

ORDINANCE NO.

AN ORDINANCE REPEALING AND REPLACING ARTICLE 6 OF CITY CODE CHAPTER 25-12 (TECHNICAL CODES) RELATING TO THE UNIFORM PLUMBING CODE AND LOCAL AMENDMENTS; AND CREATING AN OFFENSE.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF AUSTIN:

PART 1. City Code Chapter 25-12 (*Technical Codes*) is amended to repeal and replace Article 6 (*Plumbing Code*) to read:

ARTICLE 6. PLUMBING CODE

§25-12-151 UNIFORM PLUMBING CODE.

(A) The Uniform Plumbing Code, 2021 Edition, published by the International Association of Plumbing and Mechanical Officials (“2021 Uniform Plumbing Code”) and Appendices A, B, C, D, E, G, I, J, K, and N are adopted and incorporated by reference into this section with the deletions in Subsection (B) and the amendments in Section 25-12-153 (Local Amendments to the Uniform Plumbing Code).

(B) The following provisions of the 2021 Uniform Plumbing Code are deleted.

104.2	601.3	713.4	1017.0 plus subsections	1501.3	1505.4	Table 104.5
104.3.2	601.3.1	723.0	1101.2	1501.5.2	1505.5	Table 422.1
104.4	601.3.3	723.1	1101.15	1501.7	1505.9	Table 603.2
104.4.3	603.2	807.3	1101.16.2	1502.0	1506.1	Table 1014.2.1
104.5	603.4.2	1009.2	1103.3	1502.1	1506.5	Table 1014.3.6
107.0	603.5.6	1011.0	1106.2	1502.2	1602.5	Table 1103.3
309.6	603.5.6.1	1014.1	1203.3.2	1502.3	1605.3	Table 1503.4
312.6	603.5.6.2	1014.1.1	1203.3.1	1502.3.1	1605.3.1	Table 1501.5
319.0	603.5.6.3	1014.1.2	1204.2	1502.3.2	1605.3.2	Table 1601.5
402.5	603.5.12	1014.1.3	1212.10	1502.3.3	1605.3.3	
407.4	608.2	1014.2	1213.1.2	1502.3.4	1605.3.4	

411.2	612.0 plus subsections	1014.3.3.3	1213.1.3	1503.1	K101.7	
412.1	704.3	1014.3.6	1213.3	1503.2		
420.3	710.3	1015.0 plus subsections	Chapter 13	1503.3		
422 plus subsections	712.0 plus subsections	1016.0 plus subsections	1501.2	1503.6		

(C) The city clerk shall file a copy of the 2021 Uniform Plumbing Code with the official ordinances of the City.

§25-12-152 CITATIONS TO THE PLUMBING CODE.

In the City Code, “Plumbing Code” means the 2021 Uniform Plumbing Code adopted in Section 25-12-151 (*Uniform Plumbing Code*) as amended by Section 25-12-153 (*Local Amendments to the Uniform Plumbing Code*).

§25-12-153 LOCAL AMENDMENTS TO THE UNIFORM PLUMBING CODE.

Each provision in this section is a substitute for the identically numbered provision deleted in Section 25-12-151(B) (*Uniform Plumbing Code*) or is an addition to the 2021 Uniform Plumbing Code.

104.1.1 Persons authorized to obtain permits. A responsible master plumber licensed by the State of Texas and registered with the City may apply for and obtain a permit required by the Plumbing Code. Only a responsible master plumber with a master medical gas endorsement may obtain a plumbing permit related to medical gas installations. Only a responsible master plumber with a master water supply protection specialist endorsement may obtain a plumbing permit for a potable rain-water system.

Exception. An individual who is not licensed as a plumber may obtain a plumbing permit for plumbing work that, under state law, may be completed by an unlicensed individual.

104.1.3 Licensing. A person who enters into a contract to install or repair a plumbing system subject to this code and the plumbing permit requirement must be licensed by the State of Texas.

104.1.3.1 Registration. A licensed plumber must register with the City before performing any work regulated by this code.

104.1.4 Landscape irrigation. A person licensed by the Texas Commission on Environmental Quality (TCEQ) to install irrigation systems must register with the City before performing any work regulated by this code. A person must pay a registration fee set by separate ordinance at the initial registration with the City or after a license is suspended or expired. A plumbing permit must be obtained before installing a landscape irrigation or yard sprinkler system.

104.1.5 Commercial plumbing change-out program. The building official may establish by rule an inspection program for commercial plumbing components identified in this section in buildings not covered under the Residential Code or a change-out program authorized by another article in this chapter. The building must be located within Austin's full purpose jurisdiction. This program applies to replacing a water heater, backflow device, or assembly; and to repairing or replacing a sewer line in occupied structures.

104.2 Exempt work.

A. A permit is not required for the following:

1. To stop leaks in drains, soil, waste, or vent pipes, except when a trap, drain pipe, soil, waste, or vent becomes defective and it is necessary to remove and replace the same with new material, a permit shall be procured and inspection made as provided in this code.
2. To clear stoppages, including the removal and reinstallation of water closets, or the repairing of leaks in pipes, valves, or fixtures if the work does not involve or require the replacement or rearrangement of valves, pipes, or fixtures.
3. Work required to repair or replace fixtures and to replace exposed traps, continuous waste piping, fixture supply valves, or faucets if the work does not involve other city departments or inspections from other trades.
4. Other work as determined by the building official.

B. Exemption from the permit requirements of this code does not authorize work to be done in violation of other provisions of the City Code or City requirements.

C. For purposes of 104.2, a new installation or replacement of a shower, tub, or combination tub and shower is not exempt from the permit requirements of this code.

104.4.3. Time limits. Article 13 (*Administration of Technical Codes*) of this chapter establishes permit application time limits and requirements applicable to permit expiration and reactivation, including a review fee for expired permits.

104.5 Fees. A fee applicable to this code is set by separate ordinance.

104.6 Offense and Penalty. A person who violates a provision of this code commits an offense that is subject to the penalty set forth in Section 25-1-462 (*Criminal Enforcement*). Each day a violation continues is a separate offense.

107.0 Mechanical and Plumbing Board. The Mechanical and Plumbing Board is subject to the requirements in Chapter 2-1 (*City Boards*).

108.0 The Building Criteria Manual. Additional information on procedures and rules related to administering the Plumbing Code is available in the Building Criteria Manual.

202.1.1 Supplemental Definitions.

LAUNDRY TO LANDSCAPE SYSTEM means an alternate water system that utilizes the collection of gray water discharged from clothes washing machines located at private one-and two-family dwellings for landscape irrigation.

TRAP, DEEP SEAL P-TRAP means a fixture trap having a water seal of at least four inches but is not more than twice the diameter of the trap arm, does not exceed 12 inches, is set true with respect to its water seal, and, where necessary, protected from freezing.

202.1.2 Replacement Definitions.

PLUMBING SYSTEM means all potable water, building supply, and distribution pipes; all plumbing fixtures and traps; all drainage and vent pipes; and all building drains and building sewers, including their respective joints and connections, devices, receptors, and appurtenances within the property lines of the premises and includes potable water piping, alternate water source systems, irrigation systems, potable water treating or using equipment, medical gas and medical vacuum systems, liquid and fuel gas piping, and water heaters and vents for same.

304.2 Sewage system connection required. If any part of a lot or tract that contains a house or building is located within 100 feet in horizontal distance (measured based on the closest practicable access route) of a public sewage disposal system, the draining system of the house or building must be separately and independently connected to the public sewage disposal system. The drainage system is not required to be connected if:

1. the property owner received a denial of service in writing from the owner or governing body of the public sewage disposal system;

2. the property owner received a written determination from Austin Water that it is not feasible for the building to be connected to the public sewage disposal system;

3. the property is served by an existing private sewage facility and Austin Water determined the private sewage facility may continue to be used based on factors such as the type of building served; the age, condition, and capacity of the private sewage facility; and the availability of records related to the system, changes to the system, or the generating unit; or

4. a composting toilet serves the property and Austin Water approved the disposal of liquid wastes in a private on-site sewage facility.

309.6 Private Hydrant Lines. Water lines from a private water main to a private fire hydrant with more than 100 gallons capacity shall have backflow prevention protection as required by Chapter 15-1 (*Cross-Connection Regulations*).

312.6 Freeze protection. Water lines installed outside of the building thermal envelope will require a minimum of 5/8 inch thick insulation with a minimum of R4 value.

