

How To Install A Hidden Water Fountain

Detailed techniques and tips for installing a water feature in your yard.

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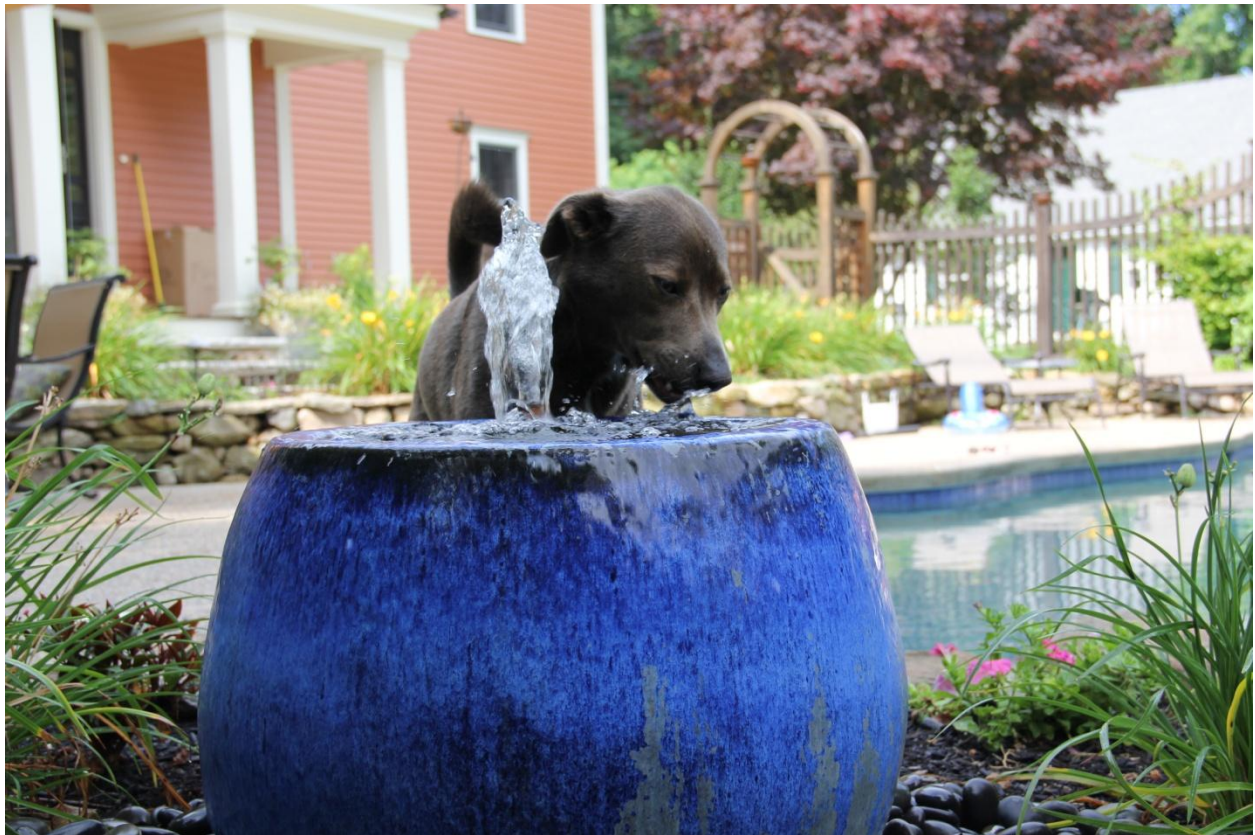
Introduction:

Disappearing fountains, statues, vases and rock fountains are becoming popular backyard focal points. Just go to any garden shop and you'll see dozens of options of for Koi ponds, waterfalls and basin fountains.

Installing a disappearing or hidden basin water fountain does not take up as much space as a waterfall or Koi pond but still gives you that bubbling water sound and great looking landscape focal point.

With a disappearing fountain, water is pumped from a hidden reservoir buried in the ground through and out a fountain standpipe, the water then overflows the basin rim seemingly disappearing into the ground.

Installing a hidden or disappearing water fountain is a great DIY project and a way to add that incredibly relaxing sound of moving water to a patio, pool or flower garden area.



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Safety Information

It's very likely that you'll choose to use power tools and a propane torch for this project. Power tools can cause serious injury or death so be VERY careful. Before you use any power tool it's very important that you carefully read all of the manufacturers operating instructions and safety guidelines.

