ORDINANCE NO. 219, 2025
OF THE COUNCIL OF THE CITY OF FORT COLLINS
AMENDING CHAPTER 5, ARTICLE V, DIVISION 1 OF THE CODE OF THE CITY OF FORT COLLINS FOR THE PURPOSE OF REPEALING THE COLORADO PLUMBING CODE AND ADOPTING THE 2024 INTERNATIONAL PLUMBING CODE, WITH AMENDMENTS

A. Since 1924, the City has reviewed, amended and adopted the latest nationally recognized building standards available for the times.

B. Upon recommendation of City staff, the City Council has determined that it is in the best interests of the City to align eleven interconnected basic construction codes under one publication year.

C. The eleven interconnected basic construction codes are the *International Building Code, International Residential Code, International Mechanical Code, International Fuel Gas Code, International Energy Conservation Code, International Property Maintenance Code*, *International Swimming Pool and Spa Code, International Existing Building Code, International Plumbing Code*, *International Fire Code*, and the *International Wildland-Urban Interface Code* to the extent adopted by the *Colorado Wildfire Resiliency Code*.

D. The City Council has determined that the 2024 publication year of these interconnected basic construction codes should be adopted and that any counterpart *International* codes previously adopted should be repealed, both in order to align the publication years of the codes and because the 2024 publications contain improvements in construction code regulation.

E. Previously, City Council adopted Ordinance No. 035, 2011, adopting the *Colorado Plumbing Code* (the "CPC") as published at 3 Colorado Code of Regulations 720-1, and codified the CPC at Section 5-125 of the Code of the City of Fort Collins, with local amendments thereto.

F. The state's code update cycle is significantly delayed compared to the City's, and the CPC has not yet been updated to align with the *2024 International Plumbing Code*.

G. The City Council has determined that it is in the best interest of the health, safety and welfare of the City and its residents that the plumbing code of the City of Fort Collins be amended to adopt the *2024 International Plumbing Code* and to repeal the previously adopted *Colorado Plumbing Code,* both to align with the publication years of the other construction codes and to update the requirements pertaining to maximum flow and water consumption.

H. City staff has conducted a significant public outreach program, working with the regulated construction industry and building professionals.

I. The adoption of the interconnected basic construction codes has been presented to community groups and feedback has been received from the Water Commission, Energy Board, Commission on Disability, Natural Resource Advisory Board, Poudre Fire Authority Board, Building Review Commission, Affordable Housing Board, and Air Quality Advisory Board.

J. Pursuant to the City Charter, Article II, Section 7, City Council may enact any ordinance which adopts a code by reference in whole or in part provided that before adoption of such ordinance the Council hold a public hearing thereon and that notice of the hearing shall be published twice in a newspaper of general circulation published in the City, with one of such publications occurring at least eight (8) days preceding the hearing and the other publication occurring at least fifteen (15) days preceding the hearing.

K. In compliance with City Charter, Article II, Section 7, the City Clerk published in the Fort Collins *Coloradoan* such notice of hearing concerning adoption of the 2024 International Codes on November 16, 2025, and November 25, 2025.

L. Attached as Exhibit A and incorporated herein by reference is the Notice of Public Hearing dated November 16, 2025, that was so published and which the Council hereby finds meets the requirements of Article II, Section 7 of the City Charter.

In light of the foregoing recitals, which the Council hereby makes and adopts as determinations and findings, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF FORT COLLINS as follows:

Section 1. The City Council hereby repeals the *Colorado Plumbing Code* and adopts the *2024 International Plumbing Code* as amended by this Ordinance.

Section 2. Section 5-125 of the Code of the City of Fort Collins is hereby repealed and reenacted to read as follows:

Sec. 5-125. - Adoption of standards.

Pursuant to the power and authority conferred on the City Council by Colorado Revised Statutes Section 31-16-202 and Article II, Section 7 of the Charter, the City Council has adopted the *2024 International Plumbing Code* (*2024 IPC)* published by the International Code Council, second printing (May 2024), as amended by the City, which shall have the same force and effect as though set forth in full herein. The subject matter of the *2024 International Plumbing Code* includes comprehensive provisions and standards regulating the installation, alteration or repair of plumbing and drainage systems in the City, for the purpose of protecting public health, safety, and general welfare. As provided in the *2024 International Plumbing Code,* Appendices are not adopted except as expressly set forth in § 5-126.

Section 3. Section 5-126 of the Code of the City of Fort Collins is hereby repealed and reenacted to read as follows:

Sec. 5-126. - Amendments and deletions to the 2024 International Plumbing Code.

The *2024 International Plumbing Code* adopted in § 5-125 is amended as follows:

1. **Section 101.1 Title** is amended to read as follows:

   101.1 Title. These regulations shall be known as the *Plumbing Code* of the City of Fort Collins, hereinafter referred to as "this code."

2. **Section 102.8 Referenced codes and standards** is amended to read as follows:

   102.8 Referenced codes and standards. The codes and standards referenced in this code shall be those that are listed in ~~Chapter 15 and such codes and standards~~ Section 101.4 of the adopted *International Building Code*, entitled "Referenced Codes", and shall be considered as part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections 102.8.1 and 102.8.2.

3. **Section 103 CODE COMPLIANCE AGENCY** is deleted in its entirety and replaced with the following:

   ~~**SECTION 103 CODE COMPLIANCE AGENCY**~~

   ~~**[A] 103.1 Creation of agency.** The **[INSERT NAME OF DEPARTMENT]** is hereby created and the official in charge thereof shall be known as the *code official*. The function of the agency shall be the implementation, administration and enforcement of the provisions of this code.~~

   ~~**[A] 103.2 Appointment.** The *code official* shall be appointed by the chief appointing authority of the jurisdiction.~~

   ~~**[A] 103.3 Deputies.** In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the *code official* shall have the authority to appoint a deputy code official, other related technical officers, inspectors and other employees. Such employees shall have powers as delegated by the *code official*.~~

   SECTION 103 CODE ADMINISTRATION

   103.1 Entity charged with code administration. The entity charged with code administration shall be as determined in accordance with Section 103 of the adopted *International Building Code*, entitled "CODE ADMINISTRATION."

4. **Section 105.2 Exempt work** is amended to read as follows:

105.2 Exempt work. The following work shal l be exempt from the requirement for a permit:

1. The stopping of leaks in drains, water, soil, waste or vent pipe provided, however, that if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a permit shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the ~~removal and reinstallation of water closets~~repair and replacement of garbage disposal units and dishwashers directly connected to the sanitary sewer system, including the necessary replacement of all tail pipes and traps, or the repair, maintenance, and replacement of sinks, faucets, drains, showers, tubs, and toilets, provided that such repairs do not involve or require the replacement or rearrangement of valves~~,~~ or pipes ~~or fixtures.~~

Exemption from the permit requirements of this code shall not be deemed to grant authorization for any work to be done in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

5. **SECTION 108 FEES** is deleted in its entirety and replaced with the following:

~~**SECTION 108 FEES**~~

~~**[A] 108.1 Payment of fees.** A permit shall not be valid until the fees prescribed by law have been paid. An amendment to a permit shall not be released until the additional fee, if any, has been paid.~~

~~**[A] 108.2 Schedule of permit fees.** Where work requires a permit, a fee for each permit shall be paid as required, in accordance with the schedule as established by the applicable governing authority.~~

~~**[A] 108.3 Permit valuations.** The applicant for a permit shall provide an estimated value of the work for which the permit is being issued at time of application. Such estimated valuations shall include the total value of work, including materials and labor, for which the permit is being issued, such as electrical, gas, mechanical, plumbing equipment and permanent systems. Where, in the opinion of the building official, the valuation is underestimated, the permit shall be denied, unless the applicant can show detailed estimates acceptable to the building official. The building official shall have the authority to adjust the final valuation for permit fees.~~

~~**[A] 108.4 Work commencing before permit issuance.** Any person who commences any work on a plumbing system before obtaining the necessary permits shall be subject to a fee established by the code official that shall be in~~

~~addition to the required permit fees.~~

~~**[A] 108.5 Related fees.** The payment of the fee for the construction, alteration, removal or demolition for work done in connection to or concurrently with the work authorized by a permit shall not relieve the applicant or holder of the permit from the payment of other fees that are prescribed by law~~

~~**[A] 108.6 Refunds.** The code official is authorized to establish a refund policy.~~

SECTION 108 FEES

108.1 Fees. All items relating to fees shall be as specified in Section 109 of the adopted *International Building Code,* entitled "FEES."

108.2 Work commencing before permit issuance. All items related to work commencing before permit issuance shall be made pursuant to the applicable provisions of Section 109.2 of the adopted *International Building Code*.

6. **SECTION 112 MEANS OF APPEAL** is deleted in its entirety and replaced with the following:

~~**SECTION 112 MEANS OF APPEALS**~~

~~**[A] 112.1 General.** In order to hear and decide appeals of orders, decisions or determinations made by the code official relative to the application and interpretation of this code, there shall be and is hereby created a board of appeals. The board of appeals shall be appointed by the applicable governing authority and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business and shall render all decisions and findings in writing to the appellant with a duplicate copy to the code official.~~

~~**[A] 112.2 Limitations on authority.** An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply, or an equivalent or better form of construction is proposed. The board shall not have authority to waive requirements of this code.~~

~~**[A] 112.3 Qualifications.** The board of appeals shall consist of members who are qualified by experience and training on matters pertaining to the provisions of this code and are not employees of the jurisdiction.~~

~~**[A] 112.4 Administration.** The code official shall take action without delay in accordance with the decision of the board.~~

SECTION 112 MEANS OF APPEALS

112.1 General. Appeals of decisions, determinations and interpretations of this code shall be made pursuant to the applicable provisions of Section 113 of the adopted *International Building Code*, entitled "MEANS OF APPEALS."

7. **SECTION 113 BOARD OF APPEALS** is deleted in its entirety.

