City of Desoto
Code of Ordinances
Utilities: Article 13.1300, Irrigation System Regulations

Sec. 13.1311 Minimum Standards for Irrigation Plan Design

(a) An irrigator shall prepare an irrigation plan for each site where a new irrigation system will be installed. An approved paper copy of the irrigation plan must be on the job site at all times during the installation and inspection of the irrigation system. A drawing showing the actual installation of the system is due to each irrigation system owner after all new irrigation system installations. During the installation of the irrigation system, 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; and

(3) go unnoted in red on the irrigation plan.

(b) The irrigation plan must include complete coverage of the area to be irrigated. If a system does not provide complete coverage of the area to be irrigated, it must be noted on the irrigation plan.

(c) All irrigation plans used for construction must be drawn to scale. The plan must include, at a minimum, the following information:

(1) the irrigator's seal, signature, and date of signing;

(2) all major physical features and the boundaries of the areas to be watered;

(3) a North arrow;

(4) a legend;

(5) the zone flow measurement for each zone;

(6) location and type of each:

(A) controller; and

(B) sensor (rain and moisture);

(7) location, type, and size of each:

(A) water source, such as, but not limited to a water meter and point(s) of connection;

(B) backflow prevention device (identify type);

(C) water emission device, including, but not limited to, spray heads, rotary sprinkler heads, quick-couplers, bubblers, drip, or micro-sprays;

(D) valve, including but not limited to, zone valves, master valves, and isolation valves;

(E) pressure regulation component; and

(F) main line and lateral piping.

(8) the scale used; and

(9) the design pressure.

Sec. 13.1312 Minimum Design and Installation Requirements

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

(b) Spacing:

(1) 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;

(2) new irrigation systems shall not utilize above-ground spray emission devices in landscapes that are less than 48 inches not including the impervious surfaces in either length or width and 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 shall 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; and

(3) 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.

(c) 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.

(d) Piping. Piping in irrigation systems must be designed and installed so that the flow of water in the pipe will not exceed a velocity of five feet per second for polyvinyl chloride (PVC) pipe.

(e) Irrigation Zones. Irrigation systems shall have separate zones based on plant material type, microclimate factors, topographic features, soil conditions, and hydrological requirements. All non-turf landscape areas shall be designed with subsurface irrigation, drip irrigation, and/or pressure compensating tubing.

(f) Matched Precipitation Rate. Zones must be designed and installed so that all of the emission devices in that zone irrigate at the same precipitation rate.

(g) Irrigation systems shall 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, and streets.

(h) Master Valve. A flow control master valve shall be installed on the discharge side of the backflow prevention device on all new installations.

(i) Pop-up Heads. Pop-up heads shall be installed at grade level and operated to extend above all landscape turfgrass.

(j) PVC Pipe Primer Solvent. All new irrigation systems that are installed using PVC pipe and fittings shall be primed with a colored primer prior to applying the PVC cement in accordance with the City Code of Ordinances.

(k) Automatic Controllers. All new irrigation systems must include an automatic controller capable of providing all of the following features:

(1) multiple irrigation programs with at least three start times per program;

(2) limiting the irrigation frequency to once every 7 days and once every 14 days; and,

(3) water budgeting feature.

(l) Operational Rain or Moisture Shut-off Devices or Other Technology. All new automatically controlled irrigation systems must include operational sensors or other technology designed to inhibit or interrupt operation of the irrigation system during periods of moisture or rainfall. Rain or moisture shut-off technology must be installed according to the manufacturer's published recommendations. Rain or moisture shut-off devices installed must be of a type established and published by the Building Official.

(m) Isolation Valve. All new irrigation systems must include an isolation valve between the water meter and the backflow prevention device.

(n) Depth Coverage of Piping. Piping in all irrigation systems must be installed according to the manufacturer's published specifications for depth coverage of piping:

(1) if the manufacturer has not published specifications for depth coverage of piping, the piping must be installed to provide minimum depth coverage of

six 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 six 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;

(2) if a utility, man-made structure or roots create an unavoidable obstacle, which makes the six-inch depth coverage requirement impractical, the piping shall be installed to provide a minimum of two inches of select backfill between the top of the pipe and the natural grade of the topsoil; and

(3) all trenches and holes created during installation of an irrigation system must be backfilled and compacted to the original grade.

