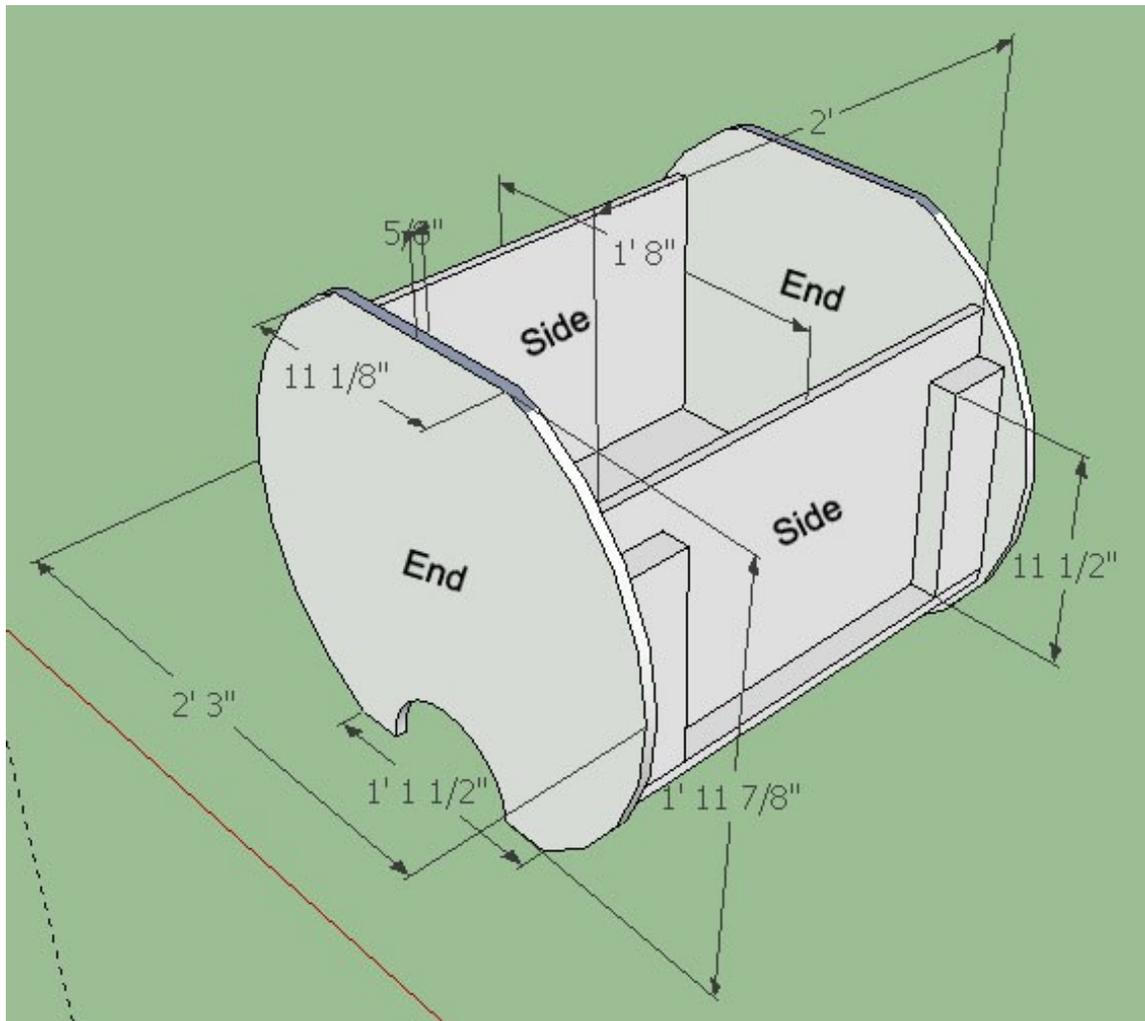


# “Easy Roll” Worm Bin Construction

(Companion for construction video)

