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Aquatic Garden Pond and Pool Construction

Ornamental pools have long been common in Asia, but their growth in the United States has been dramatic over the past few years. Many homeowners have built garden ponds to add variety and to accent their home landscapes. Public parks, hotel lobbies, malls, restaurants and subdivisions have also added pools that are highly dramatic and artistic. Pools are actually miniature aquatic environments and are complex environments with both plant and animal life being important.

Pool location is critical not only for the enjoyment of the viewer but also for the maintenance and health of the plants and animals in the system. Pools should have a minimum of six hours of sunlight each day. The sunlight is required for photosynthesis by the aquatic plants, including phytoplankton, which produce oxygen within the pool. Abundant oxygen is required for a healthy environment for fish and other organisms within the pool.

It is best to locate your pool to avoid direct sunlight during the hottest part of the day if you live in an extremely warm environment. Fish can be stressed at high temperatures unless some degree of shade is furnished. As water temperature increases, the oxygen-carrying capacity of water decreases. Low dissolved-oxygen fishkills are more likely at high temperatures.

Many individuals try to locate the pool within view of the home. Locating close to the home offers several advantages, which include enhancing your enjoyment, supervising children, controlling access and warding off predators to your plants and animals. Locating close to existing utilities also reduces the expense of electrical utilities, pipes and pumping.

If you plan to dig a pond rather than construct an above-ground pool, it is recommended that you contact your local utility companies so that you do not interrupt electrical, gas, telephone, cable or water utilities in the area. It is also best that you avoid locating a pool under trees since tree roots can cause cracking of hard pools, and leaves from trees fall into the water, causing increased maintenance and poor water quality.

Pool depths vary greatly depending upon the local environment. Many pools are 18 to 24 inches deep, but in cooler areas of the state these pools may require heaters or moving indoors during the winter. In warmer climates during the summer, plants and fish should have areas at least 3 to 4 feet deep to allow for a cool refuge during the heat. These areas will also allow for a refuge during cold weather.

Pools can be built out of either earth materials, flexible liners, fiberglass or rigid plastic, or concrete. Each of these materials offers certain advantages and disadvantages.

Earthen ponds are inexpensive, especially for larger pools, but can have seepage problems if built in the wrong soil, and wild plants will be more likely to establish.

Flexible liner pools are easy to construct and are fairly inexpensive but punctures are possible and they must be pumped or siphoned to drain.

Fiberglass or rigid plastic liners are durable, offer long life and can act as plant-only pools. Rigid liners are generally shallow and can crack in extreme freezes.

A concrete pool can be very expensive but will have an extremely long life. It can, however, have problems with cracking later in life.

When constructing ponds, consult your local building and zoning agencies so that you can comply with any building codes and permit requirements that may be needed.

When constructing any ornamental pools, it is best to have to have a good plan before initiating any construction. Outline the area in which you are working. Remember that earthen and flexible liner ponds can be shaped in any manner you wish, and curved ponds look more natural in the environment. Most earthen and/or flexible liner ponds have a 10-inch shelf approximately 18 inches wide around the perimeter of the pond before dropping off to a depth of 20 to 36 inches. The shelf offers an area for excellent plant habitat while the deeper areas allow for thermal refuge for the fish.

Construction of concrete ponds is expensive but if properly constructed can last a lifetime. It is best to have professional assistance when constructing concrete ponds. Concrete should be 4 to 6 inches thick, and forms can be placed in the pond area to allow for wall constriction. Gunnite has also been utilized in small pond construction. Bare concrete can dramatically affect water quality, particularly pH, so apply a pool paint or sealant to the sides of the pond. If fish are to be stocked, make sure the paint or sealant is not toxic to fish.

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