

# Water Features, Pools, & Landscapes

*These general categories of water use are associated with many commercial establishments and some industrial sites. Not all sites have all these water uses. Careful consideration of actual need for such features should be given prior to design and construction, and the options requiring the least water should be carefully examined.*

## **Standards and Practices**

If water features, pools, or irrigated landscapes are included in a plan, consider the following elements:

Meter landscape areas, major water-using systems, and building areas separately. Use water treatment only if and when necessary.

Landscaping Water-Efficiency Measures — In many locations, landscape irrigation accounts for more than 50 percent of local water demands. Water-efficient landscape practices are increasingly important to free up water supplies for basic indoor water uses and businesses. Obtaining landscape water-use efficiency over the long term requires proper planning (design) for various landscape elements.

## **Functionality**

Address how landscape is going to be used:

- ◆ play, sports field (is artificial turf appropriate?)
- ◆ park
- ◆ median strip
- ◆ availability and appropriateness of reclaimed water or alternative supplies.

## **Soil Preparation**

Conduct a soil analysis. Amend the soil to a depth of at least six inches with organic material to provide needed plant nutrients.

Minimize runoff through use of pervious material, swales, terracing, rain gardens, and berms, as appropriate.

**Choose water feature and landscape options that require the least water. Apply the right amount of water to the right place at the right time.**





## *Plant Selection and Groupings*

- ◆ Use plants appropriate to the climate of the region.
- ◆ Group plants into hydrozones (irrigated areas reflecting plant water requirements).
- ◆ Use water-efficient varieties of turf.
- ◆ Avoid use of invasive species.

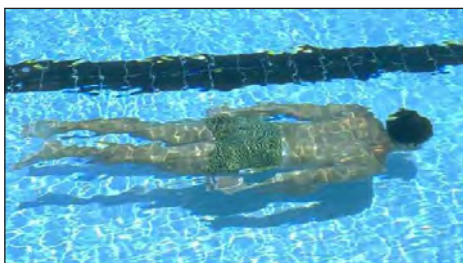
## *Irrigation Systems*

Irrigation systems replace water in the soil that is used by shrubs, trees, and grass, where natural moisture is inadequate for the intended landscape. The primary guideline for landscape irrigation design is to avoid over watering by applying the **right** amount of water, to the **right** place, at the **right** time.

More specific irrigation design and construction water-efficiency measures follow:

- ◆ install separate irrigation meters for landscaped areas.
- ◆ install irrigation equipment that meets the Irrigation Association design guidelines for maximum irrigation operational uniformity.
- ◆ for all new nonresidential landscapes not required to have a separate water-service meter, install a private irrigation sub-meter and backflow prevention valve between the point of connection on the domestic water service and the first irrigation valve.
- ◆ design for potential installation of irrigation hardware approved for reclaimed water, should it become available and if appropriate.
- ◆ design all irrigation systems to avoid runoff, overspray, low head drainage, and similar conditions.
- ◆ install a non-irrigated buffer along side areas where water flows off-site onto adjacent property, non-irrigated areas, walks, roadways, or structures.
- ◆ employ drip or low-volume irrigation equipment in buffers and medians strips and other areas where it is determined that overhead spray irrigation would result in waste of water due to excessive runoff or overspray.
- ◆ follow proper hydrozoning principles when designing irrigation systems to separately water turf and bedded areas.
- ◆ install a pressure regulator if water-supply pressure exceeds 80 psi.
- ◆ match precipitation rates on sprinkler heads within a hydrozone.
- ◆ install anti-drain check valves as needed to minimize or prevent low head drainage.

***Emphasize use of native plant materials in all landscapes, and ensure others are well adapted to local climatic conditions. Carefully avoid any and all invasive varieties. Ensure that maintenance personnel understand and can comply with these standards.***



- ◆ use Irrigation Association approved “smart controllers” — with dual or multiple programming capability, multiple start times, a percent switch, etc. — along with rain sensors, or use weather-based (ET) controllers.

Water losses occur through evaporation, splash out, backwashing the filter, and leaks.

Three elements govern good practice:

- ◆ design of the mechanical equipment to filter, clean, and operate the pool.
- ◆ design of the pool to minimize water loss.
- ◆ evaluating alternatives that use less water.

Specific water efficiency measures for water features and pools include:

- ◆ equip all pools, spas, and fountains with recirculating filtration equipment.
- ◆ design ground pools with splash troughs around the perimeter that drain back into the pool.
- ◆ install water meters on the make-up line. Monitor water use for abnormal flow increases that may indicate leaks that should be identified and repaired.
- ◆ use coated media filters where cost effective.
- ◆ use cartridge filters for smaller spas where the cost of the filters and cleaning make them economically feasible.
- ◆ for all filtration processes, install pressure gauges to determine when to backwash or change cartridges, then backwash based upon pressure differential.
- ◆ use water treatment only when necessary.
- ◆ reuse backwash water for irrigation or re-treat the water and reuse it in the pool.
- ◆ consider alternatives to pools, such as shallow spray “scapes.”
- ◆ install pool covers to reduce evaporation. Retracting mechanisms promote regular use of the covers.
- ◆ use shrubs or fences to shade the pool and block winds that increase evaporation.

Install automatic-shutoff and solenoid valves on all hoses and water-using equipment.

TIP: Conspicuously mark fire-protection plumbing so no connections will be made except for fire protection. Additionally, install flow-detection meters on fire services to indicate unauthorized water flows.



***Design any pool or water feature to minimize water loss from evaporation, splash out, filter backwashing, or leaks.***