319.0 Medical gas and vacuum systems. Any medical gas and vacuum system used in conjunction with human health care purposes must be installed consistent with the requirements in the most current edition at the effective date of this article of the National Fire Protection Association (NFPA) 99 entitled "Health Care Facilities Code" and the latest edition of the ANSI/ASSE Series 6000 titled "Professional Qualification Standards for Medical Gas System Installers, Inspectors, Verifiers, Maintenance Personnel and Instructors" to the extent the requirements conflict with the Texas State Board of Plumbing Examiners Plumbing License Law requirements. A medical gas system for non-human use must be installed consistent with Section 1305.0 in its entirety.

322.0 Elevator sump pumps. If a pump and associated piping and materials required for elevators is installed under Texas Administrative Code, Title 16, Part 4, Chapter 74, the pump and associated piping and materials must also comply with Sections 322.1 through 322.4.

322.1 Acceptable discharge location. In a new elevator shaft, an elevator sump pump must discharge to the storm system outside of the building, detention pond, or other location approved for each project by the authority having jurisdiction. A hydraulic elevator must be equipped with a hydraulic oil alarm and a secondary containment must be installed and approved for each project by the authority having jurisdiction.

322.2 Discharge piping. Piping must be at least one and a half inch (1½ inch) NPS. Piping must be independent and cannot connect to the storm or sub-soil piping within the building. Discharge piping must comply with Section 710.4 (*Discharge line*) of this code. If an elevator sump pump is located below the 100-year floodplain its piping must rise above the 100-year floodplain elevation before connecting to a gravity drainage system. Piping must be labeled as required in this code.

322.3 Materials. Piping materials for an elevator sump pump must be galvanized steel, galvanized wrought iron, copper, or other material approved by the authority having jurisdiction. Piping that is located within a shaft must be made of non-combustible materials. A transition to another approved material must be made outside of the elevator shaft using an approved transition fitting as required by Chapter 7 of this code.

322.4 Sample port. A sample port must be installed outside of the building on private property or another location approved by the authority having jurisdiction. Open grate catch basins, single riser two way cleanouts, or other approved fittings or receptors with the ability to visually see the flow line and retrieve samples are acceptable sample ports.

402.5 Settings. See Section 2903.1.1 Water closets, urinals, lavatories, and bidets in the Building Code.

407.4 Transient public lavatories. A lavatory that serves the transient public in Group A, B, and M type occupancies as defined in the Building Code must be equipped with self-closing or metering faucets.

411.2 Water closets. The average water consumption of a water closet that is flush tank, flush-o-meter tank, or flush-o-meter valve operated may not exceed 1.28 gallons of water per flush.

412.1 Urinals. Urinals shall comply with ASME A112.19.2/CSA B45.1, ASME A112.19.19, or CSA B45.5/IAPMO Z124. Urinals shall have an average water consumption that is one half gallon or less of water per flush.

420.3 Pre-rinse spray valve. The maximum flow rate for a commercial food service pre-rinse spray valve is 1.28 gallons per minute (gpm) at 60 pounds force per square inch (psi) consistent with ASME A112.18.1/CSA B125.1. A commercial food service valve must be equipped with an integral automatic shutoff.

422.0 Minimum number of required fixtures. Minimum number of required fixtures is based on Building Code Chapter 29 (*Plumbing Systems*). Each building must be provided with sanitary facilities, including facilities designed for an individual with a disability.

422.2 Toilet Facilities for Workers. During construction, toilet facilities shall be provided for workers and shall be maintained in a sanitary condition.

504.7 Appliances elevated above an occupied space in an occupancy required to comply with the Building Code. Storage-type water heaters that exceeds a capacity of 17 gallons shall not be installed 8 feet above the finish floor unless:

1. permanent access to the water heater is provided that supports a 300-pound concentrated load and complies with the requirements of the Building Code;
2. permanent lifting equipment designed by a registered design professional is installed; or
3. lifting equipment access is provided from entry point to location of appliance.

504.7.1 One- and two-family dwellings and townhouse type occupancy. A storage-type water heater that exceeds a capacity of 17 gallons may not be installed in an attic or above a ceiling in a residential occupancy unless the water heater is accessible through a vertical door opening located in an occupied space on the same floor level.

508.2 Roof drainage and rails. Equipment shall be installed on a well-drained surface of the roof. Guards must be provided where an appliance, equipment, fan, solar systems, or other components require service and are located within 10 feet of a roof edge or open side of a walking surface and the edge or walking surface is located 30 inches above the grade below. Rigid fixed rails or guards at least 42 inches in height must be provided on the exposed side. The guard must be constructed to prevent a 21-inch-diameter sphere from passing through and must extend at least 30 inches beyond each end of the appliance, equipment, fan, or component. If a parapet or other building structure is used in lieu of a guard, it must be at least 42 inches in height.

Exception: Guards are not required where a permanent fall arrest anchorage connector system in accordance with ASSE Z359.1 is installed.

601.1.1 Water system connection required. If any part of a lot or tract that contains a house or building is located within 100 feet in horizontal distance (measured based on the closest practicable access route) of a state-licensed public potable water system, the water system of the house or building must be separately and independently connected to the public water system. The water system is not required to be connected if:

1. the property owner received a denial of service in writing from the owner or governing body of the public water system;

2. the property owner received a written determination from Austin Water that it is not feasible for the building to be connected to a potable water system; or

3. the property is served by an existing private potable water system and Austin Water determined the private potable water system may continue to be used based on factors such as the type of building served; the age, condition, and capacity of the private potable water system; the quality of the water; and the availability of records related to the system, changes to the system, or the system demand.

601.3 Identification of a potable and non-potable water system. If potable water and non-potable water systems are installed on the same site, then each system must be labeled and identified consistent with the requirements in Section 601.3.1 through Section 601.3.4.

Exception. Potable water piping inside a building does not require labeling if the non-potable water system does not enter the building.

601.3.1 Potable water. The system must be identified using a green background and white lettering.

601.3.2 Color and information. A water system must be identified with a colored pipe or sleeve and coated with paints, wraps, and materials that are compatible with the piping. Except as required in Section 601.3.3, a non-potable water system must have a yellow background with black uppercase lettering and labeled "CAUTION: NONPOTABLE WATER, DO NOT DRINK". A non-potable water system must be identified in a manner that designates the liquid being conveyed and shows the direction of normal flow. The size of letters and length of the color field must comply with Table 601.3.3. For piping above grade, the background color and the required information must be indicated every 20 feet (6,096 mm) but not less than once per room, on both sides of the wall or partition penetrated by the piping, and at least once in every story height traversed by risers. For piping below grade, the background color and the required information must be indicated every five feet, except that all reclaimed piping shall be purple pipe or painted purple (Pantone color No. 512, 522C or equivalent).

Exception. The pipe and components of an existing irrigation system that is converted to an alternate water source located below grade may remain unmarked until disturbed. Any repair, additions, or alterations must be identified consistent with Section 601.3.2. All pipe and components located above grade or accessible within a subsurface vault must be identified consistent with 30 TAC § 344.65(3).

601.3.3 Alternate water source. An alternative water source system must have a purple (Pantone color No. 512, 522C or equivalent) background with uppercase lettering and shall be field or factory marked as follows:

1. A gray water system shall be marked with: “CAUTION: NONPOTABLE GRAY WATER, DO NOT DRINK” in uppercase black letters.
2. All reclaimed (recycled) water system piping shall be purple pipe or painted purple and marked “CAUTION: NONPOTABLE RECLAIMED (RECYCLED) WATER, DO NOT DRINK” in uppercase black letters.
3. An on-site treated water system shall be marked with “CAUTION: ON-SITE TREATED NONPOTABLE WATER, DO NOT DRINK” in uppercase black letters.
4. A rainwater catchment system shall be marked with “CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK” in uppercase black letters.