(o) Wiring Irrigation Systems:

(1) 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 burial underground;

(2) electrical wiring that connects any electrical components of an irrigation system must be sized according to the manufacturer's recommendation;

(3) electrical wire splices which may be exposed to moisture must be waterproof as certified by the wire splice manufacturer; and

(4) underground electrical wiring that connects an automatic controller to any electrical component of the irrigation system must be buried with a minimum of six inches of select backfill.

(p) 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, shall 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.

(q) Beginning January 1, 2010, either a licensed irrigator or a licensed irrigation technician shall be on-site at all times while the landscape irrigation system is being installed. When an irrigator is not onsite, the irrigator shall be responsible for ensuring that a licensed irrigation technician is on-site to supervise the installation of the irrigation system.

Sec. 13.1313 Backflow Prevention Methods and Devices

(a) Any irrigation system that is connected to the potable water supply must be connected in accordance with the Plumbing Article, Texas Commission on Environmental Quality rules, this Article, and other relevant law. All backflow prevention assemblies shall be of a type and model approved by the Building Official. The backflow prevention device 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.

(b) If conditions that present a health hazard exist, one of the following methods must be used to prevent backflow:

1. An air gap may be used if:

    a. there is an unobstructed physical separation; and

    b. the distance from the lowest point of the water supply outlet to the flood rim of the fixture or assembly into which the outlet discharges is at least one inch or twice the diameter of the water supply outlet, whichever is greater.

2. Reduced pressure principle backflow prevention assemblies may be used if:

    a. the device is installed at a minimum of 12 inches above ground in a location that will ensure that the assembly will not be submerged; and

    b. drainage is provided for any water that may be discharged through the assembly relief valve.

3. Pressure vacuum breakers may be used if:

    a. no back-pressure condition will occur; and

    b. the device is installed at a minimum of 12 inches above any downstream piping and the highest downstream opening. Pop-up sprinklers are measured from the retracted position from the top of the sprinkler.

4. Atmospheric vacuum breakers may be used if:

    a. no back-pressure will be present;

    b. there are no shutoff valves downstream from the atmospheric vacuum breaker;

    c. the device is installed at a minimum of six inches above any downstream piping and the highest downstream opening. Pop-up

sprinklers are measured from the retracted position from the top of the sprinkler;

d. there is no continuous pressure on the supply side of the atmospheric vacuum breaker for more than 12 hours in any 24-hour period; and

e. a separate atmospheric vacuum breaker is installed on the discharge side of each irrigation control valve, between the valve and all the emission devices that the valve controls.

C. Backflow prevention devices used in applications designated as health hazards must be tested upon installation and annually thereafter.

D. If there are no conditions that present a health hazard, double check valve backflow prevention assemblies may be used to prevent backflow if the device is tested upon installation and test cocks are used for testing only**.**

E. If a double check valve is installed below ground:

(1) test cocks must be plugged, except when the double check valve is being tested;

(2) test cock plugs must be threaded, water-tight, and made of non-ferrous material;

(3) a y-type strainer is installed on the inlet side of the double check valve;

(4) there must be a clearance between any fill material and the bottom of the double check valve to allow space for testing and repair; and

(5) there must be space on the side of the double check valve to test and repair the double check valve.

(f) If an irrigation system is connected to a potable water supply and requires major maintenance, alteration, repair, or service, the system must be connected to the potable water supply through an approved, properly installed backflow prevention method before any major maintenance, alteration, repair, or service is performed.

(g) If an irrigation system is connected to a potable water supply through a double check valve, pressure vacuum breaker, or reduced pressure principle backflow assembly and includes an automatic master valve on the system, the automatic master valve must be installed on the discharge side of the backflow prevention assembly.

(h) The irrigator shall ensure the backflow prevention device is tested by a licensed Backflow Prevention Assembly Tester that is registered with the City of DeSoto prior to being placed in service and the test results shall be provided to the City and to the irrigation system's owner or owner's representative within ten (10) business days of testing of the backflow prevention device.

Sec. 13.1316 Maintenance, Alteration, Repair, or Service of Irrigation Systems

(a) 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.

(b) 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 International Plumbing Code (Section 605).

(c) When maintenance, alteration, repair or service of an irrigation system involves excavation work at the water meter or backflow prevention device, an isolation valve, if an isolation valve is not present