Nice Outside Toilet to Collect Waste

A collapse could last for many months or years. Your septic system, especially if a lot of people are surviving at your bug out location, won't handle that. Neither Municipal fresh or waste water systems will be operating.

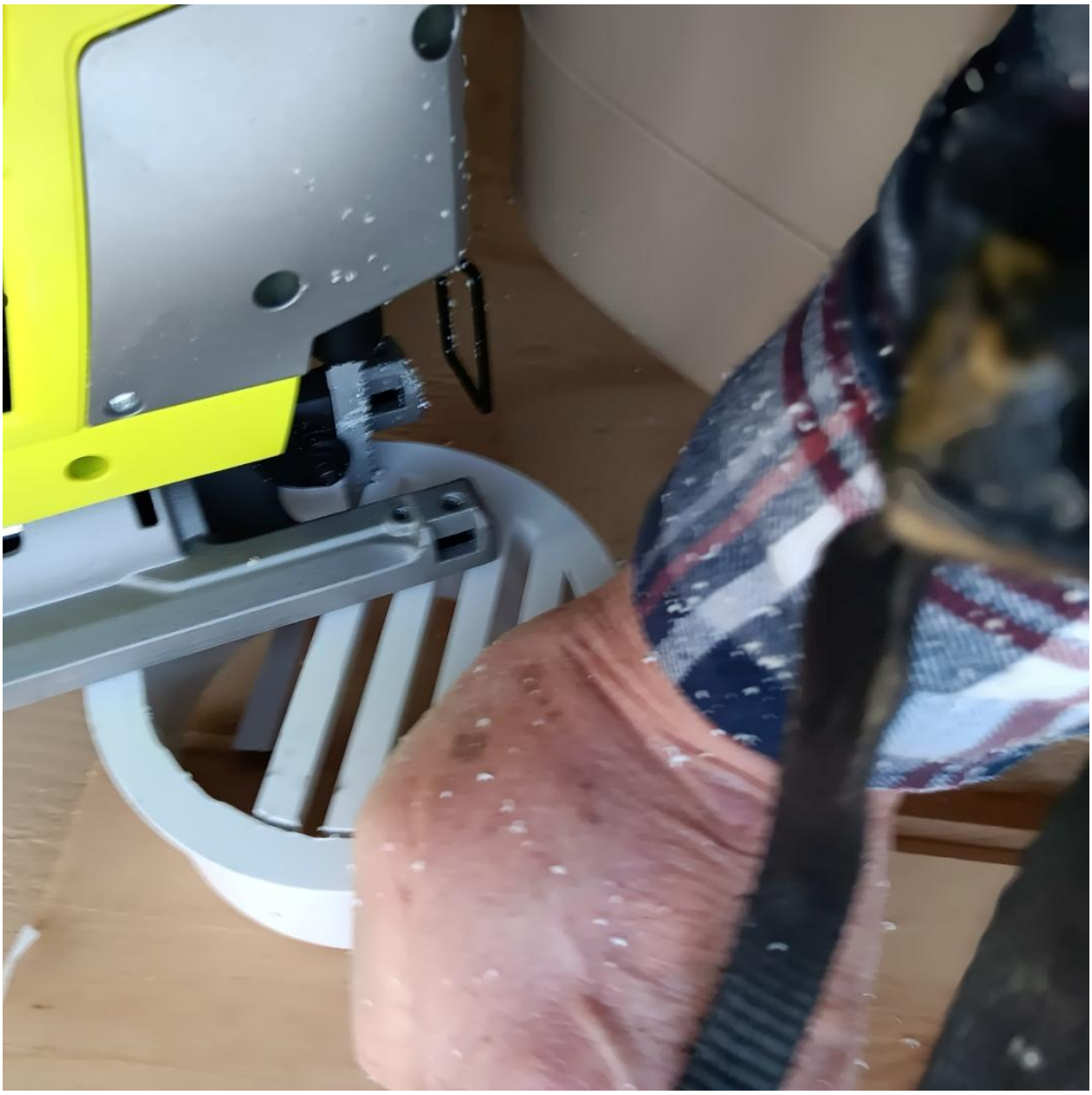
At Fortitude Ranch, while we've got indoor toilets and septic systems, in a collapse, our staff and members will largely be using an outside toilet room where the waste is collected in waste water tanks on wheels, and is carted off to sit for a year, and then get used as fertilizer.

