

Raised Bed Gardens

Kentucky GROW



The goals of this module are:

To learn how to construct raised beds for growing vegetables, flowers, and herbs.

What you need:

- Three 8' boards, 12" wide and 2" thick (See Materials section for the type of wood)
- One 4' two-by-four inch board
- About a pound of 12d or 16d galvanized nails
- Hammer
- Circular saw to cut the boards
- Topsoil and compost to fill the bed. An 8' x4' x12" bed requires about a cubic yard of soil.
- Shovel
- Wheelbarrow
- Carpenter's 3' level
- Measuring tape
- Safety glasses
- Gloves

Time needed:

Once materials and tools are assembled, a typical participant can build a simple, wooden, raised bed in an hour. If more permanent structures made of brick or stone are desired, consult a mason for guidance.

How to prepare:

The raised bed is a simple building project, but it might be worthwhile to have the lumber cut ahead of time and the ground underneath the bed prepared as well. Also, few will be able to resist planting in it once it is finished, so consider having seeds or plants on hand to give the bed that "completed look."

Always use safety glasses and gloves to minimize injuries. Have available a first-aid kit.

Most importantly, tailor the size and design of the bed to the end users. The simple bed below might not satisfy the gardeners (or future gardeners) you wish to reach. This will take a lot of thought and time, and a separate session might be necessary to hammer this out. Gather together people of all abilities and let them tell you what works for them and what doesn't, using the guidelines below.

The program:

Raised beds have traditionally been used when the available space for gardening has poor soil or contains rocks that are hard to remove. Now raised beds are installed in gardens for other reasons: they have greater yield because there are no interior pathways, water and fertilizer can be concentrated where needed, and the soil is not compacted by foot traffic. Pathways can be constructed of materials that allow for easy mobility and to keep mud to a minimum. For the gardener with limited reach or mobility, raised beds bring the garden up to a level where it is comfortable to work, a benefit now being discovered by gardeners of all abilities.

Materials

Raised beds can be made out of a variety of materials. The most common are made of 2" rough or utility-grade planks of rot-resistant wood such as cedar, redwood, or black locust. Pine boards are much less expensive, but the trade-off is a shortened life span of three to five years for the raised bed, as compared to beds enclosed by redwood, which can last up to 20 years. Stone and brick make beautiful and long-lasting beds, but their construction is more complicated and will not be discussed in this module (see "Where to Go From Here" later in the module). Stone and brick's characteristic durability also contributes to its ability to scrape up knees, legs, walkers, and wheelchairs. Other materials to consider include concrete blocks, stacked flagstone, reinforced concrete, interlocking stone blocks, and even bales of hay. Sometimes soil is simply mounded up and planted.

If vegetables or fruit are going to be planted in the raised bed, avoid using pressure-treated or water-repellant lumber. Studies have suggested that the growing plants and their fruit can absorb the chemicals in the wood. Creosote-soaked railroad ties should also not be used for these types of beds.

There are kits available through garden centers and garden supply catalogs that can simplify the assembly. Some kits have plastic corner joints that hold boards at any angle, allowing for beds with more than four sides. Other raised bed kits are made completely of plastic, boards and all. These kits set up in minutes and require a minimum of tools, but are more expensive to build.

Size

For the comfort of most people, a bed should not be wider than 24" if it is to be worked from one side, or double the width at 48" for access from both sides. A more personal approach would be to measure from the armpit to the fingertips, lessening it if arm extension is painful or not possible. Consider also whether enabling tools will be used and how far the tools can reach.

A length of 8 feet or less works well, as anything longer would require side support, and most lumber comes in 8-foot lengths. Any length is possible as long as it is strong enough to hold the soil.

Various considerations must come into play when deciding the height. The bed should be at least 12 inches deep to allow for the root growth of most plants. Most chair seats are 16" to 19" off the ground, so this is a good height if the gardener wishes to sit on the edge. Suggested height for gardeners who are seated is 18" to 24". For standing gardeners, 30" to 40" high is usually the

most comfortable (at these heights, wooden sides are probably not the best choice). For raised-bed gardens intended to serve all abilities, a variety of beds at different heights might be the way to go.

The following chart might be helpful in sizing raised beds for a variety of needs.

Suggested dimensions for raised beds

	Wall height (in.)	Wall width (in.) single sided access
Typical men	44	19
Typical women	40	17
Typical women over 60	38	16
Seated men	33	24
Seated women	29	20
Seated women over 60	28	19
Those with mobility impairments	24	14

Note: Sizes are estimates only. The width for people with mobility impairments assumes a side-on gardening position. The source for this table is the book *Landscape Design for the Elderly and Disabled People*, by J.Stoneham and Peter Thoday, Garden Art Press, 1996.

Design Considerations

There are some design considerations to think through before building the raised bed. If the edge is meant to be sat upon, a 6-inch ledge usually provides adequate support for sitting and provides a place to set tools. However, a cap decreases the reach of a gardener who is seated alongside the bed in a wheelchair, and this must be taken into account when deciding the width.

Higher beds designed to be worked on while standing need toe holes, or recessed areas in the bottom. Wheelchair users working head-on need a free-standing table-top planter at least 27 inches high. A shelf cantilevered from a wall would work well also.

