

**PLUMBING GENERAL NOTES**

- WORK INCLUDES PROVIDING A FIRST CLASS WORKING SYSTEM, TESTED AND READY FOR OPERATION, COMPLETE WITH LABOR, MATERIALS, APPARATUS, TRANSPORTATION, AND TOOLS REQUIRED FOR THE INSTALLATION, AS INDICATED.
- ALL WORK SHALL COMPLY WITH 2021 VIRGINIA CONSTRUCTION CODE AND LOCAL BUILDING CODES, THE VIRGINIA PLUMBING AND MECHANICAL CODES: VMCC 2021, VPC 2021, VFGC 2021, VECG 2021, NFPA CODES AND ALL OTHER APPLICABLE CODES. OBTAIN PERMITS, INSPECTIONS, LICENSES AND TESTS REQUIRED FOR THIS WORK AND PAY ALL FEES IN CONNECTION THEREWITH.
- COORDINATE WORK CLOSELY WITH OTHER TRADES. ALL DIMENSIONS SHOWN ARE FOR THE CONVENIENCE OF THE CONTRACTOR, AND SHALL BE VERIFIED AND COORDINATED IN THE FIELD PRIOR TO INSTALLATION. FAILURE TO COORDINATE WORK WILL NOT BE CONSIDERED AS A BASIS FOR EXTRA PAYMENTS.
- THESE DRAWINGS ARE SCHEMATIC IN NATURE AND DO NOT SHOW EXACT LOCATIONS OF FIXTURES, PIPING AND EQUIPMENT. DO NOT SCALE DRAWINGS. ALL OFFSETS AND FITTINGS FOR COMPLETE INSTALLATION MAY NOT BE INDICATED ON THE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING EXISTING CONDITIONS AT THE BUILDING AND ANY CHANGES NECESSARY FOR COORDINATION WITH EXISTING CONDITIONS. PLUMBING SYSTEMS AND EQUIPMENT SHALL BE INSTALLED AND COORDINATED WITH OTHER WORK. IF CONFLICTS CANNOT BE RESOLVED THEY SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT / ENGINEER.
- THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF CONSTRUCTION SELECTED BY THE CONTRACTOR OR OF THE SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL TO THE WORK OF THE CONTRACTOR. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE FAILURE OF THE CONTRACTOR TO PERFORM THE WORK IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
- ALL MATERIALS SHALL BEAR THE MANUFACTURER'S NAME, TRADE NAME AND BE U.L. LABELED IF REQUIRED, UNLESS NOTED OTHERWISE. ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER. ALL EQUIPMENT OF A SIMILAR TYPE SHALL BE OF THE SAME MANUFACTURER.
- GUARANTEE / WARRANTY: ALL PLUMBING EQUIPMENT, MATERIALS AND LABOR REQUIRED BY THESE SPECIFICATIONS AND ACCOMPANYING DRAWINGS SHALL BE GUARANTEED TO BE FREE FROM DEFECTIVE MATERIALS OR WORKMANSHIP FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE OF THE PROJECT EXCEPT EXTENDED WARRANTIES, AS SPECIFIED ELSEWHERE IN THESE DOCUMENTS ON SPECIFIC ITEMS OF EQUIPMENT, WILL BE FURNISHED BY THE TRADE PROVIDING THE EQUIPMENT.
- CONTRACTOR SHALL FURNISH LOCATION AND SIZE OF OPENINGS REQUIRED FOR PLUMBING FIXTURES, EQUIPMENT AND PIPING TO THE GENERAL CONTRACTOR IN TIME NOT TO DELAY BUILDING CONSTRUCTION.
- PIPE SIZES SHOWN ARE NPS INSIDE DIMENSIONS. COPPER TUBE SIZES ARE FOR NOMINAL TYPE L.

**DOMESTIC WATER BOOSTER PUMP**

MARK	CAPACITY (GPM)	DISCHARGE PRESSURE (PSIG)	HP	ELECTRICAL			BASIS OF DESIGN		SYSTEM / AREA SERVED	WEIGHT (LBS)	NOTES
				V	PH	MOCP	MANUFACTURER	MODEL NO.			
BP-1	20	40	2	208	1	15	HYFABCO	eMPVj-24-21	BUILDING DOM WATER	700	1-5

- NOTES:
- DIAPHRAGM STYLE PRESSURE TANK NSF 61 LISTED, 20 GALLON VOLUME.
  - MULTI-STAGE PUMP, 3500 RPM TEFC-PE MOTOR, 2" INLET & DISCHARGE CONNECTIONS WITH ISOLATION VALVES AND DISCHARGE CHECK VALVE.
  - HYDROVAR VFD, NEMA 1 ENCLOSURE, SYSTEM PRESSURE AND TEMPERATURE CONTROLS AND ALARMS, SINGLE POINT POWER CONNECTION.
  - PROVIDE COMPLETE OPERATIONAL PIPED AND WIRED SKID ASSEMBLY.
  - FURNISH FOR FIELD INSTALLATION AND CONNECTION STK-1 100 GAL. POLYETHYLENE VERTICAL WATER TANK, LEVEL CONTROLS, PANEL AND SOLENOID VALVE.

**DOMESTIC WATER SOFTENER & FILTRATION SYSTEM**

MARK	DESIGN FLOW (GPM)	PRESSURE DROP (PSI)	WATER USAGE (GPD)	ELECTRICAL			BASIS OF DESIGN		SYSTEM / AREA SERVED	WEIGHT (LBS)	NOTES
				V	PH	MOCP	MANUFACTURER	MODEL NO.			
WSF-1	20	3.3	5,000	120	1	15	MARLO	MGA-24G-1-1/2	BUILDING DOM WATER	310	1, 2

- NOTES:
- TWO FRP FILTER TANKS, 1 1/2" OPERATING VALVE, CONTROL SYSTEM 24 VDC, GREENSAND MEDIA, 30 GAL. POLYETHYLENE CHEMICAL TANK AND FEED SYSTEM.
  - PROVIDE AN AUTOMATIC TWIN PARALLEL / TIMECLOCK WATER FILTRATION SYSTEM MEETING THE PERFORMANCE AND DESIGN CAPACITY AS SPECIFIED.

