pond boss®

Before You Begin Building.

Where would be an ideal location to place my water garden?

If you plan on adding water lilies to your pond, the location you choose should receive minimum 6 hours of sunlight a day.

Ensure that there is easy access to water and electricity.

To choose the most level site available while avoiding low level areas where rain could carry in pesticides, herbicides and possibly flood the pond. Also, try to avoid positioning the pond where it could catch falling leaves. Leaves will sink to the bottom, decompose and release toxins which may be harmful to fish and plants.

Try to avoid placing the pond in areas where the soil is prone to saturation. This can cause the liner to possibly float.

Try to place the pond in an area where it can be visible from the house where you spend most of your leisure time; either from the kitchen window or the deck, as an example.

Before digging, please consult your local building ordinance for codes and check for any under ground utility lines. Also, it would be a good idea to make an electrician aware of your water gardening project and have him or her install ground fault interrupter outlets to ensure that the equipment runs safely.

How large should I make my pond?

The pond should be made as large as possible. Larger ponds are more stable ecologically, require less maintenance and are less costly per gallon. If you have the space available for a pond, then use it. The biggest complaint from first time pond builder is that they didn't make their pond big enough. They are also safer for fish and can hold more lilies and other kinds of plants.

Is there a required depth for ponds?

Usually depths range from about 18 inches to 36 inches for water gardens and 3 feet to 6 feet for koi ponds. You should always check local codes for depth allowance and any fence requirements. Ponds that hold plants require sunlight so they should be kept in shallow areas.

How do I figure out how many gallons of water my pond holds?

By using the following formulas, you can determine how many gallons are in your pond.

For Circular Ponds multiply the following numbers:

Diameter x Diameter x Depth x 5.9 = gallons of pond water.

For Rectangular Ponds multiply the following numbers:

Length x Width x Depth x 7.5 = gallons of pond water.

How much money should I invest in my pond?

You can spend as little as for a small water garden with plants while spending anywhere from for full size water gardens with filters, lights, waterfalls, plants, statuary and fish. A pond addition to the home is an investment that pays for itself. It not only provides enjoyment year round but can also possibly add property value. If desired, the home owner can also have a professional contractor install the water garden. You should discuss all budget and options with your contractor.

What 5 things should I consider before building my pond?

1. Safety: Always dig with caution. Call 811 or your local utility company before you begin digging to locate buried pipes or power lines on your property.

2. Location: Consider how the water garden will enhance your landscape.

3. Elevation: Your pond should not be built on a slope or grade. If it is located at the lowest elevation of the yard, you will have rainwater run-off that can muddy the water, wash away fish and destroy plants.

4. Sunlight: If you wish to include plants that require moderate to full sunlight, you will need to choose a location with a minimum of 6 hours of sunlight. Shade is good, but note that trees do drop leaves, which can fill up your pond and cause organic decay.

5. Integration: The size, scale and layout of your pond should complement the other features of your yard, including your landscaping and terrain.

I'm not sure where to start…

1. SELECT POND SIZE. Water gardens require 18-36 in. depth or more, while Koi ponds require 3-6 ft. depth or more.	**SMALL PONDS** up to 200 gallons	**MEDIUM PONDS** up to 600 gallons	**LARGE PONDS** up to 1600 gallons
2. SELECT LINER. Choose from PVC, EPDM, or preformed liners.	**7 FT. x 10 FT.** Pond Liner Item# PVC7X10	**10 FT. x 13 FT.** Pond Liner Item# PVC10X13	**13 FT. x 20 FT.** Pond Liner Item# PVC13X20
3. SELECT PUMP. Determine the volume of your pond. Choose a pump that will turn the pond's total water volume at least once every two hours.	**225-350 GPH** Pond Pump Item# PP225, PP350	**350-575 GPH** Pond Pump Item# PP350, PP575	**575-800 GPH** Pond Pump Item# PP575, PP800

All About Pond Liners.

What kind of liner should I use, flexible or preformed?

Preformed liners are compact and neat. These are very good to use if space is limited. On the other hand, if abundant space is available, then the flexible liner would be the way to go. This will give you the options of having a larger pond, more shape, depth and you can incorporate more shelf space for aquatic plants.

Which side should go up?

