



Raised Bed Construction:

Soil conditions throughout much of Texas are not well suited for landscape plant materials. Sandy soils tend to drain /dry out rapidly, while clay soils hold excessive amounts of moisture during periods of heavy rainfall. Sandy soils are relatively easy to amend through the addition of decomposed organic matter. Clay soils pose a greater challenge and typically require more effort to create suitable conditions for landscape plant materials.



The key, in both situations, is to strike a balance between the aeration, drainage and water holding characteristics of the soil. The goal is to have adequate aeration and drainage to avoid excessive moisture during periods of heavy rainfall (i.e. spring and fall) and enough water holding capacity to sustain plants during dry periods (i.e. summer). This is most commonly achieved by adjusting the distribution of particle sizes in the soil. Large particles promote aeration and drainage; small particles contribute to water retention. Landscape soil “mixtures” are frequently made from a combination of materials, with varying particles sizes, to obtain optimum aeration, drainage and water holding properties.

The term “heavy” is frequently used to describe the physical properties of clay soils. It refers to the water holding characteristics associated with the extremely small particles that make up a clay soil. Heavy soils can be amended with coarse particle materials to enhance aeration and drainage. However, during periods of excessive rainfall, water can eventually overcome these built in properties and fill the soil like a bathtub. Although this condition may only last for a limited time, plant loss from the depletion of soil oxygen and/or root disease(s) is very common. Under these conditions the construction/use of raised beds may be the best option for long-term landscape success.

Raised beds can range in height from a few inches to several feet. Generally speaking, beds less than 6” in height do little to promote drainage. Beds can be either linear or curvilinear in shape and should compliment the overall landscape design. Begin the construction process by laying out the beds using landscape paint, a flexible garden hose, string or other marking tools. Next, remove existing vegetation to reduce/eliminate future weed problems. Chemical herbicides (glyphosate) can be useful for broad spectrum control. Removing a 3” – 4” layer of vegetation/sod is also an effective approach. Nutsedge and Bermuda grass are particularly difficult to control.

Earth-Kind uses research-proven techniques to provide maximum gardening and landscape enjoyment while preserving and protecting our environment.

The objective of Earth-Kind is to combine the best of organic and traditional gardening and landscaping principles to create a new horticultural system based on real-world effectiveness and environmental responsibility.

The principal goals of Earth-Kind include:

- Water conservation
- The safe use and handling of fertilizers & pesticides
- Reduction of yard wastes entering urban landfills
- Landscaping for Energy Conservation

As your interest and knowledge in these areas grows you will have an increased awareness of the many programs, practices and activities that are Earth-Kind. Working together we can make a difference in conserving and protecting our valuable natural resources.



For more information
see our Web site:

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Line the bed with an appropriate edging material. Railroad ties, landscape timbers, rock, brick, concrete block, metal and plastic edging, etc. are all commonly used materials in the construction of raised beds. Be sure to select an edging material that compliments the overall landscape design. Concrete reinforcing bars and/or epoxy can be used to hold some edging material in place. Stone and brick are often used dry stack.

Consider irrigation and install any necessary system components. Raised beds work well with conventional overhead irrigation systems or with low volume systems (i.e. drip, porous pipe, etc.).

The use of a semi-permeable weed barrier mat can help suppress many grass and broadleaf weeds. It should be noted, however, that nutsedge frequently grows right through these mats - another important reason to do a thorough job of weed control/elimination **BEFORE** constructing a raised bed.

Fill the bed with a high quality landscape soil mix. This material should include a range of particle sizes to provide for optimum aeration, drainage and water holding characteristics. These mixes are often costly but can be extremely important for long-term success. **IMPORTANT** – when adding the mix, **DO NOT** attempt to incorporate this material in to the native soil. **DO NOT** rototill or otherwise disturb the native soil underlying the bed. These practices will largely nullify efforts to increase aeration and drainage and will also unearth weed seed that can later become a problem. Construct the bed directly on top of the soil and do not disturb the surface in the process. Think of it as creating a huge container garden on top of the existing soil.

Lightly compact the soil mix by walking through the bed. This will help prevent settling following watering/irrigation. Add soil mix as necessary to within 2” – 3” of the top of the edging. The top 2” – 3” area will later be required to hold a thin layer of mulch. Raised beds should be crowned slightly higher in the middle to promote surface drainage.

After planting, apply a 3” – 4” layer of mulch to the bed. Mulch has numerous benefits including moisture retention, weed suppression, moderating soil temperature, etc. Organic mulches break down over time and are typically replenished twice/year.

Raised beds will require occasional maintenance to repair/replace edging materials. Also, over time landscape soil mixtures break down as the result of microbial decomposition. It is important to periodically replenish the mix to maintain desired aeration, drainage and water holding characteristics. Replenishing the mulch layer can also help maintain these properties. Do not allow the level of landscape soil mix to fall below the top of the bed. This may create a bathtub effect – holding excessive moisture during periods of heavy rainfall.

Raised beds can be a very effective means of dealing with even the worst soil conditions. The cost of a building a raised bed can be significant. Therefore it is important to understand the basics of design, construction, and maintenance to ensure maximum landscape benefits and long-term success.



See the Earth Kind Web site for more ways to preserve and protect the environment...

<http://EarthKind.tamu.edu>