**DOMESTIC HOT WATER RECIRCULATION PUMPS**

MARK	CAPACITY (GPM)	HEAD (FT. H2O)	HP	ELECTRICAL			BASIS OF DESIGN		SYSTEM / AREA SERVED	NOTES
				V	PH	MOCP	MANUFACTURER	MODEL NO.		
DHW-1	2	10	1/25	120	1		TACO	008-B06	120°F RETURN	1

- NOTES:
- PROVIDE TIMER TO CONTROL RECIRC PUMP, COORDINATE SCHEDULE WITH OWNER.

**POTABLE WATER EXPANSION TANKS**

MARK	TANK TYPE	TANK VOLUME GALLONS	ACCEPTANCE VOLUME GALLONS	DIMENSIONS		OPERATING WEIGHT LBS	BASIS OF DESIGN		NOTES
				DIA	LENGTH		MANUFACTURER	MODEL NO	
ET-1	DIAPHRAGM	2.1	0.94	8	11.6	15	PROFLO	PFXT51	1
ET-2	DIAPHRAGM	2.1	0.94	8	11.6	15	PROFLO	PFXT51	1

- NOTES:
- BUTYL DIAPHRAGM-TYPE, AIR PRE-CHARGED STEEL TANK, NSF / ANSI 6.1 CERTIFIED, 3/4" SYSTEM CONNECTION.

**BACKFLOW PREVENTERS**

MARK	PIPE SIZE	TYPE	STANDARD	SERVICE	BASIS OF DESIGN		LOCATION	NOTES
					MANUFACTURER	MODEL NO		
BFP-1	2"	RPZ DUAL CHECK ASSEMBLY	ASSE 1013	DOMESTIC WATER	WATTS	LF909M1-QT-S	MEP 120	1-3
BFP-2	MATCH SUPPLY	DUAL CHECK	ASSE 1022	COFFEE MACHINE	WATTS	SD-3	IN-LINE AT APPLIANCE	1, 4
BFP-3	MATCH SUPPLY	DUAL CHECK	ASSE 1024	ICE MAKER	FEBCO (WATTS)	LF510	IN-LINE AT FILTER	1

- NOTES:
- ALL BACKFLOW PREVENTERS SHALL BE LEAD FREE CONSTRUCTION.
  - MOUNT BACKFLOW PREVENTER IN VERTICAL ORIENTATION. PROVIDE WATTS MODEL 909EL-F ELBOW WITH AIR GAP DRAIN AND 2" DRAIN PIPE TO FLOOR DRAIN.
  - CAST COPPER ALLOY BODY. PROVIDE WITH BRONZE BODY STRAINER AND CAST COPPER ALLOY QUARTER-TURN BALL VALVES.
  - MATCH APPLIANCE INLET CONNECTION SIZE. PROVIDE WITH NSF APPROVED PLASTIC INLET STRAINER.

**PLUMBING PIPING INSULATION**

SERVICE	SIZE RANGE	THICKNESS	MATERIAL	MAXIMUM THERMAL CONDUCTIVITY
ABOVE GROUND DOMESTIC COLD WATER	ALL	1"	MINERAL OR GLASS FIBER PRE-FORMED PIPE INSULATION WITH FACTORY APPLIED VAPOR BARRIER JACKET OR FLEXIBLE ELASTOMERIC TUBULAR PIPE INSULATION WITH FIELD FINISH	0.25 BTU/(IN*HR*FT2*F)
ABOVE GROUND DOMESTIC HOT WATER	1/2" TO 1 1/4" 1 1/2" TO 4"	1" 1 1/2"	MINERAL OR GLASS FIBER PRE-FORMED PIPE INSULATION WITH FACTORY APPLIED VAPOR BARRIER JACKET OR FLEXIBLE ELASTOMERIC TUBULAR PIPE INSULATION WITH FIELD FINISH	0.25 BTU/(IN*HR*FT2*F)

