FAQ:
What are the significant changes between the 2018 and 2021 Philadelphia Plumbing Code?

This document includes a summary of significant changes to the 2021 Philadelphia Plumbing Code (IPC) and includes the PA Uniform Construction Code Review and Advisory Council (RAC) Report Amendments. This document also provides further information for the identified code changes.

Disclaimer: This document shall be utilized as guidance only. The design professional is responsible for reviewing the provisions of the International Codes, associated reference Standards, and the directives of the PA Department of Labor and Industry. The Department of Licenses and Inspections may only render a decision in response to a formal application for a construction permit or preliminary review. (Note that at time of FAQ issuance, identified local changes under this FAQ document are pending legislative adoption.)

Summary of changes between the 2018 and 2021 Philadelphia Plumbing Code:

(Blue text shows new materials added from ICC. *Italicized text* indicates materials added and ~~Strikethrough text~~ shows materials deleted through pending local modifications.)

Chapter 2

- Definition- Copper Alloy
- Definition- Water Dispenser

Chapter 3

- Section P-308.9 - Bundled Hot Water Piping Insulation
- Section P-314.2.1.1 - Condensate Discharge

Chapter 4

- Section P-403.2 - Multiple-user Nonseparated Toilet Facilities
- Sections P-403.3.1 / P-403.5 - Facilities and Drinking Fountains on Accessible Routes
- Section P-403.3.3 - Group S Toilet Facility Location
- Section P-403.6 - Service Sink Location
- Section P-404.3 - Exposed Pipes & Surfaces
- Section P-405.4.3 - Wall Hung Fixture Carrier Standard for Water Closets
- Section P-407.2 - Bathtubs are Not Required to have Overflow Outlets
- Section P-410.3.2 - Quantities of Standing versus Wheelchair Drinking Fountains
- Section P-410.4 - Drinking Fountain Substitution using Water Dispensers
- Section P-411.3 - Water Heaters for Emergency Showers and Eye Wash Stations

- Section P-412.3 - Shower Controls Valves to be Rated for the Installed Shower Head
- Section P-412.5 - Methods for Limiting Water Temperature Discharged to Bathtubs
- Section P-412.10 - Methods for Temperature Limitation at Head Shampoo Sinks and Footbaths
- Section P-419.5 - Tempered Water for Public Hand-Washing Lavatories
- Section P-421.3.1 - Standard for Shower Waste Fittings

Chapter 5

- Section P-501.2 - ASSE 1017 Temperature Actuated Mixing Valves

Chapter 6

- Section P-602.3.5 - Potable Water Pumps to Comply with NSF 61
- Sections P-605.12.3 / P-605.13.6 - Solder and Flux must conform to NSF 61
- Section P-606.1 – Individual Tenant Water Shut-off Valve
- Section P-606.7 - Labeling of Water Distribution Pipes in Bundles
- Sections P-607.1.1 / P-607.1.2 - Water Heaters Providing Tempered Water to Fixtures
- Section P-608.15.2.1 - Discharge from Backflow Preventer Relief Opening
- Section P-608.17.2 - Backflow Device for Low Hazard Boiler Applications
- Section P-609.2 - Two Water Service Pipes for Group I-2, Condition 2 Healthcare Facilities
- Section P-609.2.1 - Tracer Wire for Buried Nonmetallic Water Service Piping
- Section P-610.1 - Disinfection of Potable Water

Chapter 7

- Table P-702.3 - ABS Building Sewer Pipe Standard
- Sections P-705.2.4 / P-705.10.4 - PVC and ABS Push-fit DWV Fittings
- Section P-708.1.6 - Removable Fixture Traps Serving as Cleanouts
- Sections P-717 / P-718 / P-719 – Private Sanitary Sewers & Methods for Restoring Building Sewer Piping

Chapter 9

- Section P-903.1.3 - Protected Outdoor Vent Termination Method
- Section P-915 - Food Waste Disposers on Combination Waste and Vent Systems
- Section P-919.2.10 – Velocity Breaks in High-Rise Buildings
- Section P-919.3.5 – Vent Stack
- Sections P-919.4.1 & P-919.4.2 – Velocity Break

Chapter 10

- Section P-1002.3 - Prohibited Traps
- Section P-1002.4.1.5 - Fixture Drains Serving as a Trap Priming Method

Chapter 11

- Section P-1102.6 - Roof Drains to be Tested and Rated for Flow
- Section P-1106.2.1 - Rainfall Rate Conversion Method

Chapter 12

- Section P-1202.1 - Nonflammable Medical Gas Systems

Chapter 13

- Section P-1301.1 - Nonpotable Rainwater Standard Alternative

Summary of changes between the 2018 and 2021 Philadelphia Plumbing Code:

(Blue text shows new materials added from ICC. *Italicized text* indicates materials added and ~~Strikethrough text~~ shows materials deleted through pending local modifications.)

Chapter 2 (Definitions):

- **NEW Definition of "Copper Alloy"** broadly describes the entire range of copper alloy materials that a manufacturer might use for a product.

> **COPPER ALLOY.** A metal alloy where the principle component is copper.

- **REVISED Definition of "Water Dispenser"** no longer defines a bottled water unit as a water dispenser in the code. The new definition of Water Dispenser removes bottled water dispensers from definition. In order to serve as a substitute for required drinking fountains, the dispense must be connected to water supply. Section 410.1 further modified to only allow exception with 3 or more drinking fountains are required.

> **Water Dispenser.** A plumbing fixture that is manually controlled by the user for the purpose of dispensing potable drinking water into a receptacle such as a cup, glass or bottle. Such fixture is connected to the potable water distribution system of the premises. ~~This definition includes a freestanding apparatus for the same purpose that is not connected to the potable water distribution system and that is supplied with potable water from a container, bottle or reservoir.~~

Chapter 3 (General Regulations):

- **Section P-308.9** provides clarification to allow insulation of hot water bundle and avoid complications of insulating individual hot water pipes.

> **308.9 Parallel water distribution systems.**
>
> Piping bundles for manifold systems shall be supported in accordance with Table 308.5. Support at changes in direction shall be in accordance with the manufacturer's instructions. Where hot water piping is bundled with cold water piping, hot water piping shall be insulated in accordance with Section 607.5.

