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10-31-08

ORDINANCE NO. **27418**

An ordinance amending Chapter 54, "Dallas Plumbing Code," and Chapter 57, "Dallas One- and Two-Family Dwelling Code," of the Dallas City Code by adding new requirements for designing, installing, and maintaining landscape irrigation systems in order to comply with new state law requirements; providing a penalty not to exceed \$2,000; providing a saving clause; providing a severability clause; and providing an effective date. Now, Therefore,

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 is amended by adding a new Section 315, "Irrigation Systems," to read as follows:

**"SECTION 315  
IRRIGATION SYSTEMS**

**315.1 Irrigation systems.** All irrigation systems must comply with the provisions of Appendix J, "Standards for Designing, Installing and Maintaining Landscape Irrigation Systems," of the *Dallas Plumbing Code*, as amended."

SECTION 2. That Chapter 54, "Dallas Plumbing Code," of the Dallas City Code is amended by adding a new Appendix J, "Standards for Designing, Installing and Maintaining Landscape Irrigation Systems," 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 Agricultural 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 component;
  - 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 Engineers or the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California, the *Uniform Plumbing Code*, the *International 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, alternations, 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 bib (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 bib must be installed using a quick coupler key on a quick coupler installed in a covered purple valve box and the hose bib and any hoses connected to the bib must be labeled "non potable, not safe for drinking." An isolation valve must be installed upstream of a quick coupler connecting a hose bib 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.** Effective January 1, 2010, job site supervision will be 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.
- 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.

## **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."

SECTION 3. That Chapter 57, "Dallas-One-and Two Family Dwelling Code," of the Dallas City Code is amended by adding a new Section P2609, "Irrigation Systems," to read as follows:

**"SECTION P2609  
IRRIGATION SYSTEMS**

**P2609.1 Irrigation systems.** All irrigation systems must comply with the provisions of Appendix J, "Standards for Designing, Installing and Maintaining Landscape Irrigation Systems," of the *Dallas Plumbing Code*."

SECTION 4. 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 5. That Chapters 54 and 57 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.

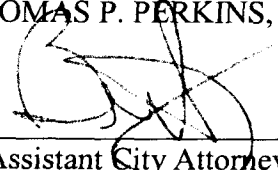
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SECTION 6. That the terms and provisions of this ordinance are severable and are governed by Section 1-4 of Chapter 1 of the Dallas City Code, as amended.

SECTION 7. That this ordinance will take effect on January 1, 2009, and it is accordingly so ordained.

APPROVED AS TO FORM:  
THOMAS P. PERKINS, JR., City Attorney

By  \_\_\_\_\_  
Assistant City Attorney

Passed DEC 10 2008