Guide for Achieving LEED Credits with Toro Irrigation Products

What is LEED®?

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ encourages and accelerates global adoption of sustainable green building and development practices through the creation and implementation of universally understood and accepted tools and performance criteria. This rating system is developed and maintained by the U.S. Green Building Council (http://www.usgbc.org).

LEED is the nationally accepted benchmark for the design, construction and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

LEED Rating System

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is the nationally accepted benchmark for the design, construction and operation of high-performance green buildings. LEED provides building owners and operators with the tools they need to have an immediate and measurable impact on their buildings' performance.

LEED & Irrigation

The USGBC's new (2009) LEED point rating-system has been announced, and is as follows:

- Platinum (80-100 points)
- Gold (60-79 points)
- Silver (50-59 points)
- Certified (40-49 points)

There are various project categories (New Construction, Schools, Retail, Existing Buildings) in which irrigation can play a part. The ways in which Toro Irrigation products can play a role in helping to achieve credits is discussed below:

Water Efficient Landscaping credits have been increased to a total of 10 points; 6 points are derived from Landscape strategies, and up to 4 points may be earned by making efficient irrigation related decisions (alternative water-sources; irrigation product selection).

1. WE Credit 1.1 (Water Efficient Landscaping; Reduce by 50%) – 2 Credits
2. WE Credit 1.2 (Water Efficient Landscaping; No Potable Water Use or No Irrigation) – 4 Credits (includes meeting the requirements for WE Credit 1.1)

The Toro Irrigation products discussed in this packet, when properly used in an irrigation design, cumulatively help to achieve WE Credit 1.1 - a reduction in water consumption for irrigation by over 50%* from a calculated mid-summer baseline case.

The Toro Company
Irrigation Division
5825 Jasmine Street
Riverside, CA 92504
1-877-345-TORO (8676)
www.toro.com

***IMPORTANT NOTE:** Water savings stated in this guide are cumulative and based on a system utilizing all products recommended for LEED Designs. Individual product (stand-alone) water savings may be higher or lower than listed. Please contact The Toro Company if additional water savings details are needed for these or other Toro Irrigation Products.

Any questions about using Toro Products for LEED Credit: E-Mail LEED@Toro.com

© 2010 - The Toro Company

Guide for Achieving LEED Credits with Toro Irrigation Products

WE CREDIT 1.1: WATER EFFICIENT LANDSCAPING: REDUCE BY 50% (2 Points)

Intent
Limit or eliminate the use of potable water, or other natural surface or subsurface water resources available on or near the project site, for landscape irrigation. Use high efficiency irrigation technology, OR, use captured rain or recycled site water to reduce potable water consumption for irrigation by 50% over conventional means.

Requirements
Reduce potable water consumption for irrigation by 50% from a calculated mid-summer baseline case. Reductions shall be attributed to any combination of the following items:

- ❑ Plant species factor
- ❑ Irrigation efficiency
- ❑ Use of captured rainwater
- ❑ Use of recycled wastewater
- ❑ Use of water treated and conveyed by a public agency specifically for non-potable uses

How to Calculate Savings for Credit

1. Calculate a baseline water use for an “average site” in your area the same size as your design in the month of highest average Evapo-Transpiration (ET) – Typically July.
2. Calculate the expected water use of your design in July, utilizing a reference evapotranspiration (ET), landscape coefficients for your plant selections, and irrigation efficiency of your design.
3. Add in water savings (hottest month usage) based upon estimated volume of public agency conveyed non-potable water or water supplied by a greywater or storm water reuse system.
4. Determine Water Savings (%) based upon plant selections, irrigation efficiencies, and reuse.
5. Add additional savings (beyond efficiency savings) earned through irrigation product selection (e.g. use of a Toro Wireless Rain/Freeze Sensor with Water Conservation Modes can provide additional 15% savings)
6. Total savings must be equal to or greater than your baseline water use for an “average site.”

