

ORDINANCE NO. 20130606-093

AN ORDINANCE REPEALING AND REPLACING ARTICLE 6 OF CITY CODE CHAPTER 25-12 TO ADOPT THE 2012 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, 2012 edition, published by the International Association of Plumbing and Mechanical Officials (2012 Uniform Plumbing Code) is adopted and incorporated into this section, including all appendices except Appendices F, H and L, with deletions and amendments in Subsection (B) of this section and Section 25-12-153 (*Local Amendments to the Plumbing Code*).
- (B) The following provisions of the 2012 Uniform Plumbing Code are deleted. All subsections contained within a deleted section or subsection are also deleted, even if not specifically listed below.

102.3	103.1.1	103.3.3
103.4	Table 103.4	319.0
403.2	403.3	403.4
415.2	422.2	Table 422.1
Table 501.1	501.0	508.4
601.2	Table 603.2	603.2
603.4.2	603.5.6	603.5.12
608.2	704.3	710.2
710.3	712.0	713.4
723.0	801.3	804.1
807.4	909.0	

Table 1014.2.1	Table 1014.3.6	1007.0
1009.2	1010.0	1011.0
1012.0	1013.0	1014.1
1014.2	1014.3.3	1014.3.6
1015.0	1016.0	1017.0
Table 1106.3	1101.1	1104.3
1106.3	1109.0	1203.3.1
1203.3.2	1203.4	1204.2
1210.3.1	1212.0	1213.1.2
1213.1.3	1213.3	Chapter 13
1601.2	1601.3	1601.7
1602.1	1602.2.2	1602.7
1603.9.3	1604.1	1702.5

- (C) The city clerk shall file a copy of the 2012 Uniform Plumbing Code with the official ordinances of the City.

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

In the City Code, "Plumbing Code" means the 2012 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 2012 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 2012 Plumbing Code.

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

103.1.1 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.

103.1.1.1 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 Master Plumber with a Master Medical Gas Endorsement. Plumbing permits for rainwater distribution systems supplying plumbing fixtures shall be obtained by a 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.

103.1.3 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.

103.1.4. 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, the City of Austin Water Utility, 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.

103.1.5 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.

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

103.1.6 Landscape Irrigation. A person licensed by the Texas Commission on Environmental Quality to install irrigation systems shall register with the City. 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.

103.1.7 Special Inspections Program. The building official may establish by rule an inspection program of plumbing components identified in this section in buildings 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 or wastewater service of the City. Under the program the building official shall inspect work performed under one out of five of the applications submitted. The special inspection program applies to the replacement of existing:

- (1) water heaters not exceeding 100 gallons or 75,000 BTU's; and
- (2) backflow devices.

103.2.3 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.

103.3.3 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*).

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

104.0 Private Sewage Systems. The Austin Water Utility or 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.

106.0 Qualified Inspectors. An inspector who performs inspections under this code must meet the following qualifications.

106.1 Plumbing/Mechanical Inspector Supervisor.

- (1) The Plumbing/Mechanical Inspection Supervisor must:
 - (a) be an employee of the City;
 - (b) maintain a current plumbing inspector license issued by the Texas State Board of Plumbing Examiners;
 - (c) maintain a current certification as a mechanical and plumbing inspector under the certification program established by the International Code Council or International Association of Plumbing and Mechanical Officials; and

- (d) have at least ten years of experience as a licensed master plumber or equivalent experience as a City or state licensed air conditioning and refrigeration contractor, at least three years of which must be in a responsible supervisory capacity.
- (2) Five years of inspection experience may be substituted for five years of craft experience required in Subsection 1(d) above.

106.2 Plumbing Inspector. A plumbing inspector must:

- (1) be an employee of the City;
- (2) maintain a current plumbing inspector license issued by the Texas State Board of Plumbing Examiners;
- (3) maintain a current certification as a plumbing inspector under the certification program established by the International Code Council or the International Association of Plumbing and Mechanical Officials; and
- (4) have a least five years of experience as a state licensed master or journeyman plumber, one year of which must be in a responsible supervisory capacity.

106.3 Plumbing Inspector Certification Requirements. A person hired by the City as a commercial plumbing inspector after the effective date of this Code must become certified through the certification program established by the International Code Council or the International Association of Plumbing and Mechanical Officials not later than one year after the date of employment.

203.1 Definition of "alternate water source." The following definition supercedes the definition included in Section 203 of the Uniform Plumbing Code, which applies to all other defined terms:

Alternate Water Source: A pressurized water supply from a source other than the City's potable water supply. Also known as Auxiliary Water. A gravity gray water system is also an alternate water source.

218.1 Definition of "plumbing system." The following definition supercedes 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.

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 the Austin Water Utility 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 the Austin Water Utility 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 the Austin Water Utility has approved the disposal of liquid wastes in a private on-site sewage facility.

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 current edition 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 1304.0 in its entirety.

320.0 Requirements for Flood Plain Areas.

320.1 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.

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

320.3 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.

320.4 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.

320.5 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 Utility.

320.6 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.

320.7 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.

320.8 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.

321.0 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.

321.1 Acceptable Discharge Location. In new Elevator shafts, Elevator sump pumps shall discharge to the sanitary sewer system, 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 Austin City Code Sections 6-5-51 and 15-10-23.

321.2 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.

321.3 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.

321.4 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 single riser two way cleanouts, open grate catch basins or other approved fittings/receptors with the ability to visually see the flow line and retrieve samples.

322.0 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.

403.2 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.

403.3 Urinals. Urinals shall have an average water consumption not to exceed one half gallon (1/2) of water per flush.

403.3.1 Nonwater Urinals. Nonwater urinals shall be listed and comply with the applicable standards referenced in Table 1401-1. Nonwater urinals shall have a barrier liquid sealant to maintain a trap seal. Nonwater urinals shall permit the uninhibited flow of waste through the urinal to the sanitary drainage system. Nonwater urinals shall be cleaned and maintained in accordance with the manufacturer's instructions after installation. Where nonwater 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. Nonwater 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 403.3. The Building Official shall establish the timeline for a retrofit if public health is compromised.

