



Community Food and Garden Network

Accessible Raised Beds



Raised beds at Troy Gardens in Madison, WI.

“The greatest advantage of raised bed gardening is that it requires much less bending for planting and weeding... I think it is a wonderful way to have a small garden.”

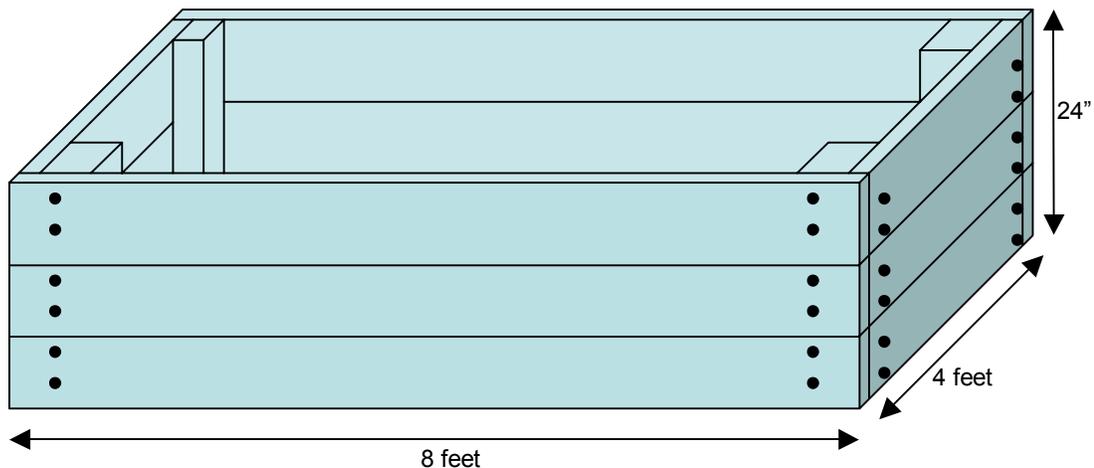
- Mirna Cummings, gardener at Truax Community Garden

It is very important to have support from the community garden and the gardeners using the bed for every step of the process! Before building make sure to set up a meeting with gardeners and CAC (if appropriate) to decide: maintenance issues, land use issues (such as permanent structure stipulations), wheelchair access, construction and design, finances, and filling.

Some Basic Steps to Follow

1) Figure out Dimensions and Design

Always consult potential bed users to determine design and dimensions appropriate to their specific needs! This includes considerations of access, grade, proximity to water and shade, pathway surface, and seating/resting areas. Be creative with the design process! Beds can be made in a T shape or with varying heights and lengths. Find out what is comfortable for the gardener using the bed. The bed should not be wider than 4ft across (if accessible from all sides) because it can be difficult for a gardener to comfortably reach more than 2 feet into the center. To determine the appropriate width, measure the gardeners reach from whatever position they plan to use (seated on bench, seated in a wheelchair, standing, etc.). Then double that number if the bed is accessible from both sides. Remember to consider logistical issues when designing beds, such as time, \$, tools, labor, skill, and space. For example, right angles are the easiest to work with, especially within a rectangular space. The standard raised bed is usually about 16-24 inches high, 4ft wide by 8ft long. Again, use a tape measure to determine the appropriate height for each gardener. This guide will walk through constructing a bed that is 24" high (pictured below), which is a standard height for those using a wheelchair or needing a bench to sit on while gardening.



2) Tools Needed

Cordless power drills, circular or chop saw, ratchet, hammer, shovels, rakes, wheelbarrows, saw horses, safety goggles, level.

3) Supplies

You will need wood, lag screws, washers, and nails. We recommend using the 3"x5/16" Hex Lag Screws (you will need 48 screws to build one 24" raised bed) and 1/4" washers. Choosing the type of lumber can be tricky and there is no perfect choice. We recommend ACQ (Alkaline Copper Quat) Ground Contact treated lumber that the FDA approves for food contact and growing. This lasts for at least 10 yrs. Untreated Black Locust would be our top choice for longevity and sustainability, however, it is nearly impossible to find. Cedar and wood/plastic composite are good options, but among other concerns, more expensive.

