

# Koi Pond Construction 101

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"I bought them all," says Mark Keightley of the numerous reference books available on koi ponds. "I searched the Internet, I read through materials from manufacturers, I asked a lot of questions." Keightley, owner of [Artistic Landscapes](#) in Atlanta, Ga., says any landscaper looking to (successfully) get into koi ponds needs to do their homework. "There's a lot of complexity involved."

*Photos Courtesy of Artistic Landscapes.*



Mark Keightley, owner of Artistic Landscapes in Atlanta, Ga., has been building koi ponds for more than a decade. The moving water and the moving fish really add focal points that no 'still' landscape can match, he says.

Artistic Landscapes has been building koi ponds for about 10 years, since Keightley met the owners of a local pond store. "I saw how neat the fish were and really fell in love with the koi. I then felt that it was my mission to learn how to build koi ponds properly," he says. "There are a lot of people out there putting in poorly designed ponds, and it gives the landscape industry a bad name."

The first step to success, says Keightley, is to realize that building a koi pond is more than digging a hole in the ground, slapping down a liner and filling it with water. Each koi pond application requires different calculations as far as water flow, and therefore might require different sizes of components. Keightley says, "It all depends how much water we're trying to drive through the skimmer, and the waterfall and pond. Some skimmers will handle only a low flow rate, and others will handle a high flow rate. There are design elements involved that take experience to figure out. If you get a swimming pool, you get various filters and pumps and skimmers

all installed with the pool; a koi pond is no different. The bigger koi ponds that we build typically require two skimmers, two pumps and either a biofalls filter or a veggie filter.”

For ponds in sunny locations, Artistic Landscapes encourages the use of a UV light to keep floating algae out of the water. “The algae isn’t harmful to the fish, but it obscures your view of the fish,” says Keightley.

He uses a 45 mil liner when constructing his ponds. Through trial and error, Keightley has determined which brands of filters and pumps, etc., offer the best quality. “Unfortunately, we’ve found that a company that offers a really good filter might not have the best skimmer, so we really shop around,” he says. He recommends that other landscapers do the same, rather than relying on a single supplier or turning to the most commonly used brands. “There’s a big variation in the quality out there,” he says.



Keightley recommends constructing ponds large enough to hold koi, even if the owner doesn’t want them right away. There’s a pattern of people having ponds for a little while and then realizing they really want fish, he says.

Keightley says that there are a few specialty pond construction companies in the area, but his is one of the few landscape firms that build koi ponds. He thinks offering landscaping and koi pond construction makes for a perfect match. “Koi pond installations often come about from someone just wanting a real pretty landscape. They’ll ask us for a consultation, and we come out to go over various options. We try to sell them on water features, especially waterfalls and koi ponds, because the moving water and the moving fish really add focal points that no ‘still’ landscape can match. A rose is pretty, but people don’t walk outside just to see it. People go outside all the time to see the koi.”

Some customers are sold on the idea of a waterfall and pond, but aren’t initially interested in fish. Keightley says koi are not for everyone. “You have to feed the koi; it’s just like having a pet. They’re pretty adaptive, they can go a few days without food, but you have an obligation to take care of them. And, you have to keep the skimmers clean. So, if you travel a great deal, that makes it harder.”

Some people don’t want fish right away, “but we try to tell them that there’s a pattern of people having ponds for a little while and then realizing they really want fish. Then they get a couple of fish and realize how pretty they are and they want more,” says Keightley. Therefore, he tries to talk customers into designing the pond to accommodate koi in the future, even if they aren’t part of the immediate plans. “We try to convince them to make the pond big enough to have koi, which are much bigger than goldfish,” he says.

If a pond is built too small initially, it’s hard to decide to make another investment in enlarging it, and it’s also tough from a practical standpoint

to make an existing pond bigger. "If you really want to house koi, we recommend a minimum size of 20 by 15 feet, with a minimum depth of 32 inches," says Keightley. "Obviously, the ponds can be much bigger than that. If you put koi in a smaller pond, their growth will be stunted because they don't have the room to swim."

He does caution against making koi ponds too deep: "Sometimes a builder will dig a koi pond 7 feet deep and try to sell the homeowner on how cool it is. But, when the fish are down at the bottom, you can't see the fish very well. We find that when the pond is around 3 feet deep the homeowner has more interaction with the koi. The koi become more like pets, where they come over to you when they know they're going to be fed. That's part of the entertainment of it all."



Keightley says that those koi ponds are often part of a bigger landscape project.



After the surrounding landscape plantings have had a chance to grow in, they help to frame the koi pond and create a beautiful finished landscape.

Most yards can accommodate a koi pond, says Keightley. "They're very adaptable. The one restriction is homes with septic tanks. You don't want to place the koi pond over the septic field," he explains. He also tries to avoid placing ponds next to large, mature trees, where they conflict with roots.

Beyond the roots, though, trees offer some benefits to koi ponds. The shade they provide and occasional leaves that fall into the pond help to keep sunlight off the water, which limits algae growth and keeps the water clean. "Some very devoted koi enthusiasts actually build a structure with shade cloth over the pond to restrict the sunlight and algae," Keightley says. However, he discourages that practice, because the lack of sunlight hampers the growth of plants.

"Ideally you have a water garden combined with a koi pond—one section of the waterfall and bog area having a lot of vegetative plants, and the other section for the koi themselves. Koi tend to eat plants, so you don't want to have too many plants in with the koi," he explains.

Artistic Landscapes always incorporates plants around its koi ponds. Keightley is a big believer that landscaping is an important part of a koi pond's overall aesthetics. He says, "That's what makes our ponds a little bit different. Some come in and just build a pond, then leave it to the homeowner to landscape. A lot of koi ponds are just a pile of rocks, they don't look pretty until they're landscaped. The landscaping is what makes them a water feature that people will really enjoy."

That makes koi ponds a good market for landscapers to show off their skills, he says. There is a lot to learn, but not much specialty equipment is required. Keightley has been able to use his existing landscape equipment,

mainly a Bobcat skid steer, to build his koi ponds. “Ideally, a tracked mini excavator would be nice, but a Bobcat and some good labor using shovels works fine,” he says. The jobs take anywhere from two days to a month, depending on how elaborate the stonework and waterfalls are. “Oftentimes the koi ponds are part of a bigger landscape project, with hardscapes and outdoor living areas with features like pavilions and outdoor fireplaces.”

Keightley says the slow economy and recent water restrictions in the Atlanta area have reduced the demand for koi ponds, but they continue to be popular and he still builds several each year.



A veggie filter (shown here) is a method of using aquatic plants in a separate area of the pond (away from the fish) to absorb nutrients from the pond water and prevent algae growth. Other types of filtration and UV lights can also be used.

Keightley has added a lot of koi pond information on his Web site—everything from filtration to nitrogen cycles to lighting to specifics about koi fish—to help educate his customers. He’s also created videos of his koi pond projects, and he sometimes takes homeowners to see koi ponds he has built. He says, “The more information you give people, and the more they see you as an expert, the more confidence and trust they will have in you. It helps separate you from the competition.”

For Keightley, the koi are more than a business proposition, they’re a passion. “I do landscaping to make a living, obviously, but I love the water features and the koi,” says Keightley. “My goal is to build really high-quality ponds with gorgeous landscapes.”