403.4 Metered Faucets. Self-closing or self-closing metering faucets shall be installed on lavatories intended to serve the transient public, such as those in, Group A, B, and M type occupancies as listed in the Building Code. Metered faucets shall deliver a maximum of 0.26 gallons (1.0 liter) of water per use.

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.

415.2 Where Required. Where food is consumed indoors, water stations shall be permitted to be substituted for drinking fountains.

422.2. Separate Facilities. Separate toilet facilities shall be provided for each sex.

Exceptions:

- (1) Residential installations.
- (2) In occupancies with a total occupant load of 15 or less, including customers and employees, one toilet facility, designed for use by no more than one person at a time, shall be permitted for use by both sexes.
- (3) In mercantile occupancies with a total occupant load of 50 or less including customers and employees, one toilet facility, designed for use by no more than one person at a time, shall be permitted for use by both sexes.

TABLE 422.1

MINIMUM PLUMBING FACILITIES¹

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 or type in an existing building resulting in increased occupant load.

TYPE OF OCCUPANCY ²	WATER CLOSETS (FIXTURES PER PERSON) ⁴		URINALS (FIXTURES PER PERSON)	LAVATORIES (FIXTURES PER PERSON)		BATHTUBS OR SHOWERS (FIXTURES PER PERSON)	DRINKING FOUNTAINS/FACILITIES (FIXTURES PER PERSON) ³	OTHER
	Male	Female		Male	Female			
A-1 Assembly occupancy (fixed or permanent seating) theatres, concert halls and auditoriums	Male 1: 1-100 2: 101-200 3: 201-400	Female 1: 1-25 2: 26-50 3: 51-100 4: 101-200 6: 201-300 8: 301-400	Male 1: 1-200 2: 201-300 3: 301-400 4: 401-600	Male 1: 1-200 2: 201-400 3: 401-600 4: 601-750	Female 1: 1-100 2: 101-200 3: 201-300 4: 301-500 5: 501-750		1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
	Over 400, add 1 fixture for each additional 500 males and 1 fixture for each additional 125 females.		Over 600, add 1 fixture for each additional 300 males.	Over 750, add 1 fixture for each additional 250 males and 1 fixture for each additional 200 females.			Over 750, add 1 fixture for each additional 500 persons.	
A-2 Assembly occupancy-restaurants, pubs, lounges, night clubs and banquet halls. (See note #2C)	Male 1: 1-50 2: 51-225 3: 226-300	Female 1: 1-50 2: 51-150 4: 151-300	Male 1: 1-150	Male 1: 1-150 2: 151-200 3: 201-400	Female 1: 1-150 2: 151-200 4: 201-400		1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
	Over 300, add 1 fixture for each additional 250 males and 1 fixture for each 125 females.		Over 150, add 1 fixture for each additional 200 males.	Over 400, add 1 fixture for each additional 250 males and 1 fixture for each additional 200 females.			Over 750, add 1 fixture for each additional 500 persons.	
A-3 Assembly occupancy (typical without fixed or permanent seating)-arcades, places of worship, museums, libraries, lecture halls, gymnasiums (without spectator seating), indoor pools (without spectator seating)	Male 1: 1-100 2: 101-200 3: 201-400	Female 1: 1-25 2: 26-50 3: 51-100 4: 101-200 6: 201-300 8: 301-400	Male 1: 1-100 2: 101-200 3: 201-400 4: 401-600	Male 1: 1-200 2: 201-400 3: 401-600 4: 601-750	Female 1: 1-100 2: 101-200 3: 201-300 4: 301-500 4: 501-750		1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
	Over 400, add 1 fixture for each additional 500 males and 1 fixture for each additional 125 females.		Over 600, add 1 fixture for each additional 300 males.	Over 750, add 1 fixture for each additional 250 males and 1 fixture for each additional 200 females.			Over 750, add 1 fixture for each additional 500 persons.	
A-4 Assembly occupancy (indoor activities or sporting events with spectator seating)-swimming pools, skating rinks, arenas and	Male 1: 1-100 2: 101-200 3: 201-400	Female 1: 1-25 2: 26-50 3: 51-100 4: 101-200 6: 201-300	Male 1: 1-100 2: 101-200 3: 201-400 4: 401-600	Male 1: 1-200 2: 201-400 3: 401-750	Female 1: 1-100 2: 101-200 3: 201-300 4: 301-500 4: 501-750		1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray

gymnasiums	8: 301-400		Over 400, add 1 fixture for each additional 500 males and 1 fixture for each additional 125 females.	Over 600, add 1 fixture for each additional 300 males.	Over 750, add 1 fixture for each additional 250 males and 1 fixture for each additional 200 females.		Over 750, add 1 fixture for each additional 500 persons.	
	Male	Female						
A-5 Assembly occupancy (outdoor activities or sporting events) amusement parks, grandstands and stadiums	Male 1: 1-100 2: 101-200 3: 201-400	Female 1: 1-25 2: 26-50 3: 51-100 4: 101-200 6: 201-300 8: 301-400	Male 1: 1-100 2: 101-200 3: 201-400 4: 401-600 6: 201-300 8: 301-400	Male 1: 1-200 2: 201-400 3: 401-750 4: 401-600 6: 201-300 8: 301-400	Female 1: 1-100 2: 101-200 3: 201-300 4: 301-500 4: 501-750 8: 301-400		1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
	Over 400, add 1 fixture for each additional 500 males and 1 fixture for each additional 125 females.		Over 600, add 1 fixture for each additional 300 males.	Over 750, add 1 fixture for each additional 250 males and 1 fixture for each additional 200 females.			Over 750, add 1 fixture for each additional 500 persons.	
B Business occupancy less than 5,000 Sq. Ft. (office, professional or service type transactions)-banks, vet clinics, hospitals, car wash, banks, beauty salons, ambulatory health care facilities, laundries and dry cleaning, educational institutions (above high school), or training facilities not located within school, post offices and printing shops. (See note #3.)	Male 1: 1-25	Female 1: 1-15 2: 16-25	Male 0: 1-15 1: 16-50	Male 1: 1-200	Female 1: 1-200		1 per floor or 1 per 150	If required by the Health Authority 1 service sink or laundry tray
B Business occupancy greater than 5,000 sq. ft. (office, professional or service type transactions)-banks, vet clinics, hospitals, car wash, banks, beauty salons, ambulatory health care facilities,	Male 1: 1-50 2: 51-100 3: 101-200 4: 201-400	Female 1: 1-15 2: 16-30 3: 31-50 4: 51-100 5: 101-200 7: 201-400	Male 1: 1-150 2: 151-200 3: 201-400 4: 401-600	Male 1: 1-200 2: 201-400 3: 401-750	Female 1: 1-200 2: 201-400 3: 401-750		1 per 150	1 service sink or laundry tray