~~**SECTION 113 BOARD OF APPEALS**~~

~~**[A] 113.1 Membership of board.** The board of appeals shall consist of five members appointed by the chief appointing authority as follows: one for 5 years; one for 4 years; one for 3 years; one for 2 years; and one for 1 year. Thereafter, each new member shall serve for 5 years or until a successor has been appointed.~~

8. **Section 114.4 Violation Penalties** is deleted in its entirety and replaced with the following:

~~**[A] 114.4 Violation penalties.** Any person who shall violate a provision of this code or shall fail to comply with any of the requirements thereof or who shall erect, install, alter or repair plumbing work in violation of the *approved* construction documents or directive of the code official, or of a permit or certificate issued under the provisions of this code, shall be guilty of a **[SPECIFY OFFENSE]**, punishable by a fine of not more than **[AMOUNT]** dollars or by imprisonment not exceeding **[NUMBER OF DAYS]**, or both such fine and imprisonment. Each day that a violation continues after due notice has been served shall be deemed a separate offense.~~

114.4 Violation penalties. Any person who violates a provision of this code or fails to comply with any of the requirements thereof or who alters or repairs a building or structure in violation of the *approved* construction documents or directive of the code official, or of a permit or certificate issued under the provisions of this code, commits a civil infraction and is subject to the provisions contained in § 1-15(f) of the City Code. Each day that a violation continues shall be deemed a separate offense.

9. **SECTION 202 GENERAL DEFINITIONS** is amended to modify, or add, in alphabetical order, the following definitions:

. . .

CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. The term *code official* is interchangeable with the term *building official*.

. . .

DIRECT SUPERVISION. Direct supervision means that the supervising licensed master plumber, journeyman plumber, or residential plumber is physically present at the same physical addresses listed on the permits and where the apprentice is working or no more than five minutes distance from the apprentice.

. . .

FIXTURE DRAIN. ~~The drain from the trap of a fixture to a junction with any other drain pipe~~ That portion of a plumbing drainage system that connects the trap drain to any other drain pipe receiving the discharge from one or more plumbing fixtures.

. . .

GRAYWATER. ~~Waste discharged from lavatories, bathtubs, showers, clothes washers and laundry trays~~ Wastewater that, before being treated or combined with other wastewater, is collected from fixtures within residential, commercial, or industrial buildings or institutional facilities for the purpose of being put to beneficial uses. Sources of graywater are limited to discharges from bathroom and laundry room sinks, bathtubs, showers, and laundry machines. Graywater does not include the wastewater from toilets, urinals, kitchen sinks, dishwashers, or non-laundry utility sinks.

. . .

RECLAIMED WATER. ~~Nonpotable water that has been derived from the treatment of wastewater by a facility or system licensed or permitted to produce water meeting the jurisdiction's water requirements for its intended uses. Also known as "recycled water."~~Domestic wastewater that has received secondary treatment by a domestic wastewater treatment works (centralized system or a localized system) and such additional treatment as to enable the wastewater to meet the standards for approved uses.

. . .

TRAP DRAIN. That portion of horizontal piping between the weir of a trap and the point where it intersects with the vent serving that same trap (trap arm).

. . .

10. **Section 305.1 Protection against contact** is deleted in its entirety and replaced with the following:

~~**305.1 Protection against contact.** Metallic piping, except for cast iron, ductile iron and galvanized steel, shall not be placed in direct contact with steel framing members, concrete or cinder walls and floors or other masonry. Metallic piping~~

~~shall not be placed in direct contact with corrosive soil. Where sheathing is used to prevent direct contact, the sheathing shall have a thickness of not less than 0.008 inch (8 mil) (0.203 mm) and the sheathing shall be made of plastic. Where sheathing protects piping that penetrates concrete or masonry walls or floors, the sheathing shall be installed in a manner that allows movement of the piping within the sheathing.~~

305.1 Protection against contact. Piping except for, for cast iron, ductile iron, and galvanized steel shall not be placed in direct contact with steel framing members. Piping shall not be placed in direct contact with concrete or cinder walls and floors, other masonry, and corrosive soil. Where sheathing is used to prevent direct contact, the sheathing shall have a thickness of not less than .025 inch (.64 mm). Where sheathing protects piping that penetrates concrete or masonry walls or floors, the sheathing shall be installed in a manner that allows movement of the piping within the sheathing.

11. **Section 308.5 Interval of support** is amended to read as follows:

308.5 Interval of support. Pipe shall be supported in accordance with Table 308.5(1). Hanger support rods shall be sized in accordance with Table 308.5(2).

Exception: The interval of support for piping systems designed to provide for expansion/contraction shall conform to the engineered design in accordance with Section 316.1.

12. **TABLE 308.5 HANGER SPACING** is amended to read as follows:

TABLE 308.5(1) HANGER SPACING		
PIPING MATERIAL	**MAXIMUM HORIZONTAL SPACING (feet)**	**MAXIMUM VERTICAL SPACING (feet)**
. . .	. . .	. . .

13. A new **TABLE 308.5(2) HANGER ROD SIZE** is added to read as follows:

TABLE 308.5(2) HANGER ROD SIZE	
Pipe and Tube Size	**Rod Size**
½" – 4"	3/8"
5" – 8"	½"
10" – 12"	5/8"

14. **Section 308.7.1 Location** is amended to read as follows:

308.7.1 Location. For pipe sizes greater than 4 inches (102 mm), restraints shall be provided for drain pipes utilizing mechanical joints at all changes in direction and at all changes in diameter greater than two pipe sizes. Braces, blocks, rodding and other suitable methods as specified by the coupling

manufacturer shall be utilized.

15. **Section 308.9 Parallel water distribution systems** is amended to read as follows:

308.9 Parallel water distribution systems. Piping bundles for manifold systems shall be supported in accordance with Table 308.5(1). 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.

16. **Section 312.1 Required tests** is amended to read as follows:

312.1 Required tests. The permit holder shall make the applicable tests prescribed in Sections 312.2 through 312.11 to determine compliance with the provisions of this code. The permit holder shall give reasonable advance notice to the code official when the plumbing work is ready for tests. The equipment, material, power and labor necessary for the inspection and test shall be furnished by the permit holder and he or she shall be responsible for determining that the work will withstand the test pressure prescribed in the following tests. Plumbing system piping shall be tested with either water or~~, for piping systems other than plastic,~~ by air. ~~After the plumbing fixtures have been set and their traps filled with water, the entire drainage system shall be submitted to final tests. The code official shall require the removal of any cleanouts if necessary to ascertain whether the pressure has reached all parts of the system.~~

17. **Section 312.3 Drainage and vent air test** is amended to read as follows:

312.3 Drainage and vent air test. ~~Plastic piping shall not be tested using air.~~ An air test shall be made by forcing air into the system until there is a uniform gauge pressure of 5 psi (34.5 kPa) or sufficient to balance a 10-inch (254 mm) column of mercury. This pressure shall be held for a test period of not less than 15 minutes. Any adjustments to the test pressure required because of changes in ambient temperatures or the seating of gaskets shall be made prior to the beginning of the test period.

18. **Section 312.4 Drainage and vent vacuum test** is deleted in its entirety.

~~**312.4 Drainage and vent vacuum test.** The portion of the drainage and vent system under test shall be evacuated of air by a vacuum-type pump to achieve a uniform gauge pressure of negative 5 pounds per square inch or a negative 10 inches of mercury column (-34 kPa). This pressure shall be held without the removal of additional air for a period of 15 minutes. Any adjustments to the test pressure required because of changes in ambient temperatures or the seating of gaskets shall be made prior to the beginning of the test period.~~

19. **Section 312.6 Water supply system test** is amended to read as follows:

312.6 Water supply system test. Upon completion of a section of or the entire water supply system, the system, or portion completed, shall be tested and proved tight under a water pressure not less than the working pressure of the system; or~~, for piping systems other than plastic,~~ by an air test of not less than 50 psi (344 kPa). This pressure shall be held for not less than 15 minutes. The water utilized for tests shall be obtained from a potable source of supply. The required tests shall be performed in accordance with this section and Section 111.

20. **Section 312.10 Shower liner test** is deleted in its entirety.

~~**312.10 Shower liner test.** Where shower floors and receptors are made watertight by the application of materials required by Section 421.5.2, the completed liner installation shall be tested. The pipe from the shower drain shall be plugged watertight for the test. The floor and receptor area shall be filled with potable water to a depth of not less than 2 inches (51 mm) measured at the threshold. Where a threshold of 2 inches (51 mm) high or greater does not exist, a temporary threshold shall be constructed to retain the test water in the lined floor or receptor area to a level not less than 2 inches (51 mm) deep measured at the threshold. The water shall be retained for a test period of not less than 15 minutes, and there shall not be evidence of leakage.~~

21. **Section 312.11.2 Testing** is amended to read as follows:

312.11.2 Testing. Reduced pressure principle, double check, pressure vacuum breaker, reduced pressure detector fire protection, double check detector fire protection, and spill-resistant vacuum breaker backflow preventer assemblies and hose connection backflow preventers shall be tested at the time of installation, immediately after repairs or relocation and at least annually by a certified cross connection control technician, in accordance with the applicable testing procedures associated with each specific certifying agency. When applicable, t~~T~~he testing procedure shall be performed for the identified backflow prevention assembly in its entirety in accordance with one of the following applicable standards: ASSE 5013, ASSE 5015, ASSE 5020, ASSE 5047, ASSE 5048, ASSE 5052, ASSE 5056, CSA B64.10, ~~or~~ CSA B64.10.1 or the testing procedures provided in the 10th Edition Manual of Cross-Connection Control from the University of Southern California's Foundation for Cross-Connection Control and Hydraulic Research. ~~Test gauges shall comply with ASSE 1064.~~

22. A new **SECTION 317 GRAYWATER** is added to read as follows:

SECTION 317 GRAYWATER

317.1 General. Graywater use shall comply with Article V, Division 3 of the City

Code and other applicable sections of this code.

