

BEYOND

SMART CITIES

WATER EFFICIENCY - GREEN BUILDING TECHNOLOGY

TRAINING PROGRAM

FOR GREEN BUILDING AND SUSTAINABILITY SPECIALISTS

KRISHNAJI PAWAR, LEED AP BD+C, GSAS CGP, ISO 14001:2015, GCP

WATER EFFICIENCY SPECIALIST CURRICULUM

CERTIFIED WATER EFFICIENCY SPECIALIST

CWES

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OUTDOOR WATER USE REDUCTION - CREDIT

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LEARNING OBJECTIVES

Intent of Outdoor Water Use Reduction

Behind the intent

Step by Step Guidance

Required Documentation

Terms and Definitions

CERTIFIED WATER EFFICIENCY SPECIALIST

CWES

WE- CR(3) - DESIGN

INTENT

To reduce outdoor potable water consumption and preserve no and low-cost potable water resources.

POTENTIAL TECHNOLOGIES & STRATEGIES

Develop the plant species and water requirement narrative. - Include a description of the plantings and explain why they will not require irrigation beyond their specified establishment periods. Indicate why average rainfall will be sufficient. - A landscaping plan showing native plants may be provided to confirm that irrigation will not be required, based on local rainfall and plants' water demands

OUTDOOR WATER USE REDUCTION

REQUIREMENTS

Reduce outdoor water use through one of the following options. Nonvegetated surfaces, such as permeable or impermeable pavement, should be excluded from landscape area calculations. Athletic fields and playgrounds (if vegetated) and food gardens may be included or excluded at the project team's discretion

IMPLEMENTATION

REQUIRED DOCUMENTATION

Documentation	Option 1	Option 2
Alternative water source and controls calculations		X

BEHIND THE INTENT

See WE Prerequisite Outdoor Water Use Reduction, *Behind the Intent*. Potable water consumption may be further reduced by reusing potable water and using nonpotable water sources.

Core and Shell projects can now earn up to 3 points under WE credit Outdoor Water Use Reduction. One point was re-allocated from WE credit Indoor Water Use Reduction to this credit, to better align WE points available with the typical scope of work of Core and Shell projects and to reward incremental outdoor water use savings.

REQUIREMENTS

NC, CS, SCHOOLS, RETAIL, DATA CENTERS, WAREHOUSES & DISTRIBUTION CENTERS, HOSPITALITY, HEALTHCARE

Reduce outdoor water use through one of the following options. Non vegetated surfaces, such as permeable or impermeable pavement, should be excluded from landscape area calculations. Athletic fields and playgrounds (if vegetated) and food gardens may be included or excluded at the project team's discretion.

Option 1. No Irrigation Required (2 points except Healthcare and CS, 1 point Healthcare, 3 points CS) Show that the landscape does not require a permanent irrigation system beyond a maximum two-year establishment period.

REQUIREMENTS

Option 2. Reduced Irrigation (1-2 points except Healthcare and CS, 1 point Healthcare, 3 points CS)

Table 1. Points for reducing irrigation water

Percentage reduction from baseline	Points (except Healthcare)	Points (Healthcare)	Points (CS)
50%	1	1	1
75%	++	==	2
100%	2	==	3

Reduce the project's landscape water requirement (LWR) by at least 50% from the calculated baseline for the site's peak watering month. Reductions must first be achieved through plant species selection and irrigation system efficiency as calculated in the Environmental Protection Agency (EPA) WaterSense Water Budget Tool. Additional reductions beyond 50% may be achieved using any combination of efficiency, alternative water sources, and smart scheduling technologies.

STEP-BY-STEP GUIDANCE

STEP 1. FOLLOW METHODOLOGY IN WE PREREQUISITE OUTDOOR WATER USE REDUCTION

STEP 1. SELECT ONE OPTION
Select the appropriate option for the project's irrigation needs, as described in the credit requirements.
Option 1 for projects that do not require irrigation, based on the project location and landscape design. This credit can also be achieved by projects that have no landscape area.
Option 2 for projects that require irrigation.

Option 1. No Irrigation Required

Describe the plant species and water requirement scenario.
Include a description of the landscape and explain why they will not require irrigation beyond their specified establishment periods. Indicate why alternate rainfall will be sufficient.
A landscaping plan showing native plants may be provided to confirm that irrigation will not be required based on local rainfall and plant water demands.