laundries and dry cleaning, educational institutions (above high school), or training facilities not located within school, post offices and printing shops									
		Over 400, add 1 fixture for each additional 500 males and 1 fixture for each additional 150 females.		Over 600, add 1 fixture for each additional 300 males.	Over 750, add 1 fixture for each additional 500 persons.			Over 750, add 1 fixture for each additional 500 persons.	
E Educational occupancy-private or public schools		Male 1 per 50	Female 1 per 30	Male 1 per 100	Male 1 per 40	Male 1 per 40		1 per 150	1 service sink or laundry tray
F1, F2 Factory or Industrial occupancy-fabricating or assembly work		Male 1: 1-50 2: 51-75 3: 76-100	Female 1: 1-50 2: 51-75 3: 76-100		Male 1: 1-50 2: 51-75 3: 76-100	Female 1: 1-50 2: 51-75 3: 76-100	1 shower for each 15 persons exposed to excessive heat or to skin contamination with poisonous, infectious or irritating material	1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
		Over 100, add 1 fixture for each additional 40 persons.			Over 100, add 1 fixture for each additional 40 persons.			Over 750, add 1 fixture for each additional 500 persons.	
I-1 Institutional occupancy (houses more than 16 persons on a 24-hour basis) substance abuse centers, assisted living, group homes, or residential facilities		Male 1 per 15	Female 1 per 15		Male 1 per 15	Male 1 per 15	1 per 8	1 per 150	1 service sink or laundry tray
I-2 Institutional occupancy-medical, psychiatric, surgical or nursing homes	Hospitals and nursing homes-individual rooms and ward room	1 per room			1 per room		1 per room	1 per 150	1 service sink or laundry tray
		1 per 8 patients			1 per 10 patients		1 per 20 patients		
	Hospital Waiting or Visit or Rooms	1 per room			1 per room			1 per room	
	Employee Use	Male 1: 1-15 2: 16-35	Female 1: 1-15 2: 16-35		Male 1 per 40	Female 1 per 40			

		3: 36-55	4: 36-55						
		Over 55, add 1 fixture for each additional 40 persons.							
I-3 Institutional occupancy (houses more than 6 people)	Prisons	1 per cell			1 per cell		1 per 20	1 per cell block/floor	
	Correctional facilities or juvenile center	1 per 8			1 per 10		1 per 8	1 per floor	1 service sink or laundry tray
	Employee Use	Male 1: 1-15 2: 16-35 3: 36-55	Female 1: 1-15 2: 16-35 4: 36-55		Male 1 per 40	Female 1 per 40		1 per 150	
		Over 55, add 1 fixture for each additional 40 persons.							
I-4 Institutional occupancy (any age that receives care for less than 24 hours)		Male 1: 1-15 2: 16-35 3: 36-55	Female 1: 1-15 2: 16-35 4: 36-55		Male 1 per 40	Female 1 per 40		1 per 150	1 service sink or laundry tray
		Over 55, add 1 fixture for each additional 40 persons.							
M Mercantile occupancy (the sale of merchandise and accessible to the public) - (use 100 square feet per occupant for the minimum number of plumbing fixtures) See Notes 3, 4 and 5.		Male 1: 1-100 2: 101-200 3: 201-400	Female 1: 1-100 2: 101-200 4: 201-300 6: 301-400	Male 0: 1-200 1: 201-400	Male 1: 1-200 2: 201-400	Female 1: 1-200 2: 201-300 3: 301-400		1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
		Over 400, add 1 fixture for each additional 500 males and 1 fixture for each 200 females.		Over 400, add 1 fixture for each additional 500 males.	Over 400, add 1 fixture for each additional 500 males and 1 fixture for each 400 females.			Over 750, add 1 fixture for each additional 500 persons	
R-1 Residential occupancy (minimal stay)-hotels, motels, bed and breakfast homes		1 per sleeping room			1 per sleeping room		1 per sleeping room		1 service sink or laundry tray
R-2 Residential occupancy (long-term or permanent)	Dormitories	Male 1 per 10	Female 1 per 8	1 per 25	Male 1 per 12	Female 1 per 12	1 per 8	1 per 150	1 service sink or laundry tray
		Add 1 fixture for each additional 25 males and 1 fixture for each additional 20 females.		Over 150, add 1 fixture for each additional 50 males.	Add 1 fixture for each additional 20 males and 1 fixture for each additional 15 females.				