**PLUMBING FIXTURES**

MARK	FIXTURE	DESCRIPTION	WASTE	VENT	H.W.	C.W.	BASIS OF DESIGN			
							FIXTURE	MANUFACTURER	MODEL NO.	NOTES
EFD-1	EMERGENCY FLOOR DRAIN ROUND	PVC BASE BODY, ADJUSTABLE ABS ADAPTER / CORING SLEEVE, ADJUSTABLE STRAINER HEAD, 5 1/2" ROUND STAINLESS STEEL STRAINER, ASME A112.6.3	2"	1 1/2"	-	-	ON-GRADE FLOOR DRAIN	SILOUX CHIEF	832-25PSR	4
FD-1	FLOOR DRAIN SQUARE	PVC BASE BODY, ADJUSTABLE ABS ADAPTER / CORING SLEEVE, ADJUSTABLE STRAINER HEAD, 5 1/2" ROUND STAINLESS STEEL STRAINER, ASME A112.6.3	2"	1 1/2"	-	-	ON-GRADE FLOOR DRAIN	SILOUX CHIEF	832-25PSR	4
FD-2	FLOOR DRAIN ROUND	PVC BASE BODY, ADJUSTABLE ABS ADAPTER / CORING SLEEVE, ADJUSTABLE STRAINER HEAD, 5 1/2" ROUND STAINLESS STEEL EXTENDED RIM STRAINER, ASME A112.6.3	2" OR 3"	1 1/2"	-	-	ON-GRADE FLOOR DRAIN	SILOUX CHIEF	832-25PSRE	4
FS-1	FLOOR SINK SQUARE	12" SQUARE x 8" DEEP, NO-HUB CONNECTION, CAST IRON BODY AND ANCHOR FLANGE, WHITE ENAMEL COATED INTERIOR AND 304 SS OPEN HALF-GRATE, ALUMINUM DOME STRAINER, ALUMINUM DEBRIS BUCKET, ASME A112.6.7	2" OR 3"	1 1/2"	-	-	ON-GRADE FLOOR SINK	SILOUX CHIEF	861-2228S2B	-
SD-1	SHOWER DRAIN ROUND	BRASS BODY WITH OUTER LOCKNUT DESIGN, COMPRESSION GASKET CONNECTION FOR SCH. 40 PVC PIPE, 4 1/4" ROUND STAINLESS STEEL STRAINER, ASME A112.6.2	2"	1 1/2"	-	-	SHOWER MODULE DRAIN	SILOUX CHIEF	827-2B-SPK1	-
SOB-1	SUPPLY OUTLET BOX	SUPPLY OUTLET BOX, WALL MOUNTED, BRASS BODY QUARTER-TURN VALVE, 1/2" INLET, 1/4" COMPRESSION OUTLET, ASME A112.18.1, NSF-61 / ANSI 372 AND 304 SS WATER HAMMER ARRESTER, ASSE 1010.	-	-	-	1/2"	SUPPLY BOX	SILOUX CHIEF	696-G1010PF	5
WH-1	WALL HYDRANT EXTERIOR	CONCEALED BOX TYPE, AUTOMATIC DRAINING, FREEZELESS, WITH SINGLE CHECK HOSE CONNECTION ANTI-SIPHON VACUUM BREAKER ASSE1011, ASSE 1019-B, 3/4" INLET AND OUTLET, EXTERIOR FINISH ROUGH BRASS.	-	-	-	3/4"	WALL HYDRANT	WOODFORD	865	-
EW-1	ELECTRIC WATER COOLER - B1-LEVEL STATION	REFRIGERATED COOLER, WALL MOUNTED, FILTERED, VANDAL RESISTANT B1-LEVEL STATIONS WITH MECHANICAL 0.45 GPM FRONT BUTTON ACTIVATION, AND ELECTRONIC BOTTLE FILLING STATION, TAILPIECE AND P-TRAP, 1/2" STOP, 3/8" SUPPLY, ASME A112.19.3, ADA COMPLIANT. WATER COOLER SHALL PROVIDE 8 GPH OF 50 °F WATER AT 90 °F AMBIENT AND 60 °F INLET WATER TEMPERATURE. BOTTLE FILLING STATION SHALL HAVE A MIN. 1.0 GPM FLOW ACTIVATED BY ELECTRONIC SENSOR, 20 SECOND SHUT-OFF TIMER AND BOTTLE COUNTER.	1 1/4"	1 1/2"	-	1/2"	WATER COOLER	HAWES	1212S	1
LAV-1	LAVATORY WALL MOUNT 2-STATION	SEAMLESS ONE-PIECE TWO STATION CORIAN SOLID SURFACE LAVATORY, 60" WIDE, WALL SUPPORT BRACKET DESIGN, ACCESS PANEL FULLY ENCLOSING SUPPLIES AND DRAINS. PROVIDE SUPPLIES, STRAINERS AND INDIVIDUAL TAIL PIECE AND P-TRAPS. PROVIDE SENSOR OPERATED DECK MOUNTED FAUCET AND SENSOR OPERATED DECK MOUNTED SOAP DISPENSING (SLOAN ESD-500), 0.5 GPM LAMINAR FLOW, CHROME PLATED FINISH, ASME A112.18.1 AND ADA COMPLIANT. PROVIDE WITH TMV-2 FOR EACH FAUCET.	1 1/2"	1 1/2"	1/2"	1/2"	LAVATORY	SLOAN	AD-82000 BASYS	1, 2
LAV-2	LAVATORY COUNTER MOUNT	17"x14" OVAL BASIN WITH CURVED BOTTOM, VITREOUS CHINA, UNDER COUNTER MOUNT, CEFIONTECT CERAMIC GLAZE, GRID DRAIN, 1 1/4" TAILPIECE AND P-TRAP, 3/8" SUPPLIES, ASME A112.19.2. PROVIDE DECK MOUNTED SPOUT, CAST BRASS SINGLE HOLE FAUCET, SENSOR OPERATED, BELOW DECK CONTROLLER, HYDROPOWERED ECOPOWER SYSTEM, 0.5 GPM AERATED FLOW, CHROME PLATED FINISH, ASME A112.18.1 AND ADA COMPLIANT. PROVIDE WITH TMV-2.	1 1/4"	1 1/2"	1/2"	1/2"	LAVATORY	TOTO	LT579G	1, 2
