

# How To Build A Garden Pond

## Step-by-Step Instructions



Imagine a pond with a waterfall that creates the sound of cascading water and is surrounded by ferns, natural rocks, and your favorite plants. Sure a trip to Hawaii would be nice, but you can create this atmosphere in your own backyard—and in whatever space is available.

How long does it take to create a garden pond that can be home for goldfish, decorative koi carp, water plants, or simply moving water? You can complete a small pond in a weekend and a large pond, like the one shown, in several months. Small or large, either size pond can be designed and built by you...**yes, you can do it!**



### 1 • Shape the Pond



Select the pond site and design pond on paper. Now it is time for dirt excavation. An average size pond can be dug by hand, while a large pond will need heavy equipment. After using heavy equipment, the pond will still

need to be shaped and contoured with a shovel and rake. Use excavated dirt to create a raised waterfall area and a berm on one side of the pond. If fish are to be kept in the pond, allow a 2' to 3' depth and fairly steep sides to protect them from animals and summer heat.

To assure a uniform water line, mark reference points around the perimeter of the pond at the desired water line (note white markers). Locate these points with a surveyor's transit or a water level. Cut a ledge into the sides of the pond at the water line. Rocks will be placed into the edge of the pond. Plan for and install drain pipes, water supply lines, and pumps.

### 2 • Set Waterfall Rocks



After packing and settling the berm, soak the loose dirt to compact it for a firm support base for heavy rocks. Use mortar to bed the main rocks that form the waterfall. (Note mortar joints on the larger rocks.

Center rock weighs approximately 1500 lb and is partially buried.) After the mortar sets, brush a coat of resin on the mortar joints. Sprinkle crushed rock and sand on the wet resin to create the appearance of one large rock. (Not shown in photo.)

### 3 • Reference Line



Use a chalk line to provide reference points to determine glassing height on the rocks. Determine the water line by the height of the waterfall and the area where the filter will be constructed.

### 4 • Smooth with Sand



Contour the raked dirt area with a thin layer of wet sand to make the transition from dirt to rock. The sand (20 or 30 mesh) should be as wet as sand along a beach used to build sand castles.

Use only as much sand as needed to lift low spots and to smooth the dirt surface.

### 5 • Prepare Surface for Adhesion



Wire brush rocks from waterline down to ensure the adhesion of the fiberglass to the rock. Glassing over moss, dirt, or slag will impair adhesion and a waterproof seal. There is

no need to use mortar or cement on the rocks at the perimeter of the pond.

### 6 • Mix Resin



Mix resin and catalyst on a clean flat working surface near the area to be glassed. Stir vigorously, scraping sides of container and lifting resin from the bottom (use a motion like

scrambling eggs). Mix only 1 to 2 quarts of resin at a time until you become familiar with the process and the working time (in hot weather, the working time is approximately 15 to 20 minutes less). Experiment with different catalyst proportions using the basic mixing information on the resin label as a guideline.

## 7 • Place Mat Strips



Cut small strips of fiberglass mat (approximately 6" x 8"), saturate with resin and lay them in place bridging the rock onto the dirt and sand base. Two layers of mat are advised in irregular rock-dirt areas. Wet the fiberglass mat on a clean working surface and place pieces tangent to the bridging surfaces. Overlap adjacent pieces 1" to 2".

## 8 • Work Mat Into Place



Use the bristle ends of a brush, poking rather than brushing to work mat into place and blend pieces together. A two or three inch wide brush is good for small or irregular areas.

Fiberglass mat is the best form of glass reinforcement to use because of its non-directional makeup and its ability to follow compound curves when saturated with resin.

## 9 • Laying Fiberglass Pieces



Lay fiberglass pieces around the perimeter rocks. Lay larger pieces (up to 18" x 18") toward the bottom of the pond. Check water line as you proceed around perimeter. Construct edges to keep rainwater from draining into pond.

## 10 • Exposed Edge Treatment



Create a uniform rim for edges of the pond that will border lawn, ground cover, gravel, cement, or other materials. Make this division by cutting a ledge, about 10" to 12" wide, at the water line.