We recommend that the coarse side should face up. This will allow beneficial bacteria to grow in the pores of the liner.

What type of material is it made of?

It is a PVC liner with composite reinforcement web, resulting in a 14.5 mil thickness.

How do you mend two liners together?

There are seaming tapes available as well as commercial grade glues. Extra care and precautions should be taken to prevent leaks and ensure the safety of your fish and pond life.

What size liner do I need?

After determining the length, width, and depth of your pond, use this formula to help choose the right liner.

LENGTH + (DEPTH X 2) + (2 FT, one foot overlap per side) = LINER LENGTH

WIDTH + (DEPTH X 2) + (2 FT, one foot overlap per side) = LINER WIDTH

All About Pond Filters.

Do I need to use a filter in my pond?

Yes, filters help minimize maintenance for the owner. There are two types of filters recommended for the water garden.

1. **A pump filter to protect and hide the pump while removing dirt and debris from the surface.**
2. **A pond filter helps in keeping the water safe for plants and fish.**

What kind of filter is going to be the best for my pond?

This is a question that will have to be answered a little bit more extensively as this largely depends on what type of pond you have or planning to have. The question you have to ask yourself is: "Do I plan on stocking my pond with ornamental plants or ornamental plants with fish"?

The following should give you a better understanding of the different types and functions of filtration products available:

- **Pump Filter – If your pond solely contains ornamental plants or if you are looking for a pre-filter for your pump, then the mechanical filter is what you most likely will need. Its primary function is to separate large particles and debris while also protecting the pump.**
- **Pond Filters – If you are going to incorporate fish into your pond and want to provide a safe healthy environment, then a biological filter is one of the best options you can use. These filters allow beneficial bacteria to gather and colonize which in turn help convert toxic nitrites into helpful nitrates. These nitrates are then used by plants. Biological filters typically clean the water using mechanical filtration as well as removing toxins from the water. They are very popular as being the sole filtration source because they serve both purposes.**

Can the filter be submerged in water?

Yes. The filter can be submerged in the water.

Pond Filter – I'm not getting enough pressure.

Ensure that all fittings are snug and that there is no blockage inside the filter. Also check the flow control setting on the pump. Trim the tubing adapters to maximize flow (see instructions).

Can it be submerged in water?

Yes. The filter assembly can be submerged. Be sure that the lamp holder (on the clarifier) has been secured to the light housing.

How soon should it take effect?

It depends on the specific environment but usually you can see results between 3 to 7 days.

What are UV Clarifiers?

Ultraviolet clarifiers are not normally considered to be filters but are usually used in combination with or actually inside the filter itself. UV clarifiers are designed specifically to combat the problem of green water due to algae, bacteria and other microorganisms that flow through the clarifier. The clarifier then returns clear, safe water back to the pond. The unit itself consists of an ultraviolet light bulb housed inside of a quartz sleeve and contained within a filter or PVC housing. Any cells contained in the thin layer of water that flows over the quartz sleeve will be exposed to the UV light and killed. The beneficial bacteria growing on the media inside of the filter or on the bottom of the pond are never in danger of being harmed or killed by the clarifier because they are stationary and will not pass over the bulb. Only suspended algae, bacteria and parasites are affected. A common misconception is that string or filamentous algae will be killed after installing a UV light. This type of algae usually covers and clings to a substrate and will not be drawn into the clarifier. Clarifiers do require seasonal maintenance. Be sure to check the quartz sleeve for obstruction and replace the UV bulb every season even if it appears to be working. Reason being, they can lose their effectiveness over time.

Can it be submerged in water?

Yes, the clarifier can be submerged in water. Be sure that the lamp holder has been secured to the light housing. The clarifier light housing cap should not break the surface of the water. Only the canister can be submerged up to the cap.

How can you determine if the light is working?

With the clarifier plugged in and the lamp holder secured to the light housing, remove the locking nut and tubing adapter on the outlet end of the light housing. If the clarifier is working, a blue light will be visible. If not, the light is not working.

What's the life expectancy of the bulb?

The bulb should be replaced at the beginning of every season to ensure its efficiency.

How soon should the unit take effect?

It depends on the specific environment but usually you can see results between 3 to 7 days.

Will UV Clarifiers eliminate string algae?

