Weathermatic LEED Controller Efficiency

LEED Water Efficiency Credit (WE):

Outdoor Water Use Reduction – Reduce by 50% (1-2 Points)

To calculate the percent reduction in potable use for this credit, establish a baseline water use rate for your project, which represents a "typical" landscape that could be found on a similar project in the area. Then, calculate the as-designed water use rate for the project. To complete these calculations, you will need to know the landscape coefficients for the major vegetation types, and the area of each.

All calculations must be based on irrigation during the month with the highest evapotranspiration (ET) rate. Local ETo values are available from the EPA's WaterSense website.

Controller Efficiency

Controller Efficiency (CE) is defined as the percent reduction in water use from any weather-based controllers or moisture sensor-based systems. It is equal to 1 minus the estimated percentage of overall irrigation water saved by the controller (CE = 1 - % Savings). As an example, if a Weathermatic SmartLine Controller is installed on a project with a Weathermatic SLW weather station, and the estimated water savings is 20%, the CE would be 0.8 (CE = 1 – 0.2 = 0.8).

Weathermatic SmartLine weather-based controllers automatically calculate on-site ET (evapotranspiration), the landscape's daily water loss and schedules irrigation to replace it. As a result, SmartLine saves 25- 50% on water costs, virtually eliminates runoff, and protects the landscape. This is accomplished by measuring the weather in combination with controller inputs customized by zone for plant type, soil type, slope and sprinkler type. Property owners can also select omit days, dates and times to ensure compliance with local watering regulations.

The following provides 3rd party testimonials and case studies of proven water savings for Weathermatic controllers:
El Segundo Schools Case Study:
City of LaVerne, CA Case Study:
Pennbrooke Homeowners Association Case Study:
Prestonwood Baptist Church Case Study:
Seis Lagos Utility District Case Study:
ValleyCrest Companies Case Study:

Innovative Landscapes Testimonial:

> "Customers don't hesitate when they find out they'll save 20 to 50 percent on their water bills and that the system will pay itself within 12 to 18 months. SmartLine is the most affordable 'smart system' on the market."
> - *Tom Raden, Innovative Landscapes – Quartz Hill, California*

Prestonwood Baptist Church Testimonial:

> "Prestonwood Baptist Church is an amazing property with over 138 acres at our Plano location with 26 Weathermatic SmartLine controllers and weather monitors. The quality of our sports fields and the beauty of the campus reflect a lot about who we are and who we serve. We have a goal of becoming the most efficient church campus of this type in the country. The Weathermatic SmartLine System reduced our water usage in the first year 53% and allowed me to dedicate my time to other tasks rather than adjusting controllers with every weather change.
> - *Jerry Owen, Prestonwood Baptist Church - Plano, Texas*

Soundview Landscape Testimonial:

> "SmartLine is a revolutionary product and has changed the way we irrigate. For example, we converted the landscaping at a condominium resort in Kona, Hawaii, to SmartLine. The water savings have been so dramatic that the resort asked us to convert additional sites. Assuming the next six months of water

savings are equal to the first six months, we will realize a savings of six million gallons of water the first year alone."

- *George Kenney, Soundview Landscape - Kona, Hawaii*

Commercial Property Manager Testimonial:

"The guesswork is gone. As a property manager, I am very concerned about the health of the landscape. We were getting letters because we were using too much water in the summer. Then we switched to SmartLine and the change has been dramatic. It cycles the irrigation so that water percolates to the root zone and keeps the plants looking great, even in a Texas drought. Water savings average 22% a year and are even greater when you factor in the rising costs of water."

- *Mike Maring, Commercial Property Manager – San Antonio, Texas*

Additional 3rd party verification studies of proven water savings for Weathermatic controllers:

Irrigation Association SWAT Test

The Irrigation Association www.irrigation.org has developed an independent third party testing protocol specific to "smart" controllers www.irrigation.org/SWAT. Currently the protocol is administered through the Center for Irrigation Technology (CIT), an independent testing laboratory, applied research facility and educational resource center based at California State University, Fresno. The objective of this protocol is to evaluate how well current commercial technology has integrated the scientific data into a practical system that meets the agronomic needs of turf and landscape plants.

Each product evaluation is conducted by creating a six-zone virtual landscape subjected to real-time climate through monitoring of a selected weather station to evaluate the ability of individual "smart" controllers to adequately and efficiently irrigate that landscape.