nent)	Empl oyee Use	Male 1: 1-15 2: 16-35 3: 36-55	Female 1: 1-15 2: 16-35 4: 36-55		Male 1 per 40	Female 1 per 40			
	Over 55, add 1 fixture for each additional 40 persons.								
	Apar tmen t hous e/ unit	1 per apartment			1 per apartment		1 per apartment		1 kitchen sink per apartment 1 laundry tray or 1 automatic clothes washer con- nection per unit or 1 laundry tray or 1 automatic clothes washer connec- tion for each 12 units.
R-3 Residential occupancy (long- term or permanent in nature) for more than 5 but does not exceed 16 occupants)	Male 1 per 10	Female 1 per 8		Male 1 per 12	Female 1 per 12	1 per 8	1 per 150	1 service sink or laundry tray	
	Add 1 fixture for each additional 25 males and 1 fixture for each additional 20 females.			Add 1 fixture for each additional 25 males and 1 fixture for each additional 20 females.					
R-3 Residential occupancy (one and two family dwellings)	1 per one and two family dwelling			1 per one and two family dwelling		1 per one and two family dwelling		1 kitchen sink and 1 automa- tic clothes washer connec- tion per one and two family dwelling.	
R-4 Residential occupancy (residential care or assisted living)	Male 1 per 10	Female 1 per 8		Male 1 per 12	Female 1 per 12	1 per 8	1 per 150	1 service sink or laundry tray	
	Add 1 fixture for each additional 25 males and 1 fixture for each addi- tional 20 females.			Add 1 fixture for each additional 20 males and 1 fixture for each additional 15 females.					
S-1, S-2 Storage occupancy- storage of goods, ware-house, aircraft hanger, food products, appliances	Male			Male		1 per 8		1 service sink or laundry tray	
	1: 1-100 2: 101- 200	Female 1: 1-100 2: 101-200		1: 1-200 2: 201-400	Female 1: 1-200 2: 201- 400		1: 1-250 2: 251-500 3: 501-750		

	3: 201-400	3: 201-400		3: 401-750	3: 401-750		
	Over 400, add 1 fixture for each additional 500 males and 1 fixture for each additional 150 females.			Over 750, add 1 fixture for each additional 500 persons.			Over 750, add 1 fixture for each additional 500 persons.

Notes:

1. The figures shown are based upon one fixture being the minimum required for the number of persons indicated or any fraction thereof.
2. A restaurant is defined as a business that sells food to be consumed on the premises.
 - a. The number of occupants for a drive-in restaurant shall be considered as equal to the number of parking stalls.
 - b. Hand-washing facilities shall be available in accordance with Health Department requirements in the kitchen for employees.
 - c. A2 Occupancies providing water to patrons or customers are not required to provide the required drinking fountains.
3. B Occupancies consisting of 5000 square feet or less shall have one drinking fountain, or an accessible break room sink for public and employee use. Each floor occupied shall have one accessible drinking fountain and/or a break room sink.
4. Except for A-2 Occupancies less than 4500 square feet the total number of required water closets for females shall be not less than the total number of required water closets and urinals for males.
5. Refer to Code Section 422.0 Minimum Number of Required Fixtures for A,B and M Occupancies.

501.0 General. The regulations of this chapter shall govern the construction, location, and installation of fuel burning and other water heaters heating potable water, together with all chimneys, vents, and their connectors.

All design, construction, and workmanship shall be in conformity with accepted engineering practices, manufacturer's installation instructions, and applicable standards and shall be of such character as to secure the results sought to be obtained by this Code. No water heater shall be hereinafter installed which does not comply in all respects with the type and model of each size thereof approved by the Administrative Authority. A list of accepted gas equipment standards is included in Table 1401.1.

501.1 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 gravity flow design system or a mechanical pump to provide continuous hot water to the fixture or with additional water heaters.

501.2 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.

501.3 Circulating Hot Water System for Residential Buildings. In Residential Buildings as defined by the Energy Code all circulating hot water piping shall be insulated to a minimum of R-4. Circulating hot water systems shall include a manual "On" switch and a control that automatically turns the system off when water exceeding 105°F reaches a point beyond the last hot water runout on the system.

501.4 Residential Water Heating. Residential Buildings, as defined by the Energy Code, having existing or planned natural gas service or equivalent district gas service located within the adjacent right-of-way, shall not use electric resistance as the primary means for heating water.

Residential Buildings, as defined by the Energy Code and not having natural gas service or equivalent district gas service located within the adjacent right-of-way, may install electric resistance water heaters having a minimum efficiency of 93% in conjunction with a preprogrammed water heater timer in lieu of gas fired water heating. The timer shall be preprogrammed to turn the water heater off between the hours of 3:00PM and 7:00PM from June 1 to September 30 and from 12:00AM to 4:00AM throughout the year. The timer shall have a readily accessible override, as defined by the building official, capable of restoring power to the water heater for one hour when activated.

Exceptions:

- a. Electric resistance water heater that is secondary to a primary system where the primary system is documented to provide at least 75% of the hot water from June 1 to September 30 and at least 50% of the hot water from October 1 to May 31. The secondary electric resistance water heater in such a system shall be controlled by a pre-programmed timer.
- b. Heat pump water heaters where electric resistance is the secondary means of heating.
- c. Existing residential buildings where the furnace and water heater are housed in a common interior mechanical room. Electric resistance water heaters installed in these buildings shall be controlled by a pre-programmed timer.
- d. Electric resistance water heaters with a rated requirement of 3000.watts or less.

508.4 Appliances in Attics, Above Ceilings and Under-Floor Spaces. Storage type water heaters exceeding a capacity of 17 gallons shall not be installed in an attic or above a ceiling 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).

508.4.1 Length of Passageway. Where the height of the passageway is less than 6 feet (1829 mm), the distance from the passageway access to the appliance shall not exceed 20 feet (6096 mm) measured along the centerline of the passageway. [NFPA 54:9.5.1.1]

508.4.2 Width of Passageway. The passageway shall be unobstructed and shall have solid flooring not less than 24 inches (610 mm) wide from the entrance opening to the appliance. [NFPA 54:9.5.1.2]

508.4.3 Work Platform. A level working platform not less than 30 inches (762 mm) by 30 inches (762 mm) shall be provided in front of the service side of the appliance. [NFPA 54:9.5.2]

508.4.4 Lighting and Convenience Outlet. A permanent 120-volt receptacle outlet and a lighting fixture shall be installed near the appliance. The switch controlling the lighting fixture shall be located at the entrance to the passageway. [NFPA 54:9.5.3]

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, 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.

