

ORDINANCE NO. 2484

INTRODUCED BY: ALLEN-THOMAS, CHACON, DOUGLAS, FORD, HURST, HUSEMAN, KIM, MADERA, NOBLE

AN ORDINANCE REPEALING AND REPLACING CHAPTER 5, ARTICLE IV, DIVISION 6 OF THE COMMERCE CITY REVISED MUNICIPAL CODE WHICH DETAILS THE ADOPTION OF THE 2021 INTERNATIONAL PLUMBING CODE (IPC) WITH STATE-MANDATED AMENDMENTS

WHEREAS, the purpose of this and related ordinances is to update the city's building code, adopt changes made in the various 2021 editions of the International Codes, apply city-specific revisions to the adopted codes, and to simplify, consolidate, and clarify the city's building code support functions such as appeals, violations, contractor licenses, fees and third-party services; and

WHEREAS, the 2021 IPC is retitled the City of Commerce City Plumbing Code and establishes minimum standards for the plumbing systems of commercial buildings. While the state mandates the minimum technical amendments to the IPC, staff has not incorporated any city-centric amendments. The most significant technical change over the 2018 IPC is the inclusion of private sewer lateral relining.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF COMMERCE CITY, COLORADO, AS FOLLOWS:

**SECTION 1. Findings.** The recitals to this ordinance are incorporated as findings of the City Council. This ordinance is found to be necessary for the preservation of the public health, safety, and welfare and in the public interest.

**SECTION 2. Amendments.** Chapter 5, Article IV, Division 6 of the Commerce City Revised Municipal Code is hereby repealed and replaced as set forth in Exhibit A.

**SECTION 3. Repealer.** All other ordinances or portions thereof inconsistent or conflicting with this ordinance or any portion hereof are hereby repealed to the extent of such inconsistency.

**SECTION 4. Effective Date.** This ordinance shall be effective as provided in the City Charter.

INTRODUCED, PASSED ON FIRST READING AND PUBLIC NOTICE ORDERED THIS 17TH DAY OF APRIL, 2023.

PASSED ON SECOND AND FINAL READING AND PUBLIC NOTICE ORDERED THIS 15TH DAY OF MAY, 2023.

CITY OF COMMERCE CITY, COLORADO

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Benjamin A. Huseman, Mayor

ATTEST

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Dylan A. Gibson, City Clerk

**CHAPTER 5 – BUILDINGS AND BUILDING REGULATIONS**  
**ARTICLE IV. INTERNATIONAL CODES**

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**DIVISION 6. – INTERNATIONAL PLUMBING CODE**

**Sec. 5-4600. – Adoption.**

The City of Commerce City adopts the 2021 edition of the International Plumbing Code (IPC) to be known as the City of Commerce City Plumbing Code, including Appendix Chapters B, C, D and E and the standards referenced in such code and appendix chapters, save and except such amendments as set forth in this article. The 2021 IPC is available to view for free on the International Code Council’s website.

**Sec. 5-4601. – Amendments.**

The 2021 edition of the IPC is amended in the following respects and adopted herein as amended:

- (a) *Section 101.1, entitled “Title,” is amended to read as follows:*

**101.1 Title.** These regulations, as part of the City of Commerce City Building Code, shall be known as the City of Commerce City Plumbing Code, hereinafter referred to as “this code.”

- (b) *Section 102.10, entitled “Other laws,” is amended by addition of the following:*

In the event of a conflict between the provisions of this code and any county health department, state or federal law, rule or regulation the more restrictive provision shall control.

- (c) *Section 102.13, entitled “Exemptions,” is added to read as follows:*

**102.13 Exemptions.** The work listed in Section 5-5 of the Commerce City Revised Municipal Code shall be exempt from this code.

- (d) *Section 103, entitled “CODE COMPLIANCE AGENCY,” is deleted in its entirety.*

- (e) *Section 104.4, entitled “Right of entry,” is deleted in its entirety and the following is added in lieu thereof:*

**104.4 Right of entry.** The code official’s right to enter and inspect property shall be exercised in accordance with Section 1-3001 of the Commerce City Revised Municipal Code.

- (f) *Section 105.1, entitled “Modifications,” is amended to read as follows:*

**105.1 Modifications.** Where there are practical difficulties involved in carrying out the provisions of this code, the code official shall have the authority to grant modifications for individual cases, upon application of the owner or owner’s authorized agent, provided that the code official shall first find that a special individual reason makes the strict letter of this code impractical and the modification conforms to the intent and purpose of this code and that such modification does not lessen health, life and fire safety requirements. The code

official may require or may consider a statement from a registered design professional or subject matter expert as to the equivalency of the proposed modification. The code official may also consider nationally recognized guidelines in deciding whether to approve a modification. The details of action granting modifications shall be recorded and entered in the files of the Community Development Department.

- (g) *Section 106.2, entitled “Work exempt from permit,” is deleted in its entirety and the following is added in lieu thereof:*

**106.2 Work exempt from permit.** Exemptions from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction. Permits shall not be required for the work listed in Section 5-8 of the Commerce City Revised Municipal Code.

