PLUMBING SPECIFICATIONS

Provide all plumbing items indicated on the drawings, described herein or otherwise required for a complete and proper installation, including:
A. Plumbing fixtures, fittings and equipment.
B. Hot and cold water systems.
C. Drain waste and vent piping systems.
D. Indirect waste piping, including all valves, traps, piping and accessories for all equipment. Size per equipment requirements.

Comply with all applicable codes, standards and ordinances, including requirements of the Georgia State Minimum Standard Plumbing Code (2018 International Plumbing Code with all Georgia State Amendments), Georgia State Minimum Standard Gas Code (2018 International Gas Code with all Georgia State Amendments), Georgia State Minimum Standard Energy Code (2015 International Energy Conservation Code with all Georgia State supplements and Amendments), and the DOJ 2010 ADA Standards for Accessible Design with Georgia Amendments of Rule 120-3-20.

The contractor should not attempt to precisely scale dimensions from these drawings to obtain construction dimensions and clearance. The contractor shall verify all actual dimensions and clearances. Although these plans are diagrammatic in nature, they shall be followed as closely as site conditions, new construction, and work by other trades shall permit. Deviations from these drawings, which are required to conform to the available space or to actual building construction, shall be made at no additional cost to the owner.

The submission of a bid or proposal will be construed as evidence that the contractor has familiarized himself with the plans and building site. Claims made subsequent to the proposal for materials and/or labor due to difficulties encountered will not be recognized unless these difficulties could not have been foreseen, even though proper examination had been made.

Fabrication or ordering of any material or equipment prior to verification of site conditions shall be done at the contractor's risk.

All equipment and material shall be new and of first quality. Equipment and material shall be the same or equal to the basis of design listed on these drawings.

Coordinate with all trades and verify all equipment rough-in items and locations with the equipment supplier or contractor. All re-work and corrections required due to lack of coordination shall be the contractor's responsibility, and done at no cost to the owner.

Submit shop drawings and material data submittals to the engineer for approval before installation. No substitutions shall be allowed without prior approval by the engineer. Product data for piping, insulation, valves, specialties and all fixtures and equipment scheduled and specified here. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.

All equipment and flue materials shall be U.L. listed.

Installation shall comply with manufacturer requirements including all clearances recommended for proper operation of service. All serviceable parts shall be readily accessible.

Below ground sanitary drain and vent piping shall be solid-wall ASTM D2665 schedule 40 PVC. Install underground, PVC plastic drainage piping according to ASTM D2321. Above ground sanitary drain and vent piping shall be cellular-core ASTM F891 schedule 40 PVC. Install aboveground PVC piping according to ASTM D 2665.
All aboveground piping shall be adequately supported. Sanitary drain and vent piping shall have PVC Socket Fittings (ASTM D 2665, made to ASTM D 3311, drain, waste, and vent patterns and to fit Schedule 40 pipe). Slope pipe sizes 8" and larger at 1/16 inch per foot continuously toward public sewer. Slope pipe sizes 6" and under at 1/8 inch per foot continuously toward public sewer. Provide PVC IPEX type 1 expansion joints on alternating floors on horizontal sewer, storm, and vent risers over 30 feet tall.

Insulate aboveground floor drains, traps, and sanitary drain piping within 10 feet of drain receiving condensate and equipment drain water below 60° with 1" thick type i performed glass-fiber pipe insulation, 1-1/2" cellular glass, or 1" flexible elestomeric.

All above ground domestic water distribution piping shall be ASTM D 2846, SDR11, schedule 40 CPVC with socket fittings. All piping shall be adequately supported. Disinfect all domestic water piping after installation. All underground domestic water distribution piping 1" and smaller shall be ASTM D 876 & ASTM F 877 PEX with no fittings underground. All underground domestic water distribution piping 1-1/4" and larger shall be ASTM D 1785 schedule 40 PVC with ASTM D 2466 PVC socket fittings.

