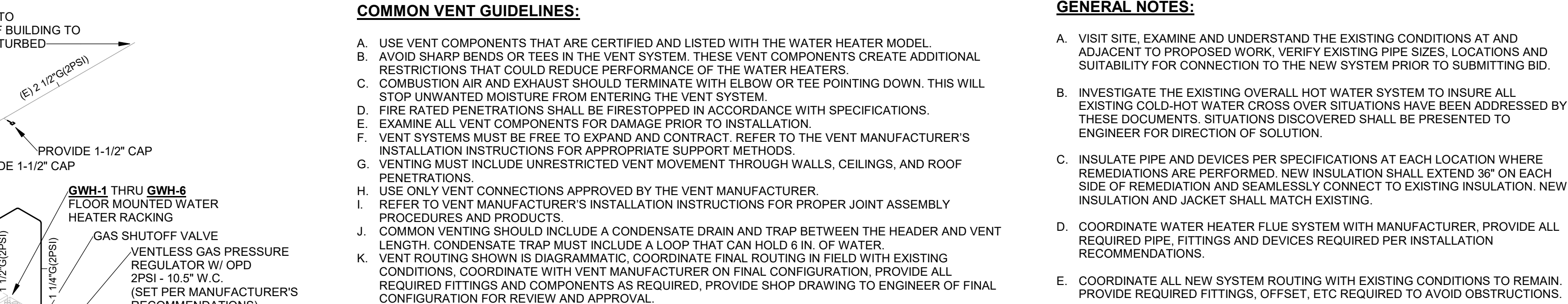
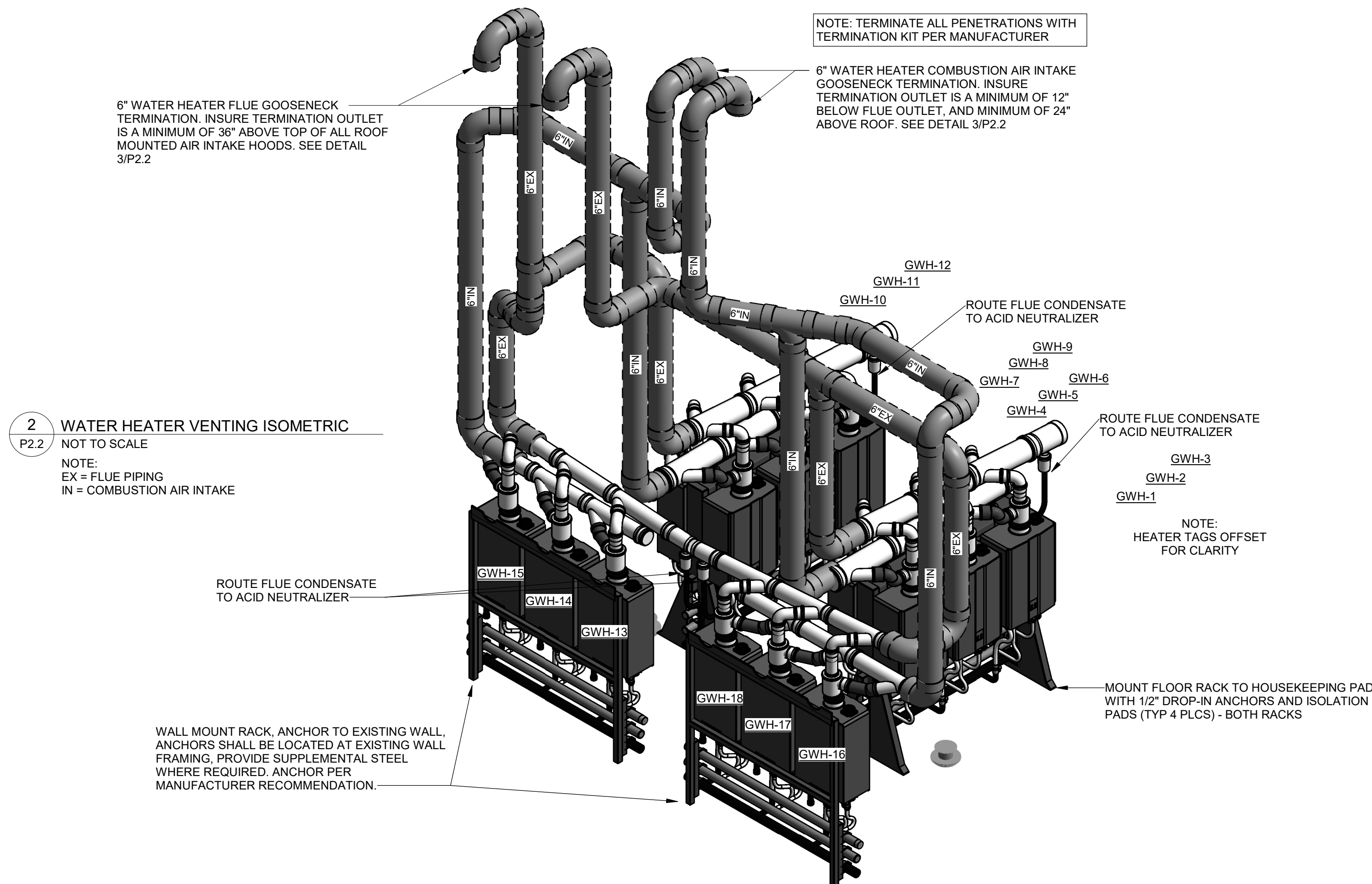
Freestanding Components:

Components which are installed freestanding for vertical termination with a length of over 59 in. (1.5 m), must be additionally secured to the building with guys or braces.

Pitched Roof Termination Clearances:



3 WATER HEATER ROOF TERMINATIONS NOT TO SCALE



COMMON VENT GUIDELINES:

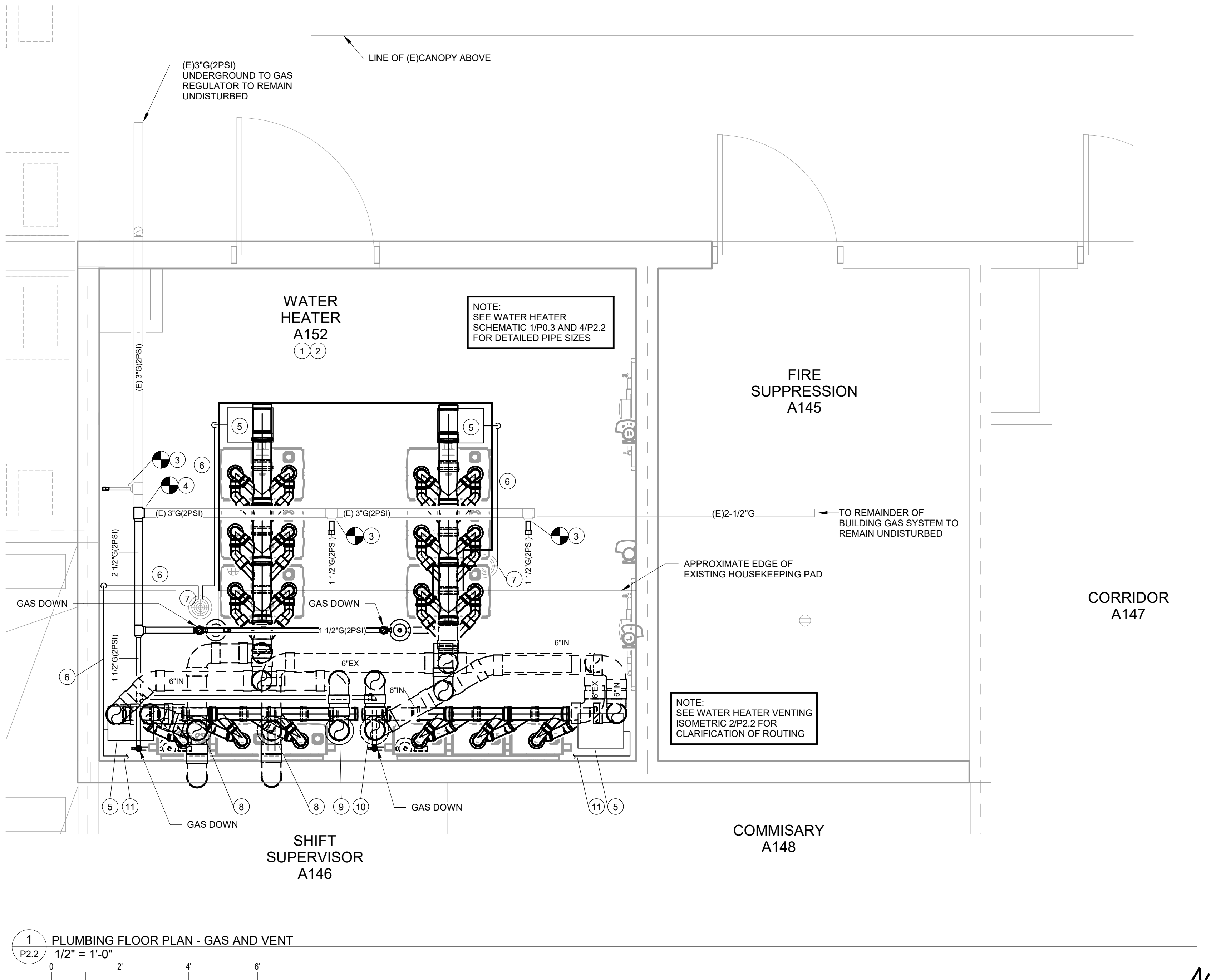
- USE VENT COMPONENTS THAT ARE CERTIFIED AND LISTED WITH THE WATER HEATER MODEL.
- AVOID SHARP BENDS OR TEES IN THE VENT SYSTEM. THESE VENT COMPONENTS CREATE ADDITIONAL RESTRICTIONS THAT COULD REDUCE PERFORMANCE OF THE WATER HEATERS.
- COMBUSTION AIR AND EXHAUST SHOULD TERMINATE WITH ELBOW OR TEE POINTING DOWN. THIS WILL STOP UNWANTED MOISTURE FROM ENTERING THE VENT SYSTEM.
- FIRE RATED PENETRATIONS SHALL BE FIRESTOPPED IN ACCORDANCE WITH SPECIFICATIONS.
- EXAMINE ALL VENT COMPONENTS FOR DAMAGE PRIOR TO INSTALLATION.
- VENT SYSTEMS MUST BE FREE TO EXPAND AND CONTRACT. REFER TO THE VENT MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR APPROPRIATE SUPPORT METHODS.
- VENTING MUST INCLUDE UNRESTRICTED VENT MOVEMENT THROUGH WALLS, CEILINGS, AND ROOF PENETRATIONS.
- USE ONLY VENT CONNECTIONS APPROVED BY THE VENT MANUFACTURER.
- REFER TO VENT MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR PROPER JOINT ASSEMBLY PROCEDURES AND PRODUCTS.
- COMMON VENTING SHOULD INCLUDE A CONDENSATE DRAIN AND TRAP BETWEEN THE HEADER AND VENT LENGTH. CONDENSATE TRAP MUST INCLUDE A LOOP THAT CAN HOLD 8 IN. OF WATER.
- VENT ROUTING SHOWN IS DIAGRAMMATIC. COORDINATE FINAL ROUTING IN FIELD WITH EXISTING CONDITIONS. COORDINATE WITH VENT MANUFACTURER ON FINAL CONFIGURATION. PROVIDE ALL REQUIRED FITTINGS AND COMPONENTS AS REQUIRED, PROVIDE SHOP DRAWING TO ENGINEER OF FINAL CONFIGURATION FOR REVIEW AND APPROVAL.

GENERAL NOTES:

- VISIT SITE, EXAMINE AND UNDERSTAND THE EXISTING CONDITIONS AT AND ADJACENT TO PROPOSED WORK. VERIFY EXISTING PIPE SIZES, LOCATIONS AND SUITABILITY FOR CONNECTION TO THE NEW SYSTEM PRIOR TO SUBMITTING BID.
- INVESTIGATE THE EXISTING OVERALL HOT WATER SYSTEM TO INSURE ALL EXISTING COLD-HOT WATER CROSS OVER SITUATIONS HAVE BEEN ADDRESSED BY THESE DOCUMENTS. SITUATIONS DISCOVERED SHALL BE PRESENTED TO ENGINEER FOR DIRECTION OF SOLUTION.
- INSULATE PIPE AND DEVICES PER SPECIFICATIONS AT EACH LOCATION WHERE REMEDIATIONS ARE PERFORMED. NEW INSULATION SHALL EXTEND 8\"/>
- COORDINATE WATER HEATER FLUE SYSTEM WITH MANUFACTURER. PROVIDE ALL REQUIRED PIPE, FITTINGS AND DEVICES REQUIRED PER INSTALLATION RECOMMENDATIONS.
- COORDINATE ALL NEW SYSTEM ROUTING WITH EXISTING CONDITIONS TO REMAIN. PROVIDE REQUIRED FITTINGS, OFFSET, ETC REQUIRED TO AVOID OBSTRUCTIONS.

KEYED NOTES:

- PAINT ALL GAS PIPE IN ACCORDANCE WITH OWNER COLOR SCHEME.
- PROVIDE WRAP-AROUND GAS LABELS ON ALL NEW AND EXISTING GAS PIPING WITHIN WATER HEATER A152 ROOM.
- PROVIDE NEW CAP WHERE EXISTING GAS PIPE WAS DISCONNECTED AND REMOVED.
- CONNECT NEW GAS PIPING FOR NEW WATER HEATERS TO EXISTING TEE WHERE EXISTING WAS DISCONNECTED AND REMOVED.
- ROUTE FLUE AND AIR INTAKE CONDENSATE DRAINS TO ACID NEUTRALIZER.
- ROUTE CONDENSATE PIPING ALONG WALL OR TIGHT TO HOUSEKEEPING PAD, ETC TO AVOID CROSSING WALKING FLOOR SPACE AND MINIMIZE TRIPPING HAZARD.
- DISCHARGE CONDENSATE TO EXISTING FLOOR DRAIN, TERMINATE WITH 2\"/>
- 6\"/>
- 6\"/>
- 6\"/>
- 6\"/>



1 PLUMBING FLOOR PLAN - GAS AND VENT 1/2\" = 1'-0"

ROOFING SCOPE:

EXISTING ROOF PENETRATIONS SHALL BE REUSED FOR NEW WATER HEATER FLUE AND COMBUSTION AIR INTAKES. PROVIDE ROOFING, DECKING, FRAMING/SUPPORTS, CURBS, FLASHING, AND ALL OTHER WORK AND MATERIAL REQUIRED TO ACCOMMODATE NEW PIPING THROUGH EXISTING LARGER PENETRATIONS. MATCH EXACTLY THE EXISTING ROOF CONSTRUCTION AND MATERIAL, WHERE EXISTING IS UNAVAILABLE. PROVIDE CONSTRUCTION METHOD AND MATERIALS ACCEPTABLE TO THE EXISTING ROOFING MANUFACTURER TO MAINTAIN EXISTING WARRANTY. ROOFING/FLASHING SUBCONTRACTOR SHALL SUBMIT FOR OWNER AND ENGINEER REVIEW SHOP DRAWING WITH INSTALLATION DIAGRAM DETAILING INSTALLATION METHOD AND MATERIALS AND INDICATING APPROVAL OF EXISTING ROOFING MANUFACTURER.



DEVITA Project No. 23501-04

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YORK COUNTY PRISON WATER HEATING SYSTEM UPGRADES

778 JUSTICE BLVD
YORK, SC 29745

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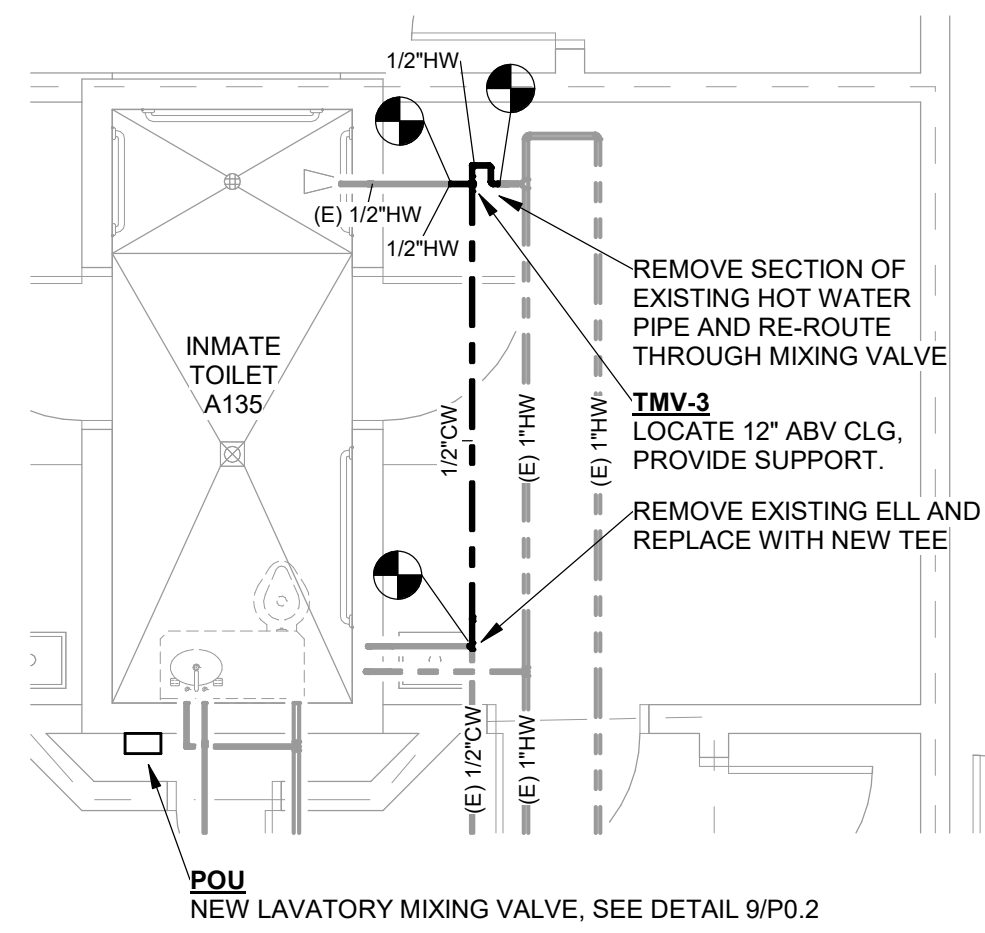
DRAWING NAME

PLUMBING FLOOR PLAN - GAS AND FLUE

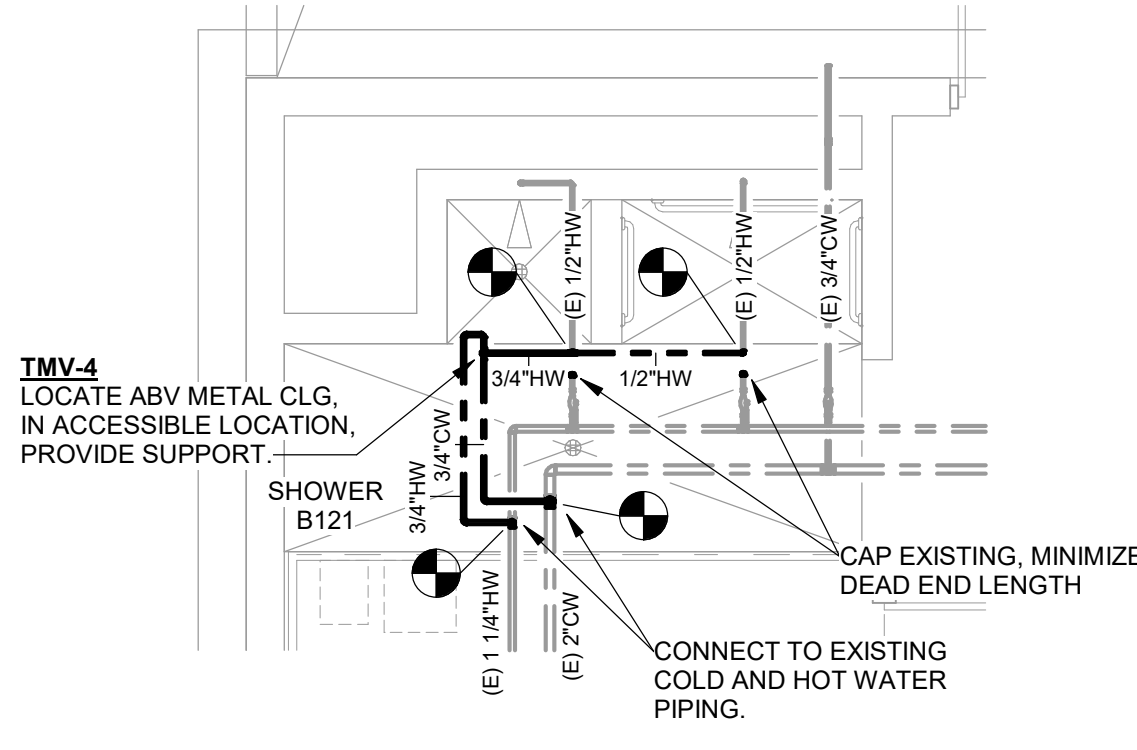
DRAWING NO.