Water Efficiency Notes:

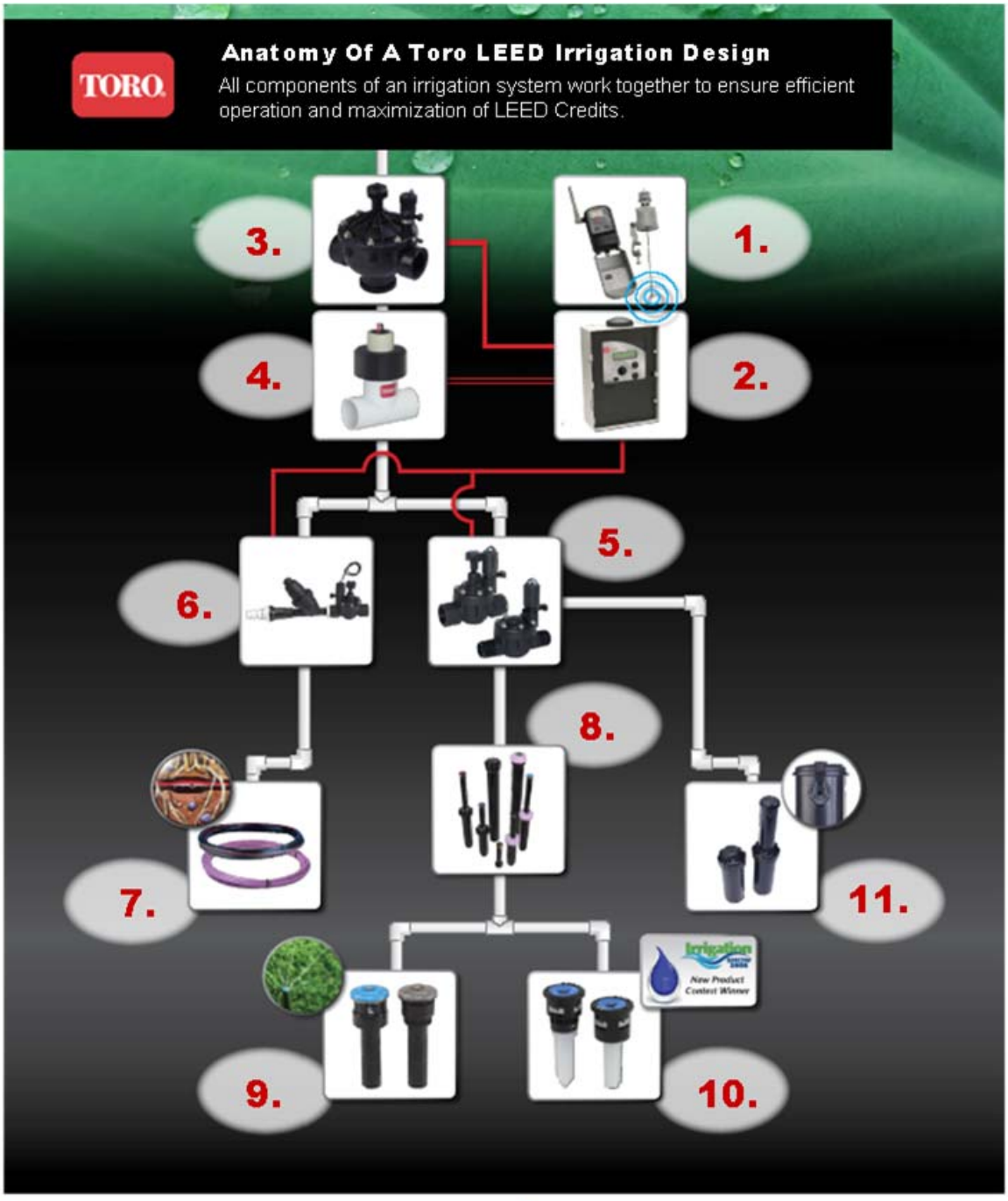
- As part of WE 1.1 Credit, the designer should provide a planting plan, plant list, irrigation product selection, and narrative describing how water consumption is reduced by 50%.
- Irrigation Efficiency is a key component of calculating water use savings. Proper head selection and spacing improves the overall water application efficiency of an irrigation system and minimizes irrigation water runoff.
- Guidance and worksheets for calculating water use can be found in reference guides on the USGBC Website or provided by contacting Toro at LEED@Toro.com.
- Typically, water savings is calculated based on comparing baseline water use for an “average site” in your area the same size as your design in the month of July (month of highest average ET) versus the expected potable water use of your design in July.
- If the project uses a gray water or storm water reuse system, the estimated volume of reuse for the month of July should also be factored in.