23. **Section 403.1 Minimum number fixtures** is amended to read as follows:

403.1 Minimum number of fixtures. Plumbing fixtures shall be provided in the minimum number as shown in Table 403.1, based on the actual use of the building or space. Uses not shown in Table 403.1 shall be considered individually by the code official. The number of occupants shall be determined by the *International Building Code*. Lavatory to water closet or urinal ratios in accordance with Table 403.1 shall be maintained in all restrooms.

24. **Section 405.3.2 Public lavatories** is amended to read as follows:

405.3.2 Public lavatories. In employee and *public* toilet facilities, the required lavatory shall be located in the same room as the required water closet.

Exception: Lavatories located outside a toilet room located within a classroom serving students from that classroom only. These toilet rooms and lavatories shall not count toward the total fixture count required by Table 403.1.

25. **Section 410.4 Substitution** is amended to read as follows:

410.4 Substitution. Where restaurants or spaces classified as an A2 occupancy provide drinking water in a container free of charge, drinking fountains shall not be required in ~~those~~ these restaurants and A2 occupancies. 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.

26. A new **Section 421.7 Shower head location** is added to read as follows:

421.7 Shower head location. Showerheads shall be located on the sidewall of shower compartments or be arranged so the shower head does not discharge directly at the entrance to the compartment and the bather can adjust the valve prior to stepping into the shower spray.

Exception: Showers of the roll in type installed in accordance with 2009 ANSI A117.1.

27. A new **Section 421.8 Shower valve location** is added to read as follows:

421.8 Shower valve location. A shower or tub/shower control valve shall be installed only where the spout and/or shower head discharges into an approved tub or shower compartment.

Exception: Emergency Showers.

28. **Section 425.3 Water closet seats** is amended by adding a new exception to read as follows:

425.3 Water closet seats. Water closets shall be equipped with seats of smooth, nonabsorbent material. Seats of water closets provided for *public* or employee toilet facilities shall be of the hinged open-front type. Integral water closet seats shall be of the same material as the fixture. Water closet seats shall be sized for the water closet bowl type.

Exception: Water closets installed in public restrooms for the purpose of complying with accessible fixtures as required by Section 404 fitted with the "AXS-Wingman Universal Design Water Closet Seat" having a closed front are allowed.

29. A new **Section 504.6.1 Collection of relief valve discharge** is added to read as follows:

504.6.1 Collection of relief valve discharge. A means shall be provided to capture the discharge from a relief valve and convey it to the sanitary drainage system or exterior of the structure either by gravity or a pumped discharge.

Exceptions:

1. Replacements for existing water heaters.
2. Where a water sensing device wired to a normally closed solenoid valve installed in the water supply piping to the heater is placed within the water heater drain pan.

30. A new **Section 504.6.1.1 Pumped discharge of relief valve collection** is added to read as follows:

504.6.1.1 Pumped discharge of relief valve collection. Pumps used to discharge the clear water collection of relief valves shall have an operating temperature equal to or exceeding that of the relief valve discharge temperature and shall have a gpm rating equal to or greater than the discharge of the relief valve.

31. **Section 504.7 Required pan** is amended to read as follows:

504.7 Required pan. Where a storage tank-type water heater or a hot water storage tank is installed in a location where water leakage from the tank will cause damage, the tank shall be installed in a pan constructed of one of the following:

1. Galvanized steel or aluminum of not less than 0.0236 inch (0.6010 mm) in thickness.
2. Plastic not less than 0.036 inch (0.9 mm) in thickness.
3. Other *approved* materials.

A plastic pan installed beneath a gas-fired water heater shall be constructed of material having a flame spread index of 25 or less and a smoked-developed index of 450 or less when tested in accordance with ASTM E84 or UL723.

Water heaters installed in pans shall comply with Section 314.2.3.2.

Unless the pan is constructed of material having a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723.

Exception: Replacements for water heaters that did not have a pan previously installed to code in effect at the time of original installation.

32. **Section 603.1 Size of water service pipe** is amended to read as follows:

603.1 Size of water service pipe. The water service pipe shall be sized to supply water to the structure in the quantities and at the pressures required in this code. The water service pipe shall not be less than ¾ inch (19.1 mm) in diameter. In residential occupancies, the water service pipe shall be sized according to Appendix E.

33. A new **Section 603.1.1 Water service line freeze protection** is added to read as follows:

603.1.1 Water service line freeze protection. Water service lines shall be protected from freezing by being installed 54 inches deep below grade or by other approved methods.

34. **Section 604.1 General** is amended to read as follows:

604.1 General. The design of the water distribution system shall conform to *accepted engineering practice*. Methods utilized to determine pipe sizes shall be *approved*. In residential occupancies, the water distribution system shall be sized according to Appendix E.

35. **Section 604.4 Maximum flow and water consumption** and **TABLE 604.4 MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS** are amended to read as follows, with the exceptions being deleted in their entirety:

604.4 Maximum flow and water consumption. The maximum water consumption flow rates and quantities for all plumbing fixtures and fixture fittings shall be in accordance with Table 604.4, and such fixtures and fittings shall be Environmental Protection Agency (EPA) WaterSense® labeled fixtures, excluding fixtures and fixture fittings that are not labeled under the WaterSense® program.

~~**Exceptions:**~~

~~1. Blowout design water closets having a water consumption not greater than 31/2 gallons (13 L) per flushing cycle.~~
~~2. Vegetable sprays.~~
~~3. Clinical sinks having a water consumption not greater than 41/2 gallons (17 L) per flushing cycle.~~
~~4. Service sinks.~~
~~5. Emergency showers.~~

TABLE 604.4 MAXIMUM FLOW RATES AND CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OF QUANTITY[b]
Lavatory faucet, private	~~2.2 gpm at 60 psi~~ 0.5 gallon per minute at 60 psi for non-residential occupancy 1.5 gallons per minute at 60 psi for Groups R and I occupancies
Lavatory faucet, public (metering)	0.25 gallon per metering cycle minimum 10 second cycle setting for water run time
~~Lavatory, public (other than metering)~~	~~0.5 gpm at 60 psi~~
Shower head [a,c] (includes handheld)	~~2.0 gpm at 80 psi~~ 1.8 gallons per minute at 80 psi 2.0 gallons per minute at 80 psi for Groups I and E occupancies
Sink faucet	~~2.2 gpm at 60 psi~~ 1.8 gallons per minute at 60 psi
Urinal	~~1.0 gallon per flushing cycle~~ 0.5 gallons per flushing cycle
Residential Water closet	~~1.6 gallons per flushing cycle~~ 1.1 gallons per flushing cycle, with minimum MaP (solid-waste removal performance threshold) of 600 grams. Dual Flush gallons per flushing cycle: Average of three flushes (two reduced flushes and one full flush). 1.28 gallons per flushing cycle water closet allowed for existing buildings not increasing the building size.
Commercial Water Closet	1.28 gallons per flushing cycle, with minimum MaP (solid-waste removal performance threshold) of 600 grams. Dual Flush gallons per flushing cycle: Average of three flushes (two reduced flushes and
Pre-rinse Spray Valves (food service)	Must meet federal Department of Energy WaterSense® criteria per 10 CFR 431, subpart O
Bar sinks (food service)	2.2 gallons per minute at 60 psi

For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. A hand-held shower spray is a shower head.

b. Consumption tolerances shall be determined from referenced standards.

c. Shower heads shall comply with all requirements for high-efficiency showerheads in ASME A112.18.1-2020/CSA B125.1

36. **Section 605.15.2 Solvent cementing** is deleted in its entirety.

~~**605.15.2 Solvent cementing.** Joint surfaces shall be clean and free from moisture, and an *approved* primer shall be applied. Solvent cement, orange in color and conforming to ASTM F493, shall be applied to joint surfaces. The joint shall be made while the cement is wet, and in accordance with ASTM D2855. Solvent cement joints shall be permitted above or below ground.~~

~~**Exception:** A primer is not required where all of the following conditions apply:~~

1. ~~The solvent cement used is *third-party certified* as conforming to ASTM F493.~~
2. ~~The solvent cement used is yellow in color.~~
3. ~~The solvent cement is used only for joining ½-inch (12.7 mm) through 2-inch-diameter (51 mm) CPVC/AL/CPVC pipe and CPVC fittings.~~
4. ~~The CPVC fittings are manufactured in accordance with ASTM D2846.~~
5. ~~The joint is made in accordance with ASTM F3328.~~

37. **Section 608.9.1 Signage required** is deleted in its entirety and replaced with the following:

~~**608.9.1 Signage required.** Nonpotable water outlets, such as hose connections, open-ended pipes and faucets, shall be identified with signage that reads as follows: "Nonpotable water is utilized for [application name]. CAUTION: NONPOTABLE WATER – DO NOT DRINK." The words shall be legibly and indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material or shall be indelibly printed on the fixture. The letters of the words shall be not less than 0.5 inch (12.7 mm) in height and in colors in contrast to the background on which they are applied. In addition to the required wordage, the pictograph shown in Figure 608.9.1 shall appear on the required signage.~~

608.9.1 Signage required.

1. Plumbing fixtures flushed with nonpotable water shall be identified with signage that reads as follows:

   "Nonpotable water is used to flush this fixture. CAUTION: NONPOTABLE WATER – DO NOT DRINK."

   In addition to the required wordage, the pictograph shown in figure 608.8.1 shall appear on the required signage.

2. A permanent warning sign must also be visible at all fixtures from which graywater is collected. The sign must state that:

"WATER FROM THIS FIXTURE IS REUSED. CHEMICALS, EXCRETA, PETROLEUM OILS AND HAZARDOUS MATERIALS MUST NOT BE DISPOSED DOWN THIS DRAIN."

3. For both types of fixtures indicated in subsections 1.2(E)(1)(b)(1)(i) and (ii), the words shall be legibly and indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material or shall be indelibly printed on the fixture. The letters of the words shall be not less than 0.5 inch (12.7 mm) in height and in colors in contrast to the background on which they are applied.

