

9-17-13

ORDINANCE NO. 29162

An ordinance amending Chapter 54, "Dallas Plumbing Code," of the Dallas City Code, as amended; adopting with certain changes the 2012 Edition of the International Plumbing Code of the International Code Council, Inc.; regulating the construction, enlargement, alteration, repair, use, and maintenance of plumbing work in the city; providing a penalty not to exceed \$2,000; providing a saving clause; providing a severability clause; and providing an effective date.

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

SECTION 1. That Chapter 54, "Dallas Plumbing Code," of the Dallas City Code, as amended, is amended by adopting the 2012 Edition of the International Plumbing Code of the International Code Council, Inc. (which is attached as Exhibit A and made a part of this ordinance), with the following amendments:

1. Page xi, "Legislation," is deleted.
2. Chapter 1, "Scope and Administration," of the 2012 International Plumbing Code

is deleted and replaced with new Chapter 1, "Administration," to read as follows:

**"CHAPTER 1
ADMINISTRATION**

**SECTION 101
GENERAL**

"101.1 Title. These regulations are known as the *Dallas Plumbing Code*, hereinafter referred to as "this code."

101.2 Scope. The provisions of this code apply to the erection, installation, alteration, repairs, relocation, replacement, addition to, use or maintenance of plumbing systems within this jurisdiction. This code also regulates nonflammable medical gas, inhalation anesthetic, vacuum piping, nonmedical oxygen systems and sanitary and condensate vacuum collection systems. The installation of fuel gas distribution piping and equipment, fuel gas-fired water heaters and water heater venting systems are regulated by the *Dallas Fuel Gas Code*.

Exceptions:

1. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures must comply with the *Dallas One- and Two-Family Dwelling Code*.
2. Plumbing systems in existing buildings undergoing repair, alteration, or additions, and change of occupancy may comply with the *Dallas Existing Building Code*.

101.3 Administrative procedures. Except as otherwise specified in this code, all provisions of Chapter 52, “Administrative Procedures for the Construction Codes,” of the *Dallas City Code* apply to this code.

101.4 Referenced codes and standards. The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference only when such codes and standards have been specifically adopted by the city of Dallas. Whenever amendments have been adopted to the referenced codes and standards, each reference to said code and standard shall be considered to reference the amendments as well. Any reference made to NFPA 70 or the *ICC Electrical Code* means the *Dallas Electrical Code*, as adopted. References made to the *International Building Code*, the *International Mechanical Code*, the *International Plumbing Code*, the *International Fuel Gas Code*, the *International Fire Code*, the *International Energy Conservation Code*, the *International Existing Building Code*, and the *International Residential Code*, respectively mean the *Dallas Building Code*, the *Dallas Mechanical Code*, the *Dallas Plumbing Code*, the *Dallas Fuel Gas Code*, the *Dallas Fire Code*, the *Dallas Energy Conservation Code*, the *Dallas Existing Building Code*, and the *Dallas One- and Two-Family Dwelling Code*, as amended.”

3. Section 202, “General Definitions,” of Chapter 2, “Definitions,” of the 2012 International Plumbing Code is amended by amending or adding the following definitions to read as follows:

“GRAY WATER. Waste water that has not come into contact with toilet waste, kitchen sink waste, dishwasher waste or similarly contaminated sources. Gray water includes waste [~~discharged~~] from lavatories, bathtubs, showers, clothes washers and laundry sinks [~~trays~~].

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RAINWATER HARVEST. The rainwater collected from roofs and other on-site above ground catchment systems.

RECLAIMED WATER. Water that, as a result of treatment of domestic wastewater, is suitable for a direct beneficial use or a controlled use when such system has been submitted and approved by the building official prior to installation.

STORM WATER. A drainage system that carries rainwater, surface water or similar liquid wastes.”

4. Paragraph 305.4.1, “Sewer Depth,” of Subsection 305.4, “Freezing,” of Section 305, “Protection of Pipes and Plumbing System Components,” of Chapter 3, “General Regulations,” of the 2012 International Plumbing Code is amended to read as follows:

“305.4.1 Sewer depth. ~~[Building sewers that connect to private sewage disposal systems shall be installed not less than [NUMBER] inches (mm) below finished grade at the point of septic tank connection.]~~ Building sewers shall be a minimum of 12 ~~[installed not less than [NUMBER]]~~ inches (304 mm) below grade.”

5. Subsection 305.7, “Protection of Components of Plumbing System,” of Section 305, “Protection of Pipes and Plumbing System Components,” of Chapter 3, “General Regulations,” of the 2012 International Plumbing Code is amended to read as follows:

“305.7 Protection of components of plumbing system. Components of a plumbing system installed within 3 feet of ~~[along]~~ alleyways, driveways, parking garages or other locations in a manner in which they would be exposed to damage shall be recessed into the wall or otherwise protected in an approved manner.”

6. Paragraph [M] 314.2.1, “Condensate Disposal,” of Subsection [M] 314.2, “Evaporators and Cooling Coils,” of Section 314, “Condensate Disposal,” of Chapter 3, “General Regulations,” of the 2012 International Plumbing Code is amended to read as follows:

“[M] 314.2.1 Condensate disposal. Condensate from all cooling coils and evaporators shall be conveyed from the drain pan ~~[outlet]~~ to an *approved* place of disposal. Such piping shall maintain a horizontal slope in the direction of discharge of not less than one-eighth unit vertical in 12 units horizontal (1-percent slope). Condensate shall not discharge into a street, alley, sidewalk, rooftop or other areas so as to cause a nuisance.”

7. Paragraph [M] 314.2.2, “Drain Pipe Materials and Sizes,” of Subsection [M] 314.2, “Evaporators and Cooling Coils,” of Section 314, “Condensate Disposal,” of Chapter 3, “General Regulations,” of the 2012 International Plumbing Code is amended to read as follows:

“[M] 314.2.2 Drain pipe materials and sizes. Components of the condensate disposal system shall be cast iron, galvanized steel, copper, cross-linked polyethylene, ~~polybutylene,~~ polyethylene, ABS, CPVC or PVC pipe or tubing. When exposed to ultraviolet light, schedule 80 PVC piping or tubing is required. All components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 7 relative to the material type. Condensate waste and drain line size shall be not less than ¾-inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with Table 314.2.2. All horizontal sections of drain piping must be installed in uniform alignment at a uniform slope.”

8. Chapter 3, “General Regulations,” of the 2012 International Plumbing Code is amended by adding a new Section 317, “Irrigation Systems,” to read as follows:

“SECTION 317 IRRIGATION SYSTEMS

317.1 Irrigation systems. All irrigation systems must comply with the provisions of Appendix J, “Standards for Designing, Installing and Maintaining Landscape Irrigation Systems,” of this code.”

9. Subsection 401.1, “Scope,” of Section 401, “General,” of Chapter 4, “Fixtures, Faucets and Fixture Fittings,” of the 2012 International Plumbing Code is amended to read as follows:

“401.1 Scope. This chapter shall govern the materials, design and installation of plumbing fixtures, faucets and fixture fittings in accordance with the type of *occupancy*, and shall provide the minimum number of fixtures for various types of occupancies. The provisions of this chapter are intended to work in coordination with the provisions of the *Dallas Building Code*. Should any conflicts arise between the two chapters, the building official shall determine which provision applies.”

10. Subsection 403.1, "Minimum Number of Fixtures," of Section 403, "Minimum Plumbing Facilities," of Chapter 4, "Fixtures, Faucets and Fixture Fittings," of the 2012 International Plumbing Code is amended to read as follows:

403.1 Minimum number of fixtures. Plumbing fixtures shall be provided for the type of *occupancy* and in the minimum number as follows:

1. **Assembly occupancies.** At least one drinking fountain must be provided at each floor level in an approved location.

Exception: A drinking fountain need not be provided in a drinking or dining establishment.

2. **Group A, B, F, H, I, M and S occupancies.** Buildings, tenant spaces or portions of buildings where persons are employed must be provided with at least one water closet for each sex as provided for in Section 403.2.

3. **Group E and R occupancies.** Fixtures must be provided as shown in Table 403.1

It is recommended, but not required, that the minimum number of fixtures provided also comply with the number shown in Table 403.1. Types of occupancies not shown in Table 403.1 shall be considered individually by the building [code] official. The number of occupants shall be determined by the *Dallas [International] Building Code*. *Occupancy* classification shall be determined in accordance with the *Dallas [International] Building Code*.