EXAMPLE DESIGN:
The following system product selection provides an example of how to utilize Toro Irrigation Products to meet the requirements of Water Efficiency Credit 1.1. The products described are intended to maximize savings. Alternate products may be utilized which still achieve design requirements. For information on product options, product irrigation efficiencies, or for additional help in using Toro Products to Achieve LEED Credits, please e-mail us at: LEED@Toro.com

Any questions about using Toro Products for LEED Credit: E-Mail LEED@Toro.com

© 2010 - The Toro Company

Guide for Achieving LEED Credits with Toro Irrigation Products



1. Wireless Rain/Freeze Sensor with Water Conservation Modes
2. Weather-Adjusting Controller
3. Pressure Regulating Master Valve
4. Flow Sensor
5. Zone Control Valves
6. Drip Zone Kit (Control Valve, Filter, Pressure Regulator)
7. Drip or Micro Irrigation
8. Spray Sprinklers with Pressure Regulation, Check Valve, and X-Flow Valve-in-Stem
9. Precision™ Series Rotating Nozzles (High Efficiency)
10. Precision™ Series Spray Nozzles (High Efficiency)
11. Rotary Sprinklers (Rotors) with Check Valve

Any questions about using Toro Products for LEED Credit: E-Mail LEED@Toro.com

© 2010 - The Toro Company

Guide for Achieving LEED Credits with Toro Irrigation Products

DESIGN PRODUCT # 1

Product Description	Wireless Rain/Freeze Sensor with Water Conservation Modes
Toro Product Options	1. Toro TWRFS Wireless Rain/Freeze Sensor 2. Toro TWRS Wireless Rain Sensor (For regions without potential freeze hazard)
Additional Water Savings Provided	5-30% Depending on Regional Average Rainfall Events (Average 10% for LEED Design Specifications – Annual rainfall may drive a higher or lower expected savings.)
References	*ABE325 - Residential Irrigation System Rainfall Shutoff Devices* Michael D. Dukes and Dorota Z. Haman *Expanding Disk Rain Sensor Performance and Potential Irrigation Water Savings* Bernard Cardenas-Lailhacar and Michael D. Dukes, P.E.,

Note: Toro Wireless Rain & Rain/Freeze Sensors with patented Water Conservation Modes have proven to save up to an additional 30% over competitive rain sensors due to intelligent extension of controller “off” time to compensate for differences between sensor and soil dryout times.

Example Savings:
If a system irrigates 1/2 acre of turf and is set to run each zone so that 1/2 inch of water is applied per cycle, one can calculate that 13,576 gallons are being applied over the 1/2 acre of turf per cycle. This is the savings every time the sensor eliminates an irrigation event. If this amount is multiplied by the number of substantial rainfalls that occur in the area over one growing season, a significant amount of water can be saved.

Water Savings may be calculated by estimating yearly water usage, average savings per rain shutdown, and estimated annual rain shutdowns.

Shutdowns due to freezing temperatures may also be utilized for calculated water savings, provided a rain sensor with freeze shutoff is utilized.

© 2010 - The Toro Company

Guide for Achieving LEED Credits with Toro Irrigation Products

DESIGN PRODUCT # 2

Product Description	Weather-Adjusting Controller
Toro Product Options	1. Toro Intelli-Sense™ Professional Controllers 2. Toro TriComm™ Web-based Site Management 3. Toro Sentinel® Water Management System
Water Usage	Use of a weather-adjusting controller will ensure irrigation occurs to plan design accounting for landscape coefficients and irrigation efficiencies.
Additional Water Savings Provided	▪ Weather-Adjusting Controllers can save an additional 20-35% by automatically adjusting irrigation runtimes / frequencies based on ET changes over the course of a year. Add estimated 25% additional water savings if using one of these controllers. ▪ Intelli-Sense Controllers automatically calculate optimum cycle and delay times based on soil type and slope to prevent erosion and runoff. Add 2% additional water savings if using these controllers.
References	*Irrigation by Evapotranspiration-Based Irrigation Controllers in Florida* S. L. Davis, M. D. Dukes, G. L. Miller, 2008) Intelli-Sense Independent Test Results – Available from Toro.