38. **Section 608.9.2 Distribution pipe labeling and marking** is deleted in its entirety and replaced with the following:

~~**608.9.2 Distribution pipe labeling and marking.** Non-potable distribution piping shall be purple in color and shall be embossed, or integrally stamped or marked, with the words: "CAUTION: NONPOTABLE WATER – DO NOT DRINK" or the piping shall be installed with a purple identification tape or wrap. Pipe identification shall include the contents of the piping system and an arrow indicating the direction of flow. Hazardous piping systems shall also contain information addressing the nature of the hazard. Pipe identification shall be repeated at intervals not exceeding 25 feet (7620 mm) and at each point where the piping passes through a wall, floor or roof. Lettering shall be readily observable within the room or space where the piping is located.~~

608.9.2 Distribution pipe labeling and marking. Nonpotable distribution piping shall be purple in color or the piping shall be installed with a purple identification tape or wrap the entire length of the piping and shall be embossed, or integrally stamped or marked, with the words: "CAUTION: NONPOTABLE WATER – DO NOT DRINK".

39. A new **Section 608.17.2.1 Essentially nontoxic fluid conditioning chemical** is added to read as follows:

608.17.2.1 Essentially nontoxic fluid conditioning chemical. When the conditioning chemical introduced is an essentially nontoxic transfer fluid the potable supplier to the boiler shall, at a minimum, be equipped with a backflow preventer with an intermediate atmospheric vent complying with ASSE 1012 or CSA B64.3.

40. A new **Section 608.17.11 Connection to graywater system or reclaimed water system** is added to read as follows:

608.17.11 Connection to graywater system or reclaimed water system. The potable water system connection to a graywater system must be protected against backflow by an air gap or reduced pressure principle backflow prevention assembly.

41. **Section 705.10.2 Solvent cementing** is deleted in its entirety.

~~**705.10.2 Solvent cementing.** Joint surfaces shall be clean and free from moisture. A purple primer that conforms to ASTM F656 shall be applied. Solvent cement not purple in color and conforming to ASTM D2564, CSA B137.3, CSA B181.2 or CSA B182.1 shall be applied to all joint surfaces. The joint shall be made while the cement is wet and shall be in accordance with ASTM D2855. Solvent-cement joints shall be permitted above or below ground.~~

~~**Exception:** A primer is not required where both of the following conditions apply:~~

~~1. The solvent cement used is *third-party certified* as conforming to ASTM D2564.~~
~~2. The solvent cement is used only for joining PVC drain, waste and vent pipe and fittings in nonpressure applications in sizes up to and including 4 inches (102 mm) in diameter.~~
~~3. The joint is made in accordance with ASTM F3328.~~

42. **Section 706.3 Installation of fittings** is amended to read as follows:

. . .

Exception: Back-to-back water closet connections to double sanitary tees shall be permitted where the horizontal developed length between the outlet of the water closet and the connection to the double sanitary tee pattern is 18 inches (457 mm) or greater. Fixture crosses will not be required to meet this exception.

43. **TABLE 706.3 FITTINGS FOR CHANGE IN DIRECTION** is amended by deleting footnotes a and b:

TABLE 706.3 FITTINGS FOR CHANGE IN DIRECTION			
TYPE OF FITTING PATTERN	**CHANGE IN DIRECTION**		
	Horizontal to vertical	**Vertical to horizontal**	**Horizontal to horizontal**
. . .	. . .	. . .	. . .
Quarter bend	X	X~~[a]~~	X~~[a]~~
Short sweep	X	X~~[a,b]~~	X~~[a]~~
. . .	. . .	. . .	. . .

For SI: 1 inch = 25.4 mm.

~~a. The fittings shall only be permitted for a 2-inch or smaller fixture drain.~~
~~b. Three inches or larger.~~
c. For a limitation on double sanitary tees, see Section 706.3.

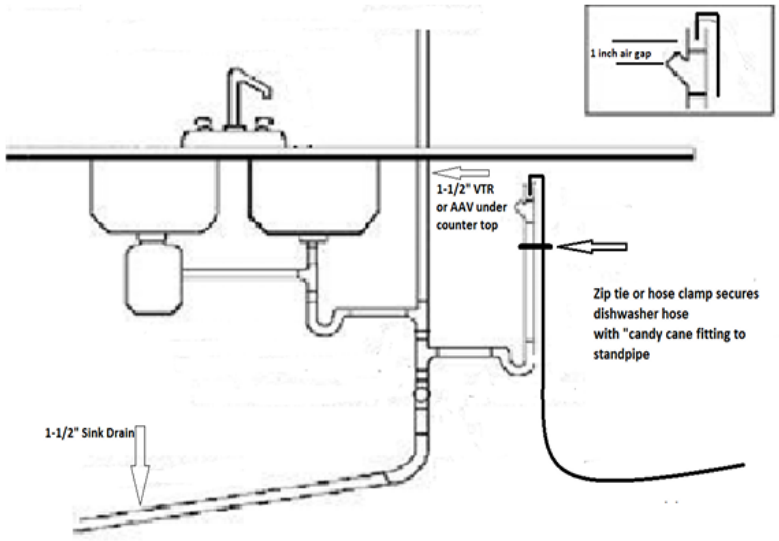
44. **Section 708.1.3 Building drain and building sewer junction** is amended to read as follows:

708.1.3 Building drain and building sewer junction. The junction of the

building drain and the *building sewer* shall be served by a cleanout that is located at the junction or within 10 feet (3048 mm) of the *developed length* of piping upstream of the junction. For the requirements of this section, the removal of the water closet shall not be required to provide cleanout access. When the cleanout is installed at the junction of the *building drain* and *building sewer*, it shall be an approved two way fitting with a single riser not to exceed 4 feet in depth or a two riser cleanout using back to back combination fittings or equal of schedule 40 material.

45. A new **Section 802.1.8 Domestic dishwashing machines** is added to read as follows:

802.1.8 Domestic dishwashing machines. Domestic dishwashing machines may be connected to a separately trapped stand pipe provided with an air break (with drain hose secured to the underside of the counter top) or air gap as shown in the illustration below. Refer to 2024 IPC 409.4 for additional waste connections.



46. **Section 802.3 Installation** is amended to read as follows:

802.3 Installation. Indirect waste piping shall discharge through an *air gap* or *air break* into a waste receptor. Waste receptors shall be trapped and vented and shall connect to the building drainage system. ~~Indirect waste piping that exceeds 30 inches (762 mm) in *developed length* measured horizontally, or 54 inches (1372 mm) in total developed length, shall be trapped.~~

Exception: Where a waste receptor receives only clearwater waste and does not directly connect to a sanitary drainage system, the receptor shall not require a trap.

47. **Section 802.4 Waste receptors** is amended by adding a new exception to read as follows:

802.4 Waste receptors. For other than hub drains that receive only clear-water waste and standpipes, a removable strainer or basket shall cover the outlet of waste receptors. Waste receptors shall not be installed in concealed spaces. Waste receptors shall not be installed in plenums, crawl spaces, attics, interstitial spaces above ceilings and below floors. *Ready access* shall be provided to waste receptors.

Exception: Where equipment is installed in a crawl space, a waste receptor shall be allowed with an approved backwater valve installed.

48. **Section 903.1.1 Roof extension unprotected** is amended to read as follows:

903.1.1 Roof extension unprotected. Open vent pipes that extend through a roof shall be terminated not less than ~~**[NUMBER]**~~ 6 inches (mm) above the roof.

49. **Section 903.2 Frost closure** is deleted in its entirety.

~~**903.2 Frost closure.** Where the 97.5 percent value for outdoor design temperature is 0°F (-18°C) or less, vent extensions through a roof or wall shall be not less than 3 inches (76 mm) in diameter. Any increase in the size of the vent shall be made not less than 1 foot (305 mm) inside the thermal envelope of the building.~~

50. **Section 912.1 Horizontal wet vent permitted** is amended by adding a new exception to read as follows:

912.1 Horizontal wet vent permitted. Any combination of fixtures within two *bathroom groups* located on the same floor level is permitted to be vented by a horizontal wet vent. The wet vent shall be considered to be the vent for the fixtures and shall extend from the connection of the dry vent along the direction of the flow in the drain pipe to the most downstream *fixture drain* connection to the *horizontal branch drain*. Each wet-vented *fixture drain* shall connect independently to the horizontal wet vent. Only the fixtures within the *bathroom groups* shall connect to the wet-vented *horizontal branch drain*. Any additional fixtures shall discharge downstream of the horizontal wet vent.

Exception: Fixtures other than those considered to be bathroom group fixtures, of equivalent drainage fixture units, may be included in the wet vented section provided the total number of drainage fixture units does not exceed the total number included in two bathroom groups and the fixtures not considered bathroom fixtures are valued at one drainage fixture unit or less.

51. **Section 1002.1 Fixture traps** is amended by adding a new exception #5 to read as follows:

. . .

Exceptions:

. . .

5. Trench and floor drains connected to a sand oil interceptor need not be individually trapped provided the drain piping from the trench or floor drains is turned down after entering the interceptor so the discharge point is a minimum of 4 inches below the standing water level of the interceptor.

52. **Section 1003.1 Where required** is amended by adding a new exception to read as follows:

1003.1 Where required. Interceptors and separators shall be provided to prevent the discharge of oil, grease, sand and other substances harmful or hazardous to the *public sewer*, the private sewage system or the sewage treatment plant or processes.

Exception: Where special regulations exist by the local wastewater and/or sanitation district into which the grease trap or interceptor effluent is transported and/or treated. These regulations may supersede this requirement.

53. **Section 1003.3.2 Food waste disposers restriction** is amended to read as follows:

1003.3.2 Food waste disposers restriction. A food waste disposer shall not discharge to a grease interceptor, except when using a gravity interceptor equal to or greater than 500 gallon capacity.

54. **Section 1101.3 Prohibited drainage** is amended to read as follows:

1101.3 Prohibited drainage. Storm water shall not be drained into *sewers* intended for sewage only. Storm water from roof drains shall not discharge over public walkways except when an approved grated trough or trench drain sized to accept the calculated discharge is installed in the walkway. The discharge shall be diverted vertically from a height not greater than 12 inches to the grate.