You'll need the following lumber:

- 9 - 2"x8"x8'
- 2 - 2"x6"x8' (optional for bench)
- 1 - 4"x4"x8'
- 1 - 2"x6"x10' (optional for bench)

4) Purchase Supplies

For a standard (4'Wx8'Lx24"H) bed the cost for materials is approximately:

Untreated wood	\$90	(\$105 with bench)
ACQ treated wood	\$105	(\$130 with bench)
Cedar or composite	\$155	(\$195 with bench)

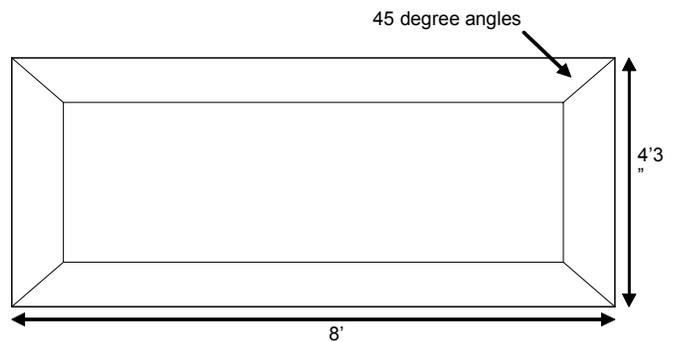
5) Cut Lumber

You need to prepare the lumber before building the bed. This involves cutting the lumber to size and pre-drilling holes for the screws (this step is not necessary, but will make ratcheting much easier and prevent gaps from forming.)

You have 9- 2"x8"x8' pieces of lumber. 6 of those will be for the 8' long sides of the bed and do not require any cuts. However, 3 of them will need to be cut in half so that you end up with 6- 2"x8"x4' lengths (short ends of the bed). Now we have 8' long sides (6) and 4' short ends (6).

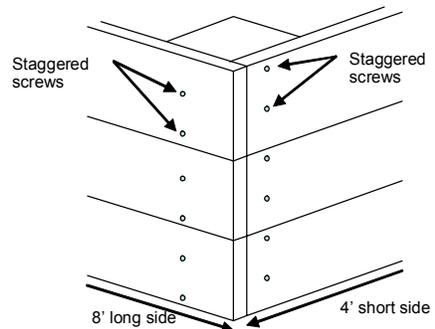
Next, cut the 4"x4"x8' lumber into 22.5" sections [IMPORTANT: 2"x8" lumber is actually slightly smaller than these measurements. When we stack 3 boards high, we expect it to measure 24". However, each board is actually 7.5" high. So when we stack 3 boards high, we actually have a bed height of 22.5".] You will end up with 4 posts each 22.5" high and a little bit of scrap wood.

(Optional Bench) First cut the 2"x6"x10' board into 4'3" sections, you will end up with 2 short end bench pieces. [IMPORTANT: the 8' long side boards will overlap the 4' short end boards, making the short end slightly wider than 4'. So bench pieces will need to be slightly wider (4'3") to fit the shape of the bed. See the corner diagram below.] The 2"x6"x8' lumber will remain this length. Now cut 45 degree angles in the 8' and 4'3" bench pieces so that they fit together as shown above.



