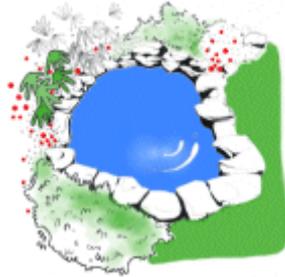


Garden Pond

HOW TO CONSTRUCT A SIMPLE GARDEN POND

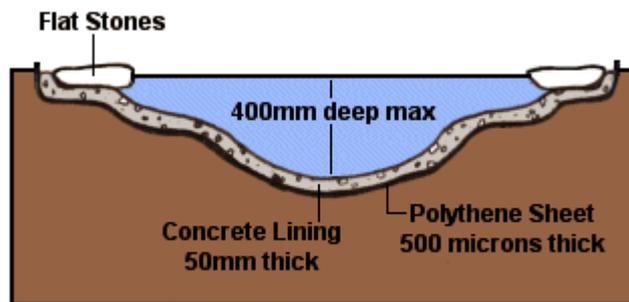


Tools

Spade or shovel
Concrete mixer, or wheel barrow for smaller ponds
Garden hose with spray nozzle
Bucket and hose water level or carpenters level

Materials

500 gauge polythene sheet (enough to line your size pond and extend at least 150mm beyond the perimeter of the pond comfortably).
Fine builders mix and cement (a pond of 5 square metres will need .3 cubic metres of builders mix and one and a half 40kg bags of cement).
An array of flat stones (enough to go neatly around the edge of the pond).
A can of spray paint for marking pond perimeter.



Instructions

1 Mark out your desired shape of the pond with a can of spray paint.

A Helpful Note from Ted about Extreme Conditions

For those of us in the Great White North [Canada], where temperatures vary greatly, the pond - especially if being used for fish and plants should be at a depth of 900mm with a shelf area for some species of plants at approximately 300mm from the top. Although in Canada, this will not stop the pond from becoming a large ice cube, it will prevent broiled fish in the summer from excessive heat. Again, in northern climes, one would have to add wire mesh to keep the pond together. A far better solution would be to use the heavy rubberised liners that are available for fish ponds, eliminating the need for cement. As for the pump - if you are adding one for aeration or a decorative waterfall, that will do the trick.

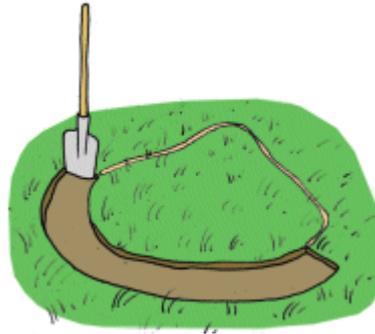
Ted L Stratford, PE

AnotherNote:

In some places, pools deeper than 400mm need to be fenced and need a permit. Check with your local Authority.

2 Check the ground height along your marked line about every 600mm. You want these points level with each other. You can do this by using our bucket and hose water level method. For instructions on how to make and use a bucket and hose water level see next pages.

Using a spade level out the marked line, following around the perimeter of the pond. Dig about 200mm wide and 50mm below existing ground level at the lowest point.



This is now the shelf around the perimeter of the pond and is where the flat stones will be placed once the concrete has been poured.

3 Dig the pond out from the pond shelf, sloping gradually down to the centre (saucer shaped) to a maximum depth of 400mm. If the pond has the capability of a water depth greater than 400mm (16 inches) then it is required to be fenced in accordance with the Fencing of Swimming Pools Act 1987. (New Zealand)

Lay the polythene on the bottom of the pond and up over the pond shelf leaving at least 150mm spill past the pond edge.

4 Lay the flat stones temporarily around the shelf of the pond to ensure they fit in place and that you have enough. Remove them out of the way about 300 - 400mm from the shelf edge, until the concrete is poured.

5 CONCRETE In a concrete mixer, (or wheel barrow for small pond) mix four parts fine builders mix, to one part of cement. Pour enough clean water to the mix, to make a fairly stiff mixture. If the mixture is too dry add more water. If the mixture is too wet, add more builders mix and cement to the same ratio as above.

Spread the concrete over the entire polythene liner starting at the bottom of the pond, and finishing up at the pond shelf. The concrete should be at least 50mm thick. Use a block of wood for a trowel, as the edges on a conventional trowel are too sharp and likely to pierce the polythene liner.