P2.2

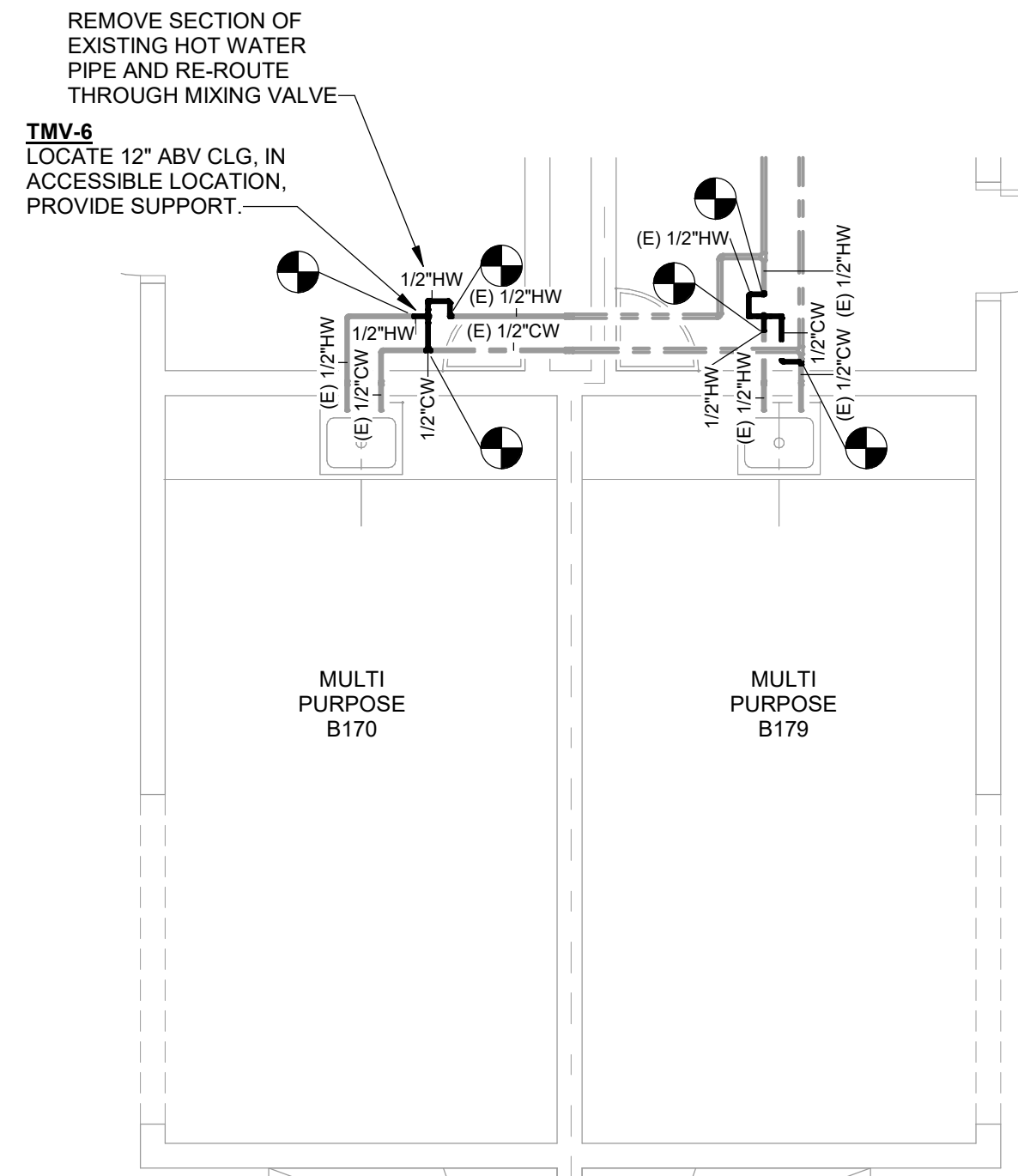
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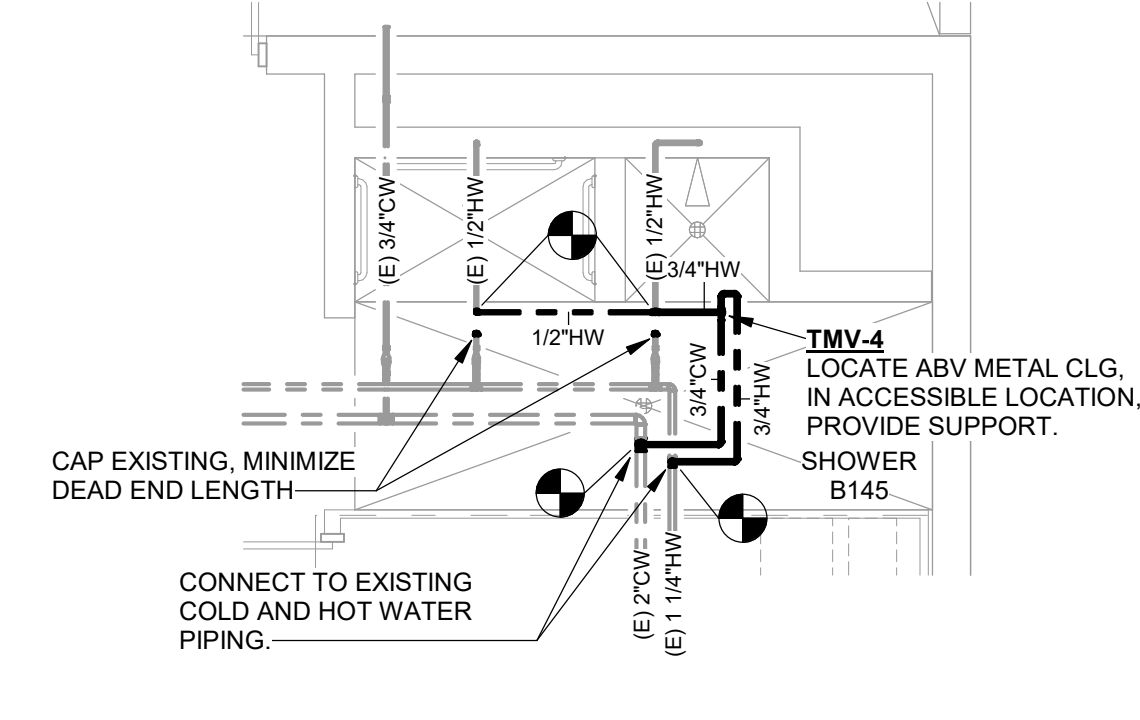
1 PLUMBING FLOOR PLAN - ENLARGED INMATE TOILET A135
1/4" = 1'-0"



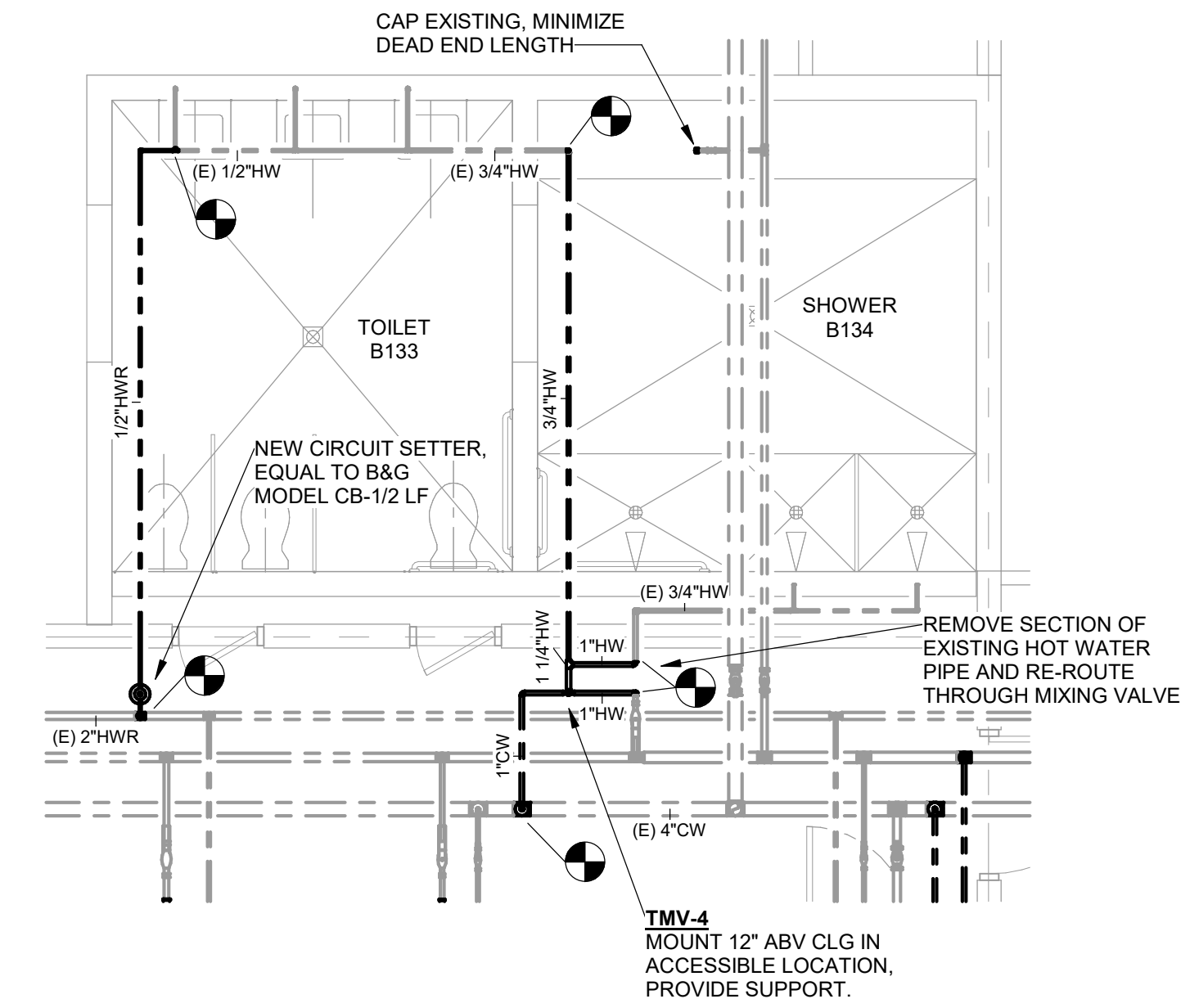
2 PLUMBING FLOOR PLAN - ENLARGED SHOWER B121
1/4" = 1'-0"



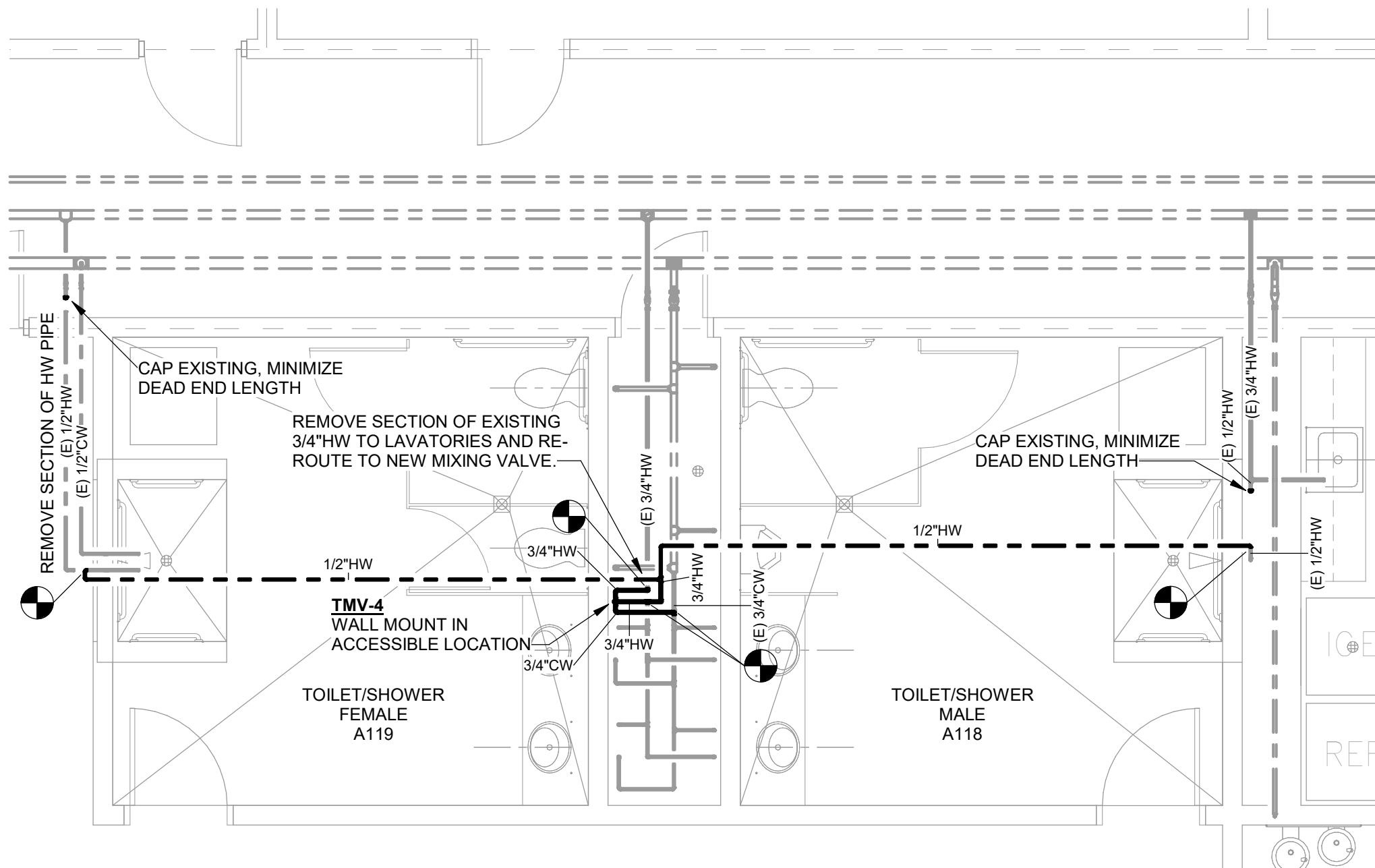
3 PLUMBING FLOOR PLAN - ENLARGED MULTI-PURPOSE B170 & B179
1/4" = 1'-0"



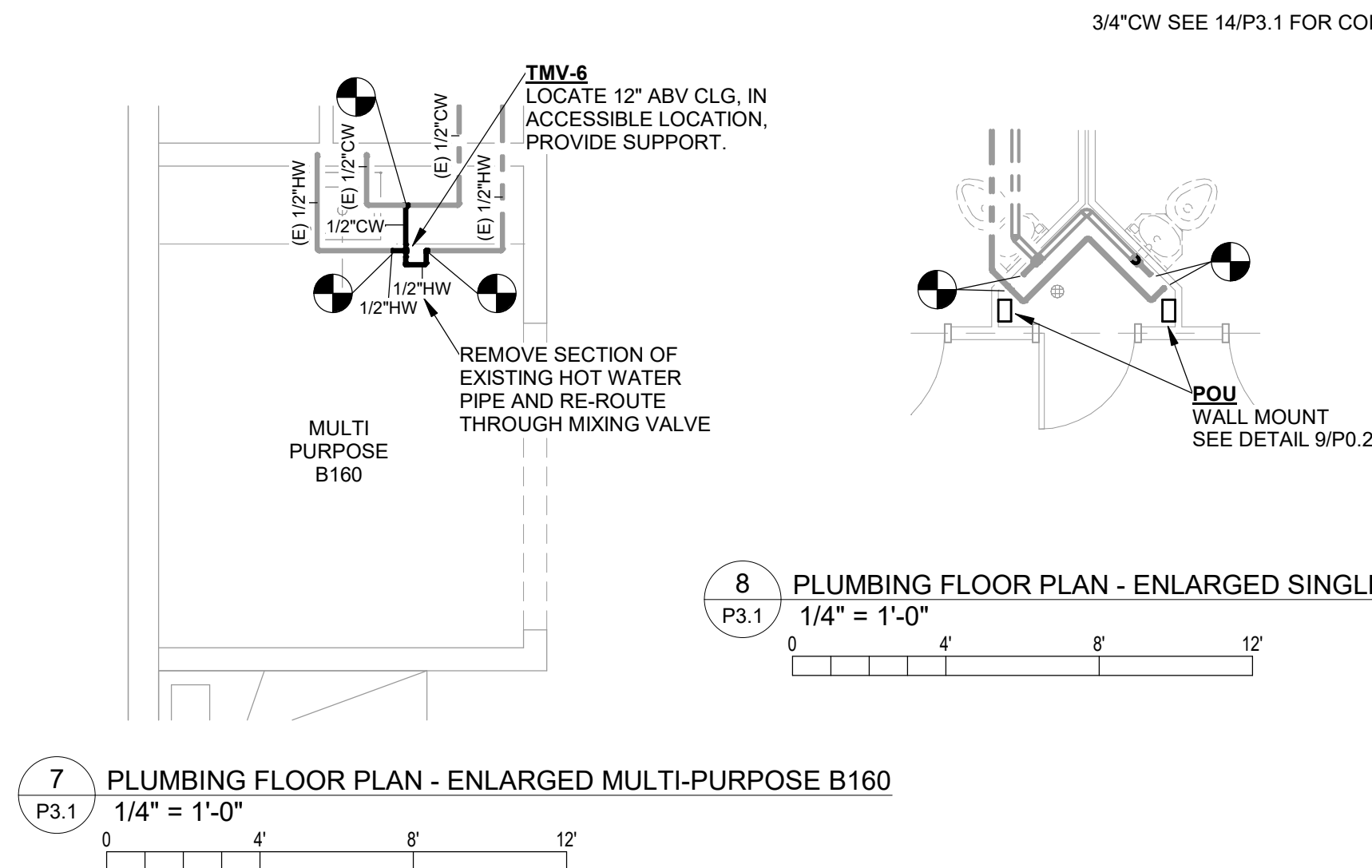
4 PLUMBING FLOOR PLAN - ENLARGED SHOWER B145
1/4" = 1'-0"



