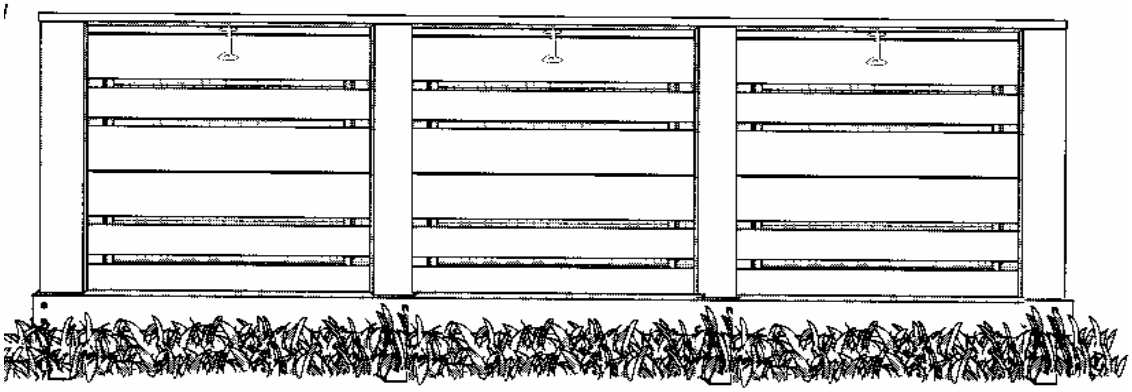
Construction Plan for a Home-built Rodent Resistant Three Bin Compost System



Materials:

Materials are available at most building supplies stores and will cost around $300 new. The system will take a weekend to build. Exact dimensions were used whenever possible, but the term "approximately" was used because the actual dimensions of cedar fencing and rough cedar vary from board to board. You can find excellent pieces of wood for free from the scrap pile found outside of most wood supply dealers.

This system can easily handle 2,000 kg. every 6 months which produces around 700 kg of finished compost.

6 Step Construction Plan:

1 Build the Back
2 Build the Four Sides
3 Attach Back to Sides
4 Install Supporting Rails and Bottom
5 Install Three Fronts
6 Build and Install Three Tops and Lids

Materials

- 2x4's – 8 @ 42" (posts), 6 @ 34" (top rails)
- 2x2's – 6 @ 36", 6 @ approx. 27 ½" (base rails)
- 1x6's – 35 @ 36", 12 @ approx. 30" (sides and tops)
- 1x4's – 4 @ 36", 6 @ approx. 30", 12 @ approx. 16 7/8", 2 @ approx. 32 ½", 6 @ 27"
- 1x2's – 6 @ approx. 31", 3 @ approx. 30"
- 12' of 2x2 (lid support)
- 1x4's 2 @ 9' (back and top)
- 1x6's 6 @ 9' (back and top)
- 2x4's @ 9' (front cross piece)
- 1x6's – 2 @ 32 ½" (front slider guides for center box)

Hardware

- 6 boxes bell wire insulated staples (5/8" – 100/box) or 5/8" poultry staples (where available)
- 2 lb. 2 ¼" galvanized spiral nails
- 1 lb. 3 ¼" galvanized spiral nails
- 80 1 ¼" galvanized brass or stainless steel screws
- 3 – 3" strap hinges

Wire Mesh

- 31’ of ¼” galvanized wire mesh (hardware cloth 36” wide)

Tools

- Measuring tape
- Drill
- Bit for screws
- Hammer
- Tin snips
- Hand or circular saw
- Carpenter’s square

Construction

1 Build the Back

Cut 9’ feet of wire mesh
Lay out the 1x6’s 5 @ 9’ feet long on level surface with an inch between each board and then add the 1x4 @ 9’ long to the bottom. Staple the mesh to the boards.

2 Build the Four Sides

Cut 20 – 1x6’s 36” long. Cut 4 – 1x4’s 36” long.
Cut 4 pieces of wire mesh 35” long. Cut 8 – 2x4 posts 42” long.
The four sides are identical. Lay 5 – 1x6 with a 1x4 at the bottom on level surface with approximately 1” between each board (similar to how you made the back). Lay the piece of wire mesh on top. Ensure everything is square and staple the mesh to the boards.