- **Section P-314.2.1.1** modified locally to omit requirements for condensate discharge. 2023 amendments address allowable disposal outlets into clothes washer box.

> ~~**314.2.1.1 Condensate discharge.**~~
>
> ~~Condensate drains shall not directly connect to any plumbing drain, waste or vent pipe. Condensate drains shall not discharge into a plumbing fixture other than a floor sink, floor drain, trench drain, mop sink, hub drain, standpipe, utility sink or laundry sink. Condensate drain connections to a lavatory wye branch tailpiece or to a bathtub overflow pipe shall not be considered as discharging to a plumbing fixture. Except where discharging to grade outdoors, the point of discharge of condensate drains shall be located within the same occupancy, tenant space or dwelling unit as the source of the condensate.~~
>
> ***P-314.2.1.1 Disposal into Clothes Washer Box.***
>
> *Condensate shall be permitted to discharge into a clothes washer box with dual drainage outlets with one outlet dedicated to the clothes washer discharge and one outlet dedicated to condensate discharge. Condensate shall also be permitted to discharge into a clothes washer box with a single drainage outlet where the inlet of the clothes washer box outlet is sized to accommodate both the clothes washer discharge and the condensate discharge.*

Chapter 4 (Fixture, Faucets, and Fixture Fittings):

- **Section P-403.2** allows designs for multiple-user facilities serving both sexes possible. Note that Philadelphia local amendments are being retained, and urinals are not permitted for facilities designed for use by all genders.

> ***P*-403.2 Separate facilities.**
>
> Where plumbing fixtures are required, separate *gender-based* facilities shall be provided ~~for each sex~~.
>
> Exceptions:
>
> 5. Separate facilities shall not be required to be designated by ~~sex~~ *gender* where single-user toilet rooms are provided in accordance with Section 403.1.2.
> 6. *For occupancy classifications requiring the same number of water closets and lavatories for male and female under Table 403.1,* ~~S~~separate facilities shall not be required where rooms having both water closets and lavatory fixtures are designed for use by ~~both sexes~~ *all genders* and privacy for water closets is provided in accordance with Section 405.3.4. Urinals shall ~~be located in an area visually separated from the remainder of the facility or each urinal that is provided shall be located in a stall~~ *not be permitted in facilities designed for use by all genders.*

- **Sections P-403.3.1 / P-403.5** maintains local modifications to retain previous language emphasizing accessibility requirements of the plumbing fixture installation requirements.

> **P-403.3.1. Access**.
>
> The route to the public toilet facilities required by Section 403.3 shall not pass through kitchens, storage rooms or closets. Access to the required facilities shall be from within the building or from the exterior of the building. *Routes shall comply with the accessibility requirements of the International Building Code.* The public shall have access to the required toilet facilities at all times that the building is occupied.

> **P-403.5 Drinking fountain location**.
>
> Drinking fountains shall not be required to be located in individual tenant spaces provided that public drinking fountains are located within a distance of travel of 500 feet (152 m) of the most remote location in the tenant space and not more than one story above or below the tenant space. Where the tenant space is in a covered or open mall, such distance shall not exceed 300 feet (91 m). *Drinking fountains shall be located on an accessible route.*

- **Section P-403.3.3** allows the location of toilet facilities in Group S occupancies to exceed the location and maximum distance limitations provided that the arrangement is approved. This grants L&I the authority to increase the number of floors and travel distance for Group S occupancies that have low occupant load and travel time (parking garages, self-storage facilities).

> **403.3.3 Location of toilet facilities in occupancies other than malls.**
>
> In occupancies other than covered and open mall buildings, the required *public* and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).
>
> **Exceptions:**
>
> 1. The location and maximum distances of travel to required employee facilities in factory and industrial *occupancies* shall be permitted to exceed that required by this section, provided that the location and maximum distances of travel are *approved*.
> 2. The location and maximum distances of travel to required public and employee facilities in Group S *occupancies* shall be permitted to exceed that required by this section, provided that the location and maximum distances of travel are *approved*.

- **Section P-403.6** limits the travel distance to a service sink when a service sink is not located within a tenant space in a covered mall.

> **403.6 Service sink location.**
>
> Service sinks shall not be required to be located in individual tenant spaces in a covered mall provided that service sinks are located within a distance of travel of 300 feet (91 m) of the most remote location in the tenant space and not more than one story above or below the tenant space. Service sinks shall be located on an accessible route.

- **Section P-404.3** retains current provisions under the 2018 Phila Plumbing Code for exposed pipes/surfaces, with local amendments that will not adopt ASTM C1822 as an acceptable standard for pipe coverings.

> **P-404.3 Exposed pipes and surfaces.**
>
> Water supply and drain pipes under accessible lavatories and sinks shall be covered or otherwise configured to protect against contact. Pipe coverings shall comply with ASME A112.18.9 ~~or ASTM C1822~~.

- **Section P-405.4.3** adds a new standard for water closet carriers. The new carrier standard for wall-hung water closets can be found in A112.6.1M-1997 (R2017): Floor Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use.

> **405.4.3 Securing wall-hung water closet bowls.**
>
> Wall-hung water closet bowls shall be supported by a concealed metal carrier that is attached to the building structural members so that strain is not transmitted to the fixture connector or any other part of the plumbing system. The carrier shall conform to ASME A112.6.1M or ASME A112.6.2.

- **Section P-407.2** no longer requires an overflow outlet for a bathtub. This removes the need for an overflow, which would not effectively drain. Protecting the tub from overflow is now the bather's responsibility.

> **407.2 Bathtub waste outlets and overflows.** Bathtubs shall be equipped with a waste outlet ~~and an overflow outlet.~~ The outlets shall be connected to waste tubing or piping that is not less than 1-1/2 inches (38 mm) in diameter. The waste outlet shall be equipped with a water-tight stopper. Where an overflow is installed, the overflow shall be not less than 1-1/2inches (38mm) in diameter

- **Section P-410.3.2** requires fifty percent of the required number of drinking fountains for standing persons and the other fifty percent for persons who use wheelchairs. This adds high/low requirements found in the Building Code to the Plumbing Code. Section 410.3.2 also clarifies that distribution must be evenly split between high/low, even when exceeding the minimum, with some exceptions.