403.1.1 Fixture calculations. To determine the occupant load of each sex, the total occupant load shall be divided in half. To determine the required number of fixtures, the fixtures ratio or ratios for each fixture type shall be applied to the occupant load of each sex in accordance with Table 403.1. Fractional numbers resulting from applying the fixture ratios of Table 403.1 shall be rounded up to the next whole number. For calculations involving multiple *occupancies*, such fractional numbers for each *occupancy* shall first be summed and then rounded to the next whole number.

Exception: The total occupant load shall not be required to be divided in half where *approved* statistical data indicates a distribution of the sexes of other than 50 percent of each sex.

403.1.2 Family or assisted-use toilet and bath fixtures. Fixtures located within family or assisted-use toilet and bathing rooms required by Section 1109.2.1 of the *Dallas [International] Building Code* are permitted to be included in the number of required fixtures for either male or female occupants in assembly and mercantile *occupancies*."

11. Subsection 405.6, "Plumbing in Mental Health Centers," of Section 405, "Installation of Fixtures," of Chapter 4, "Fixtures, Faucets and Fixture Fittings," of the 2012 International Plumbing Code is deleted.

12. Subsection 409.2, "Water Connection," of Section 409, "Dishwashing Machines," of Chapter 4, "Fixtures, Faucets and Fixture Fittings," of the 2012 International Plumbing Code is amended to read as follows:

"409.2 Water connection. The water supply to a commercial dishwashing machine shall be protected against a backflow by an *air gap* or backflow preventer in accordance with Section 608."

13. Subsection 412.4, "Public Laundries and Central Washing Facilities," of Section 412, "Floor and Trench Drains," of Chapter 4, "Fixtures, Faucets and Fixture Fittings," of the 2012 International Plumbing Code is amended to read as follows:

"412.4 Public laundries and central washing facilities. In public coin-operated laundries and in the central washing facilities of multiple-family dwellings, the rooms containing automatic clothes washers shall be provided with floor drains located to readily drain the entire floor area. Such drains shall have a minimum outlet of not less than 3 inches (76 mm) in diameter."

14. Subsection 417.5, "Shower Floors or Receptors," of Section 417, "Showers," of Chapter 4, "Fixtures, Faucets and Fixture Fittings," of the 2012 International Plumbing Code is amended to read as follows:

"417.5 Shower floors or receptors. Floor surfaces shall be constructed of impervious, noncorrosive, nonabsorbent and waterproof materials. Thresholds must be a minimum of 2 inches (51 mm) and a maximum of 9 inches (229 mm), measured from the top of the drain to the top of the threshold or dam. Thresholds must be of sufficient width to accommodate a minimum 22-inch (559 mm) door.

Exception: Showers designed to comply with ICC/ANSI A117.1 or other designs as approved by the building official.

417.5.1 Support. Floors or receptors under shower compartments shall be laid on, and supported by, a smooth and structurally sound base.

417.5.2 Shower lining. Floors under shower compartments, except where prefabricated receptors have been provided, shall be lined and made water tight utilizing material complying with Sections 417.5.2.1 through 417.5.2.6. Such liners shall turn up on all sides not less than 3 [2] inches (76 [51] mm) above the finished threshold level and shall extend outward and over the threshold and be fastened to the outside of the threshold jamb to the required minimum height of the shower liner. Liners shall be recessed and fastened to an *approved* backing so as not to occupy the space required for wall covering, and shall not be nailed or perforated at any point less than 1 inch (25 mm) above the finished threshold. Liners shall be pitched one-fourth unit vertical in 12 units horizontal (2-percent slope) and shall be sloped toward the fixture drains and be securely fastened to the waste outlet at the seepage entrance, making a water-tight joint between the liner and the outlet. The completed liner shall be tested in accordance with Section 312.9.

Exceptions:

1. Floor surfaces under shower heads provided for rinsing laid directly on the ground are not required to comply with this section.
2. Where a sheet-applied, load-bearing, bonded, waterproof membrane is installed as the shower lining, the membrane shall not be required to be recessed.

417.5.2.1 PVC sheets. Plasticized polyvinyl chloride (PVC) sheets shall meet the requirements of ASTM D 4551. Sheets shall be joined by solvent welding in accordance with the manufacturer's installation instructions.

417.5.2.2 Chlorinated polyethylene (CPE) sheets. Nonplasticized chlorinated polyethylene sheet shall meet the requirements of ASTM D 4068. The liner shall be jointed in accordance with the manufacturer's installation instructions.

417.5.2.3 Sheet lead. Sheet lead shall weigh not less than 4 pounds per square foot (19.5 kg/m²) and shall be coated with an asphalt paint or other *approved* coating. The lead sheet shall be insulated from conducting substances other than the connecting drain by 15-pound (6.80 kg) asphalt felt or an equivalent. Sheet lead shall be joined by burning.

417.5.2.4 Sheet copper. Sheet copper shall conform to ASTM B 152 and shall weigh not less than 12 ounces per square foot (3.7 kg/m²). The copper sheet shall be insulated from conducting substances other than the connecting drain by 15-pound (6.80 kg) asphalt felt or an equivalent. Sheet copper shall be joined by brazing or soldering.

417.5.2.5 Sheet-applied, load-bearing, bonded, waterproof membranes. Sheet-applied, load-bearing, bonded, waterproof membranes shall meet requirements of ANSI A118.10 and shall be applied in accordance with the manufacturer's installation instructions.

417.5.2.6 Liquid-type, trowel-applied, load-bearing, bonded waterproof materials. Liquid-type, trowel-applied, load-bearing, bonded waterproof materials shall meet the requirements of ANSI A118.10 and shall be applied with the manufacturer's instructions."

15. Section 417, "Showers," of Chapter 4, "Fixtures, Faucets and Fixture Fittings," of the 2012 International Plumbing Code is amended by adding a new Subsection 417.7, "Test for Shower Receptors," to read as follows:

"417.7 Test for shower receptors. Shower receptors must be tested for water tightness by filling them with water to the level of the rough threshold. The drain must be plugged in a manner so that both sides of the pan are subjected to the test at the point where the pan is clamped to the drain."

16. Subsection [B] 419.3, "Surrounding Material," of Section 419, "Urinals," of Chapter 4, "Fixtures, Faucets and Fixture Fittings," of the 2012 International Plumbing Code is amended to read as follows:

"[B] 419.3 Surrounding material. Wall and floor space to a point 2 feet (610 mm) in front of a urinal lip and 4 feet (1219 mm) above the floor and at least 2 feet (610 mm) to each side of the urinal shall be waterproofed with a smooth, readily cleanable, hard, nonabsorbent material."

17. Subsection 502.3, "Water Heaters Installed In Attics," of Section 502, "Installation," of Chapter 5, "Water Heaters," of the 2012 International Plumbing Code is amended to read as follows:

"502.3 Water heaters installed in attics. Attics containing a water heater shall be provided with an opening and unobstructed passageway large enough to allow removal of the water heater. The passageway shall be not less than 30 inches (762 mm) in height and 22 inches (559 mm) in width and not more than 20 feet (6096 mm) in length when measured along the centerline of the passageway from the opening to the water heater. The passageway shall have continuous solid flooring not less than 24 inches (610 mm) in width. A level service space not less than 30 inches (762 mm) in length, [~~and~~] 30 inches (762 mm) in width and 30 inches (762 mm) deep shall be present at the front or service side of the water heater. The clear access opening dimensions shall be not less than 20 inches by 30 inches (508 mm by 762 mm) where such dimensions are large enough to allow removal of the water heater. A walkway to an appliance must be rated as a floor as approved by the building official. At a minimum, one of the following must be provided for access to the attic space:

1. A permanent stair.

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2. A pull down stair with a minimum 300 lb. (136 kg) capacity.
3. An access door from an upper floor level.

Due to structural conditions, an access panel may be used in lieu of Items 1, 2 or 3 with the prior approval of the building official.”

18. Section 502, “Installation,” of Chapter 5, “Water Heaters,” of the 2012 International Plumbing Code is amended by adding a new Subsection 502.6, “Water Heaters Above Ground or Floor,” to read as follows:

“502.6 Water heaters above ground or floor. When the attic, roof, mezzanine or platform in which a water heater is installed is more than 8 feet (2438 mm) above the ground or floor level, it must be made accessible by a stairway or permanent ladder fastened to the building.