No. String algae should be removed with a net, by hand with water proof gloves, or using our Pond and Pool Vacuum.

Will a UV Clarifier harm my fish?

No, UV clarifiers are not harmful to fish at all.

What are the different types of pond filters?

There are several types of filtration: pre-filters, mechanical, biological, pressurized, ultraviolet, and gravity.

• Pre-filters remove debris from the water and protect the pump by housing it, thereby leading to a longer pump life and better performance.

• Mechanical filters use filter pads and work with a pump to move the water and catch large and small pieces of debris.

• Biological filters use beneficial bacteria to naturally break down organic decaying material.

• Pressurized filters combine the power of mechanical and biological filtration. The pressure in these filters help keep the water moving quickly, not giving debris a chance to settle in your pond. The pump works with the filter to mechanically keep your pond clean. The filter pads catch debris from the water as it passes through the filter.

• Ultraviolet (UV) Light Technology ensures water clarity and a healthy pond environment for plants and fish. Water is pumped through a carefully calibrated UV chamber at just the right speed to provide maximum exposure. The UV light helps clean the green out of the water. The results are a crystal clear and healthy pond you can enjoy all year round.

• Gravity filters pump water from the pond into the filter and then flows back into the pond by gravity. These filters must be positioned slightly higher than water level to enable its return under gravity. Water is pumped in through the top of the filter, through the UV clarifier, which then trickles down through the

various filter media and is gravity-fed back into the pond. As the water flows through the filter, air can enter the water causing the exchange of gases enabling the different species of bacteria to grow to help keep the pond clean.

All About Pond Pumps.

Do I need a pump for my pond?

Yes. Water movement in the pond maintains a healthy, well balanced environment. It also enables you to create an impressive water feature, i.e. fountain nozzles, waterfalls, streams, statuary, etc. The pump recirculates the pond water and insures that oxygen levels remain evenly distributed throughout the pond. Also, the pump will prevent stagnation which can lead to unpleasant odor and prevent mosquitoes from laying eggs on the surface.

What type of pump do I need for my pond?

There are quite a few different types of pond pumps. Pond pumps are usually categorized by the way they work. Some pumps are classified as magnetic or long life pumps which we will go through shortly. Also, pumps are classified by the way they perform, either submersible or external also known as in-line. Whichever pump(s) you choose for your pond, please make sure the pump is suitable and recommended for pond use. Pumps that are not designed for ponds usually are not efficient and can burn out quickly…sump pumps and aquarium pumps are widely used in place of pond pumps and usually do not stand up to running on a constant basis.

What is a magnetic driven pump?

Magnetic driven pumps tend to be the best pump for maintaining pond functions. In a magnetic driven pump, the electricity from your outlet creates an electromagnet that drives an impeller and magnetic shaft. When the mag-drive pump is plugged in, the magnetic shaft and impeller will spin in the magnetic field created by the electromagnet to push water through the outlet of the pump. This method of pushing the water tends to be far more energy efficient than in other comparable pumps. Mag-drive pumps are perfectly safe for ponds stocked with fish as there is no danger of oil leaks and they are completely sealed and do not need oil for lubrication due to their innovative electromagnet-driven mechanism. The draw back however is, they are very limited to pushing water to significant head heights. In the event that a mag-drive pump was to stop working, replacement parts are commonly available and are easy to install. Most often, the only repair needed on a mag drive pump is the magnetic shaft and impeller as it is the only moving part.

What is a Long Life pump?

These pumps offer efficiency, performance, and long life together in one package. Also known as “wet bearing / wet rotor” pumps, these pumps are a hybrid of mag-drive and direct drive pumps. They have the efficiency of mag-drives and exceed the performance of direct-drives; all without the drawbacks of either types of pump. The long life is attributed to the ceramic bearings & shaft, and cooler operating temperature. They work well for different sized ponds as well as waterfalls, and are also safe for fish.

What size pump do I need for my pond?

When choosing a pump for your pond, there is a relatively easy formula for you to use. Basically, what you are looking to do is turn half of the total water volume in your pond once an hour. So for example, if your pond has a total of 1,000 gallons of water, you would probably need to use a pump with a G.P.H. (gallons per hour) rating of 500 gallons.