This paper gives you instructions on how to design, plumb, and build an outside bathroom facility that is odor-free, and allows collection of human waste for use in fertilizer. If you heard that human waste can't be used for fertilizer, that's not true. It can be used, but it takes longer, a year to decompose, and its best to use it for crops like hay, that animals eat, rather than garden fertilizer for plants humans eat directly. So **two big benefits, avoiding filling up your septic system, and gaining fertilizer for your ranch livestock fields.**

What you're building is NOT an outhouse, it is not sitting on wood and doing your business into a hole in the ground. You are on a plastic toilet, that has an air tight seal, you can even push the button and pump a small bit of water for a flush. There are two of these toilets in the small building that does admittedly look like an outhouse.

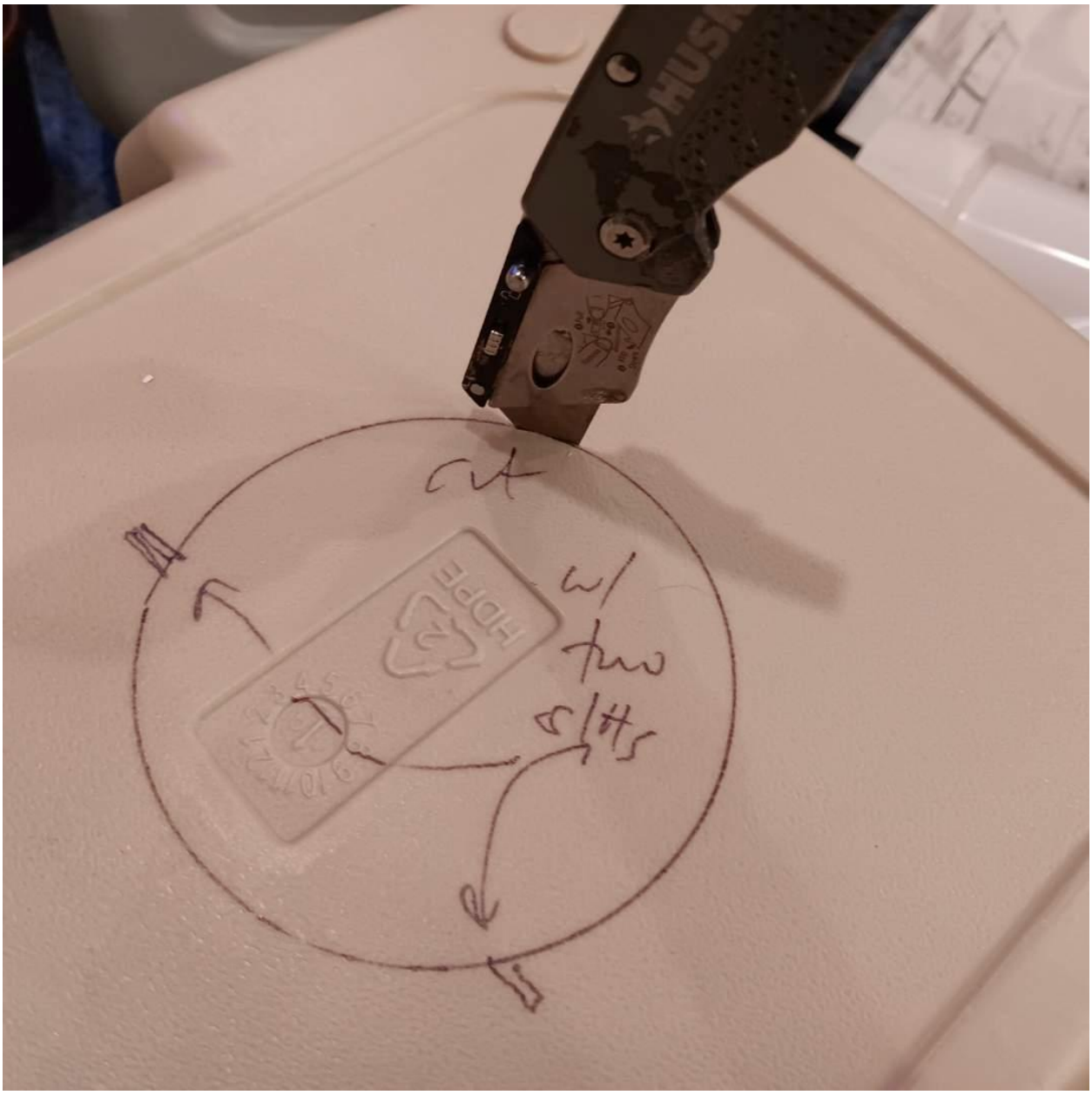
The base tank of these toilets is normally filled up and then dumped, but we do is cut a hole in the base tank of the toilet, and thru 3 inch PVC, combine the two drains and then put into a sewer house that connects to a 40 gallon waste tank on wheels.