If you don't feel comfortable using power tools it's imperative that you stop and find that confidence through practice.

This eGuide does not offer advice on how to safely use the tools featured in it. Lastly it's important to note that you should NEVER use a power tool if you're using medications, drugs or alcohol.

It's also important that you not use these tools if you're feeling angry, tired or emotional.

Recommended Tools

- Shovel
- Level
- Propane torch and solder
- Drill
- 1" drill bit
- Putty knife for epoxy
- Hose to fill basin and reservoir.
- Reciprocating saw and metal blade
- Adjustable wrenches

Materials needed:

- Basin
- Reservoir basin and grate
- Submersible Pump
- Copper pipe, shut off valve, connectors
- Stainless steel hose clamps
- Teflon tape
- Marine epoxy
- Stones or pebbles
- Timer

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Common Mistakes

1. Not taking the time to figure out your pipe configuration
2. Drilling the glazed pot too aggressively
3. Not choosing the proper pump for your needs
4. Not excavating your hole level
5. Not leveling your fountain

How to Build A Hidden Water Fountain:

I'm going to detail for you how to select materials, use tools and build a beautiful water feature. At the end of this e-guide I also lay out a realistic budget of time and money involved.

Start with a vessel or pot that you want to use. It must be able to hold water. The blue pot below has two holes in it that I will use marine epoxy to fill.



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A glazed pot is suitable for a fountain and has a life expectancy of 20 plus years. I was happy with that.



Choosing The Hidden Fountain Location:

I chose my location based on looks first and location to power second.

The spot I chose was at the end of the pool near where we sit under an umbrella. This location was also suitable to get an electrical conduit to by following the stone wall.

When choosing your location consider thee factors:

1. Electrical connections
2. Access to a hose of irrigation pie to refill.
3. Access to repair or maintain your fountain.

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Designing the Hidden Fountain:

My vision for this fountain was to have a 3/4" copper pipe protruding approximately one inch above the waterline at glazed pots rim. The water plume will cause the water in the pot to overflow and run over the pots side and disappear onto river rock stones around the glazed pot.

I needed a method to collect the overflow water and re-circulate it back to the fountain.

After visiting my garden center I learned that they sell plastic basins with grill specifically designed for what I needed. The basin was called a disappearing fountain basin.

I bought the basin and a pump suitable for the basin to re-circulate the water. Next stop was the hardware store where I purchased some copper pipe, quick disconnect, copper elbows, a few stainless steel clamps, a shut off valve and some marine epoxy

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Getting Started:

At this point my idea was still a theory. I was still unsure how I was going to configure the fountain pipe and secure it to the pot.

I wanted to achieve several things with this project:

1. I wanted to install a shut off so I could restrict and control the flow of water.
2. I wanted to be able to disconnect the pump from the bowl bowl for winter storage.
3. I want to hear the splash of the water as the water overflows from the pot.
4. I wanted to be able to easily drain the basin or service the pump if needed.
5. I wanted to control the pump with a timer.

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The Hidden Reservoir Basin:

I chose to purchase my pump and basin from a local nursery

The basin is 36" x 36" x 14" deep and is made of reinforced plastic and the grating is reinforced PVC with a mesh netting covering the grate. The mesh netting helps keep debris and small stones from falling into the reservoir. I paid \$200.00 for the basin.



The basin will house the reservoir water pump, some pipe and other connections and will be full with water.

This basin is designed to be installed at ground level and covered with decorative stones. I plan on using Mexican beach pebbles which are smooth and black in color.

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Water Pump:

With help from the nursery water fountain expert I chose a Little Giant submersible pump which is designed for continuous circulation. This pump can handle up to 400 gallons and pumps 475 gallons per hour. The pump cost \$ 100.00.

I plan on running this pump only 16 hours and controlling it with a timer.

