Planning a Pond Design
What kind of pond is right for you?
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Choose Your Pond Design

Most people associate the soothing sounds of waterfalls and streams with relaxation and calm. There is nothing more peaceful than gazing out to a beautiful landscape with the sounds of nature surrounding you. You can easily bring that feeling of serenity into your own home or office by incorporating a water garden into your landscape design.

Water gardens are typically small and relatively shallow, around 18-24 inches deep, and have a gravel base. The easiest way to build a pond and waterfall is to purchase a complete water garden kit. The kits are available in a variety of sizes and specifications, include a waterfall, and come with instructions and all of the equipment you need to create an exciting water feature indoors or out. You can install them yourself or hire a professional landscape company.

There are 3 types of water garden kits to choose from:

1. Water Gardens with waterfalls
2. Pondless Waterfalls (A waterfall without a pond.)
3. Retaining Wall Waterfalls
Small Water Gardens

**Small water garden kits** are great starter ponds and typically 100 square feet (approx. 1000 gallons) and 18-24 inches deep. They can be built quickly and used as a lead in to a larger pond later if desired.

If you want fish in your small garden pond, note that it will not sustain large fish or large quantities of fish. **Kit price range: $750-$1000.**

Medium Water Garden

**Medium water garden kits** are typically 180 square feet (approx. 2,500 gal) and 24-30 inches deep. They support larger goldfish populations and a few small koi. The greater surface area provides more room for plants and creativity, making the design more flexible.

You can have a medium pond professionally installed in 2-3 days for less than $5,500, making it the most popular size pond kits. **Kit price range: $1,200- $1,600.**
Large Water Gardens

Large water garden kits can typically be up to 550 square feet (approx. 7,500 gal) and 3-6 feet in depth. The greater water volume promotes a healthier pond ecosystem, and the depth offers more protection to fish from predators.

Large water gardens require more of an investment of time and dollars for installation. They can be professionally installed in 2 or more days for between $3,500 to $10,000+, depending on how large and intricate you want your pond design. **Kit price range: $1,500- $3000.**

Next, we’ll take a closer look at the equipment that is needed to build a successful water garden.
Pond Equipment Requirements

Water Garden kits come complete with the equipment needed to build a pond and waterfall. They include liners, skimmer, waterfall box, pump, and plumbing. Here is a list of pond equipment you will need to build a pond and waterfall:

A. Biological Waterfall Box
B. Black PVC Flex Hose
C. Aquatic Plants
D. Fish (optional)
E. Rocks & Gravel
F. High-Efficiency Pump
G. Mechanical Skimmer Box
H. Protective Underliner
I. Fish-Friendly Rubber Liner
Pond Equipment Descriptions

A. **Biological Waterfall Box** - Filters harmful waste and toxins from the water, keeping your water garden clean and clear.

B. **Black PVC Flex Hose** – Carries water from the skimmer box back up to the biological waterfall box. It is much easier to install than rigid PVC.

C. **Aquatic Plants** – Plants can be placed throughout the pond or along the pond’s edge.

D. **Fish** – Add fish to create an even more dramatic display.

E. **Rocks & Gravel** – Provides additional surface area for beneficial bacteria to colonize, and protects the liner from harmful UV rays and damage from animals.

F. **High-Efficiency Pump** – Pump sits in back pump chamber protected from clogging by nets and filter mats.

G. **Mechanical Skimmer Box** – Simplifies routine maintenance by removing floating debris before it sinks to the bottom of the pond.

H. **Protective Underliner** – A non-woven protective underliner fabric forms a soft padding for the liner.

I. **Fish-Friendly Rubber Liner** – Super strong 45-mil EPDM liner is the best choice when building a water garden. It is very flexible and conforms to a pond’s curves and slopes.
What to look for in Pond Equipment

**Products that blend in:** To give your water garden the most natural look, use pond equipment that blends in easily with the landscaping. Some waterfall boxes come with a landscape lid that can be rocked or mulched over, or planted with live plants. Some pond skimmers offer a natural stone faux lid to blend in naturally with the surroundings vs. a black lid that sticks out.