MS-1	MOP SINK FLOOR MOUNT	24"x24"x10" DEEP, FLOOR MOUNTED, MOLDED HIGH DENSITY COMPOSITE, SS DRAIN, DOME STRAINER AND LINT BASKET. PROVIDE WALL MOUNT SERVICE SINK FAUCET WITH VACUUM BREAKER, INTEGRAL STOOPS, 8" CENTERS, PAIL HOOK, WALL BRACE AND 3/4" HOSE THREAD ON SPOUT, ANSI A112.18.1, ASSE 1001. PROVIDE HOSE, HOSE BRACKET AND SS WALL GUARDS.	3"	1 1/2"	1/2"	1/2"	SINK	FIAT	MSB2424	1, 2
S-1	SINK COUNTER MOUNT SINGLE BOWL	21 1/2"x18 1/2" OVERALL, 19"x16"x4 3/8" BOWL, UNDER COUNTER MOUNT, 18 GAUGE TYPE 304 STAINLESS STEEL, SATIN FINISH, REAR-CENTER 3 1/2" DRAIN, 1 1/2" TAILPIECE AND P-TRAP, 1/2" STOPS AND SUPPLIES, ASME A112.19.3. PROVIDE DECK MOUNTED SINGLE HOLE FAUCET, KOHLER CRUE K-22972, 8-8/16" RIGID / SWING GOOSENECK SPOUT, 1.5 GPM LAMINAR FLOW, SINGLE MIXING LEVER HANDLE, QUARTER-TURN CERAMIC DISC VALVES, MATE BLACK FINISH, ASME A112.18.1 AND ADA COMPLIANT. PROVIDE WITH TMV-2.	1 1/2"	1 1/2"	1/2"	1/2"	SINK	ELKAY	ELUHAD191645	1, 2
SH-1	SHOWER UNIT ADA	ADA SHOWER FIXTURE, SINGLE HANDLE PRESSURE BALANCING MIXING SHOWER VALVE, NICKEL CHROME PLATED EXPOSED SURFACES, BRONZE STEM, SS BALANCING PISTON, INTEGRAL SERVICE STOPS, ADJUSTABLE TEMPERATURE LIMIT STOP SCREW, 2-WAY DIVERTING VALVE, HAND-HELD & STANDARD SHOWER HEAD, 2.5 GPM, 24" SLIDE BAR, SUPPLY ELBOW, 60" METAL HOSE AND MOUNTING HARDWARE, ARM & WALL FLANGES, ASME 1016, ASME A112.18.1, ADA COMPLIANT. SHOWER ENCLOSURE UNIT, 1-PIECE ACRYLIC ROLL-IN OPEN TOP, OUTSIDE 22" x 39-1/2" x 78-3/4", INSIDE 60" x 36" REINFORCED ACCORDING TO FHA ACCESSIBILITY REQUIREMENTS, CENTER DRAIN, WHITE FINISH, TEXTURED BOTTOM, FOLD-UP SEAT, GRAB BARS, ANSI A117.1 AND ADA COMPLIANT.	SD-1	-	1/2"	1/2"	MIXING VALVE AND TRIM	ZURN	Z7121-SS-LH-DV2 P-W	-
UR-1	URINAL WALL MOUNT	WALL MOUNTED, BACK OUTLET, WASHOUT ACTION, VITREOUS CHINA, CEFIONTECT CERAMIC GLAZE, 3/4" TOP SPUD, ASME A112.19.2. PROVIDE SELF POWERED HYDROELECTRIC ECOPOWER FLUSH VALVE SYSTEM, SENSOR OPERATED, CHROME PLATED SOLID BRONZE BODY, SELF CLEANING PISTON, MECHANICAL FLUSH OVERRIDE, 0.5 GPF, WITH INLET ANGLE STOP WITH BACK CHECK, AND OUTLET VACUUM BREAKER, ASSE 1037, 1 1/2" ROUGH-IN, ADA COMPLIANT.	2"	1 1/2"	-	3/4"	URINAL	TOTO	UT447E	1
WC-1	WATER CLOSET WALL MOUNT FLUSH VALVE	WALL MOUNTED BACK OUTLET ELONGATED BOWL, VITREOUS CHINA, SIPHON JET FLUSHING, 1 1/2" TOP SPUD, ASME A112.19.2. PROVIDE ADJUSTABLE FIXTURE SUPPORT, NO-HUB HORIZONTAL FITTINGS, ZURN MODEL Z1201-H, Z1202-N OR SIMILAR. PROVIDE SELF POWERED HYDROELECTRIC ECOPOWER FLUSH VALVE SYSTEM, SENSOR OPERATED, CHROME PLATED SOLID BRONZE BODY, SELF CLEANING PISTON, MECHANICAL FLUSH OVERRIDE, 1.6 GPF, WITH INLET ANGLE STOP WITH BACK CHECK, AND OUTLET VACUUM BREAKER, ASSE 1037, 1 1/2" ROUGH-IN, ADA COMPLIANT.	4"	2"	-	1"	WATER CLOSET	TOTO	CT728CUG	1, 3
WC-2	WATER CLOSET FLOOR MOUNT FLUSH VALVE	BOTTOM OUTLET, ELONGATED BOWL, VITREOUS CHINA, SIPHON JET FLUSHING, CEFIONTECT CERAMIC GLAZE, 1 1/2" TOP SPUD, ASME A112.19.2. PROVIDE SELF POWERED HYDROELECTRIC ECOPOWER FLUSH VALVE SYSTEM, SENSOR OPERATED, CHROME PLATED SOLID BRONZE BODY, SELF CLEANING PISTON, MECHANICAL FLUSH OVERRIDE, 1.6 GPF, WITH INLET ANGLE STOP WITH BACK CHECK, AND OUTLET VACUUM BREAKER, ASSE 1037, 1 1/2" ROUGH-IN, ADA COMPLIANT.	4"	2"	-	1"	WATER CLOSET	TOTO	CT725CUG	1, 3