> **[BE] 410.3.2 More than the minimum number.**
>
> Where more than the minimum number of drinking fountains specified in Section 410.3.1 is provided, 50 percent of the total number of drinking fountains provided shall comply with the requirements for persons who use a wheelchair and 50 percent of the total number of drinking fountains provided shall comply with the requirements for standing persons.
>
> **Exceptions:**
>
> 1. Where 50 percent of the drinking fountains yields a fraction, 50 percent shall be permitted to be rounded up or down, provided that the total number of drinking fountains complying with this section equals 100 percent of the drinking fountains.
> 2. Where drinking fountains are primarily for children's use, drinking fountains for people using wheelchairs shall be permitted to comply with the children's provisions in ICC A117.1 and drinking fountains for standing children shall be permitted to provide the spout at 30 inches (762 mm) minimum above the floor.

- **Section P-410.4** requires at least three drinking fountains to be installed before 50 percent of the additional required drinking fountains can be substituted with water dispensers.

> **410.4 Substitution.**
>
> Where restaurants provide drinking water in a container free of charge, drinking fountains shall not be required in those restaurants. In other *occupancies* where three or more drinking fountains are required, *water dispensers* shall be permitted to be substituted for not more than 50 percent of the required number of drinking fountains.

- **Section P-411.3** adds a new type of water heater for emergency showers and eyewash stations that do not require a temperature-actuated mixing valve. A new standard, ASSE 1085, was developed for water heaters specifically designed for emergency fixtures. The water heater cannot produce a temperature of hot water exceeding 100°F and water heater produces water within a minute at the tepid temperature range required for emergency fixtures.

> **411.3 Water supply.**
>
> Where hot and cold water is supplied to an emergency shower or eyewash station, the temperature of the water supply shall only be controlled by a temperature-actuated mixing valve complying with ASSE 1071. Where water is supplied directly to an emergency shower or eyewash station from a water heater, the water heater shall comply with ASSE 1085.

- **Section P-412.3** requires lower flow shower heads to be compatible with the shower control (mixing valve).

> **P-412.3 Individual shower valves**.
>
> Individual shower and tub-shower combination valves shall be balanced-pressure, thermostatic or combination balanced-pressure/thermostatic valves that conform to the requirements of ASSE 1016/ASME A112.1016/CSA B125.16 or ASME A112.18.1/CSA B125.1 ~~and~~. Such valves shall be installed at the point of use. Shower control valves shall be rated for the *minimum* flow rate of the installed shower head. Shower and tub-shower combination valves required by this section shall be equipped with a means to limit the maximum setting of the valve to 120°F (49°C), which shall be field adjusted in accordance with the manufacturer's instructions to provide water at a temperature not to exceed 120°F (49°C). In-line thermostatic valves shall not be utilized for compliance with this section.

- **Section P-412.5** adds new types of water heaters and a new design for tub faucets as additional that can be used to control water temperature for bathtubs.

> **412.5 Bathtub and whirlpool bathtub valves.**
>
> Bathtubs and whirlpool bathtub valves shall have or be supplied by a water-temperature-limiting device that conforms to ASSE 1070/ASME A112.1070/CSA B125.70 or by a water heater complying with ASSE 1082 or ASSE 1084, except where such valves are combination tub/shower valves in accordance with Section 412.3. The water-temperature-limiting device required by this section shall be equipped with a means to limit the maximum setting of the device to 120°F (49°C), and, where adjustable, shall be field adjusted in accordance with the manufacturer's instructions to provide hot water at a temperature not to exceed 120°F (49°C). Access shall be provided to water-temperature-limiting devices that conform to ASSE 1070/ASME A112.1070/CSA B125.70.
>
> **Exception:** *Access* shall not be required for nonadjustable water-temperature-limiting devices that conform to ASSE 1070/ASME A112.1070/CSA B125.70 and are integral with a fixture fitting, provided that the fixture fitting itself can be accessed for replacement.

- **Section P-412.10** adds two additional methods that can be used to limit the water temperature discharged from a head shampoo sink.

> **412.10 Head shampoo sink faucets.**
>
> Head shampoo sink faucets shall be supplied with hot water that is limited to not more than 120°F (49°C). Each faucet shall have integral check valves to prevent crossover flow between the hot and cold water supply connections. The means for regulating the maximum temperature shall be one of the following:
>
> 1. A limiting device conforming to ASSE 1070/ASME A112.1070/CSA B125.70.
> 2. A water heater conforming to ASSE 1082.
> 3. A temperature-actuated, flow-reduction device conforming to ASSE 1062.

- **Section P-419.5** no longer considers a valve conforming to CSA B125.3 acceptable as a water-temperature limiting device for public handwashing lavatories.

> **419.5 Tempered water for public hand-washing facilities.**
>
> *Tempered water* shall be delivered from lavatories and group wash fixtures located in *public* toilet facilities provided for customers, patrons and visitors. *Tempered water* shall be delivered through an *approved* water-temperature limiting device that conforms to ASSE 1070/ASME A112.1070/CSA B125.70.

- **Section P-421.3.1** requires shower drains, including linear shower drains, to comply with the referenced standard.

> **421.3.1 Waste fittings.**
>
> Waste fittings shall conform to ASME A112.18.2/CSA B125.2.

Chapter 5 (Water Heaters):

- **Section P-501.2** changes the title of Standard ASSE 1017 is *Temperature-Actuated Mixing Valve*. Therefore, the code language has been updated to align with the title of the standard.

> **501.2 Water heater as space heater.**
>
> Where a combination potable water heating and space heating system requires water for space heating at temperatures greater than 140°F (60°C), a temperature-actuated mixing valve complying with ASSE 1017 shall be provided to limit the water supplied to the potable *hot water* distribution system to a temperature of 140°F (60°C) or less. The potability of the water shall be maintained throughout the system. Requirements for combination potable water heating and space heating systems shall be in accordance with the *International Mechanical Code*.