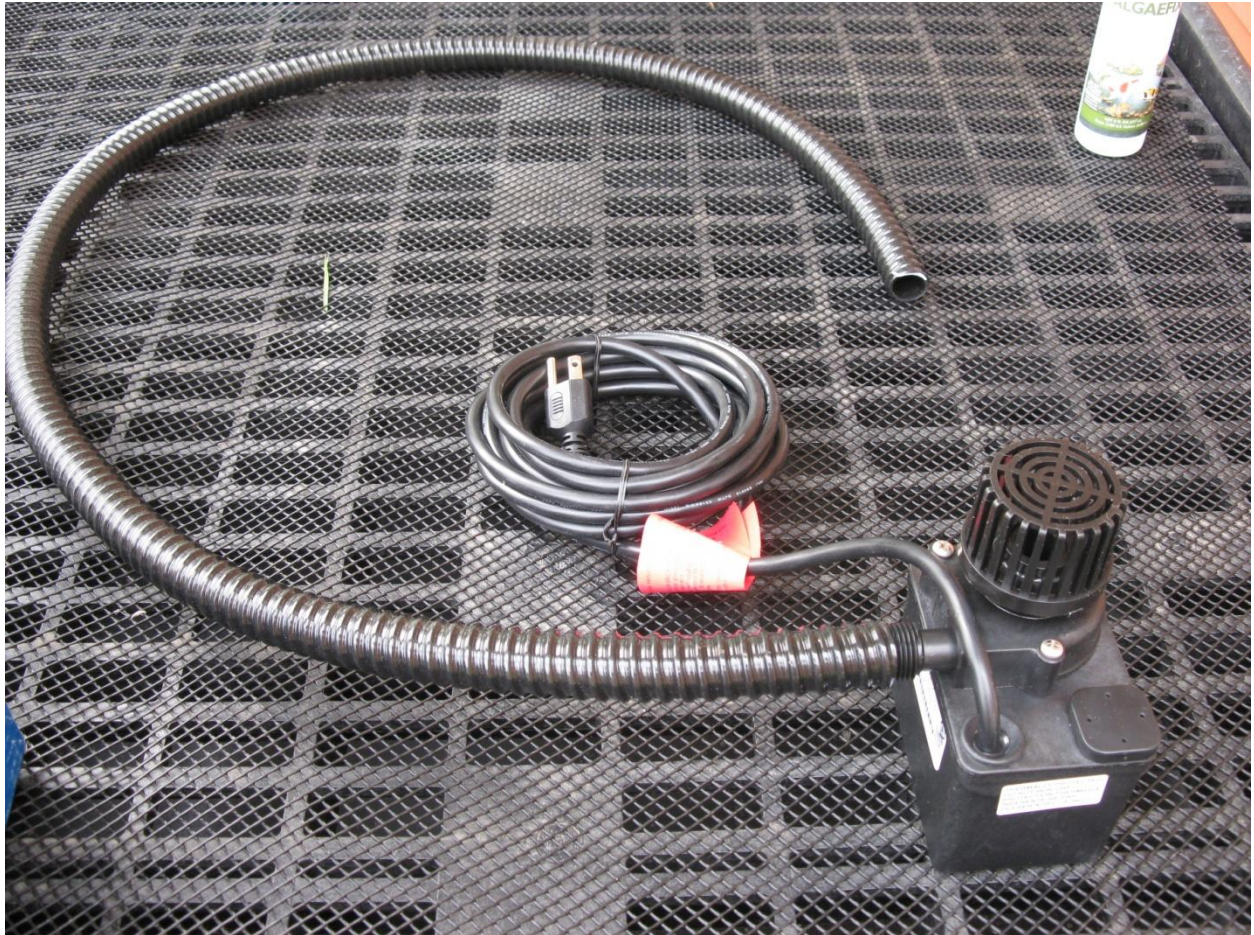
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Making The Fountain Connections:

To keep my options open, I chose a pump powerful enough to push the water above the waterline, if it's too powerful I plan on restricting the water flow with the shut off valve I purchased.