Table 603.2

Backflow Prevention Devices, Assemblies, and Methods

DEGREE OF HAZARD						
Device, Assembly, or Method ¹	Applicable standards	Degree of Hazard				Installation ^{2,3}
		Pollution (Low Hazard)		Contamination (High Hazard)		
		Back-Siphon age	Back-Pressur e	Back-Siphon age	Back-Pressur e	
Air gap	ASME A112.1.2	X	–	X	–	See Table 603.3.1 in this chapter.
Air gap fittings for use with plumbing fixtures, appliances, and appurtenances	ASME A112.1.3	X	–	X	–	Air gap fitting is a device with an internal air gap, and typical installation includes plumbing fixtures, appliances, and appurtenances. The critical level shall not be installed below the flood level rim.
Atmospheric vacuum breaker (consists of a body, checking member and atmospheric port)	ASSE 1001 or CSA B64.1.1	X	–	X	–	Upright position. No valve downstream. Minimum of six 6 inches or listed distance above all downstream piping and flood level rim of receptor. ^{4,5}
Antisiphon fill valve (ballcocks) for gravity water closet flush tanks and urinal tanks	ASSE 1002/ASME A112.1002/CSA B125.12	X	–	X	–	Installation of gravity water closet flush tank and urinal tanks with the fill valve installed with the critical level not less than 1 inch above the opening of the overflow pipe. ^{4,5}
Vacuum breaker wall hydrants, hose bib's, frost	ASSE 1019 or CSA B64.2.1.1	X	–	X	–	Installation includes wall hydrants and hose bibbs. Such devices are not for use under continuous pressure conditions (means of

resistant, automatic draining type						shutoff downstream of device is prohibited). ^{4,5}
Hose connection vacuum breakers	ASSE 1011	X	—	X	—	Such devices are not for use under continuous pressure conditions. No valve downstream. ^{4,6}
Hose connection backflow preventers	ASSE 1052	X	—	X	—	Such devices are not for use under continuous pressure conditions. ^{4,6}
Backflow preventer for beverage dispensers (2 independent check valves with a vent to the atmosphere)	ASSE 1022	X	—	—	—	Installation does not include carbonated beverage dispensers and installation must comply with manufacturer's installation requirements.
Dual check backflow preventer wall hydrants, freeze resistant	ASSE 1053	X	—	X	—	Such devices are not for use under continuous pressure conditions. ⁴
Freeze resistant sanitary yard hydrants	ASSE 1057	X	—	X	—	Such devices are not for use under continuous pressure conditions. ⁴
Backflow preventer with intermediate atmospheric vent	ASSE 1012	X	X	—	—	Installation of potable water connections to potable water boilers. No high-hazard chemicals shall be introduced into the system using such devices. Designed to operate under continuous pressure conditions. May discharge water.
Backflow preventer with intermediate atmospheric vent and pressure reducing valve	ASSE 1081	X	X	—	—	Installation of potable water connections to potable water boilers. No high-hazard chemicals shall be introduced into the system using such devices. Designed to operate under continuous pressure conditions. May discharge water.
Spill-Resistant Pressure Vacuum Breaker (single check valve with air inlet vent and means of field testing)	USC FCCCHR ⁷	X	—	X	—	Upright position. Minimum of 12 inches or listed distance above all downstream piping and flood-level rim of receptor. ⁵
Double Check Valve Backflow Prevention Assembly (two independent check valves and means of field testing)	USC FCCCHR ⁷	X	X	—	—	Horizontal unless otherwise listed. Access and clearance shall be in accordance with the manufacturer's instructions, and not less than a 12 inch clearance at the bottom for maintenance. May need platform/ladder for test and repair. Does not discharge water.
Double Check Detector Fire Protection Backflow Prevention Assembly (two independent check valves with a parallel	USC FCCCHR ⁷	X	X	—	—	Horizontal unless otherwise listed. Access and clearance shall be in accordance with the manufacturer's instructions, and not less than a 12 inch clearance at the bottom

detector assembly consisting of a water meter and a double check valve backflow prevention assembly and means for field testing)						for maintenance. May need platform/ladder for test and repair. Does not discharge water. Installation includes a fire protection system and is designed to operate under continuous pressure conditions.
Pressure Vacuum Breaker Backflow Prevention Assembly (loaded air inlet valve, internally loaded check valve and means for field testing)	USC FCCCHR ⁷	X	—	X	—	Upright position. May have valves downstream. Minimum of 12 inches above all downstream piping and flood-level rim of the receptor. May discharge water.
Reduced Pressure Principle Backflow Prevention Assembly (two independently acting loaded check valves, a differential pressure relief valve and means for field testing)	USC FCCCHR ⁷	X	X	X	X	Horizontal unless otherwise listed. Access and clearance shall be in accordance with the manufacturer's instructions, and not less than a 12 inch clearance at the bottom for maintenance. May need platform/ladder for test and repair. May discharge water.
Reduced Pressure Detector Fire Protection Backflow Prevention Assembly (two independently acting loaded check valves, a differential pressure relief valve, with a parallel detector assembly consisting of a water meter and a reduced-pressure principle backflow prevention assembly, and means for field testing)	USC FCCCHR ⁷	X	X	X	X	Horizontal unless otherwise listed. Access and clearance shall be in accordance with the manufacturer's instructions, and not less than a 12 inch clearance at the bottom for maintenance. May need platform/ladder for test and repair. May discharge water. Installation includes a fire protection system and is designed to operate under continuous pressure conditions.
Laboratory faucet backflow preventer	ASSE 1035	—	—	X	X	Installation includes laboratory faucets. Such devices are not for use under continuous pressure conditions. No valve downstream. ⁴

For SI units: 1 inch = 25.4 mm

Notes:

1. See the description of devices and assemblies in this chapter.
2. Installation in pit or vault requires previous approval by the Authority Having Jurisdiction.
3. Refer to the general and specific requirement for installation.
4. Not to be subjected to operating pressure for more than 12 hours in a 24 hour period.
5. For deck-mounted and equipment-mounted vacuum breaker, see Section 603.5.13.
6. Shall be installed in accordance with Section 603.5.7.
7. Current list of approved backflow prevention assemblies, University of Southern California Foundation for Cross-Connection Control and Hydraulic Research.

603.2 Approval of devices or assemblies. A device or an assembly may be installed for the prevention of backflow if it is approved by the authority having jurisdiction before it is installed. A device or an assembly must be tested consistent with recognized standards or another standard, if acceptable to the authority having jurisdiction. A backflow prevention device or assembly must comply with Table 603.2 and Chapter 15-1 (*Cross-Connection Regulations*) except for a specific application or provision included in Sections 603.5.1 through 603.5.20. A device or assembly installed in a potable water supply system for protection against backflow must be maintained in good working condition by the person or persons with control of the device or assembly. A device or an assembly must be tested at the time of installation, repair, or relocation and when required by the authority having jurisdiction. If the device or assembly is determined to be defective or inoperative, the device or assembly must be repaired or replaced. Before a device or assembly may be removed from use, relocated, or substituted with another device or assembly, the authority having jurisdiction must approve of the action. A backflow assembly tester, licensed by the State of Texas and registered with the City, must conduct testing consistent with Chapter 15-1 (*Cross-Connection Regulations*).

603.4.2 Testing. The owner or other responsible person for a premises must have the backflow prevention assembly tested by a backflow assembly tester, licensed by the State of Texas and registered by the City. Testing must occur at the time of installation, repair, relocation and when otherwise required by the authority having jurisdiction. Periodic testing must be performed as required by Chapter 15-1 (*Cross-Connection Regulations*).

603.4.10 Hazard isolation. A separate backflow prevention assembly or device must be installed on a high hazard appurtenance or fixture in high hazard situations when water or product is intended for contact with humans either directly (consumption, bathing, medical uses, dental chairs, pharmaceuticals, etc.) or indirectly (sterilization, autoclaves, washing dishes or bottles, canning, etc.).

Exception. Potable water supplied to carbonators must be protected with a listed reduced pressure principal backflow preventer that is approved by the authority having jurisdiction for that specific use. A single reduced pressure principal backflow prevention assembly may be installed for multiple carbonators that are located in the same immediate physical area if all water piping from the backflow preventer to the carbonator is exposed. Piping downstream of backflow protection for carbonators cannot be affected by carbon dioxide gas.

603.4.10.1 Multiple high hazards. If no human contact is intended, then a single backflow prevention assembly or device may be installed for multiple high hazard appurtenances or fixtures. Each water line downstream of the backflow protection must be labeled consistent with requirements for non-potable water labeling.

603.4.10.2 Multiple low hazards. In low hazard situations that service multiple low hazards of the same type and are located in the same immediate physical area, a single backflow prevention assembly or device may be installed if all piping downstream of the backflow protection is exposed.