- (h) *Section 106.2.1, entitled “Emergency repairs,” is added to read as follows:*

**106.2.1 Emergency repairs.** Where equipment replacements and repairs must be performed in an emergency situation, the permit application shall be submitted within the next working business day to the code official.

- (i) *Section 106.5.1, entitled “Approved construction documents,” is amended to read as follows:*

**106.5.1 Approved construction documents.** When the code official issues the permit where construction documents are required, the construction documents shall be approved by stamp as “Reviewed for Code Compliance” or similar endorsement. Such approved construction documents shall not be changed, modified or altered without authorization from the code official. Work shall be done in accordance with the approved construction documents. A copy of the construction documents so reviewed shall be retained by the code official. A copy shall be returned to the applicant, printed by the applicant in full scale, kept at the site of work and open to inspection by the code official or a duly authorized representative.

- (j) *Section 106.5.5, entitled “Suspension or revocation of permit,” is amended to read as follows:*

**106.5.5 Suspension or revocation of permit.** The code official shall have the authority to suspend or revoke a permit issued under the provisions of this code wherever the permit is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any city, state or federal law, ordinance or regulation or any of the provisions of this code.

- (k) *Section 108.1.1, entitled “Equipment required,” is added to read as follows:*

**108.1.1 Equipment required.** Any ladder, scaffolding or test equipment necessary

to conduct or witness a requested inspection shall be provided by the permit holder.

- (l) *Section 108.2.3, entitled “Approval required,” is amended to read as follows:*

**108.2.3 Approval required.** Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the code official. The code official, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the permit holder or the permit holder’s agent the reasons and corresponding code sections of this code that serve as the basis for non-compliance. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the code official.

- (m) *Section 109, entitled “FEES,” is deleted in its entirety and the following is added in lieu thereof:*

#### SECTION 109 – FEES

**109.1 Payment of fees.** At the discretion of the city, a permit shall not be valid until the fees prescribed by Article VI, Chapter 5 and other applicable provisions of the Commerce City Revised Municipal Code have been paid, nor shall an amendment to a permit be released until the additional fee, if any, has been paid.

- (n) *Section 110, entitled “CONSTRUCTION DOCUMENTS,” is deleted and the following is added in lieu thereof:*

#### Section 110 - Construction Documents

**110.1 Construction documents.** Construction documents, engineering calculations, diagrams and other such data shall be submitted in digital format with each application for a permit. The code official shall require construction documents, computations and specifications to be prepared and designed by a registered design professional where required by state law. Construction documents shall be drawn to scale and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that the work conforms to the provisions of this code. Construction documents for buildings more than two stories in height shall indicate where penetrations will be made for pipes, fittings and components and shall indicate the materials and methods for maintaining required structural safety, fire-resistance rating and fireblocking.

**Exception:** The code official shall have the authority to waive the submission of construction documents, calculations or other data if the nature of the work applied for is such that the reviewing of construction documents is not necessary to determine compliance with this code.

**110.2 Engineering details.** When determined necessary by the code official, construction documents shall include adequate detail of the plumbing components. Adequate detail may include computations or other essential technical data. All

engineered documents, including relevant computations, shall be sealed by the registered design professional responsible for the design.

**110.3 Examination of documents.** The code official shall examine or cause to be examined the accompanying submittal documents and shall ascertain by such examinations whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws or ordinances. If such documents or plans do not comply with the provisions of this code, the permit applicant shall be notified in writing of the reasons and corresponding sections of this code that serve as the basis for non-compliance.

**110.4 Retention of construction documents.** A copy of the approved construction documents shall be retained by the code official as required by state or local laws. A copy of the approved construction documents shall be returned to the applicant, printed by the applicant in full scale, kept on the site of work and open to inspection by the code official or a duly authorized representative.

- (o) *Section 113, entitled "STOP WORK ORDER," is deleted in its entirety and the following is added in lieu thereof:*

#### Section 113 - Stop Work Order

**113.1 General.** Where the code official finds any work regulated by this code being performed in a manner contrary to the provisions of this code or in a dangerous or unsafe manner, the code official is authorized to issue a stop work order in accordance with the provisions of Section 5-5007 of the Commerce City Revised Municipal Code.

- (p) *Section 114, entitled "MEANS OF APPEALS," is deleted in its entirety and the following is added in lieu thereof:*

#### Section 114 - Appeals

**114.1 Board of appeals.** Appeals of the decisions of the building official relating to the application and interpretation of this code shall be to the board of appeals and governed by Section 5-21 of the Commerce City Revised Municipal Code.

- (q) *Section 115, entitled "VIOLATIONS," is deleted in its entirety and the following is added in lieu thereof:*

#### Section 115 - Violations

**115.1 Unlawful acts.** No person or entity shall violate a provision of this code or fail to comply therewith or with any of the requirements thereof. No person or entity shall fail to comply with any order issued by the code official under this code. No person or entity shall erect, construct, alter, repair, remove, demolish or utilize a mechanical system, or cause same to be done, except in conformity with all of the provisions of this code and in conformity with the terms and conditions of any

permit, certificate, or other approval issued under this code, or of any directive of the code official.

