

Building Your Pond with Flexible Liner

Step 1: Choose Your Location



Maximize Your Enjoyment

You'll want to build your pond where you will enjoy it the most, such as next to your deck or patio. Position it so you can see it from a room where you spend a lot of time, such as a family room or kitchen.

Sunlight

Ideally your pond should be built where it will receive 5 to 6 hours of sunlight, so the water plants will thrive. More than 6 hours of sunlight may lead to algae growth.

Building in the Shade

Ponds can be built under trees, but plants such as water lilies may not grow and bloom as well.

It may be difficult digging under trees because of roots. Also, falling leaves and blossoms may increase your pond maintenance.

Step 2: Considerations Before You Start Digging

Safety First

Before you start digging, be sure to call your utility company. Most companies will visit your site before you dig, so you don't accidentally cut electrical, communication or water lines.

Electrical Circuit for Running Pond Pumps and Other Equipment

Be sure you have, or that you install, a GFCI (Ground Fault Circuit Interrupter) electrical outlet. This is a very important safety precaution for any electrical products used outdoors and around water.

The first stage, and the most important in the construction of a pond, is to choose carefully the location, size and design. It is important that you plan for the items that you want in a water garden, such as aquatic plants, fountains, waterfalls and pond fish. The time you spend during this stage is not wasted. It will help reduce the occurrence of problems in the future and increase your enjoyment.

Planning Considerations

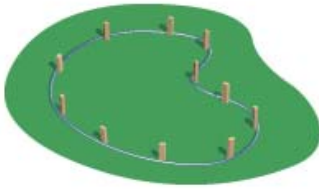
Waterfall Location

Decide in advance whether you want a waterfall. You may want to position it so it will face a deck or the windows of your home. The waterfall will need to be constructed higher than the surface of the pond, so as you dig you may want to pile the excavated soil at the place where the waterfall will be created.

Step 3: Layout

What size flexible liner do I need?

- Determine the length, width, and maximum depth of the pond.
- Length of liner = length of pond + twice the maximum depth + 1 foot for overlap.



Example: **Desired Pond Size: 5 ft. x 8 ft. pond, maximum depth of 1.5 feet**

Liner Width Calculation: $5 \text{ ft.} + (2 \times 1.5 \text{ ft.}) + 1 \text{ ft.} = 9 \text{ ft.}$ wide

Liner Length Calculation $8 \text{ ft.} \times (2 \times 1.5 \text{ ft.}) + 1 \text{ ft.} = 12 \text{ ft.}$

This will allow for a 6-inch minimum overlap perimeter.

A liner of 9 ft. x 12 ft. minimum is needed.

Hint: Use a rope to outline the shape of your pond. Avoid tight curves or intricate shapes.

Step 4: Excavation

Building Tiers:

You may want to create 2 or 3 tiers in your pond: the top tier for rock edging and the others for plant shelving.

- 1) Remove the soil within the perimeter.
- 2) Excavate the earth to a depth of about 6 to 8 inches for entire pond, to create the rock ledge.
- 3) Next dig out the center to form the bottom of the pond. In most areas of the country, 18 inches is a good depth for over-wintering pond fish.
- 4) Pile the soil where you plan to put your waterfall.



Tips:

- 1) Be careful not to dig a hole that is larger than the liner you purchased. Here's an easy way to check this: unfold your liner on a relatively flat surface. Cut two pieces of string or rope — one the length of your liner and the other the width of your liner. As you are digging, regularly check the size of the hole by laying the ropes lengthwise and widthwise in the hole.
 - 2) "Carve" the pond. It is difficult to replace the soil from walls once you remove it. Use a flat blade shovel for making smooth cuts. Make the sides as steep as possible.
 - 3) If you're digging in clay, be sure the soil is moist before digging, otherwise it will be hard and crumbly. If necessary, use a soaker hose the night before.
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Step 5: Padding and Leveling

- 1) Be sure the top tier is level. Lay a long board across pond with a spirit level on top. Move the board around the edges to be sure all the tiers are level with the tier on the opposite side, or use a string level.
- 2) Remove rocks and cut any protruding roots.
- 3) Padding: add 1 inch of moistened sand to the sides and 2 to 3 inches to the shelves and bottom.



For extra padding, line the surfaces with old carpeting.

Step 6: Liner Installation

Once you are satisfied with the hole you have dug, leveled and padded, you may put the liner in the hole.

Unfold the liner from the center of the pond and smooth it out into all corners.

Caution: be sure the liner reaches beyond the perimeter of the pond. If it is too short, make adjustments to the hole.



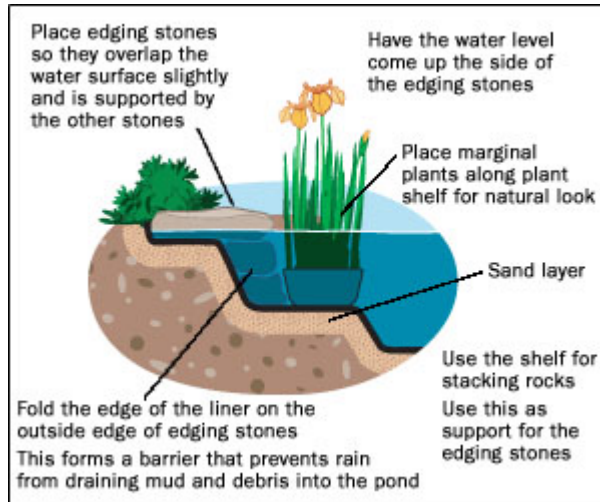
While filling the pond with water, reduce the folds and smooth out the wrinkles.

Create a “low spot” at a place on the perimeter that drains away from your home’s foundation, so that water will overflow harmlessly during heavy rains.

Do **not** cut or trim the perimeter of the liner until the pond is completely filled with water and rock borders are in place!

Step 7: Rock borders

Well-constructed, natural-looking ponds have stable stone edging and no liner showing above the water level. Pond water levels do drop during warm, dry weather, however. For that reason, stones should be used to hide the liner, several inches below the water surface, so that the liner will remain unseen.



Bring the edge of the liner up and behind the edging stones. This forms a barrier that prevents rain from draining mud and debris into the pond.

Do not trim the edges of the liner until you are completely finished with the rock borders.

Step 8: Finishing the Pond

Finish the Stonework

- You may trim any excess liner outside the perimeter stones only when all of the stonework is completed.
- Be sure to hide any liner along the edges with stone, sod, or plants.
- Plant marginal aquatic plants in gravel among your rock edges, and in submerged pots placed on the underwater shelves.
- Use planter baskets for plants such as water lilies, which may be placed in the bottom of the pond.
- Add a filtration and circulation system.
- Tap water contains harmful chlorine, chloramines and heavy metals. Add water conditioners to condition the water before you add fish and plants.