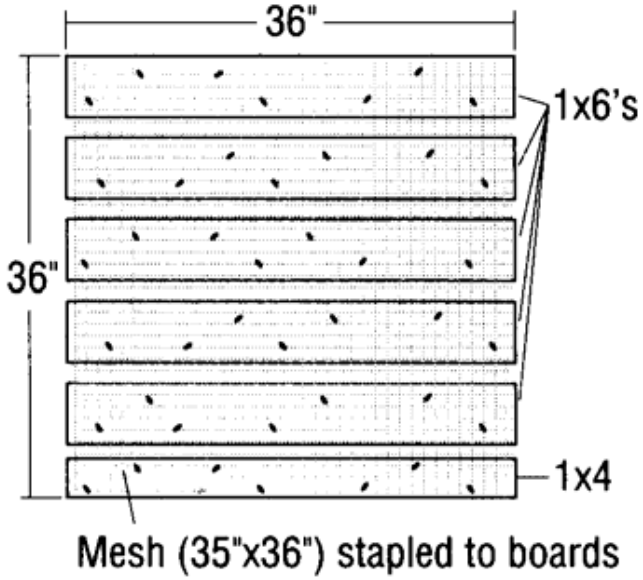


Figure 1 - A side. Wire mesh stapled to 5-1x6’s and a 1x4.

Repeat for other sides.

To build the sides lay 2-2x4 posts on level surface 36” apart. Lay the mesh and board panels on top with the mesh between boards and posts. Ensure

that everything is square and nail the posts with 2 ¼" galvanized nails. Repeat for 3 other sides. See ***Figure 2.***

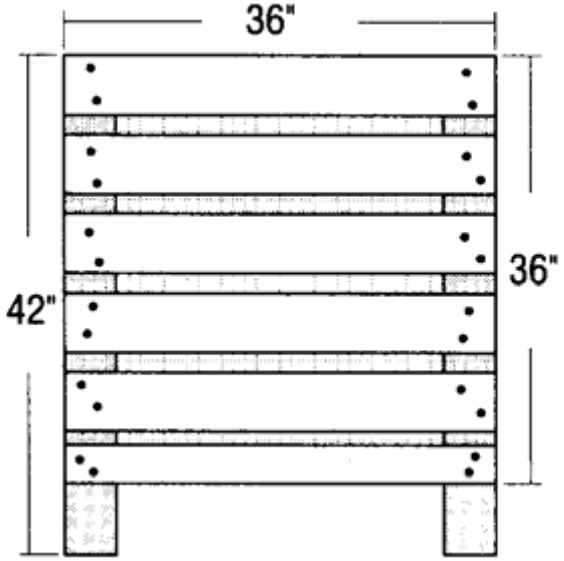


Figure 2 - A side panel nailed to 2 posts with the mesh between boards and posts.

3 Attach Back to Sides

Stand the two sides on a level surface facing each other and leave 36" between all sides, stand the other two sides facing each other with the 6" of post shown in ***Figure 3***.

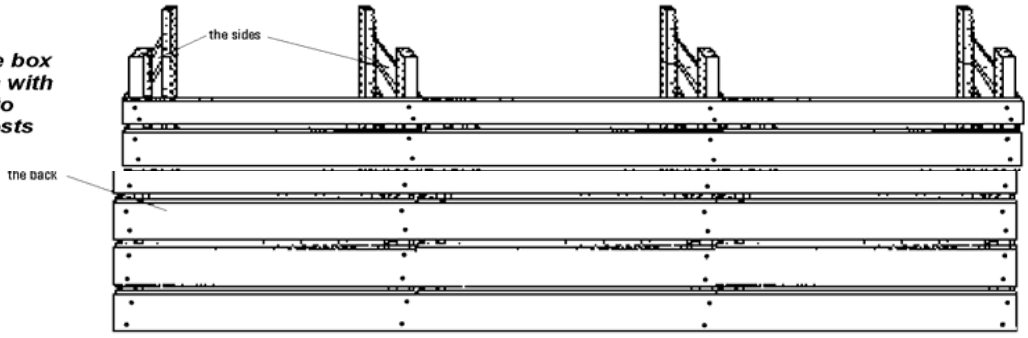


Figure 3 - the box upside down with back nailed to sides and posts

Ensure everything is square before nailing the back panel with 3 ¼" galvanized nails