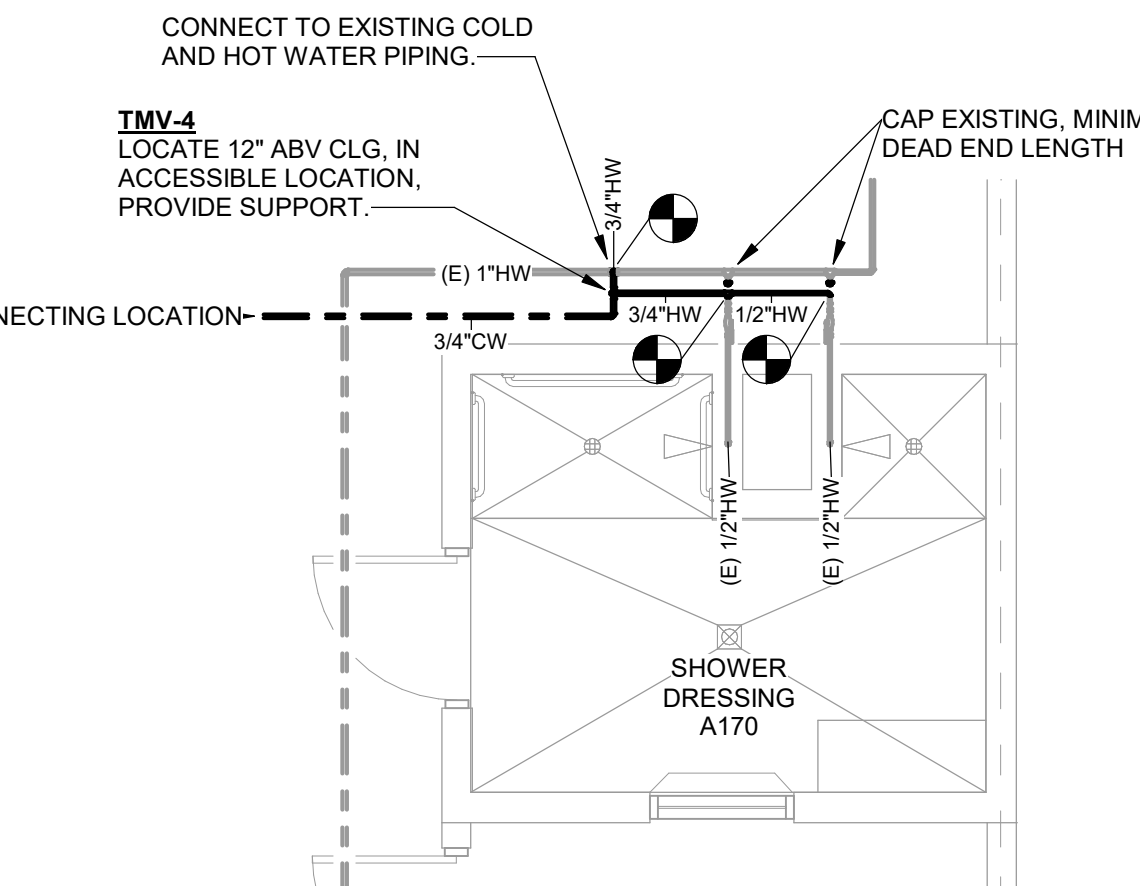
5 PLUMBING FLOOR PLAN - ENLARGED SHOWER B134
1/4" = 1'-0"



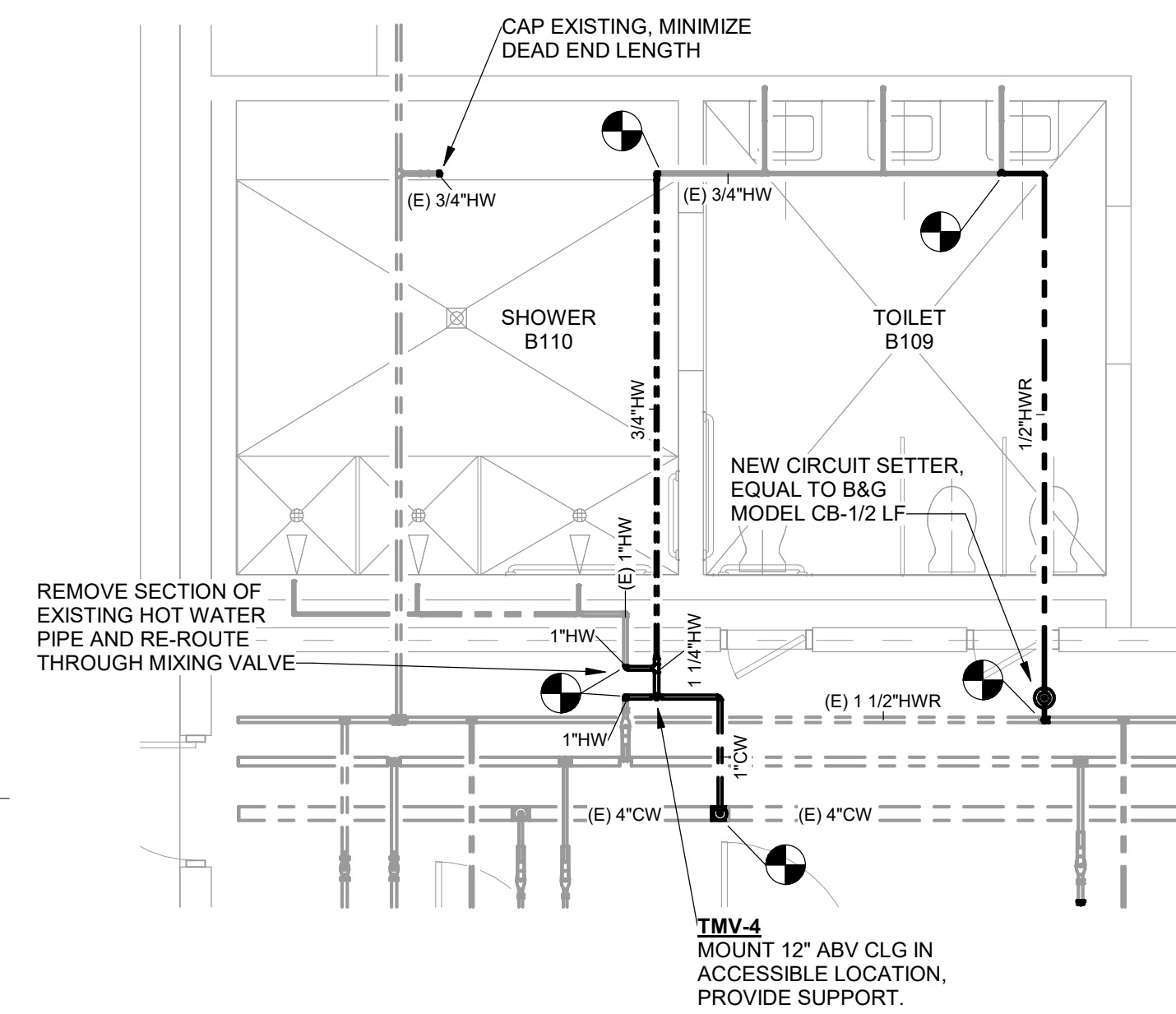
6 PLUMBING FLOOR PLAN - ENLARGED SHOWER A118 & A119
1/4" = 1'-0"



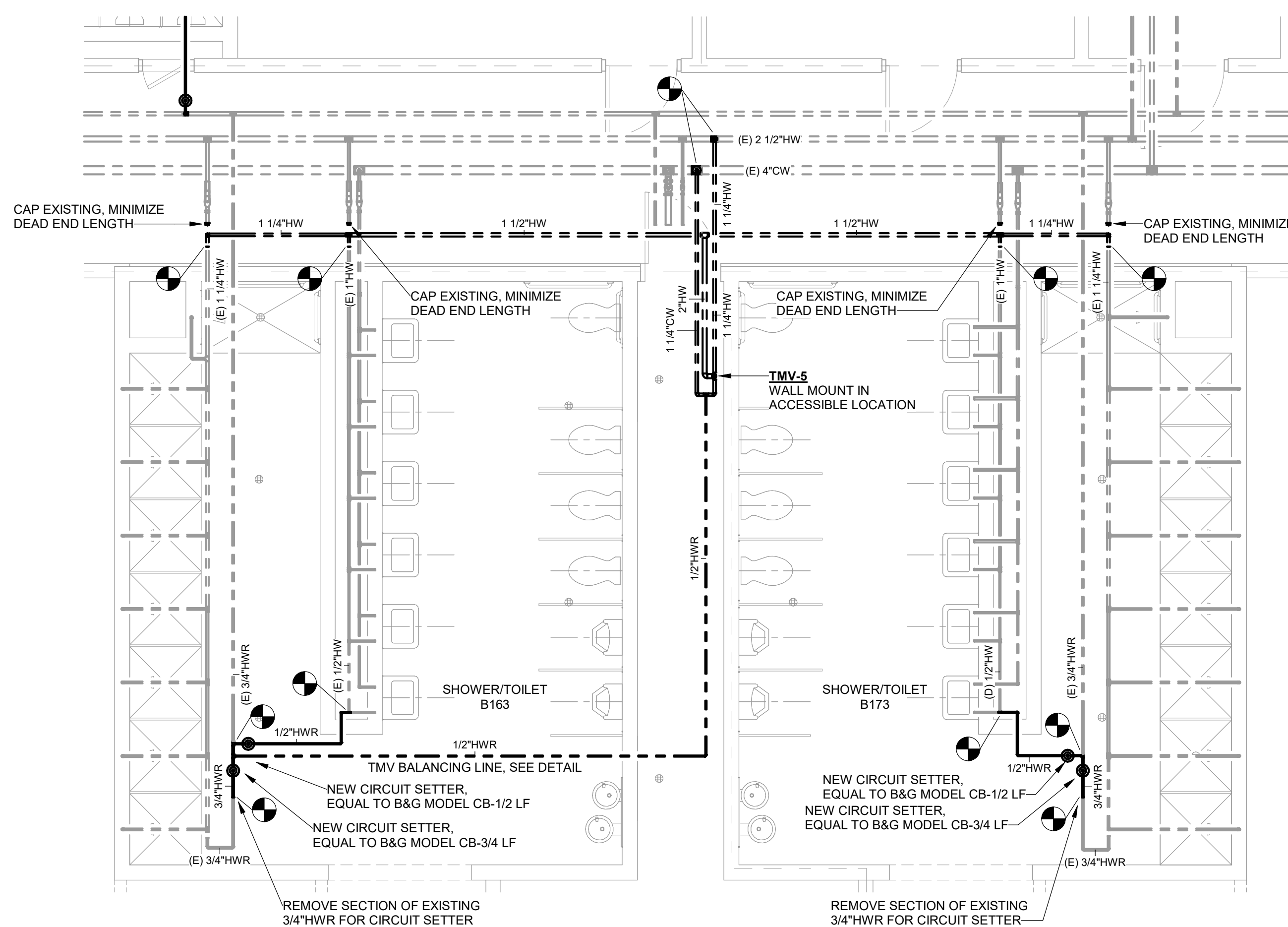
7 PLUMBING FLOOR PLAN - ENLARGED MULTI-PURPOSE B160
1/4" = 1'-0"



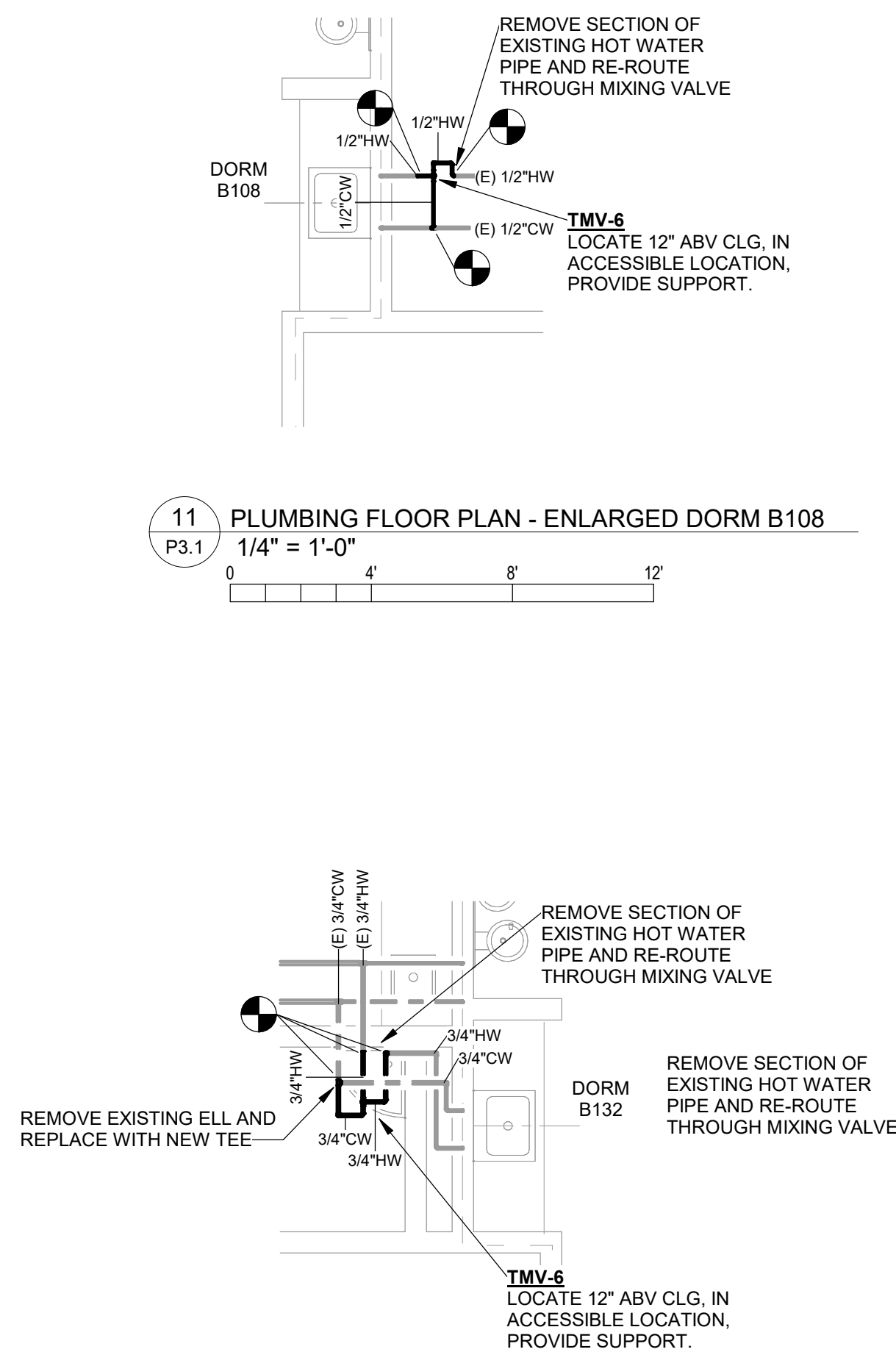
9 PLUMBING FLOOR PLAN - ENLARGED SHOWER A170
1/4" = 1'-0"



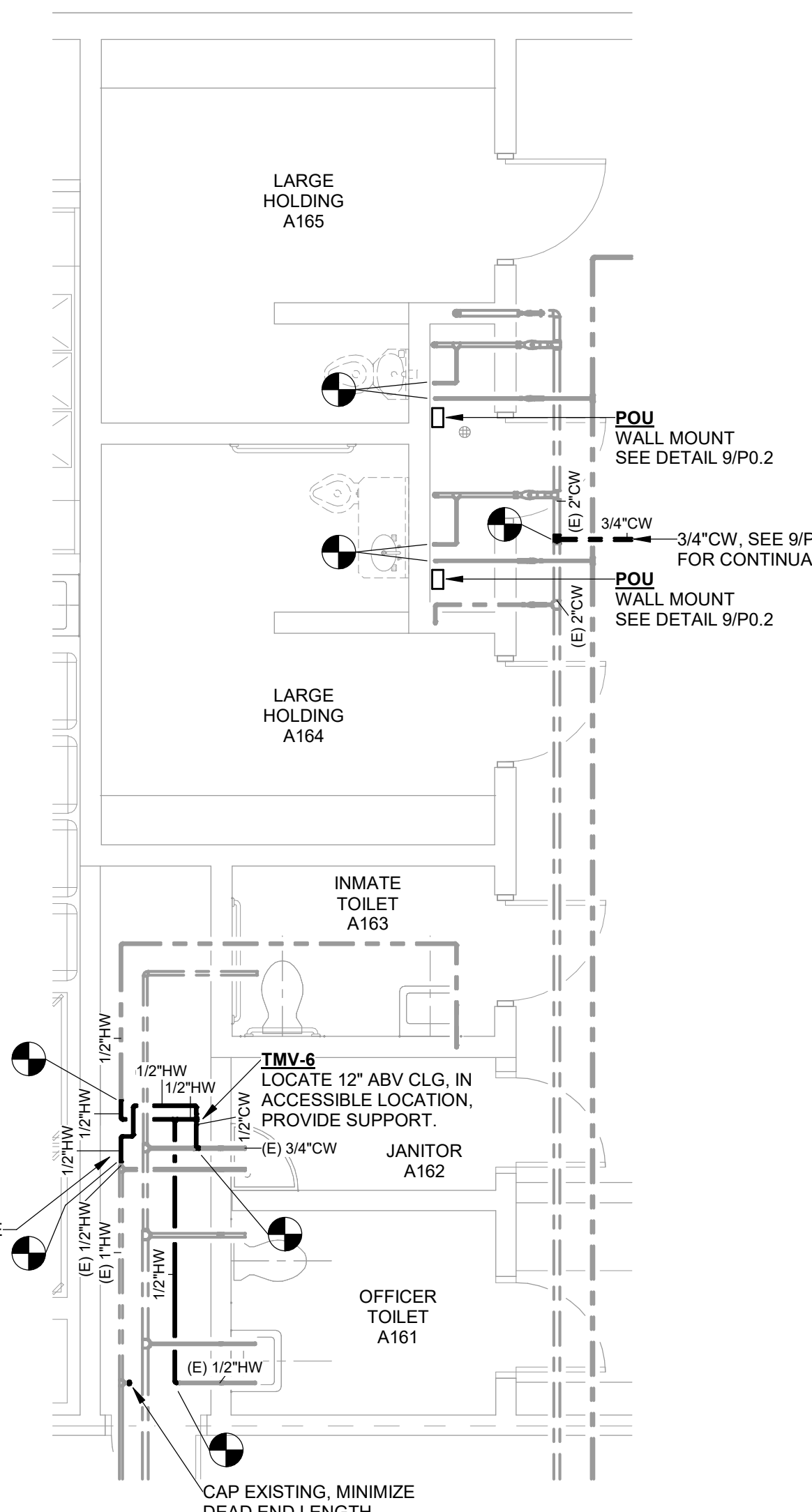
10 PLUMBING FLOOR PLAN - ENLARGED SHOWER B110
1/4" = 1'-0"