**Prevent distortion:** Low-quality waterfall boxes and pond skimmers will get distorted over time from the dirt compacted around it. This can make it difficult or impossible to fit the net and mat (filtration media) back inside the filter. Worse yet, if the filter is distorted the lid might not fit back onto the filter at all. Look for products that are made from thick, high quality materials and are engineered with gussets and ribs to provide structural support that prevents distortion.

In order to determine the exact pond equipment you need for your water garden, you need to know the surface area to estimate the liner size, and the pond volume to estimate the pump, height of desired pond waterfall, and what quantity and size of fish you want.
Adding Fish to Your Pond

Advantages of a Fish Pond
- Fish contribute to your pond’s ecology, and can improve the general health of your pond.
- Fish love mosquitoes, so can solve the problem of those little pests maturing in slower moving parts of your water flow.
- Visual effect of the bright colors of most common pond fish is like adding moving pictures over a pretty print.
- Fish are easy pets – you might have to feed them, but you never have to take them for a walk, and they’ll never, under any circumstances, use your home as their potty!

Disadvantages of a Fish Pond
- Increased expense to install a deeper pond and purchase the fish and supplies.
- Cost of food and time to feed is ongoing.
- Increased maintenance time, such as deicing during winter months so the pond doesn’t freeze over entirely to allow for gas exchange.
Types of Pond Fish

Goldfish are commonly used in water gardens, and there are many different varieties available. They are easy to care for and thrive in temperatures between 45-105 Degrees F. As long as the water is well oxygenated, they can survive with a thin layer of ice on the pond. Some varieties of goldfish are hardier than others.

Goldfish
- Grows to fit size of pond
- $3-$10

Shubunkin
- Multi-colored
- $5-$10

Koi
- Multi-colored
- $10-$150+
Koi were developed from the common carp in the 1820s by the Japanese and are called the “jewels” of the water garden because of their bright colorings. They are friendly fish that like to enjoy a special hand-fed treat. Traditional koi ponds are usually planned for a depth of 3-6 feet and serious koi enthusiasts favor larger ponds for their fish.

Koi are pets that can live 30-50 years (or as long as 200!) and require special equipment and care. The pond is their home that you will need to vigilantly maintain in order to keep them thriving. Small koi only a few inches long are usually start at $10, but koi that are three feet big and have what is known as a “good lineage” could cost anywhere between $60,000 and $300,000 each!

A koi gardens have different requirements than other water gardens. To build a successful, thriving garden, do these three things:

1. **Build a koi garden in an area that has plenty of shade.** Koi prefer filtered light and will acquire better coloration than if they are subjected to direct sunlight.
2. **Install an aerator, which is a piece of equipment that is used to add oxygen to water.** Koi gardens are often deeper than the average garden pond and require more oxygen and better circulation. Aeration will ensure adequate amounts of oxygen for koi during the warmer months as well as the long winter.

3. **Invest in a high quality filtration system.** Koi prefer muddy, dirty water and they tend to stir up soil at pond bottoms, causing turbid water quality. Good pond filtration will help to keep the pond clear.

Keep in mind that koi gardens add additional costs to the traditional water garden. It may be beneficial to hire a professional koi pond installer to help you build a healthy home for these new pets.
Routine Pond Cleaning

What to Expect

Ecology Matters!

The well balanced water garden happens when plants and animals in and around your pond function together to maintain their own health and vitality. Balance your pond’s ecosystem to let nature work to decrease your time and effort required for maintenance.

You can help balance your water garden ecosystem by choosing a wide variety of plants to reduce algae and create a more natural look. Prevent run off from lawn fertilizer and insecticides that can cause large algae blooms. Pull or cut away over growths of algae, and keep pond and skimmer free of debris. Decaying debris, such as uneaten fish food or leaves at the bottom of the pond, increases unwanted nutrients that alter the pond’s chemical make-up.

Routine pond cleaning includes intermittently adding water to replace water lost through evaporation and skimming the pond to keep it free from debris. You will also need to occasionally add water treatments to keep the water clean and clear. Plan to spend a little extra time at the beginning of each season to get your water garden ready for the next environmental changes.
Pond-less Waterfalls

Pond-less waterfalls have re-circulating water that cascades over natural rock formations and disappears into a hidden water reservoir, similar to a water fountain. You can set the pump on a timer so it only runs at certain times of the day. They are perfect for homeowners who want the sights and sounds of a waterfall without the maintenance of a pond.

