

PT Ponds Patio Pond Building Guide

By Mike Singleton

This pond design is free to use for anyone who wants to build a simple, pretty good looking above ground pond. It works well for a patio pond, or can easily be placed out in the yard, by first building some sort of base, such as a concrete pad or a pad built from paving stones. It can be built with or without a bench seat, and the seat could easily be added on after it is done, even on all four sides, if you like.

The basic pond requires six 2X12 pressure treated boards, 8ft. long. You'll need six 2X4 pt boards, 10ft. long, plus at least one 2X4, 8 ft. long. One extra would not be a bad idea! The 2X4's need the extra length, as they must be longer than the 2X12's. That will become clear, later on.

Also, you'll need two 1X4 pt boards, 10ft. long and one more, 8ft. long. For fasteners, 3in. composite deck screws should be used, I'd suggest a 5lb. box. More than enough for one pond, should be enough for two. For fastening the rail cap, a one pound box of 1 5/8in. deck screws would work about the same, more than enough for one pond, probably enough for two. The brand I bought came with a drill bit driver with the square head needed. You might pick up a couple of spares, as they do tend to round off after a while. Appropriately sized nails could be used instead of deck screws. I much prefer the holding power of the screws, plus it would make it possible to take down the pond and move it, should you have the need.

When picking out the wood, take the time to get boards that are as near perfect as you can. By that, I mean boards that are straight and true, with NO cupping at all. A board that is cupped will look like one side is convex, the other concave, when looking at the end with the board turned with its long side down. This makes it hard to get the corners to fit tightly and the top edge will not line up well with the other sides. I don't object to boards with some knots, I think they add to the looks.

You will need a liner. Ideally, you could use a liner measuring 8X12, but that would require "perfect" fitting. Things don't usually work out that way. An extra foot or so in each dimension would be best. More about the actual liner I used, at the end of this. Also, I recommend some type of bulkhead

fitting to make an over-flow outlet. Actually, I hate to see any kind of pond without some sort of over-flow outlet, other than, “just over the top.” The size is up to you, I used a one inch fitting, myself.

As for tools needed, it can all be done with a circular saw and a drill. Sometimes, you might have a little trouble driving a 3in. deck screw into the side planks, so a second drill would be handy to drill pilot holes without changing back & forth between the driver and the drill bit. A carpenter’s pencil and triangle will help, and you will need a good tape measure. I found one that when you took a measurement, it also showed what half of that would be. For your bulkhead fitting, you will need an appropriately sized hole saw for your drill. For the liner, you’ll need a staple gun with staples. And maybe a hammer to help seat them.

Below, is a picture of the basic parts. You’ll might notice the miter saw in the upper left corner. It’s also a good chop saw and my personal “cheat” for getting the vertical spacers all cut to the exact same size. Not needed, but nice to have.



Take two of the 2X12’s and cut them exactly in half. These four pieces will become the short sides of the two levels. Two show how the 2X12’s are laid out and fastened, here’s the basic idea demonstrated with some scrap 2X4’s, in the next picture. I guess you could call it a “basket weave” pattern.



I use 5 of the 3in. deck screws in each joint. Note that one end of each board is covered, the other end exposed. It is important that the above pictured pattern is followed, to maintain the shape and structural integrity.

When driving these 3in. screws in, try to make the screw heads flush with the board. This is especially true when you are driving screws from the inside of the frame, where the liner will later be placed, covering those screw heads. For the screws joining the sides of the pond at the corners, you really don't have to worry about that so much. Just decide how far you want the screw head to set into the wood, and then try to make them all the same.

Sometimes, you may have a problem getting a screw to drive in as far as you want. This would be where you'd want to back it out, and use a drill bit as long as the screw, sized slightly smaller than the screw itself, to drill a "pilot hole." Then you should have no problem getting the screw to set down as far as you want to. Just don't use too large a bit, or the screw will not bite into the wood enough to hold.

Just like the demo with the 2X4's, only with the full-sized boards:



Now, on to the rails! These 2X4's on-edge is what gives strength to the sides and keep them from bulging out. You might think this is over-building, and it may well be. But I have seen pictures of similar ponds that were bulging out in the middle. This is often corrected (or prevented,) by putting a 2X4 across the top of the pond. That certainly works, I just don't care for the looks of it. That would be just fine for something like a grow out pond, but for a display pond meant to be seen, I much prefer this "over-built" look.



First, notice that the 2X4 is on-edge, and has one end flush with the end of the structure, not simply flush with end of the 2X12 on that side. The other end extends past the structure. Also note the two spacers the 2X4 sits on. Once the height was determined, half way up the side, those two spacers were cut to the exact same size. These will be used for the remaining sides, as well as any other ponds to be built. So long as the pad the pond sits on is

level, those spacers will make sure the side rails are even, all the way around. That is important. If the pad is not level, then you'll have to "wing it," to get them to come out right where they meet at the corners.

