ADEQ Arizona Department of Environmental Quality

RESOURCE SUMMARY

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Pollution Prevention (P2) Opportunities for the Hospitality Sector: Irrigation, Sustainable Landscape Design and Drought-Tolerant Vegetation

Curb appeal is of huge importance when designing and maintaining a hotel or resort. When guests choose a place to stay, they also pay attention to the outdoor amenities, accessibility of those amenities and the overall landscape. Creating an inviting outdoor space that is equal parts greenery and urbanity without compromising functionality can be a difficult task. It can seem even more daunting when the idea of water and energy conservation are taken into consideration. This resource summary provides information on how to properly implement and utilize efficient irrigation systems, incorporate sustainable landscape design elements, and introduce native, drought-tolerant vegetation to not only create an amazing space for guests and staff to enjoy and be proud of, but also to reduce labor needed to maintain the landscape.

Efficient Irrigation

Saving money on water and utility bills can be as simple as sub-metering and/or tracking monthly water usage.[1] Take a look at the overall picture of water consumption on the property and identify where water is being wasted or used inefficiently.[2] Ask yourself, what time of the day does the current irrigation system disperse water? How much water is being dispersed? What method is being utilized? These are important questions to keep in mind when designing a more efficient irrigation system.

Water Level Monitoring Systems

When irrigating a lawn or an outdoor space, it is important to add just the right amount of water to prevent degradation of the soil and the vegetation. This can be difficult to accomplish sometimes as some plant species require very specific water and nutrient input levels. Sometimes, it can be almost impossible to discern exactly how much water an irrigation system is distributing to a certain section of the landscape. A water level monitoring system can accurately track the amount of moisture present in the soil.[3] Installing these systems may make it easier to track water consumption, but it can also help to create a healthier and more beautiful landscape. In addition, a green space that is properly irrigated will require less time and effort to maintain, thus allowing you to divert attention to other areas of your facility. These systems are non-intrusive, so hotel guests can continue to enjoy the outdoor amenities.

Drip Irrigation

The EPA defines drip irrigation as "the precise low-rate application of water to or beneath the soil surface at the plant root zone. Application normally occurs as discrete or continuous drops between 0.5 to 0.4 gallons per hour (gph)." Drip irrigation is a crucial component to water conservation strategies, especially in arid desert environments.[3] Incorporating drip irrigation systems in hotel landscaping can have a tremendously positive return on investment with water savings of up to 25%.[4]

Signs of Over-Watering

- Soil is constantly saturated
- Leaves turn a lighter shade of green or yellow
- Young shoots are wilted
- Algae and mushrooms are present
- Excessive growth

Signs of Under-Watering

- Soil is bone dry
- Older leaves turn yellow or brown and drop off
- Leaves are wilted
- Leaves curl up
- Leaves become brittle
- Stunted growth

Sustainable Landscaping

While water conservation is a crucial component of sustainable landscaping, there are a number of other adaptations that can be implemented in a landscape to ensure that it is both environmentally friendly and still provides the same functionality. Sustainable landscaping includes features such as rainwater harvesting and bioretention. For more information on sustainable landscaping methods that are not covered in this resource summary, please refer to the ADEQ Green Infrastructure Resource Summary.[5]

Landscape Waste Reduction and Vegetative Buffers

Both natural and human-built landscapes can produce waste. It is important to identify areas where waste can be reduced at the source and to find opportunities to recycle in circumstances where waste is unavoidable. Grass clippings, for example, can be left on the ground and utilized as a natural fertilizer rather than being bagged and shipped elsewhere.[6] Choosing low-maintenance plants that can grow to mature size within the allotted space will avoid unnecessary shearing and redundancy in maintaining the landscape. Vegetative buffers (bioswales) act as barriers between potentially harmful externalities and the protected landscape. These buffers can lessen the severity of run off and erosion by capturing and filtering the storm water.[6]

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Drought Tolerant and Native Species

Continuous, interrupted or even seasonal drought can be detrimental to the health of vegetation that is not designed to survive extended periods of time without water. However, there are many drought-tolerant and/or native plant species that not only can withstand droughts, but can even thrive in an arid environment.[7] Because Arizona is home to a multitude of biomes complete with many different degrees of elevation and soil variations, it is important to consider in which region the hotel is located when choosing plant species. While a Palo Verde tree may be the perfect complement to a desert landscape, a hotel in Flagstaff may wish to incorporate a Ponderosa Pine tree into the landscape instead.[8]

Xeriscape

Xeriscaping refers to the design and implementation of landscaping methods that seek to reduce or entirely eliminate the need for supplemental irrigation. Essentially, xeriscape design takes into account the climate, average rainfall, and geographical amenities of a given area and creates a landscape that works in tandem with the surrounding natural landscape to prevent the need for additional water input. Xeric land cover can reduce average evapotranspiration levels by up to 40%.[9] Incorporating this type of landscape design reduces the amount of maintenance and upkeep needed because it reduces human-dependency. Xeriscape design is a great way to showcase the beautiful and diverse plants and vegetation that exist in Arizona and share that vibrancy with guests while simultaneously saving on water and maintenance expenses. For more information, refer to the ADEQ Xeriscape resource summary.[9]

References

[1] EPA. *Your Grass Can Be Greener: Water-Efficient Landscapes Start with Certified Irrigation Professionals.*
[2] Office of Energy Efficiency & Renewable Energy. *Best Management Practice #5: Water-Efficient Irrigation.*
[3] Water: Use It Wisely. *Landscape Watering by the Numbers: A Guide for the Arizona Desert*
[4] *AZ Municipal Water Users' Association. Guidelines for Landscape Drip Irrigation Systems.*
[5] *ADEQ. Green Infrastructure Resource Summary.*
[6] *EPA. GreenScapes Activities List.*
[7] *Arizona Native Plant Society.*
[8] *USDA. Plants Database.*
[9] *ADEQ. Xeriscape Resource Summary.*

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