

Composting Toilet Plans

homemade_compost_toilet1.jpg

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Use our free composting toilet plans to build a functional compost toilet, and start turning your waste into homemade garden fertilizer today!

The following plans will help you build a composting toilet that is odorless, incredibly easy to use, fully-functional, and portable. That last point is probably one of the most common reasons why people build a composting toilet in the first place; they're looking for an inexpensive way to dispose of human excrement in a remote location (e.g. cottage or cabin).

Before You Begin Building...

Before you start tackling these composting toilet plans, we want to give you a heads up about a few things.

First, in order to use this composting toilet properly, you're going to need an outdoor [composting bin system](#). We're going to go into more details about this system on the following pages, however, we wanted to introduce the topic early on in these plans.

Second, these composting toilet plans call for the use of **cover materials**. Cover materials are just that, they are the materials you will use to cover your waste once you have used your toilet. A variety of materials can be used for cover, including sawdust, peat moss, cured compost, leaf mold, and/or rice husks.

An ideal cover material is highly biologically active (i.e. high in microbial activity). The more active this material, the better it will be at absorbing odors from your compost toilet. Please note that we do not recommend sawdust from woodworking shops, since this material is completely dry and devoid of biological activity. Instead, when we say sawdust, we are referring to the waste product from sawmills. This type of saw dust is still moist, rich in microbes, and partially decomposed; all of which make it a great cover material.

What You'll Need

To successfully use these composting toilet plans, you will need the following materials:

Source of cover material (see important notes above)

4 identical 5-gallon buckets

1 18"x18" piece of 3/4" AC fir plywood

1 18"x3" piece of 3/4" AC fir plywood

2 10"x18" pieces of 3/4" AC fir plywood
2 10"x19.5" pieces of 3/4" AC fir plywood
4 3"x12" piece of 3/4" AC fir plywood
2 metal hinges
1 standard toilet seat
Jigsaw
Drill

30+ 1-1/2 screws

 Wood glue

What is **AC fir plywood**?

Softwood comes in a variety of grades (A through D). Each side of the wood is graded according to the number and severity of knots, splits, and other defects. Grade A is the best, whereas Grade D is the worst. So in this instance we are recommending one side of the plywood be Grade A (the fir side), and the other side be Grade C. This is one of the most common grades of fir plywood, so you shouldn't have a problem finding it.

Instructions

Step 1

Assemble the frame of your toilet. The finished frame will be 21" long, 18" wide, and 10" deep. Begin by attaching the two 10"x18" pieces of plywood to the two 10"x19.5" pieces of plywood, using screws and wood glue. Be sure the 10"x19.5" pieces fit **inside** the other two pieces for a total length of 21". Also, be sure the fir side of the plywood is facing out.

Step 2

With the frame in the upright position, place the 18"x3" piece of plywood on top, and line it up with one end of the frame. Again, be sure the fir side of the plywood is facing out. Now attach this 18"x3" piece of plywood using screws and wood glue.

Step 3

Place the 18"x18" piece of plywood on top of the frame in front of the 18"x3" piece you just secured. These pieces will eventually be attached together using the hinges, however, you must first cut out the hole for the bucket. Be sure the fir side of the plywood is facing out.

Position the bucket 1.5" from the front edge of the box, and center it from both sides. Draw a circle around the bucket's edge to indicate where you will be cutting it. Remove the bucket, and use the jigsaw to cut the hole for the top of the bucket.

Step 4

Now that the hole has been cut, reposition the 18"x18" piece of plywood on top of the frame. Using eight screws and the two hinges, connect the 18"x18" piece of plywood with the 18"x3" piece. Be sure to position these hinges close to the edges of the toilet, so that they don't interfere with the toilet seat.

Step 5

You will now attach the legs (four 3"x12" pieces of plywood) to each corner of the underside of the frame. It is **very important** to adjust the length of these legs, so that the top of the compost toilet is positioned 1/2" below the top of the bucket. The bucket should protrude through the top of the toilet by 1/2". This will ensure a tight-fit, and prevent any waste from missing the target. This is especially important if children will be using your compost toilet.

Step 6

The next step in these composting toilet plans is to attach the toilet seat. Before doing so, you will need to reposition the bumpers that are found on the underside of the seat. Typically, these bumpers point inwards, but this will interfere with the bucket, so you have to swivel them sideways (almost parallel to the toilet seat edge).

Position the toilet seat over the bucket, and mark where you will need to drill holes to attach it to the frame. Drill these holes, and attach the toilet seat.

Step 7

Your new compost toilet is now ready to use. Although, to make its appearance a little less rustic, you may want to stain, varnish, or paint it. Notice how well Jame's compost toilet matches his bathroom's decor in the image below.

ATTENTION - The toilet is only one part of a larger three part composting system. This system will NOT work without all three parts in place. To learn more about the other parts, including the proper maintenance of your toilet, and how to properly compost your waste, please refer to page two of these composting toilet plans. It is incredibly important that you understand this entire system, so that you eliminate all pathogens.

The previous composting toilet plans were adopted from Joseph Jenkin's incredible book [*The Humanure Handbook*](#). If you have any interest in learning more about this subject, we highly recommend reading his book (it's free online

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Portable Composting Toilet Maintenance & Construction

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This portable composting toilet is only one part of a three part system, as we mentioned on the first page of these guidelines.

This three part system consists of the following:

Toilet

Cover Materials

Compost Bin System

The information on this page will focus on the maintenance of your portable compost toilet, and also include a discussion on the best compost bin system to be used with it.

The first page of this section discussed the construction of the toilet, and the proper cover materials (e.g. sawdust, peat moss, cured compost, leaf mold, and/or rice husks).

