City Code Chapter 14, Buildings and Building Regulations

Article 6, Plumbing Code

DIVISION 2. WATER CONSERVATION

Section 14.120. Definitions.

Terms in this division have the following meanings unless otherwise specified:

Adjustable flow control means a mechanism that can be adjusted to restrict water flow through a valve, thus reducing discharge pressure.

As-built plan means a scale drawing of a landscape irrigation system showing the actual location of all major components of the system, including mainline pipes, lateral pipes, sprinkler heads and/or emitters, master and zone valves, pressure regulating devices, and backflow prevention devices.

Backflow prevention device means a device that prevents the undesirable reversal of flow of water within a piping system.

Check valve means a device that allows water to flow in one direction only and prevents flow through the system unless a pre-set pressure has been achieved.

Commercial water customer means a city water customer that uses water for service-related uses such as restaurants, hotels/motels, retail stores, car washes, laundromats/dry cleaners, physician's offices and office buildings.

Conveyor carwash means a commercial car wash that uses a conveyor belt to move vehicles through various washing stations.

Cooling system means a heating, ventilation and air conditioning system that uses water for cooling purposes.

Cycles of concentration means a measure of the number of times the solids content of recirculating water has been increased over that of the make-up water. Example: If the circulating water has four times the solids concentration compared to that of the make up water, then the cycles of concentration is four.

Decorative water features means features such as fountains, waterfalls, landscape lakes or ponds, and other aesthetic features where the use is entirely ornamental and serves no other functional purpose.

Design pressure means the desired head pressure plus all pressure losses that occur when supplying water to a specific head.

Director means the director of the Water and Wastewater Department, or a person designated by the director to act in his or her behalf, including the water conservation coordinator.

Evapotranspiration means the combined water losses though evaporation (the process of water changing from liquid into vapor) and transpiration (the process by which plants lose water through small surface openings called stomata).

Existing means in existence before September 30, 2006.

Flow meter means a device that monitors, measures, and/or records the rate of flow of water, and shuts off the system when flows exceed a specified rate.

Flow restrictor means a device which limits the flow of water through an opening.

Head to head spacing means the spacing of sprinkler heads equal to the published radius of the head.

ICI means an industrial water customer, a commercial water customer, or an institutional water customer.

Impervious surface means an area which is constructed in a way that prevents water from penetrating into the ground. Examples of impervious surfaces are concrete, asphalt, pavers and stones set with mortar.

In-bay automatic carwash means a commercial car wash in which the vehicle remains stationary within a wash bay while automatic arms move back and forth over the vehicle to clean it.

Industrial water customer means a city water customer that uses water for manufacturing and/or fabrication of goods.

Installer means a person who installs a landscape irrigation system.

Institutional water customer means a city water customer that uses water for institutional facilities such as hospitals, assisted living facilities, child day care facilities, correctional institutions, college/professional schools, elementary/secondary schools, and places of religious assembly.

Irrigation system evaluation means an inspection of a landscape irrigation system, including a review of design appropriateness for current landscape requirements, proper functioning of sprinkler heads, valves and other components, precipitation rates, irrigation schedules, and maintenance plan.

Landscape irrigation system means a system of fixed pipes with heads and/or emitters that apply water to landscape plants and/or turf.

Landscape strips means a landscaped area that has dimensions less than six feet in length and/or width, and are bounded by impervious surfaces along two or more perimeters.

Low-angle spray heads means spray heads that direct water droplets closer to the surface of the ground, thus reducing losses to wind drift and evaporation.

Low-head drainage means a condition in which water drains partially or completely out of a lateral line through a sprinkler head after an irrigation cycle is completed.

Master valve means a remote control automatic valve, usually located after the backflow prevention device, that controls the entire irrigation system and protects the system from leaking in case of a ruptured main or malfunctioning downstream valve.

Matched precipitation rates means a condition in which all sprinkler heads within a zone apply water at the same rate.

Mobile carwash means a commercial business equipped with a vehicle or trailer-mounted self-contained washing system with water or detergent solution, storage tank, high pressure/low flow pumping equipment, hoses, spray wand and related appurtenances.