4 Install Supporting Rails and Bottom

Set boxes upright on posts. See ***Figure 4*** below.

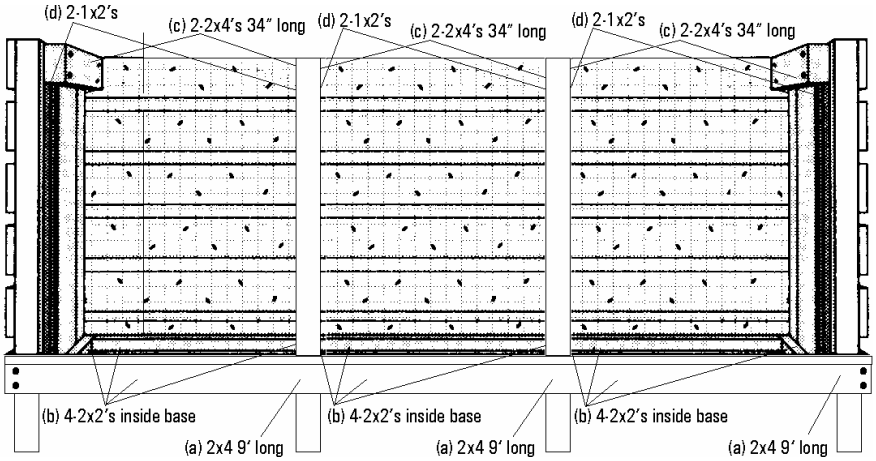


Figure 4 - The box right side up with front cross-piece, base and top rails, and vertical slider guides.

Front Cross Piece. Ensure the boxes are square in all planes and nail 2x4 @ 9' to front posts, at the bottom.

- **2x2 Base Rails** – Cut 6 – 2x2's 36" long and nail to inside of posts at the base of the box. Measure for other 6 2x2's (approx. 27 ½") and nail.
- **Top Rails** – Cut 6 2x2's 34" long and nail from back of box to front posts. Note that they will end two inches from the front edge of front posts to allow for sliding front.
- **Vertical Slider Guides** – Measure vertical from top to 2x2 base to bottom of 2x4 rail (approx. 31") cut and nail 1x2 to post 2" back from front of post to guide removable front sections.
- Repeat for other 2 box sections.

Bottom –Turn boxes upside down. Cut mesh 39" long. Lay mesh with 39" length running from front to back. Cut 2x4 holes in mesh for the posts in both end boxes but leave the center piece without the holes. Staple mesh to base. See ***Figure 5.***

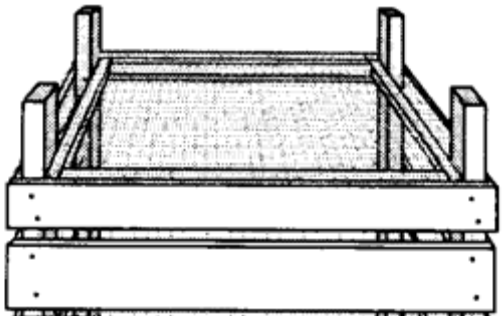


Figure 5 - The bottom of the box with mesh stapled around posts.

5 Install Three Fronts

Each front is made with two front guides nailed to the front posts and two removable front panels. Each removable panel should be approximately 30"

wide and 16 7/8” high and is built to slide in and out of the top of the box.