## 11 • Smooth Ledge



Lay down a bed of sand approximately 1/2" thick on ledge of pond and rake smooth. The top of ledge should be at water level. Smooth the sand, make certain the surface is level.

## 12 • Raised Edging



Lay a 2" diameter mailing tube, cut lengthwise and in sections, to form the curve at the edge of the pond. This creates a uniform raised edge which keeps drain water and debris out

of the pond. Larger tubing, mounded sand, or something as simple as a discarded garden hose can also create the edge you need to glass over.

## 13 • Tube Placement



Hold tube sections in place by driving 3" or 4" nails through the cardboard tubes into firm ground. Raise or lower the tubes on the nails and level before laying the fiberglass mat. Provide a covered surface by

packing damp sand up to cardboard tube.

## 14 • Drape Fiberglass Pieces



Saturate fiberglass pieces with resin at your clean working surface and carry immediately to pond edge. (A movable working surface in center of pond is a time-saver.) Pieces larger

than 18" square tend to tear when lifted off the working surface because of the non-woven nature of the mat. Place saturated mat on dirt/sand base. The ideal team for this less than tidy process of glassing is: one person cutting the required shapes and sizes of mat and mixing resin while the other lays the mat in place and blends pieces together.

## 15 • Smooth Surfaces Together



Place 2 or 3 wet pieces side by side (overlap pieces approximately 2"). Next start second row and work towards center of pond. With a brush (wet with resin), coat top surface of mat thoroughly by saturating it

and blending overlapped edges together. Again with a wet brush, work mat at overlap areas by brushing back and forth. Fiberglass mat can be feathered-out to look like one piece rather than like shingles. Continue along sides and down to bottom of pond until entire surface is coated. Once fiberglass is cured the surface will remain tacky due to using TAP Bond Coat Laminating resin. Extra care should be taken to avoid debris being embedded in the tacky surface so exercise caution when walking on it.

## 16 • Special Care Areas



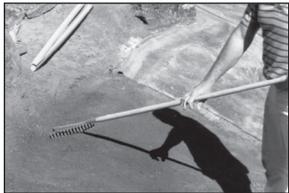
Areas needing special attention in and around a pond are the low places, the sump holes which may have pipes or wires going through the fiberglass, ledges for plants, and depressions for large rocks. Cover all of these areas with a thin layer of damp sand, creating a smooth surface with gradual curves. Connect the sides and bottom of the sump hole in this manner. Put the submersible pump at the lowest point of the pond for easy cleaning and to protect the pump from running dry.

## 17 • Glassing Low Spots



Sand is packed and smoothed. The PVC pipe is cleaned at contact points by abrading the pipe with rough sandpaper to improve adhesion of fiberglass to pipe. Lay small pieces of resin-saturated fiberglass around pipe (tangent to one another) and then work them together. To assure against leaks, apply a second layer to this area after the first layer cures. Starting at the lip of the sump hole, use long narrow strips of mat and continue down the side. Overlap 2" to 3" on sump bottom. When glassing the bottom, overlap mat onto sides to create two layers at overlap. Continue all the around sump hole.

## 18 • Joining Sections



If you take a break from working on the pond and begin working again after the fiberglass has cured, the edges may need to be blended with damp sand. If the soil has eroded away or

the fiberglass has curled, you need to replace the soil and pack sand up to and under the cured fiberglass edge. Continue glassing, overlapping onto the clean cured area 2" more.

## 19 • Edge Treatments



Cheery wood stumps provide a decorative edge and variety to a pond's appearance and are available at nurseries and home improvement stores.

## 20 • Create Ledge



Mark the water line with a string line and cut a ledge 4" to 6" below the water line. This provides an edge where the stumps appear to be holding back the water. Glass the wall behind the stumps and

glass over the cutout ledge on the side of the pond where the stumps will be placed. Glue stumps in place with a resin and a sand slurry mixture. Pour slurry (pancake batter consistency) onto fiberglass ledge and set stumps into this wet mixture. Gently tap stump tops to seat and align.