6 Lay the flat stones around the edge of the pond shelf, pushing them slightly into the concrete.

A large overhanging flat stone, strategically placed, can provide shade for fish, but be sure it is fixed firmly in place, and capable of taking any weight which might be placed on it later.

7 After a couple of hours (more or less depending on the weather or temperature) the concrete should be stiff enough to allow the pond to be filled with water. When filling, place an old sheet, piece of polythene or similar in the pond, so the flow of water does not scour the concrete.

After filling remove the sheet, and leave the pond to set for about a week. After the week is up, empty and refill the pond three or four times to reduce alkaline level.

water level

HOW TO MAKE AND USE A BUCKET AND HOSE WATER LEVEL

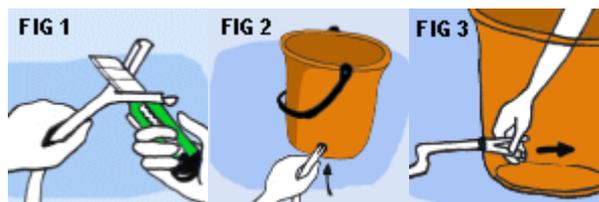


Material Requirements

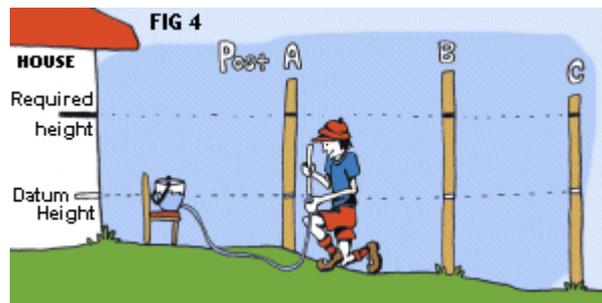
You will need a standard plastic bucket and 12 metres of 6 mm nylex clear plastic tube. (Both items can be purchased from any major building suppliers, and should cost under \$20).

Instructions

1. Drill a hole in the bucket 50mm up from the bottom. The hole size should be slightly smaller than the plastic tube.
2. Slice one end of the plastic tube about 50mm down. **Fig 1** This enables the tube to be threaded into the slightly smaller hole in the bucket. **Fig 2**
3. Pull the tube from the inside of the bucket until tight. **Fig 3**



How to use a bucket and hose water-level



Place the bucket on a saw stool or chair and fill to the top with water. The height of the bucket does not matter. Let the hose loose on the ground until water is running out freely and all the air bubbles have come through.

Method 1

This method is good for profiles, high decks, high retaining walls, etc.

Pick up the end of the hose and hold it against Post (A). **Fig 4** Mark the post where the water line shows in the hose. This becomes the datum line (not the known required height).

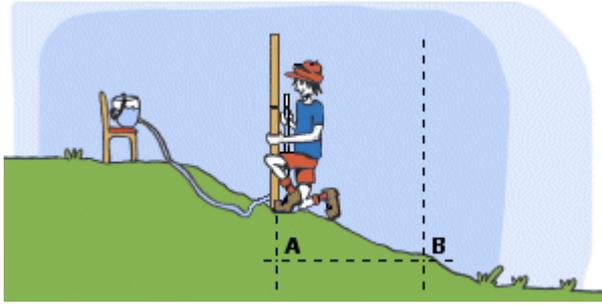
Mark the datum height on the house, post (B), and post (C) in the same way. You now have a level datum line on all four objects, but you want to trim the top of the posts to the same height as the known required height on the house. Shown in **Fig 4**

You do not need the water level any more. Simply measure up from the datum height marked on the house to the known required height, also marked on the house. Transfer this measurement to posts (A), (B) and (C), measuring up from the datum height marked on each post.

You now have a level line from the known required height on the house, through to post (A), (B) and (C).

Method 2

This method is good for low profiles, low decks, low retaining walls, for finding level heights for ponds and pools, ground contours, etc.



Pick up the end of the hose and hold it against a piece of rod held upright on area (A). **Fig 5**

Mark a pencil line on the rod where the water line shows in the hose.

Walk down the hill and do the same over area (B).

You will now have two pencil marks on the rod. Whatever the distance measures between the two marks, is also the distance area (A) will need to be dug down to be level with area (B).