Chapter 6 (Water Supply and Distribution):

- **Section P-602.3.5** requires pumps that supply drinking water to conform to NSF 61.

> **602.3.5 Pumps.**
>
> Pumps shall be rated for the transport of potable water. Pumps in an individual water supply system shall be constructed and installed so as to prevent contamination from entering a potable water supply through the pump units. Pumps intended to supply drinking water shall conform to NSF 61. Pumps shall be sealed to the well casing or covered with a watertight seal. Pumps shall be designed to maintain a prime and installed such that *ready access* is provided to the pump parts of the entire assembly for repairs.

- **Sections P-605.12.3 / P-605.13.6** requires solder and flux used in making joints in pipe tubing for drinking water systems conform to NSF 61.

605.12.3 Solder joints.

Solder joints shall be made in accordance with ASTM B828. Cut tube ends shall be reamed to the full inside diameter of the tube end. Joint surfaces shall be cleaned. A flux conforming to ASTM B813 shall be applied. The joint shall be soldered with a solder conforming to ASTM B32. The joining of water supply piping shall be made with *lead-free solder and fluxes*. "Lead free" shall mean a chemical composition equal to or less than 0.2-percent lead. Solder and flux joining pipe or fittings intended to supply drinking water shall conform to NSF 61.

605.13.6 Solder joints.

Solder joints shall be made in accordance with the methods of ASTM B828. Cut tube ends shall be reamed to the full inside diameter of the tube end. Joint surfaces shall be cleaned. A flux conforming to ASTM B813 shall be applied. The joint shall be soldered with a solder conforming to ASTM B32. The joining of water supply piping shall be made with *lead-free solder and flux*. "Lead free" shall mean a chemical composition equal to or less than 0.2-percent lead. Solder and flux joining pipe or fittings intended to supply drinking water shall conform to NSF 61.

- **Section P-606.1** requires multiple tenant buildings to have a main water shutoff valve for each tenant space. In a multi-tenant building, each tenant must have the ability to shut-off water for maintenance purposes, without shutting off water for the entire building.

606.1 Location of full-open valves.

Full-open valves shall be installed in the following locations:

1. On the building water service pipe from the public water supply near the curb.
2. On the water distribution supply pipe at the entrance into the structure.
   2.1. In multiple-tenant buildings, where a common water supply piping system is installed to supply other than one- and two-family dwellings, a main shutoff valve shall be provided for each tenant.
3. On the discharge side of every water meter.
4. On the base of every water riser pipe in occupancies other than multiple-family residential *occupancies* that are two stories or less in height and in one- and two-family residential *occupancies*.
5. On the top of every water down-feed pipe in *occupancies* other than one- and two-family residential *occupancies*.
6. On the entrance to every water supply pipe to a dwelling unit, except where supplying a single fixture equipped with individual stops.
7. On the water supply pipe to a gravity or pressurized water tank.
8. On the water supply pipe to every water heater.

- **Section P-606.7** to be retained from current locally modified provisions to maintain labeling requirements at bundled water distribution pipes.

P-606.7 Labeling of water distribution pipes in bundles.

Where water distribution piping is bundled at installation, each pipe in the bundle shall be identified using stenciling or commercially available pipe labels. The identification shall indicate the pipe contents and the direction of flow in the pipe. The interval of the identification markings on the pipe shall not exceed 25 feet (7620 mm). There shall be not less than one identification label on each pipe in each room, space or story.

- **Sections P-607.1.1 / P-607.1.2** makes new designs of water heaters available where the temperature control of the water heater can provide reliable and accurate control of the temperature of the heated water. The code recognizes three new water heater standards that regulate the outlet temperature of the water heater and eliminate for an external temp limiting device. These standards are also referenced in applicable sections of Chapter 4.

607.1.1 Temperature limiting means.

A thermostat control for a water heater shall only serve as the temperature limiting means for the purposes of complying with the requirements of this code for maximum allowable *hot* or *tempered water* delivery temperature at fixtures where the water heater complies with ASSE 1082 or ASSE 1085.

607.1.2 Tempered water temperature control.

Tempered water shall be controlled by one the following:

1. A limiting device conforming to ASSE 1070/ASME A112.1070/CSA B125.70 and set to not greater than 110°F (43°C).
2. A thermostatic mixing valve conforming to ASSE 1017.
3. A water heater conforming to ASSE 1082.
4. A water heater conforming to ASSE 1084.

This provision shall not supersede the requirement for protective shower valves in accordance with Section 412.3.

- **Section P-608.15.2.1** requires relief port to be directed to an adequately sized waste receptor when backflow preventors can relieve indoors. The code requires that the drain be sized to accommodate the maximum flow rate through the relief port, as published in the manufacturer's specifications.

608.15.2.1 Relief port piping.

The termination of the piping from the relief port or *air gap* fitting of a backflow preventer shall discharge to an *approved* indirect waste receptor or to the outdoors where it will not cause damage or create a nuisance. The indirect waste receptor and drainage piping shall be sized to drain the maximum discharge flow rate from the relief port as published by the backflow preventer manufacturer.

- **Section P-608.17.2** adds a recognized standard, ASSE 1081, to the code for a combination pressure regulator/backflow preventor product for boilers.

608.17.2 Connections to boilers.

The potable supply to the boiler shall be equipped with a backflow preventer with an intermediate atmospheric vent complying with ASSE 1012, ASSE 1081 or CSA B64.3. Where conditioning chemicals are introduced into the system, the potable water connection shall be protected by an *air gap* or a reduced pressure principle backflow preventer, complying with ASSE 1013, AWWA C511 or CSA B64.4.

- **Section P-609.2** requires buildings classified as Group I-2, Condition 2 facilities have two water service pipes. Additionally, language was revised to clarify the types of healthcare occupancies that require redundant services and requirement for a shut-off valve for each water line was added.

P-609.2 Water service *and distribution* for Group I-2, Condition 2 facilities.

Hospitals Group I-2, Condition 2 facilities shall have not fewer than two water service pipes *and water distribution pipes* sized such that with the loss of the largest service pipe, the remaining service pipes will meet the water demand for the entire facility. Each water service shall have a shutoff valve in the building and a shutoff valve at the utility-provided point of connection to the water main or other source of potable water.

