



Pond Design & Construction

Liner & Preformed Ponds

*For more information about the
Colorado Water Garden Society
or other aspects of pond keeping along the front-range go to:*

<http://www.colowatergardensociety.org>

or send an e-mail to:

info@colowatergardensociety.org

Written by Cyndie Thomas, originally published 2003
Revised by Vicki Aber & Jim Wohlenhouse, Edited by Dorothy Martinez 2013
©Copyright 1999 - 2021, All Rights Reserved

www.colowatergardensociety.org

Colorado Water Garden Society
<http://www.colowatergardensociety.org>
©Copyright 1999 - 2013, All Rights Reserved

If you enjoy birds and a relaxing atmosphere, you need to add a water feature to your yard.

A water feature adds new dimensions of sight and sound to any landscape. The sound of trickling water falling over rocks or the splash of water from a dancing fountain can be tranquilizing. Add varied calls and songs of wild birds as they stop for a drink or bath. Combine the sound with the picture of ever-changing, mirrored reflections of flowers, trees, sky, and graceful movements of water and fish.

Today, adding a water garden, large or small, does not require a landscape architect, or a cement contractor. In recent years, new methods and materials have generated a surge in back yard water features, and you can do it yourself!

Preformed polyethylene ponds are available in many sizes and a variety of shapes, from 2' x 4' to 9' x 5', and from 18" – 24" deep.

Pond liners are available in many pre-cut sizes from 6' x 10' to 15' x 20' in varying materials and weights. Custom liners can be made to any size. Using a pond liner gives you flexibility in design to fit a given space.

To begin planning your water feature, you'll want to look for a spot visible from a door or window as well as look for an area that has sun for a minimum of 6 hours each day. This is especially important if you plan to grow water lilies. Your pond should not be under or near an existing tree, as this can create a digging problem as well as a great amount of debris in your pond. Don't locate your pond in a low-lying area, as runoff can bring in dirt and undesirable chemicals.

After determining your location, you need to determine shape and size. If you plan to overwinter fish or hardy plants, you need to plan for your pond to be a minimum of 2' deep. If you plan to have more than a few goldfish, a minimum depth of 3' is recommended. If you plan to have Koi, a 5' depth is suggested. Koi need depth to develop proper muscular growth. If you intend to have fish, your plans should include biological filtration to keep water healthy and clear.

Liner or Pre-formed, it's easy . . .

Liner Ponds

STEP 1: Get a realistic view of your plan by laying a hose or rope outlining the proposed size and shape. Is it large enough? Is it the shape you want? Is it going to work with the contour of the land and existing landscaping? Work with this outline until you get the results you desire.

Plan for the addition of plumbing. The filter and pump can be located either in the pond or outside the pond. If they are located inside the pond, plumbing needs to be installed before you build the pond as everything will need liner surrounding it. If they are located outside the pond, the plumbing is easier to install and can be done as you build the pond.

You are now ready to calculate the size of the liner. Measure the widest point and the overall length. To obtain the liner width, add your planned depth x 2, plus 2' to the width measurement. This equals the minimum width of liner you will need. To obtain the liner length, add the planned depth x 2, plus 2' to the overall length. Extra liner will be needed if you plan to install a skimmer and/or waterfall. Buy extra, as it is hard to get seams correct.

STEP 2: Using your outline, go around the edge using a sharp shovel and cut a small trench. Using this as your outside edge, you can begin digging. Begin checking to see if the top edge of your pond is level. Lay a straight 2" x 4" board across the edges of the pond as long and/or as wide as your pond is. Place a level on top of the 2" x 4" board and determine if you need to shave off soil on any side so when the pond is filled, the water will be the same distance from the top edge all the way around. Dig down only one layer at a time. A layer is approximately the depth of a shovel (10" – 12"). To insure the pond stays level, check the top edge and side to side as you work.

If there is a natural low area, you can build it up with the dirt you remove from the existing hole.