IMPORTANT - Please be sure to check your local bylaws, and regulations, prior to implementing the composting instructions on these pages. In most instances, composting human waste on site is allowed, as long as the composted product does not leave the site (please don't attempt to sell this compost to your neighbors).

Composting Toilet Use and Maintenance

The building materials on page one call for four identical 5-gallon buckets (with lids). Begin by filling one bucket with cover materials, and placing it beside your portable composting toilet. Place the second bucket inside the toilet itself. Place the remaining empty two buckets somewhere near your bathroom or location of your toilet. These last two buckets will eventually be swapped with the bucket inside the toilet once it becomes full.

Before making your first deposit to your new portable composting toilet, be sure to add 1-2" of fresh cover material to the bottom of the bucket inside your toilet. Now it is ready for regular use.

Once your first bucket fills up, remove it from your toilet, and replace it with one of the spare buckets. You now have a couple options: 1 - You can immediately take this full bucket out to your outdoor composting bin, or 2 - You can top it with cover material, put a lid on it, and wait

until the next bucket fills up as well. This second option will save you time.

Whichever option you choose, you'll want to be sure you empty the bucket's contents into a pre-dug depression in the center of your compost pile. That is, you don't want to just dump this material on the top of your compost pile. You'll want to dig a small depression in the top of your pile, empty the bucket's contents into the depression, and then cover it with more compost material (e.g. straw, grass clippings, yard waste).

The final step in the proper use of your portable compost toilet is to thoroughly wash out your buckets. Fill each bucket with a small amount of water and biodegradable soap. Then, using a long-handled toilet brush, thoroughly scrub the inside of the bucket. Assuming you aren't using any harmful cleaning chemicals, you can then dump this soiled water on top of your compost pile. Repeat this process 2-3 times.

Your buckets are now cleaned, and ready to be placed back into your bathroom or near your compost toilet.

Can you urinate in your portable composting toilet?

Yes, of course.

If you happen to notice that the urine is filling up faster than the solid excrement, just add more cover material. The addition of adequate cover material is **the key** to avoiding unwanted odors, and pesky fly problems.

You'll want to develop the habit of using your compost toilet, and then immediately applying a sufficient layer of cover material. No liquid, or solid, waste should ever be visible; you should only ever see cover material inside your toilet.

Should you use special toilet paper?

We recommend using only 100% recycled toilet paper. If possible, try to find varieties that avoid the use of bleaching agents.

Can you add food scraps to your portable composting toilet?

Yes, you may add food scraps to your compost toilet; however, most people prefer to keep their food waste separate. They just find it easier to use a kitchen compost container for all of their food scraps, rather than carting their scraps to the washroom all the time. Nonetheless, all of their wastes (food and human) go to the same compost pile in the end.

Compost Bin System For Humanure

The ideal compost bin system to be used with your portable composting toilet is the Three-Bin Composter. Not only do we consider this to be the best compost bin system for all gardeners, it is especially useful for individuals composting human waste.

When composting human manure, you typically use a **continuous** method of composting. Continuous composting refers to continuous addition of small amounts of composting materials to your pile. Compare this to **batch** composting, in which all of the materials to build an entire

compost pile are added at one time; when this occurs, compost is said to be made "one batch" at a time. Due to this continuous method of composting, we recommend you build a three-bin compost system.

Remember, you'll want to have this compost bin system in place prior to composting your human waste.

To begin the composting process, you'll want to add 16"-20" of coarse carbon material (e.g. straw, hay, leaves, sawdust, shredded newspaper, yard waste) to the bottom of the bin on the far left. This layer acts like a sponge, to help soak up any liquid that may try to seep from your pile. Next, you can add you first couple buckets of human excrement. Cover this waste with more coarse material.

Continue with this type of layering procedure until your first compost bin is full. Typically, this takes anywhere from 1-2 years, depending on how many people are using your portable composting toilet. Be sure to use all of the principles of good composting found here.

Once full, you're going to want to leave the contents of this bin to digest (undisturbed) for an entire year. Allowing this pile to sit, undisturbed, for one full year will destroy all of the potential pathogens.

Don't You Need Heat to Kill Pathogens?

Yes, heat is a great destroyer of pathogens, but so is the passage of time.

Fortunately, even in continuous composting, the uppermost layers of the pile will typically reach temperatures of over 120 degrees Fahrenheit. To be sure this is the case for your pile, use a compost thermometer to monitor your pile's temperature.

Once your pile has been fully built, and gone through its heating stage, we highly recommend adding a pound or two of composting worms (i.e. red wigglers). These worms will naturally find their way into your pile (if the pile is set on top of soil), however, the addition of extra worms will help ensure all pathogens are destroyed.

Next, you'll want to repeat the same layering procedure for the bin on the right side of your system. Experts recommend alternating between the bins on the left and right (while stockpiling coarse carbon-type materials in the center bin). This will help to avoid contaminating your curing compost (in the left bin) with fresh human waste.

Once this second bin is full, the materials in the first bin should be fully composted, cured, and ready to be used in your gardens.

From the time when you first start using your portable composting toilet, it will take approximately two years before you have a usable compost for your gardens. This assumes one year to fill the first bin, and one year to allow it to cure.

Using this Compost on Your Edible Gardens

Avid composters of humanure, do apply this finished product to their edible gardens; however, if you have any doubts, only use it on your ornamental plants, or have a sample tested by a lab.

The previous information was adopted from Joseph Jenkin's incredible book *The Humanure Handbook*. If you have any interest in learning more about this subject, we highly recommend reading his book (it's free online).

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