Exception: Secondary drains.

55. **Section 1301.2.2 Filtration Required** is amended to read as follows:

1301.2.2 Filtration required. Nonpotable water utilized for water closet and urinal flushing applications shall be filtered by a 100-micron (0.1 mm) or finer filter.

Exception: Reclaimed water sources shall not be required to comply with these requirements. Graywater treatment systems installed in accordance with Article V, Division 3 of City Code do not need to meet additional filtration requirements.

56. A new **Section 1301.3.1 Distribution pipe labeling and marking** is added to read as follows:

1301.3.1. Distribution pipe labeling and marking. Nonpotable distribution piping shall comply with Section 608.9.2.

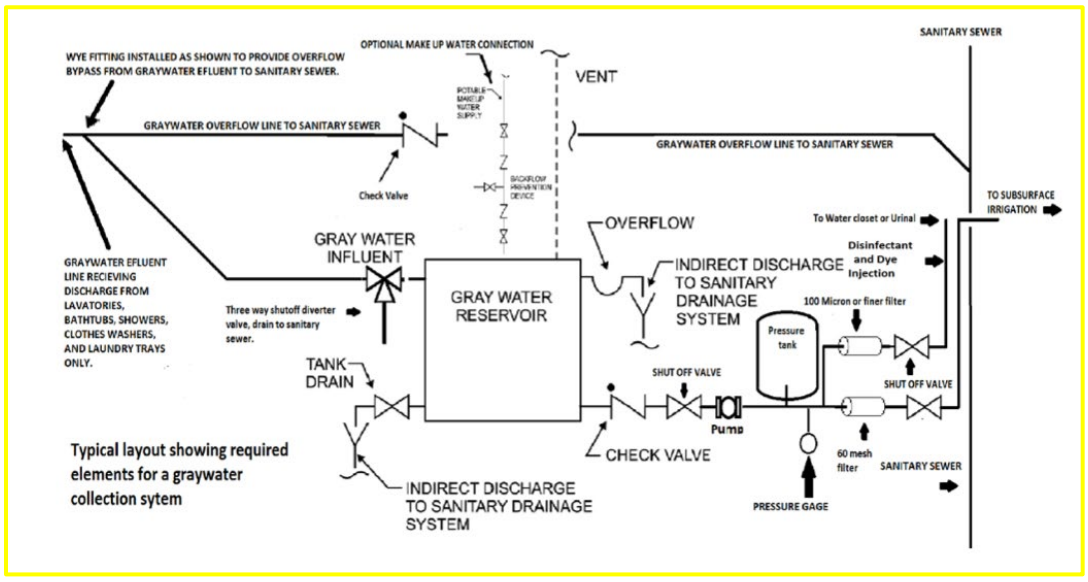
57. A new **Section 1301.3.2 Signage required graywater treatment works** is added to read as follows:

1301.3.2 Signage required graywater treatment works. For each room that contains graywater treatment works components, a sign that says "CAUTION GRAYWATER TREATMENT WORKS, DO NOT DRINK, DO NOT CONNECT TO THE POTABLE DRINKING WATER SYSTEM. NOTICE: CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM" must be posted on any door providing entrance to the room.

58. A new **Figure 1301.4 TYPICAL GRAYWATER COLLECTION SYSTEM** is added to read as follows:

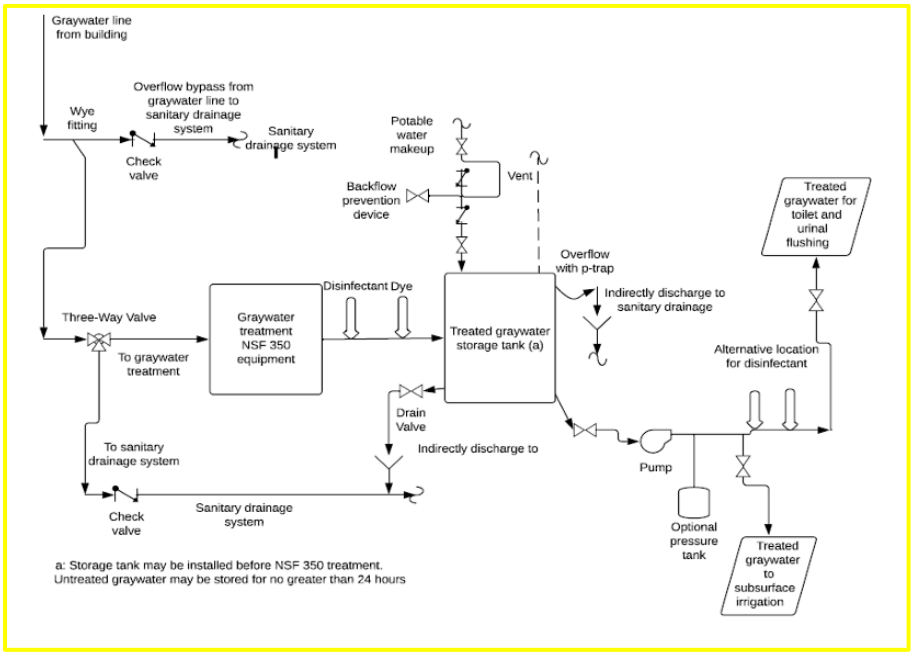
Figure 1301.4 TYPICAL GRAYWATER COLLECTION SYSTEM

(This figure is typical only, not a schematic)



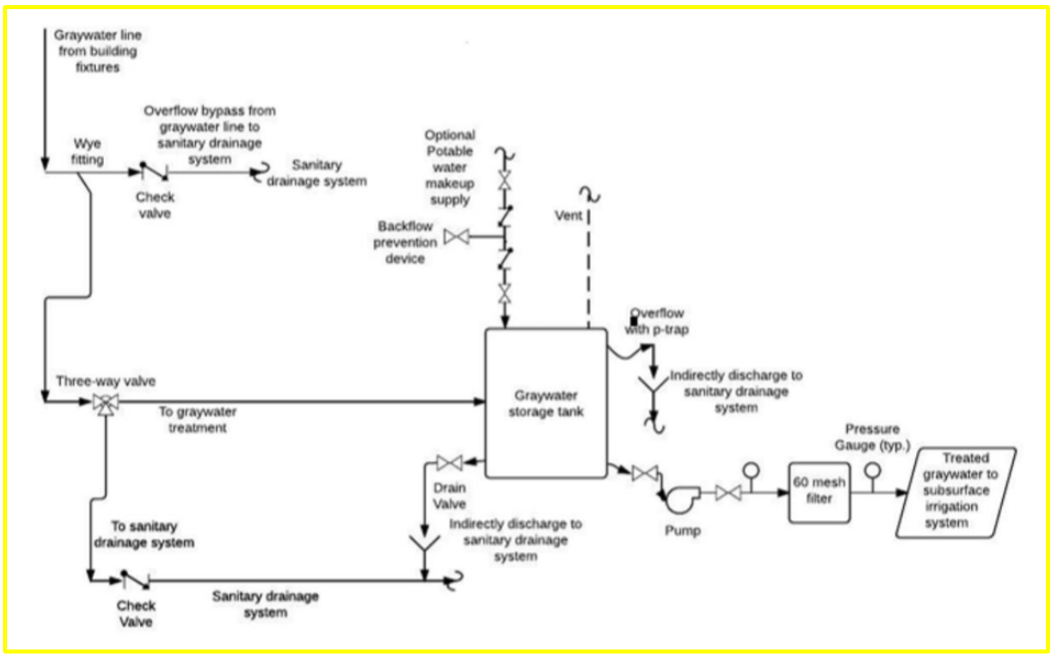
59. A new **Figure 1301.5 TYPICAL GRAYWATER SYSTEM FOR TOILET AND URINAL FLUSHING** is added to read as follows:

Figure 1301.5 TYPICAL GRAYWATER SYSTEM FOR TOILET AND URINAL FLUSHING



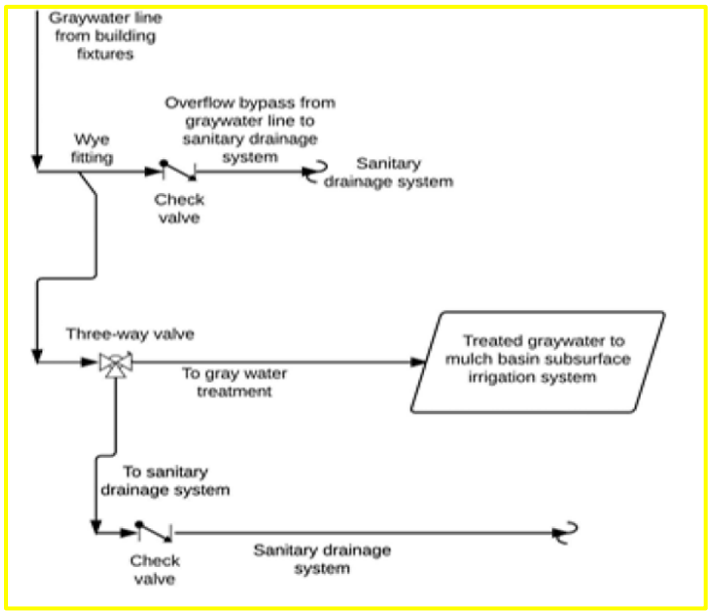
60. A new **Figure 1301.6 TYPICAL GRAYWATER SYSTEM FOR DISBURSED SUBSURFACE IRRIGATION SYSTEM** is added to read as follows:

Figure 1301.6 TYPICAL GRAYWATER SYSTEM FOR DISBURSED SUBSURFACE IRRIGATION SYSTEM



61. A new **Figure 1301.7 TYPICAL GRAYWATER SYSTEM FOR MULCH BASIN SUBSURFACE IRRIGATION** is added to read as follows:

Figure 1301.7 TYPICAL GRAYWATER SYSTEM FOR MULCH BASIN SUBSURFACE IRRIGATION



62. **Section 1301.9.2 Materials** is amended by adding an exception to read as follows:

1301.9.2 Materials. Where collected on-site, water shall be collected in an *approved* tank constructed of durable, nonabsorbent and corrosion-resistant materials. The storage tank shall be constructed of materials compatible with any disinfection systems used to treat water upstream of the tank and with any systems used to maintain water quality in the tank. Wooden storage tanks that are not equipped with a makeup water source shall be provided with a flexible liner.

