

**ORDINANCE NO.**

**AN ORDINANCE REPEALING AND REPLACING ARTICLE 6 OF CITY CODE CHAPTER 25-12 TO ADOPT THE 2015 UNIFORM PLUMBING CODE AND LOCAL AMENDMENTS.**

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

**PART 1.** City Code Chapter 25-12 is amended to repeal Article 6 (Plumbing Code) and replace it with a new Article 6 to read as follows:

***ARTICLE 6. PLUMBING CODE***

**§ 25-12-151 PLUMBING CODE.**

- (A) The Uniform Plumbing Code, 2015 edition, published by the International Association of Plumbing and Mechanical Officials (2015 Uniform Plumbing Code) is adopted and incorporated into this section, including all appendices except Appendices F and H, with deletions and amendments in Subsection (B) and Section 25-12-153 (*Local Amendments to the Plumbing Code*).
- (B) The following provisions of the 2015 Plumbing Code are deleted. All subsections contained within a deleted section or subsection is also deleted, even if not specifically listed below.

104.2	104.3.2	104.4.3
104.5	Table 104.5	107.0
319.0	407.4	411.2
412.1	420.3	Table 422.1
422.2	601.3	Table 603.2
603.2	603.4.2	603.5.6
603.5.7	603.5.12	608.2
612.0	704.3	
710.2	710.3	711.0
712.0	713.4	723.0
804.1	807.3	909.0

1007.0	1009.2	1010.0
1011.0	1012.0	1013.0
1014.1	1014.2	
1014.3.3	1014.3.6	Table 1014.3.6
1015.0	1016.0	Table 1014.2.1
1017.0	1101.2	1101.15
1101.16.2	1103.3	Table 1103.3
1106.2	1203.3.1	
1203.3.2	1204.2	1212.10
1213.1.2	1213.1.3	1213.3
Chapter 13	1501.2	1501.3
1501.5.2	1501.7	1501.11
1502.1	1502.2.1	Table 1502.4
1502.6	1502.7	1503.5
1504.1	1504.5	1505.6
Table 1601.5	1602.5	1602.11
K 101.7		

- (C) The city clerk shall file a copy of the 2015 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 2015 Plumbing Code adopted by Section 25-12-151 (Plumbing Code), as amended by Section 25-12-153 (*Local Amendments to the Plumbing Code*).

**25-12-153 LOCAL AMENDMENTS TO THE PLUMBING CODE.**

The following provisions are local amendments to the 2015 Plumbing Code. Each provision in this section is a substitute for the identically numbered provision deleted by Section 25-12-151(B) (*Plumbing Code*) or is an addition to the 2015 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 obtain permits required by this Code. Plumbing permits for medical gas installations shall be obtained by a Responsible Master Plumber with a Master Medical Gas Endorsement. Plumbing permits for auxiliary water systems supplying plumbing fixtures shall be obtained by a Responsible Master Plumber with a Master Water Supply Protection Specialist endorsement.

**Exception:** A permit may be issued to an unlicensed person for plumbing work that under state law may be done by an unlicensed person.

**104.1.2 Homestead Permit.** A person who is not licensed to perform plumbing work may perform plumbing work within a residence and on property owned by the person if the requirements of this section are met.

- (1) The residence is the person's homestead.
- (2) The work does not include plumbing work that involves natural gas or liquefied petroleum plumbing systems.
- (3) The residence is the person's principal residence.
- (4) The person has not secured a homestead permit for another residence within the prior 12 month period.
- (5) The person must have owned and occupied the property as of January 1 of the tax year in which the person applies for a homestead permit.
- (6) A person must obtain a homestead permit and pay required permit fees before beginning any electrical, mechanical, or plumbing work. A person must apply for a homestead permit in person and must file an affidavit stating that the location at which the work is to be done is the person's homestead.
- (7) A person who has obtained a homestead permit may not allow or cause any person to perform plumbing work under the permit. The building official may suspend or revoke a homestead permit if work done under the permit is performed by anyone other than the person who obtained the permit.
- (8) A person may not transfer a permit to another person.
- (9) A person performing plumbing work under a homestead permit shall present a picture identification to verify that the person is authorized to perform work under the homestead permit, when requested by the building official or his designee.

- (10) A homestead permit shall not be issued for plumbing work on a mobile, modular or manufactured home unless the homeowner owns the land on which the mobile, modular or manufactured home is located. A homestead permit shall not be issued if the mobile, modular or manufactured home is located in a mobile home park, mobile home community or other commercial premises.
- (11) A homestead permit shall not be issued for any auxiliary or alternate water system that has components interior to a building or serves plumbing fixtures.

**Exception:** Gravity gray water systems having a maximum discharge capacity of 250 gallons per day for one-and-two family dwellings and townhomes.

**104.1.3 Registered Industrial Plant Program.** A licensed plumber may perform the following plumbing installations in a Registered Industrial Plant, as defined by this Code and the Building Code:

Installation, repair, and replacement of fixtures, traps, shut-off valves, water distribution piping, drains, building waste piping, vent stacks and water heaters with a capacity of 100 gallons or less and a rating of 75,000 BTU or less, provided the work does not require approval of the Austin Travis County Health Department, Austin Water, or the Texas Department of Licensing and Regulation.

No plan review fee or permit fee shall be required if records are maintained in accordance with the registered industrial plant program established in the Building Code.

**104.1.4 Licensing.** Every person who enters into a contract for the installation or repair of plumbing systems covered by this Code for which a permit is required shall comply with licensing regulation of the State of Texas.

**104.1.4.1 Registration of Plumbers.** A plumber shall register with the City before performing any work regulated by this Code.

**104.1.5 Landscape Irrigation.** A person licensed by the Texas Commission on Environmental Quality to install irrigation systems shall register with the City before performing any work required by this code to be permitted. A plumbing permit shall be purchased before installing landscape irrigation or a yard sprinkler system. A registration fee is required when a license is presented for initial registration, after a license suspension, or after license expiration. A new fee shall not be required for a renewal of a license before expiration.

**104.1.6 Special Inspections Program for Timed Inspections.** The building official may establish by rule an inspection program of commercial plumbing components identified in this section in buildings not covered under the International Residential Code and the Special Inspections Programs covered under other technical or building codes. The buildings shall be within the zoning jurisdiction of the City and outside of the zoning jurisdiction under agreement with a municipal utility district or where the City provides water, reclaimed water or wastewater service. The special inspection program applies to the replacement of existing:

- (1) Water heaters
- (2) Backflow devices or assemblies
- (3) Sewer line repairs and or replacements

**104.2 Exempt Work.** A permit shall not be required for the following:

- (1) The stopping of leaks in drains, soil, waste, or vent pipe, provided, however, that a concealed trap, drain pipe, soil, waste, or vent pipe become defective and it becomes necessary to remove and replace the same with new material, the same shall be considered as new work and a permit shall be procured and inspection made as provided in this code.
- (2) The clearing of stoppages, including the removal and reinstallation of water closets, or the repairing of leaks in pipes, valves, or fixtures, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes, or fixtures.

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

- (3) Repairs or replacement of fixtures and replacement of exposed traps, continuous waste piping, fixture supply valves, faucets, are exempt from permit requirements if the work is performed in accordance with the requirements of the Plumbing Code, and does not involve other city departments or inspections from other trades.

Exemption from the permit requirements of this Code is not authorization for the work to be done in violation of this Code or other laws or ordinances of the City.

**104.3.4 Application** for a permit shall contain the name of the Responsible Master Plumber licensed by the State of Texas Board of Plumbing Examiners, and registered with the City.

**104.4.3 Permit Expiration and Reactivation.** Requirements for permit expiration and reactivation, including an enhanced fee for expired permits, are set forth in Chapter 25-12, Article 13 (*Administration of Technical Codes*).

**104.5 Permit and Plan Review Fees.** Permit and plan review fees shall be established under separate ordinance by action of the City Council.

**104.6 Continuance of Work Inspection.** Where structural or other conditions exist that do not allow for inspections to be performed at intervals less than 180 days, the permit holder may schedule a continuance of work inspection. If it is determined by the inspector, that work has been performed, the expiration date will automatically extend 180 days. If it is determined by the inspector that no work has begun or continued, the permit will expire and the permit holder will be required to submit for a new plan review and or new permit.

**104.7 Offense.** A person who violates Section 104.0(*Permits Required*) commits an offense. An offense under this section is a class C misdemeanor. Each day a person commits an offense or remains in violation of Section 104.0(*Permits Required*) is a separate occurrence. Proof of a culpable mental state is not required for conviction of an offense under this section.

**107.0 Mechanical, Plumbing and Solar Board.** Regulations regarding the Mechanical, Plumbing and Solar Board are found in Chapter 2-1 of the City Code.

**108.0 Private Sewage Systems.** Austin Water or the Texas Commission on Environmental Quality's Authorized Agent regulates private sewage disposal systems covered by this Code. Regulations regarding on-site sewage facilities are found in Chapter 15-5 of the City Code.

**203.1 Definition of "Alternate Water Source."** The following definition supersedes the definition included in Section 203 of the Uniform Plumbing Code, which applies to all other defined terms:

**Alternate Water Source:** A water source from a supply other than the City's potable water supply, also known as Auxiliary Water.

**214.1 Definition of "Laundry to Landscape System."** The following definition supplements the definitions in Section 214 of the Uniform Plumbing Code:

**Laundry to Landscape System:** An auxiliary water system utilizing the collection of gray water discharged from clothes washing machines located at a private one- and two-family dwelling for use in landscape irrigation.

**218.1 Definition of "Plumbing System."** The following definition supersedes the definition included in Section 218 of the Uniform Plumbing Code, which applies to all other defined terms:

**Plumbing System:** includes 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 shall include potable water piping, alternate or auxiliary 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.

**218.2 Property Owner Cut-off.** A full-open or full port valve located on the discharge side of a water service from the public water supply.

**218.3 Definition of "Potable Rainwater Systems."** The following definition supplements the definitions in Section 218 of the Uniform Plumbing Code:

**Potable Rainwater System:** A plumbing system that utilizes the principle of collecting, storing, using, and treating rainwater from a rooftop or other manmade, aboveground collection surface for the delivery of water that is satisfactory for drinking, culinary, or domestic purposes.

**222.1 Definition of "Trap, Deep Seal P-Trap."** The following definition supplements the definitions in Section 222.0:

**Trap, Deep Seal P-Trap.** A fixture trap having a water seal of at least four inches, but not more than twice the diameter of the trap arm, and not to exceed twelve (12) inches. A trap shall set true with respect to its water seal, and where necessary, it shall be protected from freezing.

**304.2 Sewage System Connection Required.** The drainage system of every house or building shall be separately and independently connected to a public sewage disposal system if any part of the lot or tract that contains the house or building is within 100 feet in horizontal distance (measured on the closest practicable access route) of a public sewage disposal system. Connection to a public sewage disposal system is not required if any one of the following applies:

- (1) The property owner has received a written denial of service from the owner or governing body of the public sewage disposal system.
- (2) The property owner has 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 has determined that the private sewage facility may continue to be used based on factors such as the type of facility served, the age, condition,

and capacity of the private sewage facility, and the availability of records regarding the system, changes to the system, or the generating unit.

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

**312.6.1 Freeze Protection.** The following list of plumbing installations is acceptable methods of providing freeze protection:

- (1) Insulated Exterior Walls – If the wall member is six (6) inches or greater in nominal width, the piping may be placed on the conditioned side of the wall insulation and no additional pipe insulation is required.
- (2) If the exterior wall is less than six inches nominal width, the piping shall be insulated with material that has an R-value of at least four (4). The water piping and the pipe insulation shall be placed on the conditioned side of the wall.
- (4) Uninsulated Exterior Walls, Attics and Crawl Spaces - All water piping installed in uninsulated exterior walls and unconditioned crawl spaces shall be protected by pipe Insulation with a minimum R-value of four (4). All water piping installed in unconditioned attics above the building insulation shall be protected with pipe insulation having an R-value of at least four (4).

**319.0 Medical Gas and Vacuum Systems.** The installation of any medical gas and vacuum system used in conjunction with human health care purposes shall comply with all requirements of the most current edition (at the time of adoption of this code) of the National Fire Protection Association (NFPA) 99, entitled “Health Care Facilities Code”. The latest edition of the ANSI/ASSE Series 6000 titled “*Professional Qualifications Standards for Medical Gas Systems Installers, Inspectors, Verifiers, Maintenance Personnel and Instructors*” shall also be applicable except that which conflicts with the Texas State Board of Plumbing Examiners *Plumbing License Law* requirements. Medical gas installations for Non-Human Use shall conform to section 1305.0 in its entirety.

**321.0 Requirements for Flood Plain Areas.**

**321.1 Definitions.**

- (1) Regulatory Flood Datum (RFD) means an established plane of reference from which elevations and depth of flooding may be determined for specific locations of the flood plain in accordance with the Building Code.
- (2) W-1 spaces means spaces that must remain completely dry during flooding to the RFD. Walls must be impermeable to water and water vapor in accordance with the Building Code.

- (3) W-2 spaces means spaces that remain essentially dry during flooding to the RFD. Walls must be impermeable to water, but may pass some water vapor or seep slightly in accordance with the Building Code.

