

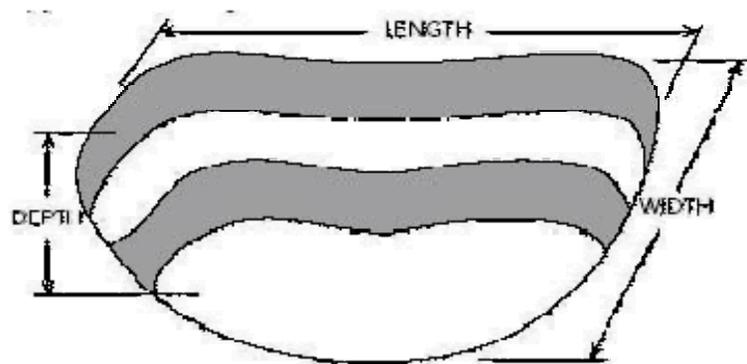
American Pond

Pond Kit Installation

Professional Series

To Determine Pond Volume

Multiply (in feet) the average length x the average width x the average depth to find cubic feet of pond volume. Multiply cubic feet x 7.48 = gallons



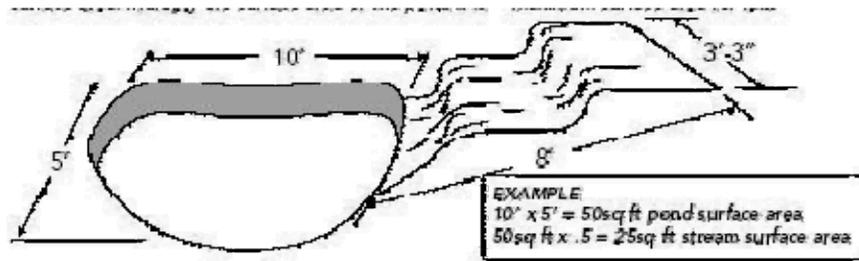
Square Footage

When using any pond skimmer it is important to keep the surface area (in square feet) of the pond in mind. Upon start-up, the pump sends water from the bottom reservoir to the top of the waterfall and/or streambed. The water must then fill, from top to bottom, the waterfalls and streambed until it eventually re-enters the pond and the water levels equalize. During this filling process, the water level of the bottom reservoir is continually dropping. If the streambed is built improperly, or is built too big, the water level of the bottom reservoir could drop below the opening in the skimmer before the water levels equalize. This would result in the pump running dry and starving for water.

This situation can be easily avoided by using the formula provided to calculate the surface area of your pond. With that number, you can then determine the maximum surface area of waterfalls and streambed that your pond can accommodate.

Surface Footage

Multiply (in feet) the average length x the average width = total square feet of the pond surface area. Multiply the surface area of the pond x .5 = maximum surface area for falls



Safety Considerations

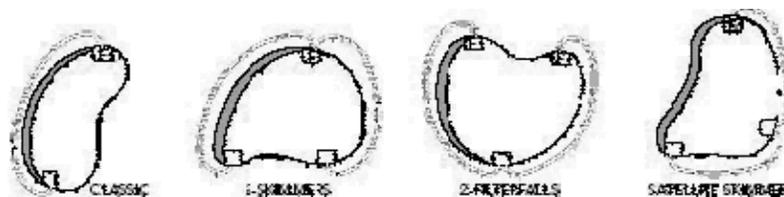
Before embarking on building your new pond, give some thought to the safety of your project during the construction and upon completion. Review local building codes as they should be strictly followed. Be aware of the potential hazard to children and pets. Hitting underground pipes and cables are also a hazard to be aware of when excavating your pond. The pump will require electricity. Be sure all electrical codes are followed when providing power for your pond.

Placement of the FilterFalls and Skimmer

Now that you have determined the size of the pond, it is time to determine the placement of the components.