We developed several tricks to modify common plumbing parts, starting with this floor drain cover that will be glued to the bottom of the toilet base tank.



Use a jig saw to cut out the grates on the floor drain

Draw a pattern on the bottom of the toilet hold tank, and be SURE that it I directly below the opening on the top; you want the precious to drop straight down and hopefully keep up momentum going thru the 3 inch PVC that will be connected to this.



Use a knife to get a pilot hole so you can get the jig saw blade inside. Note that you need to cut two slits so you can fit the lip of the floor drain into the tank.

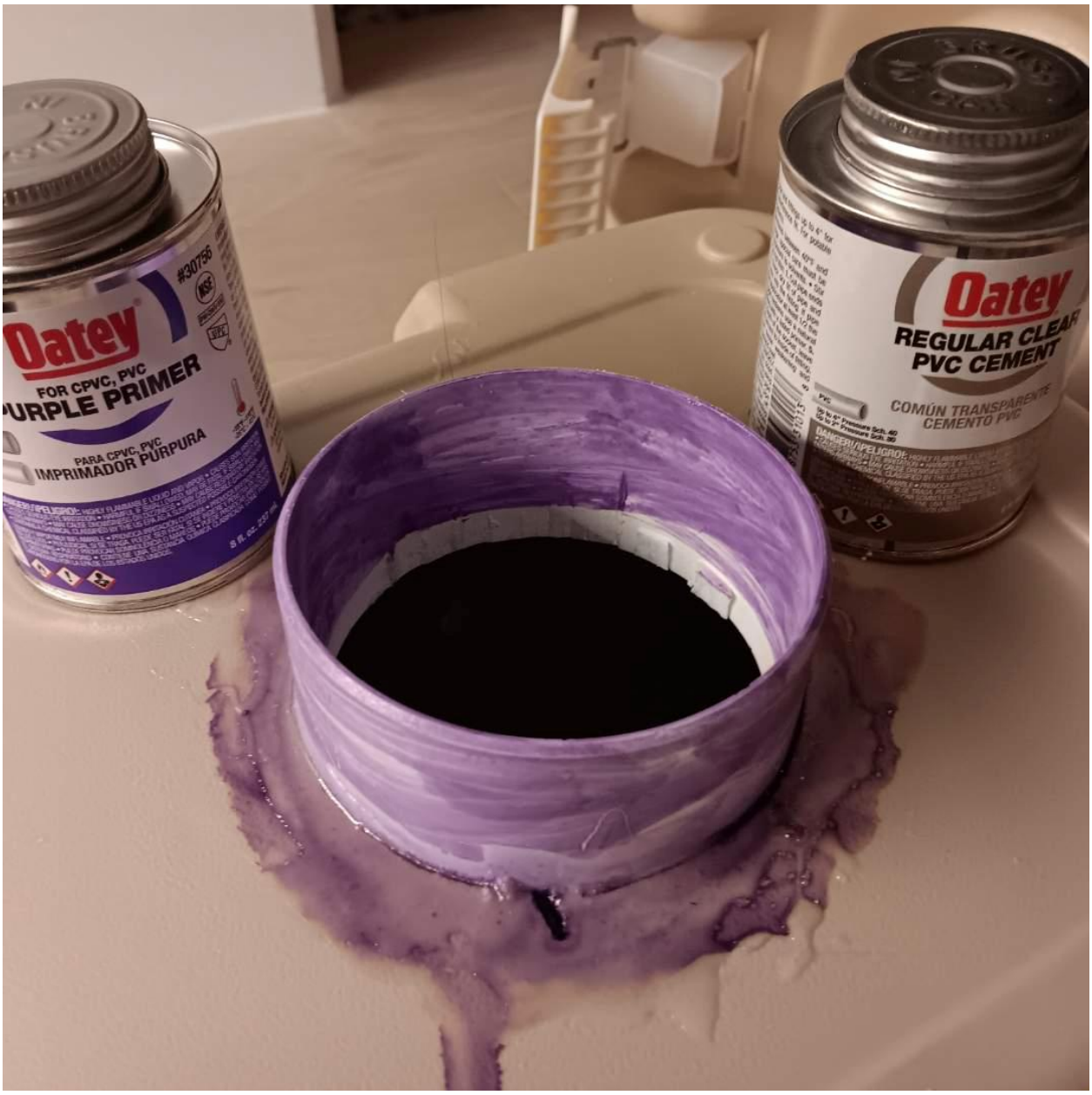
Use jig saw to cut the hole and the two small slits.