Exception: A water heater may be reached by portable ladder if the water heater has a capacity of no more than 10 gallons (or larger with prior approval), it is capable of being accessed through a lay-in ceiling, and it is installed not more than 10 feet (3048 mm) above the ground or floor level.

502.6.1. Illumination and convenience outlet. Whenever the attic, roof, mezzanine or platform is not adequately lighted or access to a receptacle outlet is not obtainable from the main level, lighting and a receptacle outlet must be provided in accordance with the *Dallas Electrical Code*.”

19. Subsection 504.6, “Requirements for Discharge Piping,” of Section 504, “Safety Devices,” of Chapter 5, “Water Heaters,” of the 2012 International Plumbing Code is amended to read as follows:

“504.6 Requirements for discharge piping. The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall:

1. Not be directly connected to the drainage system.
2. Discharge through an *air gap* [~~located in the same room as the water heater~~].
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the *air gap*.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.

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Exception: Multiple relief devices may be installed to a single T&P discharge piping system when approved by the building official and permitted by the manufacturer's installation instructions and installed pursuant to those instructions.

5. Discharge by indirect means [~~to the floor, to the pan serving the water heater or storage tank,~~] to an approved [a] waste receptor or the outdoors.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. Discharge to a termination point that is readily observable by the building occupants.
8. Not be trapped.
9. Be installed so as to flow by gravity.
10. Not terminate less [~~more~~] than 6 inches (152 mm) or more than 24 inches (609 mm) above grade nor more than 6 inches (152 mm) above the [~~floor or~~] waste receptor.
11. Not have a threaded connection at the end of such piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials listed in Section 605.4 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.”

20. Subsection 604.4, “Maximum Flow and Water Consumption,” of Section 604, “Design of Building Water Distribution System,” of Chapter 6, “Water Supply and Distribution,” of the 2012 International Plumbing Code is amended by adding a new Paragraph 604.4.1, “State Maximum Flow Rate,” to read as follows:

“604.4.1 State maximum flow rate. Where the state-mandated maximum flow rate is more restrictive than those of this section, the state flow rate takes precedence.”

21. Subsection 604.8, “Water Pressure Reducing Valve or Regulator,” of Section 604, “Design of Building Water Distribution System,” of Chapter 6, “Water Supply and Distribution,” of the 2012 International Plumbing Code is amended by adding a new Paragraph 604.8.3, “Thermal Expansion Control,” to read as follows:

“604.8.3 Thermal expansion control. An expansion tank or approved device must be installed for the water heater with the addition of a pressure reducing valve or regulator creating a closed system.”

22. Subsection 606.1, “Location of Full-Open Valves,” of Section 606, “Installation of the Building Water Distribution System,” of Chapter 6, “Water Supply and Distribution,” of the 2012 International Plumbing Code is amended to read as follows:

“606.1 Location of full-open valves. Full-open valves shall be installed in the following locations:

1. ~~[On the building water service pipe from the public water supply near the curb.~~
- 2.] On the water distribution supply pipe at the entrance into the structure.
- ~~[3. On the discharge side of every water meter.~~
4. ~~On the base of every water riser pipe in occupancies other than multiple family residential occupancies that are two stories or less in height and in one and two family residential occupancies.~~
5. ~~On the top of every water down-feed pipe in occupancies other than one and two family residential occupancies.]~~
- 2[6]. On the entrance to every water supply pipe to a dwelling unit, except where supplying a single fixture equipped with individual stops.
- 3[7]. On the water supply pipe to a gravity or pressurized water tank.
- 4[8]. On the water supply pipe to every water heater.”

23. Subsection 606.2, “Location of Shutoff Valves,” of Section 606, “Installation of the Building Water Distribution System,” of Chapter 6, “Water Supply and Distribution,” of the 2012 International Plumbing Code is amended to read as follows:

“606.2 Location of shutoff valves. Shutoff valves shall be installed in the following locations:

1. On the fixture supply to each plumbing fixture other than bathtubs and showers in one- and two-family residential *occupancies*, and other than in individual sleeping units that are provided with unit shutoff valves in hotels, motels, boarding houses and similar *occupancies*.

2. [~~On the water supply pipe to each sillcock.~~

3.] On the water supply pipe to each appliance or mechanical equipment.”

24. Subsection 608.1, “General,” of Section 608, “Protection of Potable Water Supply,” of Chapter 6, “Water Supply and Distribution,” of the 2012 International Plumbing Code is amended to read as follows:

“608.1 General. A potable water supply system shall be designed, installed and maintained in such a manner so as to prevent contamination from nonpotable liquids, solids or gases being introduced into the potable water supply through cross-connections or any other piping connections to the system. Backflow preventer applications shall conform to applicable local regulations, Table 608.1, and [~~except~~] as specifically stated in Sections 608.2 through 608.16.10.”

25. Paragraph 608.16.5, “Connections to Lawn Irrigations Systems,” of Subsection 608.16, “Connections to the Potable Water System,” of Section 608, “Protection of Potable Water Supply,” of Chapter 6, “Water Supply and Distribution,” of the 2012 International Plumbing Code is amended to read as follows:

“608.16.5 Connections to lawn irrigation systems. The potable water supply to lawn irrigation systems shall be protected against backflow by an atmospheric vacuum breaker, a pressure vacuum breaker assembly, a double-check assembly or a reduced pressure principle backflow prevention assembly. Valves shall not be installed downstream from an atmospheric vacuum breaker. Where chemicals are introduced into the system, the potable water supply shall be protected against backflow by a reduced pressure principle backflow prevention assembly.”

26. Subsection 608.17, “Protection of Individual Water Supplies,” of Section 608, “Protection of Potable Water Supply,” of Chapter 6, “Water Supply and Distribution,” of the 2012 International Plumbing Code is amended to read as follows:

“608.17 Protection of individual water supplies. An individual water supply shall be located and constructed so as to be safeguarded against contamination in accordance with applicable local regulations. In the absence of other local regulations, installation shall be in accordance with Sections 608.17.1 through 608.17.8.

608.17.1 Well locations. A potable ground water source or pump suction line shall not be located closer to potential sources of contamination than the distances shown in Table 608.17.1. In the event the underlying rock structure is limestone or fragmented shale, the local or state health department shall be consulted on well site location. The distances in Table 608.17.1 constitute minimum separation and shall be increased in areas of creviced rock or limestone, or where the direction of movement of the ground water is from sources of contamination toward the well.

608.17.2 Elevation. Well sites shall be positively drained and shall be at higher elevations than potential sources of contamination.

608.17.3 Depth. Private potable well supplies shall not be developed from a water table less than 10 feet (3048 mm) below the ground surface.

608.17.4 Water-tight casings. Each well shall be provided with a water-tight casing extending to not less than 10 feet (3048 mm) below the ground surface. Casings shall extend not less than 6 inches (152 mm) above the well platform. Casings shall be large enough to permit installation of a separate drop pipe. Casings shall be sealed at the bottom in the impermeable stratum or extend several feet into the water-bearing stratum.

608.17.5 Drilled or driven well casings. Drilled or driven well casings shall be of steel or other *approved* material. Where drilled wells extend into a rock formation, the well casing shall extend to and set firmly in the formation. The annular space between the earth and the outside of the casing shall be filled with cement grout to a depth of not less than 10 feet (3048 mm) below the ground surface. In an instance of casing to rock installation, the grout shall extend to the rock surface.

608.17.6 Dug or bored well casings. Dug or bored well casings shall be of water-tight concrete, tile, or galvanized or corrugated metal pipe extending to not less than 10 feet (3048 mm) below the ground surface. Where the water table is more than 10 feet (3048 mm) below the ground surface, the water-tight casing shall extend below the table surface. Well casings for dug wells or bored wells constructed with sections of concrete, tile, or galvanized or corrugated metal pipe shall be surrounded by 6 inches (152 mm) of grout poured into the hole between the outside of the casing and the ground and extending not less than 10 feet (3048 mm) below the ground surface.