**321.2** For the purpose of this section, plumbing systems shall include sanitary and storm drainage, sanitary facilities, water supply, and storm water disposal systems.

**321.3** Sanitary sewers and storm drainage systems that have openings below the RFD shall be provided with automatic backwater valves or other automatic backflow devices that are installed in each discharge line passing through a building exterior wall. In W-1 spaces, manually operated shut-off valves that can be operated from a location above the RFD shall also be installed on the lines to serve as supplementary safety provisions for preventing backflow if the automatic backflow device fails.

**321.4** If the dryness of a space depends on sump pump systems, all interior storm water drainage or seepage, appliance drainage, and under slab drain tile systems shall be directly connected to a sump pump and discharged at an elevation of five feet above the RFD.

**321.5** Septic tanks and disposal beds are not permitted in the 25-year flood hazard area. In other areas within the flood hazard areas, the use of septic tanks and disposal beds for sewage disposal is subject to the approval of Austin Water.

**321.6** Potable water supply systems that are located in the flood hazard area shall be designed and installed in a manner that prevents contamination from floodwaters up to the RFD.

**321.7** Approved backflow preventers or devices shall be installed on main water service lines to building entry locations to protect the system from backflow or back siphonage of waters or other contaminants in the event of a line break. Devices shall be installed at accessible locations and shall be maintained in accordance with this Code.

**321.8 Establishment of Flood Hazard Areas.** Flood hazard areas are established to include the following:

- (1) The flood hazard areas identified by the Federal Emergency Management Agency in a scientific and engineering report entitled, "The Flood Insurance Study for Austin, Texas," dated September 26, 2008, with accompanying Flood Insurance Rate Maps and Flood Boundary-Floodway Maps (FIRM and FBFM) and related supporting data along with any amendments or revisions thereto are hereby adopted by referenced and declared to be a part of this section.

- (2) The 100-year and 25-year floodplains based on projected full development as specified in the Austin City Code and Drainage Criteria Manual are adopted by reference and declared to be part of this section.

**322.0 Elevator Sump Pumps.** Pumps and associated piping and materials required for elevators installed under the rules of the Texas Administrative Code, Title 16, Part 4, Chapter 74 shall also comply with sections 322.1 thru 322.4.

**322.1 Acceptable Discharge Location.** In new Elevator shafts, Elevator sump pumps shall discharge to the storm system outside the building, detention pond or other location approved for each project by the Authority Having Jurisdiction. Hydraulic elevators shall be equipped with a hydraulic oil alarm and a secondary containment shall be installed and approved for each project by the Authority Having Jurisdiction. Reference City Code Title 15, Section 15-10-23 and City Code Title 6, Section 6-5-51.

**322.2 Discharge Piping.** Piping shall be a minimum of one and a half inch (1 ½”) NPS. Piping shall be independent and not connect to the storm or sub-soil piping within the building. Discharge piping shall conform to section 710.4 of this code. If an elevator sump pump is located below the 100 year flood plain its piping shall rise above the 100 year flood plain elevation before connecting to a gravity drainage system. Piping shall be labeled as required in section 601.2 of this code.

**322.3 Materials.** Piping materials for elevator sump pump piping shall be of galvanized steel, galvanized wrought iron, copper or other material approved by the Authority Having Jurisdiction. The piping located within the shaft shall be made of non-combustible materials. All transitions to other approved materials shall be made outside of the elevator shaft with approved transition fittings as per chapter 7 of this code.

**322.4 Sample Port.** A sample port shall be installed outside the building on private property or other locations approved by the Authority Having Jurisdiction. Acceptable sample ports include open grate catch basins, single riser two way cleanouts, or other approved fittings/receptors with the ability to visually see the flow line and retrieve samples.

**323.0 Smoke Detectors and Carbon Monoxide Detectors.** The requirements for the installation of smoke detectors and carbon monoxide detectors in both new and existing buildings are regulated by the Building Code, Fire Code, Property Maintenance Code and the Residential Code.

**407.4 Public Lavatories.** Self-closing or metering faucets shall be installed on lavatories intended to serve the public, such as those in, Groups A, B, and M type occupancies as listed in the Building Code.

**408.5.1 Accessible Shower Stalls.** In Group I (Institutional) occupancies as defined in the Building Code, a room that contains an accessible shower which has a threshold or curb which is less than ½ inch in height and all roll-in accessible showers shall be equipped with a Code-approved emergency floor drain installed outside of the shower stall.

**411.2 Water Closets.** Water closets, either flush tank, flushometer tank, or flushometer valve operated, shall have an average consumption not to 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 not to exceed one half gallon (1/2) of water per flush.

**412.1.1 Non-water Urinals.** Non-water urinals shall have a barrier liquid sealant to maintain a trap seal. Non-water urinals shall permit the uninhibited flow of waste through the urinal to the sanitary drainage system. Non-water urinals shall be cleaned and maintained in accordance with the manufacturer's instructions after installation. Where non-water urinals are installed, not less than one water supplied fixture unit (WSFU) shall be installed upstream on the same drain line to facilitate drain line flow and rinsing. Where non-water urinals are installed they shall have a water distribution line rough-in to the urinal location to allow for the installation of an approved backflow prevention device in the event of a retrofit. Non-water urinals that are determined by the Authority Having Jurisdiction to have been maintained contrary to the manufacturer's instructions, and determined to be a health hazard or detrimental to public health and safety shall be retrofitted by a flushometer type urinal complying with Section 412.1. The Building Official shall establish the timeline for a retrofit if public health is compromised.

**412.3 Substitution for Water Closets.** In each bathroom or toilet room, urinals shall not be substituted for more than 67 percent of the required water closets in Assembly and Educational occupancies as defined by the Building Code. Urinals shall not be substituted for more than 50 percent of the required water closets in all other occupancies.

**420.3 Pre-Rinse Spray Valve.** Commercial food service pre-rinse spray valves shall have a maximum flow rate of 1.28 gallons per minute (gpm) at 60 pounds-force per square inch (psi) in accordance with ASME A112.18.1/CSA B125.1 and shall be equipped with an integral automatic shutoff.

**422.2 Separate Facilities.** Where plumbing fixtures are required, separate facilities shall be provided for each sex.

### **Exceptions:**

- 1) Separate facilities shall not be required for dwelling units and sleeping units.
- 2) Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
- 3) Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 100 or fewer.
- 4) Separate facilities shall not be required in business occupancies in which the occupant load is 50 or fewer.

**422.2.1 Family or Assisted-Use Toilet Facilities Serving as Separate Facilities.** Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family/assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or assisted use toilet facilities shall not be required to be identified for exclusive use by either sex as required by the International Building Code.

**422.4 Required Public Toilet Facilities.** Customers, patrons and visitors shall be provided with public toilet facilities in structures and tenant spaces intended for public utilization. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 422.0 for all users. Employees shall be provided with toilet facilities in all occupancies. Employee toilet facilities shall be either separate or combined employee or public toilet facilities.

**Exception:** Public toilet facilities shall not be required in:

- 1) Open or enclosed parking garages where there are no parking attendants.
- 2) Structures and tenant spaces intended for quick transactions, including takeout, pickup and drop off, having public access area less than or equal to 300 square feet.

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

**422.4.2 Toilet Room Location.** Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.

**422.4.3 Location.** Required toilet facilities for employees and customers located in shopping malls or centers shall be permitted to be met by providing a centrally located toilet facility accessible to several stores. The maximum travel distance from entry to any store to the toilet facility shall not exceed 300 feet. Required toilet facilities for employees and customers in other than shopping malls or centers shall have a maximum travel distance not to exceed 500 feet.

**422.4.4 Access to Toilet Facilities.** In multi-story buildings, accessibility to the required toilet facilities shall not exceed one vertical story. Access to the required toilet facilities for customers shall not pass through areas designated as for employee use only such as kitchens, food preparation areas, storage rooms, closets, or similar spaces. Toilet facilities accessible only to private offices shall not be counted to determine compliance with this section.

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**Table 422.1  
Minimum Plumbing Facilities**

Each building shall be provided with sanitary facilities, including provisions for persons with disabilities as prescribed by the Department Having Jurisdiction. Table 422.1 applies to new buildings, additions to a building, and changes of occupancy, use or type in an existing building resulting in increased occupant load.

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 412.3)		LAVATORIES		BATHTUBS / SHOWERS	DRINKING FOUNTAINS (SEE SECTION 415)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	ASSEMBLY	A-1	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200	1 per 200	-	1 per 500	1 service sink
		A-2 (d)	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per 40	1 per 75	1 per 75	-	1 per 500	1 service sink
			Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200	1 per 200	-	1 per 500	1 service sink
		A-3 (d)	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200	1 per 200	-	1 per 500	1 service sink
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750	1 per 750	-	1 per 1,000	1 service sink
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200	1 per 200	-	1 per 1,000	1 service sink
A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	-	1 per 1,000	1 service sink		

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 412.3)		LAVATORIES		BATHTUBS / SHOWERS	DRINKING FOUNTAINS (SEE SECTION 415)	OTHER
				MALE	FEMALE	MALE	FEMALE			
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	-	1per 1,000	1 service sink
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50	1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80	1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80	-	1per 100	1 service Sink  (e)
3	Educational	E	Educational facilities	1 per 50	1 per 50	1 per 50	1 per 50	-	1per 100	1 service sink
4	Factory and Industrial	F-1 F-2	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100	1 per 100	1 per 100	1 per 100	See section 416.0	1per 400	1 service sink
5	Institutional	I-1	Residential care	1 per 10	1 per 10	1 per 10	1 per 10	1 per 8	1per 100	1 service sink
		1-2	Hospitals, ambulatory nursing home care recipient (b)	1 per room (c)		1 per room (c)		1 per 15	1per 100	1 service sink
			Employees, other than residential care (b)	1 per 25	1 per 25	1 per 35	1 per 35	-	1per 100	-
			Visitors, other than residential care	1 per 75	1 per 75	1 per 100	1 per 100	-	1per 100	-

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 412.3)		LAVATORIES		BATHTUBS / SHOWERS	DRINKING FOUNTAINS (SEE SECTION 415)	OTHER
				MALE	FEMALE	MALE	FEMALE			
5	Institutional	I-3	Prisons (b)	1 per cell				1 per 15	1per 100	1 service sink
			Reformatories, detention centers and correctional centers (b)	1 per 15	1 per 15	1 per 15	1 per 15	1 per 15	1per 100	1 service sink
			Employees (b)	1 per 25	1 per 25	1 per 35	1 per 35	-	1per 100	-
		I-4	Adult day care and child day care	1 per 15	1 per 15	1 per 15	1 per 15	1	1per 100	1 service sink
6	MERCANTILE	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500	1 per 500	1 per 750	1 per 750	-	1per 1,000	1 service sink (e)
7	RESIDENTIAL	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	-	1 service sink
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10	1 per 10	1 per 10	1 per 10	1 per 8	1per 100	1 service sink
			Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	-	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 412.3)		LAVATORIES		BATHTUBS / SHOWERS	DRINKING FOUNTAINS (SEE SECTION 415)	OTHER
				MALE	FEMALE	MALE	FEMALE			
7	RESIDENTIAL	R-3	One- and two-family dwellings and lodging houses with five or fewer guest rooms	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	-	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit
			Congregate living facilities with 16 or fewer persons	1 per 10	1 per 10	1 per 10	1 per 10	1 per 8	1 per 100	1 service sink
		R-4	Congregate living facilities with 16 or fewer persons	1 per 10	1 per 10	1 per 10	1 per 10	1 per 8	1 per 100	1 service sink
8	STORAGE	S-1 AND S-2	Structures for the storage of goods, warehouses, storehouses and freight depots, low and moderate hazard	1 per 100	1 per 100	1 per 100	1 per 100	See section 416.0	1 per 1,000	1 service sink

- a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the International Building Code.
- b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.
- c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted, provided that each patient sleeping unit has direct access to the toilet room and provisions for privacy for the toilet room user are provided.
- d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
- e. For business and mercantile occupancies with an occupant load of 30 or fewer, service sinks shall not be required.

**501.2 Water Heater Location.** The total developed length of water piping from the outlet of the water heater to the inlet of the furthest fixture served by the water piping may not be greater than 70 feet, unless the water heater is installed with a mechanical pump to provide continuous hot water to the fixture or with additional water heaters.

**501.3 Compliance with the Energy Code Required.** Water heaters installed after the effective date of this Code in sites served by the City's Electric Utility shall comply with the Energy Code. All replacement electrical equipment must comply with the Energy Code.

**508.4.5 R-3 Type Occupancies.** Storage type water heaters exceeding a capacity of 17 gallons shall not be installed in an attic or above a ceiling for residential type occupancies unless accessible through a vertical door opening located in an occupied space on the same floor level. An attic or under-floor space in which an appliance is installed shall be accessible through an opening and passageway not less than as large as the largest component of the appliance, and not less than 22 inches by 30 inches (559 mm by 762 mm).

