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Pool Maintenance

Protecting Your Investment

A Pool You Can Enjoy

Enjoyable swimming depends on knowing that your pool is well maintained and that the water is fresh and clean.

The National Spa and Pool Institute (NSPI) has developed this booklet to help you get the years of enjoyment you expect from your pool investment. It includes information on necessary support equipment, optional and helpful accessories and ways to chemically and efficiently care for your pool. Understanding how to keep the water free from harmful bacteria and algae and the basic steps of other operations will aid you in your own pool maintenance.

Your Pool's Support System

The support equipment circulates, filters and heats the water in your pool. It also helps to evenly distribute the chemicals you add to control purity and balance.

The Pump

The pump is the heart of your pool's support system. It circulates water through the filter and heater and then returns it to the pool. When choosing a pump, important factors to consider are its pumping capacity relative to your pool size, the operating costs and maintenance steps. Many new energy saving models are on the market, and your NSPI pool professional will be glad to assist you in your product choice.

The Filter

The filter's job is to keep your pool's water fresh and clean. There are three basic types of filters; all designed to remove oils, grease and dirt from pool water.

The high-rate sand filter is the most popular type, partly because of its simplicity of operation and maintenance. Pool water is pumped through layers of sand inside a pressurized container. Dirt and grease particles are retained in the sand.



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The obvious time to clean the filter is when the water is no longer clear. However, don't wait until pool water loses clarity to check the filter. An increase in the pressure registered by a gauge on the filter tank or a reduction in water circulation are signs that the filter needs to be cleaned.

The high-rate sand filter is cleaned by backwashing, which reverses the flow of water through the filter and pumps it out a waste line. Backwashing lifts the particles collected, raises the sand bed and cleans it. With proper backwashing and use of a filter cleaner, the sand can last indefinitely.

The D.E. is another popular filter. It contains diatomaceous earth (hence the name D.E.), a white powder that filters out even very small particles. There are various methods of cleaning D.E. filters, including backwashing. In most cases, the used D.E. must be replaced whenever you clean the filter.

In a cartridge filter, pool water circulates through cartridges of fibrous material. These cartridges can be removed, hosed down and soaked in a cleaning agent. Cartridge filters are relatively easy to clean and also have a low replacement cost. They should be replaced when they fail to maintain clear water in the pool or when they show signs of wearing.

Dangerous pressures can build up inside a filter and before you attempt any maintenance operation, be sure to consult a professional or the equipment operations manual.

There are many different filter sizes. and your choice will depend largely on the size and usage of your particular pool. The more people that use the pool, the more water must be circulated. Your NSPI dealer or builder can give you advice on the right model and instructions on how long to run your filter.

The Heater

Most pool owners who have heaters agree that it is a vital factor in expanding their pool's use. Heaters can extend your swimming opportunities for more hours in the day and more months of the year, even year-round in some areas of the country.

Look at a few facts first. Pool water of 78 °F is what most people prefer for swimming. The sun alone can help water achieve that temperature, but unless you live in a very warm climate. Your pool will never exceed the average air temperature. Therefore, the assistance of a heater might be needed to keep water constantly at 78 °F in most climate zones. Your heating options are gas, oil, electricity or solar. Certain sources are more effective and less



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costly in certain areas of the country. Check with the experts for the most efficient energy source in your area.

Size is another consideration. Don't select a smaller heater on the initial cost alone. A larger heater may actually be more economical because a smaller heater will have to work longer and harder to heat the same size pool.

The Surface Skimmer

One or more skimmers are included in properly designed pools. Skimmers draw in surface water accompanied by any floating dirt, leaves, oil or other debris while pool drains remove objects suspended in the main body of water or that fall to the bottom of the pool. Connected to the filtration system, skimmers help to keep the water's surface clean and minimize the amount of debris that gets into the main body of the pool water.

Most skimmers are built right into the side of the pool, but portables are available. Portable skimmers hang on the edge of the pool and are used for above- or in-ground pools that were initially built without skimming systems. The skimmer is most effective if located on the down-wind side. The wind will help push in more water and it will also blow most leaves in that direction.

The Chemicals

By adding chlorine or bromine to your pool water, you can protect yourself against germs and algae that might form on the pool's surface or in the water itself. Chemicals disinfect the water and also keep it sparkling clean.

How to Use a Test Kit

You can do most of the necessary water maintenance on your own pool. Most pool stores stock easy-to-use test kits, and testing the water is the first step.

Obtain a reliable test kit and carefully follow the directions which come with it. Some helpful hints include reaching far below the surface to get an accurate water sample and taking your sample at the same time of day, say early evening.