After initial programming and calibration, the controller is expected to perform without further intervention during the test period. Performance results indicate to what degree the controller maintained root zone moistures within an acceptable range:

- If moisture levels are maintained without deficit, it can be assumed the level of irrigation will be adequate to maintain the health and beauty of the landscape
- If moisture levels are maintained without excess, it can be assumed that scheduling maximizes water-use efficiency

Irrigation Association SWAT testing protocol results for the Weathermatic SmartLine Controller:

IRRIGATION ASSOCIATION

6540 Arlington Boulevard
Falls Church, VA 22042

Tel: 703-536-7080
www.irrigation.org

Smart Water Application Technology™ (SWAT™) Performance Report

Testing Agency: Center for Irrigation Technology — **www.californiawater.org**

Product: Weathermatic SL1600

Product Type: Climatologically Based Controller

Product Description: Weathermatic SL1600 controller with SLW series on-site weather monitor

SWAT™ Protocol*: Turf and Landscape Equipment Climatologically Based Controllers 7th Draft Testing Protocol (November 2006)

The concept of climatologically controlling irrigation systems has an extensive history of scientific study and documentation. The objective of this protocol is to evaluate how well current commercial technology has integrated the scientific data into a practical system that meets the agronomic needs of turf and landscape plants. The evaluation is accomplished by creating a virtual landscape subjected to a representative climate to evaluate the ability of individual controllers to adequately and efficiently irrigate that landscape. After initial programming and calibration the controller is expected to perform without further intervention during the test period. Performance results indicate to what degree the controller maintained root zone moistures within an acceptable range. If moisture levels are maintained without deficit, it can be assumed the crop growth and quality will be adequate. If moisture levels are maintained without excess it can be assumed that scheduling is efficient.

*All SWAT™ Protocol may be viewed at www.irrigation.org

Weathermatic SL1600 Controller SWAT™ Performance Summary

Irrigation Adequacy	Irrigation Excess
Minimum of 6 test zones: 100% **Maximum of 6 test zones: 100%** **Mean/Average of 6 test zones: 100%** Irrigation Adequacy represents how well irrigation met the needs of the plant material. This reflects the percentage of required water for turf or plant material supplied by rainfall and controller-scheduled irrigations. Research suggests that if this value is between 80% and 100%, the acceptable quality of vegetation will be maintained.	**Minimum of 6 test zones: 0%** **Maximum of 6 test zones: 2.3%** **Mean/Average of 6 test zones: 0.4%** Irrigation Excess represents how much irrigation water was applied beyond the needs of the plant material. This reflects the percentage of water applied in excess of 100% of required water according to data from CIMIS station #80 Fresno State, Fresno County during the test period.

Product Detail Supplied by Manufacturer

Weathermatic SL1600 — **www.smartline.com**

Installation	Data Source	Data Link	Initial Purchase	Additional Hardware	Additional Fees
Replaces existing controller or is installed on a new system.	Weathermatic on-site weather monitor	Direct low voltage wire or wireless	Purchase price is based on number of zones. Weather monitor is an additional cost.	None required	None

Additional Features

Zones	Time of Day	Day of Week	Other	If Data Link is Discontinued
Available in 4-8, 4-24, 12- 48 zone models	Capable of restricting the time of day for watering.	Capable of restricting watering days by selection or interval.	❑ Built in valve locator feature ❑ Calculates irrigation schedules based on zone-specific, Irrigation Association recommended parameters including plant, soil, slope, and sprinkler type. ❑ On-board multi-meter	If weather monitor connection is discontinued it may be used as a standard irrigation controller with water budget and cycle and soak capability.

EPA WaterSense Product Labeling

WaterSense, a partnership program by the U.S. Environmental Protection Agency, seeks to protect the future of our nation's water supply by offering people a simple way to use less water with water-efficient products, new homes, and services.

The program seeks to help consumers make smart water choices that save money and maintain high environmental standards without compromising performance. Products and services that have earned the WaterSense label have been certified to be at least 20 percent more efficient without sacrificing performance.

Upgrading to more efficient WaterSense labeled products can help us to save billions of gallons of water in the country every year. Something as simple as twisting on a WaterSense labeled aerator and upgrading to a WaterSense labeled faucet could save a household 11,000 gallons over the life of the faucet. Learn more about how you can save water and help WaterSense preserve and protect our nation's water resources.

EPA WaterSense labeled Weathermatic SmartLine Controller can be found at the following link starting on page 6:
http://www.epa.gov/WaterSense/products/controltech.html

Additional water savings study:

When comparing SmartLine's weather based irrigation scheduling versus traditional scheduling methods and basic rain/freeze devices, savings from SmartLine can be conservatively estimated between 30-35%. We frequently are able to reduce an existing property's water use by more than 50%. The chart below shows the results of a comparison of baseline irrigation scheduling practices in the Dallas/Fort Worth area in 2005, a hot and dry year in the Metroplex, compared to the SmartLine weather based irrigation schedule. The results were a reduction of 35% from 40" of supplemental irrigation to 26" of supplemental irrigation. With a conservative savings estimate of 30%, the SmartLine controller has a controller efficiency (CE) rating of 0.7.