601.2 Identification of a Potable and Nonpotable Water System. On sites where potable water and nonpotable water systems are installed, each system shall be clearly identified in accordance with Section 601.2.1 through Section 601.2.4.

601.2.1 Potable Water. Green background with white lettering.

601.2.2 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 601.2.2.1, nonpotable water systems shall have a yellow background with black uppercase lettering, with the words "CAUTION: NONPOTABLE WATER, DO NOT DRINK" Each nonpotable system shall be identified to designate the liquid being conveyed, and the direction of normal flow shall be clearly shown. For above ground installations the minimum size of the letters and length of the color field shall comply with Table 601.2.2. The background color and the required information shall be

indicated every 20 feet (6096 mm) but not less than once per room, and shall be visible from the floor level. For below ground installations the minimum size of the letters and length of the color field shall comply with Table 601.2.2. The background color and the required information for underground piping shall be indicated every 5 feet.

Exception: Reclaimed water piping must have it's background color continuous along the entire length of the piping for both aboveground and underground installations.

601.2.2.1 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: 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 Nonpotable 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).

601.2.3 Fixtures. Where vacuum breakers or backflow preventers are installed with fixtures listed in Table 1401.1, identification of the discharge side shall be permitted to be omitted.

601.2.4 Outlets. Each outlet on the nonpotable 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 ¹	Applicable standards	Degree of Hazard				Installation ^{2,3}
		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. ^{4,5}
Antisiphon 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. ^{4,5}
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). ^{4,5}
Spill-Resistant Pressure Vacuum Breaker (single check valve with air inlet vent and means of field testing)	ASSE 1056	X	—	X	—	Upright position. Minimum of six 12 inches or listed distance above all downstream piping and flood-level rim of receptor. ⁵

Double Check Valve Backflow Prevention Assembly (two independent check valves and means of field testing)	ASSE 1015; AWWA C510; CSA B 64.5 or CSA B 64.5.1	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 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)	ASSE 1048	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. 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)	ASSE 1020 or CSA B 64.1.2	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	ASSE 1047	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

pressure relief valve and means of field testing)						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)	ASSE 1047	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.

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 603.5.21. 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 premise 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 High Hazard Backflow Prevention. 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. Copper piping downstream of backflow protection for carbonators is prohibited.

603.4.10.1 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 A single backflow prevention assembly or device may be installed in low hazard situations serving multiple like 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)

603.5.12 Beverage Dispensers. Potable water supply to beverage dispensers or coffee machines shall be protected by an air gap or a Double Check Valve Backflow Prevention Assembly (DCVA).

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.

603.5.22 Site Containment Backflow Prevention Requirements. Sites utilizing pressurized 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

603.5.23 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

		Containment Backflow Protection Required At			Isolation Backflow Protection Required at Point of Supply
List of Pressurized Auxiliary Water Sources and Uses ⁽¹⁾		Domestic Water Meter (2), (3)	Irrigation Water Meter (3)	City Service to Private Fire Mains (4), (5), (6)	Where Austin is used as Back-up to Auxiliary Water Source
Lake/River Water		RP	RP	RP	RP
Well Water		RP	RP	RP	RP
Rainwater Harvesting		RP	RP	RP	RP
Reclaimed Water	used on property	RP	RP	DC	AG
	used in building	RP	RP	RP	AG
Gray water, Re-Irrigation, Disposal		RP	RP	RP	AG
Other Water Supply ⁽⁷⁾		RP	RP	RP	AG

Table Notes

RP= Reduced Pressure Zone Backflow Prevention Assembly

DC= Double Check Backflow Prevention Assembly

AG= Air Gap

- (1) All auxiliary water use sites are required to have Customer Service Inspection performed in addition to the annual operational test of the backflow assemblies.
- (2) Backflow prevention assemblies installed at potable water meters require attention to thermal expansion.
- (3) Backflow prevention assemblies installed at potable and irrigation water meters in conjunction with an auxiliary water source are required to have an annual backflow assembly operational test.
- (4) New backflow prevention assemblies installed in existing fire systems may result in the need to recalculate fire system design specifications due to backflow preventer pressure losses.
- (5) Backflow prevention assemblies installed in un-metered fire systems are required to be detector assemblies.
- (6) DCs installed on fire systems at reclaimed water use sites are required to have a semiannual operational test
- (7) Other includes any and all other defined auxiliary waters not listed in this chart and/or any combination of 2 or more auxiliary waters

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 equipped with a properly sized and sloped bore-sighted drain to daylight, 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 registered engineers 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.

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

- (1) Shutoff Valves - Property owner shutoff valves located in the ground at the water meter shall meet American Water Works Association standards.
- (2) 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.
- (3) 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).
- (5) Exterior Hose Bibs - Exterior hose bibs shall be of the self-draining and frost-resistant with an integral backflow preventer. Standard hose bibs shall be protected by adding pipe insulation with an R-value of a least four (4) up to the edge or wall flange of the hose bib.

609.1.2 Pipe Insulation. Pipe Insulation wall thickness for domestic hot water run outs and circulation shall be in accordance with the Energy Code.

609.11 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 Utility Meters provided to One-and-Two Family Dwellings and Townhomes shall be sized per the below requirements:

3 bathrooms or less	= 35 fixture units	= 5/8" meter
3 ½ bathrooms	= 40 fixture units	= ¾" meter
4 bathrooms	= 44 fixture units	= ¾" meter
5 bathrooms	= 52 fixture units	= ¾" meter
5 ½ bathrooms	= 55.5 fixture units	= ¾" meter
6 bathrooms	= 70 fixture units	= 1" meter
7 bathrooms	= 78 fixture units	= 1" meter
8 bathrooms	= 84.5 fixture units	= 1" meter

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) a condominium development
- (2) a development that has a centralized hot water system

614.0 Cooling Towers. New and replaced cooling tower installations 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.