And that’s how you’ll fit the floor drain with the grates removed into the bottom of the toilet hold tank.

Do a fit with no glue to be sure it does fit correctly.

Now take epoxy glue. I recommend you use these larger volume, two part epoxy; it lasts for years and it's a more economical buy than the small sizes.

Wear a disposable glove or you'll get epoxy on your hand, best to put it on the underside of the rim, then insert quickly into the tank, pull up into place, and then invert the tank and let it dry. Then you can add some more epoxy later for a water tight seal.

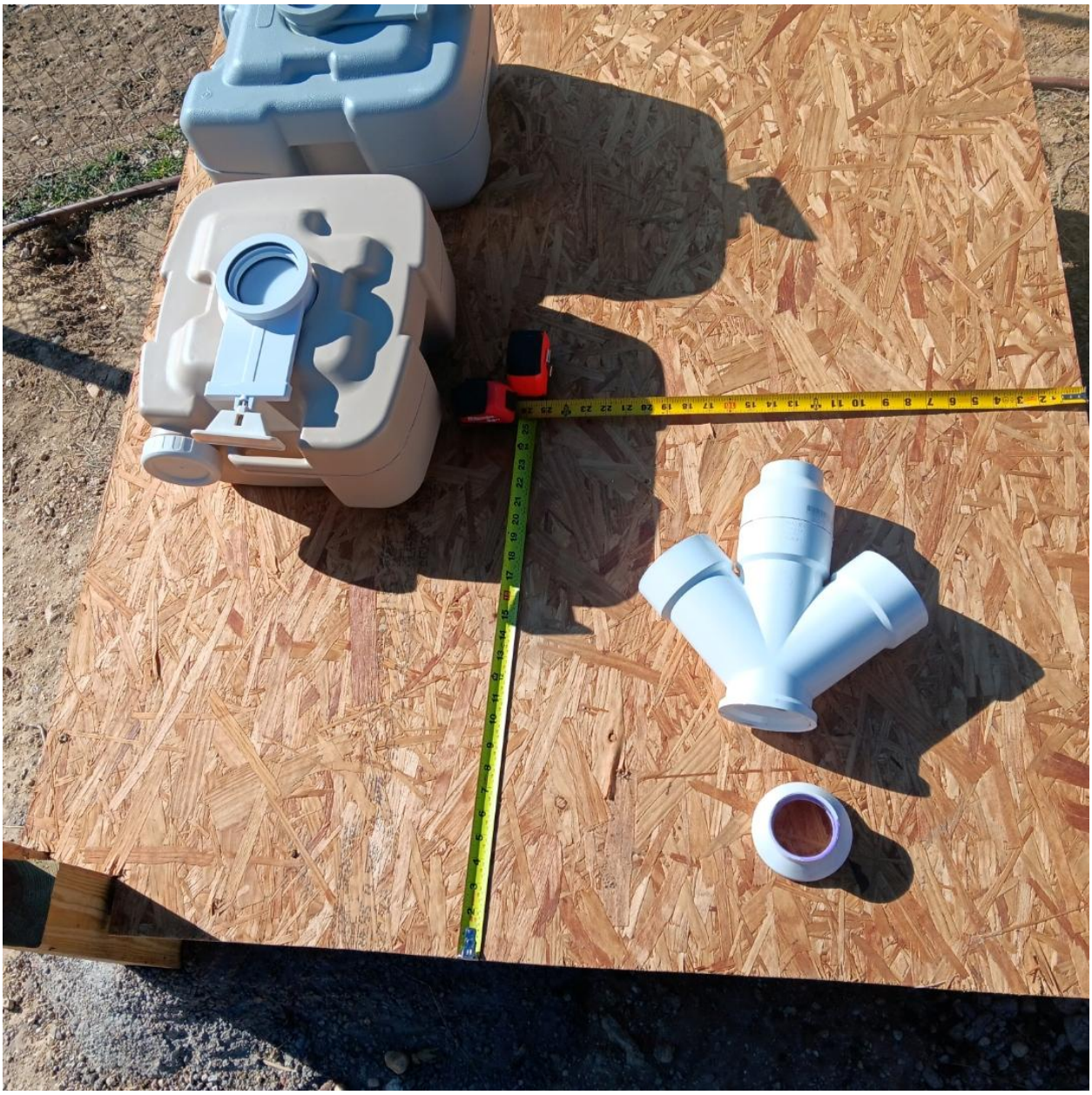


Before adding the PVC you need to use the PVC primer.

Lets turn now to the building construction. The key thing is that the toilets need to be several feet, 3 to 4 feet, above the top of the portable waste hold trailer tank. So putting this on a slope may help, or you need to set the Forti-Potty up on a platform with steps up from the ground. I did not have this platform up high enough, so ended up having to dig a deeper hole for the holding tank trailer than I prefer; so go higher than what you see here.

The biggest constraint and difficulty you've got in building this stems from this plumbing connection; a 3 inch PVC Y Tee where two toilets combine to feed one tank. This is adding two feet in height, and its forcing your two toilets to be fairly close together. You can spread them out more—but then you increase the distance the holding tank needs to be below the toilets. You could of course do just one toilet, but at Fortitude Ranch with over 100 members, and a goal of having all the previous bodily fluids going here and available for later fertilizer use, you really need two.