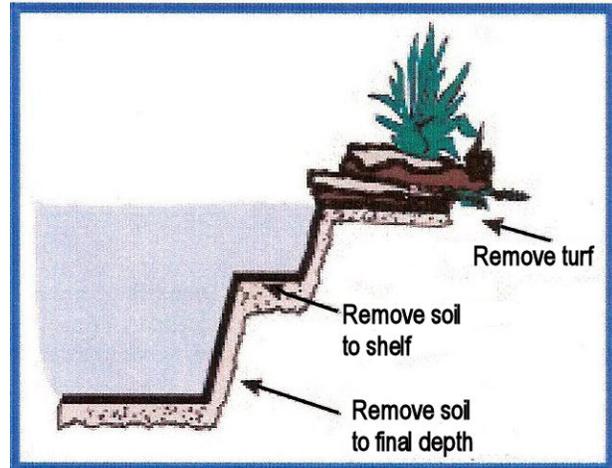
Whenever possible it is best to position the Skimmer and FilterFalls directly across from each other at opposite ends of the pond. This setup creates a current that pulls surface debris into the Skimmer. If the Skimmer and FilterFalls are placed too close together, or the pond has an unusual shape, dead areas can occur. These dead areas can be eliminated with the use of multiple falls, multiple skimmers, or the addition of a Satellite Skimmer.

Below are a few examples of Skimmer and FilterFalls combinations that can be used to combat situations like these.

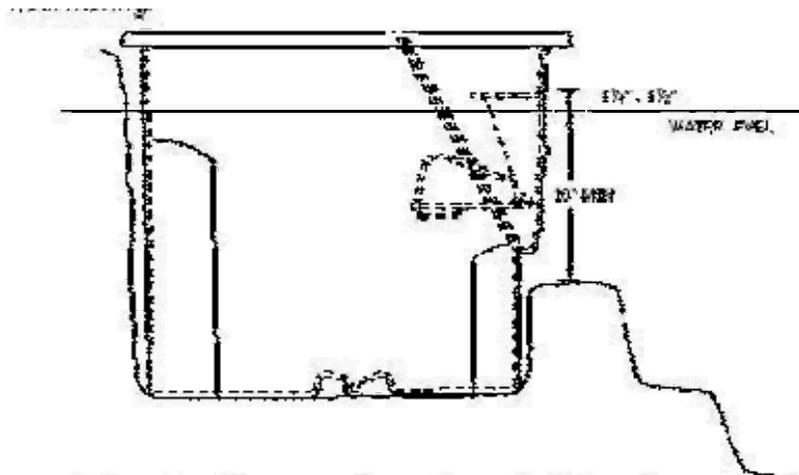


Excavation

If your pond is located in a lawn area, remove sod to an area extending about 6 to 12 inches beyond the perimeter of the pond. Restore the pond outline. If you are planning to include shelves for bog plants excavate the entire pond area to a depth of 9 to 12 inches. Then use a tamper to compact the soil in the shelf area. Shelves are usually 12 to 16 inches wide. Dig the remainder of the pond to the desired depth, sloping the walls at about a 20° angle as you dig. Slope the bottom toward the center or toward one end. At the lowest point, dig a 4 to 6 inch sump hole. You may utilize the sump hole to drain the pond with a submersible pump. Keep checking the depth of the pond with a long straight board and tape measure.



You can cut a 12" ledge around the perimeter of the pond to provide a flat surface to install edging materials such as rocks, stones or railroad ties. The depth of the ledge should be sufficient to accommodate the edging materials and underlayment. The edging should extend about 1" to 1-1/2" above the surrounding terrain to prevent runoff from entering the pond. Also the edging will present a better appearance if it overhangs the water by 2 inches or so.



With all the soil removed check to make sure the top edges of your pond are level. The liner cannot be installed properly if the top edge is not level. Excavate or fill and tamp as necessary.

Dig the skimmer hole adjacent to the pond and slightly larger than the skimmer box. Make sure the bottom of the skimmer hole is compacted and level.

Place the skimmer into the hole and make sure the skimmer is level in both directions and that the water level will be 1-1/4" to 1-1/2" below the top of the weir opening. Once the skimmer is where it belongs, it is a good idea to place some weight inside of it and the rigid support tube so that it does not move when backfilling.

****Note:** *All medium and large kits are designed to have a minimum of a 5 ft. head. If less than a 5 ft. head is required, flow must be restricted by 20% (possibly with a ball valve). It is also recommended that the pump be installed on a dedicated power circuit for these kits.*

Positioning the Liner

Select a warm sunny day to install the liner. It will be more flexible and easier to handle. Remove any sharp objects; rocks, stones, etc. Perform a final check on all of your measurements-length, width and depth of the pond, depth, width and length of pond shelves.