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, or winter shut-down.

615.1 Requirements for New Commercial and Multi-family Landscape Irrigation.

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) the irrigation system has a City-approved weather based controller;
- (7) an automatic rain shut-off device shuts off the irrigation system automatically after not more than a one-half inch (1/2") rainfall;
- (8) zone valves and circuits are separated based on hydrozoning (plant water requirements).

615.2 Requirements for One and Two Family Dwelling Landscape Irrigation. 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).

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 emergency irrigation system shut-off valve.
- (2) a report on the form provided by the Austin Water Utility Department 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 Disposal. Food waste and garbage disposal unit installations shall be prohibited in restaurants, cafeterias, and other commercial and institutional kitchens and food preparation facilities.

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 nonpotable 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 Fixture Connections. 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. Single riser two way cleanout tees may be installed with a maximum 18 inch extension to grade on 4 inch piping.
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.

710.7.1 Fitting Allowance. The installation of schedule 40 polyvinyl chloride pressure wyes, schedule 40 polyvinyl chloride pressure couplings and schedule 40 polyvinyl chloride pressure 45 degree bends shall be allowed for drainage of the discharge line from an ejector, pump, or other mechanical devices.

710.9.1 Single Sumps. A one and two-fixture unit fixture that is not a required plumbing fixture under this Code, may be served by a single pump 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.

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.
- (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.

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. Public Sewer Availability. Austin Water Utility 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 Regulation of OSSF and Private Sewage Systems. The Austin Water Utility shall regulate both existing and new on-site sewage facilities and private sewage disposal systems.

723.0 Building Sewer Texting Requirements. 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.

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.

801.3 Bar and Fountain Sink Traps. Where the sink in a bar, soda fountain or counter is so located that the trap serving the sink cannot be vented, the sink drain shall discharge through an air gap or air break (see Section 801.2.3) into an approved receptor which is vented. The developed length from the fixture outlet to the receptor shall not exceed fifteen (15) feet.

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 less 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 drains may be located under kitchen sink cabinets, water heater closets, walk-in storage rooms and other similar accessible locations.

807.4 Domestic Dishwashing Machines. A domestic dishwashing machine may not be directly connected to a drainage system or food waste disposal:

- (1) unless an approved dishwasher air-gap fitting is used on the discharge side of the dishwashing machine; or

- (2) if 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.

908.2.3 Horizontal wet vented bathroom groups shall be served with a minimum 2 inch cleanout installed on the dry vent.

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 drainboard 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 drainboard 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 Utility 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. 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 Utility.

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.

1012.0 Commercial and Industrial Laundries. Laundry equipment in commercial and industrial buildings shall discharge into an interceptor 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 Utility.

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 Utility.

1014.1 When pretreatment is required, an approved type grease interceptor complying with Austin Water Utility 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, food processors,

bakeries, restaurants, cafeterias, schools, hospitals, retirement homes, assisted living centers, grocery stores, or other commercial or institutional food preparation facilities where 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 the Austin Water Utility. 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 Where Required. 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. 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 the Austin Water Utility, 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 the Austin Water Utility.

1014.3.3 Design. Gravity Interceptors shall be constructed in accordance with the design approved by the Austin Water Utility.

1014.3.6 Sizing Criteria.

1014.3.6.1 Sizing. The size and volume of the interceptor shall be determined according to the Austin Water Utility'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 Utility 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 the Austin Water Utility 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 the Austin Water Utility.

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 the Austin Water Utility. 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.

1101.1 Where Required. Roofs and courtyards shall be drained into a separate storm sewer system or to some other place of disposal, satisfactory to the administrative authority. 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.

1106.5 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.

1108.3 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.

1109.2 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:

1109.2.1 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.

1109.2.2 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 a water or air test 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 for the buildings to be unlocked for the inspector to enter the buildings.
- (4) The testing equipment and labor necessary for making the required tests and inspections shall be furnished by the permittee.

1203.4 Pulled Meters, Gas Repair, and Remodeling.

1203.4.1 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).

120.4.2 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 within three foot of the entrance of each sleeping room of the dwelling units.

1210.3.1 Connections. Where gas piping is to be concealed, connections shall be of the following type:

- (1) Pipe fittings such as elbows, tees, couplings, and right/left nipple/couplings.
- (2) Joining tubing by brazing (see Section 1208.5.8.2). [NFPA 54:7.3.2(2)]
- (3) Fittings listed for use in concealed spaces or that have been demonstrated to sustain, without leakage, forces due to temperature expansion or contraction, vibration, or fatigue based on their geographic location, application, or operation. [NFPA 54:7.3.2(3)]
- (4) Where necessary to insert fittings in gas pipe that has been installed in a concealed location, the pipe shall be reconnected by welding, flanges, or the use of a right/left nipple/coupling.
- (5) Unions for emergency stove hood fire suppression systems, shut-off valves and regulators may be installed in accessible locations.

1212.0 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.

1212.1 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 Medical Gas For Non-Human Uses.

1304.1 Piping Materials For Field-Installed Medical Gas And Vacuum Systems For Non-Human Uses.

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

- (c) ASTM B 819, Standard Specification for Seamless Copper Tube for Medical Gas Systems, copper medical gas tubing (K or L)

- (2) Stainless steel tube

Exception: Piping for field installed vacuum systems for non-human use may be installed with schedule 40 polyvinylchloride (PVC).

1304.2 Testing Requirements.

1304.2.1 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).

1304.2.2 The test pressure for copper vacuum systems installed for non-human uses shall be a gauge pressure of 105 kpa (15 psi).

1304.2.3 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.

1600.0 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 16.