DOMESTIC WATER PIPING CLEANING

A. Clean and disinfect potable domestic water piping as follows:
   1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
   2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction; if methods are not prescribed, use procedures described in either AWWA C651 or AWWA C652 or follow procedures described below:
      a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
      b. Fill and isolate system according to either of the following:
         1) Fill system or part thereof with water/chlorine solution with at least 50 ppm (50 mg/L) of chlorine. Isolate with valves and allow to stand for 24 hours.
         2) Fill system or part thereof with water/chlorine solution with at least 200 ppm (200 mg/L) of chlorine. Isolate and allow to stand for three hours.
      c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
      d. Repeat procedures if biological examination shows contamination.
      e. Submit water samples in sterile bottles to authorities having jurisdiction.
B. Prepare and submit reports of purging and disinfecting activities. Include copies of water-sample approvals from authorities having jurisdiction.
C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

Domestic water piping shall be insulated with Owens Corning type ASJ/SSL-II heavy density fiber glass with all service jacket. Insulation shall have a flame spread rating not to exceed 25 and a smoke density not to exceed 50 when tested in accordance with U.B.C. standard 42-1. Provide mastic on all joints and exposed ends of insulation. Insulate domestic Cold water piping in unconditioned spaces such as exterior corridors, attic, basements, etc with 1/2" thick insulation for piping 1-1/4" & smaller and 1" thick insulation for piping 1-1/2" & larger. Insulate all domestic Hot water supply and return piping with 1" thick insulation for piping 1-1/4" & smaller and 1-1/2" thick insulation for piping 1-1/2" & larger.

HW & CW Valves: Use pipe size valves, as shown below:
A. Ball: Spears CPVC True Union.
B. Check: Spears CPVC True Union.

Ball-Valve-Type Hose-End Drain Valves shall comply with MSS SP-110 for standard-port, two-piece ball valves. Copper alloy body, 3/4", 400-psig pressure rating, replaceable seats and seals, vinyl-covered steel handle, threaded short nipple outlet with garden-hose thread complying with ASME B1.20.7 and cap with brass chain.

Balancing valves shall confirmed to MSS SP-110 for two-piece, copper-alloy ball valves. Balancing valves shall be copper alloy, memory-stop type, chrome-plated brass ball, replaceable seats & seals, vinyl-covered steel handle with memory-setting device.

Fixture tailpieces, wall escutcheon, and traps for lavatories and sinks shall be brass tubing, semi-cast, or cast iron: All brass tubing shall be 17 gage, chrome plated. Exception: If the fixture tailpieces and traps are located in cabinets, the tailpiece & trap shall be PVC. Grid drains for public lavatories. Basket strainers for break room sinks.

Water Hammer Arresters shall comply with standard ASSE 1010, metal bellows type or copper piston type. Provide pressure reducing valve where pressure exceeds 79 PSI.

For accessible-fixture support include rectangular steel uprights. Lavatory Supports shall be type II, lavatory carrier with concealed arms and tie rod for wall-mounting, lavatory-type fixture. Include steel uprights with feet. For accessible-fixture support include rectangular steel uprights. Plate type wall hangers for water coolers. Water closet carrier shall be ASME A112.6.1M waste-fitting assembly, as required to match drainage piping material and arrangement with faceplates, couplings gaskets, and feet; bolts and hardware matching fixture. Include additional extension coupling, faceplate, and feet for installation in wide pipe space if required.

Thermometers shall comply with standard ASME B40.200.

Lavatory/ Sink supply fittings: NSF Standard: Comply with NSF/ANSI 61 Annex G, "Drinking Water System Components – Health Effects," for supply-fitting materials that will be in contact with potable water. Standard: ASME A112.18.1/CSA B125.1. Supply Stops: Chrome-plated-brass, one-quarter-turn, ball-type valve with inlet connection matching supply piping. Wheel handle operation. Risers: Chrome-plated, soft-copper flexible tube for exposed applications and ASME A112.18.6, braided- or corrugated-stainless-steel, flexible hose for conceal behind cabinet applications.

Provide ADA Supply and Drain Protective Shielding Guards on ADA fixtures that piping is exposed. Supply and Drain Protective Shielding Guards shall comply with ICC A117.1 and Americans with Disabilities Act (ADA) requirements. Manufactured plastic wraps shall cover hot and cold water supplies, trap, and drain piping.