**115.2 Penalties and enforcement.** Violations of this code are subject to enforcement through the penalties, procedures and remedies specified in Article V, Chapter 5 and other applicable provisions of the Commerce City Revised Municipal Code, at the discretion of the city.

**115.3 Unsafe plumbing.** Any plumbing regulated by this code that is unsafe or that constitutes a fire or health hazard, insanitary condition or is otherwise dangerous to human life is hereby declared unsafe. Any use of plumbing regulated by this code constituting a hazard to safety, health or public welfare by reason of inadequate maintenance, dilapidation, obsolescence, fire hazard, disaster, damage or abandonment is hereby declared an unsafe use. Any such unsafe equipment is hereby declared to be a public nuisance and shall be abated by repair, rehabilitation, demolition or removal.

**115.3.1 Authority to condemn equipment.** Where the code official determines that any plumbing, or portion thereof, regulated by this code has become hazardous to life, health or property or has become unsanitary, the code official shall order in writing that such plumbing either be removed or restored to a safe or sanitary condition. A time limit for compliance with such order shall be specified in the written notice. A person shall not use or maintain defective plumbing after receiving such notice.

Where such plumbing is to be disconnected, written notice as prescribed in Section 115.2 shall be given. In cases of immediate danger to life or property, such disconnection shall be made immediately without such notice.

**115.3.2 Authority to disconnect service utilities.** The code official shall have the authority to authorize disconnection of utility service to the building, structure or system regulated by the technical codes in case of an emergency, where necessary, to eliminate an immediate danger to life or property. Where possible, the owner or the owner's authorized agent and occupant of the building, structure or service system shall be notified of the decision to disconnect utility service prior to taking such action. If not notified prior to disconnecting, the owner, the owner's authorized agent or occupant of the building, structure or service systems shall be notified in writing, as soon as practical thereafter.

**115.3.3 Connection after order to disconnect.** A person shall not make connections from any energy, fuel, power supply or water distribution system or supply energy, fuel or water to any equipment regulated by this code that has been disconnected or ordered to be disconnected by the code official or the use of which has been ordered to be discontinued by the code official until the code official authorizes the reconnection and use of such equipment.

Where any plumbing is maintained in violation of this code, and in violation of any notice issued pursuant to the provisions of this section, the code official shall institute any appropriate action to prevent, restrain, correct or abate the violation.

- (r) *The definition for “ACCEPTED ENGINEERING PRACTICE” is amended in Section 202 to read as follows:*

**ACCEPTED ENGINEERING PRACTICE.** An engineered design or analysis performed by a registered design professional that conforms to nationally recognized principles, testing or standards; meets the functional intent of this code; and is approved by the building official.

- (s) *Section 305.1, entitled “Protection against contact,” is amended to read as follows:*

**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. 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 0.025 inch (0.64 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.

- (t) *Section 305.4, entitled “Freezing” is amended to read as follows:*

**305.4 Freezing.** Water, soil and waste pipes shall not be installed outside of a building, in attics or crawl spaces, concealed in outside walls or in any other place subjected to freezing temperatures unless adequate provision is made to protect such pipes from freezing by insulation or heat or both. Exterior water supply system piping shall be installed not less than 42 inches (1067 mm) below grade.

- (u) *Section 305.4.1, entitled “Sewer depth,” is amended to read as follows:*

**305.4.1 Sewer depth.** Building sewers shall be installed not less than 12 inches (305 mm) below grade.

- (v) *Section 308.5, entitled “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 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.

**TABLE 308.5(2)  
HANGER ROD SIZE**

<b>PIPE AND TUBE SIZE (inch)</b>	<b>ROD SIZE (inch)</b>
1/2 – 4	3/8
5 – 8	1/2
10 – 12	5/8

- (w) *Table 308.5, entitled “HANGER SPACING,” is renumbered as Table 308.5(1).*



(x) *Section 308.7.1, entitled “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.

(y) *Section 312.1, entitled “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 312.10 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 air.

(z) *Section 312.3, entitled “Drainage and vent air test,” is amended to read as follows:*

**312.3 Drainage and vent air test.** 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.

(aa) *Section 312.4, entitled “Drainage and vent final test,” is deleted in its entirety.*

(bb) *Section 312.5, entitled “Water supply system test,” is amended to read as follows:*

**312.5 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 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 108.

(cc) *Section 312.9, entitled “Shower liner test,” is deleted in its entirety.*

(dd) *Section 312.10, entitled “Inspections and testing of backflow prevention assemblies,” is amended to read as follow:*

**312.10 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 the 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 in the 10<sup>th</sup> Edition of the USC Manual of Cross-Connection Control.

(ee) *Sections 312.10.1 and 312.10.2 are deleted in their entirety.*

(ff) *Section 403.7, entitled “Toilet rooms in classrooms,” is added to read as follows:*

**403.7 Toilet rooms in classrooms.** Where lavatories are located outside toilet rooms in classrooms as permitted in the exception of Section 405.3.2, the associated fixtures shall not contribute to the total fixture count required by Table 403.1.