The side rail is fastened to the side of the pond from the inside with the 3in. deck screws. I used 9 screws for each of the long rails. An easy way to get the screws in the right place is to sit the tape measure on the top of the 2X12 and extend the tape to the top of the 2X4. Lock the tape in place. Then pick it up and pull out just enough tape to extend a little more, half the thickness of the 2X4. Now you can put the tape measure back on the top of the 2X12, with the tape extending down inside the structure, place a mark at the end of the tape and it should place the screw right in the center of the 2X4 side rail.

At this point, I added the rail to the opposite side of the structure, making certain that the "long" end of the rail was on the opposite end of the structure. Use the two spacers you used on the other side. Where you see the one sticking out past the end of the pond to the right in the above picture, the one on the other side would stick out past the end on the left side of the picture.

Now you can cut one of the 10ft. 2X4's in half and again using those spacers, put the two end rails in place. At this point, you should have a long end sticking out at each corner, in the same "basket weave" pattern as seen below.



Here is where that carpenter's triangle would come in handy. I used it to draw a line to cut off the extended ends at each corner. (Not that green line

you see in the picture, that was something already on the board!) And the circular saw does the trick.

Since the pad I was building on was pretty level, using those two spacers kept the side rails level all the way around. And since I knew I was going to be building four of these ponds to sort of enclose the patio, I kept them for all four builds. In the next picture, the little bit of scrap you see in the middle is what I had left over from building this first level. Keep those pieces, as they will be used for the next step.



Now you need to cut the spacers the fit between the horizontal rails. I might be easiest to mark the centerline of one of the 4ft. end pieces where the rail will go. Then lay it on the ground, and use a 2X4 centered on that centerline, mark the bottom of the 2X4, remembering the rail will be on-edge when it's screwed into place, later. Now balance that end piece in place and measure from the top of the bottom rail, to the mark where the bottom of the upper rail should go. Keep that measurement and lay the end piece aside for now.

Use the measurement just taken and cut a pair of spacers for both long sides, and one of each end. You can use two on the ends, but I thought one was sufficient. Cut these spacers first from the scrap 2X4s left over from trimming the rails on the lower section first, then you can cut one from two of the remaining 10ft 2X4's, and the rest from an 8ft. 2X4.

I centered one spacer upright on each end of the pond, and then marked the

center of both long sides, and then place one between the end and that center mark, the other between the center mark and the other end. I wonder why that sounded more complicated than I remember it being?

I would fasten each of these spacers in place with a single screw, to the bottom frame, from the inside. Once the top section is sitting in place, you will go back and put a second screw into the bottom frame, again from the inside, and another pair into the top section, also from the inside. The reason you only want to put a single screw into each spacer at first is to allow some final “fine-tuning” of the placement of the upper section.

At this point, the pond should look like this:



Now you can set the side pieces for the second level in place. Once again, each plank should have one end covered, one end exposed, just like the lower level. But, I would advise you to place the first piece in place, so that it's covered end is on the opposite end of the one below it. Same pattern, but rotated 90⁰. If the bottom plank has it's left end covered, then the top plank has it's left end exposed. The place the other planks in place, following that pattern. Over-explained enough? I do tend to confuse things that way. In any event, this along with most all my instructions, are much easier to actually do than they are to explain.

Once these pieces are in place, run a single screw in to each of the four corner joints. Now you can make any adjustments to the placement of the upper frame needed, then put the other 4 screws into each of the joints. Once you've gotten that far, take a last look at how the upper frame is sitting

on the lower. Any misalignments should be corrected at this point. If one corner sits a bit off, you should be able to adjust the upper frame to split the offset between opposite corners. If you have a small mistake, spread it around! Often, the results will be a mismatch that is too small to matter. For this, close counts!

By now, your pond should look like this:



If you are using just a single spacer on the ends, as I did, don't finish screwing the frames to those vertical spacers, just yet. Use the remaining 2X4's to make the upper rails, starting with the long sides, screw them in place from the inside, using the tape measure to mark the screw points just like you did for the lower rails. Once done, add the two end rails, making sure the piece sits down on the spacer, and that both ends are even with the side rails.

If they aren't you may need to fasten the rails in place without the spacer, then trim the spacer to fit, and put it in place after the fact. At this point, either way, double check the over-all placement of the upper section on the lower, make any adjustments you need to, then screw the upper frame to the vertical spacers, from the inside again, using two 3in. screws. Also, add the second of two screws through the lower frame into the spacers.

Note that these spacers are part of the finished pond. The two used for the initial placement of the lower rails are not. If you think you might be building a second pond (or more!) then save those, and make cut another spacer to the same length as used for the upper, permanent spacer, and keep

it, also.

Now, your pond should be at this point:



Here is where you decide where to put the over-flow fitting. I placed mine about a foot from the corner, more-or-less, as close to the top as I could, while still allowing for the cap rail to sit on top of the frame. The fitting has a thickness of plastic that must be allowed for, or be trimmed at the top once in place, so that it does NOT stick up above the frame. This does mean that the water level will never be any higher than the bottom of that fitting. Just something to keep in mind.