In this design, the toilets are just two inches apart. That is the vent pipe coming up, a 90 degree elbow and then outside the wall. I will add a plywood wall for privacy between these two toilets, completely dividing them off; but you are definitely very close to the other person using the toilet.



So this is the layout used at the Fortitude Ranch Texas Forti-Potty, the lower right corner is the entry, you step in here from one outer door. Then there are two inner doors leading to the two separate toilets.

So here you can see all 3 doors, two interior doors, and one exterior steel door. Because this is a very cramped, small size building, I highly recommend you install just some exterior framing first, then install the doors and in some cases the outer wall screws directly into the door frame, not a stud; i.e. not the normal way you frame and build. If you want a more roomy toilet house you can make it bigger, I had a constrained space and wanted this as small as possible. You can see how the terrain is down sloping here, and its just a small step up to get in; I'd recommend a higher platform so your waste tank doesn't require a deep hole like I had to dig here.

So position your toilet base where it will go in the toilet building. Take off the sliding seal valve so you can see the hold in the tank below.

And now you can reach down in with a marker and mark the hole to be cut in the toilet building platform.

With the hole cut, test to be sure a good fit, then remove and we'll use liquid nails to attach it. The toilet base tank shouldn't fill up with bodily fluids, but you still do not want to screw into the base tank obviously. So we'll rely on liquid nails and the strength of the plumbing epoxy to keep it in place.

Put liquid nails around the outside edge of the floor drain that you've modified and installed in the toilet base to be your connection to PVC pipe, lots of it, because this will also help anchor and hold the toilet base in place.

