

RAINFALL FOUNTAIN/WATERFALL

By

Sam Martin, Horseshoe Bay, TX
November 2008

A neighbor around the lake from me has a fountain in their backyard that looks like a rainfall. I decided to try to build one using some PVC pipe I had laying around. It worked out really well.

My neighbor's fountain is self-contained, with a pool at the base built out of cut stone and stone columns supporting the top of the waterfall which is a sheet metal box. When I began my experiment with the PVC pipe, I wasn't intending this to be a permanent installation. I'm planning to build a new boat house and the construction will disturb the majority of my yard so I wanted a temporary structure for now. To avoid the cost associated with a base for the source water, I decided to just mount it over my boat slip and let it re-circulate back into the lake.



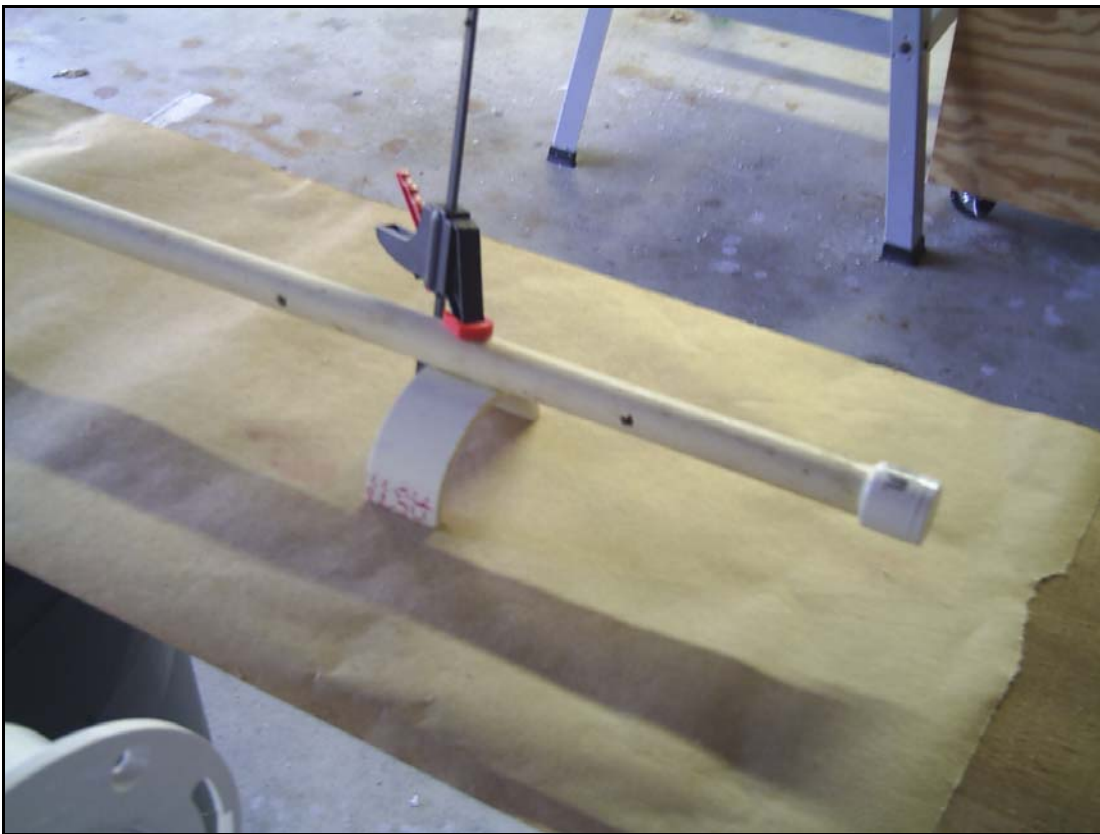
[You can see the 1/2" white PVC pipe below the left column extending down into the lake where the submersible pump is sitting on a concrete block.]

GENERAL PLANS:

It's nothing more than a 10' length of 4" PVC pipe with holes drilled in it to let the water flow out like a rain shower. (The holes are 1/8" diameter spaced 1" apart starting 6" from each end). Using a submersible pump, water is fed from a supply at the base to the 4" PVC pipe at the top and gravity does the rest. You simply need a sufficient supply of water to keep up with the flow rate of the holes in the pipe.

In testing the idea, using a temporary fitting and a garden hose, I discovered an issue with feeding the water in from one end of the pipe. The holes at that end of the rainfall were not putting out any water because the force of the water coming in was pushing the water past the first 6 or 10 holes.

To solve that problem I ran a 3/4" pipe inside of the 4" pipe to disburse the incoming water throughout the length of the 4" pipe in a manner that insured it would be more evenly distributed. As you can see below, I drilled 1/4" holes at 12" intervals and mounted the 3/4" pipe on saddles (with the holes toward the sides) to suspend the pipe inside the 4" pipe so as not to block the holes in the 4" pipe.



For saddles I ripped a piece of 3" PVC pipe in half and sliced 2" pieces from each half. These are simply glued to the 3/4" pipe using PVC cement. A cap is installed on one end of the 3/4" pipe. The other end of the 3/4" pipe will extend through a hole drilled in the flange on that end of the 4" pipe. This will be trimmed off after assembly and an elbow attached to connect to the vertical supply line from the pump.

Here you can see the two sub-assemblies:



Once I got the piping working correctly, I made the cedar framework to house the pipe.

For this I chose 2" x 12" rough cedar and simply framed the top and two sides with full pieces of 2x12. The sides, in my case are approx. 7', while the top was cut to fit the length of the 4" pipe with the flanges on each end (a little over 10').

A hole is drilled in the appropriate location on one side frame to allow the 3/4" supply line to extend through the side and the 4" pipe is mounted close to the top as possible.

To provide strength, I attached a sculpted 2" x 12" piece perpendicular to each side frame. In the photo below you can see that I cut the 2x12 in thirds, lengthwise and widthwise. The corners were then rounded with a jig saw and sanded to sculpt the piece. The top also has a sculpted strut attached to the top frame. A sculpted 2 x 12 footings mounted at the base of each side limits warping of the side pieces.





My friend Will Planter, seen above, helped with the framework and installation.

Finally, I added a 1" x 12" rough cedar plank over the face on the front and back to hide the pipe. You can see in the last few pictures how the top sculpted piece extends over the side sculpted pieces, and the 'T' shaped sides are mounted onto the base footing pieces. This allows for easy attachment of the pieces with 2-1/2" deck screws.

The next challenge was figuring out what size pump I needed to bring the water from the lake up to that height (approximately 10' from the water level of the lake) and provide a constant flow.

I was fortunate to have picked the right size pump (1350 gallons/hr) on the first try.

The following pictures show the assembly of the sculpted wood pieces. I do not have dimensions on all of the various cut pieces and thus have not made these plans more detailed, which is why I am providing this technology for free. You can also see where large lag bolts with washers were used to attach the bases of the assembly to my deck.

