

# Pond Building 101

**Step One: What kind of pond and where?**

Choose a spot for the pond that offers a great view from various parts of the house and where you will be able to hear the sound.

For the best view have the water flowing toward your primary viewing location.

For good Feng Sheui have the water flowing toward the house, not away (water flowing toward the house brings wealth).

If you want water lilies in the pond they need at least 6 hours of sunlight.

A pond under a lot of trees will require a bit more maintenance than a pond in an open area.

A gold fish pond needs about 2' of depth, a Koi pond must have 3' of depth.

Pond enthusiasts biggest complaint is that they didn't build their pond large enough. Plan to install the largest pond you can the first time.

**Step Two: Laying out the pond and digging the hole.**

Use a rope or your garden hose to lay out a pleasing shape and define the edge of your pond.

Make sure there are no "dead water" areas in your shape that won't circulate water when the pond is running.

Once you've laid out a shape you love paint it on the grass or dirt with spray paint. Measure in a foot or so and spray a second interior ring.

Dig straight down from the second interior ring to the depth you want, 2' for goldfish, 3' or more for Koi.

Remember that water will always find its own level, so the pond will level itself from the **LOWEST** edge. So when you're measuring the depth work from the lowest side of the edge.

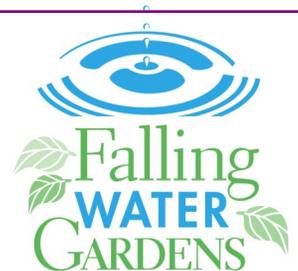
Once you've dug the interior measure down about 8" from the top and dig a shelf around the edge to the outside ring.

Use a 2"x4" on edge with a level to make sure your shelf is perfectly level in every direction.

**Step Three: Installing the pond.**

- Install the underlayment.
- Install the liner.
- Install the skimmer.
- Install the up-flow filter.
- Install the plumbing.
- Install the UV sterilizer.
- Install the lights.
- Begin filling the pond.
- As the pond fills pleat or fold the liner around the edges in the same direction to make all the folds lay down nicely.
- When the pond is nearly full install the boulders (or other coping) around the edge on the shelf.
- Finish filling the pond.
- Cut back the liner around the edge, but **LEAVE SOME EXTRA**, just fold it under.

- Pond Supplies
- Fish
- Outdoor plants of all kinds
- Hard to find specimen plants



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## Calculations:

- Liner size: length of pond, plus the depth x 2, plus at least 2' on each end or side, for the boulder shelf. For example a 7'x10' pond that is 2' deep would use:  $7+2+2+2+2=15'$  and  $10+2+2+2+2=18'$
- Pump size: this is a combination of how much water you want to flow over your waterfall and the volume of the pond.
- Pond Volume:  $\text{width} \times \text{length} \times \text{depth} \times 7.5 =$  gallons of water.
- Pump sizing for waterfalls: you need at least 70 gph per inch of water width. So if you want 2' of wide waterfall you need  $24 \times 70 = 1680$ gph. But this is for only a 1/4" sheet of water, if you want to ensure you have enough flow you should double the number so the water will be 1/2" thick so you would need nearly 4000 gph.
- You should turn the volume of your pond one full time every 2 to 3 hours. So if you have a 3000 gallon pond you must have at least a 1000gph pump.
- Pumps loose flow as the head pressure rises. The head of a pump is measured by the height from the top of the pond to the top of the waterfall, plus 1' of head for every 10' of tubing you run.
- You can naturally balance a gold fish pond, but anytime you have fish that are over 6" long from their nose to where the tail starts (don't count the tail itself) you will need a separate biological filter to process the fish waste.

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