## Schematic Diagram



## Parts Measurements Summary

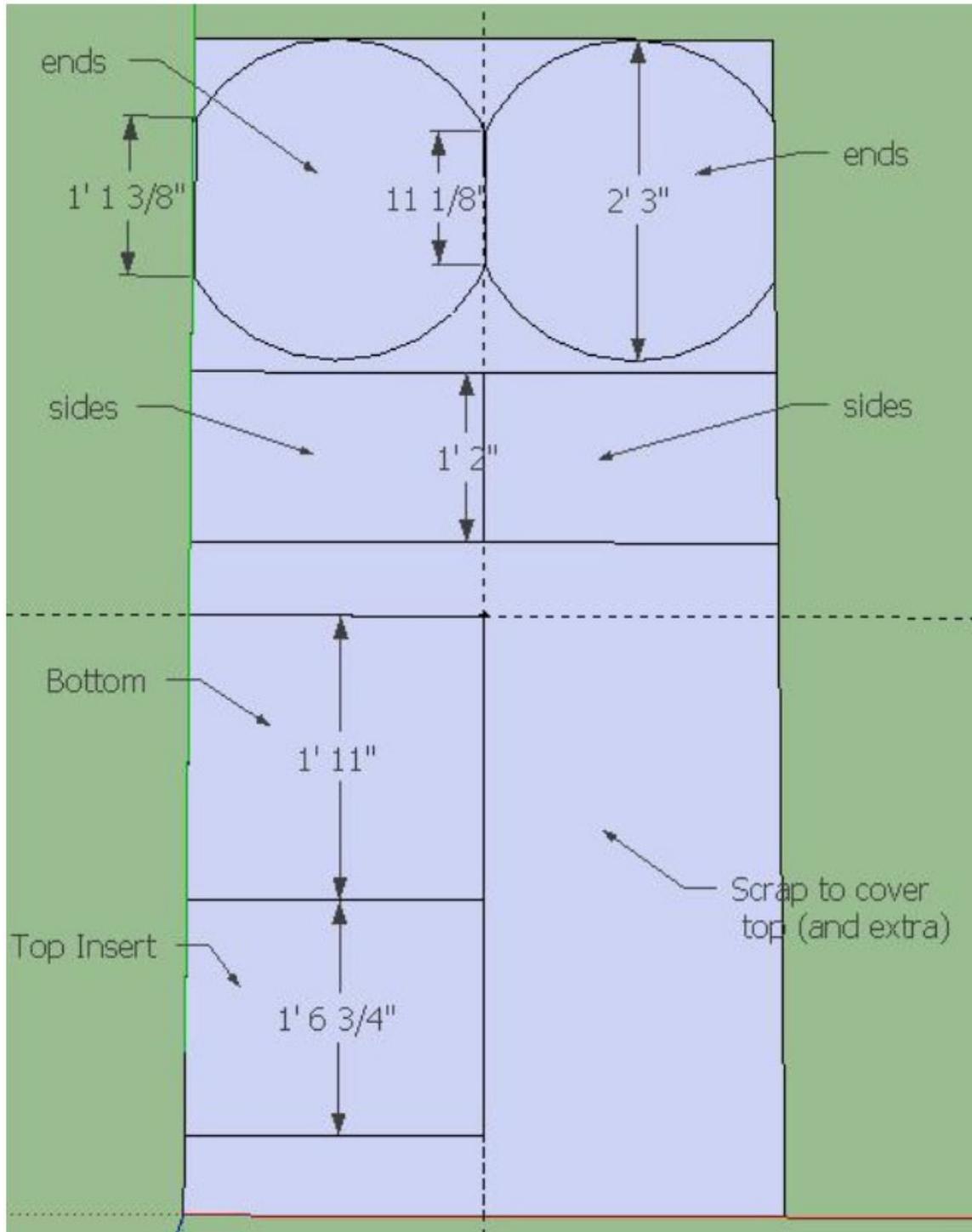
- Circular Ends: 23-7/8”H x 27”W x 11-1/8”(top) x 13-1/2”(Bottom)
- Sides: 24” x 14”
- 2 x 4 supports: 11-1/2”
- Bottom: 23” x 23-3/4” (this is a correction to the 24” length in the video)
- Top lid: measure and cut to fit later. Details in video.

