

## ▶ where to begin

The most important step in your journey to a beautiful water garden is your dream. Your unique vision of your pond will determine everything else that follows. This is the time to decide whether you want your water garden to include Koi or goldfish, aquatic plants or features like fountains, streams or waterfalls. Planning as much as possible in the beginning will save time and energy later on.



### Choosing a location

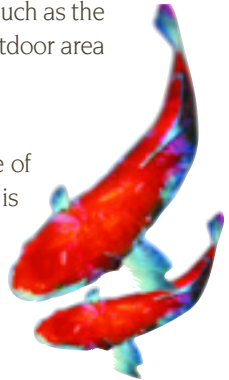
#### Locate it where you will enjoy it

Your first consideration in choosing a location for your pond is your own enjoyment. You may want to place it where you can view it from rooms where you spend a lot of time, such as the kitchen or family room. Another good choice is near your deck, patio or other outdoor area where you relax and entertain.

#### Importance of sunlight

It is essential for healthy plant life, but too much can lead to an overabundance of algae and unattractive green water. Typically, the best location for a water garden is one that receives five to six hours of sunlight a day.

And while trees can provide a beautiful environment and help shade a pond from too much direct sunlight, roots make digging difficult and leaves can fall into the pond, clogging filters and robbing the water of oxygen as they decompose.





# designing your pond ◀

## Size of your pond

Once you have decided on a location, you can design the size and shape of your pond. As a general rule, bigger is better. Make your pond at least 30 square feet with a minimum depth of 18 inches. Ponds of this size will be more ecologically balanced, retain more stable temperatures and provide greater movement for fish.



## Reflecting your personal tastes and surroundings

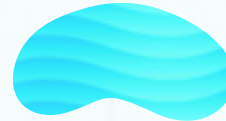
Formal gardens are complemented by geometrically shaped ponds with bricks or flat paving stones around the perimeter. For informal gardens, ponds can have more natural, free-form shapes bordered with stones of various sizes and shapes. Avoid tight curves or intricate shapes. These waste lining material, reduce water capacity and create stagnant areas where solid wastes accumulate.



Rectangle



Oval



Kidney



Natural

## ► building a pond, step by step

Once you have planned all the details of your water garden, you can begin building it.

The basic construction consists of six simple steps.





## Layout

Use a heavy garden hose or rope to outline the edges of the pond. Place short stakes at one-foot intervals to retain the shape.



## Excavation

Excavate the pond area. You may choose to create 2 or 3 tiers in your pond, the top one for rock edging and the others for plant shelves. Deep areas should be between 18 and 40 inches deep, depending on the climate, and shallow areas between 4 and 12 inches. In most parts of the U.S., 18 to 24 inches is generally a good depth. To keep the surface of your pond level, stake out strings lengthwise and widthwise and use a line level.



## Padding and underlayment

Carefully remove all sharp rocks and protruding roots from the surface. Line the entire pond with 1 to 2 1/2 inches of sand, then positioning your TetraPond Underliner to protect the main liner from root and rock punctures. Carpet padding and newspaper are also underlayment options, but they will not provide the same degree of protection.

## Liner installation

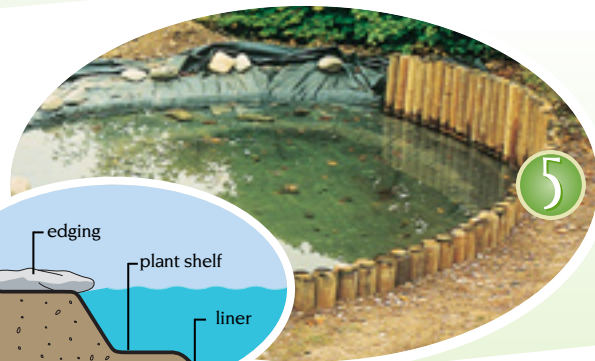
Unfold the liner on your lawn or other flat surface nearby. With at least two people on either side of the liner, pick it up and walk to slide it over the pond. Let the liner drop into the pond, making sure it extends evenly, well beyond the perimeter. Minimize the number of small folds by pulling or tucking them into large folds. Hold the liner in place with bricks or rocks and fill the pond with water. This will cause the liner to conform to the shape of the pond.

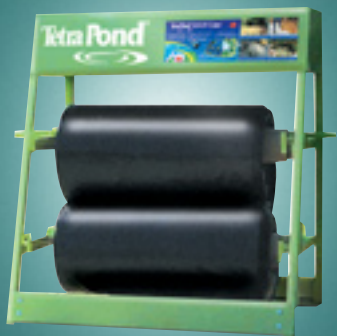
## Rock borders

If you choose, build a rock border around the edges, allowing rocks to overlap the water by one to two inches. To achieve a natural look without the liner showing, make sure the water meets the rock edging. To do this, extend the liner up behind the edging (see illustration) and backfill with soil or rocks to create a barrier that holds the liner upright and prevents both pond drainage and garden runoff. Only after the pond is completely filled and rock edging is in place, trim excess liner.