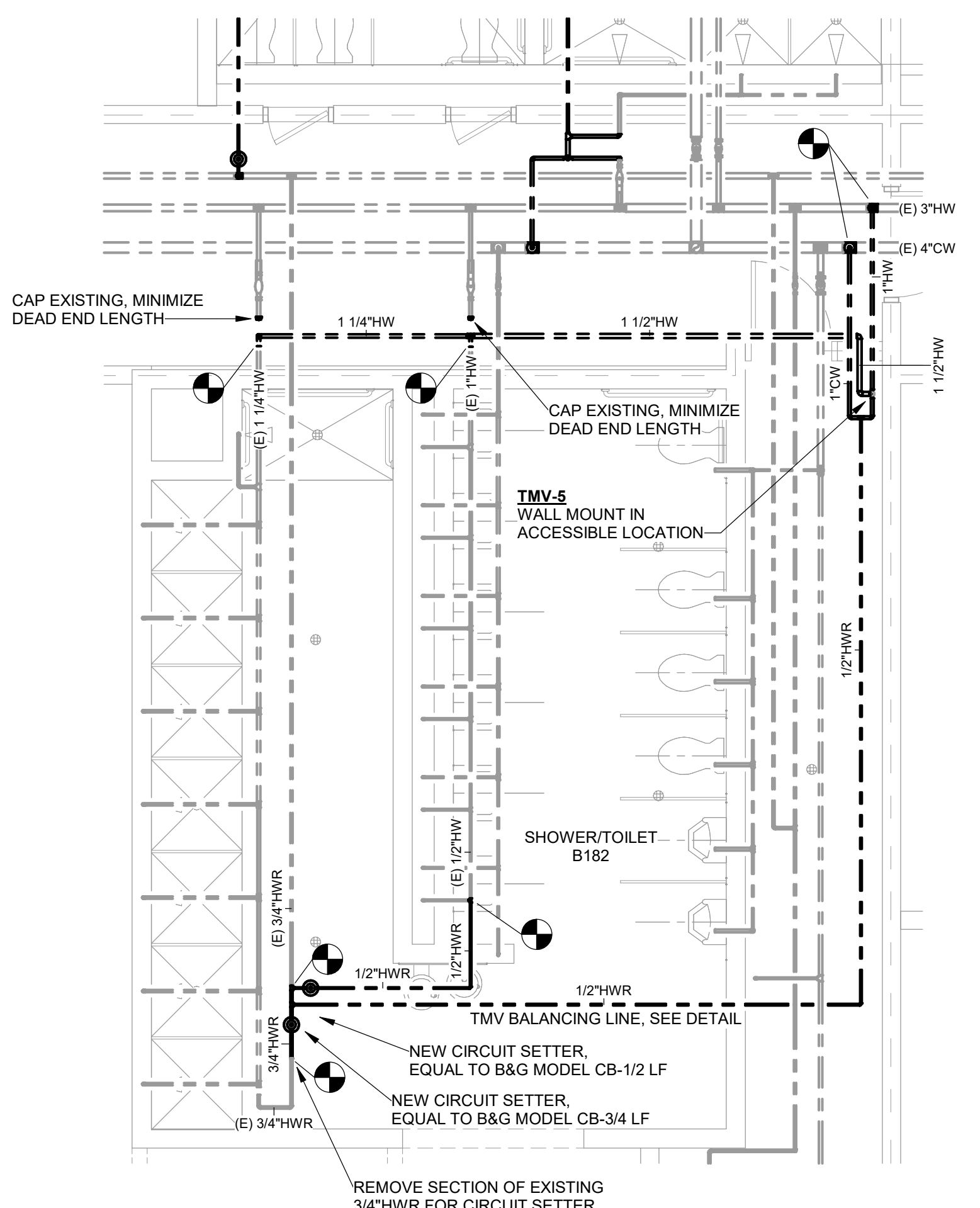
12 PLUMBING FLOOR PLAN - ENLARGED SHOWER B163 & B173
1/4" = 1'-0"



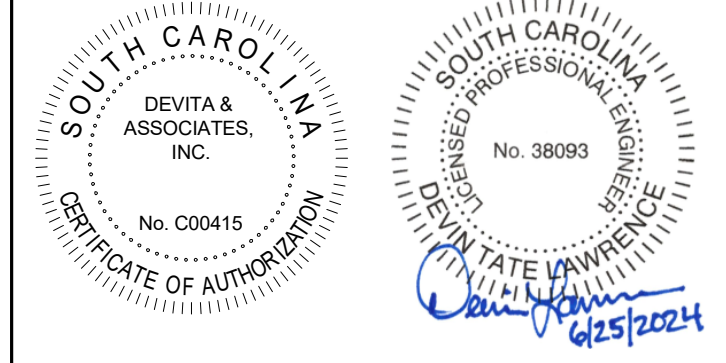
13 PLUMBING FLOOR PLAN - ENLARGED DORM B132
1/4" = 1'-0"



14 PLUMBING FLOOR PLAN - ENLARGED HOLDING A164 & A165
1/4" = 1'-0"



15 PLUMBING FLOOR PLAN - ENLARGED SHOWER B182
1/4" = 1'-0"



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DEVITA Project No. 23501-04

PROJECT INFORMATION:

YORK COUNTY PRISON WATER HEATING SYSTEM UPGRADES

778 JUSTICE BLVD
YORK, SC 29745

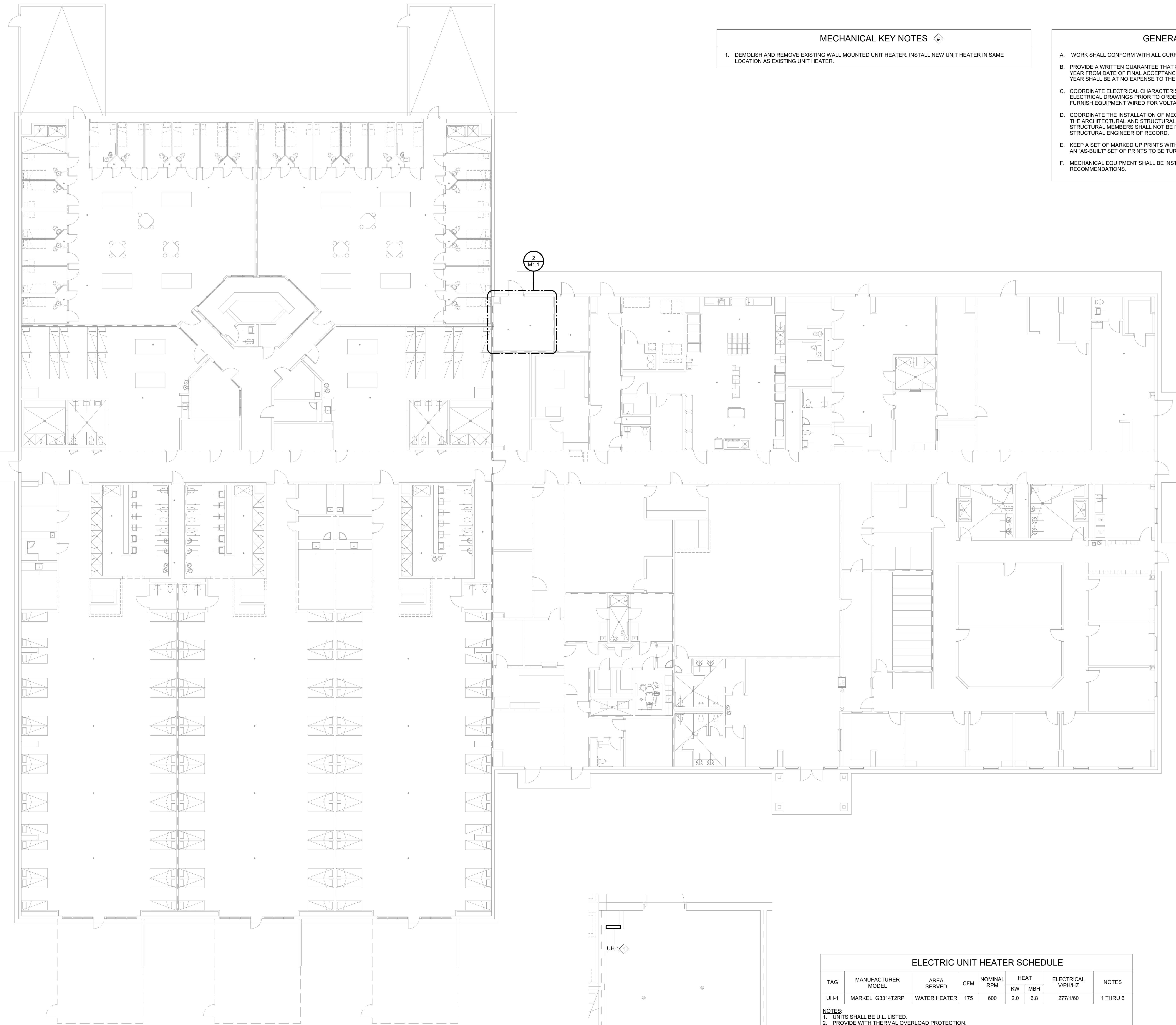
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DRAWING NAME
**PLUMBING FLOOR
PLANS - ENLARGED**

DRAWING NO.
P3.1
Drawn By: DRB Checked By: DTL

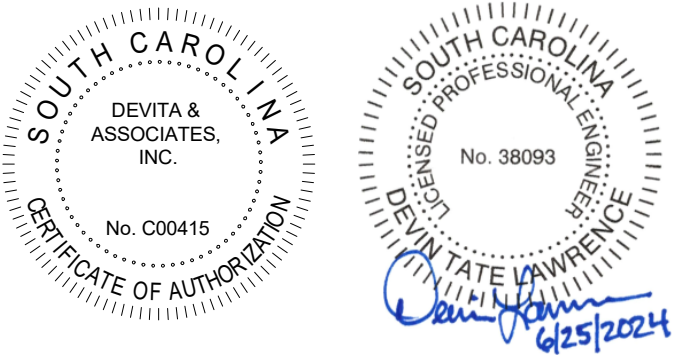


MECHANICAL KEY NOTES

1. DEMOLISH AND REMOVE EXISTING WALL MOUNTED UNIT HEATER. INSTALL NEW UNIT HEATER IN SAME LOCATION AS EXISTING UNIT HEATER.

GENERAL MECHANICAL NOTES

- A. WORK SHALL CONFORM WITH ALL CURRENT CODES AND AUTHORITY HAVING JURISDICTION.
- B. PROVIDE A WRITTEN GUARANTEE THAT SHALL WARRANT ALL WORKMANSHIP AND MATERIALS FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY THE OWNER. ANY BREAKDOWN OCCURRING IN THE FIRST YEAR SHALL BE AT NO EXPENSE TO THE OWNER. .
- C. COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL DRAWINGS PRIOR TO ORDERING EQUIPMENT OR SUBMITTING SHOP DRAWINGS AND SHALL FURNISH EQUIPMENT WIRED FOR VOLTAGES SHOWN THEREIN.
- D. COORDINATE THE INSTALLATION OF MECHANICAL EQUIPMENT, ETC. TO FIT WITHIN THE SPACE ALLOWED BY THE ARCHITECTURAL AND STRUCTURAL CONDITIONS. CUTTING OR OTHERWISE ALTERING ANY STRUCTURAL MEMBERS SHALL NOT BE PERMITTED WITHOUT WRITTEN PERMISSION FROM THE STRUCTURAL ENGINEER OF RECORD.
- E. KEEP A SET OF MARKED UP PRINTS WITH ANY FIELD CHANGES MADE DURING CONSTRUCTION TO CREATE AN "AS-BUILT" SET OF PRINTS TO BE TURNED OVER TO THE OWNER AT THE COMPLETION OF THE PROJECT.
- F. MECHANICAL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.



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DRAWING NAME

**MECHANICAL FLOOR
PLAN**

DRAWING NO.

M1.1

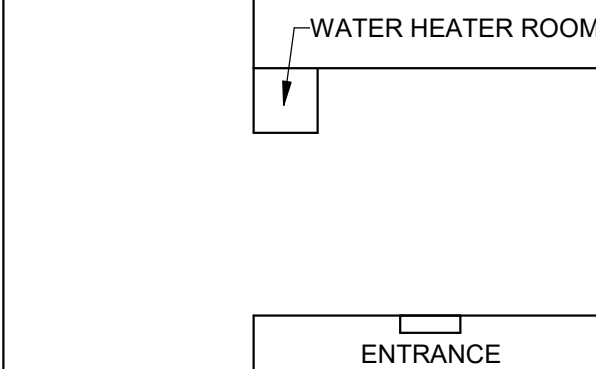
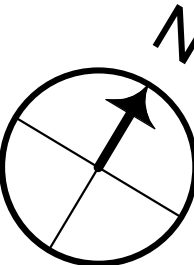
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1 MECHANICAL FLOOR PLAN





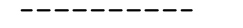
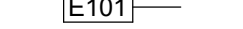









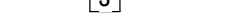


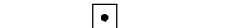

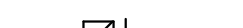
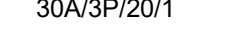
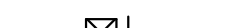
3/32" = 1'-0"
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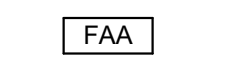
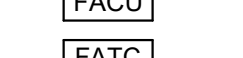

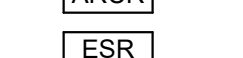
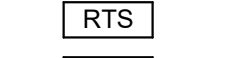
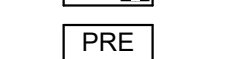
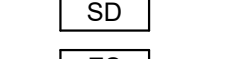

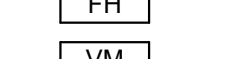

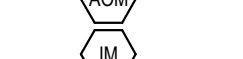

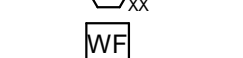

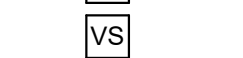
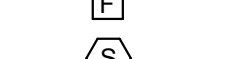
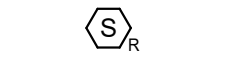

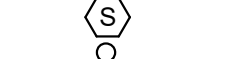
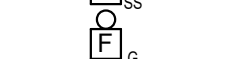


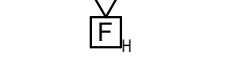


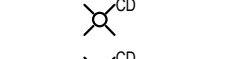
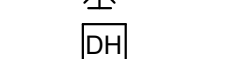










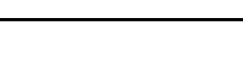

2 MECHANICAL FLOOR PLAN - ENLARGED





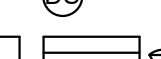



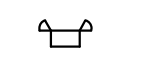


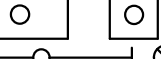

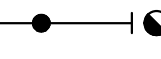
1/4" = 1'-0"
0 4' 8' 12'



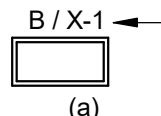

KEY PLAN

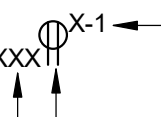
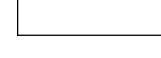

WIRING DEVICE SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	HOMERUN TO LIGHTING/SERVICE PANEL. HOMERUN INDICATES PANEL NAME AND CIRCUIT NUMBER OR FEEDER TAG. CONDUCTORS SHALL BE #12 AWG IN 3/4" CONDUIT (1" UNDERGROUND) UNLESS NOTED OTHERWISE. HOMERUNS MAY BE COMBINED INTO A COMMON RACEWAY FOR 20A SINGLE PHASE CIRCUITS. PROVIDE DEDICATED NEUTRALS. MAXIMUM OF (6) CURRENT CARRYING CONDUCTORS SHALL BE PROVIDED IN RACEWAY. PROVIDE #10 AWG FOR 120V BRANCH CIRCUITS LONGER THAN 100 FEET. PROVIDE #8 AWG FOR 120V BRANCH CIRCUITS LONGER THAN 150 FEET. INCREASE CONDUIT SIZE AS REQUIRED. VERIFY EXACT CIRCUIT LENGTH AND SIZE OF CONDUCTORS TO PROVIDE ACCEPTABLE VOLTAGE DROP PER NEC. COMPLY WITH NEC FOR CONDUCTOR DERATING AND CONDUIT FILL.
	CONDUIT STUB
	CONDUIT TURNED DOWN
	CONDUIT TURNED UP
	CONDUIT INSTALLED BELOW GRADE OR BELOW FINISHED FLOOR
	ELECTRICAL CONNECTION TO EQUIPMENT ITEM 'E101' (LETTER DESIGNATION AS APPLICABLE) - SEE CORRESPONDING EQUIPMENT CONNECTION SCHEDULE
	DUPLEX RECEPTACLE AT 18" AFF. UNO, NEMA 5-20R.
	QUADRUPLEX RECEPTACLE AT 18" AFF. UNO, NEMA 5-20R.
	DUPLEX RECEPTACLE - CEILING MOUNTED, NEMA 5-20R.
	DUPLEX RECEPTACLE - FLOOR MOUNTED, NEMA 5-20R.
	SINGLE RECEPTACLE AT 18" AFF. UNO, NEMA 5-20R.
	FOR RECEPTABLES ABOVE, SUBSCRIPT DEFINITION AS FOLLOWS: GFI - GROUND FAULT DEVICE IG - ISOLATED GROUND USB - DEVICE WITH USB PORT WP - WEATHERPROOF CR - CORD REEL C - MOUNTED 8" ABOVE COUNTER
	SPECIAL PURPOSE RECEPTACLE - HEIGHT AND TYPE AS NOTED ON DRAWINGS
	SURFACE RACEWAY
	JUNCTION BOX - MOUNTING HEIGHT AND SIZE AS REQUIRED BY CODE OR AS NOTED ON DRAWINGS
	JUNCTION BOX - FLOOR MOUNTED. SIZE AS REQUIRED BY CODE OR AS NOTED ON DRAWINGS
	VERTICAL SERVICE POLE
	COMBINATION IN FLOOR POWER / DATA / A/V DEVICE.
	PUSHBUTTON
	MOTOR. SEE DRAWINGS FOR DESCRIPTION
	SAFETY DISCONNECT SWITCH. "30" INDICATES AMP RATING. "3P" INDICATES NUMBER OF POLES. "20" INDICATES FUSE SIZE. "1" INDICATES NEMA ENCLOSURE RATING (1, 3R, 4X, ETC). HEAVY DUTY SAFETY SWITCH UNLESS NOTED OTHERWISE. "NP" INDICATES NON-FUSED.
	COMBINATION MOTOR STARTER
	MOTOR STARTER
	DOOR BELL