(gg) *Section 405.3.2, entitled “Public lavatories,” is amended to read as follows:*

**405.3.2 Public lavatories.** In employee and public toilet rooms, 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 that serves the classroom’s students only.

(hh) *Section 410.4, entitled “Substitution,” is amended to read as follows:*

**410.4 Substitution.** Where restaurants or spaces classified as a Group A-2 occupancy provide drinking water in a container free of charge, drinking fountains shall not be required. 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.

(ii) *Section 421.7, entitled “Shower head location,” is added to read as follows:*

**421.7 Shower head location.** Shower heads 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 ANSI A117.1.

(jj) *Section 421.8, entitled “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.

(kk) *Section 425.3, entitled “Water closet seats,” is amended 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 permitted.

(ll) *Section 504.6.1, entitled “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.

(mm) *Section 504.6.1.1, entitled “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 at least that of the relief valve discharge temperature and shall have a gpm rating greater than or equal to the discharge of the relief valve.

(nn) *Section 504.7, entitled “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.

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

A plastic pan shall not be installed beneath a gas-fired water heater 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.

- (oo) *Section 605.15.2, entitled “Solvent cementing,” is deleted in its entirety and the following is add in lieu thereof:*

**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 D2846 or ASTM F493. Solvent cement joints shall be permitted above or below ground.

- (pp) *Section 608.9.1, entitled “Signage required,” is amended to read as follows:*

**608.9.1 Signage required.** Signage shall be provided for plumbing fixtures flushed with graywater or from which graywater is collected in accordance with Sections 608.9.1.1 and 608.9.1.2. 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.

- (qq) *Section 608.9.1.1, entitled “Signage for fixtures flushed with graywater,” is added to read as follows:*

**608.9.1.1 Signage for fixtures flushed with graywater.** Plumbing fixtures flushed with nonpotable water shall be identified with signage that reads: “CAUTION: NONPOTABLE WATER – DO NOT DRINK.” In addition to the required wordage, the pictograph shown in Figure 608.9.1 shall appear on the required signage.

- (rr) *Section 608.9.1.2, entitled “Signage for fixtures from which graywater is collected,” is added to read as follows:*

**608.9.1.2 Signage for fixtures from which graywater is collected.** Plumbing fixtures from which graywater is collected shall be identified with signage that reads: “CAUTION: WATER FROM THIS FIXTURE IS REUSED. CHEMICALS, EXCRETA, PETROLEUM OILS AND HAZARDOUS MATERIALS MUST NOT BE DISPOSED DOWN THIS DRAIN.”

- (ss) *Section 608.17.2.1, entitled “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.

- (tt) *Section 608.17.11, entitled “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.

(uu) *Section 705.10.2, entitled “Solvent cementing,” is deleted in its entirety and the following is add in lieu thereof:*

**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.

(vv) *Section 706.3, entitled “Installation of fittings,” is amended to read as follows:*

**706.3 Installation of fittings.** Fittings shall be installed to guide sewage and waste in the direction of flow. Change in direction shall be made by fittings installed in accordance with Table 706.3. Change in direction by combination fittings, side inlets or increasers shall be installed in accordance with Table 706.3 based on the pattern of flow created by the fitting. Double sanitary tee patterns shall not receive the dis-charge of back-to-back water closets and fixtures or appliances with pumping action discharge. Fixture crosses will not be required to meet the exception of IPC, Section 706.3.

**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.

**TABLE 706.3  
FITTINGS FOR CHANGE IN DIRECTION**

TYPE OF FITTING PATTERN	CHANGE IN DIRECTION		
	Horizontal to vertical	Vertical to horizontal	Horizontal to horizontal
Sixteenth bend	X	X	X
Eighth bend	X	X	X
Sixth bend	X	X	X
Quarter bend	X	X	X
Short sweep	X	X	X
Long sweep	X	X	X

Sanitary tee	X <sup>a</sup>	—	—
Wye	X	X	X
Combination wye and eighth bend	X	X	X

For SI: 1 inch = 25.4 mm.

a. For a limitation on double sanitary tees, see Section 706.3.

(ww) *Section 708.1.3, entitled “Building drain and building sewer junction,” is amended by the addition of the following:*

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.

(xx) *Section 802.1.6, entitled “Commercial dishwashing machines,” is amended to read as follows:*