**601.1.1 Water System Connection Required.** The water system of every house or building shall be separately and independently connected to a state licensed public potable water system if any part of the lot or tract that contains the house or building is within 100 feet in horizontal distance (measured on the closest practicable access route) of the public water system. Connection to the public water system is not required if any of the following apply:

- (1) The property owner has received a written denial of service from the owner or governing body of the public water system.
- (2) The property owner has received a written determination from the water utility that it is not feasible for the building to be connected to the potable water system.
- (3) The property is served by an existing private potable water system and the water utility has determined that the private potable water system may continue to be used based on factors such as the type of facility served, the age, condition, and capacity of the private potable water system, quality of water, and the availability of records regarding the system, changes to the system, or the system demand.

**601.1.2** If a state licensed public potable water system is unavailable within the full purpose jurisdiction of the City of Austin, then any alternative source used for potable water shall be installed per the provisions of this code.

**601.3 Identification of a Potable and Non-potable Water System.** On sites where potable water and non-potable water systems are installed, each system shall be clearly identified in accordance with Section 601.2.1 through Section 601.2.4.

**601.3.1 Potable Water.** Green background with white lettering

**601.3.2 Color and information.** Each system shall be identified with a colored pipe or sleeve and coded with paints, wraps, and materials compatible with the piping. Except as required in Section 601.3.3, non-potable water systems shall have a yellow background with black uppercase lettering, with the words “CAUTION: NONPOTABLE WATER, DO NOT DRINK.” Each non-potable system shall be identified to designate the liquid being conveyed, and the direction of normal flow shall be clearly shown. The minimum size of the letters and length of the color field

shall comply with Table 601.3.3. For piping above grade the background color and the required information shall be indicated every 20 feet (6096 mm) but not less than once per room, on both sides of walls or partitions 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 shall be indicated every 5 feet.

**Exception: Existing Irrigation Systems.** Existing systems being converted to an auxiliary water source shall be permitted to allow pipe and components below grade to remain unmarked until disturbed. All repairs, additions, or alterations shall be identified in accordance with this section. All pipe and components located above grade or accessible within a subsurface vault shall be identified in accordance with this section

**601.3.3 Alternate (Auxiliary) Water Sources.** Alternate water source systems shall have a purple (Pantone color No. 512, 522C, or equivalent) background with uppercase lettering and shall be field or factory marked as follows:

- (1) Gray water systems shall be marked in accordance with this section with the words “CAUTION: NONPOTABLE GRAY WATER, DO NOT DRINK” in yellow letters (Pantone 108 or equivalent).
- (2) Reclaimed (recycled) water systems shall be marked in accordance with this section with the words: “CAUTION: NONPOTABLE RECLAIMED (RECYCLED) WATER, DO NOT DRINK” in black letters.
- (3) On-site treated water systems shall be marked in accordance with this section with the words: “CAUTION: ON-SITE TREATED NONPOTABLE WATER, DO NOT DRINK” in yellow letters (Pantone 108 or equivalent).
- (4) Rainwater catchment systems shall be marked in accordance with this section with the words: “CAUTION: NONPOTABLE RAINWATER WATER, DO NOT DRINK” in yellow letters (Pantone 108 or equivalent).
- (5) Other On-site Non-potable Water systems shall be marked in accordance with this section with the words: “CAUTION: NONPOTABLE WATER, DO NOT DRINK” in yellow letters (Pantone 108 or equivalent).

**601.3.4 Fixtures.** Where vacuum breakers or backflow preventers are installed with fixtures listed in Table 1701.1, identification of the discharge side shall be permitted to be omitted.

**601.3.5 Outlets.** Each outlet on the non-potable water line that is used for special purposes shall be posted with black uppercase lettering as follows: “CAUTION: NONPOTABLE WATER, DO NOT DRINK.”

**Table 603.2  
Backflow Prevention Devices, Assemblies, and Methods**

DEGREE OF HAZARD						
Device, Assembly, or Method <sup>1</sup>	Applicable standards	Degree of Hazard				Installation <sup>2,3</sup>
		Pollution (Low Hazard)		Contamination (High Hazard)		
		Back-Siphonage	Back-Pressure	Back-Siphonage	Back-Pressure	
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 B 64.1.1	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. <sup>4,5</sup>
Anti-siphon fill valve (ballcocks) for gravity water closet flush tanks and urinal tanks	ASSE 1002 or CSA B 125.3	X	-	X	-	Installation on 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. <sup>4,5</sup>
Vacuum breaker wall hydrants, hose bibbs, frost resistant, automatic draining type	ASSE 1019 or CSA B 64.2.1.1	X	-	X	-	Installation includes wall hydrants and hose bibbs. Such devices are not for use under continuous pressure conditions (means of shutoff downstream of device is prohibited). <sup>4,5</sup>
Spill-Resistant Pressure Vacuum Breaker (single check valve with air inlet vent and means of field testing)	USC FCCCHR <sup>6</sup>	X	-	X	-	Upright position. Minimum of twelve (12) inches or listed distance above all downstream piping and flood-level rim of receptor. <sup>5</sup>
Double Check Valve Backflow Prevention Assembly (two independent check valves and means of field testing)	USC FCCCHR <sup>6</sup>	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 bottom for maintenance. May need platform/ladder for test and repair. Does not discharge water.
Double Check Detector Fire Protection Backflow Prevention Assembly (two	USC FCCCHR <sup>6</sup>	X	X	-	-	Horizontal unless otherwise listed. Access and clearance shall be in accordance with the manufacturer's

independent check valves with a parallel detector assembly consisting of a water meter and a double check valve backflow prevention assembly and means of field testing)						instructions and not less than a 12 inch clearance at bottom 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 of field testing)	USC FCCCHR <sup>6</sup>	X	-	X	-	Upright position. May have valves downstream. Minimum of twelve 12 inches above all downstream piping and flood-level rim of receptor. May discharge water.
Reduced Pressure Principle Backflow Prevention Assembly (two independently acting loaded check valves, a pressure relief valve and means of field testing)	USC FCCCHR <sup>6</sup>	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 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 of field testing)	USC FCCCHR <sup>6</sup>	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 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.

1. See 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 general and specific requirement for installation.
4. Not to be subjected to operating pressure for more than twelve (12) hours in any twenty-four (24) hour period.
5. For deck-mounted and equipment-mounted vacuum breaker, see Section 603.4.15.
6. 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.** Before a device or an assembly is installed for the prevention of backflow, it shall have first been approved by the Authority Having Jurisdiction. Devices or assemblies shall be tested in accordance with recognized standards or other standards acceptable to the Authority Having Jurisdiction. Backflow prevention devices and assemblies shall comply with Table 603.2 and Chapter 15-1 of the City Code, except for specific applications and provisions as stated in Section 603.5.1 through Section 603.5.20. Devices or assemblies installed in a potable water supply

system for protection against backflow shall be maintained in good working condition by the person or persons having control of such devices or assemblies. Such devices or assemblies shall be tested at the time of installation, repair, or relocation and when required by the Authority Having Jurisdiction. Where found to be defective or inoperative, the device or assembly shall be repaired or replaced. No device or assembly shall be removed from use or relocated or other device or assembly substituted, without the approval of the Authority Having Jurisdiction. Testing shall be performed by a State of Texas licensed backflow assembly tester, registered with the City, in accordance with Chapter 15-1 of the City Code.

**603.4.2 Testing.** The premises owner or responsible person shall have the backflow prevention assembly tested by a State of Texas licensed and City registered backflow assembly tester at the time of installation, repair, or relocation and not less than when required by the Authority Having Jurisdiction. The periodic testing shall be performed in accordance with the procedures referenced in Chapter 15-1 of the City code by a tester qualified in accordance with those standards.

**603.4.10 Hazard Isolation.** A separate backflow prevention assembly or device shall be installed on each high hazard appurtenance or fixture in high hazard situations where the water or product is intended for contact with humans either directly (consumption, bathing, medical uses, dental chairs, pharmaceuticals, etc.) or indirectly (sterilizers, autoclaves, washing dishes or bottles, canning, etc.).

**Exception:** Potable water supply to carbonators shall be protected by a listed reduced pressure principal backflow preventers approved by the Authority Having Jurisdiction for the specific use. A single RPZ may be installed for multiple carbonators that are located in the same immediate physical area if all water piping from backflow preventer to carbonator is exposed. Piping downstream of backflow protection for carbonators shall not be affected by carbon dioxide gas.

**603.4.10.1 Multiple High Hazards.** A single backflow prevention assembly or device may be installed for multiple high hazard appurtenances or fixtures where no human contact is intended. Each water line downstream of the backflow protection shall be properly labeled as required for non-potable water.

**603.4.10.2 Multiple Low Hazards.** A single backflow prevention assembly or device may be installed in low hazard situations serving multiple same low hazards that are located in the same immediate physical area if all piping downstream of the backflow protection is exposed.

**603.5.6 Protection from Lawn Sprinklers and Irrigation Systems.** Potable water supplies to systems having no pumps or connections for pumping equipment, and no chemical injection or provisions for chemical injection, shall be protected from backflow by one of the following devices:

- (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)
- (5) Double Check Valve Assembly (DCVA)

**603.5.6.1 Systems with Pumps.** Where sprinkler and irrigation systems have pumps, connections for pumping equipment, or auxiliary air tanks, or are otherwise capable of creating backpressure, the potable water supply shall be protected by the following type of device where the backflow device is located upstream from the source of backpressure:

- (1) Reduced-pressure principle backflow prevention assembly (RP)
- (2) Double Check Valve Assembly (DCVA)

**603.5.6.2 Systems with Backflow Devices.** Where systems have a backflow device installed downstream from a potable water supply pump or a potable water supply pump connection, the device shall be one of the following:

- (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)
- (5) Double Check Valve Assembly (DCVA)

**603.5.6.3 Systems with Chemical Injectors.** Where systems include a chemical injector or provisions for chemical injection, the potable water supply shall be protected by a reduced-pressure principle backflow prevention assembly (RP).

**603.5.7 Outlets with Hose Attachments.** Potable water outlets with hose attachments, other than water heater drains, boiler drains, and clothes washer connections, shall be protected by a non-removable hose bibb type backflow preventer, a non-removable hose bibb type vacuum breaker, or by an atmospheric vacuum breaker installed not less than 6 inches (152 mm) above the highest point of usage located on the discharge side of the last valve. In climates where freezing temperatures occur, a listed self-draining frost-proof hose bibb with an integral backflow preventer or vacuum breaker shall be used. Standard hose bibbs shall be allowed if protected by adding pipe insulation with an R-value of at least four (4) up to the edge or wall flange of the hose bibb.

**603.5.12 Beverage Dispensers.** Potable water supply to beverage dispensers or coffee machines shall be protected by an air gap or a vented backflow preventer in accordance with ASSE 1022.

**603.5.12.1 Carbonated Beverage Dispensers.** Potable water supply to carbonated beverage dispensers shall be protected by an air gap or a Reduced Pressure Principle Backflow Prevention Assembly (RP). Piping material installed downstream of the backflow preventer shall not be affected by carbon dioxide gas.

**603.5.12.2 Beverage Dispensers in Health Care Facilities.** Potable water supply to beverage dispensers or coffee machines located in healthcare facilities subject to NFPA 99 shall be protected by a testable backflow prevention assembly as defined by Chapter 15-1 of the City code.

**603.5.21 Site Containment Backflow Prevention Requirements.** Sites utilizing Alternate Water Sources (Auxiliary Water) shall 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 in accordance with Table 603.5

**Exception:** Non-potable rainwater catchment or non-potable condensate collection systems of 500 gallons or less do not require backflow prevention at the potable water meter.

**603.5.22 Cooling Tower Reservoirs.** Water supply inlets that terminate inside the envelope of a cooling tower shall be protected with a reduced pressure principle backflow prevention assembly. Water supply inlets that terminate outside the envelope of a cooling tower shall be protected by an air gap or reduced pressure principle backflow prevention assembly.

**Table 603.5**

List of Auxiliary Water Sources and Uses (1)	Backflow Protection 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)	
<b>Lake/River Water</b>	RP	RP	DC	RP
<b>Well Water</b>	RP	RP	DC	RP
<b>Condensate Water</b>	Gravity	-	DC (5)	RP
	Pumped	RP	RP	RP
<b>Rainwater</b>	Gravity	-	DC (5)	RP
	Pumped	RP	RP	RP
<b>Gray Water</b>	Gravity	-	DC (5)	AG
	Pumped	RP	RP	AG
<b>Reclaim Water (6)</b>	RP	RP	DC	AG
<b>Other Water Supply (7)</b>	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 auxiliary water are used, all backflow protection must meet the most stringent requirements of the sources used.

(2) Backflow prevention assemblies installed at the potable service connection of a site served by an auxiliary water source are required to have an annual operational test.

(3) New backflow prevention assemblies installed in existing fire systems may result in the need to re-calculate fire system design specifications due to backflow preventer pressure losses.

(4) Backflow prevention assemblies installed in un-metered fire systems are required to be detector assemblies.

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

(6) Where 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 auxiliary waters not listed in this chart.

**606.2.1 Property Owner Cut Off, POCO.** The customer/property owner shall install and maintain a customer/property owner cut-off valve on the customer/property owner side of where the water service enters the property. It shall not be located inside the City of Austin meter box/vault. “POCO” valves installed on meter extensions shall be ball valves, full port, with stainless steel handles, threaded and conform to MSS-SP-110, and the threads shall comply with ASME B1.20.1.