608.17.7 Cover. Potable water wells shall be equipped with an overlapping water-tight cover at the top of the well casing or pipe sleeve such that contaminated water or other substances are prevented from entering the well through the annular opening at the top of the well casing, wall or pipe sleeve. Covers shall extend downward not less than 2 inches (51 mm) over the outside of the well casing or wall. A dug well cover shall be provided with a pipe sleeve permitting the withdrawal of the pump suction pipe, cylinder or jet body without disturbing the cover. Where pump sections or discharge pipes enter or leave a well through the side of the casing, the circle of contact shall be water tight.

608.17.8 Drainage. Potable water wells and springs shall be constructed such that surface drainage will be diverted away from the well or spring.”

27. Section 712, “Sumps and Ejectors,” of Chapter 7, “Sanitary Drainage,” of the 2012 International Plumbing Code is amended by adding a new Subsection 712.5, “Dual Pump System,” to read as follows:

“**712.5 Dual pump system.** All sumps must be automatically discharged and, when in any “public use” occupancy where the sump serves more than 10 fixture units, must be provided with dual sumps or ejectors arranged to function independently in case of overload or mechanical failure. For storm drainage sumps and pumping systems, see Section 1114.”

28. Section 714, “Computerized Drainage Design,” of Chapter 7, “Sanitary Drainage,” of the 2012 International Plumbing Code is retitled as Section 714, “Engineered Drainage Design.”

29. Subsection 714.1, “Design of Drainage System,” of Section 714, “Engineered Drainage Design,” of Chapter 7, “Sanitary Drainage,” of the 2012 International Plumbing Code is amended to read as follows:

“**714.1 Design of drainage system.** The sizing, design and layout of the drainage system shall be permitted to be designed by *approved* [~~computer~~] design methods.”

30. Subsection 802.4, “Standpipes,” of Section 802, “Indirect Wastes,” of Chapter 8, “Indirect/Special Waste,” of the 2012 International Plumbing Code is amended to read as follows:

“**802.4 Standpipes.** Standpipes shall be individually trapped. Standpipes shall extend not less than 18 inches (457 mm) but not greater than 42 inches (1066 mm) above the trap weir. *Access shall be provided to all standpipes and drains for rodding. No trap serving a standpipe may be installed below the floor.*”

31. Subsection 903.1, “Roof Extension,” of Section 903, “Vent Terminals,” of Chapter 9, “Vents,” of the 2012 International Plumbing Code is amended to read as follows:

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“903.1 Roof extension. Open vent pipes that extend through a roof shall be terminated not less than 6 ~~[NUMBER]~~ inches (152 mm) above the roof, except that where a roof is to be used for any purpose other than weather protection, the vent extensions shall terminate not less than 7 feet (2134 mm) above the roof.”

32. Subsection 909.1, “Distance of Trap From Vent,” of Section 909, “Fixture Vents,” of Chapter 9, “Vents,” of the 2012 International Plumbing Code is amended to read as follows:

“909.1 Distance of trap from vent. Each fixture trap shall have a protecting vent located so that the slope and the *developed length* in the *fixture drain* from the trap weir to the vent fitting are within the requirements set forth in Table 909.1.

~~[Exception: The *developed length* of the *fixture drain* from the trap weir to the vent fitting for self-siphoning fixtures, such as water closets, shall not be limited.]”~~

33. Subsection 915.1, “Type of Fixtures,” of Section 915, “Combination Waste and Vent System,” of Chapter 9, “Vents,” of the 2012 International Plumbing Code is amended to read as follows:

“915.1 Type of fixtures. A combination waste and vent system shall not serve fixtures other than floor drains, ~~[sinks, lavatories]~~ and indirect waste receptors ~~[drinking fountains]~~. Combination waste and vent systems shall not receive the discharge from a food waste grinder or clinical sink.”

34. Subsection 916.2, “Vent Connection,” of Section 916, “Island Fixture Venting,” of Chapter 9, “Vents,” of the 2012 International Plumbing Code is deleted and replaced with a new Subsection 916.2, “Installation,” to read as follows:

“916.2 Installation. Traps for island sinks and similar equipment must be roughed in above the floor and may be vented by extending the vent as high as possible, but not less than the drain board height and then returning it downward and connecting it to the horizontal sink drain immediately downstream from the vertical fixture drain. The return vent must be connected to the horizontal drain through a wye-branch fitting and must, 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 may be connected to other vents at a point not less than 6 inches (152 mm) above the flood level rim of the fixtures served. Drainage fittings must be used on all parts of the vent below the floor level and a minimum slope of ¼ inch per foot (20.9 mm/m) back to the drain must be maintained. The return bend used under the drain board must be a one piece fitting or an assembly of a 45 degree (0.79 radius), a 90 degree (1.6 radius) and a 45 degree (0.79 radius) elbow in the order named. Pipe sizing must be as required elsewhere in this code. The island sink drain, upstream of the

return vent, must serve no other fixtures. An accessible cleanout must be installed in the vertical portion of the foot vent.”

35. Subsection 916.3, “Vent Installation Below the Fixture Flood Level Rim,” of Section 916, “Island Fixture Venting,” of Chapter 9, “Vents,” of the 2012 International Plumbing Code is deleted.

36. Section 917, “Single Stack Vent System,” of Chapter 9, “Vents,” of the 2012 International Plumbing Code is deleted.

37. Subsection 1002.10, “Plumbing in Mental Health Centers,” of Section 1002, “Trap Requirements,” of Chapter 10, “Traps, Interceptors and Separators,” of the 2012 International Plumbing Code is deleted.

38. Paragraph 1003.3.1, “Grease Interceptors and Automatic Grease Removal Devices Required,” of Subsection 1003.3, “Grease Interceptors,” of Section 1003, “Interceptors and Separators,” of Chapter 10, “Traps, Interceptors and Separators,” of the 2012 International Plumbing Code is amended to read as follows:

“1003.3.1 Grease interceptors and automatic grease removal devices required. A grease interceptor or automatic grease removal device shall be required to receive the drainage from fixtures and equipment with grease-laden waste exposure located in food preparation areas, such as in restaurants, hotel kitchens, hospitals, school kitchens, bars, factory cafeterias and clubs. Fixtures and equipment capable of generating or receiving grease-laden waste shall include, but not be limited to, pot sinks, prerinse sinks; hand sinks; 3-compartment sinks; mop sinks; soup kettles or similar devices; wok stations; floor drains; ~~[or]~~ floor sinks [into which kettles are drained]; automatic hood wash units and dishwashers without prerise sinks. Grease interceptors and automatic grease removal devices shall receive waste only through indirect means from fixtures and equipment that allow fats, oils or grease to be discharged. ~~[Where lack of space or other constraints prevent]~~ T[the installation [or replacement] of [a] grease interceptors[,-one] or automatic [more] grease removal devices must comply with Section 17-6.5(d)(1)(A), (B), and (C) of Chapter 17 of the Dallas City Code [interceptors shall be permitted to be installed on or above the floor and upstream of an existing grease interceptor].”

39. Subparagraph 1003.4.2.2, "Garages and Service Stations," Paragraph 1003.4.2, "Oil Separator Design," of Subsection 1003.4, "Oil Separators Required," of Section 1003, "Interceptors and Separators," of Chapter 10, "Traps, Interceptors and Separators," of the 2012 International Plumbing Code is amended to read as follows:

"1003.4.2.2 Garages and service stations. Where automobiles are serviced, greased, repaired or washed or where gasoline is dispensed, oil separators shall have a capacity of not less than 6 cubic feet (0.168 m³) for the first 100 square feet (9.3 m²) of area to be drained, plus 1 cubic foot (0.28 m³) for each additional 100 square feet (9.3 m²) of area to be drained to the separator. Parking garages in which servicing, repairing or washing is not conducted, and in which gasoline is not dispensed, shall not require a separator. Areas of commercial garages utilized only for storage of automobiles are not required to be drained through a separator.

Exception: Automobiles or equipment wash bays larger than 60 inches by 120 inches must use a sand interceptor with a minimum capacity of 1000 gallons."

40. Section 1003, "Interceptors and Separators," of Chapter 10, "Traps, Interceptors and Separators," of the 2012 International Plumbing Code is amended by adding a new Subsection 1003.11, "Effluent Sampling," to read as follows:

"1003.11 Effluent sampling. An effluent sampling box must be installed at or near the outlet of a trap interceptor or separator."