All pipe hangers, clamps and channels shall be adequately sized to carry pipe loads and prevent sagging.

All other materials not specifically described but required for a complete and proper installation of work of this section, shall be new, first quality of their respective kinds, and as selected by the contractor subject to acceptance by the engineer.

Lay out the plumbing system in careful coordination with the drawings, determining proper elevations for all components of the system and using only the minimum number of bends to produce a satisfactorily functioning system. Follow the general layout shown on the drawings in all cases except where other work may interfere. Unless shown otherwise, lay out all pipes to fall within partition, wall floor, or roof cavities, and to not require furring other than as shown on the drawings.

Do not cut into or reduce the size of any load-carrying member without the prior approval of the architect. Install all pipes to clear all beams and obstructions.

Extend all plumbing vents above roof to parapet height.

Permanently close and make weatherproof any openings or penetrations of the building envelope made for plumbing systems. All wall and floor penetrations shall be sleeved. All exterior wall or foundation wall penetrations shall use a mechanical seal.

Coordinate all roof penetrations with architectural plans and building and roofing trades.

Provide shut-off balls valves and unions at all water connections to equipment and appliances.

Isolate all dissimilar metals with "EPCO" dielectric unions, except for brass or bronze valves with steel pipe.

Protect the potable water supply against backflow and siphonage from equipment, fixtures, etc., using approved backflow and anti-siphon devices.

Thoroughly clean all piping and equipment. Removing all dirt, rust, oil, and plaster.

Test Sanitary and storm drainage piping by plugging all openings and filling with water to a height equal to a 10 foot head. Allow to stand one hour or longer as required. Repair leaking joints and then re-test.

No work shall be covered until it has been inspected and accepted by the local authority.

Domestic water piping tests: Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested. Cap and subject piping to static water pressure of 50 psig (345 kPa) above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow it to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired. Repair leaks and defects with new materials, and retest piping or portion thereof until satisfactory results are obtained.

The entire system shall be warranted for a period of one (1) year beginning with Owner's acceptance of the work. All labor and materials necessary to repair or replace the system, or portions thereof, during that time shall be warranted for a period of one (1) year from the repair or replacement.

Install piping in concealed locations, unless otherwise indicated and except in equipment rooms, and service areas. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal. Install piping to permit valve servicing. Install piping at indicated slopes. Install piping free of sags and bends. Install fittings for changes in direction and branch connections. Install piping to allow application of insulation. Select system components with pressure rating equal to or greater than system operating pressure. Install escutcheons for penetrations of walls, ceilings, and floors. Verify final equipment locations for roughing-in.

Confirm that millwork is constructed with adequate provision for the installation of counter top lavatories and sinks.

Seal fixtures to wall and floor surfaces with sealant, color to match fixture.

All vents thru wall (SWVT) shall be offset a minimum of 10'-0" from all outside air intakes.

Provide Plastic Pipe Markers on all aboveground plumbing piping that Comply with ASME A13.1. Minimum information indicating flow direction arrow and identification of fluid being conveyed. Install labeling on pipe at intervals of not more than 20 feet and at least once in each room.

Provide a complete through penetration fire stopping assembly for fire resistance rated wall assemblies. The through penetration assembly must be listed by an approved third-party test agency (UL), and include the entire listed assembly with all notations. Refer to architectural drawings for fire wall locations.

Provide a backflow preventer at the water riser if backflow preventer is not shown on civil drawings.

Approved manufactures: (Items submitted shall be approved by architect and engineer. Architect and engineer reserve the right to reject any item substituted for basis of design item for any reason.)