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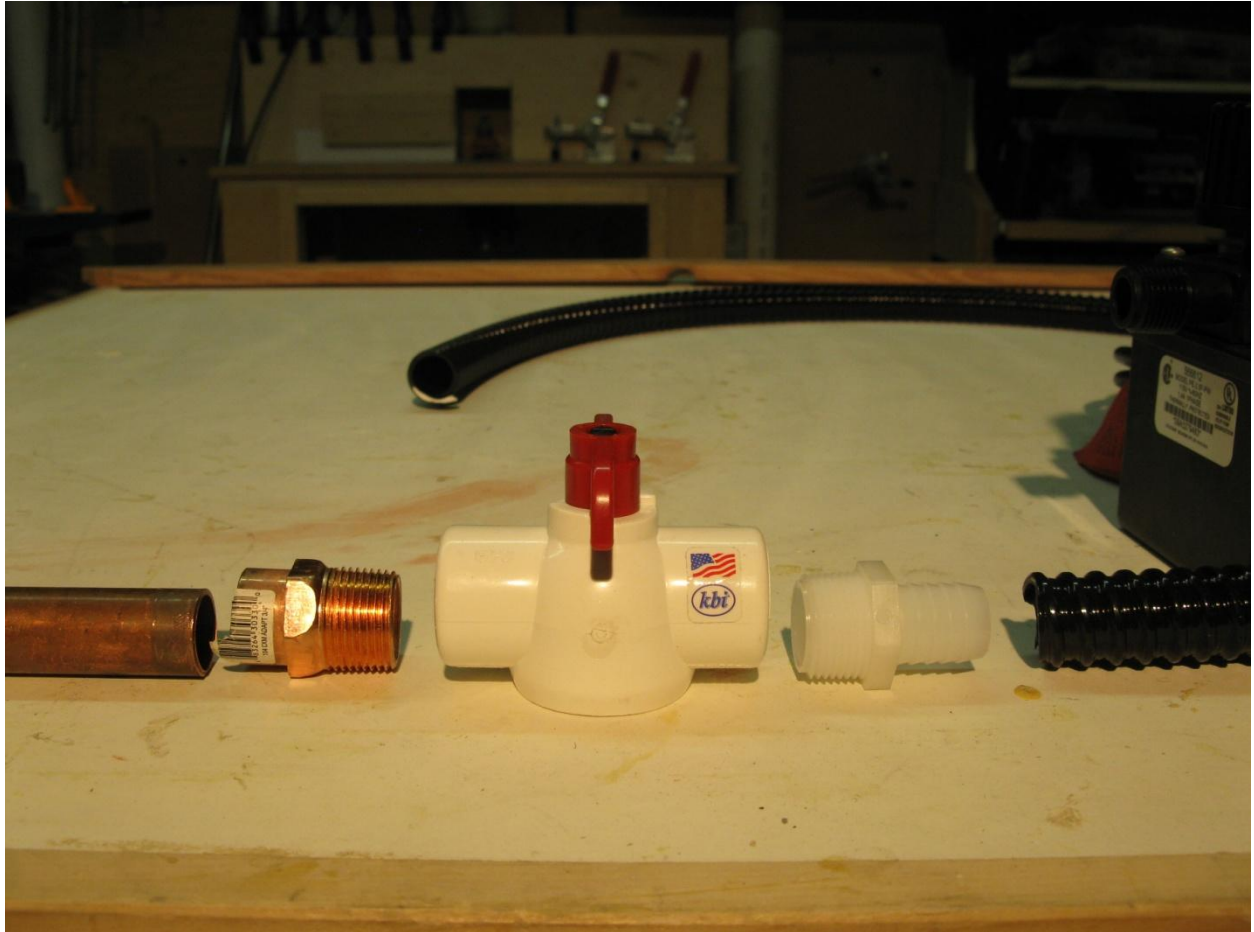
I played around with different pipe configurations, swapping around elbows and hoses until I came up with a design I liked.

Remember my plan is to make the pump easy to disconnect.