Example Savings:

WATER USE REDUCTION USING WEATHER-ADJUSTING CONTROLLERS

AVERAGE U.S. EVAPOTRANSPIRATION

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Daily ET (in/day)	0.02	0.02	0.05	0.09	0.14	0.19	0.21	0.19	0.13	0.08	0.03	0.02
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Monthly Avg ET (in/mo)	0.62	0.56	1.55	2.7	4.34	5.7	6.51	5.89	3.9	2.48	0.9	0.62

	Sq. Feet
Assumed Landcaped Size	10,000

Baseline Usage: *(Assume adjust runtimes once per season)*	Season	Highest Monthly ET	Sq. Feet	Conv (gal)	Water Usage (3 Mon.)	Yearly Usage (gal)
	Spring	4.34	10,000	0.6233	81,154	
	Summer	6.51	10,000	0.6233	121,730	
	Fall	3.90	10,000	0.6233	72,926	
	Winter	0.62	10,000	0.6233	11,593	287,404

Weather Adjusted Usage:	Month	Highest Monthly ET	Sq. Feet	Conv (gal)	Water Usage	Yearly Usage (gal)
	January	0.62	10,000	0.6233	3,864	
	February	0.56	10,000	0.6233	3,490	
	March	1.55	10,000	0.6233	9,661	
	April	2.7	10,000	0.6233	16,829	
	May	4.34	10,000	0.6233	27,051	
	June	5.7	10,000	0.6233	35,528	
	July	6.51	10,000	0.6233	40,577	
	August	5.89	10,000	0.6233	36,712	
	September	3.9	10,000	0.6233	24,309	
	October	2.48	10,000	0.6233	15,458	
	November	0.9	10,000	0.6233	5,610	
	December	0.62	10,000	0.6233	3,864	222,954

Water Use Reduction (Baseline Usage - Weather Adjusted Usage):		64,449
Water Use Reduction %:		22.4%

Any questions about using Toro Products for LEED Credit: E-Mail LEED@Toro.com

© 2010 - The Toro Company

Guide for Achieving LEED Credits with Toro Irrigation Products

DESIGN SYSTEM PRODUCT # 3

Product Description	Pressure Regulating Master Valve
Toro Product Options	1. Toro P220 with EZ-Reg Pressure Regulator 2. Toro 220 with EZ-Reg Pressure Regulator
Non-Potable Indicator	Yes - Available
Additional Water Savings Provided *	5-20% over baseline efficiencies (Assume 5% for LEED Design Specifications – higher savings may be justified based on supply pressure)
References	With a minimum of 10 psi differential (inlet vs. discharge pressure), water usage is reduced by about 1-2% for each 1 psi reduction. http://www.engineeringtoolbox.com/bernouilli-equation-d_183.html

Example Savings:

15H Sprays Regulated to 30 PSI
- 1.86 GPM
- 10 minutes
- 18.6 gallons each
- 20 sprinklers
- 372 gallons per zone

15H Sprays Non Regulated @ 40 PSI
- 2.27 GPM
- 10 minutes
- 22.7 gallons each
- 20 sprinklers
- 454 gallons per zone

= 82 gallons or 18% savings per cycle

Note: Water Savings due to Master Valve Pressure Regulation are not realized solely due to volume saved by operating sprinklers at designed operational pressures. Operation at optimum pressures also reduced misting from nozzles and subsequent water loss due to wind drift and sprinkler efficiency is maximized by operating at designed pressures.

DESIGN PRODUCT # 4

Product Description	Flow Sensor (used in combination with a flow sensing controller)
Toro Product Options	1. Toro TFS Series Flow Sensor
Additional Water Savings Provided *	Assume 2% for LEED Design Specifications based on expectation of lateral or mainline breaks that are identified and isolated yearly.
References	Hazen-Williams Equation http://www.engineeringtoolbox.com/pvc-schedule-40-pipe-friction-loss-diagram-d_1147.html

Example Savings:

How much water can a flow sensor save if there is a pipe break that is seen and isolated?