After resin/sand mixture cures, use 6" to 8" wide strips of fiberglass mat along the back side of the stumps to tie them and the fiberglass edge of pond together. Later back fill with gravel to the stumps. The edge will appear to be stumps only.

## 21 • Decorative Stones



Place small decorative stones on the ledge and let ground cover grow over stumps onto ledge. Stumps can also be placed above the water level.

## 22 • Final Color Coat



Thicken final color coat of resin with TAP Cab-O-Sil. The consistency of this mixture should be creamy enough to hang on a vertical surface and to fill low spots, pin holes, and possible leaks areas. Add color pigment to this coat. (Reflective ponds need black or near black surfaces. Avoid light artificial colors.) TAP Premium Pigment is added to the resin at the ratio of 1 oz per quart. To avoid the blotchy look of several different batches of varying shades, it is best to mix one large batch of colored resin and then add hardener to small quantities of the colored resin just before applying to the pond. Since this will be the top coat of resin, add surface curing agent according to directions.

## 23 • Brush On Resin



After thickened and pigmented resin is brushed on the cured fiberglass surface, carefully examine the surface to look for potential leak areas. If an area is spotted that looks resin-starved or is not reinforced enough, cover with a piece of mat, overlap the surface by 2", wet-it-out, and blend into the rest of surface. Sand rough areas before patching. A disk grinder is recommended for large ponds.

## 24 • Sprinkle Sand



While this final color-coat is still wet (within 10-15 minutes of the mix), dull the surface to make it look more natural by sprinkling dry washed sand onto the wet resin surface. Be generous with the sand. After the resin cures, sweep off excess sand and reuse it in other areas. The finished waterproof shell will withstand radical temperature changes and earth movement—unlike most do-it-yourself concrete ponds.



## 25 • Landscape, Fill, and Enjoy

Allow the final coat to cure completely for at least 72 hours. During this time, inspect the surface while sweeping off excess sand. It will save you a great deal of time to check for potential leaks before filling the pond. Patch suspect areas— you cannot be too careful.

Landscape, fill with water, and admire. See you pond side!

## Important Topics and Tips

- Since more than one layer of resin will be applied, use a wax-free resin to ensure bonding between layers, such as TAP Bond Coat Laminating Resin.
- To avoid leakage problems, use wide mat overlaps and work with small batches of resin (1 to 2 qt) at a time. Take your time! If the pond leaks, allow the water level to drop until it stops. Inspect the surface at and above the stabilized water level for the leak. Lower the water level, or drain the pond, and coat the suspect area(s). Since the final pond surface cure coat contains wax, it must be removed if patch or repair is to adhere to the suspect area. Use a grinder or course sandpaper to remove surface wax, then wipe with clean rag and acetone.
- TAP Bond Coat Laminating Resin is available in quarts, gallons, 5 gallon, and drum quantities. Add TAP Surface Curing Agent, TAP Cab-O-Sil, and TAP Color Pigment to the final coat.
- Keep dirt and debris out of the pond until it is completed.
- Before stocking your pond with fish, follow recommendations for dechlorinating the water and acclimating the fish. Consult your local fish merchant.
- Sunlight and wind will cause water evaporation; add water regularly.

## Estimate Materials

For a rough estimate of materials, figure the square footage of the flat area to be glassed and add 1/3 more fiberglass mat to allow for overlaps and contours. Estimate that one gallon of resin will saturate 15-20 square feet of mat.

## Pond Materials At TAP Plastics:

- Polyester Resin
- Catalyst
- Fiberglass Mat
- Surface Curing Agent
- TAP Cab-O-Sil
- Premium Color Pigment
- Mixing Buckets and Stir Sticks
- Disposable Brushes and Gloves
- Acetone or Replacetone (for cleanup)

All the Garden Pond materials mentioned in this article are available on our website: [www.tapplastics.com](http://www.tapplastics.com).

Visit or call a TAP Plastics store for more information about glassing your pond. Store locations are listed at [tapplastics.com](http://tapplastics.com)

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