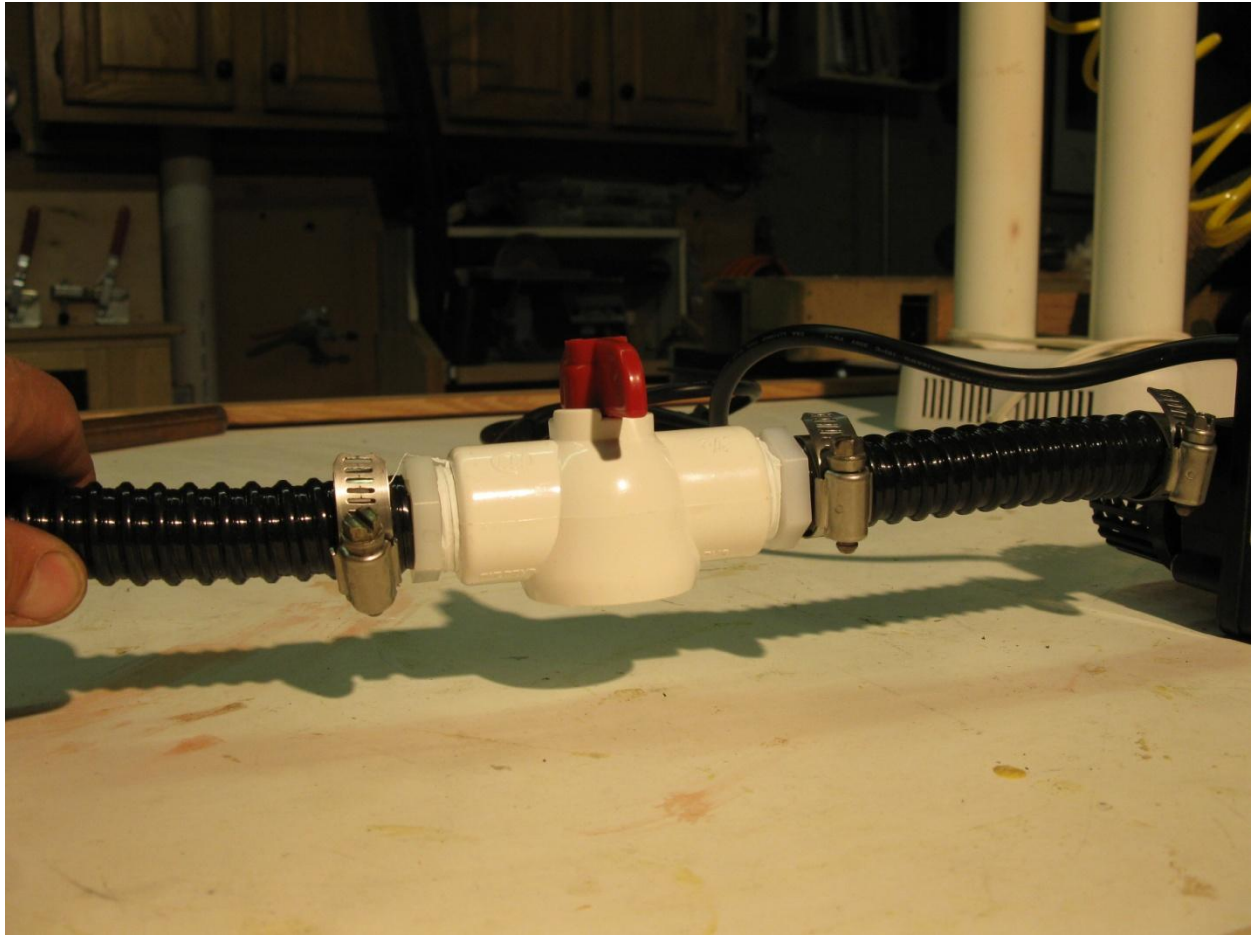
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Below is the shut off valve that I will use to restrict the water flow. It is important NOT to put anything that restricts the flow of the water before the pump intake.



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I finally decided on and connected the shut off valve with a pair of 3/4" x 3/4" nylon barb adapters and stainless steel clamps. I wrapped Teflon tape to the nylon threads before screwing them into the shut off valve. [below]



The shut off valve is connected to the pump with 3/4" hose and a stainless clamp. The hose that came with the pump screws onto the pump and stays on without connectors. This allows for quick disconnect to clean or store the pump.

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TIP:

Some pumps come with flexible hose that threads on to the pump. Having the flexible hose as part of your piping configuration can give you much needed maneuverability, especially since you will be working in a small space. [Hidden reservoir]