Exception: Tanks are not required if the graywater use is comprised of only subsurface irrigation and flows into a mulch basin system, where the mulch basin volume is three times the anticipated average daily flow.

63. **Section 1301.9.5 Overflow** is deleted in its entirety and replaced with the following:

~~**1301.9.5 Overflow.** The storage tank shall be equipped with an overflow pipe having a diameter not less than that shown in Table 606.5.4. The overflow pipe shall be protected from insects or vermin and shall discharge in a manner consistent with storm water runoff requirements of the jurisdiction. The overflow pipe shall discharge at a sufficient distance from the tank to avoid damaging the tank foundation or the adjacent property. Drainage from overflow pipes shall be directed to prevent freezing on roof walkways. The overflow drain shall not be equipped with a shutoff valve. A cleanout shall be provided on each overflow pipe in accordance with Section 708.~~

Section 1301.9.5 Overflow. The storage tank shall be equipped with an overflow pipe having a diameter not less than that shown in Table 606.5.4. The overflow pipe shall be protected from insects or vermin. The overflow drain shall not be equipped with a shutoff valve and shall discharge into the sanitary sewer either directly, or indirectly with a trap in the drain line to keep odors from escaping the tank. A cleanout shall be provided on each overflow pipe in accordance with Section 708.

64. **Section 1301.9.8 Draining of tanks** is amended to read as follows:

1301.9.8 Draining of tanks. Tanks shall be provided with a means of emptying the contents for the purpose of service or cleaning. Tanks shall be drained by using a pump or by a drain located at the lowest point in the tank. The tank drain pipe shall discharge into the sanitary sewer either directly, or indirectly with a trap in the drain line to keep odors from escaping the tank ~~as required for overflow pipes~~ and shall not be smaller in size than specified in Table 606.5.7. Not less than one cleanout shall be provided on each drain pipe in accordance with Section 708.

65. **Section 1301.11 Trenching requirements for nonpotable water piping** is deleted in its entirety.

~~**1301.11 Trenching requirements for nonpotable water piping.** Nonpotable water collection and distribution piping and reclaimed water piping shall be separated from the *building sewer* and potable water piping underground by 5 feet (1524 mm) of undisturbed or compacted earth. Nonpotable water collection and distribution piping shall not be located in, under or above cesspools, septic tanks, septic tank drainage fields or seepage pits. Buried nonpotable water piping shall comply with the requirements of Section 306.~~

~~**Exceptions:**~~

~~1. The required separation distance shall not apply where the bottom of the nonpotable water pipe within 5 feet (1524 mm) of the *sewer* is not less than 12 inches (305 mm) above the top of the highest point of the *sewer* and the pipe materials conform to Table 702.3.~~

~~2. The required separation distance shall not apply where the bottom of the potable water service pipe within 5 feet (1524 mm) of the nonpotable water pipe is not less than 12 inches (305 mm) above the top of the highest point of the nonpotable water pipe and the pipe materials comply with the requirements of Table 605.4.~~

~~3. Nonpotable water pipe is permitted to be located in the same trench with a *building sewer*, provided that such *sewer* is constructed of materials that comply with the requirements of Table 702.2.~~

~~4. The required separation distance shall not apply where a nonpotable water pipe crosses a *sewer* pipe, provided that the pipe is sleeved to not less than 5 feet (1524 mm) horizontally from the *sewer* pipe centerline on both sides of such crossing, with pipe materials that comply with Table 702.2.~~

~~5. The required separation distance shall not apply where a potable water service pipe crosses a nonpotable water pipe, provided that the potable water service pipe is sleeved for a distance of not less than 5 feet (1524 mm) horizontally from the centerline of the nonpotable pipe on both sides of such crossing, with pipe materials that comply with Table 702.2.~~

~~6. Irrigation piping located outside of a building and downstream of the backflow preventer is not required to meet the trenching requirements where nonpotable water is used for outdoor applications.~~

66. **Section 1301.12 Outdoor outlet access** is deleted in its entirety.

~~**1301.12 Outdoor outlet access.** Sill cocks, hose bibbs, wall hydrants, yard hydrants and other outdoor outlets supplied by nonpotable water shall be located in a locked vault or shall be operable only by means of a removable key.~~

67. **Section 1302.1 General** is amended to read as follows:

1302.1 General. The provisions of ASTM E2635 and Section 1302 shall govern the construction, installation, alteration and repair of on-site nonpotable water reuse systems for the collection, storage, treatment and distribution of on-site sources of nonpotable water as permitted by the jurisdiction. All plumbing systems utilizing nonpotable water reuse systems shall have a reduced pressure backflow preventer device installed at the water service entrance immediately downstream of the building water service shut off valve.

68. **Section 1302.6.1 Graywater used for fixture flushing** is amended to read as follows:

1302.6.1 Graywater used for fixture flushing. Graywater used for flushing water closets and urinals shall be disinfected and treated by an on-site water reuse treatment system complying with NSF 350. Graywater used for toilet and urinal flushing shall be dyed with blue or green food grade vegetable dye and be visibly distinct from potable water.

69. A new **Section 1302.7.3 Overflow** is added to read as follows:

1302.7.3 Overflow. Storage tank for on-site nonpotable systems must include an overflow line without a shut off valve. The overflow line shall be connected to the sanitary sewer indirectly. The overflow line must be the same or larger diameter line than the tank influent line. The overflow line connected indirectly must be trapped to prevent the escape of gas vapors from the tank.

70. A new **Section 1302.7.4 Venting** is added to read as follows:

1302.7.4 Venting. Storage tank for on-site nonpotable systems must be vented. Indoor tanks must be vented to the atmosphere outside the building or connected to the plumbing vent system.

71. A new **Section 1302.7.5 Tank drains** is added to read as follows:

1302.7.5 Tank drains. Storage tank for on-site nonpotable systems must include a valved drain. The drain shall be indirectly connected to the sanitary sewer. The tank drainline must be the same or larger diameter line than the tank influent line.

72. **Section 1302.8.1 Bypass valve** is amended to read as follows:

1302.8.1 ~~Bypass valve~~System bypass. One three-way diverter valve listed and labeled to NSF 50 or other *approved* device shall be installed on collection piping upstream of ~~each storage tank, or drain field~~any graywater treatment equipment, as applicable, to divert untreated on-site reuse sources to the sanitary *sewer* to allow servicing and inspection of the system. Bypass valves shall be installed downstream of fixture traps and vent connections. Bypass valves shall be marked to indicate the direction of flow, connection ~~and~~ graywater treatment works, storage tank or ~~drainfield connection~~and graywater subsurface irrigation systems. Bypass valves shall be ~~provided with access that allows for removal~~installed in accessible locations. Two shutoff valves shall not be installed to serve as a bypass valve. In addition to the bypass valve a series of drainage fittings shall be installed in the collection piping upstream of the bypass valve in a configuration that will allow the graywater from the plumbing fixtures to automatically flow directly into the sanitary sewer system in the event the filter or other parts of the collection system become clogged to the point of not allowing the effluent free flow through the system. The overflow line connected to the sanitary sewer shall be equipped with a backwater valve.

73. **SECTION 1303 NONPOTABLE RAINWATER COLLECTION AND DISTRIBUTION SYSTEMS** is deleted in its entirety.

~~SECTION 1303 NONPOTABLE RAINWATER COLLECTION AND DISTRIBUTION SYSTEMS~~

~~1303.1 General.~~ ~~The provisions of Section 1303 shall govern the construction, installation, alteration and repair of rainwater collection and conveyance systems for the collection, storage, treatment and distribution of rainwater for nonpotable applications, as permitted by the jurisdiction.~~

~~1303.1.1 Fire protection systems.~~ ~~The storage, treatment and distribution of nonpotable water to be used for fire protection systems shall be in accordance with the *International Fire Code*.~~

~~1303.2 Collection surface.~~ ~~Rainwater shall be collected only from above-ground impervious roofing surfaces constructed from *approved* materials and where *approved*, vehicular parking or pedestrian walking surfaces.~~

~~1303.3 Debris excluders.~~ ~~Downspouts and leaders shall be connected to a debris excluder or equivalent device that is designed to remove leaves, sticks, pine needles and similar debris to prevent such from entering the storage tank.~~

~~1303.4 First-flush diverter.~~ ~~First-flush diverters shall operate automatically and shall not rely on manually operated valves or devices. Diverted rainwater shall not be drained to the roof surface, and shall be discharged in a manner consistent with the storm water runoff requirements of the jurisdiction. First-flush diverters shall be provided with access for maintenance and service.~~

~~1303.5 Roof gutters and downspouts.~~ ~~Gutters and downspouts shall be constructed of materials that are compatible with the collection surface and the rainwater quality for the desired end use. Joints shall be watertight.~~

~~1303.5.1 Slope.~~ ~~Roof gutters, leaders and rainwater collection piping shall slope continuously toward collection inlets. Gutters and downspouts shall have a slope of not less than ⅛ inch per foot (10.4 mm/m) along their entire length, and shall not permit the collection or pooling of water at any point.~~

~~Exception:~~ ~~Siphonic drainage systems installed in accordance with the manufacturer's instructions shall not be required to have a slope.~~

~~1303.5.2 Size.~~ ~~Gutters and downspouts shall be installed and sized in accordance with Section 1106.6 and local rainfall rates.~~

~~1303.5.3 Cleanouts.~~ ~~Cleanouts shall be provided in the water conveyance system to allow access to all filters, flushes, pipes and downspouts.~~

1303.6 Drainage. Water drained from the roof washer or debris excluder shall not be drained to the sanitary sewer. Such water shall be diverted from the storage tank and discharge in a location that will not cause erosion or damage to property in accordance with the International Building Code. Roof washers and debris excluders shall be provided with an automatic means of self-draining between rain events, and shall not drain onto roof surfaces.

