

Soil Management and Mulching



Optional Water Efficiency Measure: May contribute to the 30 percent water efficiency requirement, depending on the chosen WaterSense® Approved Certification Method (WACM).



UNDERSTAND

- Healthy soil helps cycle nutrients, minimize runoff, retain water, and absorb excess nutrients, sediments, and pollutants.
- Local jurisdictions may have post-construction soil management requirements as part of their stormwater management programs.
- Soil characteristics such as pH and composition can help determine appropriate plant choice for a water-efficient yard.
- Slopes can be challenging because of the potential for erosion and runoff. If slopes cannot be avoided, consider installing plants with deeper root zones, such as native groundcovers and shrubs, to provide stabilization and prevent erosion. Ensure that appropriate plantings are used, and that only irrigation methods suitable for slopes are applied.
- Soil amendments can be organic or inorganic. They are mixed into the soil and help the soil retain moisture so that less irrigation is needed. As a result, soil amendments can result in short- and long-term water savings and improve plant health.
- Mulch can also be organic or inorganic. Organic mulches include wood-based materials such as wood chips, while inorganic mulches include rock-based materials such as pea gravel or lava rock.
- Mulching prevents water from evaporating from the soil and, in the case of organic mulch, decays and improves soil health over time.

Benefits of Mulching

The benefits of mulching for maintaining healthy soil include:

- **Preventing loss of water from the soil by evaporation.** Moisture moves to the surface and evaporates if the soil is not covered by mulch.
- **Maintaining a more uniform soil temperature.** The mulch acts as an insulator that keeps the soil cool under intense sunlight and warm during cold weather.
- **Preventing crusting of the soil surface.** Mulch improves absorption and percolation of water into the soil and reduces erosion.
- **Improving soil structure.** If using organic material for mulch, as it decays, the material becomes topsoil and can also add nutrients to the soil.



BUILD

- **RETAIN** and protect native topsoil and vegetation where practical. If soil needs to be removed, stockpile and reuse it to restore disturbed soils.
- **MINIMIZE** soil compaction during the construction phase. Soil can become compacted during construction from equipment and foot traffic. Aerate soil with a lawn aerator to increase the infiltration

of water into the ground, thus improving water flow to the plants' root zones and reducing water runoff. See the Sustainable Development Code web page at

<https://sustainablecitycode.org/brief/reduce-soil-compaction-during-construction-2/> for more information on reducing soil compaction during construction.

- **COLLABORATE** with the landscape professional to ensure that any steep slopes are planted correctly. Choose plant types that will hold onto the soil, and be mindful of irrigation system design, if applicable. Work with the landscape professional to ensure that any material placed on the slope will not move over time. This guidance primarily applies to slopes greater than four feet of horizontal run per one foot of vertical rise (4:1, 25 percent or 14 degrees).
- **APPLY** two to three inches of mulch to non-turf landscaped areas, such as those with shrubs, trees, annuals, perennials, and/or groundcover. Avoid piling mulch against the stems of plants or the trunks of trees to prevent rot.
- **AVOID** using rock mulches in sunny areas or around non-arid climate plants, as they radiate large amounts of heat and promote water loss that can lead to scorching.



VERIFY

- **CONFIRM** that the soil has not been compacted from construction activities by ensuring that the soil is soft enough to push a shovel in and that there are no signs of pooling or puddling of water in low areas.
- **VERIFY** that steep slopes are covered or planted appropriately to ensure stability. This primarily applies to slopes greater than four feet of horizontal run per one foot vertical rise (4:1, 25 percent or 14 degrees). Verifiers can measure the grade of slopes with tools such as a laser level or clinometer.
- **MEASURE** the depth of mulch in landscape beds using a ruler or tape measure.

**NOTE: Consult with the Home Certification Organization for specific verification protocols.*

Soil Test Kit

To determine soil health, the builder or homeowners can have their soil tested for nutrient content, pH, soil composition, and organic matter content. Contact a local Cooperative Extension Office at www.nifa.usda.gov/land-grant-colleges-and-universities-partner-website-directory?state=All&type=Extension or state university for a soil test kit or soil testing services.

Learn More

Go to WaterSense's Landscaping Tips web page at www.epa.gov/watersense/landscaping-tips to learn more about strategies to improve and maintain soil health.

The Sustainable Technologies Evaluation Program also maintains a guide for preserving and restoring healthy soils during construction at <https://sustainabletechnologies.ca/home/urban-runoff-green-infrastructure/healthy-soils/preserving-and-restoring-healthy-soil-best-practices-for-urban-construction/>.