Sch 40 Pipe Size	ID (range)	OD	GPM (with minimal pressure loss & noise) Assumes Avg. 40 psi
1/2"	.50-.60"	.85"	**14 gpm**
1"	1.00-1.03"	1.33"	**37 gpm**
1.5"	1.50-1.60"	1.90"	**81 gpm**
2"	1.95-2.05"	2.38"	**127 gpm**
3"	2.90-3.05"	3.50"	**273 gpm**
4"	3.85-3.95"	4.50"	**480 gpm**
6"	5.85-5.95"	6.61"	**1100 gpm**

Any questions about using Toro Products for LEED Credit: E-Mail LEED@Toro.com

© 2010 - The Toro Company

Guide for Achieving LEED Credits with Toro Irrigation Products

DESIGN SYSTEM PRODUCT # 5

Product Description	Zone Valves
Toro Product Options	1. EZ-Flo® Valve Series 2. TPV Valve Series
Non-Potable Indicator	Yes - Available
Additional Water Savings Provided *	None. Proper zoning of an irrigation system helps ensure optimum system efficiency.
References	

DESIGN SYSTEM PRODUCT # 6

Product Description	Drip Zone Valve Kit (Zone Valve, Filter, & Pressure Regulator)
Toro Product Options	1. DZK-TPV-1-LF 2. DZK-TPV-1-MF 3. DZK-EZF-075-LF 4. DZK-EZF-075-MF
Non-Potable Indicator	Yes - Available
Additional Water Savings Provided *	Negligible. Water Savings due to pressure regulation assumed to be part of Landscape Drip or Micro Irrigation savings.
References	With a minimum of 10 psi differential (inlet vs. discharge pressure), water usage is reduced by at least 1% for each 1 psi pressure reduction. http://www.engineeringtoolbox.com/bernouilli-equation-d_183.html

DESIGN PRODUCT # 7

Product Description	Toro Landscape Drip and Micro Irrigation Products	
Toro Product Options	1. DL2000 Pressure Compensating Dripline 2. Dripin® Pressure Compensating Dripline 3. NGE® Emitter 4. Turbo-SC® Emitter 5. E-2® Emitter	
Non-Potable Indicator	Yes - Available	
Irrigation Efficiency	**Minimum IE: 0.700**	**Maximum IE: 0.900**
References	*Using Distribution Uniformity to Evaluate the Quality of a Sprinkler System.* Brent Mecham (Paper presented at the 25th Annual International Irrigation Show: 2004)	

Example Savings:
With an average efficiency of 85% (for drip) compared to 50% efficiency of sprinklers (sprays or rotors), Landscape Drip & Micro Irrigation provide a 35% efficiency improvement.

Any questions about using Toro Products for LEED Credit: E-Mail LEED@Toro.com

© 2010 - The Toro Company

Guide for Achieving LEED Credits with Toro Irrigation Products

DESIGN PRODUCT # 8

Product Description	Fixed Spray with Pressure Regulation, X-Flow®, and Check Valve
Toro Product Options	1. Toro 570Z-PRX-COM
Design Radius	N/A – Covered By Nozzle Radius
Non-Potable Indicator	Yes - Available
Additional Water Savings Provided *	Assume 5% for LEED Design Specifications
References	With a minimum of 10 psi differential (inlet vs. discharge pressure), water usage is reduced by about 1-2% for each 1 psi reduction. http://www.engineeringtoolbox.com/bernouilli-equation-d_183.html

Example Savings:

Pressure Regulation:

15H Sprays Regulated to 30 PSI
- 1.86 GPM
- 10 minutes
- 18.6 gallons each
- 20 sprinklers
- 372 gallons per zone

15H Sprays Non Regulated @ 40 PSI
- 2.27 GPM
- 10 minutes
- 22.7 gallons each
- 20 sprinklers
- 454 gallons per zone

= 82 gallons or 18% savings per cycle

Toro X-Flow® Valve-In-Stem

Toro X-Flow stops water loss if a nozzle is missing (vandalism or removal). With usage of X-Flow, you can save:

Small Zone (15 Spray Heads)
0.5% potential for failure per week x 15 heads
= .075 heads/week x 26 week season
= 1.95 heads/season (For easy math, lets say 2 spray heads/season are damaged).
@ 40psi a broken spray can loose 40 gpm. Assume it takes one week before discovered:
Three 15-minute cycles per week
= 45 minutes/week x 40 gallons/minute
= Potential Savings 1,800 gallons / occurrence
= 3,600 Gallons per Season.