FIRE ALARM SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	FIRE ALARM ANNUNCIATOR PANEL - WALL MOUNTED AT 60" AFF TO CENTER, UNO
	FIRE ALARM CONTROL UNIT. "D" SUBSCRIPT INDICATES DEDICATED UNIT
	FIRE ALARM TERMINAL CABINET - WALL MOUNTED AT 72" AFF TO TOP, UNO
	AREA OF REFUGE EMERGENCY COMMUNICATION SYSTEM MASTER UNIT
	AREA OF REFUGE EMERGENCY COMMUNICATION SYSTEM REMOTE UNIT
	ELEVATOR STATUS / RECALL
	REMOTE TEST STATION FOR FA DUCT DETECTOR
	NOTIFICATION CIRCUIT POWER BOOSTER, EXTENDER PANEL. "n" = UNIT NUMBER
	PRE-ACTION SYSTEM / CONTROL UNIT
	SMOKE DAMPER
	ELEVATOR SHUTDOWN
	ELEVATOR RECALL
	ELEVATOR FIREMAN'S HAT LIGHT
	ELEVATOR SHUNT TRIP VOLTAGE MONITOR
	ADDRESSABLE INPUT MONITOR MODULE
	ADDRESSABLE OUTPUT MONITOR MODULE
	ISOLATION MODULE
	CO DETECTOR
	HEAT DETECTOR. "XX" = TYPE/BASIC SHAPE
	WATER FLOW DETECTOR / SWITCH
	NON-ADDRESSABLE OUTPUT RELAY
	SURGE SUPPRESSOR
	VALVE SUPERVISORY SWITCH
	FIRE ALARM PULL STATION AT 44" AFF. UNO
	FIRE ALARM SMOKE DETECTOR / SENSOR
	RELAY BASE
	SMOKE ALARM, SINGLE STATION
	SMOKE DETECTOR / SENSOR FOR DUCT
	FIRE ALARM SYSTEM BELL - SINGLE STROKE
	GONG
	COMBINATION HORN / VISIBLE; cd = CANDELA RATING
	COMBINATION SPEAKER / VISIBLE; W = WATTAGE, cd = CANDELA RATING
	HORN ONLY
	CEILING MOUNT INDICATOR
	REMOTE ALARM INDICATING AND TEST SWITCH
	SPEAKER ONLY, WALL MOUNT; W = WATTAGE
	VISIBLE ONLY (STROBE), CEILING MOUNT; CD = CANDELA RATING
	VISIBLE ONLY (STROBE), WALL MOUNT; CD = CANDELA RATING
	DOOR HOLDER
	SUBSCRIPT DEFINITIONS: C - CEILING MOUNTED WP - WEATHERPROOF WG - WIRE GUARD

LIGHTING & CONTROL SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	20A SWITCH AT 44" CL AFF. UNO FOR SWITCH ABOVE, SUBSCRIPT DEFINITION AS FOLLOWS: a,b - SWITCHING SCHEME m - MOTOR RATED P - PILOT LIGHT 3 - 3-WAY SWITCH 4 - 4-WAY SWITCH o - OCCUPANCY SENSOR v - VACANCY SENSOR
	WALL DIMMER SWITCH
	TWO SWITCHES IN COMMON BOX - FOR MULTILEVEL CONTROL AT 44" CL AFF. UNO
	LIGHTING CONTROL OCCUPANCY SENSOR - CEILING MOUNTED
	LIGHTING CONTROL PHOTOCELL
	DAYLIGHT SENSOR
	INTERIOR LIGHT FIXTURES AS SPECIFIED ON THE LIGHT FIXTURE SCHEDULE. REFER ALSO TO LIGHTING CIRCUITING GUIDE.
	LIGHT FIXTURE, HALF SHADING INDICATES EMERGENCY BACKUP. "NL" INDICATES 24/7 OPERATION (UNSWITCHED).
	EXTERIOR LIGHT FIXTURES AS SPECIFIED ON THE LIGHT FIXTURE SCHEDULE. REFER ALSO TO LIGHTING CIRCUITING GUIDE.
	EMERGENCY LIGHTING FIXTURE, WITH BATTERY. REFER TO LIGHT FIXTURE SCHEDULE
	EXIT SIGN. WHERE USED, ARROW INDICATES CHEVRON DIRECTION.
	CEILING FAN
	LIGHTING FIXTURE AS SCHEDULED: NORMAL POWER BRANCH
	LIGHTING FIXTURE AS SCHEDULED: LIFE SAFETY EMERGENCY POWER BRANCH

ABBREVIATIONS	
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ACH	ABOVE COUNTER HEIGHT
AL	ALUMINUM
BKR	BREAKER
CU	COPPER
CKT	CIRCUIT
DWG	DRAWING
EC	EMPTY CONDUIT
EF	EXHAUST FAN
EWC	ELECTRIC WATER COOLER
FLA	FULL LOAD AMPS
FU	FUSE
FWE	FURNISHED WITH EQUIPMENT
GC	GENERAL CONTRACTOR
IGF/GFCI	GROUND FAULT INTERRUPTER DEVICE
HPS	HIGH PRESSURE SODIUM
IG	ISOLATED GROUND
LRA	LOCKED ROTOR AMPS
LTG	LIGHTING(L)
MCA	MINIMUM CIRCUIT CAPACITY
MCS	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	METAL HALIDE
MLO	MAIN LUG ONLY
MOC/P	MAXIMUM OVERCURRENT CIRCUIT PROTECTION
MSB	MAIN SWITCHBOARD
NL	NIGHT LIGHT
NC	NOT IN CONTRACT
NTS	NOT TO SCALE
PH	PHASE
PNL	PANEL
RCPT	RECEPTACLE
REQD	REQUIRED
RTU	ROOFTOP UNIT
SP	SURGE PROTECTED DEVICE
SW	SWITCH
UGND	UNDERGROUND
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
W	WITH
WH	WATER HEATER
WP	WEATHER PROOF
WFMR	TRANSFORMER

LIGHTING CIRCUITING GUIDE	
SYMBOL	DESCRIPTION
	LIGHTING TYPE AND CIRCUIT DESIGNATION X: REFER TO PANEL SCHEDULE, PER DRAWING 1: CIRCUIT NUMBER B: LIGHT FIXTURE TYPE, REFER TO LIGHT FIXTURE SCHEDULE
	SWITCHING SCHEME OR ZONE

POWER CIRCUITING GUIDE	
SYMBOL	DESCRIPTION
	POWER CIRCUITING DESIGNATION X: REFER TO PANEL SCHEDULE, PER DRAWING 1: CIRCUIT NUMBER
	DEVICE, JUNCTION BOX, FLOOR BOX, ETC
	EQUIPMENT ABBREVIATION, REFER TO LEGEND AND ABBREVIATION SCHEDULE FOR ADDITIONAL INFORMATION

ELECTRICAL SPECIFICATIONS

GENERAL:

ALL DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT APPLY TO THIS AND ALL SPECIFICATION SECTIONS.

THE INSTALLATION SHALL COMPLY WITH ALL REQUIREMENTS OF THE 2020 EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70), THE 2021 SOUTH CAROLINA BUILDING CODE, AND WITH ALL OTHER APPLICABLE STATE AND LOCAL CODES AND ORDINANCES.

CONTRACTOR IS RESPONSIBLE TO REVIEW AND UNDERSTAND ALL DRAWINGS AND ALL WORK OF ALL TRADES TO ENSURE A COMPLETE AND THOROUGH PROJECT. CONTRACTOR SHALL COOPERATE AND COORDINATE ALL PHASES OF WORK WITH OTHER DISCIPLINES AND GENERAL CONTRACTOR.

CONTRACTOR SHALL VISIT THE SITE AND THOROUGHLY FAMILIARIZE HIMSELF WITH EXISTING CONDITIONS, VERIFY LOCATIONS, CONDUIT ROUTINGS, ETC. TO DETERMINE THE EXACT EXTENT OF ELECTRICAL WORK REQUIRED TO COMPLETE THE PROJECT BEFORE SUBMITTING A BID. OTHER ELECTRICAL ITEMS MAY EXIST FOR WHICH THE ELECTRICAL CONTRACTOR IS RESPONSIBLE. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER BEFORE THE BID DATE.

CONTRACTOR IS RESPONSIBLE TO PROVIDE POWER FOR ALL TRADES THROUGHOUT ALL PHASES OF CONSTRUCTION.

PROVIDE ALL MATERIALS, EQUIPMENT, SERVICES, AND LABOR FOR A COMPLETE OPERABLE ELECTRICAL INSTALLATION AS INDICATED ON THE DRAWINGS. ALL MATERIAL SHALL BE NEW AND BEAR THE UNDERWRITERS LABORATORIES, INC. (UL) LABEL WHERE AVAILABLE. INCIDENTAL ITEMS NOT INDICATED ON THE DRAWINGS NOT MENTIONED IN THE SPECIFICATIONS THAT CAN LEGITIMATELY AND REASONABLY BE INFERRED TO BELONG TO THE WORK DESCRIBED OR BE NECESSARY IN GOOD PRACTICE TO PROVIDE A COMPLETE SYSTEM, SHALL BE FURNISHED AND INSTALLED AS THOUGH ITEMIZED HERE IN EVERY DETAIL.

SUBMIT PRODUCT DATA AND SHOP DRAWINGS FOR ARCHITECT/ENGINEER REVIEW AND APPROVAL FOR THE FOLLOWING ITEMS:

1. WIRING DEVICES
2. LIGHTING FIXTURES
3. CIRCUIT BREAKERS ADDED TO EXISTING PANELS

ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES AND EQUIPMENT SHALL BE LABEL-LISTED BY A STATE APPROVED THIRD PARTY TESTING AGENCY.

ALL WORK SHALL BE EXECUTED IN ACCORDANCE WITH RECOGNIZED STANDARDS OF WORKMANSHIP. ALL WORK SHALL BE INSTALLED IN A NEAT AND ORDERLY MANNER.

MULTIPLE ITEMS SUCH AS PANELBOARDS, CIRCUIT BREAKERS, LIGHTING FIXTURES, WIRING DEVICES, RACEWAYS, ETC. SHALL BE FROM THE SAME MANUFACTURER. ALL EQUIPMENT SUPPLIED SHALL BE THE STANDARD EQUIPMENT OF THE MANUFACTURER.

ALL WORK SHALL BE LABELED WITH PERMANENT TYPEWRITTEN OR ENGRAVED LABEL. HANDWRITING IS NOT ACCEPTABLE. COLORS OF ALL LABELS SHALL BE COORDINATED WITH THE OWNER. LABEL WIRING DEVICES, PANELBOARDS, AND OTHER EQUIPMENT PER LABELING DETAILS. LABEL SPARE CONDUITS AND JUNCTION BOXES WITH PANEL/CIRCUIT NUMBER. LABEL JUNCTION BOXES WITH PANEL/CIRCUIT NUMBER. PROVIDE UPDATED TYPEWRITTEN DIRECTORY IN ALL AFFECTED PANELBOARDS INDICATING LOADS SERVED BY EACH CIRCUIT. REFER TO LABELING DETAILS.

EXISTING CONDITIONS, EQUIPMENT, DEVICES, AND CIRCUITING AS SHOWN IS TAKEN FROM EXISTING FACILITY DOCUMENTATION AND/OR NON-INVASIVE FIELD OBSERVATION. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS, QUANTITIES, AND EXISTING CIRCUITING.

GROUNDING:

THE CONTRACTOR SHALL FURNISH, INSTALL, AND CONNECT A COMPLETE SYSTEM OF GROUNDING FOR ALL EQUIPMENT AND STRUCTURES. A GOOD MECHANICAL AND ELECTRICAL CONNECTION SHALL BE MADE WITH APPROVED GROUNDING CONNECTORS.

ALL METAL RACEWAYS, INCLUDING CONDUIT, ENCLOSURES, ETC., SHALL BE GROUNDING. ALL CONNECTIONS IN METAL RACEWAYS SHALL BE COMPLETED IN SUCH A MANNER AS TO MAINTAIN A CONTINUOUS PATH TO GROUND THROUGHOUT THE ENTIRE LENGTH OF THE RACEWAY.

PROVIDE A GREEN INSULATED WIRE EQUIPMENT GROUNDING CONDUCTOR FOR ALL CIRCUITS PER NEC.

GROUNDING CONDUCTORS SHALL BE COPPER.

MAKE ALL JOINTS AND CONNECTIONS OF THE CONDUIT SYSTEM TIGHT TO MAINTAIN CONTINUITY OF MECHANICAL AND ELECTRICAL GROUND THROUGHOUT ENTIRE SYSTEM.

COORDINATION:

THE ELECTRICAL CONTRACTOR SHALL COORDINATE SEQUENCE OF WORK WITH ALL OTHER TRADES. CONTRACTOR SHALL VERIFY VOLTAGE OF MECHANICAL EQUIPMENT AND FIXTURE DRIVERS / BALLASTS, PRIOR TO COMMENCING ANY WORK.

NOTIFY ENGINEER IMMEDIATELY OF POSSIBLE CONFLICTS WITH STRUCTURE, MECHANICAL, SITE, OR OTHER FEATURES. WHERE JOB CONDITIONS REQUIRE REASONABLE CHANGES IN LOCATIONS AND ARRANGEMENT OF INDICATED EQUIPMENT, CONDUIT, OUTLETS, OR WIRING, CONTRACTOR SHALL MAKE SUCH CHANGES WITHOUT COST TO OWNER.

IT SHALL BE THIS CONTRACTOR'S RESPONSIBILITY, PRIOR TO ANY INDIVIDUAL CIRCUITS INSTALLATION, TO VERIFY THAT THE CIRCUIT WITH DEVICES AS DRAWN IS ADEQUATE FOR THE EQUIPMENT TO BE INSTALLED. IF ANY CONFLICT IN VOLTAGE, PHASE OR LOAD IS ENCOUNTERED WHICH WOULD ALTER THE CIRCUIT SIZE, THIS CONTRACTOR SHALL NOTIFY THE ENGINEER OR OWNER IMMEDIATELY. FAILURE TO DO SO SHALL PLACE THE RESPONSIBILITY FOR ANY SUBSEQUENT CIRCUIT CHANGE DIRECTLY UPON THE CONTRACTOR.

CIRCUIT BREAKERS ADDED TO EXISTING PANELS SHALL MATCH EXISTING BREAKERS TYPE, MANUFACTURER AND AIC RATING. UPDATE DIRECTORIES IN EXISTING PANELS TO REFLECT CHANGES BY THIS RENOVATION.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE CONSTRUCTION OF OPENINGS AND PENETRATING ITEMS WITH ALL OTHER TRADES CONCERNED TO ENSURE PROPER INSTALLATION OF ALL SYSTEMS. CONTRACTOR SHALL COORDINATE SIZING OF MATERIALS AND EQUIPMENT SO ALL SYSTEMS ARE INSTALLED ACCORDING TO SPECIFIED REQUIREMENTS.

CONSTRUCTION SEQUENCE NOTES:

THE OWNER WILL MAINTAIN AND OPERATE EXISTING FACILITY AT CURRENT LEVEL UP TO AND UNTIL THAT TIME AT WHICH THE CONTRACTOR REQUIRES ACCESS FOR DEMOLITION OR RENOVATION PURPOSES.

COORDINATE ALL CONSTRUCTION WITH ALL OTHER TRADES AS REQUIRED.

THE OWNER WILL PAY ALL NECESSARY UTILITY CHARGES RELATED TO THE OPERATION OF THE EXISTING FACILITY AND THOSE NEWLY-CONSTRUCTED FACILITIES DEEMED OPERATIONAL BY THE ENGINEER. THESE SHALL INCLUDE BUT NOT BE LIMITED TO ANY TEMPORARY ELECTRIC AND TELEPHONE SERVICE REQUIRED.

THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TEMPORARY FACILITIES REQUIRED TO PERFORM HIS WORK.

THE CONTRACTOR SHALL COORDINATE ALL OPERATIONAL CHANGES WITH THE OWNER AND ENGINEER. THE CONTRACTOR SHALL TEST AND SUCCESSFULLY START-UP ALL NEW AND REUSED EQUIPMENT. WHEN AN AREA IS TURNED OVER TO THE OWNER FOR THEIR OPERATION, THE WARRANTY PERIOD BEGINS FOR THAT AREA.

DEMOLITION:

DRAWINGS INDICATE SPECIFIC ITEMS TO BE REMOVED AND/OR RELOCATED. ITEMS THAT ARE NOT INDICATED AS DEMOLITION ARE NOT INDICATED, BUT NECESSARY FOR PROJECT RENOVATIONS, SHALL BE REMOVED, RELOCATED AND/OR REROUTED. THE CONTRACTOR SHALL ASSUME WITHIN THE BASE BID AN ALLOWANCE FOR ADDITIONAL BRANCH CIRCUITS, FIXTURES, DEVICES, AND SYSTEMS WIRING WITHIN WALLS OR OPENINGS BEING REMOVED OR RELOCATED, THAT MAY NEED TO BE REMOVED OR RELOCATED TO ACCOMMODATE NEW CONSTRUCTION.

MAINTAIN CIRCUIT CONTINUITY TO ALL EXISTING TO REMAIN ELECTRICAL DEVICES, FIXTURES, ETC. THAT PASS THROUGH RENOVATED SPACES BY PROVIDING ADDITIONAL WIRING TO FEED THROUGH TO THESE REMAINING ITEMS. RE-CIRCUIT ANY REMAINING DEVICES AS REQUIRED TO AVAILABLE PANELBOARD SPACE. RELOCATE ANY CIRCUITS THAT REMAIN TO AVOID CONFLICT WITH NEW CONSTRUCTION AS REQUIRED. PROPERLY TERMINATE ALL WIRING. EXISTING SYSTEMS INCLUDE POWER DISTRIBUTION, TELEPHONE/DATA, SECURITY, AND CABLE TV.

COORDINATE DEMOLITION OF EQUIPMENT, DEVICES, ETC. WITH OTHER DISCIPLINES AND OWNER AS APPLICABLE.

