



Natural Swimming Pools A Freshwater Alternative



The growing consumer demand for non-chlorinated swimming pools has spurred the development of saltwater and ozone pool systems. Natural swimming pools (NSPs) are an ecologically-friendly freshwater alternative. NSP's are all the rage in Europe and Great Britain (where thousands have been built), and they are now surfacing here, in Ontario and across North America.

Conventional pools rely on chlorine and other chemicals to maintain sterile, algae-free water. NSP's, on the other hand, are anything but sterile. They are living aquatic ecosystems, designed to look and function like a natural pond. Water quality is maintained through the combination of bio-filters, UV filters, and mechanical aeration in combination with lush aquatic plant filters—the signature feature—surrounding an open swim zone. The plant filters, in turn, provide a habitat for birds, drag-

onflies, frogs, turtles, newts, and a host of other fauna.

Science in a nutshell

Natural swimming pools rely primarily on complex natural microbial processes to purify and clarify the water. They incorporate rock filters and other bio-media where beneficial bacteria can colonize and perform the necessary cleaning action. These bacteria are responsible for the aerobic decomposition of organic matter accumulating in the system, thereby releasing nutrient compounds sustaining zooplankton—a natural algae predator—and the plant filters. The plant filters are particularly effective at taking up nutrients, which further stymies algae growth. The bacteria are oxygen dependent, which dictates the need for a waterfall and submergent oxygenating plants. Since the bacteria do not remove potentially harmful



pathogens such as e-coli, UV filters are generally recommended as a non-chemical water treatment.

Design and construction

NSPs are typically designed to look like a natural pond, with curved organic lines, natural stone edges, and substantial plantings both in the plant filters and around the pool perimeter to reinforce the naturalistic appearance. They can also be designed to resemble a conventional pool, with the plant filters and biofilter located away from the pool. They can be constructed to any size, though a swim zone roughly the size of a typical residential pool will require 30-50 percent more space to account for the plant filters.

For the most part, NSPs typically cost about the same as a conventional pool of a similar size, though features such as elaborate waterfalls can, not surprisingly, escalate costs.

Like any pool, the construction of an NSP begins with a hole in the ground. The similarities end there. The basin is excavated with sloped walls to a depth of 7-8 feet, with a 3-foot-wide shelf halfway down. The shelf serves as a base for a 3- to 4-foot-high retaining wall constructed of rot-resistant wood, which separates the plant filters from the swim zone. **Continue...>**

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The basin is lined with a black, "fish-friendly" EPDM or PVC liner. Perforated pipes are placed behind the retaining wall, and covered with layers of graded granite river rock—a highly effective bio-media readily colonized by beneficial bacteria. The rock filters are capped with pea stone, which is used as a substrate for a wide range of native emergent and submergent aquatic plantings.

The perforated pipes are connected to the first of two circulation systems pow-

ered by external, high-efficiency pumps. Water is continuously pumped and circulated through the plant and rock filters before being discharged back to the bottom of the pond via a return pipe.

The second circulation system pulls water through one or two skimmers located along the shoreline to filter out larger floating particles, dead insects, and leaves. Water drawn through the skimmers passes through the UV filter and a biofilter—essentially a plastic box filled with bacteria-laden bio-media—before cascading over the top of the waterfall.

Once the algae-fighting bacteria and plant filters are established, they do a great job of keeping the water crystal clear and fresh, while the UV filters ensure that e-coli bacteria is kept in check. The design can also include a diving dock or rock slab, steps, underwater lighting and other accessories.

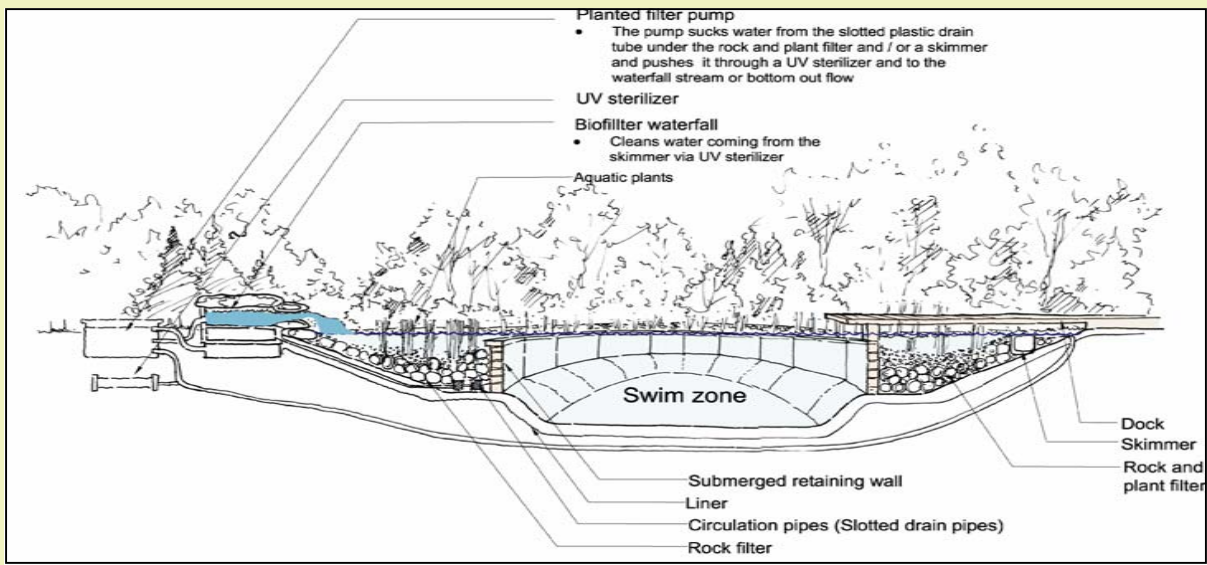
Yes, there are "bugs" in the system - literally. Within a few days of filling a natural swimming pool, water boatmen and water striders will make an appearance, along

with a coterie of other harmless – and in fact beneficial – creatures, such as butterflies, dragonflies, frogs, newts and songbirds that prefer wet environments. This, in fact, is the beauty of natural swimming pools: not only are they great to swim in and beautiful in all seasons, they also create wonderfully diverse aquatic habitat teeming with life.

Keeping it clean

Natural swimming pools are not maintenance-free. Bacteria must be added on an annual basis. The pool bottom should be vacuumed every week or two to prevent sediment build-up. Skimmers should be cleaned every couple of days, and leaf nets may be required in the fall if trees surround the pool. Plant filters may require thinning every few years. On the plus side, NSPs do not have to be drained for the winter.

For the right homeowner on the right property, natural swimming pools can be a beautiful, refreshing, ecologically sensible alternative to a conventional pool.



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