**608.2 Excessive Water Pressure.** If local static water pressure is in excess of sixty-five (65) pounds per square inch, an approved pressure regulator preceded by an adequate strainer shall be installed and the static pressure reduced to sixty-five (65) pounds per square inch or less. Pressure regulator(s) equal to or exceeding one and one-half (1-1/2) inches shall not require a strainer. Such regulator(s) shall control the pressure to all water outlets in the building unless otherwise approved by the Authority Having Jurisdiction. Each such regulator and strainer shall be accessibly located above ground or in a vault, shall be protected from freezing, and shall have the strainer readily accessible for cleaning without removing the regulator or strainer body or disconnecting the supply piping. Pipe size determinations shall be based on eighty (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 shall be installed in the cold water distribution piping downstream of each such regulator to prevent excessive pressure from developing due to thermal expansion and to maintain the pressure setting of the regulator. Expansion tanks used in potable water systems intended to supply drinking water shall be in accordance with NSF 61. The expansion tank shall be properly sized and installed in accordance with the manufacturer’s installation instructions and listing. Systems designed by a registered design professional shall be permitted to use approved pressure relief valves in lieu of expansion tanks provided such relief valves have a maximum pressure relief setting of one-hundred (100) pounds per square inch (698 kPa) or less.

**Exception:** One and Two Family Dwellings and Townhomes that have Multi-Purpose Fire Protection Systems installed may have static water pressure up to 80 psi.

**609.11.3 Conflicts Between Codes.** When the requirements within the jurisdiction of this Plumbing Code conflict with the requirements of the International Energy Conservation Code, the most restrictive requirements shall apply.

**609.12 Private Fire Lines.** Private fire lines shall be installed in accordance with the latest standards of the National Fire Protection Association (NFPA) 24 Standard for the Installation of Private Fire Service Mains and their Appurtenances, as adopted by the Austin Fire Department Fire Protection Criteria Manual. Private fire lines shall adhere to NFPA 25 Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems as required by the Austin Fire Department.

**610.1.1 Size of Water Meters for One-and-Two Family Dwellings and Townhomes.** Austin Water meters provided to One-and-Two Family Dwellings and Townhomes shall be sized per the below requirements in table 610.1

<b>Table 610.1</b>		
<b>Water Meter Sizing for Residential Single Family Homes, Duplex, and Townhomes</b>		
<b>Water Meter Size</b>	<b>Maximum Water Fixture Units</b>	<b>Typical Number of Bathrooms</b>
5/8" meter	35 fixture units	3 bathrooms or less
3/4" meter	40 fixture units	3 ½ bathrooms
3/4" meter	44 fixture units	4 bathrooms
3/4" meter	52 fixture units	5 bathrooms
3/4" meter	55.5 fixture units	5 ½ bathrooms
1" meter	70 fixture units	6 bathrooms
1" meter	78 fixture units	7 bathrooms
1" meter	84.5 fixture units	8 bathrooms

**612.0 Residential Fire Sprinkler Systems.** Where residential sprinkler systems are required in one- and two- family dwellings or townhouses, the system shall be installed in accordance with the International Residential Code Section P2904 or NFPA 13D and shall comply with the City of Austin Fire Code.

**612.2 Types of Systems.** This section shall apply to stand-alone and multipurpose wet-pipe sprinkler systems that do not include the use of antifreeze. A multipurpose fire sprinkler system shall provide potable water to both fire sprinklers and plumbing fixtures. A stand-alone sprinkler system shall be separate and independent from the potable water distribution system. A backflow prevention assembly shall be required to separate a stand-alone sprinkler system from the potable water supply.

**613.0 Plumbing for Multi-Family Sub-Meters.** Each newly constructed multi-family housing unit and each newly constructed residential unit in a mixed-use facility, shall have a single cold water stub out supplying all fixtures in each dwelling unit supplied by the master meter. A City meter or privately-owned water meter shall be installed for each newly constructed unit at the time of construction. Each stub out shall have a shut off

valve immediately ahead of the private meter location. The meter shall have a clearance of at least four (4) inches on all sides. The location of the private meter installation must be accessible for reading, testing, replacement, and inspection of the private meter.

**Exceptions:**

The following developments are not required to comply with this section:

- (1) Condominium development
- (2) Development that has a centralized hot water system

**614.0 Cooling Towers.** Cooling towers must include makeup and blowdown meter, conductivity controllers, overflow alarms, drift eliminators, and a minimum of 5 cycles of concentration when potable water is utilized. Cooling towers shall comply with the Mechanical Code.

**615.0 Landscape Irrigation.** Landscape irrigation shall conform to the rules set forth in Chapter 344, Title 30 of The Texas Administrative Code, Texas Commission on Environmental Quality rules and sections 615.1 through 615.3 of this code.

**Definitions:**

**Hydrozoning:** is the practice of grouping sprinkler heads into zones with similar vegetation, soil types, slopes, and sunlight availability.

**Isolation Valve:** is a valve used for isolating all or part of the irrigation system for repairs, maintenance, winter, or emergency shut-down.

**615.1 Requirements for New Commercial and Multi-family Landscape Irrigation Installation.** A new commercial and multi-family irrigation system must be designed and installed so that:

- (1) The system does not include spray irrigation on areas less than six (6) feet wide (such as medians, buffer strips, and parking lot islands);
- (2) Above-ground irrigation emission devices are set back at least six (6) inches from impervious surfaces;
- (3) The irrigation system has a master valve;
- (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) An automatic rain shut-off device shuts off the irrigation system automatically after not more than a one-half inch (1/2") rainfall;

- (7) Zone valves and circuits are separated based on hydrozoning (plant water requirements).
- (8) All new irrigation systems must include an isolation valve between the meter and the backflow prevention device.

**615.2 Requirements for One and Two Family Dwelling Landscape Irrigation Installation.** New irrigation systems for one-and two-family dwellings must be designed and installed so that:

- (1) The system does not include spray irrigation on areas less than six (6) feet wide (such as medians, buffer strips, and parking lot islands);
- (2) Above-ground irrigation emission devices are set back at least six (6) inches from impervious surfaces;
- (3) The irrigation system has a master valve and must be installed on the discharge side of the backflow prevention device;
- (4) A working soil moisture sensor or an automatic rain shut-off device shuts off the irrigation system automatically after not more than a one-half inch (1/2") rainfall; and
- (5) Zone valves and circuits are separated based on hydrozoning (plant water requirements).
- (6) All new irrigation systems must include an isolation valve between the meter and the backflow prevention device.

**615.3 Inspection.** At the time of final plumbing inspection the irrigation installer shall provide to the city:

- (1) A water budget including:
  - (a) A chart containing zone numbers, precipitation rate, and gallons per minute; and
  - (b) The location of the isolation valve.
- (2) A report on the form provided by Austin Water certifying compliance with Section 615.1 (*Requirements for New Commercial and Multi-family Landscape irrigation*) or Section 615.2 (*Requirements for One and Two Family Dwelling Landscape Irrigation*); and
- (3) Proof that a laminated copy of the water budget is permanently installed inside the irrigation controller door.

**616.0 Commercial Garbage and Food Waste Disposal.** Food waste and garbage disposal unit installations shall be prohibited in restaurants, cafeterias, and other

commercial and institutional kitchens and food preparation facilities unless approved as per section 301.3.

**617.0 Once Through Cooling.** The use of potable water 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 is prohibited unless 100 percent of potable water is returned for non-potable uses such as cooling tower make up or other approved uses for any new installation.

**618.0 Car Wash Equipment.** New installation of car wash equipment except for self-service (spray wand) type systems shall 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 shall 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 shall be equipped with a cleanout extended to grade.

**704.3 Commercial Sinks.** Pot sinks, scullery sinks, and dishwashing sinks, silverware sinks, commercial dishwashing machines, silverware-washing machines, and other similar fixtures shall be connected indirectly to the drainage system.

**707.2.1 Two Way Cleanout Tees.** A single riser two way cleanout tee may be installed with a maximum 18 inch extension to grade on 4 inch piping.

**710.1.1 Back Water Valves Installed on Single Building Drains.** Where the building drains are not split or all building drains go through a backwater valve, the building sewer shall be provided with a vent downstream from the backwater valve. The aggregate cross sectional area of the vent shall not be less than that of the largest required building sewer, as determined from Table 703.2. The vent shall extend through the roof or, where permitted, be combined with other vent pipes not less than 6" above the next upstream manhole cover. Drainage fittings shall be used on all parts of the vent below the lowest floor level. An accessible cleanout shall be provided in the vertical portion of the vent.

**710.2 Sewage Discharge.** Drainage piping serving fixtures that are located below the crown level of the main sewer shall discharge into an approved watertight sump or receiving tank, so located as to receive the sewage or wastes by gravity. From such sump or receiving tank, the sewage or other liquid wastes shall be lifted and discharged into the building drain or building sewer by approved ejectors, pumps, or other equally efficient approved mechanical devices. In one-and-two family dwellings and townhomes discharge piping shall not be run within or under the building and shall not be tied back into the building drain unless the piping is accessible.

**710.3 Sewage Ejector and Pumps.** A sewage ejector or sewage pump receiving the discharge of water closets or urinals:

(1) Shall have a discharge capacity of not less than 20 gpm (1.26 L/s).

(2) In single dwelling units, the ejector or pump shall be capable of passing a 1 1/2 inch (40 mm) diameter solid ball, and the discharge piping of each ejector or pump shall have a backwater valve and gate valve, and be not less than 2 inches (50 mm) in diameter.

(3) In other than single-dwelling units, the ejector or pump shall be capable of passing a 1 1/2 inch (40 mm) diameter solid ball, and the discharge piping of each ejector or pump shall have a backwater valve and gate valve, and be not less than 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 this Code, may be served by a single pump or ejector system.

**Exception 1:** A single pump ejector system serving an accessible break room sink with a one-and-one-half (1-1/2) inch outlet and a one-and one-half (1-1/2) inch inlet shall be allowed.

**Exception 2:** A one-and-one-half (1-1/2) inch outlet service sink is allowed to be drained by means of a single pump ejector system.

## **711.0 Suds Relief.**

**711.1 General.** Drainage connections shall not be made into a drainage piping system within 8 feet (2438 mm) of a vertical to horizontal change of direction of a stack containing suds-producing fixtures. Bathtubs, laundries, washing machine standpipes, kitchen sinks, and dishwashers shall be considered suds-producing fixtures. Where parallel vent stacks are required, they shall connect to the drainage stack at a point 8 feet (2438 mm) above the lowest point of the drainage stack.

### **Exceptions:**

- 1) Single-family residences
- 2) Stacks less than three stories in height

## **712.0 Testing.**

**712.1 Media.** The piping of the plumbing, drainage, and venting systems shall be tested with water or air. The level of the water shall be filled to the top and be visible so that an inspector may mark the level of the water. The Authority Having Jurisdiction may require the removal of any cleanouts, etc., to ascertain whether the pressure has reached all parts of the system.

### **712.2 Testing Procedures for Drain, Waste and Vent Piping.**

- (1) The waste and drainage system may be tested with a water test, or an air test.

- (2) When moisture conditions make it impractical to verify tightness of joints in a drainage system with a water test, the system shall be tested with air using a Class 1A diaphragm test gauge calibrated to an accuracy of  $\pm 1\%$  of the span. Refer to *Section 318.0 (Test Gauges) of this Code for gauge requirements.*
- (3) A water and or air test shall be maintained at least fifteen (15) minutes prior to the start of the inspection.
- (4) The entire portion of the system tested shall be subjected to a three (3) pound per square inch air test for fifteen (15) minutes.
- (5) Any leaks detected from water or air test shall be corrected, re-tested and inspected until work is found to be tight and conforms to this Code. To test with a water test in a single story building, soil and waste stacks shall be plugged and filled with water to provide a minimum of five foot head-pressure at a point where the house sewer connects to the house drain. Risers shall not be capped until the entire system is full.
- (6) In a multistory building, sanitary drainage and vent stacks shall be plugged and filled to a point at least 6 inches above the re-vent of the uppermost floor. Provision must be made for the plumbing inspector to see the water level. Floors may be tested individually or combined as deemed necessary by the Authority Having Jurisdiction.
- (7) A person may not use cement, sealing wax, resin, paint, tallow, or other materials that may prevent the detection of cracks, holes or other imperfections on any material used in the plumbing system.
- (8) When a floor drain, floor sink, or other indirect waste receptor has a piping connection below ground floor level that was not tested on the initial rough-in test, the following requirements shall be met:
  - a) A water test shall be re-administered for the portion of the drain waste and vent system below ground floor level.
  - b) The drain shall be filled to a point of overflow.
  - c) Sinks shall be tested by filling the drain to the point of overflow at the time that the plumbing copper inspection and before the slab is poured.
- (9) Drain waste and vent piping may be vacuum tested by plugging all inlets and outlets and testing with five (5) inches of vacuum for five (5) minutes with no loss.

**712.3 Trench Drains.** All pre-manufactured trench drains shall be tested in place to assure the tightness of the drain by plugging the drain and filling the drain with water to the overflow of the trench drain. This test shall be performed before the concrete is poured in place.