These cascading waterfalls can vary in size depending on the amount of space you have available. You can purchase pond-less waterfall kits with all of the equipment you need for easy installation.

The bulk of pondless waterfall maintenance involves regularly replenishing the water reservoir so the pump doesn’t run dry and removing any debris to keep the pump from becoming clogged.

You can easily prevent debris build up by adding a sludge and slime remover to your routine maintenance. This water treatment dives deep into the crevices of your pond and penetrates the hard to reach areas with beneficial bacteria that removes sludge from the bottom of the pond. It also helps to reduce sludge buildup or clean the dark soils from the beach area of your pond.
How Pondless Waterfalls Work

A basin area is dug, lined, then filled with a Pump Canyon & Matrix boxes. This area is finished off with gravel. The Pump Canyon holds the pump which sends the water up to the Cascade Box via flex pipe. The water flows out of the Cascade Box, down the streambed, and back into the gravel basin where the process begins again.
A beautiful yet simple way to add the aesthetics of water to your surroundings is to build a retaining wall waterfall. The water flows out from the stone in a nice, smooth sheet and into a basin below. These wall waterfalls can be easily added to any block wall structure and are a great alternative to fountains. They can be used to adorn a garden, pool, outdoor living area, or even a home or business foyer!

A fun way to enhance the look of the retaining wall waterfall is to add an LED lighting system. Some models provide one color option, and some provide color-changing, remote controlled systems that allow you to change the color any time you want. For best effect and to light up the maximum amount of water, make sure the LED lighting is installed behind the waterfall and pointing up. LED lighting that is installed at the top of the waterfall shines a bright beam across the top, leaving the bottom part of the waterfall shadowed.
The **basin** is placed on a suitable base with the **pump** protected inside it. Wall block or other suitable material is stacked around the molded basin. The waterfall **spillway** rests inside the wall block and is covered. The pump inside the basin pumps the water via **tubing** to the spillway and back into the basin.
Getting the *Right* Retaining Wall Waterfall Equipment

**Spillway Boxes**: Look for spillway boxes that are made from durable materials like 18 gage stainless steel. Some spillways are made from a thinner steel or acrylic glass, which may warp or break under the weight of heavy blocks or from freezing and thawing in seasonal climates. Also look for a model that is an all-welded design, which will ensure that the unit does not leak.

**Pumps**: It is a good idea to put a pump sock around your pump. Pump socks act like a second filter to keep debris from being shot up into the waterfall. Without the sock, leaves and debris can get lodged in the spillway box, disrupt the waterfall, and prevent it from flowing in a smooth sheet.

**Basin**: The basin needs to be full enough to prevent the pump from running dry. Over time the water volume will drop with evaporation, so water will need to be added. There are two basic basin designs on the market today: a rectangular model and a half-circle model. The rectangular model will hold more water and keep adequate water levels longer. An auto fill kit can make maintenance easy by automatically adding water when the levels get too low. You can install auto fill kits by hooking up to a water line like an irrigation system or a standard garden hose.
**Plumbing Connections:** Another consideration when evaluating retaining wall waterfall kits is if the threaded connection between the plumbing and the basin is on the left or the right. Some models only have a single point connection which can limit installations, and other models have access points on the left or the right of the basin for more flexibility in design.

**Self-Draining:** Getting a system that is self-draining makes winterizing as simple as removing the pump for the winter. Some systems require you to blow the system dry or even remove it every winter to prevent damage from freezing and thawing.

The easiest way to install a retaining wall waterfall is to purchase a complete installation kit. These kits come with all of the necessary wall waterfall components, and generally take less than a day to install.
In Conclusion...

There are many types of water gardens available and they can be accented with decorative rock, waterfalls, flowers, lights, and fish. Careful planning can make having a water garden easy and fun. Installing a water feature into your landscape can increase your property value and provide a relaxing sanctuary to relieve the anxiety of crazy-busy lives.

For more information about water gardens, subscribe to the Pond Blog or contact your local pond professional.