China Fixtures: American Standard, Kohler, Toto, Zurn, Sloan
Faucets: Delta, T&S Brass, Chicago Faucets, Zurn, Kohler, Grohe, Moen, Speakman, Symmons
Supplies & Traps: Engineered Brass CO., Mcguire, Charlotte Pipe, Brasscraft, IPS, Watts, Zurn
Water Heaters: A.O. Smith, Lochinar, Bradford White, State, Rheem
Toilet Seats: Bemis, Centoco, Church Seats, Olsonite, Beneke, Zurn, Mainline
Stainless Steel Sinks: Dayton, Elkay, Just, Kohler, Moen, Sterling, Franke
ADA Protective Shielding Pipe Covers: Engineered Brass, McGuire, Plumberex, TRUEBRO, Zurn, Oatey
Fixture Supports: MIFAB, Jay R. Smith, Wade, Watts, Zurn
Mixing Valves: Armstrong, Leonard, Powers, Symmons, Lawler
Wall Hydrants/ Hose Bibbs: MIFAB, Jay R. Smith, Wade, Watts, Woodford, Zurn
Water Hammer Arresters: AMTROL, Josam, MIFAB, PPP, Sioux Chief, Jay R. Smith, Wade, Watts, Zurn
Outlet Boxes: Acorn, IPS, Oatey
CPVC Valves: American, NIBCO, Spears
Circulation Pumps: Armstrong, Bell & Gossett, Grundfos, TACO
Water Coolers: Elkay, Oasis, Haws
Mop Sinks: Stern Williams, Acorn, Fiat
Wash Fountains: Acorn, Willoughby, Bradley

FIXTURE AND EQUIPMENT SCHEDULE

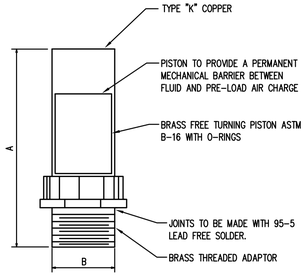
#	FIXTURE TYPE	WASTE		WATER SUPPLY		WATER FIX. CONN.		MODEL NUMBER
		BELOW FLOOR	FIXTURE CONN.	COLD	HOT	COLD	HOT	
WC1	TANK TYPE ADA WATER CLOSET	3"	3"	1/2"		1/2"		AMERICAN STANDARD 215AA.104 WATER CLOSET. CENTOCO 500STSCCSS SEAT
WC2	TANK TYPE ADA WATER CLOSET-RIGHT HAND TRIP LEVER	3"	3"	1/2"		1/2"		AMERICAN STANDARD 215AA.105 WATER CLOSET. CENTOCO 500STSCCSS SEAT
LAV	ADA WALL-HUNG LAVATORY 0.5 GPM	2"	1-1/4"	1/2"	1/2"	1/2"	1/2"	KOHLER K-2005 LAVATORY. MOEN 8413F05 FAUCET.
UR	ADA URINAL 0.125 GPF	2"	2"	3/4"		3/4"		KOHLER K-5452-ET URINAL. SLOAN REGAL 186-0.125 FLUSH VALVE. SLOAN REGAL 186 ESS-0.125-XL-HW FLUSH VALVE WITH FACTORY TRANSFORMER.
SNK	BREAK ROOM SINK	2"	1-1/2"	1/2"	1/2"	1/2"	1/2"	ELKAY PSR1716 SINK. MOEN 7594 FAUCET.
HB	HOSE BIBB			3/4"		3/4"		WOODFORD 27.
OB	ICE MAKER BOX WITH WATER HAMMER ARRESTOR			1/2"		1/2"		WATER TITE AB9701HA.
EP	EQUIPMENT PLATFORM		1"					HOLDRITE 50-SWHP-W.
GCO	GRADE CLEANOUT	4"	4"					WATTS CO-200-RX-4-60.
FCO	FLOOR CLEANOUT	4"	4"					WATTS CO12. PROVIDE CARPET MARKER WHEN INSTALLED UNDER CARPET.
SWVT	SIDE WALL VENT TERMINAL	3"	3"					WATTS MS-8000.
EWC	ELECTRIC WATER COOLER	2"	1-1/2"	1/2"		1/2"		ELKAY EZSTL8WSLK.
FD	FLOOR DRAIN WITH WATERLESS TRAP PRIMER	2"	2"					WATTS FD-190-PR-60 FLOOR DRAIN. RECTORSEAL "SURESEAL PLUS" WATERLESS TRAP PRIMER.