Are the pumps oil filled?

All pond boss® pumps are oil free.

If the flow control is adjusted to the lowest setting, will that cause harm to the pump?

No, this will not harm the pump.

If the pump is laid on its side, will that cause any harm to the pump?

No, this will not harm the pump as long as the pump’s intake is not blocked or obstructed.

Can the pump be used outside of the pond?

No. All of our pumps are designed to be fully submerged in fresh water. Running the pump outside of the water will cause the pump to overheat.

Why do you recommend using the pump in fresh water only?

To prevent chemical attack which could be harmful to the pump’s working components.

Can the pump be used in a swimming pool?

No. We do not recommend using the pumps in swimming pools for the reason that the pool chemicals could damage the working components of the pump.

What is the difference between a magnetic-drive pump and a long life pump?

The fountain pump is usually a magnetic-driven and designed to run on & off when desired by the fountain owner. The pond pump is usually a long life pump that is designed for more continuous operation and greater performance.

Can I leave the pump in the pond during the winter season?

Yes, in most cases, as long as the pond does not freeze over completely. See winterization tips. If the pond freezes over it may cause the water in the pump to freeze and expand breaking your pump. It is recommended you remove your pump if you are not planning to use a deicer.

How can I calculate the amount of electricity it will take to run my pump?

See power consumption calculator.

All about Waterfall Pumps.

What size pump do I need for my waterfall?

Generally it's better to buy a larger pump than needed because the flow of the pump can be throttled down to the desired flow.

How do I achieve a certain waterfall look?

Choose a waterfall pump to match the height and width of your waterfall. The rule of thumb is for every 1 in. of weir width, you need 100 gallons per hour flow to achieve a "sheet" look.

- Divide by two for a "trickle" look.
- Multiply by two for a "Niagara" look.

Be sure to check the pump's specification for the ideal pumping height of your pump at the head of your waterfall. Keep in mind, excessive bend or in-line filters will reduce the flow.

All About Aeration.

What is aeration?

Aeration is the process of circulating air through, mixed with or dissolved in a liquid. It's important to put oxygen back into the water for a healthy balanced pond environment as oxygen creates a healthy environment for fish and plants.

How can I aerate my pond?

Some recommended ways to aerate include:

- Aerators add oxygen to the pond using a special pump. The warmer the water, the more oxygen is needed.
- Spitters are small statues that spit or pour a stream of water into the pond. They are usually placed on or near the edge of the pond.
- Nozzle kits offer you a variety of water displays which you can adjust to varying heights depending on the power of your pump.
- Waterfalls not only help to circulate the water, they help oxygenate the water as well.

All About Water Treatments.

Which water treatments should I use and when?

You can clean and fortify your pond water with a variety of dependable water treatments. Be sure to always read the instructions on the bottle before using the product.

- Algaecide (CALG16, CALG32, CALG64) – When: Use when green water or algae appear. Why: Prevents and stops algae growth.
- Cold Water Bacteria (CLTB16) – When: Use when shutting down your pond or water feature for winter. Why: Maintains the sludge layer all winter and reduces the spring clean-up process by breaking down residual deal material.
- Warm Water Bacteria (CPBSC16) – When: Use when starting-up your pond and during the season when the water temperatures are warmer. Why: Digests sludge and organic matter naturally and efficiently reduces foul odors in ponds.
- Water Clarifier (CWC16, CWC32) – When: Use when you have cloudy water. Why: Quickly clears water and eliminates floating particles.
- Sludge Remover (CSR16, CSR64) – When: To help reduce maintenance and control sludge. Utilize when opening your pond, during the spring season and when closing your pond. Why: Improves filter efficiency, maintains a healthy eco-system and helps reduce organic build up on the bottom of the pond.
- Barley Pond Clarifier (CBPC16, CBPC32) – When: Use when pond water is murky. Why: Natural solution to help minimize the nutrient load.

• Pond & Fountain Cleaner Tablets

(CPFCT) – When: Use when pond water is murky. Why: Keeps water clean, clear and healthy by reducing organic loads in the water.

• Fountain & Birdbath Cleaner

(CLS8) – When: Use when fountain has a limescale buildup. Why: Keeps fountains and pumps clean by removing limescale buildup.