603.5.6 Protection from lawn sprinklers and irrigation systems. Potable water that is supplied to a system that lacks pumps or connections for pumping equipment and lacks chemical injection or the provisions for chemical injection must be protected from backflow using one of the following devices:

1. atmospheric vacuum breaker (AVB);
2. pressure vacuum breaker backflow prevention assembly (PVB);
3. spill-resistant pressure breaker vacuum breaker (SVB);
4. reduced-pressure principle backflow prevention assembly (RP); or
5. double check valve assembly (DCVA).

603.5.6.1 Systems with pumps. When a sprinkler or irrigation system has pumps, connections for pumping equipment, auxiliary air tanks, or otherwise capable of creating backpressure and the backflow device is located upstream from the source of backpressure, the potable water supply must be protected using one of the following devices:

1. reduced-pressure principle backflow prevention assembly (RP); or
2. double check valve assembly (DCVA).

603.5.6.2 Systems with backflow devices. The backflow device installed downstream from a potable water supply pump or a potable water supply pump connection must be:

1. atmospheric vacuum breaker (AVB);
2. pressure vacuum breaker backflow prevention assembly (PVB);
3. spill-resistant pressure vacuum breaker (SVB);
4. reduced-pressure principle backflow prevention assembly (RP); or
5. double check valve assembly (DCVA).

603.5.6.3 Systems with chemical injectors. The potable water supply shall be protected by a RP in a system with a chemical injector or provisions for chemical injection.

603.5.12 Beverage Dispensers. The potable water supply to a beverage dispenser or coffee machine shall be protected by an air gap, DCVA, or vented backflow preventer consistent with ASSE 1022 installed and maintained per manufacturer's requirements.

603.5.12.1 Carbonated beverage dispenser. The potable water supply to a carbonated beverage dispenser must be protected by an air gap or a RP. The piping material installed downstream of the backflow preventer cannot be affected by carbon dioxide gas.

603.5.12.2 Beverage dispenser in healthcare facilities. The potable water supply to a beverage dispenser or coffee machine that is located within a healthcare facility and subject to NFPA 99 must be protected by a testable backflow prevention assembly as defined in Chapter 15-1 (*Cross-Connection Regulations*).

603.5.22 Site containment backflow prevention requirements. A site that utilizes an alternate water source must provide an air gap or a mechanical backflow protection device located immediately downstream of all potable City water meters and City service lines to private fire lines consistent with Table 603.5.

Exception. A non-potable rainwater catchment or non-potable condensate collection system of 500 gallons or less does not require backflow prevention at the potable water meter.

603.5.23 Cooling tower reservoirs. A water supply inlet that terminates inside the envelope of a cooling tower must be protected with a reduced air pressure principle backflow prevention assembly. A water supply inlet that terminates outside the envelope of a cooling tower must be protected by an air gap or reduced air pressure principle backflow prevention assembly.

Table 603.5

List of alternate Water Sources and Uses(1)	Backflow prevention required at potable water connection			Backflow protection required at point of interconnection with potable water
	Domestic water meter (2)	Irrigation Water meter (2)	City service to private fire mains (2), (3), (4), (5)	
Lake/River water	RP	RP	DC	RP

Well water		RP	RP	DC	RP
Condensate I Gravity		-	DC (5)	DC	RP
water	Pumped	RP	RP	DC	RP
Rain water	Gravity	-	DC (5)	DC	RP
	Pumped	RP	RP	DC	RP
Gray water	Gravity	-	DC (5)	DC	AG
	Pumped	RP	RP	DC	AG
Reclaim water (6)		RP	RP	DC	AG
Other water supply (7)		RP	RP	DC	AG

Table Notes

RP= reduced pressure zone backflow prevention assembly

DC - double check backflow prevention assembly AG
air gap

(1) If multiple sources of alternate water are used, all backflow protection must meet the most stringent requirements of the sources used.

(2) A backflow prevention assembly installed at the potable service connection of a site served by an alternate water source must have an annual operational test.

(3) A new backflow prevention assembly installed in an existing fire system may result in the need to re-calculate fire system design specifications due to backflow preventer pressure losses.

(4) A backflow prevention assembly installed in an un-metered fire system is required to be a detector assembly.

(5) These backflow prevention assemblies are required regardless of the presence of alternate water.

(6) When a chemical addition system is used (e.g. fertigation) a DC will be required on the reclaimed water service connection.

(7) Other water supply includes any and all other alternate waters not listed in the table.

606.2.1 Full-way valve installation location. A full-way valve installed on the discharge side of the water meter is prohibited from being installed inside a City of Austin meter box or vault.

Exception. A full-way valve on the discharge side of the water meter may be installed in a City of Austin meter box or vault because of space limitations and with written consent from Austin Water.

608.2 Excessive water pressure. If local static water pressure exceeds 65 pounds per square inch, an approved pressure regulator preceded by an adequate strainer must be installed to reduce the static pressure to 65 pound per square inch or less. A pressure regulator that is equal to or exceeds one and one-half inches does not require a strainer. The regulator must control the pressure to all water outlets in the building unless otherwise approved by the authority having jurisdiction. The regulator and, if required, strainer must be accessible, located above ground or in a vault, and protected from freezing. The strainer must be readily accessible for cleaning without removing the regulator or the strainer body or disconnecting the supply piping. Pipe size determinations are based on 80 percent of the reduced pressure when using Table 6-6 (*Fixture Unit Table for Determining Water Pipe and Meter Sizes*). An approved expansion tank must be installed in the cold water distribution piping downstream of the regulator to prevent excessive pressure from developing because of thermal expansion and to maintain the pressure setting of the regulator. An expansion tank used in a potable water system intended to supply drinking water must comply with NSF 61. An expansion tank must be properly sized and installed consistent with the manufacturer's installation instructions and listing. A system designed by a registered design professional may use approved pressure relief valves in lieu of expansion tanks provided the relief valve has a maximum pressure relief setting of 100 pounds per square inch (698 kPa) or less.

Exception. A one-or two-family dwelling or a townhome that is required to install a multi-purpose fire protection system may have static water pressure up to 80 pounds per square inch.

609.13 Private Fire Lines. A private fire line must be installed consistent with the latest version of the National Fire Protection Association (NFPA) 24 Standard for the Installation of Private Fire Service Mains and their Appurtenances, as set forth in the Fire Protection Criteria Manual. A private fire line must comply with the NFPA 25 Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

Table 610.1 Water Meter Sizing for Residential Single Family Homes, Duplex, and Townhomes		
Maximum Water Fixture Units ¹	Water meter size ²	Typical number of bathrooms
35 fixture units	5/8" meter	3 bathrooms or less
40 fixture units	3/4" meter	3 1/2 bathrooms
44 fixture units	3/4" meter	4 bathrooms
52 fixture units	3/4" meter	5 bathrooms
55.5 fixture units	3/4" meter	5 1/2 bathrooms
70 fixture units	1" meter	6 bathrooms
78 fixture units	1" meter	7 bathrooms

84.5 fixture units	1" meter	8 bathrooms
<p>1. Standard rounding conventions apply when determining Water Supply Fixture Units (WSFU).</p> <p>2. To be approved for a meter size based on the WSFU, an applicant must provide calculations when the Water and Wastewater Service Plan and Verification consultation with Austin Water Utility occurs. The calculations must be based on the total WSFU count for the property.</p>		

610.1.1 Size of water meters for one- and two-family dwellings and townhomes. An Austin Water meter provided to one-or-two family dwellings or townhomes must be sized based on the requirements in Table 610.1.

612.0 Residential fire sprinkler systems. When a residential sprinkler system is required in a one-or-two family dwelling or townhome, the system must be installed consistent with Residential Code Section P2904 or NFPA 13D and must comply with the Fire Code.

612.1 Types of systems. This section applies to a stand-alone or multipurpose wet-pipe sprinkler system that does not use antifreeze. A multipurpose fire sprinkler system must provide potable water to both fire sprinklers and plumbing fixtures. A stand-alone sprinkler system must be separate and independent from the potable water system. A backflow prevention assembly must separate a stand-alone sprinkler system from the potable water supply.

613.0 Plumbing for multi-family sub-meters. A newly constructed multi-family housing unit or a residential unit in a mixed-use facility must have a single cold water stub out that supplies all fixtures within each dwelling unit that is supplied by the master meter. A City meter or privately-owned water meter must be installed for each newly constructed unit at the time of construction. Each stub out must have a shut off valve immediately ahead of the private meter location. The meter must have a clearance of at least four inches on each side. The private meter must be installed in a location that is accessible for reading, testing, replacement, and inspection.