## Plywood Layout

The main construction of this bin can be made from one single sheet of 5/8” (or equivalent) plywood initially cut into four equal quarters (2’width X 4’length). For my

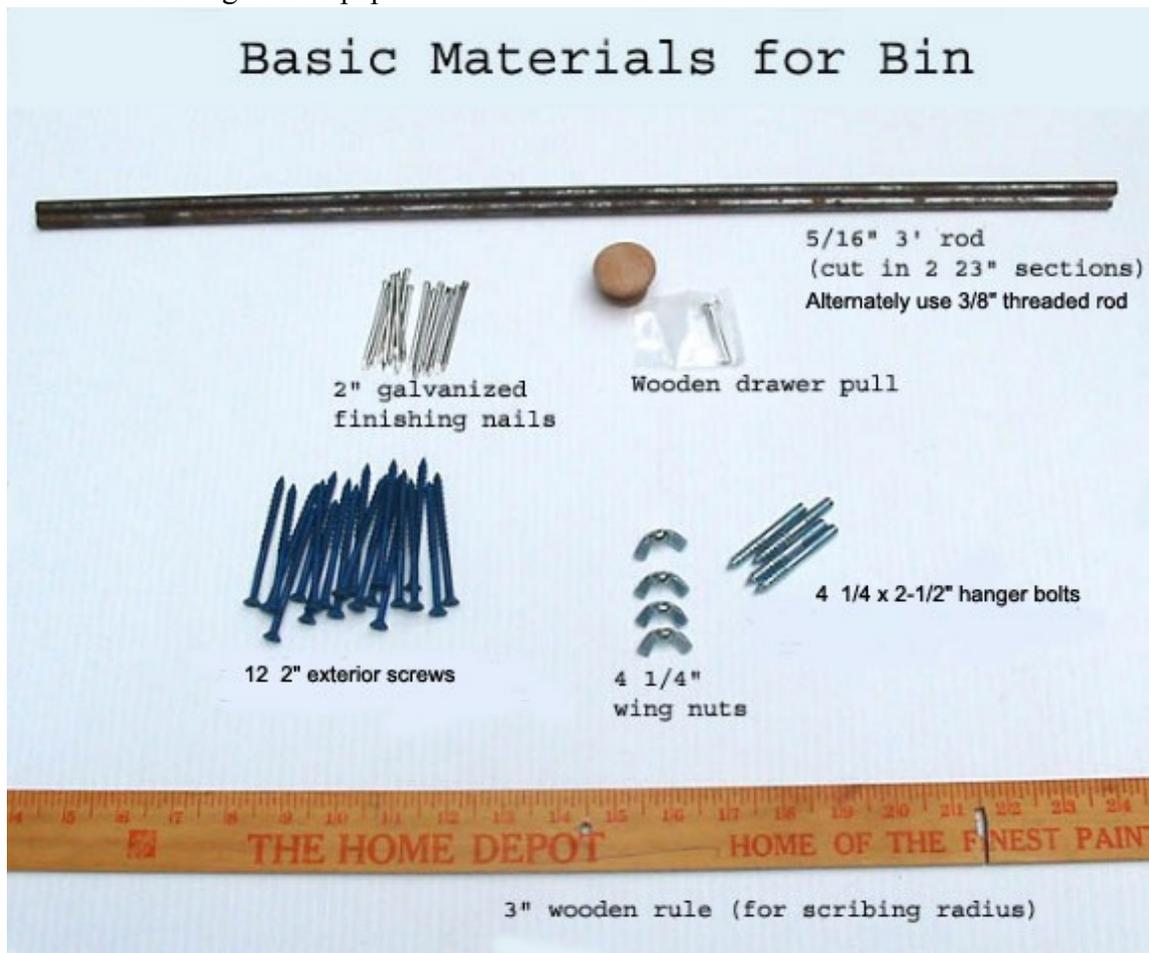
sample DIY construction, I used plywood purchased at one of the home improvement centers, and was able to get them to cut it for free on their vertical panel saw, and only lost about 1/8" due to the blade width. I stressed the need for them to **cut it in half as accurately as possible along both the length and width**. The layout for this sheet follows:

### 4' x 8' Plywood Layout



## List of materials

- 1 sheet of 5/8" plywood (or equivalent as desired). It is advisable to pick out a piece of plywood with as few defects and end grain voids as possible.
- 1 4' 2 x 4 pressure treated
- 4 1/4" x 2-1/2" hanger bolts (wood thread on one end, nut thread on other etc). You can substitute your own size as you see fit. Grease for rust resistance if stainless not available.
- 4 1/4" stainless wing nuts for hanger bolts (may use non stainless if you grease it).
- 12 2" exterior wood screws for attaching ends to sides.
- 1 4' 5/16" metal rod (available at home improvement centers). I have alternately been using 3/8" threaded rod which you can buy in the electrical section.
- 1 round wooden drawer pull. Alternately, just drill two 1-1/2" holes in top for placing fingers.
- Light galvanized finishing nails
- Optional - High quality exterior semi gloss paint, polyurethane or sealer (read appropriate finishing section).
- Medium grit sand paper.



## **Tools needed**

- Jig saw (or band saw).
- Drill and drill bits
- Skill saw (or table saw etc).
- Hack Saw
- Sander (or hand sand?).
- Paint brush?
- 3' wooden yard rule

## **Cutting out main plywood pieces**

At this point, assuming that you were able to get your lumber vendor to cut the plywood into quarters, you should have four sections of 2' wide x 4' length. However, because of the blade width, you will see a reduction in the above dimensions by approx 1/8" – 1/16." Because this worm bin does not require tight construction tolerances, there is a lot of forgiveness when cutting pieces (and also assembly). If you were not able to get the lumber vendor to cut these pieces, you will of course need to cut them on a table saw – or alternately, very carefully with a skill saw. Because you will have some scrap sections, choose the most defect free pieces as possible from your sheet.

### **\*Refer to the two part video series “Worm\_bin\_vid”**

To make construction much easier, I have filmed approximately ½ hour (in two videos) of easy to follow steps to build this bin. It is advisable to preview ahead in the video before starting each new step! If you are building the stationary Easy Roll Worm Bin, please also refer to the “Stationary Worm Bin” pdf document.

\*The video mentions cutting the bottom to 23"x24", and needs to be corrected. It is necessary for the length of the bottom to be 23-3/4" long so that there is 'fudge' room for placement.

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## **Building the optional four foot model**



The four foot model is basically an extension of the 2 foot model; The sides, top, and bottom are 4' instead of 3'. Also, you will note that there is an additional 2 x 4 support in the center, and two sets of holes drilled to allow 4 support rods. Underneath the bottom, attach a 13" 'foot' to allow for additional weight support. This foot can be made from pressure treated 2 x 6 material with the depth ripped to the distance of the other legs to bottom of bin. The foot should be centered on the bottom and screwed in from the inside of the bottom. When the bin rolls over, it will land right on this foot.

I have not tested the four foot model with a fully loaded bin, but see no reason why it would not give adequate support – I will leave for you to experiment if you choose!

I believe this will prove to be an excellent model for increased production demands!

### **Additional Construction Comments**

- 1) When attaching the wing nuts to the bottom lag screws, I leave them a little loose so as to allow the bottom to fall a bit, and thus allowing a slight gap at the bottom for ventilation.
- 2) Though I have painted my sample construction bin a dark color, I believe a lighter color would be better in most areas due to solar heating (unless you are in a cold climate and can take advantage of a darker color etc.).
- 3) Based on past experience with using plywood for outdoor bins, I would estimate a life span of at least 3 years if left natural. You will have a whole section of scrap plywood left over if a part needs to be easily refrabricated! However, to give longer life, it is advised to apply a finish protection (preferably paint).

### **Finishing and/or painting the Worm Bin**

Use a sander (or by hand) with some medium grit paper to go over the wood surfaces. Because this is only a worm bin, I would only strive to give it a quick going over, but be sure to hit the edges, end grain, and areas of splintering or roughness etc. If the unit is still assembled from the prior steps, it might be easier to disassemble if for easier finishing (and to get the end grain!).