1601.2 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:

- (1) A person registered or licensed to perform plumbing design work is not required to design nonpotable rainwater catchment systems for single family dwellings where outlets, piping and system components are located on the exterior of the building.
- (2) A person registered or licensed to perform plumbing design work is not required to design 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.

1601.3 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 gravity type exterior nonpotable rainwater catchment systems (non-pressurized) used for outdoor non-potable applications.

1601.7 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 is used for outdoor irrigation purposes only.

1602.1 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 1602.16 of this chapter, City of Austin Laundry to Landscape Program.

1602.2.2 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 1602.8.1 or Section 1602.8.2.

1602.7 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.

1602.16 Laundry to Landscape Gray Water Systems. This code section will address an installation known as "*Simple Gray Water Laundry to Landscape System*", which will allow the use of water discharged from a clothes washing-machine from a private one-and-two family dwelling. No other discharge from any other plumbing fixture will be allowed to discharge to a *Laundry to Landscape* drainage system; A *Laundry to Landscape* system shall be terminated and discharged to an approved location in strict accordance with this code.

1602.16.1 Gray Water System – General.

- (a) This section applies to the use of gray water from clothes-washing machines for the purpose of residential "*Laundry to Landscape*" irrigation.

1602.16.2 Gray Water System - Definitions

Gray Water. Untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. Gray water for the purpose of this section also means wastewater originating from a private residence clothes washing machine.

Irrigation Field. The destination for gray water release into landscape including a mulch basin at a sufficient depth to prevent ponding or runoff.

Simple Gray Water System. A simple gray water system applies to a one- or two-family dwelling with a maximum discharge of 60 gallons per day from the clothes-washing machine. Also known as a “*Laundry to Landscape*” system. A washing machine located in a one-or-two-family dwelling with four occupants. The washing machine produces 15 Gallons Per Cycle x 4 occupants equal 60 Gallons per Day Maximum.

1602.16.3 Gray Water System – Requirements.

- (1) A plumbing permit is required to install and use a residential “Laundry to Landscape” irrigation system and all the following requirements shall be met:
 - a. A Laundry to Landscape installation is prohibited over outcrop areas of the Edwards or Georgetown limestone watersheds.
 - b. A Laundry to Landscape installation is prohibited within 50 feet of the edge of any stream bank, bedrock outcrop, recharge features, or Critical Environmental Features, as defined by the City of Austin Land Development Code.
 - c. The *Laundry to Landscape* gray water discharge must maintain a minimum 1.5 foot clearance from the property line and a minimum of 100 linear foot clearance from streams, lakes, and private water wells;
 - d. There shall be no cutting into, or any permanent physical attachment to the plumbing system.
 - e. The *Laundry to Landscape* system meets all requirements in accordance with the City approved *Guidelines for the Simple Gray Water Laundry to Landscape System*.
 - f. The *Laundry to Landscape* gray water system shall only be used to irrigate landscape on the exterior of the structure.
 - g. The *Laundry to Landscape* discharge of all gray water systems must be subsurface and released into an irrigation field mulch bed with a depth of no less than two inches subsurface. Above ground gray water release is prohibited;
 - h. The *Laundry to Landscape* gray water shall be contained to the site where it is generated. Ponding and runoff is prohibited;
 - i. The *Laundry to Landscape* gray water system must be designed to minimize contact with humans and domestic pets and not be considered a health nuisance;
 - j. *Laundry to Landscape* systems must be designed to allow the private residence to direct the flow of gray water from domestic laundry

- washing machines by use of one-inch tubing to the irrigation field for landscape irrigation, or diverted to the building sewer;
- k. *Laundry to Landscape* gray water systems are not allowed on properties exceeding a three (3) to one (1) slope;
 - l. A *Laundry to Landscape* gray water 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.
 - m. An Inspection is required for the plumbing permit issued and a follow up inspection may be performed after the permit is closed to ensure the system is operating within the requirements of this code.

1603.1.1 Cross-connection safeguards. Sites served by reclaimed water shall protect the public drinking water supply in accordance with section 603.5.22 of this code.

1603.1.2 Use of reclaimed water inside a building is limited to new construction only. Use of reclaimed water outside a building (irrigation) requires that all materials used be identified as required by this chapter (no re-use of existing irrigation or other concealed piping).

1603.9.3 Separation from Potable Water Pipes. Reclaimed (recycled) water pipes shall not be run or laid in the same trench as potable water pipes. A ten (10) foot horizontal separation shall be maintained between buried reclaimed water and potable water piping. Buried potable water pipes crossing reclaimed water shall be laid not less than twelve (12) inches above the reclaimed water pipe. Reclaimed (recycled) water pipes laid crossing building sewer or drainage piping shall be installed in accordance with this code for potable water piping.

1604.1 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.

1604.1.1 Cross-connection safeguards. Sites served by On-site treated non-potable water systems shall protect the public drinking water supply in accordance with section 603.5.22 of this code.

1605.0 Other On-Site Nonpotable Water Systems

1605.0.1 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.

1605.1 Applicability. The provisions of this chapter shall apply to the installation, construction, alteration, and repair of Other On-site Nonpotable Water Systems.

1605.1.1 Cross-connection safeguards. Sites served by Other Onsite Nonpotable Water systems shall protect the public drinking water supply in accordance with section 603.5.22 of this code.

1605.2. 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.

1605.3 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.

1605.4 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.

1605.5 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.

1605.6 Initial Cross-Connection Test. A cross-connection test is required in accordance with Section 1605.12.2. Before the building is occupied or the system is activated, the installer shall perform the initial cross-connection test in the presence of 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.

1605.7 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.

1605.8 Other On-site Nonpotable Water System Materials. Other On-site Nonpotable Water system materials shall comply with Section 1605.8.1 through Section 1605.8.2.

1605.8.1 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.

1605.8.2 Storage Tanks. Other On-site Nonpotable water storage tanks shall comply with Section 1605.10.4.

1605.9 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".