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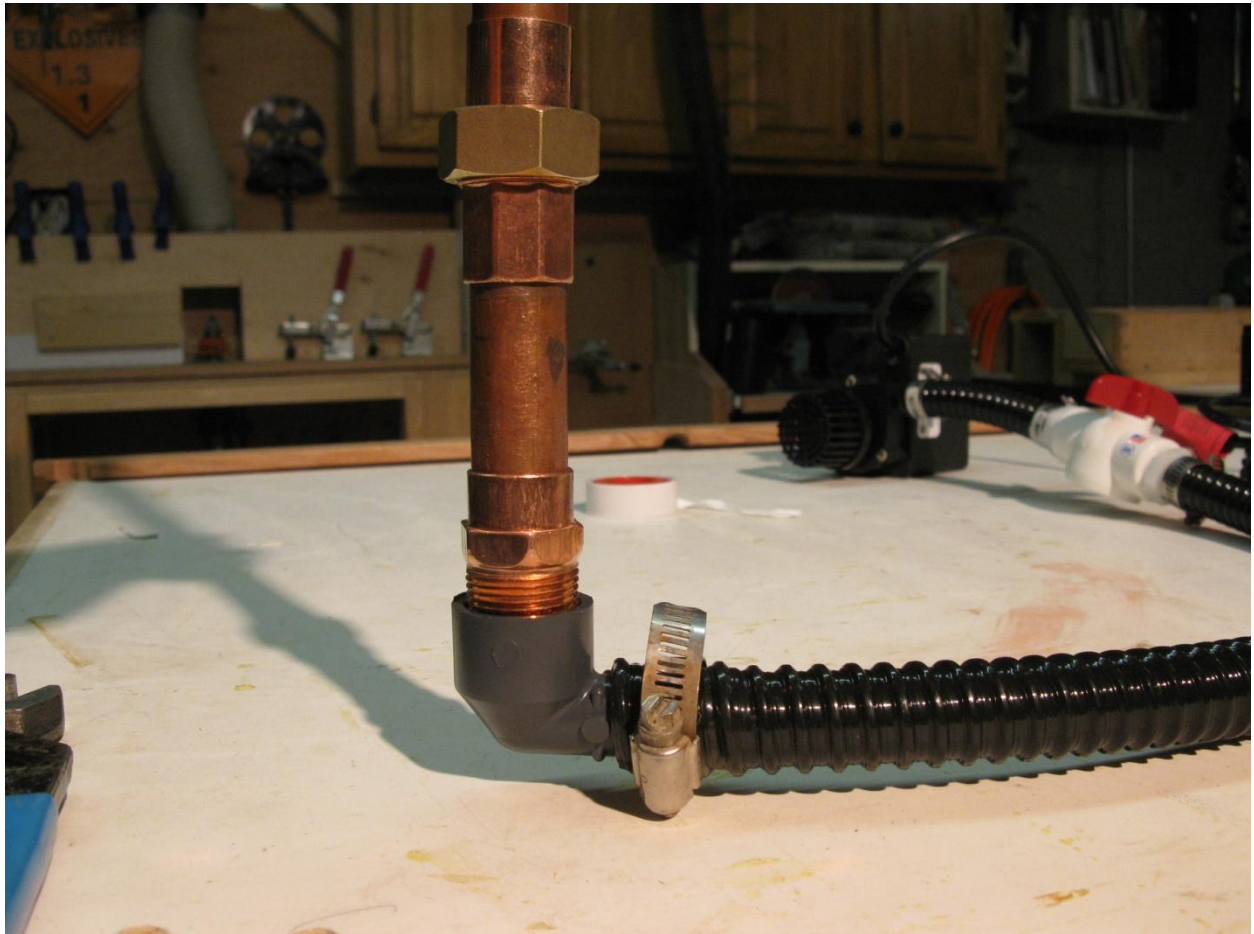
After some experimenting with a variety of connectors I finally arriving at the final configuration shown below.

I chose a 90 degree irrigation elbow insert 1" x 3/4" to connect to copper pipe

The PVC elbow connects to a 3/4" copper threaded "X" male adapter fitting. A short piece of 3/4" pipe separates the male adapter from my disconnect fitting.

The disconnect fitting will allow me to drain the pot and remove it for winter storage.

Attached to the disconnect fitting is a long piece of 3/4" copper pipe that makes up the main fountain pipe that will run up and through the basin.