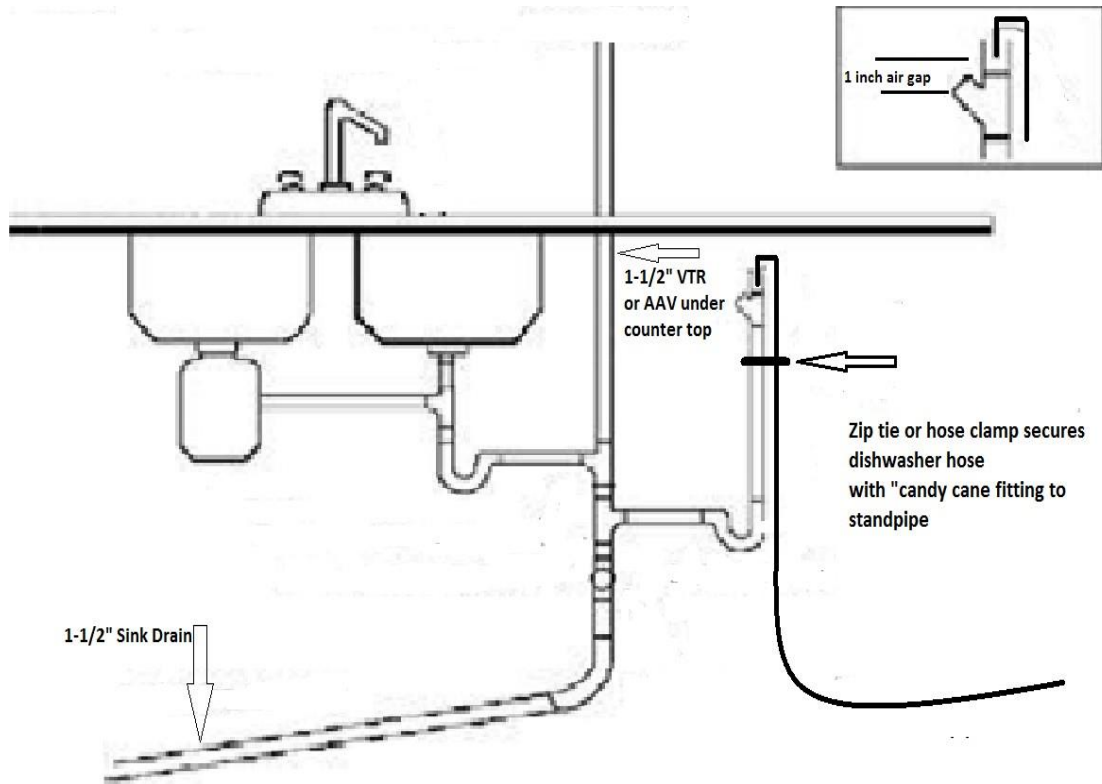
**802.1.6 Dishwashing machines.** Dishwashing machines shall comply with Sections 802.1.6.1 and 802.1.6.2.

(yy) *Section 802.1.6.1, entitled “Commercial dishwashing machines,” is added to read as follows:*

**802.1.6.1 Commercial dishwashing machines.** The discharge from a commercial dishwashing machine shall be through an air gap or air break into a waste receptor in accordance with Section 802.3.

(zz) *Section 802.1.6.2, entitled “Domestic dishwashing machines,” is added to read as follows:*

**802.1.6.2 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 Figure 802.1.6.1.2. See Section 409.4 for additional waste connections.



**FIGURE 802.1.6.2  
DISHWASHER DRAIN**

(aaa) *Section 802.3, entitled "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.

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

(bbb) *Section 802.4, entitled "Waste receptors," is amended 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 and interstitial spaces that occur 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.

(ccc) *Section 903.1.1, entitled "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 6 inches (152 mm) above the roof, except where a roof is to be used for any purpose other than weather protection, the vent shall extend not less than 7 feet (2134 mm) above the roof.

(ddd) *Section 903.2, entitled "Frost closure," is deleted in its entirety.*

(eee) *Section 912.1, entitled "Horizontal wet vent permitted," is amended 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.

(fff) *Section 1002.1, entitled "Fixture traps," is amended to read as follows:*

**1002.1 Fixture traps.** Each plumbing fixture shall be separately trapped by a liquid-seal trap, except as otherwise permitted by this code. The vertical distance from the fixture outlet to the trap weir shall not exceed 24 inches (610 mm) and the horizontal distance shall not exceed 30 inches (762 mm) measured from the centerline of the fixture outlet to the centerline of the inlet of the trap. The height of a clothes washer standpipe above a trap shall conform to Section 802.4.3. A fixture shall not be double trapped.

**Exceptions:**

1. This section shall not apply to fixtures with integral traps.
2. A combination plumbing fixture is permitted to be installed on one trap, provided that one compartment is not more than 6 inches (152 mm) deeper than the other compartment and the waste outlets are not more than 30 inches (762 mm) apart.
3. Floor drains in multilevel parking structures that discharge to a building storm sewer shall not be required to be individually trapped. Where floor drains in multilevel parking structures are required to discharge to a combined building sewer system, the floor drains shall



not be required to be individually trapped provided that they are connected to a main trap in accordance with Section 1103.1.

4. Where a hydromechanical grease interceptor serves a food utensil, dishes, pots and pans sink, in accordance with the manufacturer's installation instructions. The branch drain serving the interceptor shall be provided with an emergency floor drain downstream of the interceptor connection and the branch shall serve only the emergency floor drain and interceptor. Where the interceptor serves a combination sink of not more than three compartments where the vertical distance from the fixture outlet to the inlet of the interceptor does not exceed 30 inches and the developed length of the waste pipe from the most upstream fixture outlet to the inlet of the interceptor does not exceed 60 inches. The food utensil, dishes, pots and pans sink shall be required to connect directly with the interceptor.
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.