Exception. A development with a centralized hot water system is not required to comply with this section.

614.0 Landscape irrigation. Irrigation for landscape must comply with the requirements in Chapter 344, Title 30 of the Texas Administrative Code; Sections 614.1 through 614.2 of this code; and requirements imposed by the Texas Commission on Environmental Quality.

614.1 Requirements for one-and-two family dwelling landscape irrigation installation. A new irrigation system for a one-or-two family dwelling must be designed and installed to include:

1. spray irrigation is that limited to areas that are more than six feet wide (medians, buffer strips, and parking lots islands should not be spray irrigated);
2. above-ground irrigation emission devices that are located at least six inches from impervious surfaces;
3. a master valve for the system;
4. circuit remote control valves have adjustable flow controls;
5. serviceable in-head check valves are adjacent to paved areas where elevation differences may cause low head drainage;
6. a rain shut-off device shuts off the irrigation system automatically at or before ½ inch rainfall;
7. zone valves and circuits that are separated based on hydrozoning; and
8. an isolation valve that is located between the meter and the backflow prevention device.

614.2 Inspection. During the final plumbing inspection, the irrigation installer must provide the Building Official:

1. water budget that includes a chart containing zone numbers, precipitation rate, and gallons per minute and the location of the isolation valve;
2. a report on the form provided by Austin Water that certifies compliance with the requirements in Section 615.1 or 615.2; and
3. proof that a laminated copy of the water budget is permanently installed inside the irrigation controller door.

616.0 Once through cooling. Potable water may not be used for once through cooling of commercial equipment including, but not limited to, ice machines, ice cream machines, refrigerators, coolers, freezers, air conditioning equipment and condensers for dry cleaning equipment unless 100 percent of the potable water used is returned for non-potable uses such as cooling tower make up or other approved uses in a new installation.

617.0 Car wash equipment. Except for self-service (spray wand) type systems, newly installed car wash equipment must be sleeved or piped under the slab to accommodate future reuse equipment that can be easily installed underground and run to an area where a water reclaim system would be anticipated to be installed. The sleeve or piping must extend approximately 24 inches past the exterior wall from the car wash equipment

room and 18 inches from the interior wall. Both ends of the sleeve or piping must be equipped with a cleanout extended to grade.

704.3 Commercial sinks. A pot sink, scullery sink, dishwashing sink or machine, silverware sink or machine, commercial dishwashing machines, and other similar fixtures must be connected to the drainage system indirectly.

707.2.1 Two way cleanout tees. A single rise two way cleanout tee may be installed with a maximum 18 inch extension to grade.

710.3 Sewage ejector and pumps. A sewage ejector or sewage pump that receives the discharge of water closets or urinals:

1. must have a discharge capacity of at least 20 gallons per minute (gpm) (1.26 L/s); and
2. in single dwelling units, the ejector or pump must be capable of passing a 1.5 inch (40 mm) diameter solid ball; or
3. in a building that is not a single dwelling unit, the ejector or pump must be capable of passing a 1.5 inch (40 mm) diameter solid ball; and
4. the discharge piping of each ejector or pump must have a backwater valve and valve gate and be at least 2 inches (50 mm) in diameter.

710.9.1 Simplex sumps. A single 1.0 or 2.0 DFU fixture that is not a required plumbing fixture under the Plumbing Code may be served by a single pump or ejector system.

Exceptions:

1. A single pump ejector system that serves an accessible break room sink with 1 ½ inch outlet and a 1½ inch inlet is allowed.
2. A 1 ½ inch outlet service sink may be drained by a single pump ejector system.

712.1 Testing procedures for drain, waste, and vent piping. The required testing process is located in the Building Criteria Manual Section 5.6.2 (*Plumbing Systems Test Requirements*).

712.2 Trench drains. The required testing process is located in the Building Criteria Manual Section 5.6.2 (*Plumbing Systems Test Requirements*).

713.4 Availability. Austin Water will determine the availability of the public sewer for any proposed building or exterior drainage facility on any lot or premises, which abuts and is served by the public sewer.

723.0 Building sewer test. The required testing process is located in the Building Criteria Manual Section 5.6.2 (*Plumbing Systems Test Requirements*).

723.1 Manhole test. The required testing process is located in the Building Criteria Manual Section 5.6.2 (*Plumbing Systems Test Requirements*).

804.1.1 Hub drain. A hub drain that receives discharge from a water heater temperature and pressure valve drain, pan drain, condensation drain, and other similar clear water waste drains may be located under the kitchen sink cabinet, water heater closet, walk-in storage room, and other similar accessible locations.

807.3 Domestic dishwashing machines. The discharge from a domestic dishwashing machine is indirect waste and may not be directly connected to a drainage system or food waste disposer unless one of the following applies:

1. an approved dishwashing air-gap fitting is used on the discharge side of the dishwashing machine; or
2. the discharge line from the dishwasher is looped up and securely fastened to the underside of the counter and the discharge is connected to the chamber of the food waste grinder or to a wye fitting between the food waste grinder outlet and the trap inlet or to a branch tailpiece fitting above the trap inlet.

905.3.1 Horizontal Vent. A horizontal vent that is less than six inches in height above the flood level rim of the fixture being served must be served with a clean out.

908.3 Horizontal wet venting for public use fixtures. Water closets, floor drains, and indirect waste receptors may be horizontally wet vented with fixtures that are not more than one or two fixture units in size. This does not apply to kitchen sinks or urinals. No more than two fixtures may be located on the horizontal wet vented section of the water closet, floor drain, or indirect waste receptor. A two-inch cleanout is required for the dry vent.

1009.2 Approval. Austin Water approves the size, design, type, and location of each interceptor or separator. Except as otherwise specifically allowed by the City Code, wastes that do not require treatment or separation may not be discharged into any interceptor. A grease, sand, or other gravity interceptor must be field tested by applying a minimum of a one-inch water column above the lid seal of the interceptor.

Exception. An interceptor or separator on a septic system must meet the requirements established by Austin Water.

1014.1 General. If pre-treatment is required, an approved type of grease interceptor that complies with Austin Water requirements must be installed in the waste discharge leading from sinks, drains, and other fixtures or equipment. A grease interceptor is required in a facility that may introduce fats, oils, or grease into the drainage or sewage system in quantities that can affect line stoppage or hinder sewage treatment or private sewage disposal. This type of facility includes, without limitation, commercial or institutional food preparation. Facilities such as food processors, bakeries, restaurants, cafeterias, schools, hospitals, retirement homes, assisted living facilities, and grocery stores. A combination of hydro-mechanical, gravity grease interceptors, and engineered systems may be approved by Austin Water if space or existing physical constraints of an existing building requires such an installation to meet the Plumbing Code. A grease interceptor is not required for a one-or-two family dwelling or townhome. A water closet, urinal, or other plumbing fixture that conveys human waste may not drain into or through the grease interceptor.

1014.1.1 Each fixture discharging into a grease interceptor must be individually trapped and vented in an approved manner.

1014.1.2 Accumulated grease and latent material must be periodically removed from a grease interceptor to maintain efficient operating conditions. Removal of accumulated grease or latent materials must comply with Chapter 15-10 (*Wastewater Regulations*). Accumulated grease or latent materials may not be introduced into any drainage piping or public or private sewer. If the authority having jurisdiction determines that a grease. Interceptor is not being properly maintained or cleaned, the authority having jurisdiction may require additional equipment or devices be installed and may mandate a maintenance program.

1014.1.3 Food waste disposal units and dishwashers. A food waste or garbage disposal unit may not be installed in a restaurant, cafeteria, and other commercial and institutional kitchen or food preparation facility. A system installed prior to the prohibition must be connected to or discharge into a grease interceptor. Unless specifically exempted by Austin Water, a dishwasher in a commercial or institutional food preparation facility must be connected to or discharge into a grease interceptor.

1014.2 Hydro-mechanical grease interceptors. A hydro-mechanical grease interceptor or separator must be a size, standard, design, and type approved by Austin Water; and must be installed in a location approved by Austin Water.

1014.3.3 Design. A gravity interceptor must be constructed consistent with a design approved by Austin Water.

1014.3.6 Sizing Criteria. The size and volume of an interceptor must be based on and comply with criteria established by Austin Water.