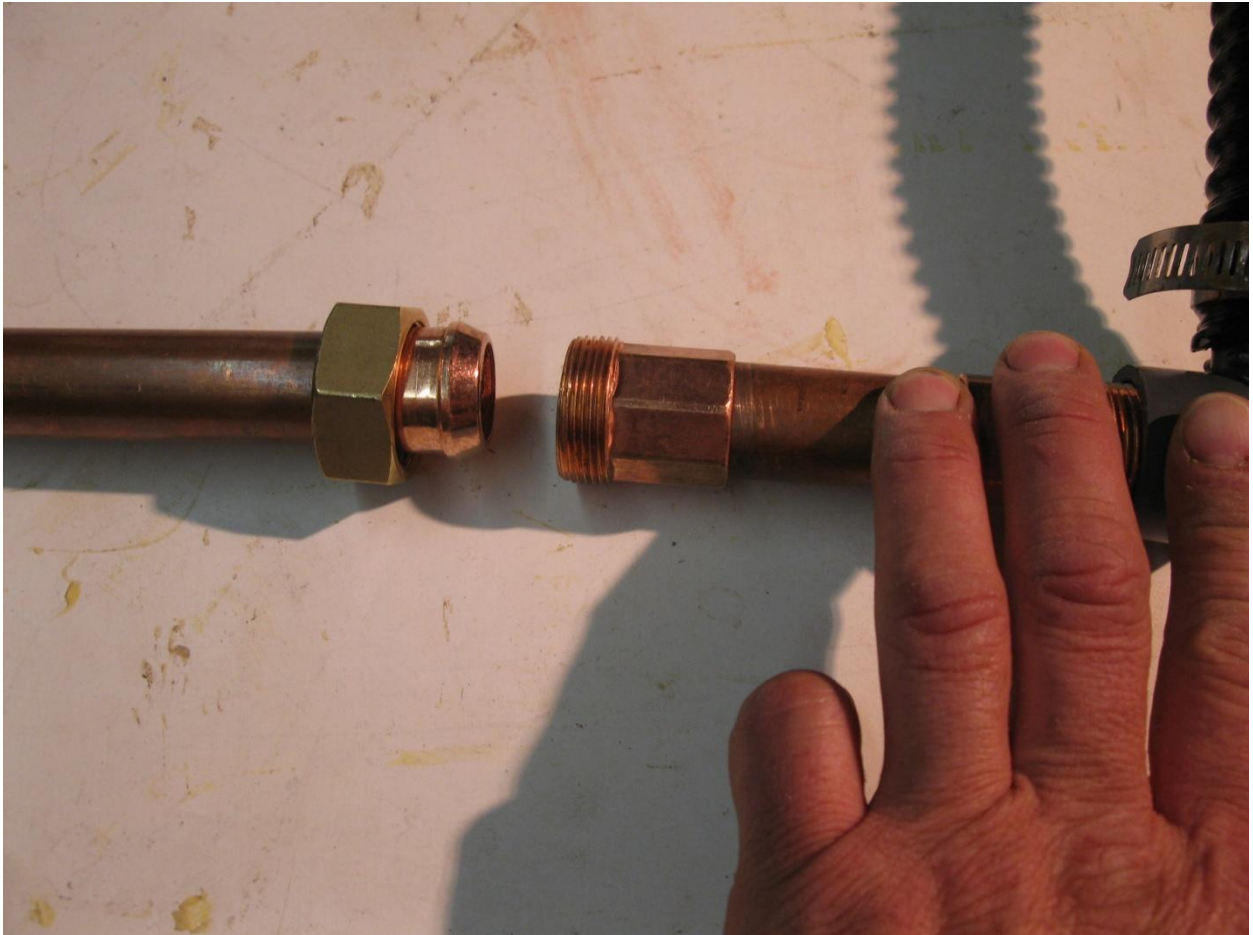


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The disconnect fitting shown open below:



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The final connections shown below. The copper tube will be mounted through a hole drilled through the center of the glazed pot.



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Installing The Hidden Reservoir:

The glazed pot will eventually be installed on the basin as shown below. Installing the hidden reservoir meant I needed to dig a hole about 14" deep and 3'x3' square.



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We lucked out and were able to get our hole in without having to move the irrigation pipe in the bottom of the hole.

When I saw this pipe it gave me an idea that I may want to add an auto refill to the basin so I would not have to re-fill it once a week.

When preparing the reservoir basin hole use care to make sure the bottom of the hole is even and level in both directions. If not the reservoir will not your basin will be out of level and you will not be able fill the reservoir to its fullest capacity.



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Once the hole was excavated and leveled we installed the reservoir, checked again for level and back filled and tamped. [note: level not shown properly, hold level on edge]

I chose to leave the reservoir basin approximately 1-2" higher than ground level to account for mulch and help keep the mulch and dirt out of the water in the basin.

Because the ground slopes away the reservoir sticks out of the ground higher in the rear. Because this area can't be seen from the patio I decided not to slope the ground up to the basin.

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Installing The Copper Fountain Head:

Part of my plan was to install a 3/4" copper "stand pipe" up through the basins bottom to deliver a plume of water at the top edge of the basin's rim.

The basin will hold water and the stand pipe will prevent water from flowing out of the pot when the pump is turned off.