1605.10 Design and Installation.

1605.10.1 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.



1605.10.2 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 1605.12.2.

1605.10.3 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.

1605.10.4 Storage Tanks. Storage tanks shall be constructed and installed in accordance with Section 1605.10.4.1 through Section 1605.10.4.7.

1605.10.4.1 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.

1605.10.4.2 Location. Storage tanks shall be permitted to be installed above or below grade.

1605.10.4.3 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.

1605.10.4.4 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/ft²) (1465 kg/m²) 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 where empty. The combined weight of the tank and hold down system shall meet or exceed the buoyancy force of the tank.

1605.10.4.5 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.

1605.10.4.5(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.

1605.10.4.6 Opening and Access Protection.

1605.10.4.6(A) Animals and Insects. Tank openings shall be protected to prevent the entrance of insects, birds, or rodents into the tank.

1605.10.4.6(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.

1605.10.4.7 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."

1605.10.5 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.

1605.10.6 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.

1605.10.7 Freeze Protection. Tanks and piping installed in locations subject to freezing shall be provided with an approved means of freeze protection.

1605.10.8 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.

1605.11 Signs. Signs in buildings using Other On-site Nonpotable water shall be in accordance with Section 1605.11.1 and Section 1605.11.2.

1605.11.1 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".

1605.11.2 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.

1605.12 Inspection and Testing. Other On-site Nonpotable Water systems shall be inspected and tested in accordance with Section 1605.12.1 and Section 1605.12.2.

1605.12.1 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.

1605.12.2 Annual Cross-Connection Inspection and Testing. An initial and subsequent annual inspection and test in accordance with Section 1605.6 shall be performed on both the potable and Other On-site Nonpotable Water systems. The potable and nonpotable water catchment water systems shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1605.12.2.1 through Section 1605.12.2.4.

1605.12.2.1 Visual System Inspection. Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Authority Having Jurisdiction and other authorities having jurisdiction as follows:

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

1605.12.2.2 Cross-Connection Test. The procedure for determining cross-connection shall be followed by the applicant in the presence of 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 Other On-site Nonpotable Water system shall be shut down and completely drained.
- (2) The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the Other On-site Nonpotable Water system is empty. The minimum period the Other On-site Nonpotable Water 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 nonpotable water distribution systems, but in no case shall that period be less than 1 hour.
- (3) Fixtures, potable and nonpotable, shall be tested and inspected for flow. Flow from an Other On-site Nonpotable Water system outlet shall indicate a

cross-connection. No flow from a potable water outlet shall indicate that it is connected to the nonpotable water system.

- (4) The drain on the Other On-site Nonpotable Water system shall be checked for flow during the test and at the end of the period.
- (5) The potable water system shall then be completely drained.
- (6) The Other On-site Nonpotable Water system shall then be activated and pressurized.
- (7) The Other On-site Nonpotable Water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.
- (8) Fixtures, potable and nonpotable, shall be tested and inspected for flow. Flow from a potable water system outlet shall indicate a cross-connection. No flow from an Other On-site Nonpotable Water outlet shall indicate that it is connected to the potable water system.
- (9) The drain on the potable water system shall be checked for flow during the test and at the end of the period.
- (10) Where there is no flow detected in the fixtures which would indicate a cross-connection, the potable water system shall be repressurized.

1605.12.2.3 Discovery of Cross-Connection. In the event that a cross-connection is discovered, the following procedure, in the presence of the Authority Having Jurisdiction, shall be activated immediately:

- (1) Other On-site Nonpotable Water piping to the building shall be shut down at the source, and the nonpotable water 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 1605.12.2.1 and Section 1605.12.2.2.
- (5) The potable water system shall be chlorinated with 50 ppm chlorine for 24 hours.
- (6) The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. Where test results are acceptable, the potable water system shall be permitted to be recharged.

1605.12.2.4 Annual Inspection. An annual inspection of the Other On-site Nonpotable Water system, following the procedures listed in Section 1605.12.2.1 shall be required. Annual cross-connection testing, following the procedures listed in Section 1605.12.2.2 shall be required by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test occur less than once in 4 years. Alternate testing requirements shall be permitted by the Authority Having Jurisdiction.

1702.1.1 Cross-connection safeguards. Sites served by non-potable rainwater catchment systems shall protect the public drinking water supply in accordance with section 603.5.22 of this code.

1702.5 Initial Cross-Connection Test. A cross-connection test is required in accordance with Section 1702.11.2. Before the building is occupied or the system is activated, the installer shall perform the initial cross-connection test in the presence of 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.

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 603.5.22 of this code.

PART 2.

A. Except as otherwise provided in subpart B of this part below, the changes to Article 6 of Chapter 25-12 of the City Code made by this ordinance take effect on September 16, 2013.

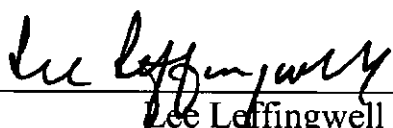
B. The changes to the following listed sections of Article 6 of Chapter 25-12 of the City Code made by this ordinance take effect on the effective date of this ordinance: Sections 103.1.3, 1602.16, 1602.16.1, 1602.16.2, and 1602.16.3.

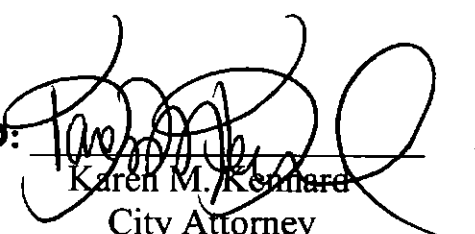
PART 3. This ordinance takes effect on June 17, 2013.


PASSED AND APPROVED

June 6, 2013

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§
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Lee Leffingwell
Mayor

APPROVED: 
Karen M. Kennard
City Attorney

ATTEST: 
Jannette S. Goodall
City Clerk