Check Valve

- Check Valve prevents low head drainage and keeps water in the lines:
  - Checks up to 10' (3m) of elevation = Water is saved for the next irrigation cycle
  - A 12-in x 2 inch (id) piece of pipe has a volume of 37.6992 cu in.
    - 1 gal of water = 231 cu in.
    - The 2 inch (id) pipe will hold 0.1632 gal per ft
    - 10' = 1.6 Gallons saved per cycle

Note: Check Valve savings are only provided if sprinklers are installed on a slope where gravity pressure on a static system will drive water to the sprinklers.

Any questions about using Toro Products for LEED Credit: E-Mail LEED@Toro.com

© 2010 - The Toro Company

Guide for Achieving LEED Credits with Toro Irrigation Products

DESIGN PRODUCT # 9

Product Description	Multi-Stream, Multi-Trajectory Rotating Spray Nozzles	
Toro Product Options	Toro Precision™ Series Rotating Nozzles 1. PRN-TA/TF (Male-threaded) 2. PRN-A/F (Female-threaded)	
Design Radius	14' – 26'	
Non-Potable Indicator	N/A – Covered by Spray Head Indication	
Irrigation Efficiency	**Minimum IE: 0.600**	**Maximum IE: 0.750**
References	*Uniformity and Water Conservation Potential of Multi-Stream, Multi-Trajectory Rotating Sprinklers for Landscape Irrigation* Joseph Kissinger and Kenneth H. Solomon June 5, 2005	

Example Savings:
Multi-Stream, Multi-Trajectory Rotating Sprinklers have a higher Distribution Uniformity and Lower Scheduling Coefficient than MPR spray nozzles by other manufacturers (including Toro), which result in higher overall efficiently and less water use.

Other system improvements that might further increase water conservation include the elimination of runoff and the elimination of overspray (water sprayed outside the boundary of the area to be irrigated). Sprinkler features that would help to achieve these benefits are lower precipitation rates, adjustable settings for arc of coverage and radius of throw, and the ability to maintain matched precipitation rates while making these adjustments.

DESIGN PRODUCT # 10

Product Description	High Efficiency Spray Nozzles	
Toro Product Options	1. Toro Precision™ Series Spray Nozzles See Catalog – 5 Radii, 9 Arcs per Radius, + Specialty Nozzles	
Design Radius	5' – 15'	
Non-Potable Indicator	N/A – Covered by Spray Head Indication	
Irrigation Efficiency	**Minimum IE: 0.650**	**Maximum IE: 0.800**
References	*Using Distribution Uniformity to Evaluate the Quality of a Sprinkler System.* Brent Mecham (Paper presented at the 25th Annual International Irrigation Show: 2004)	

Example Savings:
With an average DU (distribution uniformity) of 70% and an average SC (scheduling coefficient) of 1.25, the Precision Series Spray nozzles are 20% more efficient than MPR spray nozzles by other manufacturers (including Toro), which are approximately only 50% efficient.

Any questions about using Toro Products for LEED Credit: E-Mail LEED@Toro.com

© 2010 - The Toro Company

Guide for Achieving LEED Credits with Toro Irrigation Products

DESIGN PRODUCT # 11

Product Description	Rotary Sprinkler with Check Valve	
Toro Product Options	1. Toro T5 with Check Valve (T5PCK)	
Design Radius	25' – 50'	
Non-Potable Indicator	Yes - Available	
Irrigation Efficiency	**Minimum IE: 0.550**	**Maximum IE: 0.750**
Additional Water Savings Provided *	Assume 2% for LEED Design Specifications	
References	*Using Distribution Uniformity to Evaluate the Quality of a Sprinkler System.* Brent Mecham (Paper presented at the 25th Annual International Irrigation Show: 2004)	

