



THE SUSTAINABLE SITES INITIATIVE™

Research Benefits and Scope of Services:

Prof. David Hopman and Ms. Sonal Parmar have been involved in studying The Sustainable Sites Initiative (SITES™) Guidelines and Performance Benchmarks and other documents provided by SITES™. Guidelines and Performance Benchmarks 2009 is the product of more than five years of work by a diverse group of experts in soils, hydrology, vegetation, materials and human health and well-being. The Initiative outlines criteria for sustainable land practices that will enable built landscapes to support natural ecological functions by protecting existing ecosystems and regenerating ecological capacity where it has been lost. It focuses on measuring and rewarding a project that protects, restores and regenerates ecosystem services – benefits provided by natural ecosystems such as cleaning the air and water, climate regulation, and human health benefits. The SITES™ rating system is based on a scale of 250 points.

Rating System:	250 Points Possible
One Star: (LEED certified)	100 points (40% of total points)
Two Stars: (LEED silver)	125 points (50% of total points)
Three Stars: (LEED gold)	150 points (60% of total points)
Four Stars: (LEED platinum)	200 points (80% of total points)

Structure of the Prerequisites and Credits:

- 1) Site Selection
- 2) Pre- Design Assessment and Planning
- 3) Site Design- Water
- 4) Site Design- Soil and Vegetation
- 5) Site Design- Materials and Selection
- 6) Site Design- Human Health and Well- Being
- 7) Construction
- 8) Operations and Maintenance
- 9) Monitoring and Innovation

At present Prof. David Hopman and Ms. Sonal Parmar are involved with the certification process of the UTA Green at College Park which has been selected as SITES™ pilot project. They have a thorough understanding of the SITES™ credit rating system and the ongoing process of documentation of pilot project requirements. Below is a general outline of the certification process.

- 1. Attending Monthly Webinars:** It is mandatory for all Pilot Projects to attend the SITES™ monthly webinars that take place every second Wednesday of every month between 12.30pm-1.30pm.
 - 2. Overall Point Analysis:** Calculation of all possible points that can be earned for the project according to the SITES™ scorecard.
 - 3. Analysis of each possible credit:** Each possible credit has to be analyzed in terms of requirements that are met and supporting documentation such as the site assessment sheet, narrative for each credit, providing submittal templates such as plans or maps, calculations, applicable lists, etc have to be worked on and provided.
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- a. Site assessment: This is a document that is a comprehensive data of existing site conditions, in terms of climate and energy, hydrology, soils, vegetation, material inventory and human use of site; and information about the site's local and regional context in terms of reference conditions for soil and vegetation, climate and energy, Hydrology, materials, plant and soil procurement.
 - b. Narrative for each possible credit: A short narrative describing how the site meets the credit has to be written for each possible credit.
 - c. Submittal templates: These may be in the form of providing lists of plants, materials, stakeholders, vendors and different agencies involved. They may be in the form of maps or plans.
 - d. Calculations: There are a number of calculations sheets that have to be filled up such as calculating the biomass density or irrigation calculations.
- 4. Data collection for the supporting documents:** For the above documents data has to be collected from various agencies involved with the site design and construction.
- a. Architectural/Landscape Consultancy
 - I. Site Plans
 - II. Drainage plans
 - III. Soil Data
 - IV. Water requirement data
 - V. Material data
 - VI. Design analysis
 - VII. Plant data
 - VIII. Others
 - b. Engineering/Construction Firm
 - I. Equipments used
 - II. AEC data
 - III. Site information
 - c. Maintenance and Operations Agency
 - I. Types of pesticides
 - II. Equipments used on site.
 - d. Client
 - I. All data will be provided by client
 - II. All data should be printed and in soft copy
- 5. Data Analysis:** Data analysis will be done in the following parts
- a. Collection of data
 - b. Site Analysis/site visits
 - c. Assessment of the site according it the SITES™ rating system
- 6. Site Visits and attending construction meeting:** Site visits are required to document the site and for data collection. As a part of the requirements from SITES™, it is required to attend construction meetings.
- 7. Final Report/Recommendations/Presentations**
- a. Hard copy of SITES™ report
 - b. Power point presentation
 - c. Recommendations

Example for SITES™ submission documents:

The following is an example of a calculation sheet for irrigation requirements (the sheet is for reference only and does not reflect final calculations).