41. Section 1003, "Interceptors and Separators," of Chapter 10, "Traps, Interceptors and Separators," of the 2012 International Plumbing Code is amended by adding a new Subsection 1003.12, "Abandoned Traps, Interceptors or Separators," to read as follows:

"1003.12 Abandoned traps, interceptors or separators. Abandoned traps, interceptors or separators must be plugged or capped and must have the contents pumped and discarded in an approved manner. The top or entire vessel must be removed and the remaining portion of the tank or excavation must be immediately filled with approved materials."

42. Subsection 1101.8, "Cleanouts Required," of Section 1101, "General," of Chapter 11, "Storm Drainage," of the 2012 International Plumbing Code is amended to read as follows:

"1101.8 Cleanouts required. Cleanouts shall be installed in the building storm drainage system and shall comply with the provisions of this code for sanitary drainage pipe cleanouts.

~~[Exception: Subsurface drainage system.]”~~

43. Subsection 1106.1, “General,” of Section 1106, “Size of Conductors, Leaders and Storm Drains,” of Chapter 11, “Storm Drainage,” of the 2012 International Plumbing Code is amended to read as follows:

“1106.1 General. The size of the vertical conductors and leaders, building storm drains, building storm sewers, and any horizontal branches of such drains or sewers shall be based on a 6 inch (152.4 mm) per hour ~~[the 100-year hourly]~~ rainfall rate ~~[indicated in Figure 1106.1 or on other rainfall rates determined from approved local weather data].”~~

44. Subsection 1108.3, “Sizing of Secondary Drains,” of Section 1108, “Secondary (Emergency) Roof Drains,” of Chapter 11, “Storm Drainage,” of the 2012 International Plumbing Code is amended to read as follows:

“1108.3 Sizing of secondary drains. Secondary (emergency) roof drain systems shall be sized in accordance with Section 1106 ~~[based on the rainfall rate for which the primary system is sized in Tables 1106.2(1), 1106.2(2), 1106.3 and 1106.6]~~. Scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1101.7. Scuppers shall have an opening dimension of not less than 4 inches (102 mm). The flow through the primary system shall not be considered when sizing the secondary roof drain system.”

45. Subsection [F] 1202.1, “Nonflammable Medical Gases,” of Section 1202, “Medical Gases,” of Chapter 12, “Special Piping and Storage Systems,” of the 2012 International Plumbing Code is amended to read as follows:

“[F] 1202.1 Nonflammable medical gases. Nonflammable medical gas systems, inhalation anesthetic systems and vacuum piping systems shall be designed and installed in accordance with NFPA 99[€].

Exception[s]:

~~[1.]~~This section shall not apply to portable systems or cylinder storage.

~~[2. Vacuum system exhaust terminations shall comply with the *International Mechanical Code*.]”~~

46. Chapter 13, “Gray Water Recycling Systems,” of the 2012 International Plumbing Code is retitled as Chapter 13, “Water Reuse Systems.”

47. Section 1301, “General,” of Chapter 13, “Water Reuse Systems,” of the 2012 International Plumbing Code is amended to read as follows:

**“SECTION 1301
GENERAL**

1301.1 Scope. The provisions of Chapter 13 shall govern the materials, design, construction and installation of rainwater, reclaimed, storm and gray water systems for flushing of water closets and urinals and for subsurface landscape irrigation. See Figures 1301.1(1) and 1301.1(2). Reuse of water for any other reason must be submitted to the building official for prior approval.

1301.1 Permit required. It is unlawful for any person to construct, install or alter any water reuse system without first obtaining a permit to perform such work. No water reuse permit may be issued until a plot plan with appropriate data satisfactory to the building official has been submitted and approved. Plans and specifications must be drawn to scale and must be of sufficient clarity to indicate the location, nature and extent of the work proposed and show that it will conform to the codes and all applicable laws, ordinances, rules and regulations.

1301.2 Installation. In addition to the provisions of Section 1301, systems for flushing of water closets and urinals shall comply with Section 1302 and systems for subsurface landscape irrigation shall comply with Section 1303. Except as provided for in this chapter, all systems shall comply with the provisions of the other chapters and appendices of this code.

1301.3 Materials. Above-ground drain, waste and vent piping for gray water systems shall conform to one of the standards listed in Table 702.1. ~~[Gray]~~ W[water reuse], underground building drainage and vent pipe shall conform to one of the standards listed in Table 702.2.

1304.4 Tests. Drain, waste and vent piping for gray water systems shall be tested in accordance with this code ~~[Section 312]~~.

1301.5 Inspections. ~~[Gray]~~ W[water reuse] systems shall be inspected in accordance with this code ~~[Section 107]~~.

1301.6 Public water connections. Only connections in accordance with Section 1302.3 shall be made between a ~~[gray]~~ water reuse [recycling] system and a potable water system. Where connections between a potable water system and a non-potable water system exist, a reduced pressure backflow assembly must be placed as close to the water meter as possible.

1301.7 Waste water connections. Water reuse systems designed specifically for g[G]ray water recycling systems shall receive only the waste discharge of bathtubs, showers, lavatories, clothes washers or laundry trays.

1301.8 Collection reservoir. [~~Gray~~] W[~~w~~]ater for reuse systems shall be collected in an approved reservoir constructed of durable, nonabsorbent and corrosion-resistant materials. The reservoir shall be a closed and gas-tight vessel. Access openings shall be provided to allow inspection and cleaning of the reservoir interior.

1301.9 Filtration. [~~Gray~~] W[~~w~~]ater for reuse entering the reservoir shall pass through an approved filter such as a media, sand or diatomaceous earth filter.

1301.9.1 Required valve. A full-open valve shall be installed downstream of the last fixture connection to the gray water discharge pipe before entering the required filter.

1301.10 Overflow. The collection reservoir shall be equipped with an overflow pipe having the same or larger diameter as the influent pipe for the gray water. The overflow pipe shall be trapped and shall be indirectly connected to the sanitary drainage system by means of an air gap.

1301.11 Drain. A drain shall be located at the lowest point of the collection reservoir and shall be indirectly connected to the sanitary drainage system by means of an air gap. The drain shall be the same diameter as the overflow pipe required in Section 1301.10.

1301.12 Vent required. The reservoir shall be provided with a vent sized in accordance with Chapter 9 and based on the diameter of the reservoir influent pipe. The pipe shall be screened to prevent the infiltration of mosquitos or other insects.

1301.13 Hose bibbs. Hose bibbs are not allowed on reclaimed and gray water piping systems. Hose bibbs on rainwater harvesting and storm water irrigation piping systems must be identified as required by Section 608.8.

1301.14 Pipes. Water reuse pipes must not be run or laid in the same trench as potable water pipes. A 10-foot (3048 mm) horizontal separation must be maintained between any water reuse pipe and potable water piping. Buried potable water pipes crossing water reuse piping must be laid a minimum of 18 inches (457.2 mm) above the water reuse pipes.

1301.15 Identification. All piping, fittings, valves, reservoirs, appurtenances and devices within a water reuse system must be identified as containing nonpotable water. Piping used for water reuse must be identified as required by Section 608.8.

1301.16 Signs.

1301.16.1 Room entrance signs. All installations using water reuse for flushing of water closets or urinals must be identified with signs. Each sign must contain the statement "TO CONSERVE WATER, THIS BUILDING USES RECLAIMED WATER TO FLUSH TOILETS AND URINALS" in ½ inch (12.7 mm) white letters on a contrasting purple (Pantone color # 512) background. The signs must be located in a manner that is visible to all users and approved by the building official. The number of signs installed must also be approved by the building official.

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1301.16.2 Equipment room signs. Each equipment room containing water reuse equipment must have a sign posted in a visible location that contains the statement “CAUTION: RECLAIMED WATER, DO NOT DRINK, DO NOT CONNECT TO DRINKING WATER SYSTEM,” in 1-inch (25.4 mm) white letters on a contrasting purple (Pantone # 512) background.

1301.17 Approved uses of water reuse systems.

1301.17.1 Gray water. Only treated recycled gray water may be utilized for flushing water closets and urinals located in the same building and property as the gray water recycling system. Treated recycled gray water may be utilized for other commercial or industrial uses with prior approval of the building official for the specific use intended. Treated or untreated recycled gray water may be utilized for subsurface irrigation systems.

1301.17.2 Rain water harvesting. The rainwater collected from roofs and other on-site, aboveground catchment systems may be used for flushing water closets and urinals located in the same building and property as the rainwater harvesting system. A rainwater harvesting system may be used for landscape irrigation.