**713.4. Availability.** Austin Water shall 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 such sewer.

**713.8 Austin Water shall regulate both existing and new onsite sewage facilities and private sewage disposal systems.**

**723.0 Building Sewer Test.** Building sewers shall be tested by plugging the end of the building sewer at its points of connection with the public sewer or private sewage disposal system and completely filling the building sewer with water from the lowest to the highest point thereof, or by approved equivalent low-pressure air test. The building sewer shall be water tight at all points. Building Sewers may be vacuum tested by plugging all inlets and outlets and testing with five (5) inches of vacuum for five (5) minutes with no loss.

**723.1 Manhole Test.** Manholes shall be tested with water by plugging all outlets and filling the manhole to the overflow. Water test must be performed when the manhole is fully exposed with no visible leakage. Manholes may be vacuum tested by plugging all inlets and outlets and testing with five (5) inches of vacuum for five (5) minutes with no loss.

**804.1 Standpipe Receptors.** Plumbing fixtures or other receptors receiving the discharge of indirect waste pipes shall be approved for the use proposed and shall be of such shape and capacity as to prevent splashing or flooding and shall be located where they are readily accessible for inspection and cleaning. No standpipe receptor for any clothes washer shall extend more than thirty (30) inches (762 mm), or not less than eighteen (18) inches (457 mm) above its trap. No trap for any clothes washer standpipe receptor shall be installed below the floor, but shall be roughed in not less than six (6) inches (152 mm) and not more than eighteen (18) inches (457 mm) above the floor. No indirect waste receptor shall be installed in any toilet room, closet, cupboard, or storeroom, nor in any other portion of a building not in general use by the occupants thereof; except standpipes for clothes washers shall be permitted to be installed in toilet and bathroom areas when the clothes washer is installed in the same room.

**Exception:** Hub drains receiving the discharge from water heater temperature and pressure valve drains, pan drains, condensation drains and other similar clear water waste drains may be located under kitchen sink cabinets, water heater closets, walk-in storage rooms and other similar accessible locations.

**807.3 Domestic Dishwashing Machines.** No domestic dishwashing machine shall be directly connected to a drainage system or food waste disposer unless one of the following conditions is met. Otherwise the discharge from domestic dishwashers shall be an indirect waste.

- (1) an approved dishwasher air-gap fitting is used on the discharge side of the dishwashing machine; or
- (2) the discharge line from the dishwasher may be looped up and securely fastened to the underside of the counter, then the discharge may be connected either 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 vents that are less than 6 inches in height above the flood level rim of the fixture being served shall be served with a cleanout.

**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 except for kitchen sinks and urinals when shown on the approved plans. No more than two fixtures may be located on the horizontal wet vented section of the water closet, floor drain, or indirect waste receptors. A 2 inch cleanout shall be installed on the dry vent.

**909.0 Special Venting for Island Fixtures.** Traps for island sinks and similar equipment shall be roughed in above the floor and shall be permitted to be vented by extending the vent as high as possible, but not less than the drain board height and then returning it downward and connecting it to the horizontal sink drain immediately downstream from the vertical fixture drain. The return vent shall be connected to the horizontal drain through a wye branch fitting and shall, in addition, be provided with a foot vent taken off the vertical fixture vent by means of a wye branch immediately below the floor and extending to the nearest partition and then through the roof to the open air, or shall be permitted to be connected to other vents at a point not less than six (6) inches (152 mm) above the flood-level rim of the fixtures served. Drainage fittings shall be used on all parts of the vent below the floor level, and a slope of not less than one-fourth (1/4) inch per foot (20.8 mm/m) back to the drain shall be maintained. The return bend used under the drain board shall be a one (1) piece fitting or an assembly of a 45 degree (0.79 rad), a 90 degree (1.6 rad), and a 45 degree (0.79 rad) elbow in the order named. Pipe sizing shall be as elsewhere required in this code. The island sink drain, upstream of the returned vent, shall serve no other fixtures. An accessible cleanout shall be installed in the vertical portion of the foot vent.

**Exception:** Deep seal P-traps may be installed under the floor of island fixtures if the trap and trap vent are at least two inches in diameter and the trap vent is located in the nearest partition wall. The vent riser shall contain a cleanout and the vent

shall continue through the roof to open air. The vent shall take off no more than three feet downstream from the trap being served. Pipe sizing for island fixtures shall be in accordance with this Code.

**1007.0 Trap Seal Protection.** Floor drains or similar traps directly connected to the drainage system and subject to infrequent use shall be protected with a trap seal primer, except where not deemed necessary for safety or sanitation by the Authority Having Jurisdiction. When structurally feasible, traps for floor drains and similar fixtures shall be primed by methods utilizing gravity flow wastewater from acceptable plumbing fixtures. Fixtures used for grease or food particle wasting shall not be used for trap seal priming. Trap seal primers shall be accessible for maintenance.

**1009.2 Approval.** Austin Water shall approve the size, design, type, and location of each interceptor or separator. Except as otherwise specifically permitted in the City Code, no wastes other than those requiring treatment or separation, shall be discharged into any interceptor. A grease, sand, or other gravity interceptor shall be field tested by applying a minimum of a one-inch (1") water column above the lid seal of the interceptor.

**Exception:** Interceptors or separators on a septic system must meet requirements established by the Health Authority.

**1010.0 Slaughterhouses, Packing Establishments, etc.** Every fish, fowl, and animal slaughterhouse or establishment; every fish, fowl, and meat packing or curing establishment; every soap factory, tallow-rendering, fat-rendering, and hide-curing establishment shall be connected to and shall drain or discharge into an approved grease interceptor (clarifier) or other pretreatment system as necessary to comply with the requirements in Chapter 15-10 of the City Code and as authorized by Austin Water.

**1011.0 Minimum Requirements for Auto Wash Racks.** Every private or public wash rack and / or floor or slab used for cleaning machinery or machine parts shall be adequately protected against storm or surface water and shall drain or discharge into an approved mud box and then into an interceptor (clarifier) of an approved design. Additional pretreatment shall be required if the effluent quality does not meet City standards and the requirements in Chapter 15-10 of the City Code and as authorized by Austin Water.

**1012.0 Commercial and Industrial Laundries.** Laundry equipment in commercial and industrial buildings shall discharge into a pretreatment system as necessary to comply with the requirements in Chapter 15-10 of the City Code and as authorized by Austin Water.

**1013.0 Bottling Establishments.** Bottling plants shall discharge their process wastes into an interceptor or other pretreatment system that will provide for the separation of broken glass or other solids, before discharging liquid wastes into the drainage system,

and as necessary to comply with the requirements in Chapter 15-10 of the City Code and as authorized by the Austin Water.

**1014.1** When pretreatment is required, an approved type grease interceptor complying with Austin Water regulations shall be installed in the waste discharge leading from sinks, drains, and other fixtures or equipment. Grease interceptors are required in commercial or institutional food preparation facilities, including, without limitation, food processors, bakeries, restaurants, cafeterias, schools, hospitals, retirement homes, assisted living centers, grocery stores, or other commercial or institutional food preparation facilities where fats, oils, or grease may be introduced into the drainage or sewage system in quantities that can effect line stoppage or hinder sewage treatment or private sewage disposal. A combination of hydromechanical, gravity grease interceptors and engineered systems may be allowed in certain cases when space or existing physical constraints of existing buildings necessitate such installations in order to meet this code and upon approval by Austin Water. A grease interceptor is not required for one-and-two-family dwelling units. Water closets, urinals, and other plumbing fixtures conveying human waste shall not drain into or through the grease interceptor.

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

**1014.1.2** All grease interceptors shall be maintained in efficient operating condition by periodic removal of the accumulated grease and latent material as prescribed in Chapter 15-10 of the City Code. No such collected grease shall 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 cleaned or maintained, the Authority Having Jurisdiction shall have the authority to mandate the installation of additional equipment or devices and to mandate a maintenance program.

**1014.1.3 Food Waste Disposal Units and Dishwashers.** Food waste and garbage disposal unit installations in restaurants, cafeterias, and other commercial and institutional kitchens and food preparation facilities are prohibited by Section 616.0 of this code. Food waste and garbage disposal units that were installed in restaurants, cafeterias, and other commercial and institutional kitchens and food preparation facilities prior to this prohibition shall be connected to or discharge into a grease interceptor. Unless specifically exempted by Austin Water, dishwashers in commercial or institutional food preparation facilities shall be connected to or discharge into a grease interceptor.

**1014.2 Hydromechanical Grease Interceptors.** Hydromechanical grease interceptors or separators shall be of a size, standard, design, type, and installed in a location approved by Austin Water.

**1014.3.3 Design.**

**1014.3.3.1** Gravity Interceptors shall be constructed in accordance with the design approved by Austin Water.

### **1014.3.6 Sizing Criteria.**

**1014.3.6.1 Sizing.** The size and volume of the interceptor shall be determined according to Austin Water's interceptor sizing criteria.

### **1015.0 Fats, Oils, and Greases (FOG) Pretreatment and Disposal System.**

**1015.1 Purpose.** The purpose of this section is to provide the necessary criteria for the sizing, application, and installation of FOG pretreatment and disposal systems designated as a pretreatment or discharge water quality compliance strategy in accordance with the requirements in this code and Chapter 15-10 of the City Code.

**1015.2 Scope.** FOG pretreatment and disposal systems shall be considered engineered systems and shall comply with the requirements of Section 301.4 of this code and Chapter 15-10 of the City Code.

**1015.3 Components, Materials, and Equipment.** FOG pretreatment and disposal systems, including all components, materials, and equipment necessary for the proper function of the system, shall comply with Sections 301.1.2 or 301.2 of this code and Chapter 15-10 of the City Code.

**1015.4 Sizing Application and Installation.** FOG pretreatment and disposal systems shall be engineered, sized, and installed in accordance with the manufacturers' specifications and as specified in ASME A112.14.6, as listed in Chapter 14, Table 1401.1 of this code and Chapter 15-10 of the City Code.

**1015.5 Performance.** FOG pretreatment and disposal systems shall be tested and certified as listed in Chapter 14, Table 1401.1 of this code, and other national consensus standards applicable to FOG disposal systems as discharging an effluent not to exceed the standards and requirements in Chapter 15-10 of the City Code.

### **1016.0 Sand Interceptors.**

#### **1016.1 Where Required.**

**1016.1.1** When pretreatment is required, an approved type sand interceptor complying with Austin Water regulations shall be installed in the waste discharge leading from a fixture or drain containing solids or semi-solids heavier than water that would be harmful to a drainage system, cause a stoppage within the system, or as otherwise required by Chapter 15-10 of the City Code. Multiple floor drains shall be permitted to discharge into one sand interceptor. Additional pretreatment shall be required if the effluent quality does not meet City standards.

**1016.1.2** Sand interceptors are required whenever Austin Water deems it necessary to have a sand interceptor to protect the drainage system.

**1016.2 Construction and Size.** Sand Interceptors shall be constructed in accordance with the design approved by Austin Water.

**1016.3 Separate Use.** Sand and similar interceptors for every solid shall be so designed and located as to be readily accessible for cleaning, shall have a water seal of not less than six (6) inches (152 mm), and shall be vented.

**1017.0 Petroleum-Based Oil and Flammable Liquid Interceptors and Pretreatment.**

Any operation that generates a discharge that contains petroleum-based oily, flammable, or both types of wastes shall be required to install and maintain an interceptor, hold haul tank, or other pretreatment system in accordance with the requirements in Chapter 15-10 of the City Code and as authorized by Austin Water. The interceptor or other pretreatment system, tanks, and pumps installed shall be accessible and shall be vented to the atmosphere in a Code approved manner.

**1101.2 Where Required.** Roofs and courtyards shall be drained into a separate storm sewer system or to some other place of disposal, satisfactory to the Authority Having Jurisdiction. For one and two family dwellings, storm water may be discharged on flat areas such as streets or lawns so long as the storm water shall flow away from the building and to an approved location.

**1103.5 Sizing of Rain Piping.** Sizing of rainwater piping is based upon maximum of five inches (5") of rainfall per hour falling upon a given roof area in square feet. Five inches per hour shall be used for sizing both primary rainwater systems and overflow or emergency rainwater systems.

**1103.6 Window Areaway Drains.** Window areaway drains must terminate to an approved location as approved by the Authority Having Jurisdiction. Window areaways not exceeding ten (10) square feet in area may discharge to the subsoil drain through a two (2) inch discharge pipe. However, areaways exceeding ten (10) square feet in area shall be drained to an approved storm drainage system.

**1106.2 Methods of Testing Storm Drainage Systems.** Except for outside leaders and perforated or open jointed drain tile, the piping of storm drain systems shall be tested upon completion of the rough piping installation by water or air, and proven tight. The Authority Having Jurisdiction may require the removal of any cleanout plugs to ascertain if the pressure has reached all parts of the system. Either of the following test methods shall be used:

**1106.2.1 Test Procedures for Material other than Polyvinyl Chloride (PVC) Drainage Piping.** This section applies to material other than PVC drainage piping (for example, cast iron).