• Chlorine Remover (CCR16, CCR32,

CCR64) – When: Use when adding water or introducing new fish to the pond. Also use when opening your pond in spring, during spring, and when closing in winter. Why: Removes chlorine, chloramines and heavy metals.

• Chlorine Remover Plus Conditioner

(CCMS16) – When: Use when adding water or introducing new fish to the pond. Also use when opening your pond in spring, during spring, and when closing in winter. Why: Removes chlorine with natural botanicals extracts that also help with improving fish slime coat and reducing infections.

• Pond Blue (CPT8, CPT32) – When: As needed. Why:

Creates beautiful blue water, hides fish from predators and shades water from harmful UV rays.

All About Fish.

Do I need to put fish in my pond?

No, you do not have to add fish to your pond but they are beneficial by eating mosquitoes and pond algae. They also add color beauty and personality to your pond.

How many fish can I place in my pond?

It's always a good idea to start small and add fish gradually. Here is a rule of thumb to use as a guideline to avoid overstocking and ensure the overall health of your fish:

- For small fish like goldfish and comets, 1 in. of fish for every 3 gallons of water.
- For Koi fish, 1 in. of fish for every 5 gallons of water. Koi fish have a faster growth rate, so you may have to remove a few of them at a certain point.

What should I feed my fish and how often should I feed them?

Basically, a good start and rule of thumb until you understand your fish's eating habits would use this basic guideline: Provide enough food to be eaten within the first 1 to 3 minutes of feeding. Also, you should not feed the fish when the water temperature drops below 55 degrees Fahrenheit because the

fish's slower metabolism will not be able to process the food. Depending on what variety of fish you choose to stock in your pond, you should refer to manuals and consult with a fish specialist to arrange a specific seasonal diet feeding and schedule.

How soon can I put fish in a newly established pond?

It is probably best to wait 5 days after the pond has been established with the pump and filter in operation.

How can I avoid purchasing unhealthy fish?

Here are some things to look for to see if the fish you want to purchase are unhealthy: raised scales, a swollen abdomen, bulging eyeballs, an enlarged head, ulcers, lack of movement, loss of balance, damaged fins and scales, fungus growths, or the fish is continuously scratching itself against rocks or other objects.

A few things to look for in healthy fish are: a lively disposition, erect fins, bright colors, good balance when swimming and a good appetite.

Does my plan to have fish affect how I build my pond?

Yes, but only slightly. It is recommended that ponds containing fish should be at least 1.5 ft. deep. In areas with colder winters, 2-2.5 ft. deep would be more ideal. During Summer, fish require cooler water toward the deepest part of the pond. During Winter, the water is warmer at the deepest part of the pond.

All About Plants.

What kind of plants do I need to put in my pond?

There are 3 basic types of plants that are commonly used in the pond. They include:

• Floating Plants – This type of plant include Hyacinth, Lilies, etc. They are useful in the respect that they add beauty, block out sunlight keeping water temperature cool and help prevent algae growth. Floating plants come in all sizes from very small (duckweed) to over a foot in diameter (water hyacinth). Most have roots that hang in the water from the floating green portions.

• Emergent Plants – Also known as emersed, this type of plant includes Cattails, Grasses, etc. These plants are rooted plants often along the shoreline that stand above the surface of the water. The stems of emergent plants are somewhat stiff or firm. They add a tall background to the pond landscape.

• Submerged Plants – This type of plant includes Anachris, Hornwort, etc. These plants are rooted plants with most of their vegetative mass below the water surface. One discerning characteristic of submerged plants is their soft stems, which is why they do not usually rise above the water's surface.They contribute oxygen and biological filtration to the pond as well.

How many plants should I put in my pond?

Floating plants should cover anywhere from 50% – 70% of the pond surface at the peak of the summer. So it would be a good idea to start with 20% – 30% coverage and let them reach optimum level in the season. Bog plant varieties will also propagate as the season goes by. Submerged plants should be treated the same as the Floating Plants.

All About Spring.

What do I do for my pond now that it's spring?

• At a water temperature of 40°F, test it for high ammonia and nitrites. If you notice higher levels, perform a 25%-50% water change to help correct it. When re-filling the pond with tap water, consider using a Chlorine Remover to remove any harsh chemicals. Begin adding other necessary water treatments, such as a beneficial bacteria. Place the pump back in your pond; run for a few hours while checking on performance, ensuring there are no leaks.

