

A New Approach to Sustainable Irrigation Practices

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Outdoor irrigation has been a common practice amongst residential homes for decades, from the early days of watering cans and spray nozzles on hoses, to manually-placed rotary sprinklers, to manually operated spray systems, to automated drip and micro-drip systems powered by smart controllers. History shows us that refinements have been made, as we've learned more about average rainfall, evapotranspiration rates and the amount of water needed by the myriad of available plants at various stages of their maturity.

However, the irrigation industry faces a rising problem. Water scarcity is emerging as a critical challenge to the western United States. The limits of water could halt construction in the west, bringing economic development to a standstill. Mandates like MWEL0 in California threaten the irrigation industry, as they shine a spotlight on the massive amounts of water devoted to outdoor irrigation. Some homeowners and communities are being incentivized to remove turf altogether in order to comply.

A New Measurement Tool

It's been said that you can't manage what you don't measure. To that end, there's a new methodology to help everyone from an irrigation professional to a homeowner better understand what's going to happen onsite and in their community with regards to landscape water consumption, stormwater management and overall water use. This independent, predictive analysis can also preserve the freedom of the landscape architect/designer, which in turn can enable irrigation professionals to be seen as part of the solution instead of an endangered species.

The Water Efficiency Rating Score, or WERS, is a first-of-its-kind, predictive, performance-based approach to residential water efficiency and water resource management. The WERS is the culmination of calculations that consider the loading from principal plumbing fixtures, clothes washers, structural waste, and outdoor water management. Potential rainwater, greywater, stormwater and blackwater catchment are also calculated. The WERS Program is applicable for both new and existing single-family and multifamily residential properties. It can be used to model irrigation, landscape and source water changes. This can help determine the impact of these changes on water usage.

The WERS Tool also has a unique output that allows for comparison of properties. It uses a scoring scale of zero to 100, with zero being the most desirable and 100 representing the baseline home. In addition to the Score, the property owner also receives a daily, monthly and yearly projection of water usage. If water rates are entered into the program, financial savings (or expenditure) projections over the same time intervals are also projected. Finally, a dashboard contains a bar graph that breaks down the

amount of rainwater, greywater, blackwater and stormwater (if applicable) generated and used, as well as a circle graph that displays the amount of potable water and alternative water used.

How WERS Can Be Used By Practitioners

Unlike a prescriptive program, a performance-based program gives all parties (architect/designer, builder, property owner) design and product flexibility. It doesn't require anything. Rather, it assesses the choices made. The same flexibility extends to the implementation of the WERS Program.

On its own, the WERS Program can help a property owner understand where and how water is being used. Without this knowledge, it's difficult to determine the most cost-effective conservation strategies. This lack of information can lead to poor decisions, from a property owner or an entire municipality.

While the WERS Program is a 3rd party certification executed by a WERS Verifier, the WERS Design Tool might be of equal or greater benefit to irrigation professionals. Project teams (architect/designer, builder, property owner, landscaper, etc.) will have the ability to use the WERS Design Tool to view initial estimates of the results of their proposed installed fixtures and appliances, as well as innovative water conservation strategies, without the involvement of a WERS Verifier.

How WERS Can Be Implemented

A voluntary modeling tool is just one way to use the WERS Program. Through this application, builders, landscape architects/designers and irrigation professionals can differentiate themselves in the market. By striving to keep their projects at or under a certain score, they would be able to demonstrate beautiful designs that are also sustainable. Building professionals can also leverage WERS as a first-step, market-driven, voluntary approach in communities or jurisdictions where water efficiency mandates or regulations are being considered.

It can be adopted as a regulation. The City of Santa Fe has become the first municipality in the nation to integrate a performance-based water efficiency requirement in its residential green building code. Their code now stipulates that all new single-family detached units must submit a preliminary WERS of 70 (or less) with their building permit application, and a verified 70 (or less) to obtain a certificate of occupancy. The County of Santa Fe is strongly considering the usage of WERS in a regulatory manner, if a project meets certain conditions.

WERS can assist in the pursuit of a financial incentive. The State of New Mexico allows a builder or new property owner to attach a WERS report to show compliance with the new water efficiency requirement of the State's very popular Sustainable Building Tax Credit. The WERS Program joins Build Green New Mexico and LEED for Homes as compliance paths for water. Other possible financial incentives on new construction projects could include a reduction in tap fees or stormwater impact fees, or a reduced permit review time.

The GreenHome Institute (GHI), after months of discussion, scrutiny and testing, has started the process of implementing the WERS Program as the water criteria for GreenStar, their residential green building

program available nationwide. Their rationale was rooted in the movement towards modeling software in the energy world. GHI considered water to simply be the next frontier for such analysis. Projects that achieve certain WERS levels will obtain a majority of their water points for various certification levels.

Note about the author: Doug Pushard has been an EPA Outdoor Water Auditor for over a decade. He is well versed in both outdoor water usage and how to reduce onsite water use, and is an original member of the WERS Development Group.

Mike Collignon is the Chair of the WERS Development Group, as well as the Executive Director and Co-Founder of the Green Builder® Coalition. The Coalition has been involved with the development of the WERS Program since February 2014.