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Balancing pH in Pool Water

Once you have tested your water, charts included in the testing kit will indicate your water's pH balance. The ideal pH level for pool water is between 7.2 and 7.6. Above 7.6, the water is more alkaline (base) and under certain conditions can form deposits in the piping and on pool surfaces.

Below 7.2 pH, the pool water is more acidic; the lower on the scale, the greater the acidity. If the water is too acidic, it can damage the piping and pool surfaces under certain conditions.

Maintaining your water slightly on the alkaline side (between 7.2 and 7.6) helps chemicals do a proper disinfecting job, keeps scale from forming on the pool and support equipment and retards any corrosion.

Adding the Right Chemicals

The pH of your pool tells you which chemicals to add to maintain a 7.2 to 7.6 pH level. Soda ash or sodium carbonate and sodium bicarbonate are common chemicals used to raise pH. Muriatic acid or sodium bisulfate lower pool water pH and make it more acidic. Liquid, powder or tablet forms of the chemicals are most often used in residential pools.

- The most common disinfectants used are chlorine compounds. For best results, have your pool professional help you with your decision. You can also call for a detailed booklet on chemicals entitled the "Residential Pool Chemical Guide", (800) 323-3996.

The Accessories

Automatic controls added to your pool system can turn the support system on and off. Backwash to clean the filter and maintain the chlorine level.

Devices now on the market can measure mounting water pressure, a sign of a clogged or dirty filter, and activate valves to backwash the filtration system. There are automatic timers (24-hour time clocks) and dispensers to automatically feed chemicals into the water and automatic pool cleaners.

There are also various types of pool cleaners: vacuum systems for the floor of the pool, units that clean the surface and cleaning systems that use underwater hoses to direct objects toward the main drain. Some units are removed for swimming while others can remain in the water at all times.



Saving Energy: Pool Covers, Timers and Solar Heating

Whether you heat your pool or not, a pool cover is one of the best investments you can make. Most solar pool covers are moderately priced and usually pay for themselves in one season. If handled properly, a good cover will last many years.

Several types of pool covers are available. Covers are usually made of plastic or aluminum sheets. They can be compared on:

1. ability to transmit sunlight to a pool;
2. ability to reduce heat loss from the pool:
3. ease of handling: and
4. durability of product and length of warranty.

If you do heat your pool, a pool cover can help you realize energy savings of 50 to 70 percent or more, depending on the climate where you live and the time of year. Pool covers also aid in keeping leaves out and reducing pool water evaporation.

Timers for Heaters

Heaters work on a thermostat linked to the pool's water temperature. Heaters may be set on timers for ease of operation. However, the heater can overheat without water circulating through it, so whenever the heater is on, the pump must be running. A time clock with fireman control should be used if the heater is on a timer. This will allow the pump to run for a short time after the heater is turned off to cool down the system.

Solar Heating

Solar heating has the advantage of economy and provides virtually free heat once it is installed. However, solar pool heating does require a greater investment in both equipment and installation than gas, oil or electricity.



The different kinds of active solar heating systems all involve piping the pool water through solar collectors. These collectors or solar panels may be piped under a deck area, mounted on a roof or placed outside where there is direct exposure to the sun.

A pump cycles pool water through the solar collectors and back to the pool. The pump is controlled by a thermostat which activates the flow of water when the collectors are warm enough to raise the pool temperature.

Check with local NSPI dealers as to the actual benefits to be gained from solar heating in your particular region. Some state tax credits may also apply.

In addition to these "active" solar systems, there are passive systems that aim to pre-serve as much heat as possible. They range from pool covers to dark-bottomed pools and landscaping that cuts down wind and heat loss.

Pool Care in Colder Climates

In almost every climate, some precautions should be taken to winterize your pool. This may mean simply washing off pool equipment and accessories and storing them under cover, or it may mean closing down the pool.

Simple Winterizing

In some climates, you will probably keep your pool filled, continuing routine maintenance on a reduced schedule. Run the filter for half the time you normally would in the summer season, check the pH level and chlorinate only once a week. Pool covers help keep the pool clean and the pool water and chemicals from evaporating. Check with your local NSPI pool professional for special advice that applies to your area.

Closing the Pool

Only a few pools need to be drained during the winter. In fact, many pools fare cold temperatures better when partially filled with water as a buffer. A drained pool can also crack or pop out of the ground because of pressure from ground water. Your NSPI builder can give you guidelines to follow if you must drain your pool.