- (1) The storm drainage system may be tested with a water test, or an air test.
- (2) When utilizing a water test, the level of the water shall be visible so that an inspector may mark the level of the water unless the system is filled to the point of overflow.
- (3) A water and or air test shall be maintained at least fifteen (15) minutes prior to the start of the inspection.
- (4) If tested with air, the entire portion of the system tested shall be subjected to a five (5) pound per square inch air test for fifteen (15) minutes.
- (5) When moisture or wet conditions make it impractical to verify tightness of joints in a drainage system with a water test, the system shall be tested with air using a Class 1A diaphragm test gauge calibrated to an accuracy of  $\pm 1\%$  of the span. Refer to *Section 318.0 (Test Gauges)* of this Code for gauge requirements.
- (6) To test with a water test in a single story building, storm water system stacks shall be plugged and completely filled with water to provide a minimum of ten (10) foot head-pressure at the highest portion of the system being tested, or to a point of roof drain overflow.
- (7) In a multistory building storm water system stacks shall be plugged and filled to a point of overflow at the roof drain, or in sectional test. The roof drainage system shall be tested with a minimum of a ten (10) foot head of water or a five (5) pound per square inch air test for fifteen (15) minutes.
- (8) Any leaks detected from water or air test shall be corrected, re-tested and inspected until work is found to be tight and conforms to this Code.

#### **1106.2.2 Testing Procedures for Plastic Roof Drainage Piping.**

- (1) A PVC drainage system shall be tested utilizing water or air.
- (2) The level of the water shall be visible so that an inspector may mark the level of the water.
- (3) To test with a water test in a single story building, storm water system stacks shall be plugged and completely filled with water to provide a minimum of ten (10) foot head-pressure at the highest portion of the system being tested, or to a point of roof drain overflow.
- (4) In a multistory building the storm water system stacks shall be plugged and filled to a point of overflow at the roof drain, or a sectional test of the roof drainage system shall be allowable when tested with a minimum of a ten (10)

foot head of water, or a three (3) pound per square inch air test for fifteen (15) minutes.

- (5) When moisture or wet conditions make it impracticable to verify tightness of joints in a drainage system with a water test, the system shall be tested with air using a Class 1A diaphragm test gauge calibrated to an accuracy of  $\pm 1\%$  of the span. Refer to *Section 318.0* this Code for gauge requirements.
- (6) A water and or air test shall be maintained at least fifteen (15) minutes prior to the start of the inspection.
- (7) The entire portion of the system tested shall be subjected to a three (3) pound per square inch air test for fifteen (15) minutes.
- (8) Any leaks detected from water or air tests shall be corrected, re-tested and inspected until work is found to be tight and conforms to this Code.

**1203.3.1 Plumbing Gas Rough Inspection.** This inspection shall be made after all piping authorized by the permit has been installed, before the portions of the piping that are to be covered or concealed are concealed, and before any fixture, appliance or shutoff valve has been attached to the pipe.

- (1) **Low Pressure Gas Test.** This inspection shall include an air, carbon dioxide, or nitrogen pressure test. The test pressure for gas piping may not be less than fifteen (15) pounds per square inch gauge pressure. Test pressures shall be held for at least fifteen (15) minutes with no perceptible drop in pressure or for a longer time if determined necessary by the Building Official. A Bourdon tube (“Spring”) gage may be utilized for this test. Refer to *Code Section 318.0* (Test Gauges) of this Code for gauge requirements.
- (2) **Medium Pressure Gas Test.** For welded piping and for piping that carries gas at pressures of more than fourteen (14) inches water column pressure, the test pressure may not be less than sixty (60) pounds per square inch and shall be continued for a length of time satisfactory to the Building Official, but in no case for less than thirty (30) minutes. These tests shall be made using air, carbon dioxide, or nitrogen pressure only, and shall be made in the presence of the inspector. All necessary apparatus for conducting tests shall be furnished by the permittee. Test pressures shall be held for at least thirty (30) minutes with no perceptible drop in pressure or for a longer time if determined necessary by the Building Official. A Bourdon tube (“spring”) gage may be utilized for this test. Refer to *Code Section 318.0* (Test Gauges) of this Code for gauge requirements.

**1203.3.2 Final Gas Inspection.** The final test on the gas piping shall be made after the water heaters, floor furnaces, and gas appliance shutoff valves have been installed. Whenever changes or extensions are made to any existing gas piping from a point where

no gas stop valve has been provided in the original gas system, the responsible plumber or responsible person shall prepare the entire system for inspection and testing. Existing gas piping or portions thereof shall be tested to the standards outlined in this section and are not required to meet the test pressures outlined in 1203.3.1 Plumbing Gas Rough Inspection.

- (1) **Low Pressure Final Gas Test.** A low-pressure gas distribution system shall be tested with a minimum of five (5) pounds of air, carbon dioxide, or nitrogen pressure for fifteen (15) minutes using a *Class 1A* diaphragm test gauge calibrated to an accuracy of  $\pm 1\%$  of the span. Refer to *Section 318.0* of this Code for gauge requirements.
- (2) **Medium Pressure Final Gas Test.** A medium pressure gas distribution system shall be tested with a ten (10) pound per square inch test for the entire medium pressure gas system using a *Class 1A* diaphragm test gauge calibrated to an accuracy of  $\pm 1\%$  of the span. The test shall hold tight for at least 30 minutes. Refer to Code *Section 318.0* of this Code for gauge requirements.
- (3) The permittee shall notify the plumbing inspector when the system is ready for final inspection and arrange access for the inspection.
- (4) The testing equipment and labor necessary for making the required tests and inspections shall be furnished by the permittee.

## **1203.5 Pulled Meters, Gas Repair, and Remodeling.**

### **1203.5.1 Definitions.**

**Pulled Gas Meter.** A pulled meter is an active gas system that has been terminated by the gas supplier due to a code violation that will require a permit and inspection by the City to verify that the system meets the requirements of the Code before restoring gas service to the customer. Refer to the pulled gas meter procedures in Section 1204.4.2 (Pulled Natural Gas Meter Inspection Criteria).

**1203.5.2 Pulled Natural Gas Meter Inspection Criteria.** The following requirements must be met before the inspector may authorize a final inspection on a plumbing permit:

- (1) Pulled Meter Testing Pressure Requirements.
  - (a) **Low Pressure Test.** A five (5) pound per square inch test shall be made on the entire low-pressure natural gas system using a *Class 1A* diaphragm test gauge calibrated to an accuracy of  $\pm 1\%$  of the span. The test shall hold tight for at least fifteen (15) minutes. Refer to *Section 318.0* (Test Gauges) of this Code for gauge requirements.

- (b) **Medium Pressure Test.** A ten (10) pound per square inch test is required for the entire medium pressure gas system using a *Class 1A* diaphragm test gauge calibrated to an accuracy of  $\pm 1\%$  of the span. The test shall hold tight for at least 30 minutes. Refer to *Section 318.0* (Test Gauges) of this Code for gauge requirements.
- (2) All natural gas piping, valves, connectors, and appliances that have been installed under a pulled meter plumbing permit must meet current Plumbing Code and Mechanical Code standards.
- (3) Existing gas valves no longer in use shall be capped if an adequate number of outlets are available to provide a temperature of 70 degrees three feet above the floor in habitable rooms. All existing valves that leak shall be replaced with listed valves and connectors.
- (4) All rubber hose gas connectors shall be replaced with listed connectors.
- (5) Existing single wall vent piping for gas appliances and water heaters may be retained if all of the following conditions are met:
- (a) The vent is properly sized for the application serviced;
  - (b) The vent is properly connected for the appliance;
  - (c) The vent is not rusted or deteriorated; and
  - (d) The vent terminates above the roofline; and the vent has a minimum two-inch clearance from combustibles at all points.
- (6) Existing water heaters must have operable temperature and pressure relief valves and properly sized relief lines (where practical). If water heaters lack an opening for a properly sized temperature and pressure relief valve, a pressure relief valve shall be installed on the hot water side of the water heater.
- (7) All natural gas appliances shall be provided with combustion air in accordance with the product listing. If no combustion air is provided for an existing gas appliance, properly sized louvers in doors or ducts shall be placed in proper locations.
- (8) All existing or replacement water heaters located in garages shall be at least 18 inches above the finished floor level unless the water heater is listed to be located at finished floor level and is protected from damage in accordance with the code.
- (9) Battery operated smoke detectors shall be installed outside each separate sleeping area in the immediate vicinity of the bedrooms.

**1212.10 Liquefied Petroleum Gas Systems.** In addition to requirements of Texas State Board of Plumbing Examiners requirements for plumbing licenses, other regulatory authorities, including the State of Texas Railroad Commission and the Fire Department, may require additional certifications or licenses for the installation of gas piping and appurtenances. These certifications may include certified welder, certified installer of factory designed gas piping systems, and certified or licensed LP Gas piping installer. On completion of the installation, alteration, repair, or testing of the gas piping system, the installer shall identify all piping installations requiring such certified or licensed personnel. The installer shall attach to the end of the piping nearest the service entrance; a decal or tag of metal or other permanent material indicating the following information:

- (1) The installer's name;
- (2) The license and/or certification number; and
- (3) The date the piping was installed, altered, repaired or tested.

**1212.10.1 Liquefied Petroleum Approval.** The City of Austin Fire Department shall approve the Liquefied Petroleum gas container size, location and service line to the building.

**1301.0 Medical Gas and Vacuum Piping Systems.** The Medical Gas Installer shall present a copy of his Medical Gas Endorsement to the Plumbing Inspector before the first inspection.

**1302.0 Medical Gas Plan Review and Permits.** Plans shall be submitted for review of a new or revised medical gas system. An engineer licensed with the State of Texas shall design plans for medical gas systems installed for human uses. After approval of the medical gas plan, a Responsible Master Plumber licensed by the State of Texas with a current Master License medical gas endorsement shall secure a medical gas permit. This permit shall be for all medical gas installations and alterations of a medical gas system.

**1303.0 Liquid Ring Surgical and Dental Vacuum Pump Installations.** Liquid ring surgical and dental vacuum pump installations are prohibited in the City's jurisdiction.

**1304.0 Category 3 Vacuum Systems.** Drain shall be directly connected to the sanitary waste such as figure A.5.3.3.10.1.3(4)(a) in NFPA 99-2015

**1305.0 Medical Gas for Non-Human Uses.**

**1305.1 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 field installed vacuum systems for non-human use may be installed with schedule 40 polyvinylchloride (PVC).

### 1305.2 Testing Requirements.

**1305.2.1** The test pressure for positive-pressure gas piping installed in medical gas systems for non-human uses shall be 1.5 times the system working pressure, but not less than a gauge pressure of 1035 kpa (150 psi).

**1305.2.2** The test pressure for copper vacuum systems installed for non-human uses shall be a gauge pressure of 105 kpa (15 psi).

**1305.2.3** Piping for field installed vacuum systems using PVC pipe and fittings for non-human uses shall be subjected to a vacuum of not less than 485mm (19in.) gauge HgV, using either the vacuum source equipment or a test pump.

**1500.0** The installation of an Alternate or Auxiliary Water Source System is strictly voluntary and optional unless required by City Code. The Authority Having Jurisdiction shall not require the installation of a gray-water, reclaimed water, Alternate Water Source or any other auxiliary water system unless required by City Code. However if a gray-water, reclaimed water or auxiliary water system is installed, it shall comply with the requirements of Chapter 15.

**1501.2 System Design.** Alternate water source systems in accordance with this chapter shall be designed by a person registered or licensed to perform plumbing design work. Components, piping, and fittings used in an alternate water source system shall 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 of a single family dwelling where the system's outlets, piping, and other components are located on the exterior of the single family dwelling, or
  - (b) Landscaping other than that of a single family dwelling where the system's maximum storage capacity is 500 gallons (1893 L).
- (2) A gravity gray water systems having a maximum discharge capacity of 250 gallons per day (gal/d) (0.011 L/s) for a Homestead Permit as described in section 103.1.3 of this Code for one- and two-family dwellings and townhomes.
  - (3) An on-site treated nonpotable water system for a single family dwelling having a maximum discharge capacity of 250 gal/d (0.011 L/s).
  - (4) A Laundry to Landscape system.

**1501.3 Permit.** It shall be unlawful for a person to construct, install, alter, or cause to be constructed, installed, or altered an alternate water source 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 which 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 condensate collection system is used only for outdoor applications or
- (2) Non-potable rainwater catchment or non-potable condensate collection system of 500 gallons (1893 L) or less is used only for outdoor applications.

**1501.3.1 Registration Required.** All auxiliary water systems shall be required to be registered with the Authority Having Jurisdiction. Registration shall include the following:

- (1) Site address of the auxiliary water system.
- (2) Storage capacity of the auxiliary water system.
- (3) Type of auxiliary water.
- (4) Intended use of the auxiliary water.

**Exception:** Nonpotable rainwater catchment or nonpotable condensate collection systems of 500 gallons (1893 L) or less do not require registration.

**TABLE 1501.5**

**MINIMUM ALTERNATE WATER SOURCE TESTING, INSPECTION, AND MAINTENANCE FREQUENCY**

Inspect and clean filters and screens, and replace (where necessary).	Every 3 months
Inspect and verify that disinfection, filters and water quality treatment devices and systems are operational and maintaining minimum water quality requirements as determined by the Authority Having Jurisdiction.	In accordance with 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 aboveground rainwater collection surfaces.	As needed
Inspect pumps and verify operation.	After initial installation and every 12 months thereafter
Inspect valves and verify operation.	After initial installation and every 12 months thereafter
Inspect pressure tanks and verify operation.	After initial installation and every 12 months thereafter
Clear debris from and inspect storage tanks, locking devices, and verify operation.	After initial installation and every 12 months thereafter
Inspect caution labels and marking.	After initial 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 initial installation and reoccurring thereafter as deemed appropriate by the Authority Having Jurisdiction.