Here are recommendations for different options of finishing:

- 1) **Leave Natural** – Because painting or sealing can add expense and be time consuming, you may opt to leave it natural (its not that hard to build another in a few years!). Leaving the main surfaces natural may reduce the lifespan a bit, but it will save on expense and labor, and also allow the bin to breath more naturally. You might, however, wish to at least thoroughly seal, paint, etc all the end grain and bottom surfaces as these will stay wet.
- 2) **Painting** – If your goal is to get maximum life out of the bin (or for aesthetics) you should probably paint it, and I would suggest a good quality exterior, latex semi-gloss or gloss paint, and I would also suggest a lighter shade for warmer climates (due to solar radiation heating). Because it is only necessary to seal the surface from moisture, it's probably not necessary to go through the expense and hassle of priming – but that is up to you. Dis-assemble the bin first.
  - a. You can use a good quality exterior caulking to fill larger defects and voids (especially those in the end grain). DO NOT use any products which are mildew resistant! The end grain, bottom surfaces, and drilled holes are of course, the areas which will absorb the most moisture, and proper sealing will prolong the life of your bin. I would therefore be very liberal in application to these surfaces, and ‘push’ the paint in well..
  - b. Apply a good finish coat or two to the remainder of the bin, and recoat all end grain and hole surfaces (use a Q-tip or similar to push into all holes).
- 3) **Seal with clear exterior wood/deck sealer or polyurethane** - Apply as per product directions, and use the same steps as in the painting section above. You can prolong the life of the bin, but yet still get some breathing of the wood. Be sure to thoroughly seal the end grain and push finish into all drilled holes (use a Q-tip or other to apply evenly inside holes and openings).

In all the steps above, make sure that all products have sufficiently cured before introducing worms to your bin. I would suggest at least a couple of weeks for any finishes, and in doing so, these products should have negligible effects to your worms or castings. You can use the smell test to determine curing, and if there is any detectable odor, let the finish cure longer. I have never noticed any adverse effects to my worms using finishes with this approach.

### **E-Z Worm Bin Operation**

These instructions are specific to this bin, so refer to the [vermicomposting Guide](#) for all other generic details concerning care, feeding, and compost harvesting. All these steps are demonstrated and discussed on the videos found on our website.

- This bin is designed to allow easy collecting of compost from the very bottom of the bin. It is in this area where there will be the most finished compost and the least worms. As such, the ability to roll the bin and easily access the bottom is what makes this system so novel.
- When you feel you have at least a few inches of well worked compost at the bottom, it is time to check by removing the bottom. You can do a quick test by carefully digging down a few inches (with a spoon etc). However, the real test is as follows:
  - Pull the metal rods out and lower the top down onto the very top of the bedding. First try to level the top layer of bedding, and then mash the top down as far as possible, and insert the rods through the nearest holes – thus locking in place. Leaving too much gap will cause the bedding-compost to shift forward when rolling the bin over. You have essentially made a sandwich that will allow you to rotate the assembly and pile without disturbing it.
  - Place paper binders or likewise on the far side of the rods so they do not slip out when rolling the bin towards you.
  - Rotate the worm bin completely over and then remove the bottom .
  - You can now shovel off a section of castings as needed. Try to skim an even section off the entire bottom before proceeding down further. If you begin to notice lots of worms, eggs, or uncomposted food, you have gone too far. However, there will always be a few worms found in finished compost, and to preserve worms, simply let sit with bottom removed for a few hours to encourage the worms down. The ability to utilize light to drive the worms down deeper during compost collection is a major advantage of this system, and you can do this in stages to get all the casting you need with minimal disturbance of worms!
  - If you need to remove a very thick layer, then it's probably best to do in stages by re-attaching bottom, roll the unit back over, and lower the dowel rods before proceeding, to accommodate the extra space created. This is not necessary if you don't mind a little shifting of the contents however.
  - When done, re-attach the bottom, roll back into place and raise the top back up to normal position. Be sure to check out the videos which demonstrate most of the points made here. That's all there is to it!

***Special Note:*** The unique methods deployed in this worm bin are under patent application process. You may use these plans to construct as many bins as you like and modify the plans accordingly. However, you may not construct or manufacture any bins for resale or other commercial purposes without express written permission.