New landscape irrigation system means a landscape irrigation system installed after September 30, 2006.

On-premise laundry facility means a laundry facility located on the premises of a commercial or institutional business, and serving only the customers or residents of that facility. Examples of on-premise laundry facilities include those found at hospitals, nursing homes, and hotels.

Pop-up spray heads means a non-rotating hydraulically operated device that discharges water into the air through a nozzle or nozzles.

Positive shutoff device means a device which permits water to flow through it only when an outside force or pressure is applied to it.

Pre-rinse spray valve means a high-pressure spray attachment used in commercial and institutional kitchens to pre-rinse dishes before loading them into a dishwasher.

Pressure regulating device means a device that can be mechanically adjusted to maintain a constant discharge pressure regardless of inlet pressure.

Rain shutoff device means a device designed to stop the flow of water to a landscape irrigation system when rainfall has been detected.

Self-service carwash means a commercial car wash in which the vehicle is washed manually within a wash bay by the customer using high-pressure sprayers and brushes.

Shrub riser means a device that elevates a sprinkler head several feet above the ground surface so that water is applied over the top of shrubs and other tall landscape plants.

Single-pass water cooling means a process in which water is circulated only once through a piece of equipment to cool it before being discharged to the waste stream. Single-pass cooling, also known as once-through cooling, is often used for CAT scan, x-

ray equipment, degreasers, hydraulic equipment, condensers, air compressors, welding machines, vacuum pumps, ice machines and air conditioners.

Soil moisture shutoff device means a device designed to prevent the flow of water to a landscape irrigation system when adequate moisture is already present in the soil.

Solenoid shutoff valve means a device which opens a valve only when an electrical current is applied, and closes the valve when no current is present.

Static water pressure means the pressure of water when it is not moving.

Subsurface drip means the slow application of water, usually under low pressure, beneath the soil surface.

Surface drip means the slow application of water, usually under pressure, at the soil surface.

Swing joint means a flexible joint or pipe connecting a sprinkler head to a pipe.

Water budget means a feature on a landscape irrigation system controller which allows the user to set a monthly or seasonal water schedule based on evapotranspiration and/or rainfall amounts.

Water recirculating system means a system of pumps, tanks, and treatment components used to treat and reuse water continuously for a single purpose.

Zone valves mean automatic valves that control a single zone of a landscape irrigation system.

Section 14.121. Car washes.

(a) New conveyer car washes on which construction begins after September 30, 2006 must be equipped with a water recycling system.

(b) New in-bay automatic car washes on which construction begins after September 30, 2006 must use water recycling systems, ultra-low-flow spray nozzles or alternative means to achieve fresh water usage of no more than 55 gallons per vehicle.

(c) New and existing self-service and mobile car washes must utilize positive shutoff device spray wands with a flow rate of no more than three gallons per minute.

Section 14.122. Cooling systems.

(a) New cooling systems on which construction begins after September 30, 2006 may not utilize single-pass water cooling for any purpose.

(b) New cooling systems on which construction begins after September 30, 2006 must be designed and operated to achieve a minimum of four cycles of concentration.

Section 14.123. Decorative water features.

(a) New decorative water features on which construction begins after September 30, 2006 must be equipped with a water recirculating system.

(b) Existing decorative water features must be retrofitted with a water recirculating system by September 30, 2007.

Section 14.124. Dining facilities.

(a) New commercial and institutional garbage disposals installed after September 30, 2006 must be equipped with flow restrictors and solenoid shutoff valves.

(b) Existing commercial and institutional garbage disposals must be retrofitted with flow restrictors and solenoid shutoff valves by September 30, 2007.

(c) New commercial and institutional ice machines installed after September 30, 2006 should be equipped with air-cooled, instead of water-cooled, condensers. If a water-cooled model is used, the cooling system must be equipped with a water recycling system.

(d) Pre-rinse spray valves must be equipped with positive shutoff devices and must meet the 1.6 gallons per minute performance standard established under Texas Health and Safety Code Section 372.005.

Section 14.125. On-premise laundry facilities.