- NOTES:
- MOUNTING HEIGHTS OF ALL ACCESSIBLE FIXTURES SHALL BE IN ACCORDANCE WITH ICC A117.1 "ACCESSIBLE AND USABLE BUILDING AND FACILITIES".
  - INSULATE EXPOSED TRAP AND SUPPLIES IN ACCORDANCE WITH ICC A117.1 "ACCESSIBLE AND USABLE BUILDING AND FACILITIES".
  - MOUNT FIXTURE BOWL RIM HEIGHT 16.5", SEAT HEIGHT 17" AFF. PROVIDE WITH OPEN FRONT SEAT SIMILAR TO TOTO SC534. WC-1 TO BE ARRANGED AND INSTALLED ADA COMPLIANT.
  - PROVIDE FLOOR DRAIN WITH WATERLESS INLINE DRAIN TRAP SEAL, MODEL SURESEAL AS MANUFACTURED BY RECTORSEAL.
  - PROVIDE TUBING / HOSE AS REQUIRED FOR CONNECTION TO EQUIPMENT (REFER TO ARCHITECTURAL PLANS FOR EQUIPMENT AND CONNECTION TYPE).

**GAS-FIRED STORAGE DOMESTIC WATER HEATERS**

MARK	DESCRIPTION	FUEL TYPE	INPUT MBH	OUTPUT MBH	INLET GAS PRESSURE	NOMINAL TANK SIZE GALLONS	THERMAL EFFICIENCY	RECOVERY 90°F RISE	WEIGHT LBS	CONNECTION SIZES			ELECTRICAL		BASIS OF DESIGN		NOTES			
										COLD	HOT	GAS	INTAKE	EXHAUST	FLA	V		PH	MANUFACTURER	MODEL NO
DWH-1	GAS FIRED CONDENSING STORAGE WATER HEATER	PROPANE	100	97	3.5 - 14.0 IN WC	60	97%	128 GPH	960	1 1/2" NPT	1 1/2" NPT	3/4" NPT	3"	3"	5.0	120	1	A.O. SMITH	BTH-100	1-4

- NOTES:
- WEIGHT INDICATED IS APPROXIMATE FILLED WEIGHT FOR STORAGE TANK CAPACITY OF 60 GALLONS.
  - PROVIDE THROUGH-SIDEWALL LOW PROFILE CONCENTRIC VENT KIT (ALTHOUGH INTAKE WILL NOT BE USED) AND CONDENSATE NEUTRALIZATION KIT.
  - PROVIDE WATER HEATER WITH FACTORY CONTROL SYSTEM AND TOUCH SCREEN DISPLAY, MODULATING BURNER AND DEMAND RESPONSE FEATURE. TANK STORAGE TEMPERATURE SHALL BE 140°F.
  - PROVIDE WITH T&P VALVE AND EXPANSION TANK.

**ELECTRIC DOMESTIC WATER HEATERS**

MARK	AREA SERVED	TANK VOLUME (GAL)	GPH RECOVERY AT 90°F RISE	ELECTRICAL			BASIS OF DESIGN		OPERATING WEIGHT (LBS)	NOTES
				KW	V / PH / HZ	AMPS	MANUFACTURER	MODEL NO		
DWH-2	RESTROOMS 122, 123, SHOWER 105 AND VENDING 103	30	20	4.5	208 / 1 / 60	21.6	AO SMITH	DEL-30	350	1-4

- NOTES:
- ELECTRIC DISCONNECT TO BE PROVIDED BY DIVISION 26.
  - INSTALL UNIT PER MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.
  - FACTORY SET STORAGE TEMPERATURE AT 140°F. RECOVERY BASED ON NON-SIMULTANEOUS ELEMENT OPERATION.
  - HEATER HAS A SINGLE ELEMENT.

**THERMOSTATIC MIXING VALVES**

MARK	FLOW MIN (GPM)	FLOW MAX (GPM)	PRESSURE DROP (PSI) AT MAX. FLOW	BASIS OF DESIGN		TEMPERATURE SETTING	STANDARD	NOTES
				MANUFACTURER	MODEL NO.			
TMV-1	0.5	8	18	WATTS-POWERS	LFMMVM1	120°F	ASSE 1017	1
TMV-2	0.25	4.0	8	SILOUX CHIEF	696 SERIES	105°F	ASSE 1070	2

- NOTES:
- PROVIDE TMV-1 AT DWH-2, INSTALL AS INDICATED IN DETAIL.
  - PROVIDE TMV-2 AT EACH LAVATORY OR SINK, INSTALL AS INDICATED IN DETAIL BELOW FIXTURE MOUNTINGS, CONCEALED FROM VIEW.

**PLUMBING PIPING MATERIALS**

SERVICE	SIZE RANGE	SLOPE	MATERIAL	STANDARD
ABOVE GROUND DOMESTIC WATER	1/2" TO 2"	-	TYPE L COPPER W/ WROUGHT FITTINGS	ASTM B 88 / ASME B16.18 / B16.22
BELOW GROUND DOMESTIC WATER	SEE PLANS	-	TYPE K COPPER TUBING IN CONDUIT, NO JOINTS	ASTM D2737
ABOVE GROUND SANITARY / WASTE	2" AND SMALLER	2%	NO-HUB CAST IRON PIPE, COUPLINGS AND FITTINGS	ASTM A 888 / ASTM C 1277
ABOVE GROUND SANITARY / WASTE	3" AND LARGER	1%	NO-HUB CAST IRON PIPE, COUPLINGS AND FITTINGS	ASTM A 888 / ASTM C 1277
BELOW GROUND SANITARY / WASTE	2" AND SMALLER	2%	PVC SCH. 40 W/ DWV FITTINGS	ASTM D 2665 / ASTM F 1866
BELOW GROUND SANITARY / WASTE	3" AND LARGER	1%	PVC SCH. 40 W/ DWV FITTINGS	ASTM D 2665 / ASTM F 1866
ABOVE GRADE PROPANE GAS	ALL	-	BLACK STEEL SCHEDULE 40, THREADED (ASME B16.3) OR WELDING FITTINGS	ASTM A 53 / ASTM A 234
VENT	ALL	1%	NO-HUB CAST IRON PIPE, COUPLINGS AND FITTINGS	ASTM A 888 / ASTM C 1277

**ABBREVIATIONS**

ABV - ABOVE	EX - EXISTING
AD - ACCESS DOOR	EL - ELEVATION
BEL - BELOW	FL - FLOOR
DN - DOWN	INV - INVERT
DFU - DRAINAGE FIXTURE UNIT	SFU - SUPPLY FIXTURE UNIT