FOR DEVICES, FIXTURES, ETC. TO BE REMOVED, THEY AND THEIR RELATED WIRING/CONDUIT SHALL BE REMOVED BACK TO THE SOURCE PANELBOARD OR NEAREST JUNCTION POINT FOR CIRCUITS WITH OTHER DEVICES TO REMAIN, UNLESS OTHERWISE NOTED.

EXISTING CIRCUITS INDICATED ARE DIAGRAMMATIC ONLY. VERIFY EXACT ROUTING OF EXISTING CONDUIT RUNS AND NUMBERS OF CONDUCTORS AND PROVIDE ADDITIONAL CONDUITS/CONDUCTORS AS NECESSARY TO ACCOMPLISH DESIGN INTENT.

ANY EXISTING ELECTRICAL DEVICES LEFT WITHOUT POWER DUE TO THIS RENOVATION SHALL BE RECONNECTED TO SAME SIZE CIRCUIT(S) AS PRESENTLY SERVED. NO ELECTRICAL DEVICES SHALL BE LEFT WITHOUT POWER.

IF OTHER AREAS OF THE FACILITY ARE SERVED THROUGH THE REMODELED AREA, THEIR CIRCUITS SHALL BE REWORKED AT A TIME COORDINATED WITH THE OWNER TO MINIMIZE ANY AREA BEING WITHOUT POWER. ALL AREAS OF THE FACILITY SHALL MAINTAIN THEIR EXISTING ELECTRICAL SERVICES, REWORKED IF NECESSARY.

PATCH AND REPAIR ALL SURFACES CONTAINING DEMOLITION. MATERIALS AND FINISHES SHALL MATCH ADJACENT SURFACES.

IN AREA OF RENOVATIONS, ANY REMAINING (EXISTING) CONDUIT, JUNCTION BOXES, FIXTURES, CABLES, ELECTRICAL DEVICES SHALL BE SUPPORTED PER THE SPECIFICATIONS. AS A RESULT, ALL ELECTRICAL WORK, EXISTING AND NEW IN THE AREA OF RENOVATION SHALL BE SUPPORTED PER THE SPECIFICATIONS OF THIS PROJECT.

CONDUCTORS IN THE RENOVATED AREA SHALL BE NEW. DO NOT REUSE EXISTING WIRING UNLESS NOTED OTHERWISE.

PROVIDE NEW BLANK COVERPLATES ON ANY UNUSED FLUSH MOUNT DEVICE BOXES UPON COMPLETION OF PROJECT.

PROPERLY DISPOSE OF ALL ITEMS BEING REMOVED AS PART OF THIS PROJECT. THE OWNER SHALL HAVE THE RIGHT TO RETAIN ANY ELECTRICAL ITEMS REMOVED FROM THE REMODELED AREA AND NOT INDICATED TO BE REUSED. IF THE OWNER DOES NOT WANT THE ITEMS, CONTRACTOR SHALL REMOVE ITEMS FROM THE SITE. COORDINATE ITEMS TO BE RETAINED WITH OWNER.

FOR ALL EXISTING DEVICES INDICATED TO REMAIN, FIELD VERIFY THE EXISTING CIRCUIT, AND PROVIDE NEW LABEL ON DEVICE PLATE WITH CORRECT PANEL/CIRCUIT PER SPECIFICATIONS.

WARRANTY/COMPLETION OF WORK:

CONTRACTOR SHALL GUARANTEE WORK INSTALLED UNDER THE CONTRACT TO BE FREE FROM DEFECTIVE WORK, MATERIALS, OR USUAL WEAR EXCEPTED. SHOULD ANY SUCH DEFECTS DEVELOP WITHIN A PERIOD OF ONE YEAR FROM THE PROJECT DATE OF SUBSTANTIAL COMPLETION, THIS CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DEFECTIVE WORK OR MATERIALS AND DAMAGE RESULTING FROM FAILURE OF THESE ITEMS, AT NO EXPENSE TO THE OWNER.

PERTINENT CERTIFICATES, WARRANTIES, AND O&M MANUALS SHALL BE DELIVERED TO THE OWNER'S REPRESENTATIVE, PRIOR TO FINAL BILLING. PROVIDE THREE (3) HARD COPY BOUND VOLUMES AND ONE (1) ELECTRONIC SET IN PDF FORMAT ON USB FLASH DRIVE.

BEFORE FINAL ACCEPTANCE BY THE OWNER WILL BE GRANTED, THE CONTRACTOR SHALL CLEAN ALL DEVICE PLATES, SERVICE FITTINGS AND OTHER ITEMS FURNISHED UNDER THIS CONTRACT. ALL EQUIPMENT AND DEVICES SHALL BE FREE OF CORROSION, DIRT, PAINT, SPLATTER, OR DAMAGE OF ANY KIND. CONTRACTOR SHALL CLEAN, REPAIR, OR REPLACE SAME AS INSTRUCTED BY THE OWNER BEFORE FINAL PAYMENT. EVERY PART OF THE INSTALLATION SHALL BE TESTED, OPERATED, AND LEFT IN PERFECT WORKING ORDER.

AT COMPLETION OF WORK, ELECTRICAL CONTRACTOR SHALL DELIVER TO OWNER (3) SETS OF AS-BUILT DRAWINGS SHOWING LOCATION AND SIZE OF ALL ELECTRICAL WORK.

RACEWAY & WIRING:

CONDUIT RUNS SHOWN ARE SCHEMATIC AND DO NOT INDICATE THE NECESSARY FITTINGS AND JUNCTION BOXES THAT ARE INCLUDED IN THE SCOPE OF THE WORK.

ALL CONDUIT ROUTES SHOWN ARE APPROXIMATE ONLY. CONTRACTOR SHALL FIELD VERIFY FINAL ROUTE.

JUNCTION, PULL AND OUTLET BOXES SHALL BE INSTALLED SUCH THAT THE WIRING CONTAINED IN BOX MAY BE RENDERED ACCESSIBLE. WIRING SHALL BE NEATLY ARRANGED AND LACED WITH APPROVED CABLE TIES IN ACCORDANCE WITH INDUSTRY STANDARD PRACTICE.

CONDUCTORS SHALL BE COPPER, 600 VOLTS, THHN-THWN, 75°C INSULATION. #10 AWG AND SMALLER SHALL BE SOLID. #8 AWG AND LARGER SHALL BE STRANDED. MINIMUM SIZE SHALL BE #12 AWG.

MULTI-WIRE BRANCH CIRCUITS (SHARED NEUTRALS) ARE NOT PERMITTED UNLESS SPECIFICALLY NOTED OTHERWISE.

WHERE MULTI-WIRE BRANCH CIRCUITS ARE INDICATED OR EXISTING, PROVIDE LISTED HANDLE-TIES FOR ALL CIRCUITS SHARING A NEUTRAL. HANDLE-TIES SHALL BE CONSTRUCTED TO FORCE ALL TIED BREAKERS TO SHUT OFF TOGETHER WHEN THE HANDLE OF ANY ONE BREAKER IS MANUALLY MOVED TO THE OFF POSITION, BUT THE HANDLE-TIE SHALL NOT CAUSE COMMON TRIPPING OF ALL BREAKERS WHEN ONE EXPERIENCES AN OVERCURRENT CONDITION. RELOCATE EXISTING HOMERUNS TO ADJACENT SPACES AS REQUIRED TO COMPLY WITH THIS REQUIREMENT AND RELABEL ALL EXISTING RACEWAY AND DEVICES TO INDICATE NEW CIRCUIT NUMBERS. LABEL EACH NEUTRAL AS TO WHICH CIRCUIT IT IS ASSOCIATED WITH.

VERIFY EXACT CIRCUIT LENGTH AND SIZE OF CONDUCTORS TO PROVIDE ACCEPTABLE VOLTAGE DROP PER NEC. INCREASE CONDUIT SIZE AS REQUIRED TO ACCOMMODATE CONDUCTORS IN COMMON RACEWAY.

MAKE SPLICES AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THE RACEWAY. USE EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS.

ALL CONDUCTORS SHALL BE IN CONDUIT UNLESS NOTED OTHERWISE. EXPOSED CONDUIT AND WHERE SUBJECT TO PHYSICAL DAMAGE SHALL BE RMC. USE FLEXIBLE METALLIC CONDUIT FOR FINAL CONNECTION TO VIBRATING EQUIPMENT; LIQUIDTIGHT IN WET LOCATIONS. USE SCHEDULE E-40 PVC BELOW GRADE. TRANSITION TO RMC AT ELBOW BEFORE TURNING UP ABOVE GRADE. USE EMT WITH COMPRESSION FITTINGS IN INTERIOR LOCATIONS NOT SUBJECT TO PHYSICAL DAMAGE. SET SCREW FITTINGS ARE NOT ALLOWED. MINIMUM CONDUIT SIZE IS 1/2" UNLESS NOTED OTHERWISE.

ALL CONDUIT AND WIRING WITHIN BUILDINGS SHALL BE CONCEALED IN WALLS OR ABOVE CEILINGS UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER. ALL DEVICE OUTLET BOXES SHALL BE RECESSED UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER. WHERE APPROVED OR NOTED, SURFACE METAL RACEWAY AND DEVICE BOXES SHALL BE USED IN-LEU OF CONDUIT AND CONCEALED BOXES AT NO EXTRA COST TO THEOWNER.

USE COLOR CODED ADHESIVE MARKING TAPE FOR RACEWAYS, WIRES AND CABLES. COLOR CODE THE WIRING SYSTEM TO MATCH EXISTING CONDITIONS. IF NO CODING EXISTS ON PROPERTY, CODE WIRING AS FOLLOWS:

480V/277V	208V/120V
PHASE A: BROWN	PHASE A: BLACK
PHASE B: ORANGE	PHASE B: RED
PHASE C: YELLOW	PHASE C: BLUE
NEUTRAL: GRAY	NEUTRAL: WHITE
GROUND: GREEN	GROUND: GREEN

CONDUIT PENETRATIONS OF ROOF, WALLS, FLOORS, AND CEILINGS SHALL BE SEALED TO PRESERVE THE INTEGRITY OF WATERPROOFING, FIRE RATING, AND SOUNDPROOFING FOR LOCATIONS OF THE ROOF, WALL, FLOOR, OR CEILING IS DESIGNED MATERIALS AND METHODS USED SHALL COMPLY WITH STATE AND LOCAL BUILDING AND FIRE CODES. COORDINATE WITH GENERAL CONTRACTOR TO ENSURE THAT SEALING/FIRESTOPPING IS DONE.

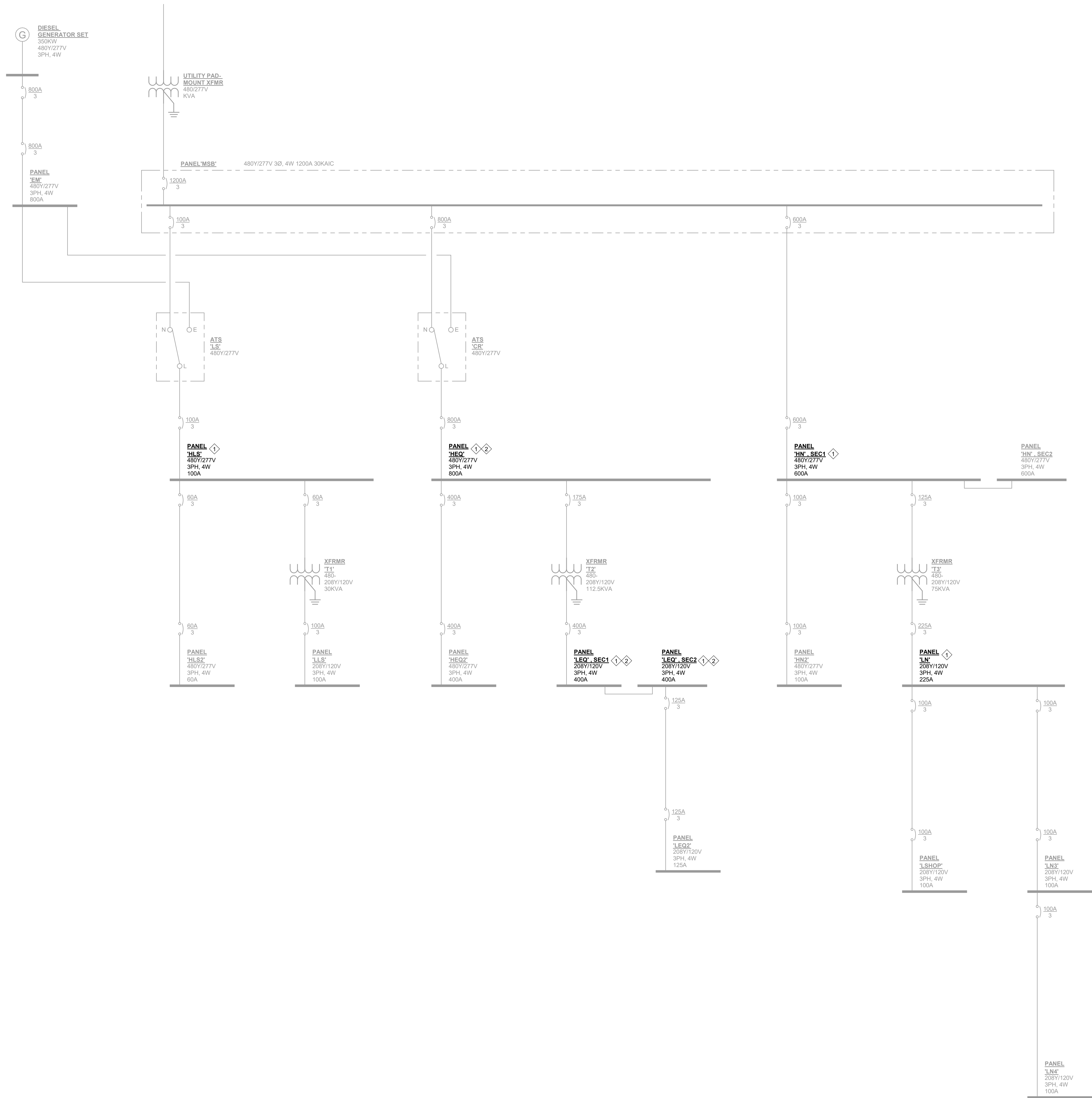
EQUIPMENT & DEVICES:

LIGHTING FIXTURES SHALL BE AS SCHEDULED.

CONTRACTOR SHALL PROVIDE SUITABLE TRIM AND APPURTENANCES TO MOUNT LIGHTING FIXTURES IN THE TYPE OF WALL OR OTHER LOCATION AT THE SITE REGARDLESS OF WHAT DRAWINGS SHOW. VERIFY BY REVIEWING EXISTING CONDITIONS PRIOR TO ORDERING FIXTURES.


ALL WIRING DEVICES SHALL BE SPECIFICATION GRADE, WITH STAINLESS STEEL COVERPLATE AND MATCHING SCREWS, BY LEVITON, HUBBELL, PASS & SEYMOUR, OR COOPER. VERIFY DEVICE COLOR/FINISH AT SUBMITTAL REVIEW.

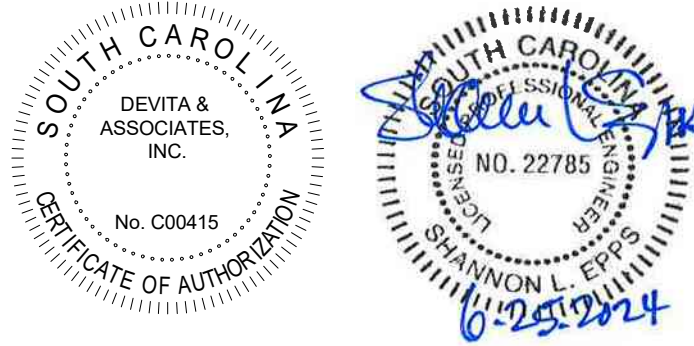
WEATHERPROOF COVERS FOR WIRING DEVICES SHALL BE WHILE-IN-USE TYPE. COVERS FOR BUILDING OR WALL-MOUNTED DEVICES SHALL BE CAST ALUMINUM, RED-DOT COCKEKEEPER OR EQUAL BY TAYMAC, COOPER, OR HUBBELL. NON-METALLIC COVERS ARE NOT ACCEPTABLE.



1 EXISTING SINGLE-LINE DIAGRAM
E0.2 NOT TO SCALE

GENERAL NOTES:
A. ALL EQUIPMENT IS EXISTING TO REMAIN UNO.

KEY NOTES: 
1. CIRCUITS IN THIS EXISTING PANEL SHALL BE MODIFIED AS DESCRIBED IN THESE DRAWINGS. REFER TO PLANS AND PANEL SCHEDULES.
2. PROVIDE UPDATED TYPEWRITTEN PANEL DIRECTORY IN THIS PANEL TO REFLECT CONDITIONS UPON COMPLETION OF THE PROJECT. TRACE OUT AND VERIFY ALL AFFECTED EXISTING CIRCUITS. FOR REMOVED ITEMS OR CIRCUITS THAT ARE NO LONGER USED, LABEL CIRCUIT AS 'SPARE' AND TURN BREAKER OFF. DIRECTORY SHALL INDICATE PANEL NAME/DESIGNATION AS WELL AS PROPER IDENTIFICATION OF ALL EXISTING CIRCUITS.



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DEVITA Project No. 23501-04

PROJECT INFORMATION:

YORK COUNTY PRISON WATER HEATING SYSTEM UPGRADES

778 JUSTICE BLVD
YORK, SC 29745

ISSUE DATE: 06/25/2024

REVISIONS

NO.	DATE	DESCRIPTION
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DRAWING NAME

ELECTRICAL SINGLE-LINE DIAGRAM

DRAWING NO.