1301.17.3 Storm water. All roofs, paved areas, yards, courts and courtyards must drain into a separate storm sewer system, or to an approved place of disposal. Storm water is permitted to discharge onto flat areas, such as streets or lawns, or into an approved collection tank to be used for irrigation systems. Systems must be equipped with an overflow drain indirectly connected to the storm sewer system or overflow area, provided that the storm water flows away from the building. The authority having jurisdiction shall give specific approval for the collection of storm water.

1301.17.4 Reclaimed water. Reclaimed water systems may be utilized for flushing water closets and urinals when approved by the building official. Reclaimed water may be utilized for other commercial or industrial uses with prior approval of the building official.”

48. Subsection 1302.3, “Makeup Water,” of Section 1302, “Systems for Flushing Water Closets and Urinals,” of Chapter 13, “Water Reuse Systems,” of the 2012 International Plumbing Code is amended to read as follows:

“**1302.3 Makeup water.** Potable water may [shall] be supplied as a source of makeup water for the gray water system. The potable water supply shall be protected against backflow by means of an approved air gap in accordance with Section 608. There shall be a full-open valve located on the makeup water supply line to the collection reservoir.”

49. The ANSI standards of Chapter 14, “Referenced Standards,” of the 2012 International Plumbing Code are amended to read as follows:

“ANSI

American National Standards Institute
25 West 43rd Street, Fourth Floor
New York, NY 10036

| Standard reference number | Title | Referenced in code section number |
|---------------------------|--|-----------------------------------|
| A117.1—09 | Accessible and Useable Buildings and Facilities | .417.5 |
| A118.10—99 | Specifications for Load Bearing, Bonded, Waterproof Membranes for Thin Set Ceramic Tile and Dimension Stone Installation | .417.5.2.5, 417.5.2.6 |
| Z4.3—95 | Minimum Requirements for Nonsewered Waste-disposal Systems | 311.1 |
| Z21.22—99(R2003) | Relief Valves for Hot Water Supply Systems with Addenda Z21.22a—2000 (R2003) and Z21.22b—2001 (R2003) | 504.2, 504.4, 504.4.1 |
| Z124.1.2—2005 | Plastic Bathtub and Shower Units | .407.1, 417.1 |
| Z124.3—95 | Plastic Lavatories | .416.1, 416.2, 417.1 |
| Z124.4—96 | Plastic Water Closet Bowls and Tanks | 420.1 |
| Z124.6—97 | Plastic Sinks | .415.1, 418.1 |
| Z124.9—94 | Plastic Urinal Fixtures | .419.1” |

50. The NFPA standards of Chapter 14, “Referenced Standards,” of the 2012 International Plumbing Code are amended to read as follows:

“NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

| Standard reference number | Title | Referenced in code section number |
|---------------------------|--|-----------------------------------|
| 50—01 | Bulk Oxygen Systems at Consumer Sites | 1203.1 |
| 51—07 | Design and Installation of Oxygen-fuel Gas Systems for Welding, Cutting and Allied Processes | 1203.1 |
| 70—11 | National Electrical Code | .502.1, 504.3, 1114.1.3 |
| 99—12 | Health Care Facilities Code | 1202.1 |
| [99C—05 | Gas and Vacuum Systems | 1202.1]” |

51. Appendix C, “Vacuum Drainage System,” of the 2012 International Plumbing Code is adopted.

52. Appendix E, “Sizing of Water Piping System,” of the 2012 International Plumbing Code is adopted.

53. A new Appendix J, “Standards for Designing, Installing and Maintaining Landscape Irrigation Systems,” is adopted as part of the 2012 International Plumbing Code to read as follows:

**“APPENDIX J
STANDARDS FOR DESIGNING, INSTALLING
AND MAINTAINING LANDSCAPE IRRIGATION SYSTEMS**

**SECTION J101
SCOPE AND PURPOSE**

J101.1 Scope. This appendix applies to the installation, alteration, repairs, relocation, replacement, addition to, use or maintenance of *irrigation systems* within the city. This appendix regulates the installation of backflow prevention devices, control valves, automatic irrigation controllers, control wiring and *water conservation* required for the proper design, installation and operation of *irrigation systems*. All *irrigation systems* must comply with the provisions of this appendix and with 30 *Texas Administrative Code* Chapter 344.

J101.2 Purpose. The purpose of this appendix is to require all *irrigation systems* to be designed, installed, maintained, altered, repaired, serviced and operated in a manner that will promote *water conservation*.

**SECTION J102
DEFINITIONS**

J102.1 Definitions. The following words and terms shall have the meanings shown herein:

IRRIGATION SYSTEM. An assembly of component parts that is permanently installed for the controlled distribution and conservation of water to irrigate any type of landscape vegetation in any location, reduce dust or control erosion. This term does not include a system that is used on or by an agricultural operation as defined by Section 251.002 of the *Texas Agriculture Code*.

IRRIGATION TECHNICIAN. A person who works under the supervision of a licensed irrigator to install, maintain, alter, repair, service or supervise installation of an *irrigation system*, including the connection of such system in or to a private or public, raw or potable water supply system or any water supply, and who is required to be licensed under this ordinance or 30 *Texas Administrative Code* Chapter 344.

MAINTENANCE, ALTERATION, REPAIR OR SERVICE. Any activity that involves opening the irrigation main line to the atmosphere at any point prior to the discharge side of any irrigation zone control valve. This includes, but is not limited to, repairing or connecting into a main supply pipe, replacing a zone control valve or repairing a zone control valve in a manner that opens the system to the atmosphere.

TCEQ. Texas Commission on Environmental Quality.

WATER CONSERVATION. The design, installation, service and operation of an *irrigation system* in a manner that prevents the waste of water, promotes the most efficient use of water, and applies the least amount of water that is required to maintain healthy individual plant material or turf, reduce dust and control erosion.

**SECTION J103
DESIGN OF THE IRRIGATION PLAN**

J103.1 Minimum standards for the design of the irrigation plan.

J103.1.1 Irrigation plan. A licensed irrigator or landscape architect shall prepare an irrigation plan for each site where a new *irrigation system* will be installed. A city approved irrigation plan must be on the job site at all times during the installation of the *irrigation system*. A drawing showing the actual system installation must be provided to the *irrigation system* owner on completion of the installation. During installation, variances from the original plan may be authorized by the licensed irrigator if the variance from the plan does not:

1. Diminish the operational integrity of the *irrigation system*;
2. Violate any requirements of this ordinance or 30 *Texas Administrative Code* Chapter 344; and
3. Go unnoted in red on the irrigation plan.

J103.1.2 Coverage area. The irrigation plan must include complete coverage of the areas to be irrigated; areas not irrigated must be noted on the irrigation plan.

J103.1.3 Plan requirements. All irrigation plans used for *irrigation system* installation must be drawn to scale. Two sets of irrigation drawings must be submitted, one set to be retained as part of the inspection records, the other set is required for onsite inspection and must be given to the property owner on completion of the *irrigation system*. Submitted irrigation plans must have a minimum font size of 3/32", a maximum drawing sheet size of 36" X 48" and must include the following information:

1. the dated seal and signature of either a licensed irrigator or a landscape architect;

Exceptions:

1. Not required for property that is owned and occupied solely as a person's homestead.
2. Not required for irrigation plans submitted by a licensed and registered plumbing contractor.
2. all major physical features and the boundaries of the area to be watered;
3. north arrow;
4. a legend;

5. the zone flow measurement for each zone;
6. location and type of each:
 - 6.1. controller;
 - 6.2. rain and freeze sensors;
 - 6.3. all electrical splices; and
7. location, type, and size of each:
 - 7.1. water source, such as, but not limited to a water meter and point(s) of connection;
 - 7.2. backflow prevention device;
 - 7.3. water emission device, including, but not limited to, spray heads, rotary sprinkler heads, quick-couplers, bubblers, drip or micro-sprays;
 - 7.4. valve, including, but not limited to, zone valves, station solenoid valves, automatic master valves and isolation valves;
 - 7.5. pressure regulation components;
 - 7.6. main line and lateral piping;
 - 7.7. scale used; and
 - 7.8. design pressure.

SECTION J104 DESIGN AND INSTALLATION

J104.1 Minimum design and installation requirements.