1303.7 Collection pipe. Rainwater collection and conveyance systems shall utilize drainage piping *approved* for use within plumbing drainage systems to collect and convey captured rainwater. Vent piping *approved* for use within plumbing venting systems shall be utilized for vents within the rainwater system. Collection and vent piping materials shall comply with Section 702.

1303.7.1 Installation. Collection piping conveying captured rainwater shall be installed in accordance with Section 704.

1303.7.2 Joints. Collection piping conveying captured rainwater shall utilize joints *approved* for use with the distribution piping and appropriate for the intended applications as specified in Section 705.

1303.7.3 Size. Collection piping conveying captured rainwater shall be sized in accordance with drainage sizing requirements specified in Section 710.

1303.7.4 Marking. Additional marking of collection piping conveying captured rainwater for reuse shall not be required beyond that required for sanitary drainage, waste and vent piping by Chapter 7.

1303.8 Filtration. Collected rainwater shall be filtered as required for the intended end use. Filters shall be provided with *access* for inspection and maintenance. Filters shall utilize a pressure gauge or other *approved* method to provide indication when a filter requires servicing or replacement. Filters shall be installed with shutoff valves installed immediately upstream and downstream to allow for isolation during maintenance.

1303.9 Disinfection. Where the intended application for rainwater requires disinfection or other treatment or both, it shall be disinfected as needed to ensure that the required water quality is delivered at the point of use. Where chlorine is used for disinfection or treatment, water shall be tested for residual chlorine in accordance with ASTM D1253. The levels of residual chlorine shall not exceed that allowed for the intended use in accordance with the requirements of the jurisdiction.

1303.10 Storage tanks. Storage tanks utilized in nonpotable rainwater collection and conveyance systems shall comply with Sections 1301.9 and 1303.10.1 through 1303.10.3.

1303.10.1 Location. Storage tanks shall be located with a minimum horizontal distance between various elements as indicated in Table 1303.10.1.

TABLE 1303.10.1 LOCATION OF RAINWATER STORAGE TANKS	
ELEMENT	**MINIMUM HORIZONTL DISTANCE FROM STORAGE TANK (feet)**
Critical root zone (CRZ) of protected trees	2
Lot line adjoining private lots	5
Seepage pits	5
Septic tanks	5
For SI: 1 foot = 304.8 mm.	

1303.10.2 Inlets. Storage tank inlets shall be designed to introduce collected rainwater into the tank with minimum turbulence, and shall be located and designed to avoid agitating the contents of the storage tank.

1303.10.3 Outlets. Outlets shall be located not less than 4 inches (102 mm) above the bottom of the storage tank and shall not skim water from the surface.

1303.11 Valves. Valves shall be supplied on rainwater collection and conveyance systems in accordance with Section 1303.11.1.

1303.11.1 Backwater valve. Backwater valves shall be installed on each overflow and tank drain pipe. Backwater valves shall be in accordance with Section 714.

1303.12 Pumping and control system. Mechanical equipment including pumps, valves and filters shall be provided with *access* that allows for removal in order to perform repair, maintenance and cleaning. The minimum flow rate and flow pressure delivered by the pumping system shall be appropriate for the application and in accordance with Section 604.

1303.13 Water pressure-reducing valve or regulator. Where the water pressure supplied by the pumping system exceeds 80 psi (552 kPa) static, a pressure-reducing valve shall be installed to reduce the pressure in the rainwater distribution system piping to 80 psi (552 kPa) static or less. Pressure-reducing valves shall be specified and installed in accordance with Section 604.8.

1303.14 Distribution piping. Distribution piping utilized in rainwater collection and conveyance systems shall comply with Sections 1303.14.1 through 1303.14.3.

Exception: Irrigation piping located outside of the building and downstream of a backflow preventer.

1303.14.1 Materials, joints and connections. Distribution piping shall conform to the standards and requirements specified in Section 605 for nonpotable water.

1303.14.2 Design. Distribution piping systems shall be designed and sized in accordance with Section 604 for the intended application.

1303.14.3 Labeling and marking. Nonpotable rainwater distribution piping labeling and marking shall comply with Section 608.9.

1303.15 Tests and inspections. Tests and inspections shall be performed in accordance with Sections 1303.15.1 through 1303.15.9.

1303.15.1 Roof gutter inspection and test. Roof gutters shall be inspected to verify that the installation and slope are in accordance with Section 1303.5.1. Gutters shall be tested by pouring not less than 1 gallon (3.8 L) of water into the end of the gutter opposite the collection point. The gutter being tested shall not leak and shall not retain standing water.

1303.15.2 First-flush diverter test. First-flush diverters shall be tested by introducing water into the collection system upstream of the diverter. Proper diversion of the first amount of water shall be in accordance with the requirements of Section 1303.4.

1303.15.3 Collection pipe and vent test. Drain, waste and vent piping used for rainwater collection and conveyance systems shall be tested in accordance with Section 312.

1303.15.4 Storage tank test. Storage tanks shall be tested in accordance with Section 1301.9.10.

1303.15.5 Water supply system test. The testing of makeup water supply piping and distribution piping shall be conducted in accordance with Section 312.6.

1303.15.6 Inspection and testing of backflow prevention assemblies. The testing of backflow preventers and backwater valves shall be conducted in accordance with Section 312.11.

1303.15.7 Inspection of vermin and insect protection. Inlets and vents to the system shall be inspected to verify that each is protected to prevent the entrance of insects and vermin into the storage tank and piping systems in accordance with Section 1301.7.

~~**1303.15.8 Water quality test.** The quality of the water for the intended application shall be verified at the point of use in accordance with the requirements of the jurisdiction.~~

~~**1303.15.9 Collected raw rainwater quality.** ASTM E2727 shall be used to determine what, if any, site conditions impact the quality of collected raw rainwater and whether those site conditions require treatment of the raw water for the intended end use or make the water unsuitable for specific end uses.~~

~~**1303.16 Operation and maintenance manuals.** Operation and maintenance manuals shall be supplied with rainwater collection and conveyance systems in accordance with Sections 1303.16.1 through 1303.16.4.~~

~~**1303.16.1 Manual.** A detailed operations and maintenance manual shall be supplied in hardcopy form with all systems.~~

~~**1303.16.2 Schematics.** The manual shall include a detailed system schematic, and the locations and a list of all system components, including manufacturer and model number.~~

~~**1303.16.3 Maintenance procedures.** The manual shall provide a maintenance schedule and procedures for all system components requiring periodic maintenance. Consumable parts, including filters, shall be noted along with part numbers.~~

~~**1303.16.4 Operations procedures.** The manual shall include system startup and shutdown procedures, as well as detailed operating procedures.~~

74. **CHAPTER 14 SUBSURFACE GRAYWATER SOIL ABSORPTION SYSTEMS** is deleted in its entirety.

~~**CHAPTER 14 SUBSURFACE GRAYWATER SOIL ABSORPTION SYSTEMS**~~

~~**SECTION 1401 GENERAL**~~

~~**1401.1 Scope.** The provisions of this chapter shall govern the materials, design, construction and installation of subsurface graywater soil absorption systems connected to nonpotable water from on-site water reuse systems.~~

~~**1401.2 Materials.** Above-ground drain, waste and vent piping for subsurface graywater soil absorption systems shall conform to one of the standards listed in Table 702.1. Subsurface graywater soil absorption systems, underground building drainage and vent pipe shall conform to one of the standards listed in Table 702.2.~~

1401.3 Tests. Drain, waste and vent piping for subsurface graywater soil absorption systems shall be tested in accordance with Section 312.

1401.4 Inspections. Subsurface graywater soil absorption systems shall be inspected in accordance with Section 111.

1401.5 Disinfection. Disinfection shall not be required for on-site nonpotable water reuse for subsurface graywater soil absorption systems.

1401.6 Coloring. On-site nonpotable water reuse for subsurface graywater soil absorption systems shall not be required to be dyed.

SECTION 1402 SYSTEM DESIGN AND SIZING

1402.1 Sizing. The system shall be sized in accordance with the sum of the output of all water sources connected to the subsurface graywater soil absorption system. Where graywater collection piping is connected to subsurface landscape irrigation systems, graywater output shall be calculated according to the gallons-per-day-per-occupant number based on the type of fixtures connected. The graywater discharge shall be calculated by the following equation:

Equation 14-1 $C = A \times B$

where:

A = Number of occupants:

Residential—Number of occupants shall be determined by the actual number of occupants, but not less than two occupants for one bedroom and one occupant for each additional bedroom. Commercial—Number of occupants shall be determined by the International Building Code.

B = Estimated flow demands for each occupant:

Residential—25 gallons per day (94.6 Lpd) per occupant for showers, bathtubs and lavatories and 15 gallons per day (56.7 Lpd) per occupant for clothes washers or laundry trays. Commercial—Based on type of fixture or water use records minus the discharge of fixtures other than those discharging graywater.

C = Estimated graywater discharge based on the total number of occupants.

1402.2 Percolation tests. The permeability of the soil in the proposed absorption system shall be determined by percolation tests or permeability evaluation.

1402.2.1 Percolation tests and procedures. Not fewer than three percolation tests in each system area shall be conducted. The holes shall be spaced uniformly in relation to the bottom depth of the proposed absorption system.

More percolation tests shall be made where necessary, depending on system design.

1402.2.1.1 Percolation test hole. The test hole shall be dug or bored. The test hole shall have vertical sides and a horizontal dimension of 4 inches to 8 inches (102 mm to 203 mm). The bottom and sides of the hole shall be scratched with a sharp-pointed instrument to expose the natural soil. Loose material shall be removed from the hole and the bottom shall be covered with 2 inches (51 mm) of gravel or coarse sand.