\* The cross-connection test shall be performed in accordance with the requirements of this chapter.

**1501.5.2 Maintenance Log.** A maintenance log for alternate water systems is required for any system that is required to have a permit in accordance with Section 1501.3. A maintenance log shall be maintained by the property owner and be available for inspection. The property owner or designated appointee shall ensure that a record of testing, inspection and maintenance in accordance with Table 1501.5 is maintained in the log. The log will indicate the frequency of inspection and maintenance for each system.

**1501.7 Minimum Water Quality Requirements.** The minimum water quality for alternate water source systems shall meet the applicable water quality requirements for the intended application as determined by the public health Authority Having Jurisdiction. In the absence of water quality requirements, the EPA/625/R-04/108 contains recommended water reuse guidelines to assist regulatory agencies develop, revise, or expand alternate water source water quality standards.

**Exceptions:**

- (1) Water treatment is not required for rainwater catchment systems used for aboveground irrigation.
- (2) Water treatment is not required for gray water used for subsurface irrigation.
- (3) Water treatment is not required for rainwater catchment systems used for subsurface or drip irrigation.
- (4) Water treatment is not required for Alternate Water and Auxiliary Water that originates from wells, rivers and lakes that are used for outdoor irrigation purposes only.

**1501.11 Inspection and Testing.** Alternate water source systems shall be inspected and tested in accordance with Section 1501.11.1 and Section 1501.11.2.

**1501.11.1 Supply System Inspection and Test.** Alternate water source systems shall be inspected and tested in accordance with this code for testing of potable water piping.

**1501.11.2 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 systems shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1501.11.2.1 through Section 1501.11.2.4.

**1501.11.2.1 Visual System Inspection.** Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the applicant using a registered

professional authorized by the Authority Having Jurisdiction and other authorities having jurisdiction as follows:

- (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 room shall be checked.
- (3) Valves shall be checked to ensure that valve lock seals are still in place and intact. Valve control door signs shall be checked to verify that no signs have been removed.

**1501.11.2.2 Cross-Connection Test.** The procedure for determining cross-connection shall be followed by the applicant using a registered professional authorized by the Authority Having Jurisdiction and other authorities having jurisdiction to determine whether a cross-connection has occurred as follows:

- (1) The potable water system shall be activated and pressurized. The alternate water source systems shall be shut down, depressurized, and drained.
- (2) The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the alternate water source system 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 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 source, shall be tested and inspected for flow. Flow from an alternate water 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 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.

(7) Fixtures, potable and alternate 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.

### **1501.11.2.3 Discovery of Cross-Connection.**

In the event that a cross-connection is discovered, the customer shall immediately contact Austin Water and activate the following procedure:

(1) Alternate water source piping to the building shall be shut down at the meter, and the alternate water source riser 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 1501.11.2.1 and Section 1501.11.2.2.

(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.

**1501.11.2.4 Reoccurring Inspection and Testing.** A reoccurring inspection of the alternate water source system, following the procedures listed in Section 1501.11.2.1 shall be required. Reoccurring cross-connection testing, following the procedures listed in Section 1501.11.2.2 shall be required by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test for a multi-family, industrial, institutional, or commercial site with an alternate water source occur less than once in 4 years. Cross-connection testing of all sites containing alternate water systems shall be required any time the potable or alternate water systems are altered or when deemed necessary by the Authority Having Jurisdiction. Alternate testing requirements shall be permitted by the Authority Having Jurisdiction.

**1502.1 General.** The provisions of this section shall apply to the construction, alteration, and repair of gray water systems.

**EXCEPTION:** Systems installed under the provisions of section 1502.16 of this chapter, City of Austin Laundry to Landscape Program.

**1502.2.1 Surge Capacity.** Gray water systems shall be designed to have the capacity to accommodate peak flow rates and distribute the total amount of estimated gray water on a daily basis to a subsurface irrigation field, subsoil irrigation field, or mulch basin without surfacing, ponding, or runoff. A surge tank is required in order to accommodate peak flow rates and distribute the total amount of gray water by gravity drainage. The water discharge for gray water systems shall be determined in accordance with Section 1502.8.1 or Section 1502.8.2.

**TABLE 1502.4 LOCATION OF GRAY WATER SYSTEM<sup>7</sup>**

MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM	SURGE TANK (feet)	SUBSURFACE AND SUBSOIL IRRIGATION FIELD AND MULCH BED (feet)
Building structures <sup>1</sup>	5 <sup>2,9</sup>	2 <sup>3,8</sup>
Property line adjoining private property	5	5 <sup>8</sup>
Water supply wells <sup>4</sup>	50	100
Sewage pits or cesspools	5	5
Sewage disposal field <sup>10</sup>	5	4 <sup>6</sup>
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. The distance shall be permitted to be reduced to 0 feet for aboveground tanks where first approved by the Authority Having Jurisdiction.		
3. Reference to a 45 degree (0.79 rad) angle from foundation.		
4. Where special hazards are involved, the distance required shall be increased as directed by the Authority Having Jurisdiction.		
5. Add 2 feet (610 mm) for each additional foot of depth in excess of 1 foot (305 mm) below the bottom of the drain line.		

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| 6. For parallel construction or for crossings, approval by the Authority Having Jurisdiction shall be required.  |
| 7. The distance shall be permitted to be reduced to 1.5 feet (457 mm) for drip and mulch basin irrigation systems.   |
| 8. The distance shall be permitted to be reduced to 0 feet for surge tanks of 75 gallons (284 L) or less.  |
| 9. Where irrigation or disposal fields are installed in sloping ground, the minimum horizontal distance between a part of the distribution system and the ground surface shall be 15 feet (4572 mm). |

**1502.6 Prohibited Location.** Where there is insufficient lot area or inappropriate soil conditions for adequate absorption to prevent the ponding, surfacing, or runoff of the gray water, as determined by the Authority Having Jurisdiction, no gray water system shall be permitted. A gray water system is not permitted in the Edwards Aquifer Recharge Zone or in any other geologically sensitive area as determined by the Authority Having Jurisdiction.

**1502.7 Drawings and Specifications.** The Authority Having Jurisdiction shall require the following information to be included with or in the plot plan before a permit is issued for a gray water system, or at a time during the construction thereof:

(1) Plot plan drawn to scale and completely dimensioned, showing lot lines and structures, direction and approximate slope of surface, location of present or proposed retaining walls, drainage channels, water supply lines, wells, paved areas and structures on the plot, number of bedrooms and plumbing fixtures in each structure, location of private sewage disposal system and expansion area or building sewer connecting to the public sewer, and location of the proposed gray water system.

(2) Details of construction necessary to ensure compliance with the requirements of this chapter, together with a full description of the complete installation, including installation methods, construction, and materials in accordance with the Authority Having Jurisdiction.

(3) Details for holding tanks shall include dimensions, structural calculations, bracings, and such other pertinent data as required.

(4) A log of soil formations and groundwater level as determined by test holes dug in proximity to proposed irrigation area, together with a statement of water absorption characteristics of the soil at the proposed site as determined by approved percolation tests.

(5) Distance between the plot and surface waters such as lakes, ponds, rivers or streams, and the slope between the plot and the surface water, where in close proximity.

### **1502.16 Laundry to Landscape System.**

**1502.16.1 General.** The provisions of this section shall apply to the installation, alteration, and repair of Laundry to Landscape Systems.

**1502.16.2 System Design.** The Laundry to Landscape System shall be designed in accordance with the following:

- (1) Laundry to Landscape Systems shall be designed to divert gray water from clothes washing-machines located at a private one- and two-family dwelling only.
- (2) Laundry to Landscape Systems shall be designed to allow the private residence, by use of one-inch tubing, to direct the flow of gray water from domestic laundry washing machines to the irrigation field for landscape irrigation or diverted to the building sewer.
- (3) Laundry to Landscape Systems shall be designed so that all gray water shall be contained to the site where it is generated without ponding, surfacing, or runoff.
- (4) Laundry to Landscape Systems shall be designed to minimize contact with humans and domestic pets.
- (5) Laundry to Landscape Systems shall be designed so as not be considered a health nuisance.

**1502.16.3 Discharge.** Laundry to Landscape Systems shall be permitted to discharge to a subsurface irrigation system, a subsoil irrigation system, or a mulch basin. Above ground discharge is prohibited.

**1502.16.4 Uses.** The Laundry to Landscape System shall only be used to irrigate landscape on the exterior of the structure. Laundry to Landscape Systems shall not be used to irrigate root crops or food crops intended for human consumption that come in contact with soil.

**1502.16.5 Prohibited Locations.** Laundries to Landscape Systems are prohibited on properties exceeding a three (3) to one (1) slope. All Laundry to Landscape Systems shall comply with Sections 1502.4 and 1502.6.

**1502.16.6 Connections to Plumbing System.** There shall be no cutting into, or any permanent physical attachment to the plumbing system. A Laundry to Landscape System shall not include a change to, or alteration of, or repair of, any potable water connection, and shall not include any other pump installation other than the pump equipped with, or manufactured as part of a washing machine, and shall not affect, or alter any other building, plumbing, electrical, or mechanical components including structural features, egress, fire-life safety, sanitation, potable water supply piping, or accessibility of the property.

**1502.16.7 Permits and Inspections.** It shall be 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 on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.

**1503.1.1 Cross-Connection Safeguards.** Sites served by reclaimed water shall protect the public drinking water supply in accordance with section 603.5.21 of this code.

**1503.5 Initial Cross-Connection Test.** A cross-connection test is required in accordance with Section 1501.11.2. Before the building is occupied or the system is activated, the initial cross-connection test shall be conducted by the applicant using a registered professional authorized by the Authority Having Jurisdiction and other authorities having jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

**1504.1 General.** The provisions of this section shall apply to the installation, construction, alteration, and repair of on-site treated nonpotable water systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, above and belowground irrigation, and other uses approved by the Authority Having Jurisdiction. Use of treated Gray Water for indoor non-potable fixtures and outdoor above grade distribution is limited to Commercial, Institutional and Industrial type occupancies only. Domestic treated Gray Water shall not be used in a domestic structure or be discharged above grade on a domestic site.

**1504.1.1 Cross-Connection Safeguards.** Sites served by On-site treated non-potable water systems shall protect the public drinking water supply in accordance with section 603.5.21 of this code.

**1504.5 Initial Cross-Connection Test.** A cross-connection test is required in accordance with Section 1501.11.2. Before the building is occupied or the system is activated, the initial cross-connection test shall be conducted by the applicant using a registered professional authorized by the Authority Having Jurisdiction and other authorities having jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

## **1505.0 Other On-Site Nonpotable Water Systems**

**1505.0.1 Definition of Other On-site Nonpotable Water System.** An Other On-Site Nonpotable Water System is any Auxiliary or Alternate Water Source system that is not specifically addressed in this Code. These water systems include well water, lake water, river water, condensate collection water and any other non-sewage originated water sources.

**1505.1 Applicability.** The provisions of this chapter shall apply to the installation, construction, alteration, and repair of Other On-site Nonpotable Water Systems.

**1505.1.1 Cross-Connection Safeguards.** Sites served by Other Onsite Nonpotable Water systems shall protect the public drinking water supply in accordance with section 603.5.21 of this code.

**1505.2 General.** The installation, construction, alteration, and repair of Other On-site Nonpotable water systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, irrigation, industrial processes, water features, cooling tower makeup and other uses shall be approved by the Authority Having Jurisdiction.

**1505.3 Plumbing Plan Submission.** No permit for an Other On-site Nonpotable Water system shall be issued until complete plumbing plans, with data satisfactory to the Authority Having Jurisdiction, have been submitted and approved. No changes or connections shall be made to either the Other On-site Nonpotable Water system or the potable water system within a site containing an Other On-site Nonpotable Water system without approval by the Authority Having Jurisdiction.

**1505.4 System Changes.** No changes or connections shall be made to either the Other On-site Nonpotable Water system or the potable water system within a site containing an Other On-site Nonpotable Water system requiring a permit without approval by the Authority Having Jurisdiction.

**1505.5 Connections to Potable or Reclaimed (Recycled) Water Systems.** Other On-site Nonpotable Water systems shall have no direct connection to a potable water supply or alternate water source system. Potable or reclaimed (recycled) water is permitted to be used as makeup water for an Other On-site Nonpotable Water system provided the potable or reclaimed (recycled) water supply connection is protected by an air gap or reduced-pressure principle backflow preventer in accordance with this code.

**Exception:** Well water sources of Other On-site Nonpotable Water systems shall have no direct connection to reclaimed water systems with or without backflow protection.

**1505.6 Initial Cross-Connection Test.** A cross-connection test is required in accordance with Section 1501.11. before the building is occupied or the system is activated. the initial cross-connection test shall be conducted by the applicant using a registered professional authorized by the Authority Having Jurisdiction and other authorities having jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

**1505.7 Sizing.** Other On-site Nonpotable Water system distribution piping for indoor applications shall be sized as outlined in this code for sizing potable water piping.