CREDIT 3.2: Reduce potable water use for landscape irrigation by 75% or more from established baseline: Requirements:

- 1) Construction drawings (as built) that include planting schedule, plant types (ground cover, shrubs, trees, and/or turfgrass), Landscape coefficients and irrigation set (i.e. drawings indicating locations and specifications for irrigation system) and clearly outline water sources in the drawings.
- 2) Brief narrative describing the landscaping and irrigation design strategies employed by the project.
- 3) Use the irrigation calculator, enter the values for Baseline Landscape Water Requirement (BLWR), Designed Landscape Water Requirement (DLWR), Non Potable Sources (NPS) and results. Also provide average monthly rainfall for the site's peak watering month.

CREDIT 3.2: Reduce potable water use for landscape irrigation by 75 percent or more from established baseline

1. BLWR - BASELINE LANDSCAPE WATER REQUIREMENT.

(Eto*A*Cu)

Eto (inches/month)	A (square feet)	Cu	BLWR (gallons/month)
8.12	164000	0.6233	830036

Eto= average reference evaporation for the site's peak watering month, provided locally (inches/month)
 A= Area of irrigated landscape in square (area designed with permanent irrigation system)
 Cu= Conversion factor (0.6233 for results in gallons/month)

2. DLWR - DESIGNED LANDSCAPE WATER REQUIREMENT.

(RTM x [(Eto x Kl)-Ra] x A x Cu)

Eto (inches/month)	Allowable Rainfall (inches/month)	Ra=25% of Allowable Rainfall
8.12	1.71	0.4275

Area of Hydrozone (square feet)	Plant type within hydrozone	Kl = Landscape coefficient	Distribution uniformity (enter fraction % eg .80)	Landscape water requirement (gallons/month)
269	Trees	0.5	0.7	870
25,078	Drainage Garden	0.2	0.7	389
2,599	Shrubs A	0.5	0.7	870
2,549	Shrubs B	0.2	0.7	2716
38,193	turf grassA	0.7	0.7	178764
7,340	turf GrassB	0.7	0.7	34355
77,223	Native Grass	0.2	0.7	82273
Designed Landscape Water Requirement (gallons/month) DLWR				300237

RTM= Run time multiplier, equal to 1/low quarter distribution uniformity

Eto= average reference evaporation for the site's peak watering month, provided locally (inches/month)

KL= landscape coefficient for type of plant in that hydrozone

Ra = Allowable rainfall (25% of average monthly rainfall for the site's peak watering month provided locally (inches/month))

A- Area of Hydrozone (square feet)

Cu= Conversion factor (.6233 for results in gallons/month)

TABLE 1: PLANT TYPE AND ESTIMATED LANDSCAPE COEFFICIENT (KL)

Plant Type	KL		
	Water Requirements		
	Low	Medium	High
Ground Cover	0.2	0.5	0.7
Shrubs	0.2	0.5	0.7
Trees	0.2	0.5	0.7
Turf grass	0.6	0.7	0.8

TABLE 2: DISTRIBUTION UNIFORMITY

Irrigation Types	DU or EU
Drip - Standard	70%
Drip - Press Comp	90%
Fixed Spray	65%
Micro Spray	70%
Rotor	70%

3. NON-POTABLE SOURCES

Volume of non-potable sources used for irrigation (gallons/month)

NPS	0
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4. DESIGNED LANDSCAPE'S PERCENTAGE REDUCTION IN POTABLE WATER USE FROM BASELINE CASE

(BLWR - (DLWR-NPS))/BLWR

Baseline Landscape Water Requirement from Part 1 (gallons/month)	830036
Designed Landscape water Requirement from Part 2 (gallons/month)	300237
Non Potable source from Part 3 (gallons/month)	0
Percentage Reduction in potable water use from baseline case	64