

Constructing a Wood-and-Wire Three-Bin Compost Unit

A wood-and-wire three-bin compost turning unit can be used to compost large amounts of waste. These units are relatively expensive to build, and construction requires some basic carpentry skills and tools. However, these units are sturdy, attractive and should last for a long period of time. They may also shorten the time needed to obtain usable compost because they allow for easy turning and separation of wastes. Older materials can be held in one compartment while newer materials are added to another.

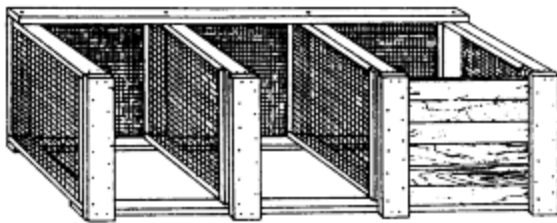


Figure 1 - Wood-and-Wire Three-Bin Compost

Building a Wood-and-Wire Three-Bin Composter

1. Cut two 31 ½-inch and two 36-inch pieces from a 12-foot length of 2x4 lumber. Butt-joint and nail the four pieces into a 35-inch x 36-inch "square." Repeat, building three more frames with the remaining 12-foot lengths of 2x4 lumber.
2. Cut four 37-inch lengths of hardware cloth. Fold back the edges of the wire 1 inch. Stretch the pieces of hardware cloth across each frame. Make sure the corners of each frame are square and then staple the screen tightly into place every 4 inches around the edge. The wood-and-wire frames will be dividers in your compartment.
3. Set two dividers on end, 9 feet apart and parallel to one another. Position the other two dividers so that they are parallel to and evenly spaced between the end dividers. Place the 36-inch edges on the ground. Measure the position of the centers of the two inside dividers along each 9-foot edge.
4. Cut a 9-foot piece from each 10-foot length of 2x4 lumber. Place the two treated boards across the tops of the dividers so that each is flush against the outer edges. Measure and mark on the 9-foot boards the center of each inside divider.

Materials

- Four 12-foot lengths of 2x4 lumber*
- Two 10-foot lengths of 2x4 lumber*
- One 10-foot length of construction-grade 2x4 lumber*
- One 16-foot length of 2x6 lumber*
- Six 8-foot lengths of 1x6 lumber*
- A 22-foot length of 36-inch-wide ½ -inch hardware cloth
- 2 pounds 16d galvanized nails
- 250 poultry wire staples
- Twelve ½-inch carriage bolts, 4 inches long, with washers & nuts

Optional Materials for Lids

- One 4x8-foot sheet of ½-inch exterior plywood*
- One 4x4-foot sheet of ½-inch exterior plywood*
- Six 3-inch zinc-plated hinges
- Twenty-four 3/16 -inch galvanized steel bolts, with washers & nuts

Tools

- Tape measure
- Hammer
- Tins snips
- Carpenter's square
- Screwdriver
- Pencil
- Adjustable wrench
- Hand saw or circular power saw
- Drill with 3/16 -inch & ½-inch bits
- Safety glasses, ear protection, dust mask, and work gloves

5. Line up the marks, and through each junction of board and divider, drill a ½ -inch hole centered 1 inch from the edge. Secure the boards with carriage bolts, but do not tighten them yet. Turn the unit so that the treated boards are on the bottom.
6. Cut one 9-foot piece from the 10-foot length of construction-grade 2x4 lumber. Attach the board to the back of the top by repeating the process used to attach the base boards. Using the carpenter's square, or measuring between opposing corners, make sure the bin is square. Tighten all the bolts securely.
7. Fasten a 9-foot length of hardware cloth to the back side of the bin, with staples every 4 inches around the frame.
8. Cut four 36-inch-long pieces from the 16-foot length of 2x6 lumber for front runners. (Save the remaining 4-foot length.) Rip-cut two of these boards to two 4 ¾-inch-wide strips. (Save the two remaining strips.)
9. Nail the 4 ¾-inch wide strips to the front of the outside dividers and baseboard so that they are flush on the tops and the outside edges. Center the two remaining 6-inch-wide boards on the front of the inside dividers flush with the top edge and nail securely.
10. Cut the remaining 4-foot length of 2x6 lumber into a 34-inch-long piece, and then rip-cut this piece into four equal strips. Trim the two strips saved from step number eight to 34 inches. Nail each 34-inch strip to the insides of the dividers so that they are parallel to, and 1 inch away from, the boards attached to the front. This creates a 1-inch vertical slot on the inside of each divider.
11. Cut the six 8-foot lengths of 1x6 lumber into eighteen slats, each 31 ¼ inches long. Insert the horizontal slats, six per bin, between the dividers and into the vertical slots.
12. (Optional) Cut the 4x8-foot sheet of exterior plywood into two 3x3-foot pieces. Cut the 4x4-foot sheet of exterior plywood into one 3x3-foot piece on one of the three bins, and attach each to the back, top board with two hinges.

Composting Basics

1. Be sure that your compost pile receives a balanced diet. You will need to include materials that are high in carbon as well as materials that are high in nitrogen. High carbon materials include paper, sawdust, wood chips, straw and leaves. High nitrogen materials include food scraps, grass clippings, and manure. Nitrogen fertilizer may also be added if necessary.
2. Maintain proper particle size. Items like leaves, limbs and newspaper work best if shredded or chopped into ¼ inch pieces. Food scraps should also be cut into small-sized particles.
3. Make sure that your compost receives a proper amount of air. Turning or mixing every week or so will help insure proper air flow.
4. Check the moisture level in the compost. Performing the "squeeze test" will tell you if the moisture level is correct. Compost should be damp to touch, but drops should not come out when you squeeze it. Add dry straw or sawdust if too damp and add water if too dry.
5. Monitor the temperature of the compost. Temperatures between 90° and 140°F are ideal. Compost bins at 3 feet x 3 feet x 3 feet size maintain temperature better.

*Regarding use of wood products in gardening and composting projects: The University of Minnesota conducted a study on a raised bed garden made from Chromated Copper Arsenate (CCA) *pressure-treated* wood. Results showed that the vegetables grown can accumulate arsenic from the CCA pressure-treated wood, however, based on U.S. Public Health Standards, these vegetables would be safe for human consumption. Alternative building materials are currently available. This information is provided so that consumers are aware of the potential issues related to treated wood. If using scrap lumber or other used materials make sure you know if the lumber/materials are treated and what they have been used for in the past. Consumers should use their own judgment when constructing garden or compost units. For more information on wood products contact the University of Kentucky Forestry Department at 859-257-7597 or forestry.extension@uky.edu.

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