• If using an Aerator during the winter, leave it in the pond to continue oxygenating the water all season.

• At a water temperature of 50°F, begin feeding fish a low protein food.

• At a water temperature of 60°F, begin feeding fish regular food and add tropical plants. If necessary, perform a 50% water change. Always use Chlorine Remover when introducing tap water to your pond.

• Inspect and re-establish plants. Plants that have been sitting on the bottom can now be cleaned up and placed accordingly throughout the pond. At a water temperature of 72°F, begin fertilizing plants.

All About Summer.

What should I do for my pond in the summer?

• Any time you clean your pond, disturb the filter, or clean a filter pad, give it a shot of Warm Water Bacteria or Sludge Remover to jump start the growth of beneficial bacteria.

• Keep the water moving with an aerator, a nozzle kit, or a waterfall.

All About Fall.

What should I do for my pond this fall?

- At a water temperature of 72°F, clear out as much debris as possible, divide and repot plants. Replace 50% of the water in your pond and use a Chlorine Remover to remove harmful toxins from the tap water.
- At a water temperature of 60°F, dispose of or bring in tropical plants, install pond netting, and start feeding fish food a lower protein diet.

All About Winter.

What should I do with my fish and plants in the winter time?

In the northern U.S. and Canada when the temperature dips down into the freezing range, fish and plants can be left outdoors to hibernate naturally. The pond should have a recommended depth of at least 2 feet. You should try to clean out as much debris as possible before the pond ices over and install either an aerator, a de-icer, or a heater to keep a hole in the ice. Even the smallest of holes will suffice. This allows oxygen in for the fish and plants and also allows any toxins to escape.

By allowing your pond to completely freeze over during the winter months, the harmful gases produced by fish waste and plant decay cannot escape the ice, becoming deadly to your costly fish and plants.

What should I do for my pond in the winter?

- At a water temperature of 50°F, stop feeding your fish. Also, trim and move hardy lilies to deeper water.
- At a water temperature of 40°F or below, remove your pump and install an aerator and/or de-icer. Leaving the pump running in that temperature will lower deep water temperatures, causing potentially fatal stress to fish.
- When temperatures have begun to cool, be sure to add a Cold Water Beneficial Bacteria to your pond for additional beneficial bacteria.
- Drain, remove and store anything that has glass or plastic inside, such as your ultraviolet clarifier, pressurized filter and all-in-one filter. Keep them in a bucket of water in your garage, basement or other indoor area that won't allow the water to freeze.

All About Year-Round Pond Care.

What should I do for my pond throughout the year?

• Be sure to check the water levels in your pond regularly. Keep water levels consistent, adding fresh water when levels get too low. And always be sure to use a Chlorine Remover (#CCR16, #CCR32, #CCR64) when doing so.

• If you have an excess buildup of leaves or debris, do your best to get some of this out of the pond. You can do this by using our Skimmer Fish Net (#AFNT). Getting the excess debris out will help keep the water balanced.

• Use a Sludge Remover (#CSR16, #CSR64) to improve water clarity in your pond while also eating the organic waste and debris left behind by fallen leaves.

• At least once a year, you should change the filter pads and UV bulbs in your filtration products.

• To get rid of string algae quickly, use a Pond or Pool Vacuum (#MVAC) with multi-purpose nozzles.

All about Lighting

Should the transformer be submerged in the pond?

No. The transformer is not designed to be submerged. Therefore, it should be placed in a dry discreet location outside of the pond.

Is the transformer designed to withstand normal weather conditions?

Yes, the transformer is designed to be an outdoor transformer, and is able to withstand normal weather conditions. But to ensure its life expectancy, take measures to keep it dry and protected in cases of extreme weather conditions.

Is it possible to extend the power cord between each light?

No, extending the power cord will compromise the insulation of the wiring and damage the light.

Can the bulb in my light(s) be replaced?

LED-style lights: No, the LED's cannot be replaced. Under normal conditions, the LED's will have a much longer life expectancy than a normal halogen bulb.

Halogen-style lights: Yes. Most retailers should carry a replacement bulb.