(ggg) *Section 1003.1, entitled "Where required," is amended 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 waste water and/or sanitation district into which the grease trap or interceptor effluent is transported and/or treated. These regulations may supersede this requirement.

(hhh) *Section 1003.3.2, entitled "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.

**Exception:** When using a gravity interceptor equal to or greater than 500 gallon capacity.

(iii) *Section 1101.10, entitled "Prohibited roof drainage," is added to read as follows:*

**1101.10 Prohibited roof drainage.** Storm water from roof drains shall not discharge over public walkways.

**Exceptions:**

1. Storm water from roof drains shall be permitted to drain into 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.

2. Storm water from secondary roof drains.

(jjj) *Section 1301.2.2, entitled "Filtration required," is amended to read as follows:*

**1301.2.2 Filtration required.** Non-potable water utilized for water closet and urinal flushing applications shall be filtered by a 100-micron or finer filter.

**Exception:** Reclaimed water sources shall not be required to comply with these requirements. Graywater treatment systems installed in accordance with Section 1302.6.1 do not need to meet additional filtration requirements.

(kkk) *Section 1301.3.1, entitled "Distribution pipe labeling and marking," is added to read as follows:*

**1301.3.1. Distribution pipe labeling and marking.** Non-potable distribution piping shall comply with Section 608.9.2 as amended.

(lll) *Section 1301.9.2, entitled "Materials," is amended 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.

(mmm) *Section 1301.9.5, entitled "Overflow," is amended to read as follows:*

**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.

(nnn) *Section 1301.9.8, entitled "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 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.

(ooo) Section 1301.11, entitled "Trenching requirements for nonpotable water piping" is deleted in its entirety.

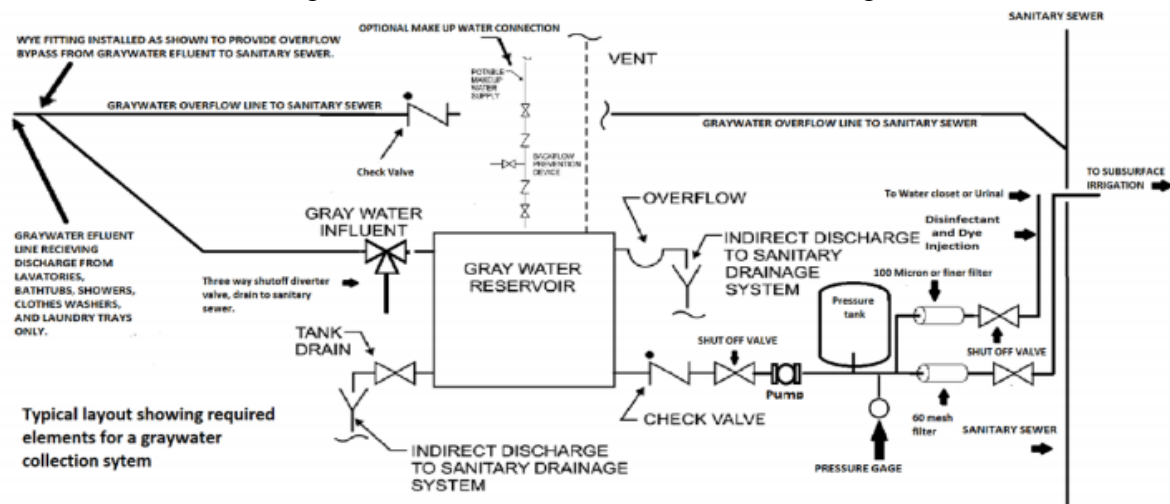
(ppp) Section 1301.12, entitled "Outdoor outlet access," is deleted in its entirety.

(qqq) Section 1302.1, entitled "General," is amended by the addition of the following:

All plumbing systems utilizing non-potable 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.

(rrr) Section 1302.1.1, entitled "Typical graywater collection systems," is added to read as follows:

