# PART 1 - GENERAL

* 1. **PRINCIPLE WORK IN THIS SECTION**
		1. Roof and floor drains.
		2. Cleanouts.
		3. Hose bibs.
		4. Backflow preventers.
		5. Water hammer arrestors.
		6. Thermostatic mixing valves.
		7. Thermometers and gauges.

# REFERENCES

* + 1. ANSI/ASSE 1011 - Hose Connection Vacuum Breakers.
		2. ANSI/ASSE 1012 - Backflow Preventers with Immediate Atmospheric Vent.
		3. ANSI/ASSE 1013 - Backflow Preventers, Reduced Pressure Principle.
		4. ANSI A112.21.1 - Floor Drains.
		5. ANSI A112.21.2 - Roof Drains.
		6. ANSI A112.26.1 - Water Hammer Arrestors.
		7. AWWA C506 - Backflow Prevention Devices - Reduced Pressure Principle and Double Check Valve Types.
		8. PDI WH-201 Water Hammer Arrestors.

# SUBMITTALS

* + 1. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.
		2. Manufacturer's Installation Instructions: Indicate assembly and support requirements.

# PART 2 - PRODUCTS

* 1. **MANUFACTURERS**
		1. Floor and Roof Drains, Cleanouts, Backwater Valves, Grease Traps:
			1. Zurn Industries, Inc.
			2. Jay R. Smith Mfg. Co.
			3. Wade.
		2. Manhole Frames and Covers, Catch Basin Frames and Grates:
			1. Alhambra Foundry
			2. Neenah Foundry Co.
		3. Valves:
			1. See Section 22 05 23: PLUMBING PIPING & VALVES.
		4. Shock Absorbers:
			1. Precision Plumbing Products.
		5. Backflow Preventors:
			1. Wilkins - Zurn
		6. Wall Hydrants:
			1. Zurn
			2. Chicago
		7. Thermostatic Mixing and Tempering Valves:
			1. Symmons Engineering Co.
			2. Moen
			3. Lawler Automatic Controls, Inc.
			4. Powers Regulator Co.
		8. Thermometers and Gauges:
			1. Trerice.
			2. Weiss.
			3. Ashcroft.
		9. Trap Primers:
			1. Precision Plumbing Products
			2. J.R. Smith
			3. Watts.

# PIPE AND PIPE FITTINGS

* + 1. See Section 22 05 23 - PLUMBING PIPING AND VALVES.

# TRAPS

* + 1. Fixture type: As noted under Plumbing Fixtures Section 15440.
		2. Provide for floor drains, floor sinks, and connections to fixtures and equipment.
		3. Provide all floor drain and floor sink traps with code approved priming devices.

# VALVES

* + 1. See Section 22 05 23: PLUMBING PIPING AND VALVES.

# CLEANOUTS

* + 1. General:
			1. Furnish and install cleanouts where indicated on plans. All cleanouts to have bronze countersunk rectangular slotted plugs lubricated with non-hardening thread lubricant. Flush with floor cleanout tops shall have non-skid covers. Flashing flange with device (suffix F-C) required on membrane floors.
		2. Finished Room Floors:
			1. Smith No. 4020 cast iron adjustable floor level cleanout assembly with round nickel bronze top.
			2. Smith No. 4031 cast iron adjustable floor level cleanout assembly with round nickel bronze top with inverted hub and neoprene gasket.
		3. Linoleum or Asphalt Tile Floors:
			1. Smith No. 4140 cast iron adjustable floor level cleanout assembly with round nickel bronze top. Top depression to be covered with surrounding floor pattern bonded with waterproof adhesive.
			2. Smith No. 4151 same top assembly as No. 4140 but with inverted hub and neoprene gasket.
		4. Terrazzo Floors:
			1. Smith No. 4180 cast iron adjustable floor level cleanout assembly with round nickel bronze top with center lifting device. Top depression to be filled with terrazzo and finished.
			2. Smith No. 4191 same top assembly as No. 4180 but with inverted hub and neoprene gasket.
		5. Unfinished Floors:
			1. Smith No. 4220 all cast iron adjustable floor level cleanout assembly with round heavy duty top.
			2. Smith No. 4231 all cast iron adjustable floor level cleanout assembly with round heavy duty top, inverted hub and neoprene gasket.
		6. Carpeted Floors:
			1. Smith No. 4023-X cast iron adjustable floor level cleanout assembly with round nickel bronze top. Top furnished with clamping frame for use on carpeted floors.
			2. Smith No. 4031-X same top assembly as No. 4020-X but with an inverted hub and neoprene gasket.
		7. Wall Round Cover:
			1. Smith No. 4402 cast iron ferrule with lead seal plug, round stainless steel cover with center screw.
			2. Smith No. 4422 for taper thread plug.

# FLOOR DRAINS

* + 1. Floor drain or similar traps directly connected to the drainage system and subject to infrequent use shall be provided with an approved means of maintaining their water seals, except where not deemed necessary for safety or sanitation by the Administrative Authority.