- **Section P-609.2.1** requires the addition of a tracer wire on buried hospital water service piping which allows for easier locating to avoid piping damage that would disrupt water service.

> **609.2.1 Tracer wire for nonmetallic piping.**
>
> An insulated tracer wire listed for the purpose or other *approved* conductor shall be installed adjacent to underground nonmetallic piping serving as a water service for a hospital. *Access* shall be provided to the tracer wire or the tracer wire shall terminate above ground at each end of the nonmetallic piping. The tracer wire size shall be not less than 18 AWG and the wire insulation type shall be suitable for direct burial.

- **Section P-610.1** modified locally to allow exceptions to potable water disinfection based on lab testing results for one-and two-family dwellings and townhouses up to three stories in height. [Requirements still applicable to duplexes and 4-story single family dwellings.]

> **P-610.1 Disinfection of Potable Water-General**
>
> New potable water systems shall be purged of deleterious matter and disinfected prior to utilization. The method to be followed shall be that prescribed by the health authority or water purveyor having jurisdiction or, in the absence of a prescribed method, the procedure described in either AWWA C651 or AWWA C652, or as described in this section. This requirement shall apply to "on-site" or "in-plant" fabrication of a system or to a modular portion of a system.
>
> *Exception: Analysis shall not be required for interior piping or water distribution piping servicing one- and two-family dwellings and townhouses up to three stories in height.*

Chapter 7 (Sanitary Drainage):

- **Table P-702.3** adds a standard to the building sewer pipe table for a composite wall ABS pipe. Note local modifications to be maintained under this provision.

> **P-702.3 Building sewer pipe.**
>
> Building sewer pipe shall conform to one of the standards listed in Table P-702.3. *Any building sewer pipe serving or located within occupancies other than one- and two-family dwellings and apartments shall be metallic piping in accordance with this section.*

TABLE P-702.3 -- BUILDING SEWER PIPE

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	ASTM D2661; ASTM F628; ASTM F1488; CSA B181.1
Acrylonitrile butadiene styrene (ABS) plastic pipe in sewer and drain diameters, including SDR 42 (PS 20), PS 35, SDR 35 (PS 45), PS 50, PS 100, PS 140, SDR 23.5 (PS 150) and PS 200; with a solid, cellular core or composite wall	ASTM F1488; ASTM D2751

Cast-iron pipe	ASTM A74; ASTM A888; CISPI 301
* * *	
Ductile iron pipe class 56	*AWWA C151/A21.51; AWWA C115/A21.15*
* * *	
Polyvinyl chloride (PVC) plastic pipe in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall	*ASTM D2665; ASTM F891; ASTM F1488;*
Polyvinyl chloride (PVC) plastic pipe in sewer and drain diameters, including PS 25, SDR 41 (PS 28), PS 35, SDR 35 (PS 46), PS 50, PS 100, SDR 26 (PS 115), PS 140 and PS 200; with a solid, cellular core or composite wall	ASTM F891; ASTM F1488; ASTM D3034; CSA B182.2; CSA B182.4
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D. and a solid, cellular core or composite wall	ASTM D2949, ASTM F1488
* * *	

P-702.3.1 High-rise material.

Metallic piping shall be installed for all building sewer pipe for buildings with an occupied floor located more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access.

P-702.3.2 Lateral.

Lateral materials and installation shall be regulated by the Philadelphia Water Department.

- **Section P-705.2.4 / P-705.10.4** modified locally to remove provisions associated with push-fit joints as previously maintained, which are not permitted for DWV.

P-705.2.4 Reserved. ~~Push-fit joints. Push-fit DWV fittings shall be listed and labeled to ASME A112.4.4 and shall be installed in accordance with the manufacturer's instructions.~~

705.10.4. Reserved. ~~Push-fit joints. Push-fit joints shall conform to ASME A112.4.4 and shall be installed in accordance with the manufacturer's instructions~~

- **Section P-708.1.6** adds removable traps and removable fixtures with integral traps as an acceptable equivalent to cleanouts. It must be readily removable – meaning you can take it out without disturbing walls, floors, or other concealed piping. There are prohibitions in other sections. Section 708.1.3 prohibits the removal of water closets to serve as cleanout access to a building sewer. Section 708.1.5 only allows cleanout access through a removable P-trap for the same or one size larger pipe size.

708.1.6 Cleanout equivalent.

A fixture trap or a fixture with integral trap, removable without altering concealed piping, shall be acceptable as a cleanout equivalent.

- **Sections P-717, P-718 & P-719** now recognizes two methods of trenchless pipe restoration under local modification, for Relining and Cure-in-Place, which are only allowed for building sewers serving one- and two-family dwellings. Private sanitary sewer requirements under Section P-717 to remain as previously under local modifications. Use of trenchless pipe restoration requires video survey and cleaning of pipe to determine any existing defects and conditions that may preclude use of pipe restoration. Restoration shall also be accompanied with pre and post-installation video survey to demonstrate compliance.

SECTION P-717 ~~RELINING BUILDING SEWERS AND BUILDING DRAINS~~ *PRIVATE SANITARY SEWER INFRASTRUCTURE*

P-717.1 General.

The provisions of this Section shall govern the materials, design, and construction of Private Sanitary Sewer Infrastructure.

P-717.1.1 Definitions

The following definitions shall apply to Private Sanitary Sewer Infrastructure.

PRIVATE SEWER INFRASTRUCTURE. The sewer pipe that is constructed on private property between the Lateral and the Building Sewer owned and maintained by the unit owner's association to serve some or all units within a Condominium or Planned Community.

Sanitary: Private sewer infrastructure that conveys sewage only.

Storm: Private sewer infrastructure that conveys storm water or other drainage, but not sewage.

P-717.2 ~~Applicability.~~ *Materials*.

Private Sanitary Sewer Infrastructure shall conform to all of the requirements listed in Section 702 of this code.

P-717.3 ~~Preinstallation requirements.~~ *Slope of private sanitary sewer infrastructure.*

Private sanitary sewer infrastructure shall be installed in uniform alignment at uniform slopes. The slope of private sanitary sewer infrastructure shall be in accordance with Section 704 of this code.

