



Standard Operating Procedures

For Irrigation System Installation

This guide lists normally required inspections for irrigation installations. There may be more or fewer required inspections at the discretion of the Building Official in order to verify code compliance. It is the responsibility of the job superintendent or homeowner to assure that the project is ready for inspection and accessible for the inspector. The City of League City adheres to and enforces the 2015 International Residential Codes, 2015 International Building Codes, and the 2014 National Electrical Code.

1. Irrigation plans submittals

- 1.1 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.
- 1.2 All irrigation plans used for construction must be drawn to scale. The plan must include, at a minimum, the following information:
 - 1.2.1 The irrigator's seal, signature, and date of signing
 - 1.2.2 All major physical features and the boundaries of the areas to be watered
 - 1.2.3 A North arrow
 - 1.2.4 A legend
 - 1.2.5 The zone flow measurement for each zone
 - 1.2.6 Location and type of controller and sensor (or example, but not limited to, rain, moisture, wind, flow, or freeze)
 - 1.2.7 The scale used
 - 1.2.8 The design pressure
 - 1.2.9 Location, type, and size of each of the following:
 - 1.2.9.1 Water source, such as, but not limited to a water meter and point(s) of connection
 - 1.2.9.2 Backflow prevention device
 - 1.2.9.3 Water emission device, including, but not limited to, spray heads, rotary sprinkler heads, quick-couplers, bubblers, drip, or micro-sprays
 - 1.2.9.4 Valve, including, but not limited to, zone valves, master valves, and isolation valves
 - 1.2.9.5 Pressure regulation component
 - 1.2.9.6 Main line and lateral piping

2. All inspections for irrigation installation

- 2.1 Proper address clearly visible from the street.
- 2.2 City-approved Plans on site.
- 2.3 Leave Correction or approval notice at all inspections.
- 2.4 Verify previous notice on re-inspections.
- 2.5 Verify inspections comments from printout on re-inspections.
- 2.6 Check general cleanliness of job sites.

3. Backflow assembly inspection (one inspection)
 - 3.1 Locate backflow preventer and League City test report sheet. Verify information on the sheet matches the backflow preventer serial number and address.
 - 3.2 Verify that the test results are correct.

4. One stop inspection
 - 4.1 Locate backflow preventer and League City test report sheet. Verify information on the sheet matches the backflow preventer serial number and address.
 - 4.2 Verify that the test results are correct.
 - 4.3 No spray heads in areas less than 48" in length or width (not including impervious services). Narrow paved walkways, jogging paths, etc. located in cemeteries, parks, golf courses, or other public areas may be exempted if the run off drains into a landscaped area.
 - 4.4 Pop up or spray heads used in new irrigation systems must be direct flow away from a hard scape and cannot be installed 4" from a hard scape.
 - 4.5 Spray heads must not spray water over concrete, asphalt, brick, wood, stones set with mortar, or other impervious materials on walls, fences, sidewalks, streets, etc.
 - 4.6 Supply line from meter and tie in locations must be a minimum of SH-40 PVC or type M copper, 12" deep.
 - 4.7 Supply line to backflow preventer to be insulated and the backflow preventer to be a minimum of one foot above the highest spray head.

5. Minimum design and installation requirements (per TCEQ rule §344.62)
 - 5.1 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.
 - 5.2 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.
 - 5.3 New irrigation systems shall not utilize above-ground spray emission devices in landscapes that are less than 48" 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 4" from a hard scape, such as, but not limited to, a building foundation, fence, concrete, asphalt, pavers, or stones set with mortar.
 - 5.4 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.
 - 5.5 For 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.
- 5.6 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' per second for polyvinyl chloride (PVC) pipe.
 - 5.7 Irrigation systems shall have separate zones based on plant material type, microclimate factors, topographic features, soil conditions, and hydrological requirements.
 - 5.8 Zones must be designed and installed so that all of the emission devices in that zone irrigate at the same precipitation rate.
 - 5.9 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, streets, etc.
 - 5.10 When provided, a master valve shall be installed on the discharge side of the backflow prevention device on all new installations.
 - 5.11 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 Uniform Plumbing Code (Section 316) or the International Plumbing Code (Section 605).
 - 5.12 All new automatically controlled irrigation systems must include 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. Repairs to existing automatic irrigation systems that require replacement of an existing controller must include a sensor or other technology designed to inhibit or interrupt operation of the irrigation system during periods of moisture or rainfall. El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, Brewster, Terrell, Loving, Winkler, Ward, Reeves, Ector, Crane, and Pecos are excluded from this requirement.
 - 5.13 All new irrigation systems must include an isolation valve between the water meter and the backflow prevention device.
 - 5.14 Piping in all irrigation systems must be installed according to the manufacturer's published specifications for depth coverage of piping.
 - 5.14.1 If the manufacturer has not published specifications for depth coverage of piping, the piping must be installed to provide minimum depth coverage of 6" 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" 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.
 - 5.14.2 If a utility, man-made structure or roots create an unavoidable obstacle, which makes the 6-inch depth coverage requirement impractical, the piping shall be installed to provide a minimum of 2" of select backfill between the top of the pipe and the natural grade of the topsoil.
 - 5.14.3 All trenches and holes created during installation of an irrigation system must be backfilled and compacted to the original grade.

- 5.15 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.
- 5.16 Electrical wiring that connects any electrical components of an irrigation system must be sized according to the manufacturer's recommendation.
- 5.17 Electrical wire splices which may be exposed to moisture must be waterproof as certified by the wire splice manufacturer.
- 5.18 Underground electrical wiring that connects an automatic controller to any electrical component of the irrigation system must be buried with a minimum of 6" of select backfill.
- 5.19 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.