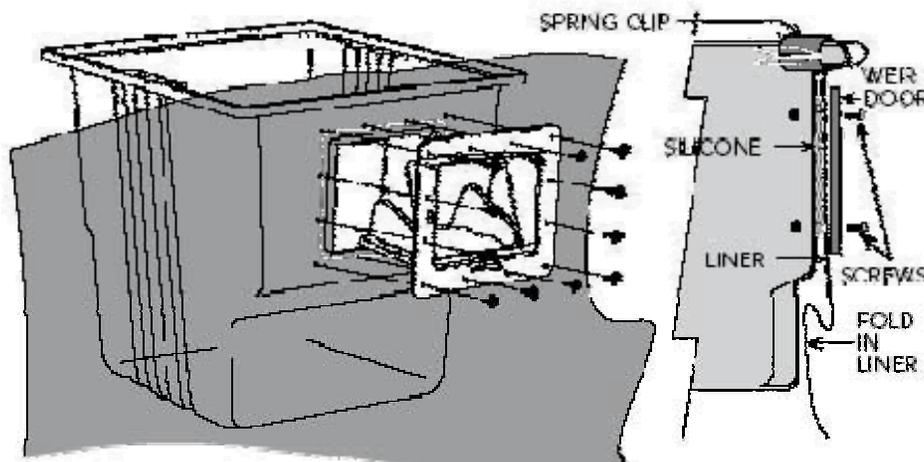
Begin by draping the felt liner underlayment loosely over your pond and gently patting down the felt liner to the shape of your pond. Start from the bottom and work your way to the top.

Now drape the 45 mil EDPM liner loosely over your pond and gently pat down the EDPM liner to the shape of your pond. Place some heavy smooth stones around the perimeter of the liner to hold it in place.

Attaching the Liner

Hold the liner up against the face of the Skimmer, allowing a minimum of 2" to extend above the top of the enclosure. Leave some excess slack in the liner below the weir opening. This will help alleviate any future strain on the liner connection. Make sure that the front surface of the Skimmer, and the back side of the liner, are clean and free of debris. With a sharp razor knife, cut a hole in the liner for the weir door using the hole in the face of the skimmer as a guide.

When you are finished, pull the liner away from the face of the skimmer. Apply fish-safe silicone around the weir door opening on all four sides. Apply the silicone in a consistent bead approximately $\frac{3}{4}$ " away from the opening itself.

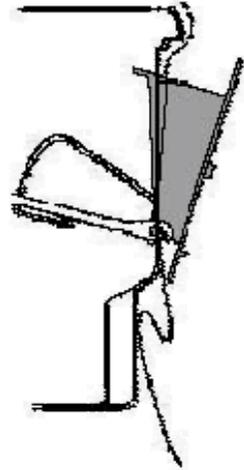


Attaching the Weir Door

Unlatch the weir door and lower the door to its fully open position. Insert the weir door assembly through the liner and into the Skimmer opening. The weir door will not simply slip right into place. With one hand push the bottom of the weir door frame tight against the Skimmer face. With the other hand gently push down on the weir door latch until it clears the top of the opening. Once it does, simply push the weir door assembly into the Skimmer opening until the frame rests against the face of the enclosure.

Line up the holes of the weir door frame with the holes in the Skimmer face. Use a nail or an awl to help line up the holes and pierce the liner in the top corners. Loosely fasten the top corners using two of the supplied 1/4-20 machine screws and serrated flange nuts. Next, install two screws in the bottom corners of the weir door frame. Once you have the weir door tacked at the corners you can install the rest of the screws. Do not fully tighten any screws until all of the screws have been installed.

Use your fingers to hold the flange nut and a hand held screwdriver to tighten the screws. The serrations on the flange nut will grab the plastic enclosure once it makes contact, eliminating the need to use a wrench. Use caution when tightening the screws. The screws need only be snug for the silicone to make a seal.



Plumbing the Skimmer

Skimmers are packaged with a pump outlet predrilled in the side of the enclosure. The hole is sized to accept the flexible PVC pipe. Insert the pipe into the hole. The pump outlet is drilled above the water level, so there is no need for this to be a water tight connection.

There is also a hole at the back of the skimmer for the overflow pipe. Bulkhead and adapter are included. Simply cut off the required length of flexible PVC and plumb into the hole in the back of the skimmer. Ensure that the PVC is draining downhill for proper overflow operation.