P-717.4 ~~Permitting.~~ *Connections*.

The building sewers for each house or structure shall be connected to the Private Sanitary Sewer Infrastructure separately. Each connection shall be made with a wye branch and be fitted with a Building Trap and Fresh Air Inlet in line with the connection point in accordance with the Section 1002.6 of this code.

P-717.5 ~~Prohibited applications.~~ *Depth of Private Sanitary Sewer Infrastructure.*

Private Sanitary Sewer Infrastructure shall be installed not less than 36 inches (914 mm) measured from the top of pipe.

P-717.6 ~~Relining materials.~~ *Access for Repairs.*

Separation of Private Water, Sanitary Sewer, and Storm Sewer Infrastructure placed in the same alignment and at a depth not exceeding 5-feet shall comply with Section 603.2 of this code. Infrastructure placed at depths greater than 5-feet shall be horizontally separated at a distance that allows for the approved sheeting and shoring and not less than 2-feet.

P-717.7 ~~Installation.~~ *Protection of structures.*

Private sanitary sewer infrastructure piping installed parallel to footings and walls shall not extend into the bearing plane of a footing or wall in accordance with Section 307.5 of this code. Private sanitary sewer infrastructure piping shall not be installed within 5 feet (1524 mm) of any adjoining property line. Private sanitary sewer infrastructure Pipe shall not be installed within 3 feet (914 mm) of any parallel building foundation.

~~P-717.7.1 Material data report.~~

P-717.8 ~~Post-installation recorded video camera survey.~~ *Cleanouts required.*

Cleanouts shall be provided for Private Sanitary Sewer Infrastructure in accordance with the provisions of this code for sanitary drainage pipe in Section 708.1. All building sewers connected to Private Sanitary Sewer Infrastructure shall be fitted with an approved Building Trap and Fresh Air Inlet. The sewer will not require a trap and Fresh Air Inlet at the connection to the lateral but will require a manhole or cleanout at the property line before entering the public right-of-way.

P-717.9 ~~Certification~~. *Manholes.*

Manholes will be required for Private Sanitary Sewer Infrastructure 8-inches in diameter and greater at changes in direction, grade, and size. All manholes shall have inverts built with channels extending up to the pipe crown to ensure uniform flow in accordance with Section 708.1 of this code.

P-717.10 ~~Approval~~. *Sewage Backflow.*

Backwater valves shall be installed in accordance with Section 714.1 of this code.

P-717.11 Easement required.

Private Sanitary Sewer Infrastructure shall require an easement with a minimum width of 12' and must provide adequate space to replace/repair the private services. Minimum vertical drive height clearance of 13'-6" or 2x pipe depth to pipe bottom, whichever is greater, shall be provided.

* * *

SECTION ~~P-717~~ P-718 ~~REHABILITATION OF~~ RELINING ~~AND BUILDING DRAINS~~

~~P-717.1~~ *P-718.1* General.

This section shall govern the relining of existing building sewers ~~and building drainage piping~~ *for one-and two family dwellings. Relining of building sewers for commercial occupancies is prohibited.*

~~P-717.2~~ *P-718.2* Applicability.

The relining of existing building sewers ~~and building drainage piping~~ shall be limited to gravity drainage piping 4 inches (102 mm) in diameter and larger. The relined piping shall be of the same nominal size as the existing piping.

~~P-717.3~~ *P-718.3* Preinstallation requirements.

Prior to commencement of the relining installation, the existing piping sections to be relined shall be descaled and cleaned. After the cleaning process has occurred and water has been flushed through the system, the piping shall be inspected internally by a recorded video camera survey.

~~P-717.3.1~~ *P-718.3.1* Preinstallation recorded video camera survey.

The video survey shall include verification of the project address location. The video shall include notations of the cleanout and fitting locations, and the approximate depth of the existing piping. The video shall also include notations of the length of piping at intervals not greater than 25 feet (7620 mm).

~~P-717.4~~ *P-718.4* Permitting.

A plumbing permit shall be issued by the Department of Licenses and Inspections for this work and the work shall be properly inspected. Proof satisfactory to the Department shall be provided showing that the PA One Call and any other applicable agency has been properly notified prior to issuing a permit for this work. Prior to permit issuance, the code official shall review and evaluate the preinstallation recorded video camera survey to determine if the piping system is capable ~~to be~~ *of being* relined in accordance with the proposed lining system manufacturer's installation requirements and applicable referenced standards.

~~P-717.5~~ *P-718.5* Prohibited applications.

Where review of the preinstallation recorded video camera survey reveals that piping systems are not installed correctly or defects exist, relining shall not be permitted. The defective portions of piping shall be exposed and repaired with pipe and fittings in accordance with this code. Defects shall include, but are not limited to, backgrade or insufficient slope, complete pipe wall deterioration or complete separations such as from tree root invasion or improper support.

~~P-717.6~~ *P-718.6* Relining materials.

The relining materials shall be manufactured in compliance with applicable standards and certified as required in Section 303. Fold-and-form pipe reline materials shall be manufactured in compliance with ASTM F1504 or ASTM F1871.

~~P-717.7~~ *P-718.7* Installation.

The installation of relining materials shall be performed in accordance with the manufacturer's installation instructions, applicable referenced standards and this code.

~~P-717.7.1~~ *P-718.7.1* Material data report.

The installer shall record the data as required by the relining material manufacturer and applicable standards. The recorded data shall include but is not limited to the location of the project, relining material type, amount of product installed and conditions of the installation. A copy of the data report shall be provided to the code official prior to final approval.

~~P-717.8~~ *P-718.8* Post-installation recorded video camera survey.

The completed, relined piping system shall be inspected internally by a recorded video camera survey after the system has been flushed and flow-tested with water. The video survey shall be submitted to the code official prior to finalization of the permit. The video survey shall be reviewed and evaluated to provide verification that no defects exist. Any defects identified shall be repaired and replaced in accordance with this code.

~~P-717.9~~ *P-718.9* Certification.

A certification shall be provided in writing to the code official, from the permit holder, that the relining materials have been installed in accordance with the manufacturer's installation instructions, the applicable standards and this code.