J104.1.1 Backflow protection. Any *irrigation system* connected to a public or private potable water system must be connected through a *TCEQ*-approved backflow prevention method. The backflow prevention device must be approved by the American Society of Sanitary Engineering or the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California, the *Uniform Plumbing Code*, the *Dallas Plumbing Code* or a city-approved laboratory that has equivalent capabilities for both the laboratory and field evaluation of backflow prevention assemblies. Backflow prevention devices must be installed in accordance with the laboratory approval standards, or if the approval does not include specific installation information, the manufacturer's current published recommendations.

J104.1.1.1 Backflow device installation. Connections between the potable water supply and the approved backflow preventer must be of the same type of material and joining method as required by the *Dallas Plumbing Code* and *Dallas One- and Two-Family Dwelling Code*. The backflow device must be installed a maximum of 10 feet from the water meter on the property being served by the *irrigation system*. Backflow devices may not be installed in the parkway (between the sidewalk and the public right-of-way.)

Exceptions:

1. Atmospheric vacuum breakers must be installed in an accessible location.
2. Backflow devices may be installed in the public right-of-way or at a distance greater than 10 feet from the water meter or potable water supply with prior approval from the building official.

J104.1.1.2 Approved types of backflow devices. The following types of backflow devices are approved:

1. Air gap.
2. Atmospheric vacuum breaker (AVB).
3. Pressure vacuum breaker (PVB).
4. Double check backflow preventer (DCA).
5. Reduced pressure principal backflow preventer (RPZ).

J104.1.1.3 Double check backflow assembly (DCA). A DCA must be installed and made accessible by a minimum jumbo valve box (length 26 inches X 19 inches) or larger.

J104.1.1.3.1 Valve box. A valve box must be installed on compacted soil. Rocks, brick or other types of support may not be used. A valve box cover must be installed flush with finish grade. A minimum 2 inch air gap is required between the bottom of the DCA and 12 inches of washed rock.

J104.1.1.4 Reduced pressure principal backflow preventer (RPZ). An RPZ must be installed according to the manufacturer's installation requirements for aboveground installation and protected from freezing. Twelve inches of washed rock must be installed under the RPZ.

J104.1.2 Isolation valve and y-type strainer. An isolation valve and y-type strainer must be installed prior to the double check or reduce pressure principal backflow preventer in an approved valve box. The isolation valve and y-type strainer must be installed a maximum of 24 inches from the installation of the double check or reduced pressure principal backflow preventers.

J104.2 Limitation. No irrigation design or installation may require the use of any component, including the water meter, in a way which exceeds the manufacturer's published performance limitations for the component.

J104.3 Emission devices.

J104.3.1 Emission devices. The maximum spacing between emission devices must not exceed the manufacturer's published radius or spacing of the device(s). The radius or spacing is determined by referring to the manufacturer's published specifications for a specific emission device at a specific operating pressure.

J104.3.2 Aboveground spray. New *irrigation systems* may not utilize aboveground spray emission devices in landscaped areas that are less than 60 inches in width or length not including impervious surfaces which contain impervious pedestrian or vehicular traffic surfaces, along two or more perimeters. If pop-up sprays or rotary sprinkler heads are used in a new *irrigation system*, the sprinkler heads must direct flow away from any adjacent surface and may not be installed closer than four inches from a hardscape, such as, but not limited to, a building foundation, fence, concrete, asphalt, pavers or stones set with mortar.

Exception: Narrow paved walkways, jogging paths, golf cart paths or other small areas located in cemeteries, parks, golf courses or other public areas may be exempted from this requirement if the runoff drains into a landscaped area.

J104.3.3 Water pressure. Emission devices must be installed to operate at the minimum and not above the maximum sprinkler head pressure as published by the manufacturer for the nozzle and head spacing that is used. Methods to achieve the water pressure requirements include, but are not limited to, flow control valves, a pressure regulator or pressure compensating spray heads.

J104.4 Misting. Misting must be kept to a minimum and may not be used as an irrigation method for shrubs and groundcover.

J104.5 Piping.

J104.5.1 Velocity. Piping in *irrigation systems* must be designed and installed so that the flow of water in the pipe will not exceed a velocity of 5 feet per second for polyvinyl chloride (PVC) pipe or exceed the manufacturer's recommendation for other piping materials.

J104.5.2 PVC pipe primer solvent. All new *irrigation systems* installed using PVC pipe and fittings must be primed with a colored primer prior to applying the PVC cement in accordance with the *Dallas Plumbing Code* and the *Dallas One-and Two-Family Dwelling Code*.

J104.5.3 Depth coverage of piping. Piping must be installed to provide a minimum depth coverage of 6 inches of select backfill between the top of the pipe and the natural grade of the topsoil. All portions of the *irrigation system* that fail to meet this standard must be noted on the irrigation plan. If the area being irrigated has rock at a depth of 6 inches or less, select backfill may be mounded over the pipe. Mounding must be noted on the irrigation plan and discussed with the *irrigation system* owner or owner's representative to address any safety issues. All trenches and holes created during installation of an *irrigation system* must be backfilled and compacted to the original grade. Mechanical excavation is not allowed where damage could occur to a tree root system per Section 51A-10.136 of the *Dallas Development Code*.

Exception: If a utility, man-made structure or roots create an unavoidable obstacle which makes the 6 inch depth coverage requirement impractical, the piping must be installed to provide a minimum of 2 inches of select backfill between the top of the pipe and the natural grade of the topsoil.

J104.6 Irrigation zones. *Irrigation systems* must have separate zones based on plant material type, microclimate factors, topographic features, soil conditions and hydrological requirements. Zones must be designed and installed so that all of the emission devices in that zone irrigate at the same precipitation rate.

J104.7 Spray over impervious surfaces prohibited. *Irrigation systems* must not spray water over surfaces made of concrete, asphalt, brick, wood, stones set with mortar or any other impervious material, such as, but not limited to, walls, fences, sidewalks, streets, etc.

J104.8 Master valve. A master valve must be installed on the discharge side of the backflow prevention device on all new installations in an approved valve box.

J104.9 Rain and freeze shut-off devices. All automatically controlled *irrigation systems* must include sensors or other technology designed to inhibit or interrupt operation of the *irrigation system* during periods of moisture, rainfall or freezing temperatures. Rain or moisture and freeze shut-off technology must be installed according to the manufacturer's published recommendations. All existing automatic *irrigation systems* must include a sensor or other technology designed to inhibit or interrupt operation of the *irrigation system* during periods of moisture, rainfall or temperatures of 37° or below.

J104.10 Valves. All new *irrigation systems* and major *maintenance, alterations, repairs or service*, including repair or replacement of the backflow device, must include an isolation valve and y-type strainer between the water meter and the backflow prevention device. A master valve must be installed after the backflow preventer. Zone valve(s), station solenoid valve(s), an automatic master valve and isolation valves must be installed in an approved valve box for accessibility, repair and service.

J104.11 Irrigation system wiring.

J104.11.1 Underground electrical wiring. Underground electrical wiring used to connect an automatic controller to any electrical component of the *irrigation system* must be listed by Underwriters Laboratories as acceptable for direct underground burial.

J104.11.2 Component wiring size. Electrical wiring that connects any *irrigation system* electrical components must be sized according to the manufacturer's recommendation.

J104.11.3 Wire splicing. Electrical wire splices which may be exposed to moisture must be waterproof as certified by the wire splice manufacturer. Electrical splice locations must be noted on the irrigation plan.

J104.11.4 Automatic controller wiring. Underground electrical wiring that connects an automatic controller to any electrical component of the *irrigation system* must be buried with a minimum of 6 inches of select backfill.

J104.11.5 Exposed wiring. All exposed wiring must be protected from physical damage in compliance with the *Dallas Electric Code*.

Exception: Listed cord and plug.

J104.12 Non-potable water. Water contained within the piping of an *irrigation system* is deemed to be non-potable. No drinking or domestic water usage, such as, but not limited to, filling swimming pools or decorative fountains, may be connected to an *irrigation system*. If a hose bibb (an outdoor water faucet that has hose threads on the spout) is connected to an *irrigation system* for the purpose of providing supplemental water to an area, the hose bibb must be installed using a quick coupler key on a quick coupler installed in a covered purple valve box and the hose bibb and any hoses connected to the bibb must be labeled "non-potable, not safe for drinking." An isolation valve must be installed upstream of a quick coupler connecting a hose bibb to an *irrigation system*.