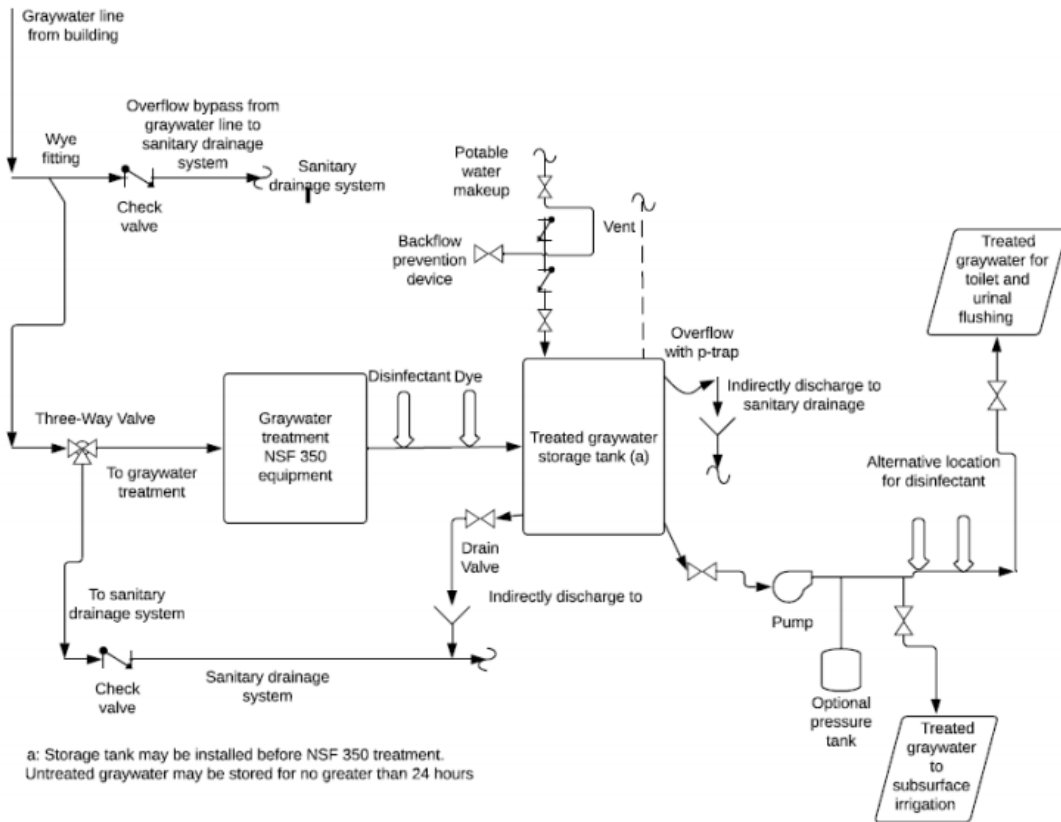
**1302.1.1 Typical graywater collection systems.** Graywater collection systems shall be designed and constructed in accordance with Figure 1302.1.1.



**FIGURE 1302.1.1 TYPICAL GRAYWATER COLLECTION SYSTEM**  
(This figure is typical only, not a schematic)

(sss) Section 1302.1.2, entitled "Typical graywater system for toilet and urinal flushing," is added to read as follows:

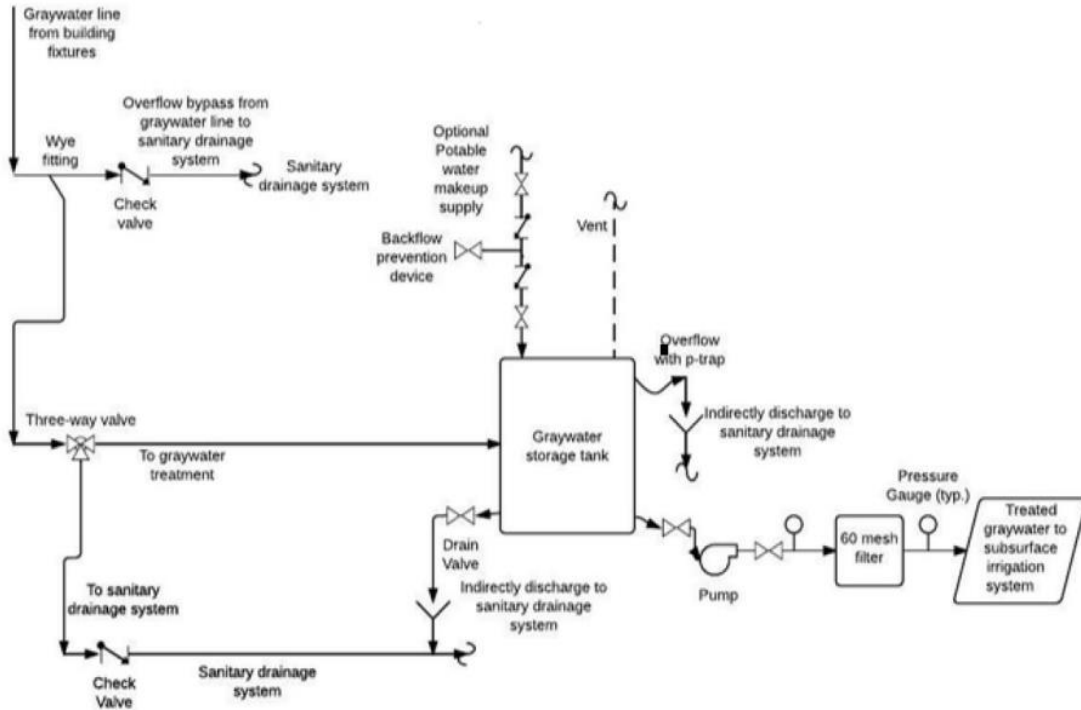
**1302.1.2 Typical graywater system for toilet and urinal flushing.** Graywater systems for toilet and urinal flushing shall be designed and constructed in accordance with Figure 1302.1.2.



**FIGURE 1302.1.2 TYPICAL GRAYWATER SYSTEM FOR TOILET AND URINAL FLUSHING**  
(This figure is typical only, not a schematic)

(ttt) Section 1302.1.3, entitled “Typical graywater system for disbursed subsurface irrigation,” is added to read as follows:

**1302.1.3 Typical graywater system for disbursed subsurface irrigation.** Graywater systems for disbursed subsurface irrigation shall be designed and constructed in accordance with Figure 1302.1.3.