~~P-717.10~~ *P-718.10* Approval.

Upon verification of compliance with the requirements of Sections *P-718.1* ~~717.1~~ through *P-718.9* ~~717.9~~, the code official shall approve the installation.

SECTION ~~P-718~~ P-719 – REHABILITATION OF BUILDING SEWERS ~~AND BUILDING DRAIN~~

~~P-718.1~~ *P-719.1* Cure-in-place.

Sectional cure-in-place rehabilitation of building sewer piping ~~and sewer service lateral piping~~ shall be in accordance with ASTM F2599 *and shall be limited to one- and two-family dwellings*. Hydrophilic rings or gaskets in cure-in-place rehabilitation of building sewer piping ~~and sewer service lateral piping~~ shall be in accordance with ASTM F3240 to ensure water tightness and elimination of ground water penetration.

P-719.2 Applicability.

The cure-in-place rehabilitation of existing building sewer piping shall be limited to gravity drainage piping 4-inches (102 mm) in diameter and larger. The cure-in-place rehabilitation piping shall be of the same nominal size as the existing piping.

P-719.3 Preinstallation requirements.

Prior to commencement of the cure-in-place rehabilitation installation, the existing piping sections to be rehabilitated shall be descaled and cleaned. After the cleaning process has occurred and water has been flushed through the system, the piping shall be inspected internally by a recorded video camera survey.

P-719.3.1 Preinstallation recorded video camera survey.

The video survey shall include verification of the project address location. The video shall include notations of the cleanout and fitting locations, and the approximate depth of the existing piping. The video shall also include notations of the length of piping at intervals not greater than 25 feet (7620 mm).

P-719.4 Permitting.

A plumbing permit shall be issued by the Department of Licenses and Inspections for this work and the work shall be properly inspected. Proof satisfactory to the Department shall be provided that the PA One Call and any other applicable agency has been properly notified prior to issuing a permit for this work. Prior to permit issuance, the code official shall review and evaluate the preinstallation recorded video camera survey to determine if the piping system is capable of being relined in accordance with the proposed rehabilitation system manufacturer's installation requirements and applicable referenced standards.

P-719.5 Prohibited applications.

Where review of the preinstallation recorded video camera survey reveals that piping systems are not installed correctly or defects exist, rehabilitation shall not be permitted. The defective portions of piping shall be exposed and repaired with pipe and fittings in accordance with this code. Defects shall include, but are not limited to, backgrade or insufficient slope, complete pipe wall deterioration or complete separations such as from tree root invasion or improper support.

P-719.6 Cure in place rehabilitation materials.

The rehabilitation materials shall be manufactured in compliance with applicable standards and certified as required in Section 303.

P-719.7 Installation.

The installation of cure in place rehabilitation materials shall be performed in accordance with the manufacturer's installation instructions, applicable referenced standards and this code.

P-719.7.1 Material data report.

The installer shall record the data as required by the cure in place rehabilitation material manufacturer and applicable standards. The recorded data shall include, but is not limited to, the location of the project, rehabilitation material type, amount of product installed and conditions of the installation. A copy of the data report shall be provided to the code official prior to final approval.

P-719.8 Post-installation recorded video camera survey.

The completed, rehabilitated piping system shall be inspected internally by a recorded video camera survey after the system has been flushed and flow-tested with water. The video survey shall be submitted to the code official prior to finalization of the permit. The video survey shall be reviewed and evaluated to provide verification that no defects exist. Any defects identified shall be repaired and replaced in accordance with this code.

P-719.9 Certification.

A certification shall be provided in writing to the code official, from the permit holder, that the cure in place rehabilitation relining materials have been installed in accordance with the manufacturer's installation instructions, the applicable standards and this code.

P-719.10 Approval.

Upon verification of compliance with the requirements of Sections P-719.1 through P-719.9, the code official shall approve the installation.

Chapter 9 (Vents):

- **Section P-903.1.3** adds new requirements for protected outdoor roof vent terminals that accommodate solar panel and architectural roof feature installations. This section reorganizes three existing vent terminal options (extension minimum 24" above roof, extension of more than 7' for roofs used for entertainment, venting through a side wall) in one section. A fourth option to allow the vent to terminate 2" above a sloped roof when protected by a covering has been added. This would allow photovoltaic solar collectors to be installed over vent terminals. It would also allow other protected vent terminals, such as architectural features that hide the vent for aesthetic purposes.

903.1.3 Protected vent terminal.

Where an open vent pipe terminates above a sloped roof and is covered by either a roof-mounted panel (such as a solar collector or photovoltaic panel mounted over the vent opening) or a roof element (such as an architectural feature or a decorative shroud), the vent pipe shall terminate not less than 2 inches (51 mm) above the roof surface. Such roof elements shall be designed to prevent the adverse effects of snow accumulation and wind on the function of the vent. The placement of a panel over a vent pipe and the design of a roof element covering the vent pipe shall provide for an open area for the vent pipe to the outdoors that is not less than the area of the pipe, as calculated from the inside diameter of the pipe. Such vent terminals shall be protected by a method that prevents birds and rodents from entering or blocking the vent pipe opening.

- **Section P-915** modified locally to maintain allowance of food waste disposer discharging to a combination waste and vent system.

> **P-915.1 Type of fixtures.**
>
> A combination waste and vent system shall not serve fixtures other than floor drains, sinks, lavatories and drinking fountains. Combination waste and vent systems shall not receive the discharge from a *food waste disposer or* clinical sink.

- **Section P-919.2.10** modifies language to base velocity breaks on the height of the stack instead of the height of the building.