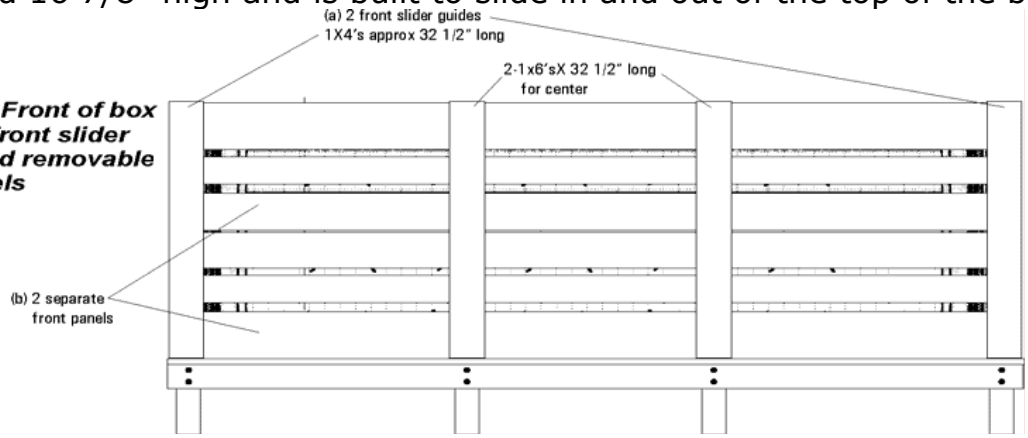
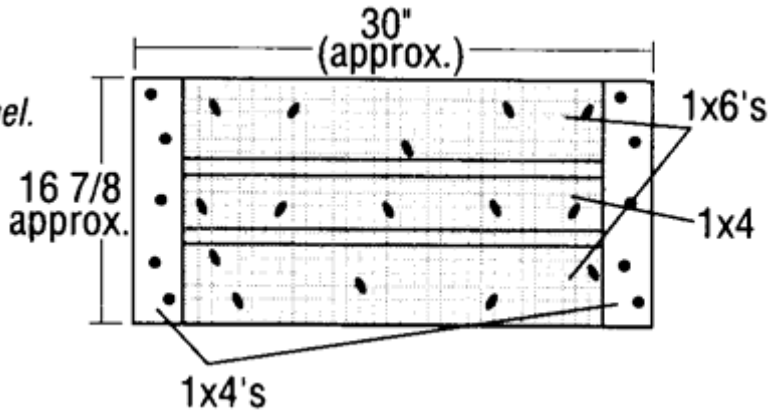


Figure 6 - Front of box showing front slider guides and removable front panels

- **Front Slider Guides** – measure distance between top of base and top of post (approx. 32 ½”) and cut 2 1x4’s to fit on either end and 2 1x6’s for the center slider guides. Nail to front posts with 2 ¼” galvanized nails.

Figure 7 - Detail for one front panel.



3 Front sections – Measure the distance between the inside of the two front posts, which are on the either end of the 3 box system (approx. 30 ¼” or ¼” less than the distance between the posts). Cut 12 – 1x6’s and 6 – 1x4’s to fit. Cut mesh to fit each section (6 @ 29” x 16”) and staple to 2 – 1x6’s and 1 – 1x4. Repeat for the other 5 front sections. Cut 1x4 bracing to fit (approx. 12 @ 16 7/8”). Screw 1x4 bracing to front sections.

6 Build and Install Tops and Lids

The top is formed from two sections – 2 boards fixed at the back and 3 removable lids.

For the fixed section cut a 1x4 and 1x6 nine feet long and nail to the box across the back.