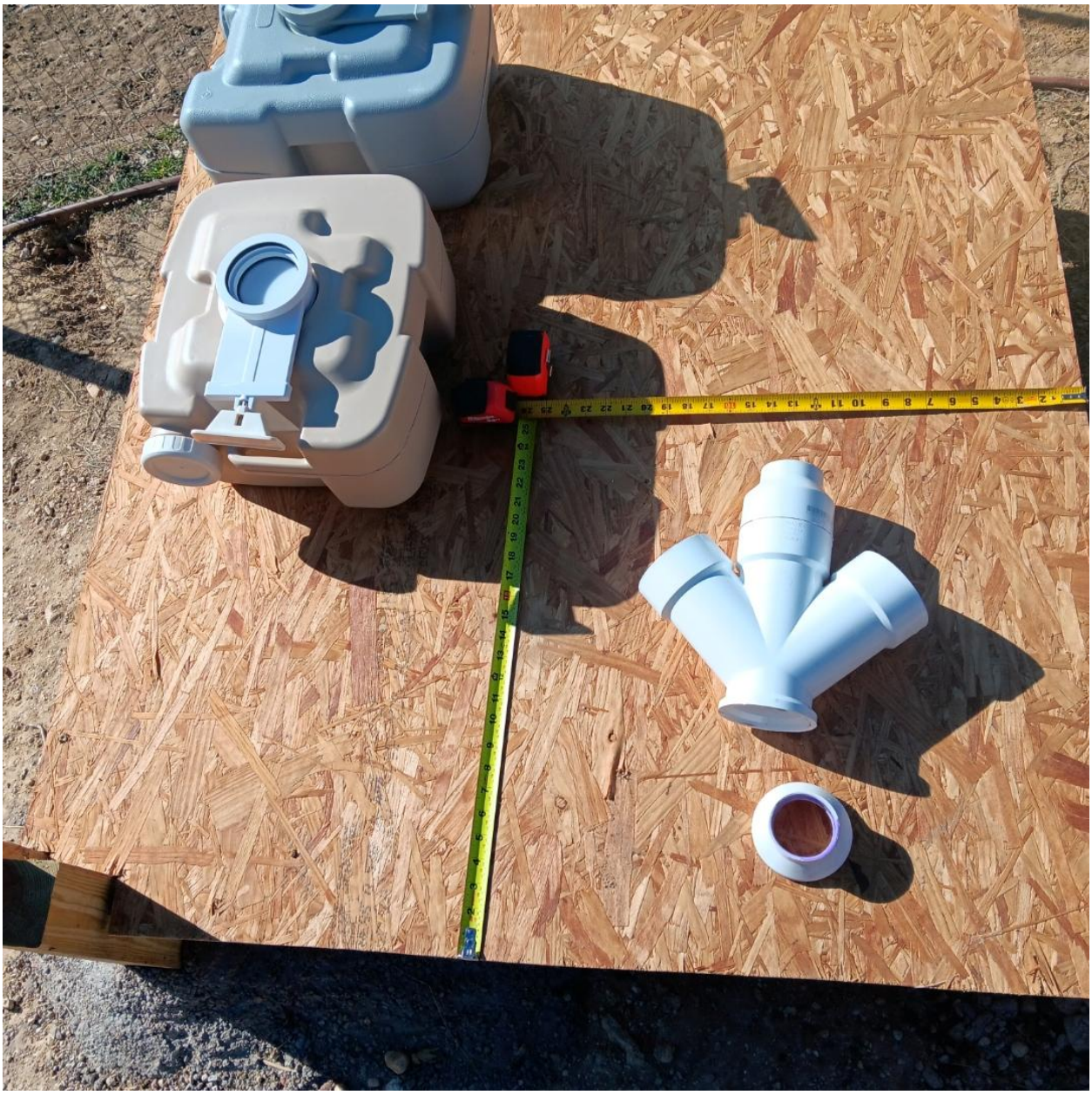
And this is a photo from below, showing the modified floor drain, toilet tank connection now mounted. Give the liquid nails a full day to dry before you do anything more. The white hold above is the sliding valve on the toilet, and its sealed shut.

You have to grind down a 3 inch PVC 45 degree elbow, a lot, or it won't fit inside the floor drain. There are no plumbing parts that are designed to work like this; so this modification is needed. Use an electric belt sander, or a bench grinder is better, and you've got to sand off a lot of the PVC to get this to fit. You can now use a street elbow, its too small; this is the only way. You want it to extend in at least a quarter inch, ideally ½" so a stronger connection.

It is best to do this cutting of the 45 degree 3 inch elbow before you mount the toilet so you’re not crawling underneath the building to test the fit.

After you’re sure you’ve got a good fit, use the purple primer, to treat all the end of this, and all PVC connections you do.

Because the PVC Y Tee is hanging down so much, I cut and shortened it to save an additional inch of vertical clearance. And normally you have an inch or more length of PVC for the connection, but I wanted no gap, minimal length, so I cut just a 5/8 inch piece of PVC to use as a connector. Again, recommend you build the outside toilet room well off the ground, steps to get up to the entry platform, so don't need to take extra steps like this or dig a very deep ditch for your waste holding tank.



