



Smart from the Start is a water conservation program that provides user-friendly tools and landscape templates to assist new homeowners, developers and others design and install beautiful, water-smart landscapes. The California Urban Water Conservation Council (CUWCC) worked with many landscape industry, government, and business organizations to develop this Water Smart Landscape Checklist and the associated Landscape and Irrigation Templates to help achieve these benefits and meet the basic principles of water-smart landscape and irrigation system design.

This Water Smart Landscape Checklist forms the basis of the Landscape and Irrigation Templates, highlighting components to be incorporated or considered in landscape and irrigation design. The purpose was to develop a checklist and illustrate how landscape water conservation concepts from a checklist might look when translated into landscape and irrigation designs. The intent is to support, not supersede, other existing landscape water conservation programs. Items on the checklist with an “R” next to the box are considered required. Most required items reflect sections from the California Model Water Efficient Landscape Ordinance which can be found at www.owue.water.ca.gov/landscape/ord/ord.cfm. The section numbers in the checklist are from that ordinance.

IRRIGATION SYSTEMS

<input type="checkbox"/> R	Water budget. Estimated Water Use (EWU) does not exceed Maximum Annual Water Allotment (MAWA) of 70% ETo (Section 492.7*).
<input type="checkbox"/>	Reduced water budget. Estimated Water Use (EWU) does not exceed 50% ETo.
<input type="checkbox"/> R	<p>Irrigation Components and Design. (Section 492.7*)</p> <p>Install check valves to prevent low head drainage.</p> <p>Select appropriate nozzles to prevent overspray.</p> <p>Use separate valves with matched precipitation rates for each hydrozone.</p> <p>Irrigate trees on separate valves to provide deep root watering.</p> <p>Provide head-to-head coverage.</p> <p>Install no overhead spray for planting less than 8-feet wide.</p> <p>Specify weather-based (automatic, self-adjusting) irrigation controllers that include a moisture and/or rain sensor shutoff.</p>
<input type="checkbox"/>	<p>Additional Irrigation Components and Design Considerations.</p> <p>Install master valve and high flow shut-off or flow sensor.</p> <p>Provide pressure regulator where static pounds per square inch (PSI) is 80 or higher.</p> <p>Do not exceed maximum velocity 5-feet/second or 1-inch/hour application rate on > 3:1 slopes.</p>
<input type="checkbox"/>	Irrigation Water Source. Install rain garden system, rain harvest system, or graywater system.
<input type="checkbox"/>	Irrigation Zones. Separate hydrozones by micro-climates and soil types.
<input type="checkbox"/> R	Irrigation Schedule. Provide annual irrigation program with monthly irrigation schedules with intervals, run times and numbers of cycles. (Section 492.10*)
<input type="checkbox"/>	Additional Irrigation Schedule Considerations. Provide precipitation rates for each valve type.
<input type="checkbox"/> R	Landscape and Irrigation Maintenance Schedule. Schedule the minimum amount of water to



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	maintain plant health. Avoid irrigation during times of high temperature or wind. (Section 492.12*)
<input type="checkbox"/>	Additional Landscape and Irrigation Maintenance Schedule Considerations. Provide maintenance schedule and instructions to homeowner either on DVD or booklet form.
<input type="checkbox"/> R	Water waste prevention. Prohibit runoff, low head drainage, and overspray (Section 493.2*).
<input type="checkbox"/> R	Sub-metering. Install dedicated meters for areas > 5000 square feet or as required by local agency, (Section 492.7*).
<input type="checkbox"/> R	Certified Professional Designs and Inspections. Design or review of new irrigation plans by a certified landscape professional such as an Irrigation Association Irrigation Designer or Water Conservation Manager; Landscape Contractors Association Water Manager; American Society of Irrigation Consultants Associate; WaterSense Partner or other certified individual as determined by the local authority.

LANDSCAPING

<input type="checkbox"/> R	Plant selection (Section 492.6*). Select and locate plants according to the microclimate and group with similar water needs in separate hydrozones. Select no species that will require extensive shearing; plants will grow in space provided. Avoid invasive species.
<input type="checkbox"/>	Additional plant selection considerations. Select water conserving native or climate appropriate plants. Select plants that will not require supplemental irrigation when established.
<input type="checkbox"/> R	Turf restrictions. Limit turf to slopes less than 10%. Restrict turf from areas with difficult to irrigate shapes or areas less than 8 feet wide. Provide a 24 inch buffer between turf and impervious hardscape. (Section 492.6*).
<input type="checkbox"/>	Additional turf restriction considerations. Provide no turf in front yards. Limit water intensive landscaping and turf to 10 percent of the landscape.
<input type="checkbox"/> R	Plant groupings. Group plants in hydrozones (i.e. plants within each valve area have same watering requirements) (Section 492.6*).
<input type="checkbox"/> R	Mulching. Provide two inches minimum of mulch in all but turf areas (Section 492.6*).
<input type="checkbox"/>	Additional Mulching Considerations. Implement sheet mulching. Cover all soil with a minimum of 3 inches of recycled mulch, from green waste and or recycled wood construction waste.
<input type="checkbox"/>	Soil amendments. Provide 2" compost tilled into top 6-12" soil, or per soils report.