The Check Valve Assembly should be between the pump and the outlet pipe. The check valve will prevent the water in the FilterFalls from draining back into the skimmer when the pump is turned off.

There are drill-points provided on the sides of the skimmer to show the proper location for the installation of an Auto-fill valve (not included). See the Auto-fill installation instructions for more information.

BULKHEAD INSTALLATION

It is a good idea to install the bulkhead fitting and proper hose adaptor before setting the FilterFalls. To install the bulkhead fitting, remove the retaining nut and washer. Insert into hole and reattach. Next, tighten the retaining nut by hand and then finish off with a ½ turn from a wrench.

SETTING THE FILTERFALLS

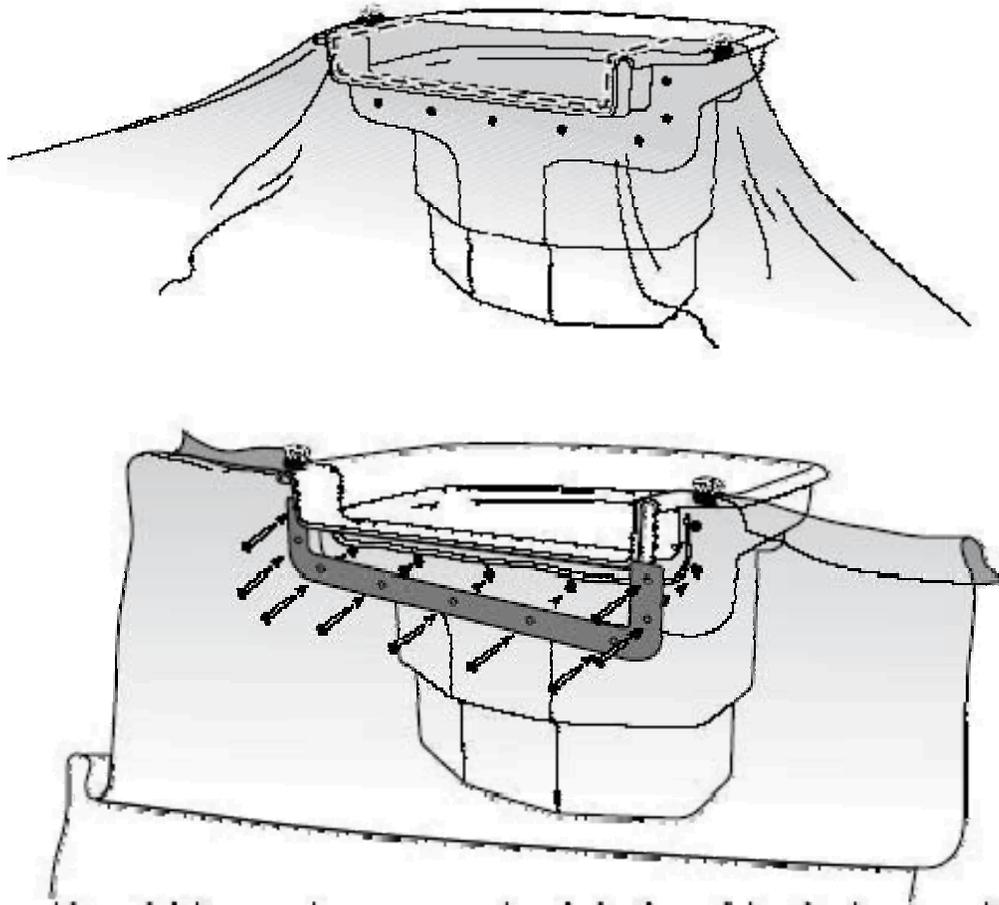
It is always recommended that the FilterFalls be placed on undisturbed soil if possible. If the installation calls for the FilterFalls to be elevated above existing grade, it is critical to compact the area thoroughly. This will ensure that the FilterFalls will not settle out-of-level over time. The use of concrete blocks or bricks under the falls to raise it up will help reduce the chance of settling. The FilterFalls can be placed adjacent to the pond edge to create a single waterfall, or pulled away from the pond to create a streambed effect.