To do this I used a 3/4" masonry bit to drill a hole through the center of the pot. This hole will allow the stand pipe to reach the pump in the hidden reservoir below.

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Drilling this hole was nerve racking because I did not want to damage to pot. It was a gift but I knew the replacement value was approximately \$200.00.

While drilling I had to ream the hole a bit for the pipe to fit. I wanted a tight fit. Once all of the components and dry fitted I will permanently epoxy the standpipe into the glazed pot.

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Test fit everything first. I then placed the pot onto the reservoir basin and checked for level. The pot can be shimmed a bit if needed later if needed.

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Next step was to drill a hole through the reservoir basin grate for the copper standpipe to reach the reservoir and pump. I used a 1" Forstner bit for this but a spade bit would work too.

I later ended up enlarging this hole so I could remove the pot, if needed, without removing the standpipe and quick disconnect fitting.

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Epoxy The Holes:

The existing glazed pot came with two drainage holes which I filled in with Marine epoxy. I also used the Marine epoxy to secure the copper standpipe in the center hole of the glazed pot.



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Cut An Access Hole:

Using a reciprocating saw and a metal cutting blade I cut a 1' x 2' access panel into one corner of the grating. This panel will allow me to access the pump and shut off valve to control the water flow as well as the copper standpipe in order to disconnect for winter storage.

The idea behind this access panel is to provide quick access with out having to remove the glazed pipe.

Concrete blocks and brick help support the grate and inside corner of the access panel.



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Soldering the Copper Standpipe Connections:

After dry fitting everything. I used a propane torch to solder all of the copper pipe fittings. The threaded end of this pipe will screw into a PVC threaded elbow which connect to the pump.

The large nut in the middle is the quick disconnect fitting.



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Test the Components Before Installing:

Testing the pump and fittings is important to work out any problems or issues. When I tested my fountain, the flow of water from the pump was strong, The ball valve can be used to control the flow.

When the standpipe was held vertical the pump pushed out a 5-6" plume of water.



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Putting It All Together:

This basin is heavy empty, adding water to the basin at approximately 8lbs per gallon will increase this weight so I added cinder blocks directly under where the basin sits. The blocks will take the weight and stress off the PVC grate and to transfer it to the ground.

I then routed my copper fountain stand off pipe through the grate and attached it to my pump and hose assembly.



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I lowered the basin pot over the standoff pipe and used my level to hold it plumb. Marine epoxy was then used to secure the pipe to the pot and make it able to hold water.

The copper standpipe protrudes 2" above the basin rim.



Once the epoxy dried I checked again for level, shimmed level if needed, and then filled the basin filled with water. Test again.

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I finished the top of the PVC grate with 1 to 2" Mexican pebble rock. The rocks will hide the PVC grate.



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The pump pushed a 5-6" plume of water and the basin held water. As the pot overflows the water follows the contour of the basin and drains back into the hidden reservoir.

I then added additional rocks to hide the square edge of the reservoir and to overlap to the mulch.



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Finished Photos:



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Other Considerations:

Electrical:

The submersible pump has an 18' cord and will be run under mulch and river stones and attached to a outdoor rated GFI outlet hidden 15 feet away behind a rock.

I installed this GFI specifically for the hidden fountain. This electrical line was installed in pvc pipe and an 18" deep trench from the house.

I turn on and off the fountain with an outdoor timer that plugs into the GFI outlet.



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Filling The Fountain:

I later tapped into that irrigation line and added a sprinkler head into the reservoir. Now when the irrigation system turns on to water the plants around the basin it also fills the basin.

The irrigation pipe comes out of the ground and goes into the rear of the reservoir basin with to power cord.

Garden supply stores sell auto fill valves but I decided to do it this way, keeping its simple.



Keeping the Water Clean:

I use Algaefix pond care to keep the water clean. Algaefix effectively controls different types of algae that plague ornamental ponds and fountains and will not harm plants or animals. This solution treats 50 gallons of water with one teaspoon, applied once a week.

A capful of chlorine bleach also works well and is cost effective.

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Cost:

- Total materials for this entire project cost was approx. \$ 600.00.
- Labor hours to install basin was approx. 8 hours.
- Labor and material hours to install electrical line was approx. 6 hours and \$70.00
- Electrician labor and material costs approx. \$ 300.00

Electrical Trench Photos:



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