E0.2

Drawn By: RHV Checked By: SLE

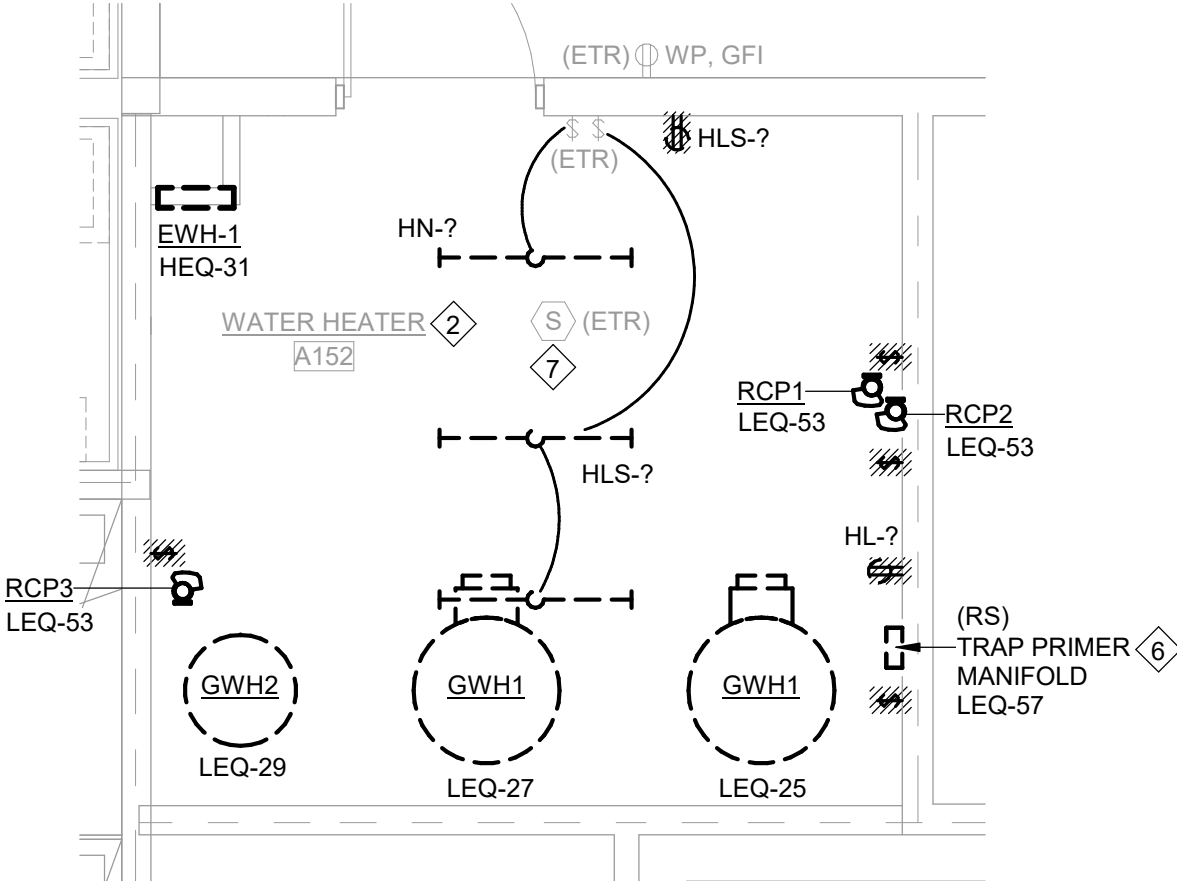
Panel: LEQ SEC. 1 EXISTING										Remarks:			
Voltage: 120/208 Wye Phases: 3 Wires: 4 Enclosure: TYPE 1				Min SCCR: 10K Mounting: SURFACE Feeder Rating: 400 A Panel Rating: 400 A Type: MCB									
BRKR	Notes	Circuit Description	CKT	A (VA)		B (VA)		C (VA)		CKT	Circuit Description	Notes	BRKR
20 A	1 E	SERVER	1	1500	1440					2	OUTLET RM A113, A112	E	1 20 A
20 A	1 E	OUTLET RM A106	3			1080	1000			4	ELEC RM FAN	E	1 20 A
20 A	1 E	SERVER	5					1500	1080	6	OUTLET RM A143	E	1 20 A
20 A	1 E	OUTLET RM A111	7	1080	1080					8	OUTLET RM A141	E	1 20 A
20 A	1 E	OUTLET RM A141	9			1080	1080			10	OUTLET RM A141	E	1 20 A
20 A	1 E	OUTLET RM A146, A160, A175	11					1440	444	12	GWH-16 THRU GWH-18 SYSTEM	R	1 20 A
20 A	1 R	TMV-1, TMV-2	13	52	540					14	ELEC RM OUTLET	E	1 20 A
20 A	1 E	EXT GFCI OUTLET GEN.	15			360	0			16	SPARE	E	1 20 A
20 A	1 E	IDU-1	17					200	3000	18	IDU-2	E	2 40 A
30 A	1 E	ODU-1	19	1500	3000					20			
20 A	1 E	FAN-10	21			700	1300			22			
20 A	1 E	FAN-11	23					700	1300	24	ODU-2	E	2 20 A
20 A	1 R	GWH-1 THRU GWH-6 SYSTEM	25	900	500					26	FAN-19	E	1 20 A
20 A	1 R	GWH-7 THRU GWH-12 SYSTEM	27			900	2100			28			
20 A	1 R	GWH-13 THRU GWH-15 SYSTEM	29					444	2100	30	STEAMER	E	2 30 A
20 A	1 E	DRYER	31	500	1500					32			
20 A	1 E	DRYER	33			500	1500			34	WASHER	E	2 20 A
20 A	2 E	ICE MACHINE	35					800	1500	36	WASHER	E	2 20 A
			37	800	1500					38			
40 A	2 E	COFFEE URN	39			3700	600			40	REFRIGERATOR	E	1 20 A
			41					3700	500	42	STEAM MACHINE DENTAL	E	1 20 A
PANELBOARD LOAD				15892 VA	15900 VA	18708 VA							
FEED THRU LOAD				20340 VA	13940 VA	13902 VA							
TOTAL LOAD				36232 VA	29840 VA	32610 VA							
				Lighting	HVAC	Motors	Receptacle	Refrig	Kitchen	Misc	PANEL TOTALS:		
Connected Load				2000 VA	13648 VA	680 VA	35766 VA			46588 VA			
Demand Factor				125.00%	100.00%	100.00%	NEC			100.00%	Total Conn. Load: 98682 VA		
Demand Load				2500 VA	13648 VA	680 VA	22883 VA			46588 VA	Total Est. Demand: 86299 VA		
											Total Conn. Current: 274 A		
											Total Est. Demand Current: 240 A		

Panel: HEQ EXISTING										Remarks:
Voltage: 480/277 Wye Phases: 3 Wires: 4 Enclosure: TYPE 1				Min SCCR: 30K Mounting: SURFACE Feeder Rating: 800 A Panel Rating: 800 A Type: MCB						
BRKR	Notes	Circuit Description	CKT	A (VA)	B (VA)	C (VA)	CKT	Circuit Description	Notes	BRKR
--	1 E	SPACE	1	--	--	--	2	SPACE	E	1 --
--	1 E	SPACE	3				4	SPACE	E	1 --
--	1 E	SPACE	5			--	6	SPACE	E	1 --
--	1 E	SPACE	7	--	--		8	SPACE	E	1 --
--	1 E	SPACE	9			--	10	SPACE	E	1 --
--	1 E	SPACE	11			--	12	SPACE	E	1 --
--	1 E	SPACE	13	--	--	--	14	SPACE	E	1 --
--	1 E	SPACE	15			--	16	SPACE	E	1 --
--	1 E	SPACE	17			--	18	SPACE	E	1 --
--	1 E	SPACE	19	--	--		20	SPACE	E	1 --
--	1 E	SPACE	21			--	22	SPACE	E	1 --
--	1 E	SPACE	23			--	24	SPACE	E	1 --
20 A	3 E	GRINDER PUMP	25	2000 --			26	SPACE	E	1 --
			27		2000 --		28	SPACE	E	1 --
			29			2000 --	30	SPACE	E	1 --
20 A	1 R	UH-1 (WATER HEATER ROOM)	31	2000 10000			32			
20 A	1 E	FPB 9 13	33		2500 10000		34			
20 A	1 E	EMERGENCY LIGHTS	35			2000 10000 36	36	DISH WASHER BOOSTER	E	3 50 A
20 A	1 E	EMERGENCY LIGHTS	37	2800 2200			38			
20 A	1 E	WALL HEAT SPRINKLER	39		2000 2200		40	DISPOSAL	E	3 20 A
			41			5500 2200 42	42			
30 A	3 E	SEF #8	43	5500 7800			44			
			45		5500 7800		46	DISHWASHER	E	3 40 A
			47			80200 7800 48	48			
400 A	3 E	PANEL 'HEQ2'	49	80400 26500			50			
			51		73900 26500	--	52	A/C #8	E	3 125 A
--	1 E	SPACE OCCUPIED BY 'HEQ2' BKR	53	--	26500	--	54			
			55	--	26500	--	56			
--	3 E	SPACE OCCUPIED BY MAIN BREAKER	57		--	26500	58	A/C #9	E	3 125 A
			59		--	26500 60	60			
800 A	3 E	MAIN BREAKER	61	0 36232	0 29840		62	PANEL 'LEQ SEC. 1' & 'LEQ SEC. 2' VIA XFMR T2	E	3 175 A
			63			0 32610 64	64			
			65	201932 VA	188740 VA	195310 VA	66			
				Lighting	HVAC	Motors	Receptacle	Refrig	Kitchen	Misc
Connected Load				6800 VA	179148 VA	680 VA	75666 VA			323688 VA
Demand Factor				125.00%	100.00%	100.00%	NEC			100.00%
Demand Load				8500 VA	179148 VA	680 VA	42833 VA			323688 VA
				PANEL TOTALS:						
				Total Conn. Load: 585982 VA						
				Total Est. Demand: 554849 VA						
				Total Conn. Current: 705 A						
				Total Est. Demand Current: 667 A						

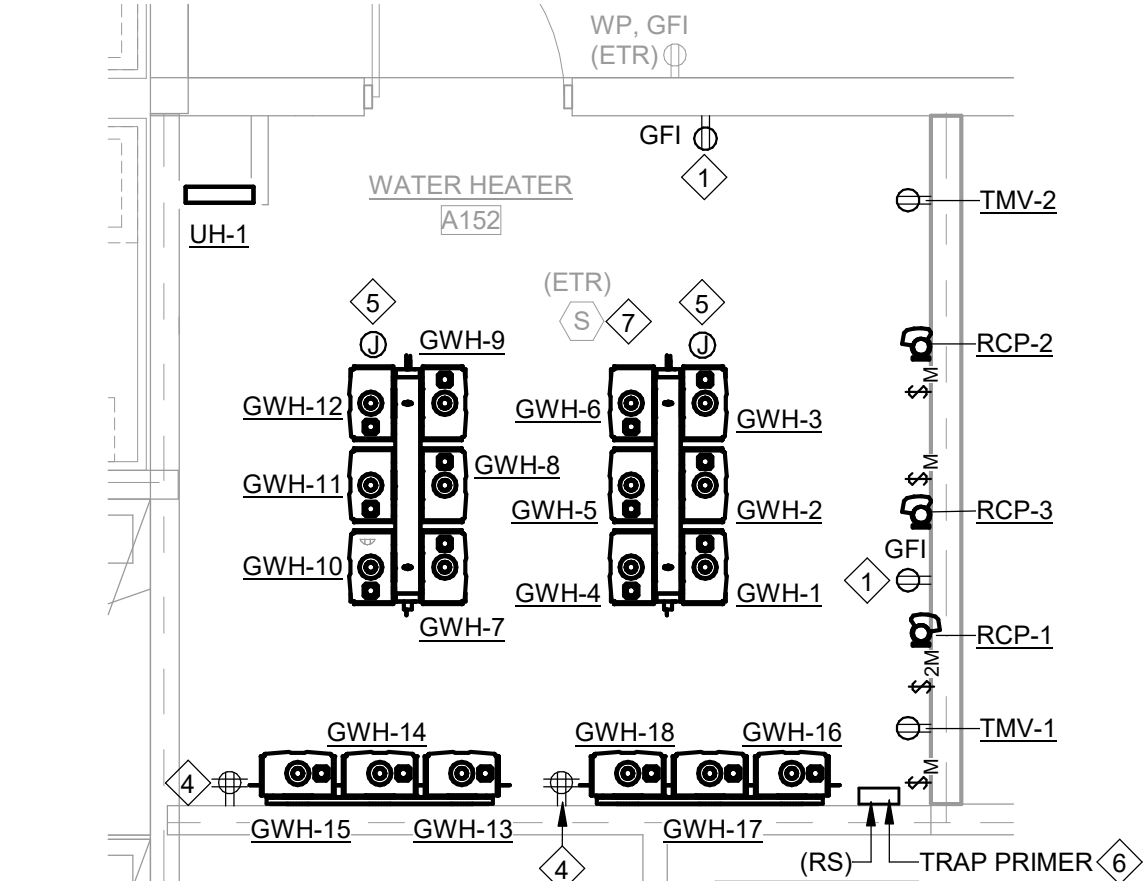
LIGHTING FIXTURE SCHEDULE							
FIXTURE MARK	FIXTURE DESCRIPTION	LAMP TYPE AND LUMENS	VOLTAGE	FIXTURE WATTS	MOUNTING METHOD AND HEIGHT	ACCEPTABLE MANUFACTURERS	REMARKS
UT	4' LED STRIP FIXTURE, BAKED WHITE STEEL HOUSING, DIFFUSE SNAP-ON LENS	LED 4000°K 5000 LUMENS	MVOLT	41	CHAIN HUNG AT 10'-0" AFF	MANUF: LITHONIA LIGHTING PART # 2L1D L48 6000LM FST MVOLT 40K 80CRI HC36 M12 OR EQUAL BY METALUX OR COLUMBIA OR HE WILLIAMS	COORDNATE LOCATION & HEIGHTS WITH PIPING TO PROVIDE OPTIMAL ROOM LIGHTING.
LIGHTING FIXTURE SCHEDULE GENERAL NOTES:							
A. FINISHES SHALL BE CONFIRMED BY ARCHITECT OR OWNER PRIOR TO ORDERING.							
B. LED DRIVERS SHALL CONFORM TO IEEE P1789 STANDARDS. ALTERNATIVELY, MANUFACTURERS MUST DEMONSTRATE CONFORMANCE WITH PRODUCT LITERATURE AND TESTING WHICH DEMONSTRATES THIS PERFORMANCE. SYSTEMS THAT DO NOT MEET IEEE P1789 WILL NOT BE CONSIDERED.							
C. LED DRIVERS SHALL BE MULTI-VOLT. IF MULTI-VOLT DRIVERS ARE NOT AVAILABLE, THEN REQUIRED VOLTAGE SHALL BE VERIFIED WITH ENGINEER PRIOR TO ORDERING.							
D. ENSURE THAT LIGHTING CONTROL DEVICES ARE COMPATIBLE WITH FIXTURES AND LAMPS.							
E. PROVIDE ALL REQUIRED HARDWARE FOR PENDANT MOUNTED FIXTURES. VERIFY TYPE REQUIRED WITH ARCHITECT.							
F. PROVIDE MOUNTING KITS AND/OR ACCESSORIES REQUIRED FOR INSTALLING FIXTURES IN VARIOUS CEILING TYPES. VERIFY CEILING TYPES WITH ARCHITECTURAL DRAWINGS.							

Panel: LEQ SEC. 2 EXISTING										Remarks:			
Voltage: 120/208 Wye Phases: 3 Wires: 4 Enclosure: TYPE 1				Min SCCR: 10K Mounting: SURFACE Feeder Rating: 400 A Panel Rating: 400 A Type: MLO									
BRKR	Notes	Circuit Description	CKT	A (VA)		B (VA)		C (VA)		CKT	Circuit Description	Notes	BRKR
20 A	1	E UNLABELED LOAD	43	4400	500					44	LOOP DET	E	1 20 A
50 A	2	E UNLABELED LOAD	45			0	1040			46	OUTLET RM A122	E	1 20 A
			47					0	1000	48	TV OUTLET	E	1 20 A
20 A	1	E TV OUTLET	49	1000	1040					50	KIT. WALL DOUBLE OUTLET	E	1 20 A
20 A	1	E CAMERA POWER	51			200	720			52	KIT. FLOOR OUTLET	E	1 20 A
20 A	1	R RCP-2, RCP-3	53					422	1040	54	KIT. OUTLET	E	1 20 A
20 A	1	E TRAP PRIMERS	55	100	720					56	OUTLET RM A148	E	1 20 A
20 A	1	R TRAP PRIMERS	57			100	1500			58	X-RAY DENTAL	E	1 20 A
20 A	1	E PHONE QUAD OUTLET	59					720	1700	60	COMPRESSOR DENTAL	E	1 20 A
20 A	1	E DENTAL CHAIR OUTLET	61	720	1700					62	VACUUM DENTAL	E	1 20 A
20 A	1	E OUTLET RM A148	63			1080	1440			64	OUTLET RM A129, A133, A136	E	1 20 A
20 A	1	E KIT. FLOOR OUTLET	65					1080	1040	66	OUTLET RM A141	E	1 20 A
20 A	1	E KIT. FLOOR OUTLET	67	1080	1040					68	OUTLET RM A177	E	1 20 A
20 A	1	E WATER HEATER OUTLET	69			1080	1040			70	OUTLET RM A121	E	1 20 A
20 A	1	E SHOP HVAC CONTROLS	71					200	1000	72	TV OUTLET	E	1 20 A
20 A	1	E UNLABELED LOAD	73	1000	6700					74			
20 A	1	E BOOKING LIGHTS	75			1000	4400			76	PANEL 'LEQ2'	E	3 125 A
20 A	1	E BOOKING LIGHTS	77					1000	4700	78			
			79	340	--					80			
			81			340	--			82	SPACE OCCUPIED BY PANEL 'LEQ2' BREAKER	E	3 --
--	1	E SPACE	83					--	--	84			
				20340 VA		13940 VA		13902 VA					
PANEL TOTALS:													
Connected Load		Lighting 2000 VA		HVAC 422 VA		Motors 680 VA		Receptacle 17880 VA		Refrig		Kitchen 27200 VA	
Demand Factor		125.00%		100.00%		100.00%		NEC				100.00%	
Demand Load		2500 VA		422 VA		680 VA		13940 VA				27200 VA	
												Total Conn. Load: 48182 VA	
												Total Est. Demand: 44742 VA	
												Total Conn. Current: 134 A	
												Total Est. Demand Current: 124 A	