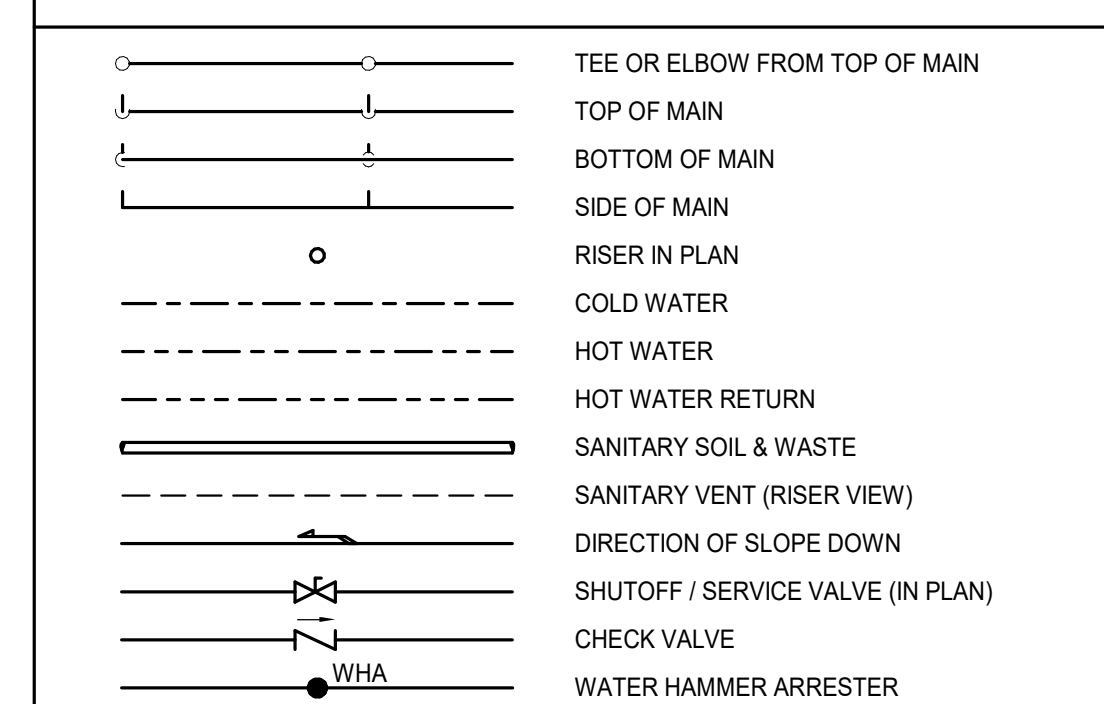
**PLUMBING PIPING SYSTEMS**

C - COLD WATER	S - SANITARY
CD - CONDENSATE DRAIN	V - VENT
H - HOT WATER	VTR - VENT-THRU-ROOF
HR - HOT WATER RECIRCULATING	W - WASTE
KW - KITCHEN WASTE	
LP - LIQUID PROPANE GAS	

**FIXTURE & EQUIPMENT MARKS**

APR - APPLIANCE PRESSURE REGULATOR VALVE	LPR - LINE PRESSURE REGULATOR VALVE
BFP - BACKFLOW PREVENTOR	MS - MOP SINK
BP - BOOSTER PUMP	OSD - OPEN SITE DRAIN
BV - BALL VALVE	P&T - PRESSURE & TEMPERATURE RELIEF VALVE
CO - CLEANOUT	S - SINK
DHWP - DOMESTIC HOT WATER PUMP	SD - SHOWER DRAIN
DWH - DOMESTIC WATER HEATER	SH - SHOWER UNIT
EFD - EMERGENCY FLOOR DRAIN	STK - STORAGE TANK
ET - EXPANSION TANK	TMV - THERMOSTATIC MIXING VALVE
EW-1 - ELECTRIC WATER COOLER	UR - URINAL
FCO - FLOOR CLEANOUT	WC - WATER CLOSET
FD - FLOOR DRAIN	WCO - WALL CLEANOUT
FS - FLOOR SINK	WH - WALL HYDRANT
GI - GREASE INTERCEPTOR	WHA - WATER HAMMER ARRESTER
HB - HOSE BIBB	
LAV - LAVATORY	