1015.0 Fats, oils, and greases (FOG) pre-treatment and disposal systems.

1015.1 Purpose. The purpose of this section is to provide the necessary criteria for the sizing, application, and installation of FOG pre-treatment and disposal systems designated as a pre-treatment or discharge water quality compliance strategy consistent with this code and Chapter 15- 10 (*Wastewater Regulations*).

1015.2 Scope. A FOG pre-treatment or disposal system is considered an engineered system and must comply with Article 3 (*Flood Loads and Hazard Areas*) and Chapter 15-10 (*Wastewater Regulations*).

1015.3 Components, materials, and equipment. A FOG pre-treatment or disposal system, including all components, materials, and equipment necessary for the system to function properly, must comply with Section 301.2 (*Minimum Standards*) of this code and Chapter 15-10 (*Wastewater Regulations*).

1015.4 Sizing application and installation. A FOG pre-treatment or disposal system must be engineered, sized, and installed consistent with manufacturer's specifications, as specified in ASME A1 12.14.6 (as listed in Table 1401.1 of *this code*) and Chapter 15-10 (*Wastewater Regulations*).

1015.5 Performance. A FOG pre-treatment or disposal system must be tested and certified as listed in Table 1401.1 of this code and other national consensus standards applicable to a fat oil grease (FOG) disposal system as discharging effluent that is compliant with the standards and requirements in Chapter 15-10 (*Wastewater Regulations*).

1016.0 Sand Interceptors.

1016.1 Where required.

1016.1.1 If pre-treatment is required, an approved type of sand interceptor that complies with Austin Water regulations must be installed in the waste discharge leading from a fixture or drain that contains solids or semi-solids heavier than water that would be harmful to the drainage system, cause a stoppage within the system, or as otherwise required by Chapter 15-10 (*Wastewater Regulations*). Multiple floor drains may be discharged into one sand interceptor. If effluent quality does not meet City standards, additional pre-treatment may be required.

1016.1.2 A sand interceptor is required when Austin Water determines it is necessary to protect the drainage system.

1016.3 Construction and Size. A sand interceptor must be constructed and sized consistent with the Austin Water design standards.

1017.0 Petroleum-based oil and flammable liquid interceptors and pre-treatment. An operation that generates a discharge that contains petroleum-based oily, flammable, or both types of waste must install and maintain an interceptor, hold haul tank, or other pre-treatment system that complies with Chapter 15-10 (*Wastewater Regulations*) and as authorized by Austin Water. An interceptor or other pre-treatment system, tank, or pump installed must be accessible and be vented to the atmosphere in a manner authorized by the City Code.

1103.5 Sizing of rain piping. The required size of rainwater piping is based on a maximum of five inches of rainfall per hour that falls on a given roof area calculated in square feet. Five inches per hour must be used to size both primary rainwater systems and overflow or emergency rainwater systems.

1107.0 Methods of testing storm drainage systems. The required testing process is located in the Building Criteria Manual Section 5.6.2 (*Plumbing Systems Test Requirements*).

1106.2.1 Test procedures for material other than polyvinyl chloride (PVC) drainage piping. The required testing process is located in the Building Criteria Manual Section 5.6.2 (*Plumbing Systems Test Requirements*).

1106.2.2 Testing procedures for plastic roof drainage piping. The required testing process is located in the Building Criteria Manual Section 5.6.2 (*Plumbing Systems Test Requirements*).

1201.1.1 Liquefied petroleum approval. Liquefied petroleum container size, location, and service line are approved by the fire marshal.

1213.1.6.1 Testing process for gas systems. The required testing process is located in the Building Criteria Manual Section 5.6.2 (*Plumbing Systems test requirements*).

1301.0 Medical gas plan review and permits. An engineer licensed by the State of Texas must design a plan for a medical gas system that is installed for human uses. A plan must be submitted and reviewed prior to installing or revising a medical gas system. If approved, a medical gas permit may be obtained by a responsible master plumber who is licensed by the State of Texas and has a medical gas endorsement. The permit is required to alter or install a medical gas system.

1302.0 Liquid ring surgical and dental vacuum pump installations. Liquid ring surgical and dental vacuum pumps cannot be installed within the City.

1303.0 Category 3 vacuum systems. A drain must be connected directly to the sanitary waste system consistent with NFPA 99-2015 Figure A.5.3.3.10.1.3(4)(a).

1304.0 Medical Gas for Non-Human Uses.

1304.1 Piping materials for field-installed medical gas and vacuum systems for non-human uses.

1. Hard drawn seamless copper tube:
 - a. ASTM B 88, Standard Specification for Seamless Copper Water Tube, Copper Tube (K,L,M);
 - b. ASTM B 280, Standard Specification for Seamless Copper Tubing for Air Conditioning and Refrigeration Field Service, Copper ACR Tube;
 - c. ASTM B 819, Standard Specification for Seamless Copper Tube for Medical Gas Systems, Copper Medical Gas Tubing (K or L).

2. Stainless steel tube

Exception: Piping for a field installed vacuum system for non-human use may be installed with schedule 40 polyvinyl chloride (PVC).

1304.2 Testing requirements. The required testing process is located in the Building Criteria Manual Section 5.6.2 (*Plumbing Systems Test Requirements*).

1500.0 Except otherwise required by City Code, installing an alternate water reuse system is voluntary and optional.

1501.2 System design. An alternate water reuse system must be designed by a person registered or licensed to perform plumbing design work. A component, piping, or fitting used in an alternate water source system must be listed.

Exceptions. The following systems may be designed by a person who is not registered or licensed to perform plumbing design work:

1. A rainwater catchment or condensate collection system for irrigating:
 - a. landscaping for a one family dwelling when the system's outlets, piping, and other components are located on the exterior of the single family dwelling; or

b. Landscaping for a site when the system's maximum storage capacity is 500 gallons (1893 L).

2. A gravity gray water system with a maximum discharge capacity of 250 gallons per day (0.011 L/s) under a Section 103.1.3 homestead permit issued for a one-or- two family dwelling or townhome.
3. An on-site treated non-potable water system for a one family dwelling with a maximum discharge capacity of 250 gallons per day (0.011 L/s).
4. A laundry to landscape system.

1501.3 Permit. It is unlawful for a person to construct, install, alter, or cause to be constructed, installed, or altered an alternate water reuse system in a building or on a premise without first obtaining a permit to do such work from the authority having jurisdiction.

Exception. A plumbing permit is not required for non-potable rainwater or condensate collection systems that are not connected to any water line or fixture that is supplied by potable water if the:

1. gravity type exterior non-potable rainwater catchment system or non-potable condensate collection system is used only for outdoor applications; or
2. Non-potable rainwater catchment or non-potable condensate collection system is 500 gallons (1893 L) or less and is used only for outdoor applications.

1501.3.1 Registration required. An alternate water system must be registered with the authority having jurisdiction. Registration includes:

1. site address for the alternate water system;
2. storage capacity for the alternate water system;
3. type of alternate water; and
4. intended use for the alternate water.

Exception. A non-potable rainwater catchment or non-potable condensate collection system that is 500 gallons (1893 L) or less is not required to be registered.

Table 1501.5 Minimum Alternate Water Source Testing, Inspection, and Maintenance Frequency.

Inspect and clean filters and screens, and replace (when necessary)	Every 3 months
Inspect and verify disinfection, filters, and water quality treatment devices and systems are operational and maintaining minimum water quality requirements as determined by the authority having jurisdiction.	As required by manufacturer's instructions and the authority having jurisdiction.
Inspect and clear debris from rainwater gutters, downspouts, and roof washers.	Every 6 months
Inspect and clear debris from roof or other aboveground rainwater Collection surfaces.	Every 6 months
Remove tree branches and vegetation overhanging roof or other as needed aboveground rainwater collection surfaces.	
Inspect pumps and verify operation.	After installation and every 12 months thereafter.
Inspect valves and verify operation.	After installation and every 12 months thereafter.
Inspect pressure tanks and verify operation.	After installation and every 12 months thereafter.
Clear debris from and inspect storage tanks, locking devices, and verify operation.	After installation and every 12 months thereafter.
Inspect caution labels and markings.	After installation and every 12 months thereafter.
Inspect and maintain mulch basins for gray water irrigation systems.	As needed to maintain mulch depth and prevent ponding and runoff.
Cross connection inspection and test"	After installation and reoccurring thereafter as deemed appropriate by the authority having jurisdiction.