1402.2.1.2 Test procedure, sandy soils. The hole shall be filled with clear water to not less than 12 inches (305 mm) above the bottom of the hole for tests in sandy soils. The time for this amount of water to seep away shall be determined, and this procedure shall be repeated if the water from the second filling of the hole seeps away in 10 minutes or less. The test shall proceed as follows: Water shall be added to a point not more than 6 inches (152 mm) above the gravel or coarse sand. Thereupon, from a fixed reference point, water levels shall be measured at 10-minute intervals for a period of 1 hour. Where 6 inches (152 mm) of water seeps away in less than 10 minutes, a shorter interval between measurements shall be used, but in no case shall the water depth exceed 6 inches (152 mm). Where 6 inches (152 mm) of water seeps away in less than 2 minutes, the test shall be stopped and a rate of less than 3 minutes per inch (7.2 s/mm) shall be reported. The final water level drop shall be used to calculate the percolation rate. Soils not meeting the requirements of this section shall be tested in accordance with Section 1402.2.1.3.

1402.2.1.3 Test procedure, other soils. The hole shall be filled with clear water, and a minimum water depth of 12 inches (305 mm) shall be maintained above the bottom of the hole for a 4-hour period by refilling whenever necessary or by use of an automatic siphon. Water remaining in the hole after 4 hours shall not be removed. Thereafter, the soil shall be allowed to swell not less than 16 hours or more than 30 hours. Immediately after the soil swelling period, the measurements for determining the percolation rate shall be made as follows: any soil sloughed into the hole shall be removed and the water level shall be adjusted to 6 inches (152 mm) above the gravel or coarse sand. Thereupon, from a fixed reference point, the water level shall be measured at 30-minute intervals for a period of 4 hours, unless two successive water level drops do not vary by more than 1/16 inch (1.59 mm). Not fewer than three water level drops shall be observed and recorded. The hole shall be filled with clear water to a point not more than 6 inches (152 mm) above the gravel or coarse sand whenever it becomes nearly empty. Adjustments of the water level shall not be made during the three measurement periods except to the limits of the last measured water level drop. Where the first 6 inches (152 mm) of water seeps away in less than 30 minutes, the time interval between

measurements shall be 10 minutes and the test run for 1 hour. The water depth shall not exceed 5 inches (127 mm) at any time during the measurement period. The drop that occurs during the final measurement period shall be used in calculating the percolation rate.

1402.2.1.4 Mechanical test equipment. Mechanical percolation test equipment shall be of an approved type.

1402.2.2 Permeability evaluation. Soil shall be evaluated for estimated percolation based on structure and texture in accordance with accepted soil evaluation practices. Borings shall be made in accordance with Section 1402.2.1.1 for evaluating the soil.

1402.3 Subsurface graywater soil absorption site location. The surface grade of all soil absorption systems shall be located at a point lower than the surface grade of any water well or reservoir on the same or adjoining lot. Where this is not possible, the site shall be located so surface water drainage from the site is not directed toward a well or reservoir. The soil absorption system shall be located with a minimum horizontal distance between various elements as indicated in Table 1402.3. Private sewage disposal systems in compacted areas, such as parking lots and driveways, are prohibited. Surface water shall be diverted away from any soil absorption site on the same or neighboring lots.

TABLE 1402.3 LOCATION OF SUBSURFACE GRAYWATER SOIL ABSORPTION SYSTEM

ELEMENT	MINIMUM HORIZONTAL DISANCE	
	Storage tank (feet)	Absorption field (feet)
Buildings	5	2
Lot line adjoining private property	5	5
Public water main	10	10
Seepage pits	5	5
Septic tanks	0	5
Streams and lakes	50	50
Water service	5	5
Water wells	50	100
For SI: 1 foot = 304.8 mm.		

SECTION 1403 INSTALLATION

1403.1 Installation. Absorption systems shall be installed in accordance with Sections 1403.1.1 through 1403.1.5.

1403.1.1 Absorption area. The total absorption area required shall be computed from the estimated daily graywater discharge and the design-loading rate based on the percolation rate for the site. The required absorption area equals the estimated graywater discharge divided by the design-loading rate from Table 1403.1.1.

TABLE 1403.1.1 DESIGN LOADING RATE	
PERCOLATION RATE (minutes per inch)	**DESIGN LOADING FACTOR (gallons per square foot per day)**
0 to less than 10	1.2
10 to less than 30	0.8
30 to less than 45	0.72
45 to 60	0.4
For SI: 1 minute per inch = min/25.4 mm, 1 gallon per square foot = 40.7 L/m^2.	

1403.1.2 Seepage trench excavations. Seepage trench excavations shall be not less than 1 foot (305 mm) in width and not greater than 5 feet (1524 mm) in width. Trench excavations shall be spaced not less than 2 feet (610 mm) apart. The soil absorption area of a seepage trench shall be computed by using the bottom of the trench area (width) multiplied by the length of pipe. Individual seepage trenches shall be not greater than 100 feet (30 480 mm) in developed length.

1403.1.3 Seepage bed excavations. Seepage bed excavations shall be not less than 5 feet (1524 mm) in width and have more than one distribution pipe. The absorption area of a seepage bed shall be computed by using the bottom of the trench area. Distribution piping in a seepage bed shall be uniformly spaced not greater than 5 feet (1524 mm) and not less than 3 feet (914 mm) apart, and greater than 3 feet (914 mm) and not less than 1 foot (305 mm) from the sidewall or headwall.

1403.1.4 Excavation and construction. The bottom of a trench or bed excavation shall be level. Seepage trenches or beds shall not be excavated where the soil is so wet that such material rolled between the hands forms a soil wire. Smeared or compacted soil surfaces in the sidewalls or bottom of seepage trench or bed excavations shall be scarified to the depth of smearing or compaction and the loose material removed. Where rain falls on an open excavation, the soil shall be left until sufficiently dry so a soil wire will not form when soil from the excavation bottom is rolled between the hands. The bottom area shall then be scarified and loose material removed.

1403.1.5 Aggregate and backfill. Not less than 6 inches (152 mm) in depth of aggregate, ranging in size from 1/2 to 2 1/2 inches (12.7 mm to 64 mm), shall be laid into the trench below the distribution piping elevation. The aggregate shall be evenly distributed not less than 2 inches (51 mm) in depth over the top of the distribution pipe. The aggregate shall be covered with approved synthetic materials or 9 inches (229 mm) of uncompacted marsh hay or straw. Building paper shall not be used to cover the aggregate. Not less than 9 inches (229 mm) of soil backfill shall be provided above the covering.

~~**1403.2 Distribution piping.** Distribution piping shall be not less than 3 inches (76 mm) in diameter. Materials shall comply with Table 1403.2. The top of the distribution pipe shall be not less than 8 inches (203 mm) below the original surface. The slope of the distribution pipes shall be not less than 2 inches (51 mm) and not greater than 4 inches (102 mm) per 100 feet (30 480 mm).~~

~~TABLE 1403.2 DISTRIBUTION PIPE~~	
~~MATERIAL~~	~~STANDARD~~
~~Polyethylene (PE) plastic pipe~~	~~ASTM F405~~
~~Polyvinyl chloride (PVC) plastic pipe~~	~~ASTM D2729~~
~~Polyvinyl chloride (PVC) plastic pipe with a 3.5-inch O.D. and solid cellular core or composite wall~~	~~ASTM F1488~~
~~For SI: 1 inch = 25.4 mm.~~	

~~**1403.2.1 Joints.** Joints in distribution pipe shall be made in accordance with Section 705.~~

75. **Appendix E Sizing of Water Piping System** is adopted in its entirety, and is amended to read as follows:

. . .

E102.2.1 Fixture demand. Estimate the supply demand of the building main and the principal branches and risers of the system by totaling the corresponding demand from the applicable parts of Table E103.3(2) and Table E103.3(2)(a).

Exception: For apartment houses and vacation timeshares, the supply demand for fixtures and appliances listed in Table E103.3(2)(a) shall be estimated using the International Association of Plumbing and Mechanical Officials Water Demand Calculator. The supply demand for other fixtures in these occupancies shall be estimated using Tables E103.3(2) and E103.3(3). The peak flow rates shall be added together, and the total added to the continuous demand.

Note: The requirements listed in this exception are based on the technical paper entitled “Peak Water Demand Study,” published by the International Association of Plumbing and Mechanical Officials on October 2024 (IAPMO Study 4-2-24). Both the Water Demand Calculator and a copy of this technical paper are available for download at: https://www.iapmo.org/water-demand-calculator/.

. . .

TABLE E103.3(2)(a) DESIGN FLOW RATES FOR USE WITH THE WATER DEMAND CALCULATOR IN RESIDENTIAL OCCUPANCIES	
FIXTURE AND APPLIANCES	MAXIMUM DESIGN FLOW RATE
Bar Sink	1.5 gallons per minute

Bathtub	5.5 gallons per minute
Bidet	2.0 gallons per minute
Clothes Washer	3.5 gallons per minute
Combination Bath/Shower	5.5 gallons per minute
Dishwasher	1.3 gallons per minute
Kitchen	1.8 gallons per minute
Laundry and Bar Sink Faucets	1.8 gallons per minute
Lavatory Faucet	1.5 gallons per minute
Shower, per head	1.8 gallons per minute
Water Closet, 128 GPF, Gravity Tank	1.1 gallons per flush
For SI units: 1 gallon per minute = 0.06 L/s.	

. . .

Section 4. The codifier of the Code of the City of Fort Collins is hereby directed to amend all existing cross references in the City Code and the Land Use Code in accordance with the provisions of this ordinance.

Section 5. The City Attorney and the City Clerk are hereby authorized to modify the formatting and to make such other amendments to this Ordinance as necessary to facilitate publication in the Fort Collins City Code; provided, however, that such modifications and amendments shall not change the substance of the Code provisions.

Introduced, considered favorably on first reading on December 2, 2025, and approved on second reading for final passage on December 16, 2025.

_____
Mayor

ATTEST:

_____
City Clerk

Effective Date: December 26, 2025
Approving Attorney: Madelene Shehan

Exhibit: Exhibit A – Notice of Publication