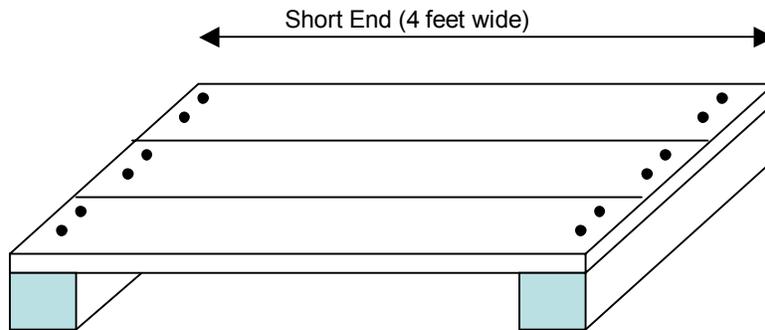
6) Drill holes

The screws will be ratcheted through the 2"x8" sides into the 4"x4" post. To make this easier, pre-drill the holes in the 2"x8" sides slightly bigger than the screw. But do not pre-drill the 4"x4". This will prevent gaps from forming between the 2 wood surfaces. [NOTE: the posts will have screws coming in from 2 sides, and it is important that they don't hit each other. To avoid this, holes on the 8' long sides should be slightly lower than holes on the 4' short sides. See diagram on page 3.]



7) Pre-fab

If the raised bed is being built on uneven ground, we have found that it works best to assemble the short sides (4' ends) of the bed before you get to the garden. Lay the 4"x4" posts on the ground and place the 4' long 2"x8" over posts. Align edges and ratchet in hex lag screws as shown in the diagram below.



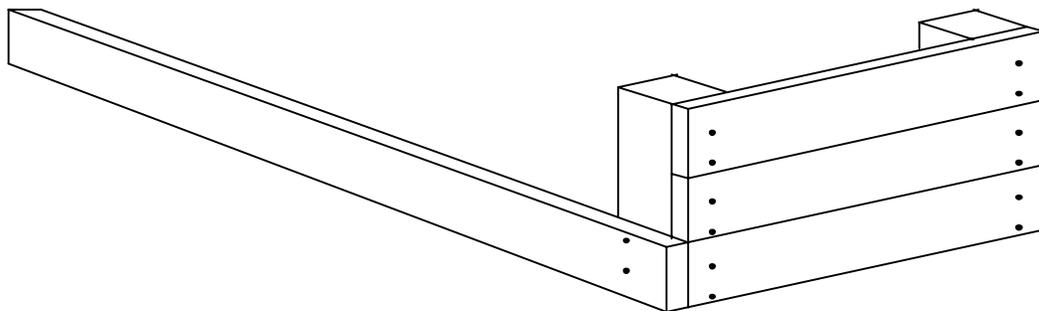
8) Deliver compost and materials to site

It is best to have fill material available at the time of the building. You will want to fill the beds with a mix of 50% compost and 50% top soil if possible. However, a cheaper alternative is to use 100% compost made on site or picked up from one of the free City of Madison sites. Call the Compost Information Hotline at 267-1502. NOTE: Some clean fill dirt and/or small to medium field stones or straw can be added to the bottom of the bed to reduce the amount of fill material necessary.

9) Build the beds

Once on site make sure you have all of the materials and tools needed. Find a relatively flat area near the garden location where you can assemble the entire bed (2 short ends are already assembled- ratchet the 8' boards onto the posts). Level the ground where the bed is going so that all sides are flat and even. Proper leveling can greatly reduce stress on the corner joints and deterioration in the long run. Put constructed finished box on intended area. Level the bed in between each corner post by lifting up or carefully pounding down where necessary. Fill with compost and/or soil. (Optional bench) Add bench pieces by nailing through the 2"x6" boards into the 4"x4" posts. Use 6 nails per post (24 total).

BELOW: Begin to assemble the raised bed by first ratcheting the 4' short ends to the posts. Then stand the short ends up and begin to attach the 8' side boards individually. After you have attached all 8' sides and nailed on the optional bench pieces- you are done!



Enjoy working together as a team and gardening at a comfortable height!