New commercial, industrial and institutional on-premise laundry facilities on which construction begins after September 30, 2006 must be equipped with a water recycling system.

Section 14.126. Landscape irrigation systems.

(a) All new landscape irrigation systems must be designed and installed in accordance with the following requirements:

(1) Sprinkler heads must be spaced to provide for head to head coverage or as per manufacturers recommendations, with adjustments for local wind conditions as needed.

(2) Sprinkler heads within a valved zone must have matched precipitation rates.

(3) Sprinkler heads must be placed at least 6 inches from impervious surfaces such as streets, sidewalks and driveways.

(4) Use of sprinklers is prohibited on landscaped strips less than 6 feet wide. Surface or subsurface drip irrigation may be used in lieu of sprinklers.

(5) Sprinkler heads must be attached to rigid lateral lines with flexible pipe or swing joints.

(6) Sprinkler heads must be installed in a manner that meets the needs of plants at maturity. Pop-up heads must be high enough to clear mature turf.

(7) Use of low-angle spray heads is encouraged where appropriate.

(8) Use of shrub risers is prohibited. Surface or subsurface drip irrigation, or low-angle spray heads that direct water to the base of the plant may be used in lieu of shrub risers.

(9) Landscape irrigation systems must be equipped with controllers capable of providing multiple irrigation programs, with at least three start times per program.

(10) Landscape irrigation systems must be equipped with controllers capable of limiting irrigation frequency to once every 7 days and once every 14 days.

(11) Landscape irrigation systems must be equipped with controllers that have a water budgeting feature.

(12) Landscape irrigation systems must be equipped with a rain shutoff device or soil-moisture shutoff device that delays or terminates irrigation when conditions warrant.

(13) Landscape irrigation systems must consist of separate irrigated zones based on water requirements, so that turf and shrub areas, sun and shade areas, and flat and sloping areas are watered separately.

(14) All landscape irrigation systems must have a master valve.

(15) All remote control valves must be equipped with an adjustable flow control.

(16) All remote control valves must be enclosed in an accessible valve box.

(17) 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 line.

(18) Landscape irrigation systems must be designed to the lowest static water pressure in a 12 month period. If static pressure exceeds design pressure by 15 PSI or more, the master valve must be equipped with a pressure regulating device.

(19) If pressure differences of more than 10% occur between valved zones, a pressure regulating device must be installed on the high pressure zone(s).

(b) In addition to the requirements under section 14.126(a), new ICI and multi-family residential landscape irrigation systems must be designed, installed and operated in accordance with the following requirements:

(1) A separate metered water service must be utilized for the landscape irrigation system.

(2) Landscape irrigation systems must be equipped with a flow meter that will automatically shut down the irrigation system during excessive water flows.

(3) Landscape irrigation systems must be equipped with a freeze sensor that will automatically shut down the irrigation system when ambient temperatures fall below 32 degrees F.

(4) An irrigation system evaluation must be conducted at least once per year, and the results of the evaluation shall be provided to the director.

(c) All existing landscape irrigation systems must be retrofitted with a rain shutoff device or soil moisture shutoff device by September 30, 2007.

(d) Existing ICI and multi-family residential landscape irrigation systems must have an irrigation system evaluation conducted at least once per year, and the results of the evaluation shall be provided to the director.

(e) Installer requirements:

(1) An installer must apply for and obtain a city irrigation system plumbing permit before commencing installation of a landscape irrigation system. Applications for permits must be accompanied by an irrigation system design plan showing main and lateral piping, head placement, and hydraulic calculations.

(2) Upon completion, an installer must provide the customer with an as-built plan of the completed irrigation system showing locations of main and lateral piping, valves, and sprinkler heads. Location of valves must be noted in relation to at least two fixed positions.

(3) An installer must provide each customer with an efficient watering schedule for each season or each month based on 80% evapotranspiration.

(f) All landscape irrigation systems must be equipped with an approved backflow prevention device, and must meet the requirements of federal, state and local backflow regulations.

(g) All landscape irrigation systems must be designed and operated to meet federal, state and local regulatory requirements.

Section 14.127-14.130. Reserved.