**1505.8 Other On-site Nonpotable Water System Materials.** Other On-site Nonpotable Water system materials shall comply with Section 1505.8.1 through Section 1505.8.2.

**1505.8.1 Water Supply and Distribution Materials.** Other On-site Nonpotable water supply and distribution materials shall comply with the requirements of this code for potable water supply and distribution systems, unless otherwise provided for in this section.

**1505.8.2 Storage Tanks.** Other On-site Nonpotable water storage tanks shall comply with Section 1505.10.4.

**1505.9 Other On-site Nonpotable Water System Color and Marking Information.** Other On-site Nonpotable Water systems shall have a colored background in accordance with Section 601.2. Other On-site Nonpotable Water systems shall be marked, in lettering in accordance with Section 601.2, with the words: “CAUTION: NONPOTABLE WATER, DO NOT DRINK.”

### **1505.10 Design and Installation.**

**1505.10.1 Outside Hose Bibbs.** Outside hose bibbs shall be allowed on Other On-site Nonpotable Water systems. Hose bibbs supplying Nonpotable water shall be marked with the words: “CAUTION: NONPOTABLE WATER, DO NOT DRINK” and the figure below.



**1505.10.2 Deactivation and Drainage for Cross- Connection Test.** The Other On-site Nonpotable Water system and the potable water system within the building shall be provided with the required appurtenances (e.g., valves, air or vacuum relief valves, etc.) to allow for deactivation or drainage as required for a cross-connection test in accordance with Section 1501.11.

**1505.10.3 Minimum Water Quality.** The minimum water quality for Other On-site Nonpotable Water shall meet the applicable water quality requirements for the intended applications as determined by the Authority Having Jurisdiction. No treatment is required for Other On-site Nonpotable Water used for subsurface or non-sprinkled surface irrigation.

**1505.10.4 Storage Tanks.** Storage tanks shall be constructed and installed in accordance with Section 1505.10.4.1 through Section 1505.10.4.7.

**1505.10.4.1 Construction.** Storage tanks shall be constructed of solid, durable materials not subject to excessive corrosion or decay and shall be watertight. Storage tanks shall be approved by the Authority Having Jurisdiction provided such tanks are in accordance with approved applicable standards.

**1505.10.4.2 Location.** Storage tanks shall be permitted to be installed above or below grade.

**1505.10.4.3 Above Grade.** Above grade storage tanks shall be of an opaque material, approved for aboveground use in direct sunlight or shall be shielded from direct sunlight. Tanks shall be installed in an accessible location to allow for inspection and cleaning. The tank shall be installed on a foundation or platform that is constructed to accommodate loads in accordance with the building code.

**1505.10.4.4 Below Grade.** Storage tanks installed below grade shall be structurally designed to withstand anticipated earth or other loads. Holding tank covers shall be capable of supporting an earth load of not less than 300 pounds per square foot (lb/ft<sup>2</sup>) (1465 kg/m<sup>2</sup>) where the tank is designed for underground installation. Below grade tanks installed underground shall be provided with manholes. The manhole opening shall be located not less than 4 inches (102 mm) above the surrounding grade. The surrounding grade shall be sloped away from the manhole. Underground tanks shall be ballasted, anchored, or otherwise secured, to prevent the tank from floating out of the ground when empty. The combined weight of the tank and hold down system shall meet or exceed the buoyancy force of the tank.

**1505.10.4.5 Drainage and Overflow.** Storage tanks shall be provided with a means of draining and cleaning. The overflow drain shall not be equipped with a shutoff valve. The overflow outlet shall discharge in accordance with this code for storm drainage systems. Where discharging to the storm drainage system, the overflow drain shall be protected from backflow of the storm drainage system by a backwater valve or other approved method.

**1505.10.4.5(A) Overflow Outlet Size.** The overflow outlet shall be sized to accommodate the flow of the water entering the tank and not less than the aggregate cross-sectional area of inflow pipes.

**1505.10.4.6 Opening and Access Protection.**

**1505.10.4.6(A) Animals and Insects.** Tank openings shall be protected to prevent the entrance of insects, birds, or rodents into the tank.

**1505.10.4.6(B) Human Access.** Tank access openings exceeding 12 inches (305 mm) in diameter shall be secured to prevent tampering and unintended entry by either a lockable device or other approved method.

**1505.10.4.7 Marking.** Tanks shall be permanently marked with the capacity and the language: "NONPOTABLE WATER." Where openings are provided to allow a person to enter the tank, the opening shall be marked with the following language: "DANGER-CONFINED SPACE."

**1505.10.5 Pumps.** Pumps serving Other On-site Nonpotable Water systems shall be listed. Pumps supplying water to water closets, urinals, and trap primers shall be capable of delivering not less than 15 pounds-force per square inch (psi) (103 kPa) residual pressure at the highest and most remote outlet served. Where the water pressure in the water supply system within the building exceeds 65 psi (552 kPa), a pressure reducing valve reducing the pressure to 65 psi (552 kPa) or less to water outlets in the building shall be installed in accordance with this code.

**1505.10.6 Water Quality Devices and Equipment.** Devices and equipment used to treat Other On-site Nonpotable Water to maintain the minimum water quality requirements determined by the Authority Having Jurisdiction shall be listed or labeled (third-party certified) by a listing agency (accredited conformity assessment body) and approved for the intended application.

**1505.10.7 Freeze Protection.** Tanks and piping installed in locations subject to freezing shall be provided with an approved means of freeze protection.

**1505.10.8 Required Filters.** A filter permitting the passage of particulates not larger than 100 microns shall be provided for nonpotable water supplied to water closets, urinals, trap primers, and drip irrigation system.

**1505.11 Signs.** Signs in buildings using Other On-site Nonpotable water shall be in accordance with Section 1505.11.1 and Section 1505.11.2.

#### **1505.11.1 Commercial, Industrial, and Institutional**

**Restroom Signs.** A sign shall be installed in restrooms in commercial, industrial, and institutional occupancies using Other On-site Nonpotable Water for water closets, urinals, or both. Each sign shall contain 1/2 of an inch (12.7 mm) letters of a highly visible color on a contrasting background. The location of the sign(s) shall be such that the sign(s) shall be visible to users. The number and location of the signs shall be approved by the Authority Having Jurisdiction and shall contain the following text: TO CONSERVE WATER, THIS BUILDING USES NONPOTABLE WATER TO FLUSH TOILETS AND URINALS.

**1505.11.2 Equipment Room Signs.** Each equipment room containing Other On-site Nonpotable Water equipment shall have a sign posted with the following wording in 1 inch (25.4 mm) letters: CAUTION NONPOTABLE WATER, DO NOT DRINK. DO NOT CONNECT TO DRINKING WATER SYSTEM. NOTICE: CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM. This sign shall be posted in a location that is visible to anyone working on or near Other On-site Nonpotable water equipment.

**1505.12 Inspection and Testing.** Other On-site Nonpotable Water systems shall be inspected and tested in accordance with Section 1505.12.1 and Section 1505.12.2.

**1505.12.1 Supply System Inspection and Test.** Other On-site Nonpotable Water systems shall be inspected and tested in accordance with the applicable provisions of this code for testing of potable water systems.

**1505.12.2 Cross-Connection Inspection and Testing.** Initial and subsequent inspections and tests, required by the Authority Having Jurisdiction, shall be performed on both the potable and Other On-site Nonpotable Water systems in accordance with Section 1501.11.

**1505.12.2.3 Reoccurring Inspection and Testing.** A reoccurring inspection of the Other On-site Non-potable Water system, following the procedures listed in Section 1501.11.2.1 shall be required. Reoccurring cross-connection testing, following the procedures listed in Section 1501.11.2.2 shall be required by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test for a multi-family, institutional, industrial, or commercial site with an alternate water source occur less than once in 4 years. Cross-connection testing of all sites containing alternate water systems shall be required any time the potable or alternate water systems are altered or when deemed necessary by the Authority Having Jurisdiction. Alternate testing requirements shall be permitted by the Authority Having Jurisdiction.

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**TABLE 1601.5**

**MINIMUM ALTERNATE WATER SOURCE TESTING, INSPECTION, AND**

<b>DESCRIPTION</b>	<b>MINIMUM FREQUENCY</b>
Inspect and clean filters and screens, and replace (where necessary).	Every 3 months
Inspect and verify that disinfection, filters, and water quality treatment devices and systems are operational and maintaining minimum water quality requirements as determined by the Authority Having Jurisdiction.	In accordance with 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 a roof or other aboveground rainwater collection surfaces.	As needed
Inspect pumps and verify operation.	After initial installation and every 12 months thereafter
Inspect valves and verify operation.	After initial installation and every 12 months thereafter
Inspect pressure tanks and verify operation.	After initial installation and every 12 months thereafter
Clear debris from and inspect storage tanks, locking devices, and verify operation.	After initial installation and every 12 months thereafter
Inspect caution labels and marking.	After initial installation and every 12 months thereafter
Cross-connection inspection and test*	After initial installation and reoccurring thereafter as deemed appropriate by the Authority Having Jurisdiction.
Test water quality of rainwater catchment systems required by Section 1602.9.4 to maintain a minimum water quality	Every 12 months. After system renovation or repair.

**MAINTENANCE FREQUENCY**

\* The cross-connection test shall be performed in accordance with the requirements of this chapter.

**1602.1.1 Cross-Connection Safeguards.** Sites served by non-potable rainwater catchment systems shall protect the public drinking water supply in accordance with section 603.5.21 of this code.

**1602.5 Initial Cross-Connection Test.** A cross-connection test is required in accordance with Section 1602.11.2. Before the building is occupied or the system is activated, the initial cross-connection test shall be conducted by the applicant using a registered professional authorized by the Authority Having Jurisdiction and other authorities having jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

**1602.11 Inspection and Testing.** Rainwater catchment systems shall be inspected and tested in accordance with Section 1602.11.1 and Section 1602.11.2.

**1602.11.1 Supply System Inspection and Test.** Rainwater catchment systems shall be inspected and tested in accordance with this code for testing of potable water piping.

**1602.11.2 Cross-Connection Inspection and Testing.** An initial and subsequent inspections and tests shall be performed on both the potable and rainwater catchment systems. The potable and rainwater catchment systems shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1602.11.2.1 through Section 1602.11.2.4.

**1602.11.2.1 Visual System Inspection.** Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the applicant using a registered professional authorized by the Authority Having Jurisdiction and other authorities having jurisdiction as follows:

- 1) Pumps and equipment, equipment room signs, and exposed piping in equipment room shall be checked.

**1602.11.2.2 Cross-Connection Test.** The procedure for determining cross-connection shall be followed by the applicant using a registered professional authorized by the Authority Having Jurisdiction and other authorities having jurisdiction to determine whether a cross-connection has occurred as follows:

- 1) The potable water system shall be activated and pressurized. The rainwater catchment systems shall be shut down, depressurized, and drained.
- 2) The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the rainwater catchment system is empty. The minimum period the rainwater catchment 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 alternate water source distribution systems, but in no case shall that period be less than 1 hour.

- 3) The drain on the rainwater catchment system shall be checked for flow during the test and fixtures, potable and alternate source, shall be tested and inspected for flow. Flow from an rainwater catchment system outlet indicates a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the rainwater catchment system.
- 4) The potable water system shall then be depressurized and drained.
- 5) The rainwater catchment system shall then be activated and pressurized.
- 6) The rainwater catchment 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.
- 7) Fixtures, potable and alternate source, shall be tested and inspected for flow. Flow from a potable water system outlet indicates a cross-connection. No flow from an rainwater catchment 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.

**1602.11.2.3 Discovery of Cross-Connection.** In the event that a cross-connection is discovered, the customer shall immediately contact Austin Water and activate the following procedure:

- 1) Rainwater catchment piping to the building shall be shut down at the meter, and the rainwater catchment riser 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 1602.11.2.1 and Section 1602.11.2.2.

- 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.

**1602.11.2.4 Reoccurring Inspection and Testing.** A reoccurring inspection of the rainwater catchment system, following the procedures listed in Section 1602.11.2.1 shall be required. Reoccurring cross-connection testing, following the procedures listed in Section 1602.11.2.2 shall be required by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test for a multi-family, industrial, or commercial site with an alternate water source occur less than once in 4 years. Cross-connection testing of all sites containing alternate water systems shall be required any time the potable or alternate water systems are altered or when deemed necessary by the Authority Having Jurisdiction. Alternate testing requirements shall be permitted by the Authority Having Jurisdiction.

**K 101.7 Minimum Water Quality Requirements.** The minimum water quality for potable rainwater catchment systems shall comply with the applicable potable water quality requirements as determined by the public health Authority Having Jurisdiction and the Texas Commission on Environmental Quality.

**K 102.1.1 Cross-connection safeguards.** Sites served by potable rainwater catchment systems shall protect the public drinking water supply in accordance with section 603.5.21 of this code.

**PASSED AND APPROVED**

\_\_\_\_\_, 2016      §  
   §  
   § \_\_\_\_\_

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Mayor

**APPROVED:** \_\_\_\_\_

City Attorney

**ATTEST:** \_\_\_\_\_

City Clerk

DRAFT