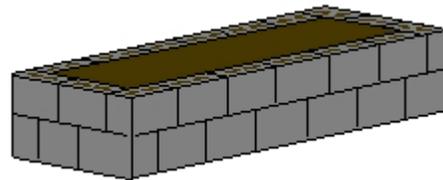
Other Options for Materials and Design

- A) Purchase a raised bed kit from Lee Valley and assemble using wood and concrete pavers. The kit includes the metal brackets that hold it together and detailed instructions- you provide the lumber and pavers. In Madison, you can check out this design at Troy Gardens on the north side. Or visit the Lee Valley website: <http://www.leevalley.com/garden/page.aspx?c=2&p=47455&cat=2>
- B) Make beds out of concrete blocks and rebar, as described in the book "Cinder Block Gardens" by Lynn Gillespie. In Madison, Quann Community Gardeners are building this type of bed in spring of 2005 on the south side.
- C) Use a children's wading pool raised off the ground by an old table. Be sure to drill holes in the pool before planting. Kids like to swim- but vegetables don't!
- D) Create a table top garden for wheel chair accessible gardens. For a diagram and instructions on how to build this type of bed, look at UW Extension publication (A3384) "Specialized gardening techniques: wide-row plantings, square-foot gardening, and raised beds." You can print the publication for free on-line at: <http://cecommerce.uwex.edu/pdfs/A3384.PDF>
- E) Dowling Community Garden in Minneapolis created a wonderful document detailing their process for building 12'x5' raised beds. They used recycled composite decking and Geoblock porous pavement for wheelchair access. See their website at <http://www.dowlingcommunitygarden.org/PDF%20files/AccessibleRaisedBeds.pdf>

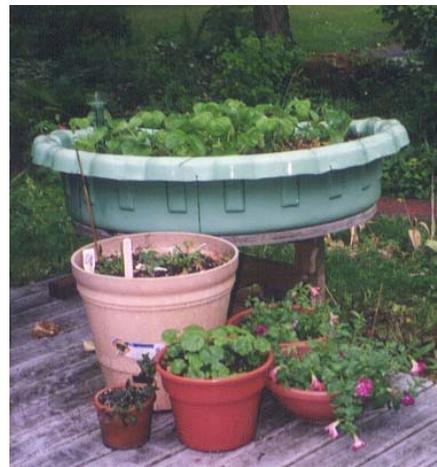
A. Lee Valley kit



B. Concrete blocks



C. Wading pool



D. Table top



A Tour of Madison-area Raised Beds

To determine which type of raised bed is right for you, visit any of the gardens listed below to see different styles and heights. If you would like to register for a raised bed garden at any of the following community garden sites, please call (608) 246-4730 x218.

Institutions

Focuscorps
(3201 Latham Drive)
277-9140

Oakwood Village
(6201 Mineral Point)
230-4383

CDA West Romnes Housing - Southside
Coalition for Aging
(540 W Olin Ave)

Braeburn Ct.
(2797 Fish Hatchery Rd)
270-7218

St. Marys Care Center
(3401 Maple Grove Road)
233-7466

Community Gardens

Atwood Community Garden
(north of Atwood Avenue, along the Isthmus bike path) has 1 raised bed that is wheelchair accessible. The bed is 12' long, 5.5' wide, and 30" high.

Sheboygan Community Garden
(2800 block of Sheboygan Avenue) has about 10 raised bed gardens in a range of sizes and heights.

Gammon Community Garden



Volunteers built raised beds that are 16" tall at the Gammon Community Garden in Madison, WI.

(110 North Gammon Road) has 4 raised beds that are 4' wide, 8' long, and 16" high.

St. Paul Community Garden
(north of intersection of St. Paul street and Milwaukee Avenue) has one raised bed that is T shaped and has varying heights and widths.

Truax Community Garden
(located in park behind apartments at intersection of Anderson and Wright) has 2 raised beds that are 4' wide and 8' long.

Reynolds Homestead Community Garden
(635 E. Mifflin Street) has one raised bed made from 4'x4' lumber. The bed is wheelchair accessible and U shaped.

Quann Community Garden
(intersection of Bram and Koster streets, behind Alliant Energy Center) has 4 raised beds that are 4' wide, 8' long, and 18" high. Each is made from a different material-untreated wood, ACQ treated wood, and composite lumber.

Troy Community Garden
(north of 500 block of Troy Drive) has 5 beds that are 4' wide, 8' long, and varying heights. They are constructed from wood, and there is also an assembled Lee Valley Kit (page 5).