Example Savings:

Check Valve

- Check Valve prevents low head drainage and keeps water in the lines:
  - Checks up to 10' (3m) of elevation = Water is saved for the next irrigation cycle
  - A 12-in x 2 inch (id) piece of pipe has a volume of 37.6992 cu in.
    - 1 gal of water = 231 cu in.
    - The 2 inch (id) pipe will hold 0.1632 gal per ft
    - 10' = 1.6 Gallons saved per cycle

Note: Check Valve savings are only provided if rotary sprinklers are installed on a slope where gravity pressure on a static system will drive water to the sprinklers.

© 2010 - The Toro Company

Guide for Achieving LEED Credits with Toro Irrigation Products

BASIC ESTIMATED WATER USE REDUCTION – *EXAMPLE ONLY*:
Actual designed savings may be more or less depending upon product selection and regional effects of Evapotranspiration and plant selection.

1. BASELINE POTABLE WATER USE:

Highest Monthly ET (July) (inches)	Sq. Feet Landscape	Conv. (to gallons)	Water Usage (gallons)
0.21"/Day = 6.51"	5,000	0.6233	20,288

2. DESIGN WATER USE

Landscape Type	Area [SF]	Species Factor (k_s)	Density Factor (k_d)	Sprinkler Type	IE	Microclimate	Microclimate Factor (k_{mc})	K_L	ET_L	TWA [gallons]
Native Shrubs	2,000	0.5	1.0	Precision Series Spray	0.750	Shady 75%	0.75	0.4	0.08	4,058
Warm Season Turf	1,000	0.7	1.0	Precision Series Rotating	0.650	Sunny 100%	1.50	1.1	0.22	6,556
Native Trees	1,750	0.5	1.0	Drip	0.900	Sunny 100%	1.50	0.8	0.16	5,918
High Use Annuals	250	0.9	1.0	Drip	0.900	Sunny 75%	1.25	1.1	0.24	1,268
Total	5,000								TWA	17,800

3. NON-POTABLE, GREYWATER, OR STORMWATER REUSE

Assume 0 Gallons for This Example

4. WATER SAVINGS

$$\frac{\text{Baseline Use} - \text{Design Use}}{\text{Baseline Use}} = \frac{20{,}288 - 17{,}800}{20{,}288} = \frac{2{,}488}{20{,}288} = 12.3\%\ \text{Savings}$$

5. ADDITIONAL IRRIGATION PRODUCT SAVINGS

Product	Additional Savings
Toro Wireless Rain/Freeze Sensor	10%
Toro Intelli-Sense Professional Controller (Weather Adjusting + Cycle / Delay)	25% + 2%
Toro P220 Pressure Regulating Master Valve	5%
Toro TFS Series Flow Sensor	2%
Toro 570Z PRX Sprays	5%
TOTAL ADDITIONAL SAVINGS	**52%**

6. TOTAL WATER USE REDUCTION

12.3% Design Savings + 52% Product Selection Savings = 64.3% Water Use Reduction

Any questions about using Toro Products for LEED Credit: E-Mail LEED@Toro.com

© 2010 - The Toro Company

Guide for Achieving LEED Credits with Toro Irrigation Products

OTHER POTENTIAL LEED CREDIT POINTS RELATED TO IRRIGATION & LANDSCAPE

Water Efficiency Credit 1.2: Water Efficient Landscaping; No Potable Water Use or No Irrigation
If the irrigation system design is intended to use no potable water (designed utilizing only public agency supplied non-potable water and/or rainwater / greywater harvesting), Toro has irrigation products specifically designed for operation in these environments. Benefits included materials resistant to the chemicals used to treat reclaimed water and optional identifiers (lavender-colored markings) denoting non-potable water in use. The Toro Residential/Commercial Irrigation Specifier Catalog (part # 10-1001-IRC) identifies models with Effluent (non-potable) Indicators. The following Toro Products meet these requirements:

Category	Model	Non-Potable Water Applicability
Sprays	570 Series	Optional Effluent Water Indicators (Lavender)
Rotor	300 Series	Optional Effluent Water Indicators (Lavender)
	340 Series	Optional Effluent Water Indicators (Lavender)
	Super 800 Series	Optional Effluent Water Indicators (Lavender)
	TR50 Series	Optional Effluent Water Indicators (Lavender)
	TR70 Series	Optional Effluent Water Indicators (Lavender)
	2001 Series	Optional Effluent Water Indicators (Lavender)
	640 Series	Optional Effluent Water Indicators (Lavender)
Valves	EZ-Flow	Chloramine-resistant Diaphragm
		Optional Effluent Solenoid Assembly & Tag (Lavender)
	TPV	Chloramine-resistant Diaphragm
		Debris-resistant design optimal for dirty-water applications.
		Optional Effluent Solenoid Assembly & Tag (Lavender)
	250/260 Series	Optional Effluent Flow Control Handle (Lavender)
	254/264 Series	Optional Effluent Flow Control Handle (Lavender)
	252 Series	Optional Effluent Flow Control Handle (Lavender)
	P220 Series	Filter Screen enables use in dirty-water environments.
		Optional Effluent Solenoid Assembly & Tag (Lavender)
	220 Series	120-Mesh, Stainless Steel Filter Screen (self-flushing) enables use in dirty-water environments.
		Optional Effluent Solenoid Assembly & Tag (Lavender)
	Quick Coupler Series	Optional Effluent Cover (Lavender)
Drip Irrigation	DL2000 Dripline	Available in Lavender-colored Tubing for Effluent applications
	Blue Stripe Polyethylene Hose	Available with Lavender Stripe for Effluent Applications
	XD Filters	Drip Systems Filtration applicable for Dirty Water Systems

Innovation & Design Credit 1: Innovation in Design
Additional points may be achieved for Innovation in Design by explaining unique features of specific Toro irrigation products (for 'Innovation in Design' credits) and/or use of these products in landscaping strategies which demonstrate quantifiable environmental benefits above and beyond the Water Efficiency requirements already set by the LEED Green Building Rating System.

Any questions about using Toro Products for LEED Credit: E-Mail LEED@Toro.com

© 2010 - The Toro Company

Guide for Achieving LEED Credits with Toro Irrigation Products

Sustainable Credits 5.1: Site Development: Protect or Restore Habitat – (1 point)
Efficient irrigation systems and landscape design can play a key role in conserving existing natural areas and restoring damaged areas. Irrigation design that eliminates runoff protects habitats from pollution and associated harm. Use of native plants in landscape design can potentially provide habitat space and foster the restoration of habitats.

Sustainable Sites Credit 6.1: Stormwater Design: Quantity Control – (1 point)
Limiting disruption of natural water hydrology and manage storm water runoff can earn points for Sustainable Sites Credit 6.1. Irrigation systems designed to utilize rainwater harvesting as an irrigation source can eliminate stormwater run-off by using all captured rainwater and run-off for irrigating the landscape.

Sustainable Sites Credit 7.2: Heat Island Effect – (1 point)
Battery operated irrigation controllers (Toro DDCWP) and Landscape drip or Micro irrigation systems can be utilized for “green” roofs or rooftop gardens, provided benefit towards achieving Sustainable Sites Credit 7.2.

Energy and Atmosphere Credit 1: Optimize Energy Performance – (Up to 10 points)
Achieve increasing levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use. Up to 10 points can be awarded based on the percentage improvement over the prerequisite requirements. Landscaping design can have a significant impact on HVAC requirements due to the cooling effects of landscape and turf, especially shading of buildings with mature trees. The overall temperature of urban areas may be as much as 5 to 7oC warmer than that of nearby rural areas. Through the cooling process of transpiration, turfgrasses dissipate high levels of radiant heat in urban areas. The transpirational cooling effect of green turfs and landscapes can save energy by reductions in the energy input required for interior mechanical cooling of adjacent homes and buildings (*The Role of Turfgrasses in Environmental Protection and Their Benefits to Humans* - James B. Beard* and Robert L. Green, 1994).

Any questions about using Toro Products for LEED Credit: E-Mail LEED@Toro.com
© 2010 - The Toro Company