# SHOCK ABSORBERS:

* + 1. WHA-1:
			1. Threaded stainless steel casing, partially filled with liquid and charged with gas as required for normal line pressure.
			2. Stainless steel or neoprene bellows.
		2. Similar to Precision Plumbing Products.

# HOSE BIBBS:

* + 1. 1/2 in. faucets with CP cast brass body, composition washer, metal handle, 3/4 in. hose thread end.
			1. Wall flange on concealed piping, similar to Chicago No. 293-E27CP.
			2. On exposed piping, less wall flange, similar to Chicago No. 387-LEFE27.
			3. Provide with vacuum breaker, similar Chicago No. EZE 27 JKCP.
			4. In toilet rooms: Chromium plated 1/2 in. lock shield angle stop with:
			5. Provide with vacuum breaker similar to Chicago No. EZE 27 JKCP.
		2. For laundry washers:
			1. Single lever combination faucet with 3/4 in. hose thread ends.
				1. Similar to Symmons No. W-400.
				2. With plastic cover; Similar to Symmons No. W-500-B.
				3. Mounted in recessed open front white plastic box with 2 in. drain outlet; Similar to Symmons No. W-602.
				4. Mounted in No. 16 USSG recessed box with overflow guard and 2 in. drain outlet; Similar to Guy Gray No.WB-200.

# VACUUM BREAKERS

* + 1. For plumbing fixtures: as specified under Plumbing Fixtures.
		2. Hose outlets, unless otherwise noted or approved.
			1. Cast brass body with rubber or flap type valve, 3.4 in. female hose thread inlet and 3/4 in. male hose threaded outlet; similar to Chicago EZE 27 JKCP.
			2. Similarly plated as hose outlet.

# BACKFLOW PREVENTERS

* + 1. Reduced Pressure: Complete with bronze or stainless steel trim, 2 spring loaded check valves, differential pressure relief valve, 2 rising stem gate valves, and test cocks.
			1. 3/4" to 2" bronze body.
			2. 2-1/2" to 10" flanged cast iron body galvanized or epoxy coated inside.
			3. Provide funnel drain and pipe relief to floor sink or to building exterior.

# TRAP SEAL PRIMER VALVES

* + 1. Provide for all floor drains.
		2. Similar to Precision Plumbing Products.
		3. Provide access door where concealed.

# PRESSURE GAUGES

* + 1. Similar to Ashcroft 4 CTS-1, 4-1/2 in. diameter.
		2. Locate on:
			1. Water service entry location.
			2. Inlet and outlet of each pressure reducing valve assembly.
			3. Suction and discharge header of house pumps.

# RELIEF VALVES

* + 1. Adjustable bronze spring and diaphragm combination pressure and temperature type with test with test lever and automatically reseating type thermostatic element with temperature relief at 210F.
		2. Locate on:
			1. Top of each water heater.
			2. Top of each HW tank.
			3. Outlet piping of each gas fired HW heater.

# THERMOMETERS

* + 1. Similar to Weiss Instruments 'Vari-angle' 7 VU Series.
		2. Stainless steel separable socket in tank connections.
		3. On piping: in oversized tee and nipple.
		4. Locate on:
			1. Each water heater.
			2. Each HW TANK.
			3. Outlet piping of each water heater.
			4. Outlet piping of each thermostatic tempering valve.
			5. HW return piping.

# PART 3 - EXECUTION

* 1. **INSTALLATION**
		1. Slope horizontal drainage piping per local codes unless noted otherwise on plans.
		2. Provide hanger support at starting end of all drainage lines which turn from vertical to horizontal.
		3. For no-hub CI piping: where non-rigid hanger rods are in excess of 18 in., brace against horizontal movement (sway brace).
		4. For no-hub CI piping 5 in. and larger: brace to prevent horizontal movement at every branch opening and change of direction by securing to building structure.
		5. Changes in direction of drainage piping by use of:
			1. 45 Wyes.
			2. Long turn tee Wyes.
			3. Long sweep quarter bends.
			4. Sixth, eighth or sixteenth bends.
			5. Short turn sanitary tees permissible on horizontal to vertical where space conditions require.
		6. Slip joints: on fixture trap inlets or elbows connection to fixture tailpieces only.
		7. Vent Pipe Terminations:
			1. At least 10 ft away from any window, door or intake opening:
			2. At least 12 in. away from parapet or bulkhead walls and roof drains to allow for flashing.
		8. Vent piping: grade to drain out condensation and connect at base of stack to prevent accumulation of rust.
		9. Located cleanouts as follows:
			1. Where indicated on plans.
			2. Per local codes.
			3. Changes in direction.
			4. Base of all vertical stacks.
			5. Per Uniform Plumbing Code 707.0 and 707.4
			6. Provide cleanout for each sink, urinal.
	2. Each horizontal drainage pipe shall be provided with a clean out at its upper terminal and each run of piping.
		1. Each clean out unless installed under an approved cover plate, shall be above grade, readily accessible.

# TESTS

* + 1. Drainage and vent piping inside building and underground metallic piping (including house sewers):
			1. Water tests: Per Local Codes
			2. Smoke tests: Per Local Codes

# END OF SECTION