> ***P-919.2.10 High-rise buildings.***
>
> *If a vertical soil or waste stack is 75 feet (23 m) in height and not more than 160 feet (49 m) in height, the vertical soil or waste stacks connected to the house drain or to any of its branches shall be one size larger than given in Table 919.2(c), and this shall also apply when the soil or waste stacks are connected to a horizontal branch pipe that discharges into a soil or waste stack. If a vertical soil or waste stack is more than 160 feet in height, the vertical soil or waste stacks connected to the house drain or to any of its branches shall be two sizes larger than given in Table 919.2(c), and this shall also apply when the vertical soil or waste stacks are connected to the horizontal branch pipe that discharges into a soil or waste stack. The size of the main soil stack shall be sized according to the largest branch entering the stack, except if the amount of fixture units requires a larger size. The developed length of the soil or waste stacks shall be determined by measuring the distance between the center line of the horizontal branch pipe and to an elevation 6" above the flood level rim of the highest fixture. If a relief vent is installed on all horizontal branches below the highest fixture and between the soil or waste stacks and the first fixture on the horizontal branch, the soil or waste stack sizes shall be in accordance with Table 919.2(c), regardless of the height of the soil or waste stack. The diameter of a relief vent shall not be less than one-half the diameter of the horizontal branch to which it is connected, with a minimum size of 1½ inches (38 mm). The maximum number of fixture units connected to the relief vent shall be in accordance with Table 919.9(a). The size of the branch line and its stack shall be determined by the developed length of the stack.*

- **Section P-919.3.5** clarifies language to support intent and resolve conflict associated with vent requirements. The stack must be the same diameter as a building sewer with a minimum 4" size.

> ***P-919.3.5 Vent required.***
>
> *Every building in which plumbing is installed shall have at least one stack vent or vent stack which shall be equal in size of the diameter of the building sewer and shall run undiminished in size as directly as possible from the building sewer through to the open air above the roof. The minimum size of the stack vent or vent stack shall be 4" (102mm).*

- **Section P-919.4.1 & P-919.4.2** modified language to base velocity breaks on the height of the stack instead of the height of the building.

> ***P-919.4.1 Required.***
>
> *Velocity breaks shall be required in soil or waste stacks over 300 feet in height to impede the velocity of the waste. At each velocity break, the stack shall be offset by two 45-degree breaks. A relief vent one-half the size of the soil stack shall be installed at the top of the second 45-degree break and shall be connected to the nearest vent stack.*
>
> ***P-919.4.2 Intervals.***
>
> *Velocity breaks shall be installed on any floor level within the first ten stories of the soil or waste stack and at intervals of not more than 20 stories above the lowest velocity break and each break thereafter.*

Chapter 10 (Traps, Interceptors and Separators):

- **Section P-1002.3** modified locally and provides clarity on prohibitions on internal partition traps that include bottle traps.

P-1002.3 Prohibited traps.

The following types of traps are prohibited:

1. Traps that depend on moving parts to maintain the seal.
2. Bell traps.
3. Crown-vented traps.
4. Traps not integral with a fixture and that depend on interior partitions for the seal~~, except those traps constructed of an approved material that is resistant to corrosion and degradation~~.
5. "S" traps.
6. Drum traps.

~~Exception~~ *Exceptions*:

1. Drum traps used as solids interceptors and drum traps serving chemical waste systems shall not be prohibited.
2. *"S" traps are permitted to be used as a direct replacement to a previously installed "S" trap.*
3. *Traps with interior partitions serving chemical waste systems shall not be prohibited.*

- **Section P-1002.4.1.5** modified locally and remove language from Plumbing Code that allows fixture drain connections for trap priming. Allow only certified trap seal devices.

P-1002.4.1.5 Reserved. ~~Fixture drain connection for trap priming. A fixture drain from a lavatory or hand sink shall serve as a method of providing trap seal protection for an emergency floor drain, a trench drain, or a floor sink where such fixtures are located in the same room. A fixture drain from a drinking fountain shall serve as a method of providing trap seal protection for an emergency floor drain, a trench drain, or a floor sink where such fixtures are in the same room or in a room adjacent to the room having the drinking fountain. The fixture drain shall not be routed on or above the surface of the floor and shall connect to the floor drain, trench drain, or floor sink at a point that is below the flood level rim and above the inlet to the trap of the receiving fixture.~~

Chapter 11 (Storm Drainage):

- **Section P-1102.6** modified locally to retain 2018 language to cross reference roof drain materials and omit references for testing.

P-1102.6 Roof drains.

Roof drains shall conform to ASME 112.3.1 or ASME A112.6.4. *Roof drain materials shall comply with Sections P-1102.2 & P-702.1.* ~~Roof drains, other than siphonic roof drains, shall be tested and rated in accordance with ASME ASME A112.6.4 or ASPE/IAPMO Z1034.~~

- **Section P1106.2.1** includes the rainfall rate conversion information for inches-per-hour to gallons-per-minute in the code.

> **1106.2.1 Rainfall rate conversion method.**
>
> The rainfall rate falling on a roof surface shall be converted to a gallon per minute (L/m) flow rate in accordance with Equation 11-1.
>
> $GPM = R \times A \times 0.0104$ (Equation 11-1)
>
> where:
> R = Rainfall intensity in inches (mm) per hour.
> A = Roof area in square feet (m^2).

Chapter 12 (Special Piping and Storage Systems):

- **Section P-1202.1** requires the installation, testing and labels for nonflammable medical gases be done in accordance with NFPA 99.

> **[F] 1202.1 Nonflammable medical gases.**
>
> Nonflammable medical gas systems, inhalation anesthetic systems and vacuum piping systems shall be installed, tested and labeled in accordance with NFPA 99.
>
> **Exceptions:**
>
> 1. This section shall not apply to portable systems or cylinder storage.
> 2. Vacuum system exhaust terminations shall comply with the *International Mechanical Code*.

Chapter 13 (Nonpotable Water Systems):

- **Section P-1301.1** adds Standard CSA B805/ICC 805 to the code to serve as an alternative method for providing a nonpotable water source, with local modifications to remove reference to regulation of materials choice for nonpotable water systems.

> **1301.1 General.**
>
> The provisions of Chapter 13 shall govern the materials, design, construction and installation of systems for the collection, storage, treatment and distribution of nonpotable water. For nonpotable rainwater systems, the provisions of CSA B805/ICC 805 shall be an alternative for regulating the ~~materials,~~ design, construction and installation of systems for rainwater collection, storage, treatment and distribution of nonpotable water. The use and application of nonpotable water shall comply with laws, rules and ordinances applicable in the jurisdiction.