Here is another review of that Y Tee with the chopped off, shortened base. The vent pipe going out the top has the normal length of connection.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We need to reduce the PVC size int his Y Tee, from 3 inches to 2 inches, the size needed to get into the waste tank. You don't want to reduce this until this point where you've got some downward momentum in the solid waste, and if a block does occur, more room above it for water and waste pressure to force it down.

Before you install the PVC waste pipes, put in some screws into the floor, so you can put wire around the end and help hold the PVC pipe in place until it dries well.

With a helper or the wire, position the Y Tee and then measure the length of connections you need to get from the 45 degree elbows to the Y Tee. Also, mark on the 45 degree elbow and the toilet tank flange base EXACTLY where the 45 degree elbow goes.

Glue in the 45 degree elbows and check their alignment immediately before the glue dries, to be sure they are perfectly aligned.

The biggest challenge now is making several connections to the Y T all at once, before the PVC glue dries, and this means a matter of a few tens of seconds. Before you do this, you need to mark and drill a hole in the building base for the 2 inch vent pipe to rise up.

Getting into the shitty details; clogs are unlikely, but in a freeze, waste could build up here and clog in winter. But you can take the toilet off and the sliding seal off and then poke down a plumbing snake to push it out; or pour in hot water to melt the ice and open up. Also, while less pleasant, you can detach the tank and ram a stick up to unclog from the outside, though the shit will be falling out on your hand and arm if you do this, so dress accordingly.

Before installing the Y Tee, you again, cut the 2 inch vent hole above it, and you need to attach the connector for you waste hold tank to connect to the 2 inch PVC at the bottom of the Y Tee.

It does not go into 2 inch PVC, it goes on the outside of the 3 to 2 inch PVC reducer. Again, we're combining plumbing parts that normally do not connect to each other and they are not standard sizes, but this works.

Be sure to use the PVC purple primer on the OUTSIDE of the 3 to 2 inch PVC reducer before you glue it.

You will want an assistant to hold and help with the pvc cement, because when you've got all the connection PVC pieces cut and tested BEFORE You try to glue them, you need to very quickly glue and slide in both toilet 45 degree elbows and get the Y Tee installed in seconds, before the glue dries. You can see the vent hole cut in this photo.

There is an easier option in terms of plumbing, but it means more buildings, and two holding tanks. This is a two toilet Forti-Potty, you could build two single toilets. Advantages of privacy as well, plus no time without a toilet when you shut them down to go dump the waste tank. You need the waste tank connected all the time so you can store the full 40 gallons or so of waste in between, so two separate toilet buildings does require two of the tanks. But it does mean less plumbing work, and less raising height since you don't have the connecting T which adds almost two feet in height above ground needed. Your Potty—Your Call.

So here you can see how the two toilets are positioned, they combine into the Y Tee, and with the flexible septic pipe connect to the holding tank trailer. You can see how a 90 degree two inch PVC elbow has been added to the vent pipe. It will then run outside and up to vent any smelly odors.


2 PANEL

When you’re connecting the waste hose, if it is too long, use electric tape to bind it up and shorten; I’ve not been able to find any shorter length hose.

And finish up the framing for the outside toilet.


2 PANEL

Some of the wood you see is temporary bracing, but simple roof going on, and you can see why it’s easier to have doors in place before you finish—there isn’t room to maneuver them in later.