Once you get to this point, sweep up any and all the sawdust inside the frame, and from the entire area. It's time to fit the liner!

This is the part where attention to detail really makes a difference. You want to make sure to remove anything from the inside of the pond that may cause a problem, later on. Also, be sure that all the screw heads are down flush with the surface of the wood. Double check that there are no splinters inside the frame that could puncture the liner.

Set the liner in place and start working it into the frame. It will look like this:



Make sure the liner goes all the way to the bottom where the wood frame meets the base. You do not want any space at the bottom where there is any gap between liner and wood. Start adding water so there's only about of inch of water, then you should be able to pull gently up from the sides, to minimize any wrinkles on the bottom. Note I said "minimize." It would seem that perfection is seldom attained! Just go for what you can live with, but do the best you can.

Fitting a liner is like wrapping a present, only inside out. Sounds odd, but you'll see what I mean when you do it. It might help to think of making a bed with "hospital corners," only the corners are inside, instead of outside.

I'm going to stop with this, as I see I'm about to over-explain something that is fairly simple. The idea is to fit the form, minimize the wrinkles and folds, then reduce the left over material to a minimum. You do need to have some liner material going over the side of the frame, at least half way across the top of the 2X12, but do trim off any that goes past that, once enough water is in the pond to ensure there will be no sagging of the liner.

I used staples placed every couple of inches to secure the liner. I started with just enough to keep it from folding down during the filling, then added the rest as I trimmed the excess material away.

At some point before the water gets too near the top, you'll want to install the bulkhead fitting for the over-flow. Mine looked like this:



The top of that fitting is just low enough so it clears the liner. Of course, this picture was taken before the liner was fitted, otherwise, the black-on-black would have been hard to see.

Once the liner is filled, you can then use the 1X4's to cap it off. The cap rail's job is to cover the top of the liner and provide a flat surface to put things you want to have fall in the pond. At least, that the way it generally goes.

I used the 10ft. sections one each on the long sides, placed with the overhang more-or-less divided between the two ends. They were screwed down with the 1 5/8in. deck screws, driven flush with the wood, about every six inches or so. They were positioned on the top of the frame centered on the frame, so there was about an equal amount of overhang on each side. Rather than follow the basket weave pattern, I simply measured the length for the two end pieces, cut them to fit, and dropped them in and screwed them down. You could continue with the basket weave instead, but I was satisfied with the looks the way I did it. Could have had something to do with the 90⁰ heat. . .

Now to finish.



You could leave it like the one on the left (above,) or add a bench set like the one on the right. You could add the seat on both long sides, all the way around, or whatever suits your fancy.

For the bench seat, you will need an additional 2X12 and at least two 2X4's, the 8 footers should be enough. Don't forget to use whatever 2X4 scraps you had left over from the build.



As you can see, a short piece of 2X4 was screwed to the underside of the top rail on each end. Another pair was attached to the pair of upright spacers, these being screwed to the top rail in the same way, as well as to the upright spacers. The legs on the ends are screwed to both the new bench supports and the bench seat. The center leg is only screwed down from the top to the bench seat. I could have left out the center leg and put another pair of legs, one on each of the supports attached to the vertical spacers, but

I didn't think the bench needed to be all that "leggy."

To complete the overflow, add a short length of PVC pipe to the fitting, long enough so the addition of an elbow will just clear the top rail, add the elbow and then enough of the pipe to just clear the ground, when another elbow is added to it. Consider using a black or better yet, light brown or tan spray paint on the PVC to make it blend in with the pond.

Before adding a waterproof wood stain to the pond, I'd let it sit as is for about a year, to let it "weather." Besides, I want to lose that slight green tint before the stain, and I doubt that "green" pressure treated wood will actually hold a stain very well.

About the liner, I used a very thin material, PPL-12 from www.justliners.com It is the thinnest liner they sell. It is black on one side, white on the other. No idea why. A thinner material is always easier to fit to a pond, less bulk where folds are required. They do have the same material in a thicker form, plus Permalon, a much tougher material. I've used the Ply-X 210 Permalon quite a lot in the past and have a lot of faith in it. You could also use the old, traditional, and very nearly bullet-proof EDPM rubber liner, but getting it to take the shape in such a small structure to be a royal pain. But the choice of liner materials is often the subject of great debate, and personal choice.

In fact, for a "temporary" grow-out or display pond for a show, even plastic sheeting could be used. The construction sheeting sold at the "home stores," in black preferably, would do well for that. It should last an entire season, two would be great, any longer would be an unexpected bonus. And it is cheap! But for a patio pond, or any that you expect to keep around for years, I would leave the construction plastic alone.

Now, go build your pond and enjoy it!

Mike Singleton
Spring Hill, FL

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