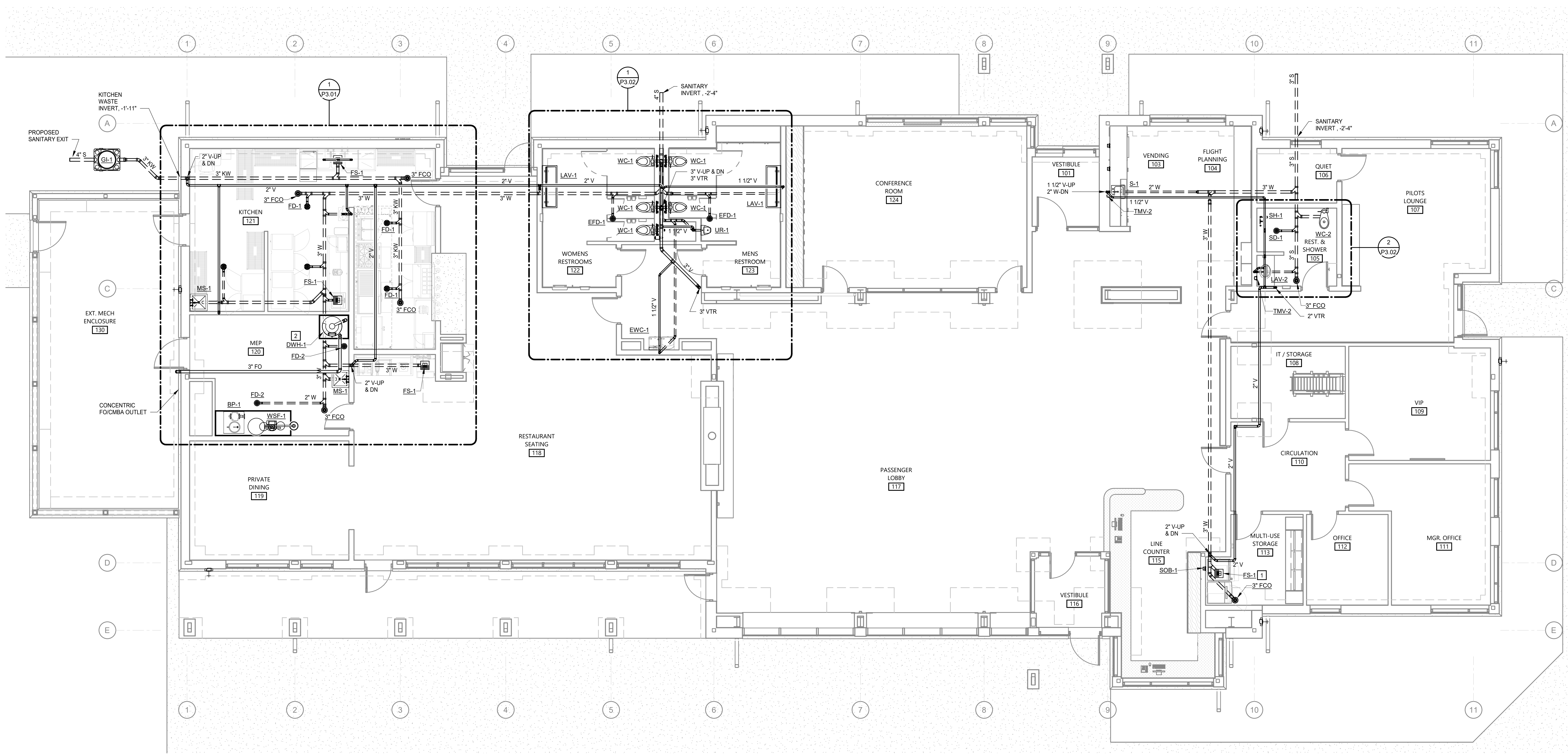
**PLUMBING LEGEND**



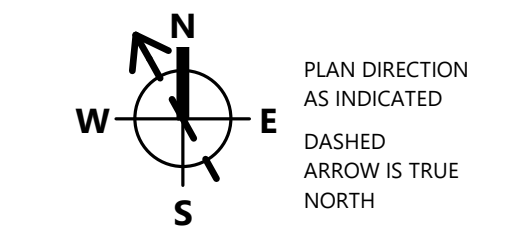
**GENERAL PLUMBING INSTALLATION NOTES**

**PLAN REFERENCE NOTES**

- 1 PROVIDE 1/2" & 3/4" INDIRECT WASTE FROM ICE MAKER WITH BIN, ITEM 41 TO FLOOR SINK FS-1.
- 2 NOTE TO REVIEWER, DW-1 INTAKE SHALL BE FROM ROOM VOLUME. THIS REQUIRED 50 CUBIC FEET PER MBH. UNIT IS 100 MBH, THUS 5,000 CUBIC FEET IS REQUIRED. THE ROOM VOLUME AS CALCULATED AS 5,166 SQUARE FEET, EXCEEDING THE ROOM VOLUME REQUIRED FOR COMBUSTION AIR MAKEUP.



**1 PLUMBING LEVEL 1 SWW PLAN - EAST**  
SCALE: 3/16" = 1'-0"



**NOT FOR  
CONSTRUCTION**

**ISSUE:** BID DOCUMENTS  
**ISSUE DATE:** 05/21/2026  
**PSH+ No:** 2149-02  
**DOAV No:** CS0032-32  
**SCALE:** 3/16" = 1'-0"

REVISION SCHEDULE		
No.	Description	Date

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**SHEET:**  
**PLUMBING - SWW  
PLAN**

**NOT FOR  
CONSTRUCTION**

ISSUE: *BID DOCUMENTS*  
ISSUE DATE: 05/21/2026  
PSH+ No: 2149-02  
DOAV No: CS0032-32  
SCALE: As indicated