Space beds no closer than 36 inches from other structures so that a wheelbarrow, lawn mower, or wheelchair can pass through easily, and allow 5 feet for a person in a wheelchair to turn around.

The beds should be constructed near water sources and on or near paved areas for easy access. Consider adding rails or hand grips and tool holders on the top.

Basic Directions for Building a Raised Bed

The materials listed above and the directions below are for a wooden raised bed 4 feet wide, 8 feet long, and 12 inches deep. Modify the dimensions as necessary.

1. Build the box on a hard, level surface, such as a deck or driveway. Cut the two-by-four into four segments, each segment a foot long, to make the corner posts. These could be made taller to support shade cloths or cover cloths. To make one side of the box, lay one of the 8-foot boards flat, and place a corner post (with the 4-inch side flat against the board) under each end. Line up each post carefully so that its edge is parallel with the end of the board, and fasten the pieces with four or five nails. Repeat with the other 8-foot board and corner posts.
2. Saw the remaining 8-foot board in half to make the end boards. Stand one of the 8-foot long sides, complete with corner posts, on edge and line one of the end boards with it. Drive three nails through the end board into the sawed end of the long board and three or four more nails through both end board and corner post.
3. Nail the other end board in place, then sandwich the remaining 8' side between the ends and nail it into place to complete the box.
4. With a helper, move the box to its permanent site. If possible, orient it so the long sides run north and south for maximum sunlight.
5. With a carpenter's level, check to make sure that the box is level all the way around. If not, move the box to the side and dig trenches for the tall side. Avoid building up the soil to level it because it inevitably settles under the weight of the soil in the box.
6. Loosen the top few inches of soil at the bottom of the box to aid drainage. Some people remove any grass sod under the box, but it will smother once covered with dirt. As long as drainage is adequate, do not bother to remove the sod. If burrowing rodents are a problem, line the box with hardware cloth and secure it to the sides with bent-over nails every few inches. You might want to consider removing a strip of sod 4 to 6 inches wide around the bed and covering the dirt with mulch or landscape cloth to prevent grass from traveling under the sides and into the bed.
7. Fill the raised bed with a 50/50 mix of compost and good topsoil. Water the bed well. Some settling will occur, so expect to add a little bit more soil before planting.

*Source: "Building Raised Beds" by Janet Sanchez, published in *Gardening Techniques Illustrated*, Storey Communications, 1996.*

Accommodations for this program:

As with all Kentucky GROW programs, providing needed accommodations is an individualized process. Below are some ideas to get you started, but the best route to take is to listen to the person, as he or she will usually have the best ideas of all!



For those with mobility impairments, make sure that adequate height and reach are established for the raised bed, using the above chart as a guideline. Ensure that all materials to be used in the raised bed are placed at an accessible height and reach. Consider using smaller, lighter, more ergonomic tools for assembly activities.



For people who have cognitive impairments, consider working as a team for this module. As is helpful for anyone completing a project, break tasks into manageable steps. Use photos or pictures to demonstrate each step. Provide options for people to participate in different ways, such as helping to fill the completed bed with soil mix, recognizing that not everyone may enjoy all aspects of constructing the actual raised bed.



For those with learning disabilities, provide the information in a variety of methods. Some individuals learn best by hearing the instructions, others will prefer to see the step by step procedure in writing with pictures or photos, or have the instructions on tape. Written instructions will also be helpful for those with hearing impairments.



For individuals with visual impairments, review placement of the needed materials. Keep tools and building materials away from pathways where they may become obstacles. Don't move items without informing the person. Ensure that the area is well lit. A magnifying glass can make materials easier to see. Provide any written instructions in large print and other alternative formats as requested. When using written information, use contrasting colors (i.e. black text on white background) for those with less visual acuity. As part of the building process, consider building in "cue" areas in the structure such as indentations or Braille that serve as markers as to where plants are located within the raised bed.

Where to go from here:

Accessible Gardening for People with Physical Disabilities, A Guide to Methods, Tools, and Plants, by Janeen Adil, Woodbine House, 1994.

Step-by-Step Gardening Techniques Illustrated, Pamela Lappies, ed., Storey Communications, 1996.

Landscape Design for Elderly and Disabled People, by Jane Stoneham and Peter Thoday, Garden Art Press, 1994.

“Build Your Own Raised Beds,” by Linda Chisari, *Kitchen Garden*, April/May 1997, pgs. 27-30.

“Create an Enabling Garden,” by Gene Rothert, *Fine Gardening*, March/April 2000, pgs. 58-61.

“The Accessible Garden,” by Adele Kleine, *The American Gardener*, May/June 2000, pgs. 48-51.

Gardener’s Supply Company, Burlington, VT, 1-800-427-3363 or www.gardeners.com.

Seeds and Propagation, by Susan McClure and Jim Anderson, Workman Publishing, 1997.

Seed Sowing and Saving, by Carole Turner, Storey Communications, 1997.

“Weekend Gardener.” Website with an extensive amount of information on how to start flower, vegetable, and herb seeds. Online at <http://www.chestnut-sw.com>

This material is available in alternate formats. Contact Kentucky GROW for more information.