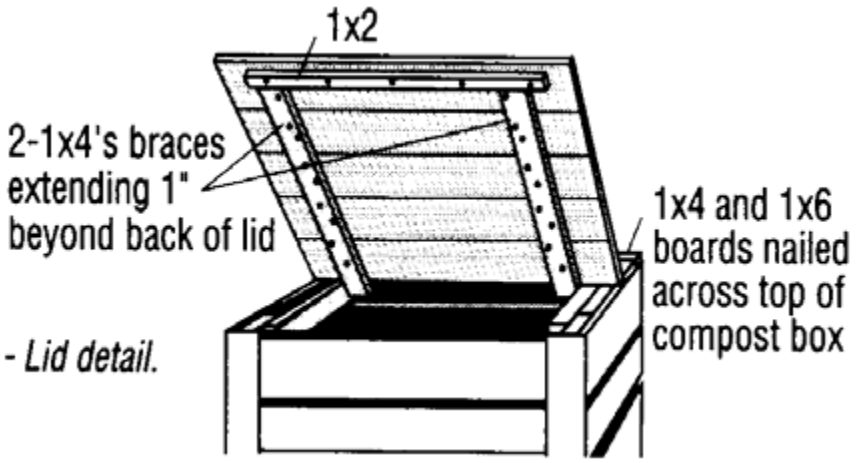
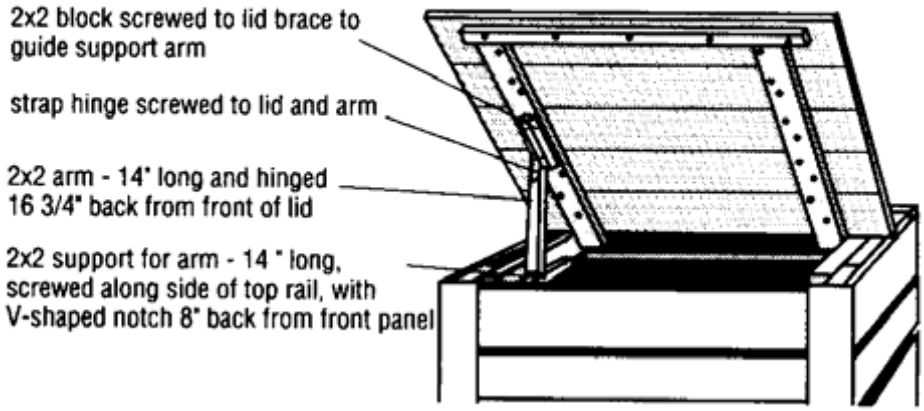


Figure 8 - Lid detail.

For the removable section cut 5 1x6's 36" long and lay them edge to edge across the top of box. They should end up flush with the front of the box. If they don't because of varying board widths, add a piece of 1x2 or trim to fit. Lay these 5 boards edge to edge on a flat surface and staple mesh cut to approx. 36"x27".
Cut 1x4 braces 27" long and attach to the mesh side with screws. These braces should fit inside the 2x4 rails at top of box and extend approximately 1" out the back of the removable lid to control the lid pivot.
Cut a 1x2 approx. 30" long and attach with screws as shown so that it fits directly over top of front panel and inside of front posts. Repeat twice more for the other lids.

Make the lid support with 3 2x2's (an arm, a support for arm, and a block guide) and a 3" strap hinge. The arm is 14" long and screwed up to a strap hinge 16 ¾" from front of lid. When the lid is lifted the arm drops into V-notch on the 2x2 support for arm.

Figure 9 - Lid support detail.



Attach safety gate hook to lid and front section. Select a location for the 3 bin compost system and dig eight holes each 6” deep for the 8 legs or posts. Set the compost box posts in the holes, fill holes with leftover dirt, and the compost bin is ready for work.