REVISION SCHEDULE		
No.	Description	Date

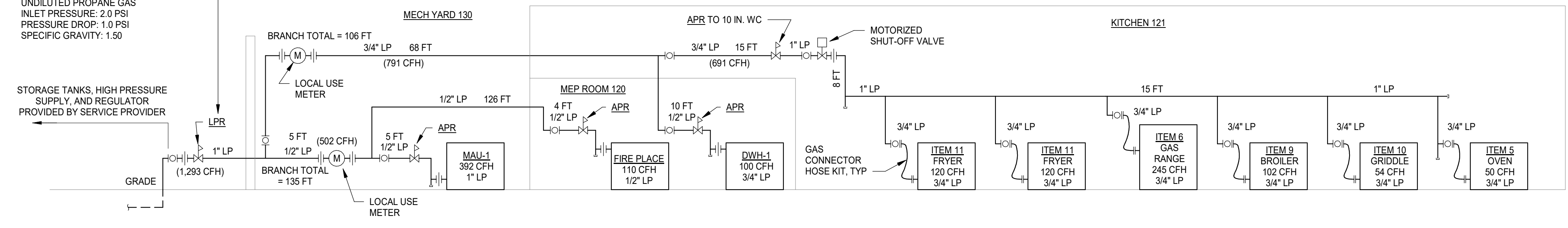
PLAN DIRECTION AS INDICATED  
DASHED ARROW IS TRUE NORTH

**SHEET:  
PLUMBING -  
DOMESTIC WATER  
PLAN & GAS RISER  
DIAGRAM**

P2.01

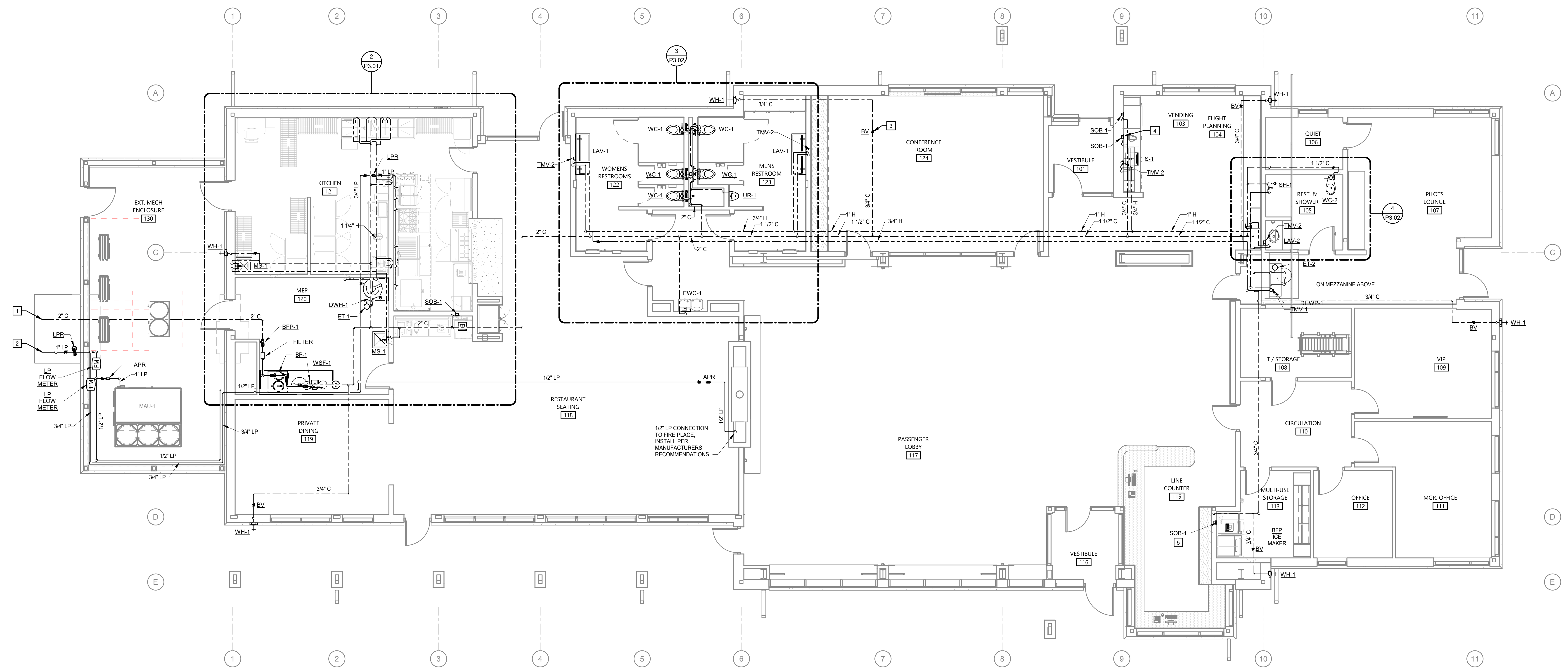
**BETWEEN LPR AND APR:**  
NOTE: GAS PIPING SIZED PER 2021 VIRGINIA FUEL GAS CODE, USING THE LONGEST LENGTH METHOD IN ACCORDANCE WITH VFGC 402.2.1 AND 402.4.2.  
NOT TO EXCEED LONGEST LENGTH: 135 FT  
TOTAL CONNECTED LOAD: 1,293 CFH  
SIZING: TABLE 402.4(27)  
SCHEDULE 40 METALLIC PIPE  
UNDILUTED PROPANE GAS  
INLET PRESSURE: 2.0 PSI  
PRESSURE DROP: 1.0 PSI  
SPECIFIC GRAVITY: 1.50

**BETWEEN APR AND APPLIANCE:**  
SIZING: TABLE 402.4(28)  
SCHEDULE 40 METALLIC PIPE  
UNDILUTED PROPANE GAS  
INLET PRESSURE: 11.0 IN. WC  
PRESSURE DROP: 0.5 IN. WC  
SPECIFIC GRAVITY: 1.50  
PROVIDE A LINE PRESSURE REGULATOR IN THIS LOCATION TO PROVIDE 2.0 PSI SERVICE TO DISTRIBUTION PIPING.



**2 PROPANE GAS PIPING LOAD SIZING DIAGRAM**  
SCALE: 1" = 1'-0"

- PLAN REFERENCE NOTES**
- 2" COLD MINIMUM 24" BELOW GRADE. REFER TO CIVIL FOR CONTINUATION.
  - 1" LP GAS BELOW GRADE, 10 PSIG, REFER TO CIVIL FOR CONTINUATION.
  - LOCATE BALL VALVE FOR WH-1 SHUTOFF ABOVE ACCESSIBLE CEILING.
  - LOCATE SOB-1 BELOW COUNTER. PROVIDE BFP-2 IN SUPPLY TO COFFEE MAKER BY OTHERS.
  - PROVIDE BFP-3 IN SUPPLY BEFORE ICE MAKER FILTER BY OTHERS. COORDINATE EXACT LOCATION WITH INSTALLATION OF ITEM 4.1 ICE MAKER WITH BIN.



**1 PLUMBING LEVEL 1 DOMESTIC WATER PLAN**  
SCALE: 3/16" = 1'-0"



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