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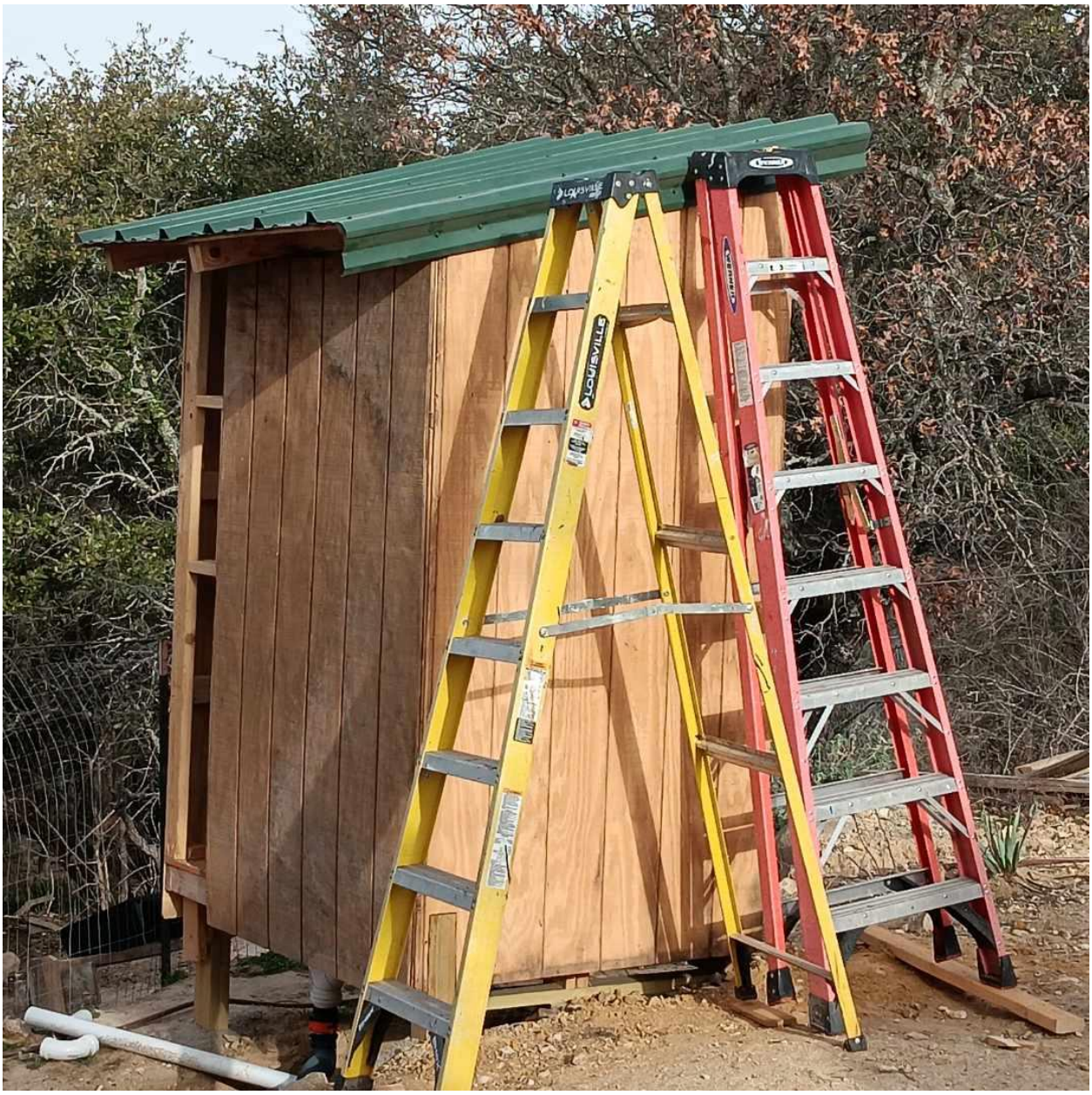
Here you can see how a 2 X 4 stud was used on the hinge side of the door, but on the other, left side, the T-111 siding will screw and glue right into the door frame.



We used a metal roof in TX


PULL


PULL

The dividing wall between the two toilets is not up here. You can see the exterior vents that we'll be putting in later in the corner. Be sure to use vents that have the built in screen to keep bugs out.

Here’s a view of the interior doors. Just a few small strips of privacy OSB walls left to put in, and handles.

After the T-111 siding is up, ran a 2 inch vent pipe outside, then a 90 degree elbow up.

And we ran the vent pipe up from here.

There is still some trim wood to add on top, and you can pretty it up and completely seal.

And add vents for summer cooling if in a hot area; probably not if in a really cold winter state.

When you dump the waste to sit for a year and decompose, you obviously want it far enough away to not smell. At Fortitude Ranch, we plan to also dump this waste in places where we suspect a marauder group might want to camp out to try and observe us. If there is a draw, a natural place that someone sneaking in to attack or observe might use, you

may want to dump it here. Vietnam War veterans may be thinking—you could also sharpen some sticks to place in the ground and cover with your dumped shit, punji sticks, which in Vietnam were often dipped in human fecal matter, placed in the ground and concealed so enemy forces would get impaled on them and poisoned.

This “FortiPotty” if you want to call it that, is a comfortable, odor free way to dispense your waste without overloading your septic system, and saving the precious waste for later food fertilizer use.