WATER HEATER & TANK SCHEDULE

MARK	MANUFACTURER	MODEL NUMBER	TYPE	GPH @100° RISE	GALLON	KW	PHASE	VOLTAGE
WH	A.O. SMITH	ENLB-40	RESIDENTIAL LOWBOY ELECTRIC TANK TYPE	21	38	4.5	1	208
EV	WATTS	LFBRVM1	COMBINATION BALL VALVE AND RELIEF VALVE					

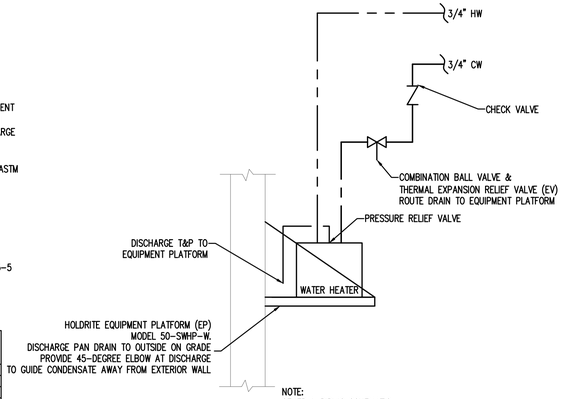
LEGEND

	SHUTOFF VALVE		COLD WATER	(TYP)	TYPICAL	VTR	VENT THRU ROOF
	CHECK VALVE		HOT WATER	C.T.	COUNTER-TOP	AFF	ABOVE FINISHED FLOOR
	PIPE UP		HOT WATER RETURN	DN	DOWN	CW	COLD WATER
	PIPE DOWN	G	GAS	CONN.	CONNECTION	HW	HOT WATER
PDI-B	PDI UNIT WATER HAMMER ARRESTOR	GREASE	GREASE LADEN SEWER	NTS	NOT TO SCALE	HWR	HOT WATER RETURN
DWGS.	DRAWINGS		SEWER VENT	VT	VENT	B.F.F.	BELOW FINISH FLOOR
A	COMPRESSED AIR		SEWER	FFE	FINISHED FLOOR ELEVATION	CV	CLOSED VALVE
	PRESSURE REDUCING/ REGULATOR VALVE	F	FIRE SPRINKLER	FLR	FLR		
	DEMOLITION		EXISTING TO REMAIN		CONNECT TO EXISTING		



PPP SIZE	P.D.I. SYMBOL	FIXTURE UNIT RATINGS	A SIZE	B SIZE
1/2"	A	1 – 11	5"	1/2"
3/4"	B	12 – 32	5"	3/4"
1"	C	33 – 60	7"	1"
1-1/4"	D	61 – 113	7"	1-1/4"
1-1/2"	E	114 – 154	9"	1-1/2"
2"	F	155 – 330	9"	2"

WATER HAMMER ARRESTOR DETAIL
SCALE: N.T.S.



WATER HEATER (WH) PIPING SCHEMATIC
SCALE: N.T.S.

TOTAL ENGINEERS
169 New Street, Macon, GA 31201
(478)741-4632 - T.E. project # 26-20
www.totalengineers.com
GA COA NO # PEF009195 EXP: 06/30/2026

CSC DESIGN, INC.
ARCHITECTS & ENGINEERS
135 P RICKMAN INDUSTRIAL DR.
SUITE 100 CANTON, GA 30115
Phone: (770) 345-2579

© 2020, CSC Design. These drawings are protected by the copyright laws of the United States. These drawings or any part thereof may not be used for any purpose or reproduced in any form or by any means without the written consent of CSC Design.

GEORGIA REGISTERED No. PE036664 PROFESSIONAL ENGINEER KRUNAL M PATEL
4-24-2026

PROJECT NUMBER: 25-038

REVISIONS
NO. DATE: ISSUE:

DRYWALL WAREHOUSE HWY 81

257 HIGHWAY 81
OXFORD, GA 30054
WALTON COUNTY,
GERGIA

PLUMBING SCHEDULES & SPECIFICATIONS

P-0.1

SCHEMATIC DESIGN