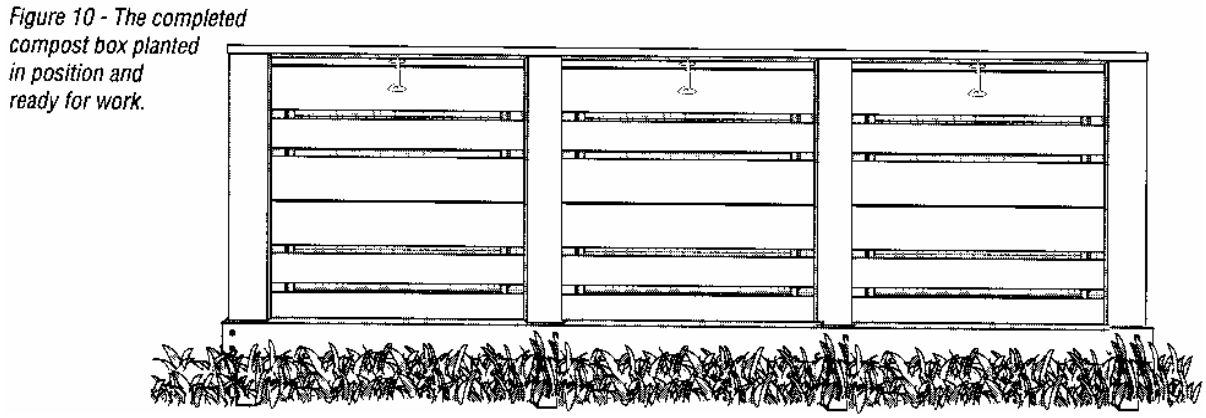


Figure 10 - The completed compost box planted in position and ready for work.

Happy Composting !!!!

Using The Three Bin Compost System

The method describe below is a fast, hot, active system that requires more management. The work is turning or mixing the organic material. Regular turning (once a week) ensures that bacteria get the air they need to breakdown the material.

This composting method is most efficiently accomplished in batches. Stockpile organic material until there is enough to fill the compost bin – usually a cubic meter (approx. 3’x3’x3’). Kitchen waste can be saved and stored in a sealed plastic garbage can and covered with sawdust or soil to control odors and pests.

Chop or shred all material to maximize surface area. Add the material in layers from two to three inches thick. Moisten layers as necessary. Alternate layers of carbon-rich material (browns) with nitrogen-rich material (greens). Fill the compost bin full with material.

Within 24 hours the temperature will rise to 60°C - 70°C. This is the hot composting system and you should monitor the process. These temperatures are maintained for four to seven days. When temperatures drop it is time to aerate the materials. This is done by turning the materials into the second

bin. Try to get material from the top into the bottom and centre of the unit to achieve complete destruction of weed seeds and pathogens.

This temporarily interrupts the heat cycle but the temperatures will quickly rise for another four to seven days. The material will cool and can then be added to the third bin. Compost managed this way should be left to mature for three months before adding to your gardens.

What to Compost:

Green material (nitrogen-rich)

Kitchen scraps: Vegetable peelings and rotting fruit.
Plant trimmings from your garden: Leaves, old flowers, end-of-season greenery.
Grass clippings (fresh): Best used as a mulch on your lawn; not from lawns recently treated with pesticides.
Coffee grounds and tea leaves
Pet manure: Use only from grass eaters such as rabbits, gerbils, guinea pigs, sheep, horses or cows.
Large leafy weeds: Not once in seed, and only when still green. Avoid invasive weeds like morning glory.
Rhubarb leaves: Safe for composting. Note: contain a natural chemical, oxalate, making leaves (NOT stems) poisonous to eat in large amounts.
Vegetables and fruit: Cut into thumb-sized pieces for faster composting. Note: no salad dressing.

Brown material (carbon-rich)

Leaves: Save leaves from the fall in a dry bin. Note: Oak leaves are good, but they decompose slowly, so use few.
Newsprint: Shred.
Cardboard: Cut some into small pieces to compost. Recycle large pieces.
Corn cobs, corn stalks: Cut into small pieces or put through shredder
Brown paper bags: Shred.
Grass clippings (dry)
Straw: Excellent carbon source; can use in place of leaves.
Paper towels and napkins

Other acceptable materials

Eggshells: Rinse and crush.
Wood ash from a fireplace: Can compost but best to add directly to garden.

Unacceptable materials

Grease, cooked food including rice or pasta, oils: Attracts rodents and pests. Composts very slowly. Can cause odor problems
Fish, meat, bones: Attracts animals and can cause odor problems.
Dog or cat feces: Meat-eating animals can carry disease.
Kitty litter: May contain chemicals and disease organisms.
Barbecue ash, coal: Contains chemicals such as sulphur oxides.