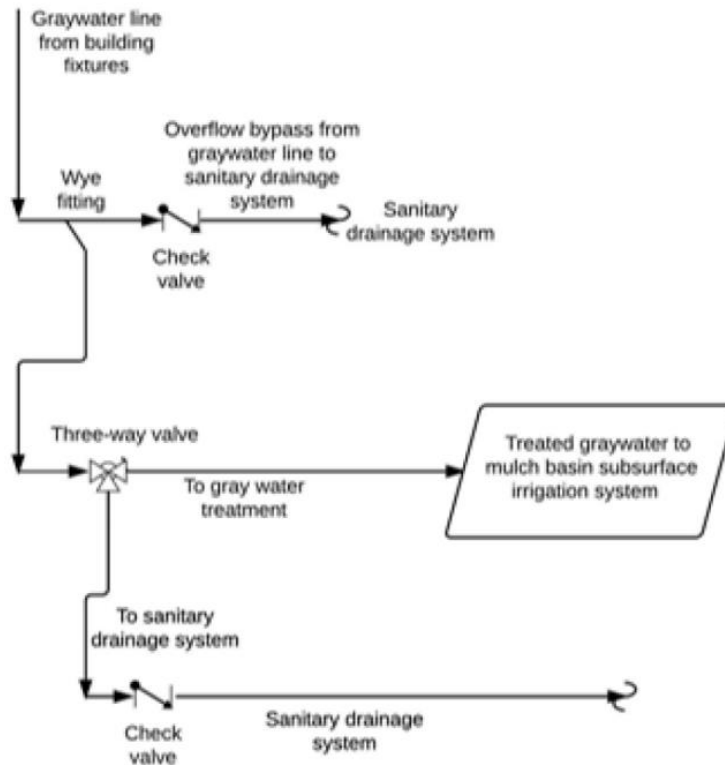


**FIGURE 1302.1.3 TYPICAL GRAYWATER SYSTEM FOR DISBURSED SUBSURFACE IRRIGATION**  
**(This figure is typical only, not a schematic)**

(uuu) *Section 1302.1.4, entitled “Typical graywater system for mulch basin subsurface irrigation,” is added to read as follows:*

**1302.1.4 Typical graywater system for mulch basin subsurface irrigation.**

Graywater systems for mulch basin subsurface irrigation shall be designed and constructed in accordance with Figure 1302.1.4.



**FIGURE 1302.1.4 TYPICAL GRAYWATER SYSTEM FOR MULCH BASIN SUBSURFACE IRRIGATION**  
**(This figure is typical only, not a schematic)**

(vvv) *Section 1302.5, entitled “Filtration,” is amended to read as follows:*

**1302.5 Filtration.** Untreated water collected for reuse 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 immediately upstream and downstream to allow for isolation during maintenance. Graywater used for a dispersed subsurface irrigation system requires a cartridge filter. The cartridge filter must be a minimum of sixty mesh located between the storage tank and the irrigation system.

**Exemption.** Filtration is not required for mulch basin subsurface irrigation systems.

(www) *Section 1302.6.1, entitled “Graywater used for fixture flushing,” is amended by the addition of the following:*

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.

(xxx) *Section 1302.7.3, entitled “Overflow,” is added to read as follows:*

**1302.7.3 Overflow.** Storage tank for on-site non-potable 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

(yyy) *Section 1302.7.4, entitled “Venting,” is added to read as follows:*

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

(zzz) *Section 1302.7.3, entitled “Tank drains,” is added to read as follows:*

**1302.7.3 Tank drains.** Storage tank for on-site non-potable systems must include a valved drain. The drain shall be indirectly connected to the sanitary sewer. The tank drain line must be the same or larger diameter line than the tank influent line.

(aaaa) *Section 1302.8.1, entitled “Bypass valve” is amended to read as follows:*

**1302.8.1 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 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, graywater treatment works, connection, storage tank and graywater subsurface irrigation systems. Bypass valves shall be 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.

(bbbb) *Section 1303, entitled “NONPOTABLE RAINWATER COLLECTION AND DISTRIBUTION SYSTEMS,” is deleted in its entirety.*

(cccc) *Chapter 14, entitled “SUBSURFACE GRAYWATER SOIL ABSORPTION SYSTEMS,” is deleted in its entirety.*

(dddd) *The referenced standard entitled “Manual of Cross-Connection Control” is added to Chapter 15 as follows:*

**USC**

University of Southern California  
Foundation for Cross-Connection  
Control and Hydraulic Research  
Research Annex 219

**Manual of Cross-Connection Control – 10<sup>th</sup> Edition**

312.10

**Sec. 5-4602. - Reserved.**

**Sec. 5-4603. - Reserved.**

**Sec. 5-4604. - Reserved.**

**Sec. 5-4605. - Reserved.**

**\*\*END OF EXHIBIT A\*\***