If you close your pool, keep these things in mind:



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- Get your water balanced properly to prevent stains, scaling and algae growth. Put in an extra dose of sanitizer to help keep the pool clean and algae free.
- Thoroughly clean and vacuum the pool. Drain below the skimmer inlet lines or in heavy freeze areas, below the return lines and then plug the lines.
- Close valves on the skimmer.
- Make sure water does not accumulate and freeze in skimmers.
- Clean and backwash the filter.
- Drain all water in the heater, filter, pump and piping system. Remove the pump motor and store in a dry place.
- Turn off all power to the support equipment and remove fuses or turn the circuit breakers to OFF.
- If you have a slide or diving board, take it off and store it.
- Cover the pool and plug all openings.
- Store chemicals in a cool dry place.

Keeping Your Pool Looking New

A well-built and well-maintained pool will last for years. But after a while, even the best care will not prevent a pool from showing signs of age.

An old pool, or even a poorly maintained pool, is not a lost investment. A few repairs or simple refurbishings may be all that is needed. If major work is called for, you'll probably want a pool contractor to do it for you.

Repairing Cracks

In-ground cement or gunite pool walls may crack from earth movements under the shell or around the deck. Hairline cracks are easily repaired with a small amount of plaster, caulking compound or epoxy putty once you lower the water below the damaged area.



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Check the extent of the crack. Large cracks may indicate a serious problem, possibly from soil movement or poor drain-age. If a large crack should appear, it may be necessary to drain the pool and you'll want to consult a pool professional.

Replastering Concrete Pools

For best appearance, concrete pools should be replastered about every 10 to 15 years or repainted every 3 to 5 years. This is because daily contact with pool chemicals and changing water temperatures often cause flaking or chipping. Slight damage can be buffed and patched or painted over. In areas where mineral content or water hardness is excessive, it may be necessary to replaster sooner.

Mending a Vinyl Liner

Most tears or punctures are easily repaired by the pool owner. Some vinyl companies even offer underwater patching kits, so you don't need to drain the pool for repairs. Tears longer than 2 to 3 inches are considered serious. If the repair is very costly to fix, it may be better to replace rather than repair the liner.

Repairing Fiberglass Surfaces

Although this material is strong and durable, after time the smooth finish may fade, chip or discolor. If this occurs, your warranty as many manufacturers cover surface deterioration. If the damage is small, patching the area may be all that is necessary. For larger areas, you may have to recoat the entire pool. A simple coat of epoxy paint may improve the appearance of an older fiberglass shell. Always follow manufacturers' recommended procedures.

Tile Care

Tile trim along the inner edge of a pool can be very sensitive to shifts in the soil, and it can crack or pop off. Stronger adhesive can be used to relay the tile; but if there is actual structural damage, some excavation and rebuilding may be needed along the outer area of the pool.

Checklist for Pool Cleaning

Keeping your pool clean can be made easier by following a regular schedule. If you decide to do it yourself, a good checklist to follow for regular pool care is:



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- 1) Use a small hand-held leaf skimmer to help in cleaning the pool.
- 2) Clean the strainer baskets in the skimmer and pump.
- 3) Clean the tile and walls; tile is best cleaned with a soft brush and a pool tile cleaner. The clearing of pool walls will depend on your surface: cement, vinyl or fiberglass. Follow manufacturers' suggested procedures.
- 4) Vacuum the pool at least once a week.
- 5) Test the water frequently and add chemicals if necessary, follow manufacturers' directions.
- 6) If water turns cloudy, test for chemical balance; if necessary, backwash and service the filter.
- 7) Keep the deck clean and clear of debris.

NSPI Pool Companies

If you do not want to take on the responsibility of maintaining your pool, you can contract with a pool service company to perform all of the above chores. NSPI pool builders and retailers can help you determine the cost of maintaining your pool, and you may find the choice of a pool service company well worth the added investment. Whether you care for your pool on your own or hire a pool company, knowing that the pool is well maintained will give you more carefree hours to enjoy it.

NSPI Meets Your High Standards

When you are choosing a builder, retailer or service company for your swimming pool, remember to check for the logo of the National Spa and Pool Institute. It tells you that this company is a member of a national trade association dedicated to high standards. NSPI members share a commitment to public health and safety in the installation, maintenance and operation of pools, spas and hot tubs. They also share a commitment to establish voluntary uniform design and construction standards. NSPI members are leaders in their field and experts in the new products and related services. They'll help you make the most of your investment in a swimming pool.

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For more information call (800) 323-3996 or visit our web site at www.nspi.org

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