*The cross connection test must be performed consistent with the requirements of this chapter.

1501.5.2 Maintenance log. A maintenance log is required for an alternate water system that requires a permit under Section 1501.3. The maintenance log must be maintained by the property owner and be made available for inspection. The property owner or designated appointee must ensure that the maintenance log includes all records related to testing, inspection, and maintenance required in Table 1501.5. The purpose of the maintenance log is to demonstrate the frequency of inspection and maintenance for each system.

1501.7 Minimum water quality requirements. An alternate water source system must comply with applicable water quality requirements established by the authority having jurisdiction. In the event water quality requirements are not established, a property should comply with EPA/625/R-04/108, which includes the recommended water reuse guidelines.

Exceptions. Water treatment is not required for;

1. Rainwater catchment systems that are used for aboveground irrigation;
2. Gray water used for subsurface irrigation;
3. Rainwater catchment systems used for subsurface or drip irrigation; and
4. Alternate water or auxiliary water that originates from a well, river, or lake and is used only for outdoor irrigation.

1502.0 Inspection and Testing.

1502.1 General. Alternate water source systems shall be inspected and tested in accordance with Section 1502.2 through Section 1502.3.4

1502.2 Supply System Inspection and Test. Alternate water source systems shall be inspected and tested in accordance with this code using tests applicable to potable water piping.

1502.3 Cross-Connection Inspection and testing. Initial and subsequent inspections and tests shall be performed on both the potable and alternate water source systems. The potable and alternate water source system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1502.3.1 through section 1502.3.4.

Exception.

1. Gravity type exterior non-potable condensate collection systems do not require cross-connection testing.
2. Non-potable condensate collection systems less than 500 gallon capacity and used for outdoor applications do not require cross-connection testing.

1502.3.1 Visual system inspection. Before commencing the cross-connection testing, a dual system inspection shall be conducted by a licensed professional, registered with the authority having jurisdiction. A dual system inspection requires:

1. meter locations of the alternate water source and potable water lines shall be checked to verify that no modifications were made and that no cross-connections are visible;
2. pumps and equipment, equipment room signs and exposed piping in equipment rooms shall be checked;
3. valves shall be checked to ensure that the valve lock seals are still in place and intact; and
4. valve control door signs shall be checked to verify that no signs have been removed.

1502.3.2 Cross-Connection Test. To determine whether a cross-connection has occurred, a licensed professional, registered with the authority having jurisdiction, must follow the procedure described in this section:

1. The potable water system shall be activated and pressurized; and the alternate water source system shall be shut down, depressurized, and drained.
2. The potable water system shall remain pressurized for a minimum period specified by the authority having jurisdiction while the alternate water source is empty. The minimum period the alternate water source system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and the alternate water source distribution systems, but in no case shall that period be less than 1 hour.
3. The drain on the alternate water source system shall be checked for flow during the test and fixtures, potable and alternate water source, shall be tested and inspected for flow. Flow from an alternate source system outlet indicates a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the alternate water source system.

4. The potable water system shall then be depressurized and drained.
5. The alternate water source system shall then be activated and pressurized.
6. The alternate water source system shall remain pressurized for a minimum period specified by the authority having jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.
7. Fixtures, potable, and alternate water source shall be tested and inspected for flow. Flow from a potable water system outlet indicates a cross-connection. No flow from an alternate water source outlet will indicate that it is connected to the potable water system.
8. The drain on the potable water system shall be checked for flow during the test and at the end of the test.
9. Where there is no flow detected in the fixtures which would indicate a cross-connection, the potable water system shall be re-pressurized.

1502.3.3 Discovery of Cross-Connection. If a cross-connection is discovered, the following procedure, in the presence of the authority having jurisdiction, shall be activated immediately:

1. The alternate water source piping to the building shall be shut-down at the meter or source, and the alternate water source system shall be drained.
2. Potable water piping to the building shall be shut-down at the meter.
3. The cross-connection shall be uncovered and disconnected.
4. The building shall be retested in accordance with Section 1502.3.1 and Section 1502.3.2.
5. The potable water system shall be chlorinated with 50 parts-per-million (ppm) chlorine for 24 hours.
6. The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. Where test results are acceptable, the potable water system shall be permitted to be recharged.

1502.3.4 Reoccurring inspection and testing. Reoccurring inspections and cross-connection testing of the alternate water source system, consistent with Section 1502.3.1

through 1502.3.3, shall be required by the authority having jurisdiction, unless site conditions do not require it. Inspections and testing for black-water sourced alternate water systems shall occur annually. All other alternate water systems for multi-family, industrial, institutional, or commercial sites shall occur once every four years. Cross-connection testing is required at any time the potable water system or alternate water system is altered or when required by the authority having jurisdiction. Alternate testing requirements and procedures may be authorized by the authority having jurisdiction.

1503.1 General. This section applies to the construction, alteration, and repair of gray water systems.

Exception. A system installed consistent with Section 1503.10 (*Laundry to Landscape Program*).

1503.2 System Requirements. Gray water shall be permitted to be diverted away from a sewer or private sewage disposal system, and discharge to a subsurface irrigation or subsoil irrigation system without treatment. The gray water shall be permitted to discharge to a mulch basin for single-family and multi-family dwellings without treatment. The gray water shall be permitted to discharge to a spray irrigation system or urinal and toilet flushing applications with treatment. Gray water shall not be used to irrigate root crops or food crops intended for human consumption that comes in contact with soil.

1503.3 Connections to Potable and Reclaimed (Recycled) Water Systems. Gray water systems shall have no direct connection to a potable water supply. Potable water is permitted to be used as makeup water for a non-pressurized storage tank provided the connection is protected by an air gap in accordance with this code.

Table 1503.4 Location of Gray Water Systems⁶

MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM	SURGE TANK (FEET)	SUBSURFACE AND SUBSOIL IRRIGATION FIELD AND MULCH BED (FEET)
Building Structures ¹	5 ^{2,8}	2 ^{3,7}
Property line adjoining private property	5	5 ⁷
Water supply wells ⁴	50	100
Sewage pits or cesspools	5	5
Sewage disposal fields ⁹	5	4 ⁵
Septic tank	0	5

On-site domestic water service line	5	5
Pressurized public water main	10	10

For SI units: 1 foot 304.8 mm

Notes: 1. Including porches and steps, whether covered or uncovered; breezeways; roofed carports; roofed patios; carports; covered walks; covered driveways; and similar structures or appurtenances.

2. When approved by the authority having jurisdiction, the distance may be reduced to 0 feet for aboveground tanks.

3. Reference to a 45 degree (0.79 rad) angle from foundation.

4. When special hazards are involved, the distance required must be increased as directed by the authority having jurisdiction.

5. Add 2 feet (610 mm) for each additional foot of depth that exceeds 1 foot (305 mm) below the bottom of the drain line.

6. Parallel construction or for crossings are not allowed unless approved by the authority having jurisdiction.

7. The distance may be reduced to 1.5 feet (457 mm) for drip and mulch basin irrigation.

8. The distance may be reduced to 0 feet for surge tanks of 75 gallons (284 L) or less.

9. When irrigation or disposal fields are installed in sloping ground, the minimum horizontal distance between a part of the distribution system and the ground surface must be 15 feet (4572 mm).

1503.6 Prohibited location. A gray water system is not allowed on a site the authority having jurisdiction determines has insufficient lot area or has inappropriate soil conditions that will not adequately absorb the gray water to prevent ponding, surfacing, or run off. A gray water system is not allowed in the Edwards Aquifer Recharge Zone or in any other area the authority having jurisdiction determines is geologically sensitive.

1503.10 Laundry to landscape system.

1503.10.1 General. This section applies when installing, altering, or repairing a laundry to landscape systems.

1503.10.2 System design. A laundry to landscape system must be designed

1. To divert gray water from a domestic laundry washing-machine located in a private one-or-two family dwelling only;
2. To allow the private residence, using one-inch tubing, to direct the flow of gray water from the domestic laundry washing-machine to an irrigation field for landscape irrigation or to divert to the building sewer;
3. To that all gray water is contained to the site where it is generated without ponding, surfacing, or run off;
4. To minimize contact with humans and domestic pets; and
5. So that it does not constitute a health nuisance.

1503.10.3 Discharge. The laundry to landscape system may discharge to a subsurface irrigation system, a subsoil irrigation system, or mulch basin. Above ground discharge is prohibited.