J104.13 Check valves. Check valves are required where elevation differences may result in low head drainage. Check valves may be located at the sprinkler head(s) or on the lateral lines.

J104.14 Direct supervision. Job site supervision is required by either a licensed irrigator or *irrigation technician* while work is being performed. When a licensed irrigator is not onsite, the licensed irrigator shall be responsible for ensuring that a licensed *irrigation technician* is on-site to supervise the installation of the *irrigation system*.

J104.15 Programmable irrigation controller. All new *irrigation system* installations require the installation of a programmable irrigation controller. The programmable irrigation controller must be equipped with an emergency back-up power supply in the event of a primary power failure.

J104.15.1 Manufacturer's instructions. A programmable irrigation controller must be installed according to the manufacturer's installation instructions.

J104.15.2 Maximum height. A programmable irrigation controller may not be mounted more than 60 inches above a level floor surface.

J104.15.3 Power surges. The electrical power supplying a programmable irrigation controller must be protected from power surges or utilize a dedicated electrical circuit.

J104.15.4 Minimum installation distance. A programmable irrigation controller must be installed at least 15 inches from center to any side wall or similar obstruction.

Exception: When the manufacturer's installation instructions require a lesser distance.

SECTION J105 COMPLETION AND MAINTENANCE

J105.1 Completion of irrigation system installation.

J105.1.1 Completion. The licensed irrigator, installer or technician shall complete the following items upon completion of the *irrigation system* installation:

1. A final "walk through" with the *irrigation system's* owner or the owner's representative to explain the operation of the system.
2. A maintenance checklist with the signature of the *irrigation system's* owner or owner's representative and signed, dated and sealed by the licensed irrigator, installer or technician. If the *irrigation system's* owner or owner's representative is unwilling or unable to sign the maintenance checklist, the irrigator shall note the time and date of the refusal on the *irrigation system's* owner or owner's representative's signature line. The *irrigation system* owner or owner's representative will be given the original maintenance checklist and a duplicate copy of the maintenance checklist shall be maintained by the licensed irrigator. The items on the maintenance checklist must include but are not limited to:
 - 2.1. The manufacturer's manual for the automatic controller.
 - 2.2. A seasonal (spring, summer, fall, winter) watering schedule based on either current/real time evapotranspiration or monthly historical reference evapotranspiration (historical ET) data, monthly effective rainfall estimates, plant landscape coefficient factors and site factors.

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- 2.3. A list of components, such as the nozzle or pump filters, and other such components that require maintenance and the recommended frequency for the service.
3. A permanent sticker which contains the licensed irrigator's name, license number, company name, telephone number and the dates of the warranty period affixed to each programmable irrigation controller installed by the licensed irrigator, installer or technician. If the *irrigation system* is manual, the sticker must be affixed to the original maintenance checklist. Programmable irrigation controllers listed and installed for outdoor installation require a water proof permanent sticker. The information contained on the sticker, whether indoor or outdoor, must be printed with waterproof ink.
4. Provide the *irrigation system's* owner or owner's representative a copy of the irrigation plan indicating the actual system installation.
5. The statement, "This irrigation system has been installed in accordance with all applicable state and local laws, ordinances, rules, regulations or orders. I have tested the system and determined that it has been installed according to the irrigation plan and is properly adjusted for the most efficient application of water at this time."
6. Provide a certificate of compliance to the building official and the property owner or the property owner's representative stating that the requirements of this section and 30 *Texas Administrative Code* Chapter 344 have been completed.

J105.2 Maintenance, alteration, repair or service of irrigation systems.

J105.2.1 Irrigator responsibility. The irrigator is responsible for all work that the irrigator performed during the *maintenance, alteration, repair or service* of an *irrigation system* during the warranty period. The irrigator or business owner is not responsible for the professional negligence of any other irrigator who subsequently conducts any irrigation service on the same *irrigation system*.

J105.2.2 Trenches and holes. All trenches and holes created during the *maintenance, alteration, repair or service* of an *irrigation system* must be returned to the original grade with compacted select backfill.

J105.2.3 PVC primer. Colored PVC pipe primer solvent must be used on all pipes and fittings used in the *maintenance, alteration, repair or service* of an *irrigation system* in accordance with the *Dallas Plumbing Code* or *Dallas One- and Two-Family Dwelling Code*.

J105.2.4 Maintenance, alteration, repair or service. *When maintenance, alteration, repair or service* of an *irrigation system* is required and performed and an isolation valve, y-type strainer, rain and freeze sensors or approved backflow device are not present, the valve(s) and or sensors must be installed, permitted, tested and inspected. Existing approved backflow device(s) must be tested and test report given to the building official.

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**SECTION J106
RECLAIMED WATER OR WATER WELLS**

J106.1 Reclaimed water or water wells. Reclaimed water, storm water, gray water or water wells may be utilized in landscape *irrigation systems*.

J106.1.1 Connections. An *irrigation system* utilizing reclaimed water, storm water, gray water or well water must not be directly connected to the potable water supply.

Exception: When potable water is protected by an air gap as defined by and installed in accordance with the *Dallas Plumbing Code* per the *Dallas One- and Two-Family Dwelling Code*.

J106.1.2 Edible crops. Water from an *irrigation system* utilizing reclaimed water, storm water, gray water or well water may not make direct contact with edible crops, unless the crop is pasteurized before consumption.

J106.1.3 Property lines. An *irrigation system* utilizing reclaimed water, storm water, gray water or well water must not spray water across property lines that do not belong to the *irrigation system's* owner.

J106.1.4 Purple components. An *irrigation system* utilizing reclaimed water, storm water, gray water or well water must be installed using purple components as detailed in the *Dallas Plumbing Code* per the *Dallas One- and Two-Family Dwelling Code*.

J106.1.5 Sign. A minimum of an 8 inch by 8 inch sign with purple background and white letters must be prominently posted in the area that is being irrigated utilizing reclaimed water, storm water, gray water or well water, that reads, "RECLAIMED WATER - DO NOT DRINK" and "AGUA DE RECUPERACION - NO BEBER."

J106.1.6 Backflow prevention. Backflow prevention on the reclaimed water supply line must be in accordance with the *Dallas Plumbing Code*, *Dallas One- and Two-Family Dwelling Code*, and Dallas Water Utilities rules and regulations."

54. Appendices A, B, D, and F of the 2012 International Plumbing Code are not adopted.

55. All chapters of the 2012 International Plumbing Code adopted by this ordinance are subchapters of Chapter 54 of the Dallas City Code, as amended.

56. All references in the 2012 International Plumbing Code to the fire code, building code, mechanical code, electrical code, residential code, existing building code, energy conservation code, and fuel gas code refer, respectively, to Chapters 16, 53, 55, 56, 57, 58, 59, and 60 of the Dallas City Code.

SECTION 2. That a person violating a provision of this ordinance, upon conviction, is punishable by a fine not to exceed \$2,000. No offense committed and no liability, penalty, or forfeiture, either civil or criminal, incurred prior to the effective date of this ordinance will be discharged or affected by this ordinance. Prosecutions and suits for such offenses, liabilities, penalties, and forfeitures may be instituted, and causes of action pending on the effective date of this ordinance may proceed, as if the former laws applicable at the time the offense, liability, penalty, or forfeiture was committed or incurred had not been amended, repealed, reenacted, or superseded, and all former laws will continue in effect for these purposes.

SECTION 3. That Chapter 54 of the Dallas City Code, as amended, will remain in full force and effect, save and except as amended by this ordinance. Any existing structure, system, development project, or registration that is not required to come into compliance with a requirement of this ordinance will be governed by the requirement as it existed in the former law last applicable to the structure, system, development project, or registration, and all former laws will continue in effect for this purpose.

SECTION 4. That the terms and provisions of this ordinance are severable and are governed by Section 1-4 of Chapter 1 of the Dallas City Code, as amended.

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SECTION 5. That this ordinance will take effect on November 1, 2013, and it is accordingly so ordained.

APPROVED AS TO FORM:

WARREN M. S. ERNST, Interim City Attorney

By Casey Buyess
Assistant City Attorney

Passed SEP 25 2013

For a Copy of the exhibit
Please contact
The City Secretary's Office