Once you have placed the unit, make sure it is level from side to side and check the level from front to back. FilterFalls should always be installed tilted slightly forward about ¼". This will ensure that water never leaks out over the back of the enclosure. When you are finished positioning the unit, it is a good idea to weigh it down with a few rocks to keep it in place while you backfill and make your liner connection. Do not completely backfill the FilterFalls until all of your plumbing connections are made and the liner has been attached.

LINER ATTACHMENT

Pro Series FilterFalls come equipped with a solid spillway, threaded inserts and a 'U' shaped wrap-around flange. This combination of features produces the best seal available on the market today. Start by positioning the liner. Pull the liner up the face of the FilterFalls and drape a minimum of 6" of liner over the top of the enclosure. Leave some excess slack in the liner below the spillway. This will help to alleviate any future strain on the liner connection. With the liner firmly in place, use a sharp razor knife to cut the spillway opening in the liner using the inside of the spillway as a guide see below.

Pull the liner away from the face of the enclosure. Make sure that the front of the FilterFalls and the back side of the liner are clean and free of debris. Apply a consistent bead of fish-safe silicone to the face of the FilterFalls along the center line of the threaded inserts. Return the liner to the face of the FilterFalls. Attach the liner flange to the FilterFalls, starting with the center screw first, and then work out toward the sides of the spillway. It may be necessary to first pierce the liner with a nail or an awl before inserting the screw. Do not fully tighten any screws until all the screws have been installed. Once completed, trim away any excess liner as needed.



Add Rocks and Gravel

After the skimmer and FilterFalls are installed, you may add rocks and gravel to your pond. This reduces pond maintenance and provides surface area for bacteria to live. Fish waste and other organic matter will fall to the pond bottom and get broken down by the bacteria living in the gravel and rocks. The rocks and gravel also help reduce UV rays and animal damage, as well as hold down the pond liner during high ground water conditions.

Start at the deepest part of your pond and work upwards, placing the larger boulders first and filling in with progressively smaller rocks. Be careful not to damage the liner. Next fill in all the remaining areas with gravel.

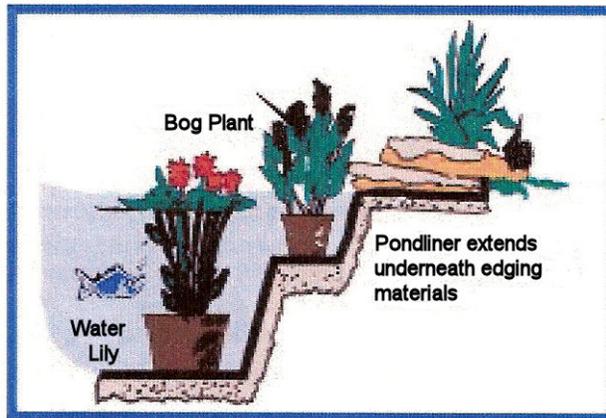
Fill the Pond

The gravel and rocks should now be rinsed and the pond emptied of the muddy water. Then fill the pond. As the pond fills you may remove the stone weights to prevent over stretching of the pond liner. Trim excess liner material after the pond is full. However leave enough material around the perimeter to extend under the edging material plus a few inches beyond the edging stones.

While the pond is filling with water, which may take several hours, work on remaining projects.

Finishing the Project

Once the liner has been installed you will want to conceal its edge. To keep the liner in place while you add edging material use large nails to keep the liner pinned to the ground. Insert the nails every foot or so a few inches beyond the outside of the final edge.



You have several choices for an edging. You may use natural stones (boulders, flagstones), pavers or bricks. Position the edging materials carefully so they won't slip into the pond and be careful not to puncture the liner material underneath. For a more permanent installation the edging materials may be set into a 2 to 3" bed of mortar reinforced with chicken wire. You can purchase premixed mortar at a local hardware store. If you do use mortar, after a week of curing, wash the edging with vinegar to neutralize the lime. Drain the pond, rinse the liner and refill with fresh water. You may also install a lawn edging.

Tuck the liner under the sod and anchor securely with spikes or build up the pond edge with flat rocks under the sod. The disadvantage of a lawn edge is that you will need to trim the grass by hand, taking care not to drop the grass clippings into the pond and upsetting the chemical balance of the pond.

If you have a flat plastic skimmer lid you may wish to use landscape materials to blend it into the surrounding features. Use waterfall foam or other adhesive to attach mulch, small rocks and stones, artificial plants, branches, etc to the topside of the skimmer lid.