



| v3 - LEED 2008

Irrigation system

WEC2 | Possible 4 points

Glossary

Intent

Minimize outdoor demand for water through water-efficient irrigation.

Requirements

Prerequisites

None.

Credits

Note: Points shown below are for irrigation systems installed throughout the designed landscape. If only 50% of the designed landscape includes these measures, then only 50% of the points are available. Even if part of the yard is not landscaped, the irrigation system must be stubbed to that part of the yard, as appropriate.

2.1 High-efficiency irrigation system (1 point each, maximum 3 points). Design and install a high-efficiency irrigation system (based on overall landscaping plans, including measures adopted in SS 2) such that any of the following are met:

1. Install an irrigation system designed by an EPA WaterSense certified professional.
2. Design and install an irrigation system with head-to-head coverage.
3. Install a central shut-off valve.
4. Install a submeter for the irrigation system.
5. Use drip irrigation for at least 50% of landscape planting beds to minimize evaporation.
6. Create separate zones for each type of bedding area based on watering needs.
7. Install a timer or controller that activates the valves for each watering zone at the best time of day to minimize evaporative losses while maintaining healthy plants and obeying local regulations and water use guidance.
8. Install pressure-regulating devices to maintain optimal pressure and prevent misting.
9. Utilize high-efficiency nozzles with an average distribution uniformity (DU) of at least 0.70. This may include conventional rotors, multistream rotors, or high-efficiency spray heads, but the DU must be verified by manufacturer documentation or third-party tests. A point source (drip) irrigation system should be counted as having a DU of 0.80.
10. Check valves in heads.
11. Install a moisture sensor controller or rain delay controller. For example, "smart" evapotranspiration controllers receive radio, pager, or Internet signals to direct the irrigation system to replace only the moisture that the landscape has lost because of heat, wind, etc.

AND/OR

2.2 Third-party inspection (1 point). Perform a third-party inspection of the irrigation system in operation, including observation of all of the following:

1. All spray heads are operating and delivering water only to intended zones.
2. Any switches or shut-off valves are working properly.
3. Any timers or controllers are set properly.
4. Any irrigation systems are located at least 2 feet from the home.
5. Irrigation spray does not hit the home.

2.3 Reduce overall irrigation demand by at least 45% (maximum 4 points, as specified in **Table 1**). Design the landscape and irrigation system to reduce the overall irrigation water demand water budget. The estimates must be calculated and prepared by a landscape professional, biologist, or other qualified professional using the method outlined below.

Note: A project must earn full points in SS 2.5 before receiving points for this credit.

Table 1. Reduction in Water Demand

Reduction in estimated irrigation water usage	WE 2.3 points	SS 2.5 points	Total points
45-49%	1	6	7
50-54%	2	6	8
55-59%	3	6	9
60% or more	4	6	10

Method for calculating reduction in irrigation demand

Step 1. Calculate the baseline irrigation water usage:

$$\text{Baseline Usage} = \text{Landscaped Area} * ET_0 * 0.62$$

where ET_0 = Baseline Evapotranspiration Rate (available from local and state Departments of Agriculture)

Step 2. Calculate the design case irrigation water usage:

$$\text{Design Case Usage} = (\text{Landscaped Area} * ET_L + IE) * CF * 0.62$$

where $ET_L = ET_0 * K_L$ and $K_L = K_S * K_{MC}$. Refer to Tables 4 and 5 for values for K_S and K_{MC} , and to Table 6 for values for IE. For CF, use estimated value based on manufacturer's specifications for percentage water savings.

Step 3. Calculate the percentage reduction in irrigation water usage:
 Percentage Reduction = $(1 - \text{Design Case Usage} \div \text{Baseline Usage}) * 100$

Step 4. Refer to Table 3, above, to determine points earned.

Table 4. Species Factor

Vegetation type	Species factor (KS)		
	Low	Average	High
Trees	0.2	0.5	0.9
Shrubs	0.2	0.5	0.7
Groundcover	0.2	0.5	0.7
Turf	0.6	0.7	0.8

Table 5. Microclimate Factor

Example microclimate impacts	Microclimate factor (KMC)		
	Low	Average	High
Shading	0.5	0.8	1.0
High sun exposure	1.0	1.2	1.5
Protection from wind	0.8	0.9	1.0
Windy area	1.0	1.2	1.5

Table 6. Irrigation Efficiency

Irrigation type	Irrigation efficiency (IE)	
	Low	High
Fixed spray	0.4	0.6
Impact and microspray	0.5	0.7
Rotors	0.6	0.8
Multistream rotators	0.6	0.8
Low volume and point source (e.g., drip)	0.7	0.9