SITE PLANNING/DESIGN

<input type="checkbox"/> R	Irrigation planning. Develop preliminary irrigation plan for site during planning/design phase to ensure water conservation in terms of irrigation is considered throughout the project (Section 492.7*).
<input type="checkbox"/>	Additional irrigation planning consideration. Develop plan to provide adequate static PSI with minimum long term maintenance concerns or costs.
<input type="checkbox"/> R	Consider the potential for fire. For urban, suburban and rural sites adjacent to fire sensitive open space or wildlands only: Submit a Fire Mitigation Plan per local Fire District requirements (Section



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	492.6*).
<input type="checkbox"/>	<p>Plant and protect trees to moderate building temperatures. Reduce the amount of energy used to cool buildings and reduce the amount of water needed by plants by planting deciduous trees (in consideration with fire requirements) to shade structures and paving, especially on the south and west sides of buildings. Evaluate microclimate, exposure and topography. Protect existing trees and/or specify new trees such that a minimum 50% or more of west facing windows and a minimum 25% of west facing building walls will be shaded (at 4 pm in September) within 15 years.</p>
<input type="checkbox"/>	<p>Create and/or preserve wildlife habitat and native plant community. Encourage beneficial insects, birds and amphibians in the yard to naturally deter unwanted pests by providing native plantings, shelter (boulders, logs, birdhouse, etc) and water source as appropriate. Enhance and/or protect existing native plant communities. Include language in construction contracts that penalize contractor for destruction of protected soil, trees and vegetation. Specify plants with a minimum of 20% per site/yard that attract beneficial insect species.</p>
<input type="checkbox"/>	<p>Reduce the heat island effect with paving materials & shading paved areas. Utilize low heat emitting paving materials and maximize shading of all paved areas. Design for trees or structures to shade 25% of paved areas (at noon on June 21) within 15 years. Specify trees or other structures to shade 33% of paved areas (at noon on June 21) within 15 years.</p>
<input type="checkbox"/> R	<p>Soil management plan. Include lab soil analysis in soil management plan to evaluate physical and chemical properties & on-site soil assessment. Report to include recommendations for green waste compost, organic fertilizers and assess drainage (Sec. 492.5*).</p>

DRAINAGE & STORMWATER MANAGEMENT

<input type="checkbox"/>	<p>Design a system to capture and filter or recharge water. Design stormwater treatment measures, either on individual lots or for combination of parcels, that capture and infiltrate a minimum of 85% of the average annual runoff OR comply with local stormwater ordinances if more strict (Sec. 492.15*).</p>
<input type="checkbox"/>	<p>Minimize impervious surfaces. Minimize impervious surfaces installing permeable paving, gravel or other porous surfaces for: 25% of the paved area excluding the street.</p>

GRADING/ SOIL HEALTH

<input type="checkbox"/> R	<p>Erosion and sedimentation control. Submit a stormwater pollution control plan per local ordinances (Sec. 492.15*).</p>
<input type="checkbox"/>	<p>Additional erosion and sedimentation control consideration. Specify compost berms, blankets or socks for controlling erosion.</p>
<input type="checkbox"/>	<p>Remove and store topsoil before grading. Remove and store topsoil with a maximum topsoil pile height of 6 feet and protect the stored topsoil from erosion. Limit site disturbance to building footprint, roads and driveway plus 10' perimeter.</p>
<input type="checkbox"/>	<p>Protect soil from compaction. Protect soil from compaction to the maximum extent possible. Specify in design documents and/or maintenance manual that soil is not worked when wet, generally between October and April. Identify fence lines around areas that are off limits to cars and parking of heavy equipment on</p>



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	construction plans and fencing is installed and maintained during construction. Limit site disturbance to building footprint, roads and driveway plus 10' perimeter.
<input type="checkbox"/> R	Aerate compacted soils. Include specifications in design documents to alleviate compacted soils before planting, for all landscaped areas that cannot be protected during construction.
<input type="checkbox"/>	Use IPM design and construction practices to prevent pest problems. Utilize an integrated pest management (IPM) approach when designing, constructing and maintaining the landscape which uses cultural, mechanical, physical, and biological control methods before using pesticides. Chemical controls are applied only when monitoring indicates that preventative and non-chemical methods are not keeping pests below acceptable levels. When pesticides are required, the least toxic and the least persistent pesticide that will provide adequate pest control is applied.

WATER SOURCE & NON-IRRIGATION USE

<input type="checkbox"/>	Municipally recycled water. Where allowed and available, design and install an irrigation system that is capable of delivering recycled water (Section 492.14*).
<input type="checkbox"/>	Rainwater harvesting. Direct all downspouts empty into landscape areas. Design and install system using surface run-off and/or roof run-off for landscape irrigation or emergency supplies for individual lots and/or for community areas.
<input type="checkbox"/> R	Water features. Ornamental water features use re-circulating water (Sec. 492.8*).
<input type="checkbox"/>	Additional Water features consideration. Water features use recycled water.

VERIFICATION

<input type="checkbox"/> R	Irrigation audits, existing landscapes. Conduct irrigation audits every 5 years where water use is greater than MAWA (Sec. 492.6*).
<input type="checkbox"/>	Additional irrigation audits, existing landscapes consideration. Conduct irrigation audit if site exceeds EWU by 25% or more for 6 consecutive months.
<input type="checkbox"/>	Independent verification. Verify with third party validation by local agency or independent consultant, as determined by local agency.

HOMEOWNER EDUCATION

<input type="checkbox"/>	Manual. Post owners manual, including required seasonal watering schedule, for all irrigation controllers and other irrigation components adjacent to the irrigation controller. Recommend regional landscaping guide (Bay Friendly Gardening, Sierra Nevada Yard & Garden, CA Friendly Gardening Guide, etc); (Section 492.18*).
<input type="checkbox"/>	Additional Homeowner Education. Provide to-scale as-built drawings and instructions as PDFs on compact disc for homeowner. Include a walk-through of irrigation systems and key plant maintenance requirements.

MAINTENANCE

<input type="checkbox"/>	Provided maintenance guidelines restricting chemical use, and outlining sustainable practices. Home Owners Association (HOA) maintenance contracts follow sustainable practices.
<input type="checkbox"/>	Train maintenance contractor in Smart from the Start operations and procedures.