Before you dig the next layer, decide where you wish to place shelves. Shelves allow the placement of marginal plants at the proper depth to hide the pond's edge and help with the creation of a bog. Come in from the edge the width of the shelf (10" – 14") and begin digging down again to the overall desired depth. To check your depth, lay your 2" x 4" board horizontally across from edge to edge and use another board marked with your desired depth to place in the hole vertically for measurement.

When digging is complete, you will need to check that the top edges are still level and correct any high or low spots. If you have to build up an area, tamp the added soil firmly. Make certain there are not any roots or rocks protruding in the hole.

You will need to cushion the bottom and sides of your pond. Water weighs approximately 9 pounds per gallon and this creates a lot of pressure on the liner. Cushioning can be done with fabric pond underlayment or 2" of damp play sand.

STEP 3: You are now ready to put in your liner. Spread it across the hole so the excess is distributed evenly on all sides. Weigh it down in several places with bricks or smooth rocks. Begin adding water into the liner. Wading into the pond helps hold the bottom of the liner against the underlying dirt. Begin making folds as evenly as possible and/or straighten the liner as needed. Wait 2 – 3 days before cutting the excess liner material to allow for settling. Trim to allow a 12" flap outside the pond. From the edge of your pond liner going outward, make sure there is a slight slope down. This will prevent dirt or any unwanted chemicals from flowing into the pond.

STEP 4: Cover the flap with edging stones, bricks, or paving blocks. A 2" overhang of edging materials will assist in protecting your liner from sun damage. Naturalize around the edging with ground covers, ornamental grasses, flowers, etc., keeping in mind the concern for debris fouling the pond. This is the transition or marginal area. Look in books to see how "mother nature" arranges various plants. Unless you are building a formal pond, this area should provide a natural look and transition into the surrounding area.

If you are building your pond to attract wildlife, special consideration should be taken when choosing planting materials. Native plants with seed and berries should be used whenever possible. To attract wildlife you will need to provide food, water, and cover for wildlife to hide from predators.

Pre-formed Ponds

STEP 1: After choosing your pond from the many styles and sizes available, place it in the desired location sitting upright. Stand back and assess by rotating it to see if it is visually pleasing and fits in the available space. After you have found the perfect placement, mark the outline on the ground using spray paint, a hose, rope, or score the ground with a stick. Begin digging the hole, periodically checking the depth. The depth can be checked by using a 2" x 4" board across the hole and another board marked with the depth of your pond placed vertically in the hole. Dig the hole 1" – 2" deeper than the pond. Ensure the hole is level (see Step 2 for the Liner Pond).

STEP 2: When you're done digging the hole, line the bottom with sand, and place the pond into the hole. Begin filling the pond with 4" of water, then backfill around the pond sides to the same 4" depth with damp sand and tamp firmly. Repeat this process until you have reached the top edge of the pond. If not properly backfilled, your pond may sag or crack. Pay close attention to make sure the stepped areas of a preformed pond are supported.

STEP 3: Finish the edge as in Step 4 for the Liner Pond.

Formulas

Determine minimum liner size

Length = length in feet + (depth in feet x 2) + 2'

Width = width in feet + (depth in feet x 2) + 2'

Gallons of a pond

Length in feet x width in feet x depth in feet x 7.5

Pump size

Minimum pump size = total gallons of pond divided by 2 = gallons per hour pump required

Picking a contractor:

Is building your own pond something you don't want to tackle? There are numerous businesses available to help with labor, design, construction, and planting of your new water feature. Pick the company carefully. Consider price, availability, and vision. Ask for references specific to pond design and construction, not just general landscaping. Contact or visit customers' ponds to see the contractors' work first hand. Ask questions such as:

1. Was the work done and completed as promised?
2. Was the customers' input followed?
3. Was the surrounding work area cleaned appropriately?
4. How is the pond working? Are there any problems with leaking, plumbing, etc.?
5. Was the price quoted the final price? If not, were reasons concerning changes communicated appropriately?

Colorado Water Garden Society

<http://www.colowatergardenociety.org>

©Copyright 1999 - 2021, All Rights Reserved