Option 2. Reduced Irrigation

STEP 1. REDUCE IRRIGATION NEEDS BY ALTERING DESIGN
Plants located in dramatically over-irrigated areas by selecting plants that are appropriate for that intended area.
Reusing areas for play fields or other activities that require turf, using turf for groundcover will make it less difficult to water the most effectively.
Reduce or plant native species to replace areas requiring intensive irrigation.

STEP 2. CONSIDER ALTERNATIVE WATER SOURCES
Use of alternative water sources or treated wastewater provided by a municipal agency can offset potable water used for irrigation (see Further Guidance, Alternative Water Sources).

STEP 3. CONSIDER ALTERNATIVE IRRIGATION CONTROLS
Smart-irrigation technology irrigation controls can deliver additional water savings.

STEP 4. CALCULATE LANDSCAPE WATER BUDGET
Determine water savings as a percentage of total irrigation and peak month irrigation demand by using the Environmental Water Budget Tool (see Further Guidance, Alternative Water Sources, Example and International Text).
Use the tool for vegetated areas only. Do not include hardscapes (whether patios or impervious) or unvegetated surfaces, such as mulched paths and playground areas.
The following landscape types may be included or excluded from landscape calculations: vegetated playgrounds, athletic fields, golf parks, and other agricultural areas.

When planning the site layout, consider factors such as proximity to water sources for optimized irrigation, distance from water tanks, and so on. Review uncertainties about plant water requirements by referring to local resources, such as plant guides, local agricultural extension services, or nurseries to identify each plant type in a low, medium, or high water class.
Uncertainties may be reduced by using landscape water requirements for any individual plant if any part of the site is irrigated, complete the calculation twice—once for the irrigated section and again for the vegetated area with lawn the results.

STEP 5. CALCULATE ADJUSTED LANDSCAPE WATER REQUIREMENT

Calculate monthly supply from alternative sources.
Determine water quantity from alternative sources (e.g., using historical rainfall data or from projected data) and determine the amount of water that can be used for irrigation. Alternative water sources can be calculated using Equations 1 and 2.
Ensure that the remainder needed in the peak month can be stored on site.
Alternative calculations for scenarios where supply may be used.

EQUATION 1. Estimated Potential Supply

Estimated potential supply = (Rainfall depth) × (Area)

EQUATION 2. Monthly Potential Supply

Monthly potential supply = (Rainfall depth) × (Area) × (Number of days)

EQUATION 3. Adjusted monthly landscape water requirement

Adjusted LWR (calculated) = (LWR (calculated)) × (Alternative water quantity (calculated))

STEP 6. CALCULATE ADDITIONAL REDUCTION FROM BASELINE FOR SMART IRRIGATION CONTROLS

Count only irrigation controls whose smart control technology meets the qualification criteria. These controls result in an additional 10% reduction that project teams can take from the baseline.

EQUATION 4. Adjusted monthly landscape water requirement

Final LWR = (Adjusted LWR (calculated)) × (1.1) × (Percentage LWR)

CONNECTION TO ONGOING PERFORMANCE

LEED O+M WE credit Water Performance : Designing out the need for a permanent irrigation system, selecting native or adapted plants for project landscaping and/or installing efficient irrigation systems reduces irrigation water use throughout the building life cycle, which may improve a project's water performance score. The use of alternative water systems for irrigation further reduces building potable water use.

REQUIRED DOCUMENTATION

Documentation	Option 1	Option 2
Alternative water source and controls calculations		X

REFERENCED STANDARDS

NONE

TERMS AND DEFINITIONS

Conventional irrigation a region's most common system for providing water to plants by nonnatural means. A conventional irrigation system commonly uses pressure to deliver water and distributes it through sprinkler heads above the ground.

Peak watering month the month with the greatest deficit between evapotranspiration and rainfall. This is the month when the plants in the site's region potentially require the most supplemental water typically a mid-summer month. (Sustainable Sites Initiative)

Native vegetation an indigenous species that occurs in a particular region, ecosystem, and habitat without direct or indirect human actions. Native species have evolved to the geography, hydrology, and climate of that region. They also occur in communities; that is, they have evolved together with other species. As a result, these communities provide habitat for a variety of other native wildlife species. Species native to North America are generally recognized as those occurring on the continent prior to European settlement. Also known as native plants.

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THANK YOU

Water

CERTIFIED WATER EFFICIENCY SOLUTIONS
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THE WORLD'S 1ST GREEN
TECHNOLOGY MARKETPLACE