1503.10.4 Uses. The laundry to landscape system may be used to irrigate landscape on the exterior of the structure but may not be used to irrigate root crops or food crops that come in contact with soil and are intended for human consumption.

1503.10.5 Prohibited locations. A laundry to landscape system is not allowed on a site that exceeds a three to one slope. A laundry to landscape system must comply with Sections 1502.7.1 and 1502.7.7.

1503.10.6 Connections to plumbing systems. A laundry to landscape system does not authorize a person to cut into or make any permanent physical attachment to the plumbing system. A laundry to landscape system may not include a change to, alteration of, or repair of any potable water connection; may not include any other pump installation, other than the pump equipped with, or manufactured as part of the domestic laundry-washing machine; and may not affect or alter any other building, plumbing, electrical, or mechanical components such as structural features, egress, fire-life safety, sanitation, potable water supply piping, or accessibility to the property.

1503.10.7 Permits and inspections. It is unlawful for a person to construct, install, alter, or cause to be constructed, installed, or altered a laundry to landscape system in a building or premise without first obtaining a permit to do such work from the authority having jurisdiction.

1505.4 Connections to Potable or Reclaimed (Recycled) Water Systems. Reclaimed (recycled) water systems shall have no connection to a potable water supply or alternate water source system. Potable water is permitted to be used as makeup water for a

reclaimed (recycled) water storage tank provided the water supply inlet is protected by an air gap.

1505.5 Initial cross-connection test. Before a building is occupied or the system is activated, a cross-connection test that complies with Section 1502.3 is required. Final approval cannot be granted until the test is deemed successful by the authority having jurisdiction.

1505.9 Hose Bibs. Hose bibs shall not be allowed on reclaimed (recycled) water piping systems. Access to reclaimed (recycled) water shall be through a quick-disconnect device that differs from those installed on the potable water system. Such outlets supplying reclaimed (recycled) water shall be marked with the words: "CAUTION: NONPOTABLE RECLAIMED WATER, DO NOT DRINK" and the symbol in Figure 1505.9.



FIGURE 1505.9

1506.1 General. This section applies when installing, constructing, altering, or repairing an on-site treated non-potable water system intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, above and below ground irrigation, and other uses approved by the authority having jurisdiction. A commercial, institutional, or industrial type occupancy may use treated gray water for indoor non-potable fixtures and outdoor above grade distribution. Domestic treated gray water may not be used in a domestic structure or be discharged above grade on a domestic site.

1506.5 Initial cross-connection test. Before a building is occupied or the system is activated, a cross-connection test that complies with Section 1502.3 is required.

Table 1601.5 Minimum Alternate Water Source, Testing, Inspection, and Maintenance Frequency

Inspect and clean filters and screens, and replace (when necessary)	every 3 months
Inspect and verify disinfection, filters, and water quality treatment devices and systems are operational and maintaining minimum water quality requirements as	As required by manufacturer's instruction and maintaining the authority having jurisdiction

determined by the authority having jurisdiction.	
Inspect and clear debris from rainwater gutters, downspouts, and roof washers.	Every 6 months
Inspect and clear debris from roof or other aboveground rainwater collection surfaces.	Every 6 months
Remove tree branches and vegetation overhanging roof or other aboveground rainwater collection surfaces.	As needed
Inspect pumps and verify operation.	After installation and every 12 months thereafter.
Inspect valves and verify operation.	After installation and every 12 months thereafter.
Inspect pressure tanks and verify operation.	After installation and every 12 months thereafter.
Clear debris from and inspect storage tanks, locking devices, and verify operation.	After installation and every 12 months thereafter.
Inspect caution labels and markings.	After installation and every 12 months thereafter.
Inspect and maintain mulch basins for gray water irrigation systems.	As needed to maintain mulch depth and prevent ponding and runoff.
Cross-connection inspection and test*	After installation and reoccurring thereafter as deemed appropriate by the authority having jurisdiction.
Test water quality of rainwater catchment system required by Section 1602.9.4.	Every 12 months and after system renovation or repair.
*The cross-connection test must be performed consistent with the requirements of this chapter.	

1602.5 Initial Cross-Connection Test. A site with a rainwater catchment system shall perform an initial cross-connection test in accordance with Section 1605.3. Before the building is occupied or the system is activated, the test shall be performed by a licensed professional who is registered with the authority having jurisdiction. The test shall be ruled successful by the authority having jurisdiction before final approval is granted.

1605.3 Reoccurring inspection and testing. Reoccurring inspections and cross-connection testing of the rainwater catchment system and potable water system, consistent with Section 1605.3.1 through 1605.3.3, shall be required by the authority having jurisdiction, unless site conditions do not require it. The inspection and test shall occur once every four years on multi-family, industrial, institutional or commercial sites. Cross-connection testing is required at any time the potable water system or rainwater catchment system is altered or when required by the authority having jurisdiction. Alternate testing requirements and procedures may be authorized by the authority having jurisdiction.

Exception: A non-potable rainwater catchment system of 500 gallons or less does not require cross-connection testing.

1605.3.1 Visual System Inspection. Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by a licensed professional, registered with the authority having jurisdiction. The inspection shall check pumps, equipment, equipment room signs, and exposed piping in an equipment room.

1605.3.2 Cross-Connection Test. To determine whether a cross-connection has occurred, a licensed professional, registered with the authority having jurisdiction, must follow the procedure described in this section:

1. The potable water system shall be activated and pressurized. The rainwater catchment water distribution system shall be shut down and completely drained.
2. The potable water system shall remain pressurized for a minimum period specified by the authority having jurisdiction while the rainwater catchment water distribution system is empty. The minimum period the rainwater catchment water distribution system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and rainwater catchment water distribution systems, but in no case shall that period be less than 1 hour.
3. Fixtures, potable, and rainwater shall be tested and inspected for flow. Flow from a rainwater catchment water distribution system outlet shall indicate a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the rainwater system.

4. The drain on the rainwater catchment water system shall be checked for flow during the test and at the end of the period.
5. The potable water system shall then be completely drained.
6. The rainwater catchment water distribution system shall then be activated and pressurized.
7. The rainwater catchment water distribution system shall remain pressurized for a minimum period of time specified by the authority having jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.
8. Fixtures, potable and rainwater catchment, shall be tested and inspected for flow. Flow from a potable water system outlet shall indicate a cross-connection. No flow from a rainwater catchment water outlet shall indicate that it is connected to the potable water system.
9. The drain on the potable water system shall be checked for flow during the test and at the end of the period.
10. Where there is no flow detected in the fixtures which would indicate a cross-connection, the potable water system shall be re-pressurized.

1605.3.3 Discovery of Cross-Connection. In the event that a cross-connection is discovered, the following procedure, in the presence of the authority having jurisdiction, shall be activated immediately:

1. Rainwater catchment distribution piping shall be shut-down at the source, and the rainwater distribution system shall be drained.
2. Potable water piping to the building shall be shut-down at the meter.
3. The cross-connection shall be uncovered and disconnected.
4. The building shall be retested following procedures listed in Section 1605.3.1 and Section 1605.3.2.
5. The potable water system shall be chlorinated with 50 ppm chlorine for 24 hours.
6. The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. Where test results are acceptable, the potable water system shall be permitted to be recharged.

1605.3.4 Reoccurring inspection and testing. Reoccurring inspections and cross-connection testing of the rainwater catchment distribution system, consistent with Section 1502.3.1 through 1502.3.3, shall be required by the authority having jurisdiction, unless site conditions do not require it. Rainwater catchment water systems for multi-family, industrial, institutional, or commercial sites shall occur once every four years. Cross-connection testing is required at any time the potable water system or alternate water system is altered or when required by the authority having jurisdiction. Alternate testing requirements and procedures may be authorized by the authority having jurisdiction.

Exception: A non-potable rainwater catchment system of 500 gallons or less does not require cross-connection testing.

K 101.7 Minimum water quality requirements. The minimum water quality for potable rainwater catchment system must comply with the applicable potable water quality requirements as set by the Texas Commission on Environmental Quality (TCEQ) and referenced by the Texas Department of State Health Services (DSHS).

PART 2. This ordinance takes effect on September 1, 2021.

PASSED AND APPROVED

_____, 2021 §
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 §
 §
Steve Adler
Mayor

APPROVED: _____ **ATTEST:** _____
Anne L. Morgan Jannette S. Goodall
City Attorney City Clerk