## Equipment installation and finishing touches

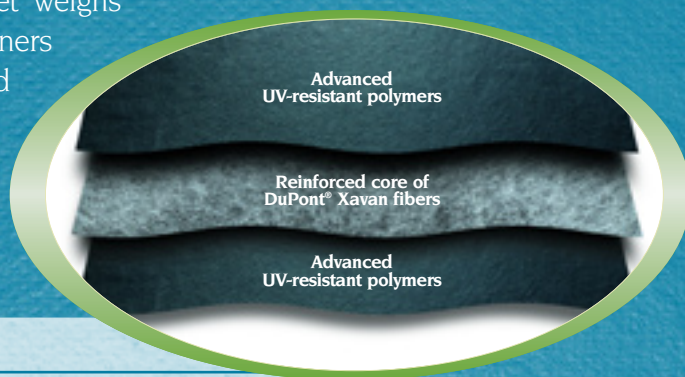
Install a TetraPond filtration system, water garden pump and waterfall. Treat pond water with Tetra AquaSafe® Pond Formula (see page 26). Add plants, then wait several days and add fish a few at a time over the course of 30 days to ensure that your pond and filter are biologically ready to support aquatic life. Landscape to suite your taste and environment.





# flexible pond liners ◀

The latest development in flexible pond liners is a technologically advanced TetraPond liner reinforced with Xavan® non-woven fibers by DuPont®. This superior liner is tear-resistant and much stronger than conventional liners, yet weighs about one-third as much. TetraPond liners carry a 25-year limited guarantee and are available in a variety of popular pre-cut sizes or in bulk for custom sizing. EPDM liner made from butyl rubber is also an option.



## ▶ Calculating liner size

**Liner length** = Pond length + 2 x Depth + 2 ft. overlap

**Liner width** = Pond width + 2 x Depth + 2 ft. overlap

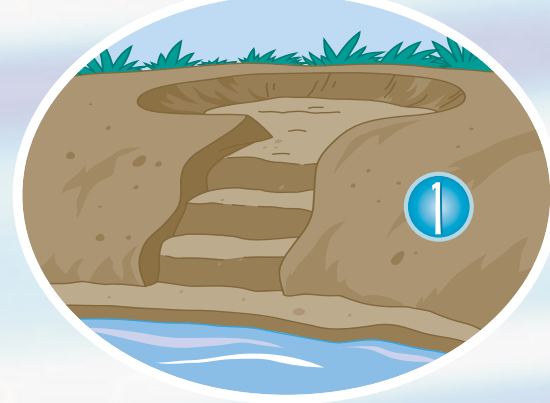
Example ▶

	For finished pond size			Use liner size
<b>3' x 7'</b>	18" deep	350 gal. (approx)		8' x 12'
<b>5' x 7'</b>	18" deep	550 gal. (approx)		10' x 12'
<b>15' x 19'</b>	18" deep	3500 gal. (approx)		20' x 24'



## ▶ adding a waterfall

The sight and sound of moving water add an extra dimension to your garden and enhance the appeal of your pond. Moving water helps oxygenate the pond, and waterfalls also provide a biofiltration benefit as helpful bacteria become embedded in the stones. Building a waterfall isn't difficult if you follow these simple steps.



### Excavating header pool and tiers

Begin by laying out the site for the waterfall. The header pool can be located at the top of a natural slope, or you can use the soil excavated from the main pond as the foundation of the waterfall. Mark the path and the tiers with a pair of stakes at each step. Starting at the base of the mound, excavate the waterfall using the stakes as guides. Make each step roughly horizontal and the sides roughly vertical. If the soil is not holding its shape, allow it to settle or use a tamper. At the top of the waterfall, create a header pool to house the inlet pipe and form the top tier.



## Installing the liner

Cut a piece of liner large enough to cover the whole waterfall with a 12-inch overlap on all sides. Be sure the waterfall liner overlaps the pond liner. With the liner in place, run water over the fall and make sure there are no leaks.



## Laying flat rocks and edging

Place the first flat rock on the bottom tier, overlapping the pond edge by 2 to 3 inches. Next, set a stone flat against the back of that tier. The backing stones should be slightly higher than the rise of the tier. Lay the next rock horizontally on the next tier so it overhangs the first by 2 to 3 inches. Continue until you have reached the top, laying the final rock flat in the bottom of the header pool. Edge stones should be placed at each tier along the sides of the falls. Make sure the edge stones are taller than the surrounding earth.



## Routing plumbing and testing flow

Secure flexible tubing to the pump outlet with a stainless steel hose clamp. Submerge at the furthest point from the waterfall. Route the tubing over the side of the pond, hiding it under perimeter stones without pinching it. Avoid sharp bends so the tubing does not kink and reduce flow. You may want to route and bury the tubing in inexpensive flexible corrugated drainage pipe to protect it. To achieve the desired pattern and sounds for your waterfall, select and position stones while the water is flowing over them. Small pebbles will create a trickling effect while large rocks mimic the rush of rapids. Make sure all flowing water is confined within the waterfall liner. Landscape to suit your tastes.