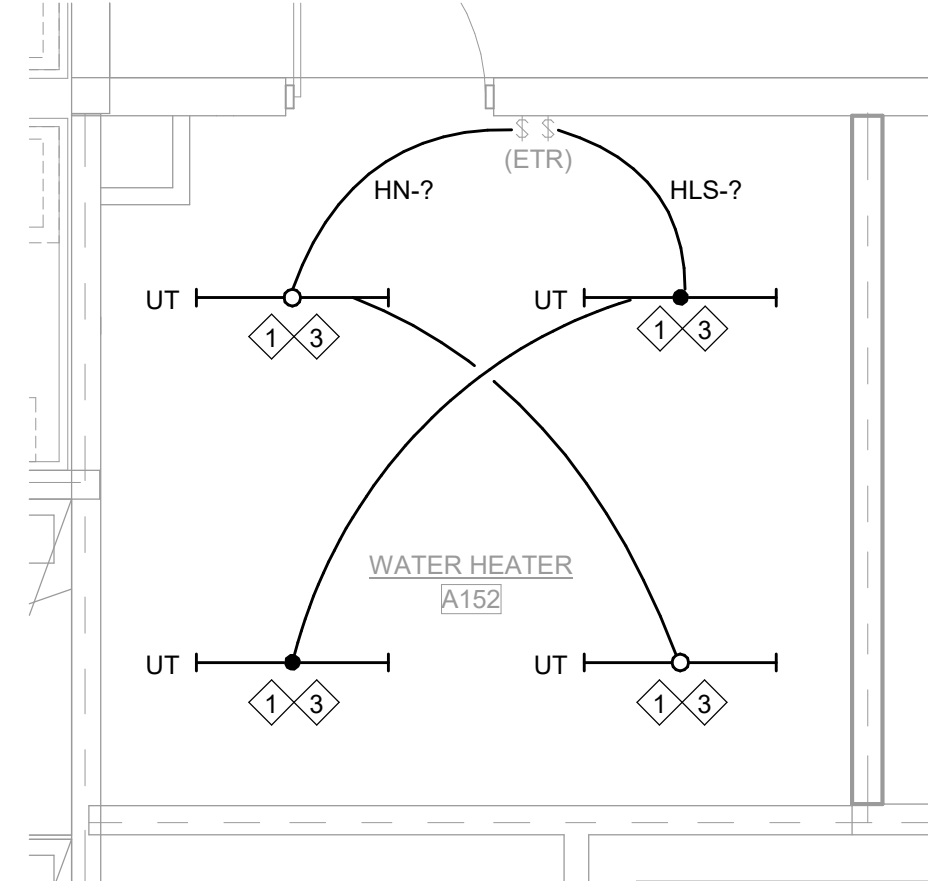
MECHANICAL EQUIPMENT SCHEDULE										
TAG	VOLTAGE	PHASE	LOAD			CONDUCTORS & CONDUIT	DISCONNECT	CIRCUIT		REMARKS
			kW	HP	FLA			PANEL	NO.	
GWH-1 THROUGH GWH-6 RACK SYSTEM	120	1			7.5	2#12, 1#12G, 3/4"C	CORD AND PLUG	LEQ SEC. 1	25	SEE PLAN NOTE 5 ON SHEET E1.1 FOR MORE INFORMATION.
GWH-7 THROUGH GWH-12 RACK SYSTEM	120	1			7.5	2#12, 1#12G, 3/4"C	CORD AND PLUG	LEQ SEC. 1	27	SEE PLAN NOTE 5 ON SHEET E1.1 FOR MORE INFORMATION.
GWH-13 THROUGH GWH-15 RACK SYSTEM	120	1			3.7	2#12, 1#12G, 3/4"C	CORD AND PLUG	LEQ SEC. 1	29	SEE PLAN NOTE 4 ON SHEET E1.1 FOR MORE INFORMATION.
GWH-16 THROUGH GWH-18 RACK SYSTEM	120	1			3.7	2#12, 1#12G, 3/4"C	CORD AND PLUG	LEQ SEC. 1	12	SEE PLAN NOTE 4 ON SHEET E1.1 FOR MORE INFORMATION.
RCP-1	208	1			3.3	2#12, 1#12G, 3/4"C	MOTOR RATED SWITCH	LEQ SEC. 2	79.81	COORDINATE POWER TO PUMP AQUASTAT. REFER TO DETAIL 6 ON SHEET P0.2 FOR MORE INFORMATION.
RCP-2	120	1			1.76	2#12, 1#12G, 3/4"C	MOTOR RATED SWITCH	LEQ SEC. 2	53	COORDINATE POWER TO PUMP AQUASTAT. REFER TO DETAIL 6 ON SHEET P0.2 FOR MORE INFORMATION.
RCP-3	120	1			1.76	2#12, 1#12G, 3/4"C	MOTOR RATED SWITCH	LEQ SEC. 2	53	COORDINATE POWER TO PUMP AQUASTAT. REFER TO DETAIL 6 ON SHEET P0.2 FOR MORE INFORMATION.
TMV-1	120	1				2#12, 1#12G, 3/4"C	CORD AND PLUG	LEQ SEC. 1	13	
TMV-2	120	1				2#12, 1#12G, 3/4"C	CORD AND PLUG	LEQ SEC. 1	13	
UH-1	277	1	2			2#12, 1#12G, 3/4"C	FURNISHED WITH EQUIPMENT	HEQ	31	



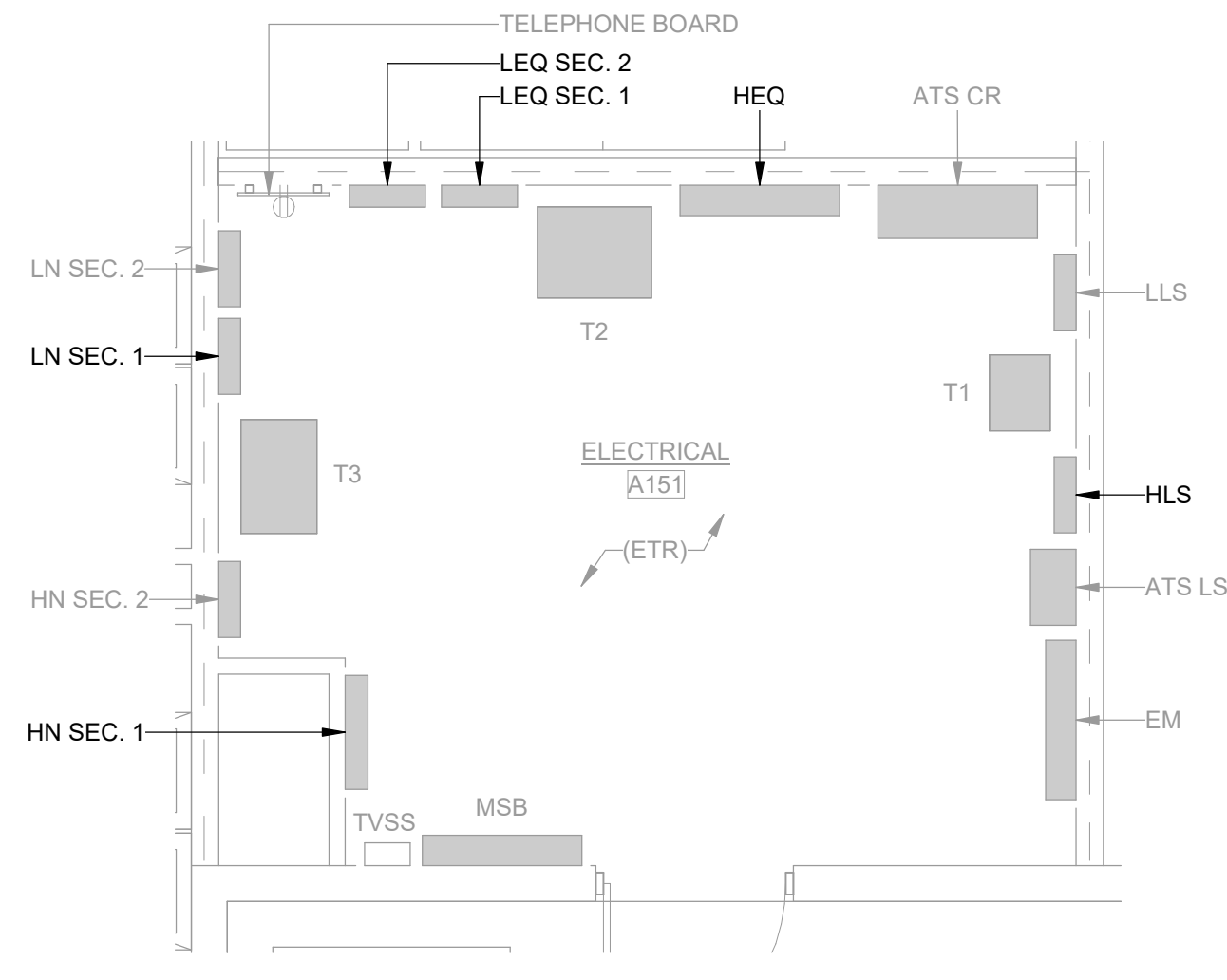
2 ENLARGED WATER HEATER ROOM - DEMO PLAN
E1.1
1/4" = 1'-0"



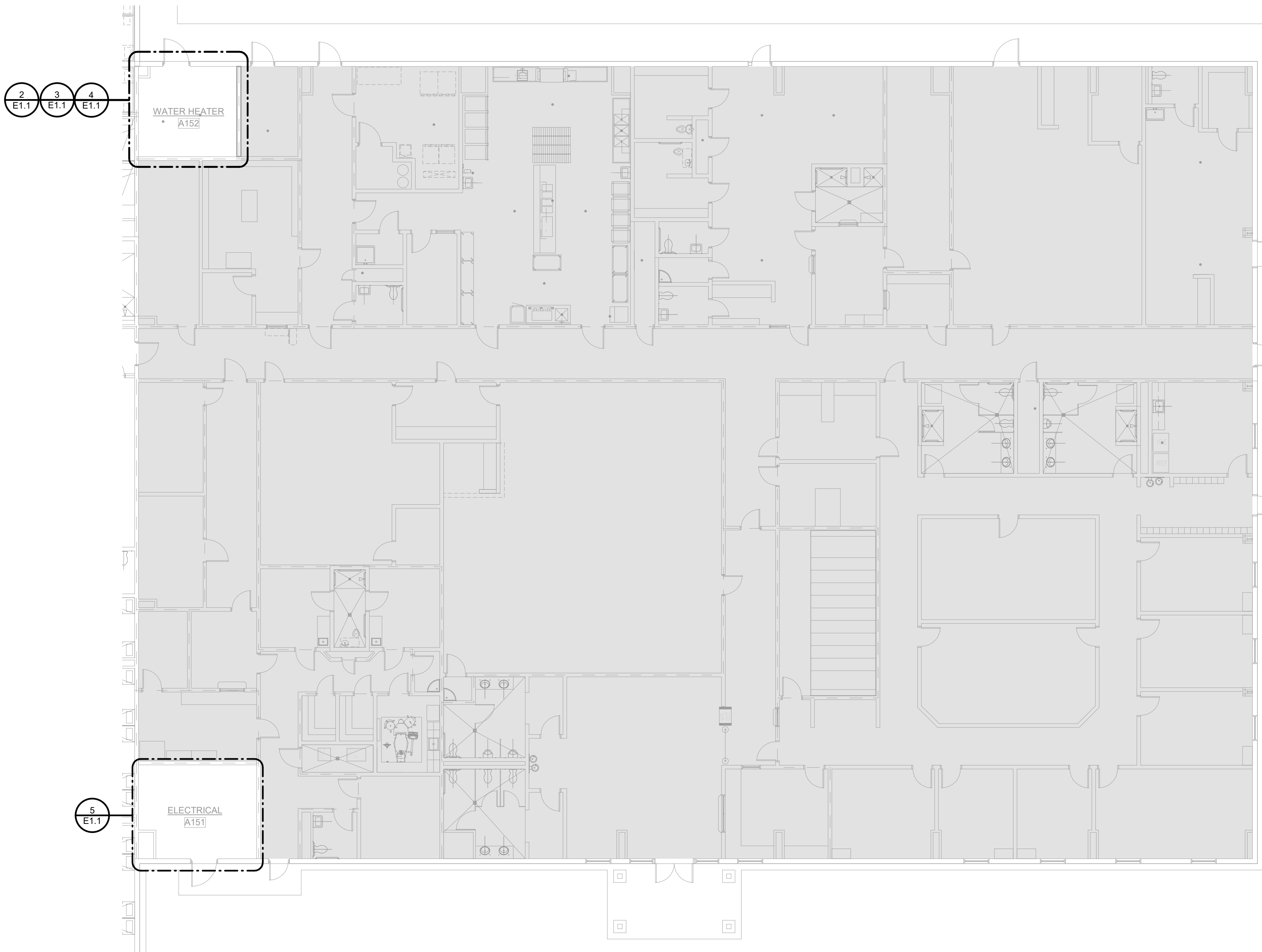
3 ENLARGED WATER HEATER ROOM - NEW WORK POWER PLAN
E1.1
1/4" = 1'-0"



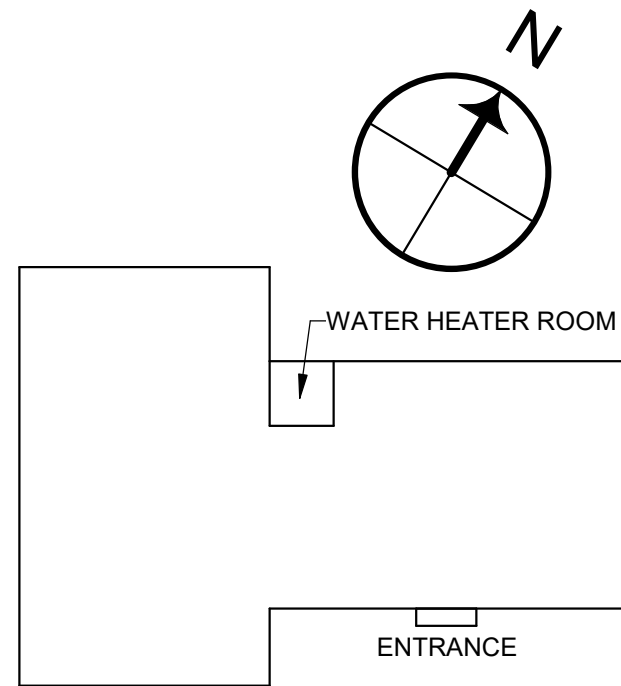
4 ENLARGED WATER HEATER ROOM - NEW WORK LIGHTING PLAN
E1.1
1/4" = 1'-0"



5 ENLARGED ELECTRICAL ROOM PLAN
E1.1
1/4" = 1'-0"



1 PARTIAL FIRST FLOOR ELECTRICAL PLAN
E1.1
3/32" = 1'-0"



KEY PLAN

GENERAL DEMOLITION NOTES:

- FOR ALL EXISTING FIXTURES, DEVICES, ETC. INDICATED TO REMAIN, FIELD VERIFY THE EXISTING CIRCUIT, AND PROVIDE NEW LABEL ON DEVICE PLATE WITH CORRECT PANEL/CIRCUIT PER SPECIFICATIONS.
- FOR DEVICES, FIXTURES, ETC. TO BE REMOVED, THEY AND THEIR RELATED WIRING/CONDUIT SHALL BE REMOVED BACK TO THE SOURCE PANELBOARD, UNLESS OTHERWISE NOTED, ON CIRCUITS WHERE OTHER DEVICES, FIXTURES, ETC. ARE FOUND THAT MUST REMAIN, MAINTAIN CIRCUIT CONTINUITY BY PROVIDING ADDITIONAL WIRING TO FEED THROUGH TO THESE REMAINING ITEMS. RE-CIRCUIT ANY REMAINING DEVICES AS REQUIRED TO AVAILABLE PANELBOARD SPACE. RELOCATE ANY CIRCUITS THAT REMAIN TO AVOID CONFLICT WITH NEW CONSTRUCTION AS REQUIRED. PROPERLY TERMINATE ALL WIRING.
- ITEMS TO BE REMOVED ARE INDICATED BY DASHED LINETYPE AND/OR HATCHING.
- FIELD VERIFY ALL CIRCUITS.
- IN THE AREA OF RENOVATION ANY EXISTING FIRE ALARM SMOKE DETECTORS SHOWN TO REMAIN SHALL BE TEMPORARILY REPLACED WITH THERMAL DETECTORS. ALL SPACES WHERE EXISTING SMOKE DETECTORS ARE TO BE REMOVED SHALL BE PROVIDED WITH TEMPORARY THERMAL DETECTORS. NUMBER AND SPACING OF TEMPORARY DETECTORS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL AREAS OF RENOVATION SHALL BE TEMPORARILY COVERED BY FIRE ALARM THERMAL DETECTORS.
- REROUTING OF EXISTING CONDUCTORS MAY BE REQUIRED AT NEW OPENINGS IN EXISTING CONSTRUCTION OR AROUND NEW WORK. FOR DEVICES SHOWN, PROVIDE WORK AS DENOTED BELOW:
 - (ETR) DENOTES EXISTING DEVICES, FIXTURES, EQUIPMENT, ETC. ARE EXISTING TO REMAIN. THEY AND THEIR ASSOCIATED CIRCUITING, CABLING, AND RACEWAYS SHALL REMAIN.
 - (RS) REMOVE AND SALVAGE EXISTING DEVICES, FIXTURES, EQUIPMENT, ETC. FOR REINSTALLATION IN RENOVATED AREA. ALL ASSOCIATED CIRCUITING, CABLING, AND RACEWAYS SHALL BE REMOVED BACK TO CONVENIENT LOCATION TO ACCOMMODATE DEMOLITION AND EXTENSION TO NEW LOCATIONS.

GENERAL NOTES:

- LABEL ALL WIRING DEVICES WITH PANEL/CIRCUIT SERVING DEVICE. REFER TO LABELING DETAIL ON SHEET E0.1.
- COORDINATE EXACT CIRCUIT REQUIREMENTS WITH ACTUAL EQUIPMENT NAMEPLATE PRIOR TO WORK.

PLAN NOTES:

- REPLACE EXISTING DEVICE OR FIXTURE WITH NEW PER SPECIFICATIONS AND RECONNECT TO THE EXISTING CIRCUIT. NOTE THE EXISTING CIRCUIT ON THE AS-BUILT DRAWINGS.
- EXISTING CIRCUITS INDICATED ARE FOR REFERENCE ONLY. FIELD VERIFY ALL AFFECTED CIRCUITS.
- COORDINATE LIGHT FIXTURE MOUNTING LOCATIONS AND HEIGHTS WITH THE INSTALLATION OF THE PIPING IN THE SPACE.
- PROVIDE NEMA 5-20R QUAD RECEPTACLE FOR WALL MOUNTED GAS WATER HEATER RACK SYSTEM CONNECTION.
- WATER HEATER PACKAGE IS FURNISHED WITH FACTORY MOUNTED ELECTRICAL ASSEMBLY WITH (3) NEMA 5-20R DUPLEX RECEPTACLES FOR CONNECTION OF ALL WATER HEATERS ON THE SKID. PROVIDE POWER TO SINGLE-POINT CONNECTION PER MANUFACTURER'S INSTRUCTIONS.
- EXISTING TRAP PRIMER TO BE RELOCATED. EXTEND EXISTING CIRCUIT TO NEW LOCATION AND RECONNECT.
- ENSURE EXISTING SMOKE DETECTOR IS NOT OBSCURED BY FINAL PIPING OR EQUIPMENT INSTALLATION. RELOCATE AS REQUIRED TO PROVIDE PROPER CLEARANCE.

SOUTH CAROLINA

DEVITA & ASSOCIATES, INC.

NO. 000415

CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA

DEVITA & ASSOCIATES, INC.

NO. 22785

TRAINING CERTIFICATE

SEALS

DEVITA

Engineering Great Ideas

ATLANTA | CHARLOTTE | GREENVILLE | RICHMOND

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corp@devitainc.com

DEVITA Project No. 23501-04

PROJECT INFORMATION:

YORK COUNTY PRISON WATER HEATING SYSTEM UPGRADES

778 JUSTICE BLVD
YORK, SC 29745

ISSUE DATE: 06/25/2024

REVISIONS

NO.	DATE	DESCRIPTION
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DRAWING NAME

ELECTRICAL FLOOR PLAN

DRAWING NO.

E1.1

Drawn By: RHV Checked By: SLE