

Choose Eco-Friendly Pool/Hot Tub Options

What are eco-friendly pool and hot tub options?

Conventional pools and hot tubs consume very high levels of water and energy.¹ However, there are many options that are readily available that can make residential pools and hot tubs more eco-friendly. These products reduce energy needed to heat pools and hot tubs, reduce water usage, and reduce the use of harsh chemicals. Some are common pool maintenance items, while some are more specifically tailored to maximize water and energy savings. Using products that make pools and hot tubs more eco-friendly is a good way to reduce overall environmental impact.



Figure 1 – Solar pool cover (Source: Flickr jzawodn <http://www.flickr.com/photos/jzawodn/36944194/>)

Pool covers. Pools and hot tubs should be covered whenever they are not in use. Covers prevent evaporation, and therefore, save water. Covers should be as tight-fitting as possible, especially on hot tubs, to help prevent heat loss. If chlorine gas is being used it should be aired.² Solar covers are a good eco-friendly choice since they both limit evaporation and provide natural water heating for the pool. Pool solar covers are available in automatic, which work at the touch of a button, semi-automatic, and manual types.³

Solar heating systems. Using a pool cover can often provide adequate heating. However if greater heating potential is desired, a solar heating system is an eco-friendly alternative to the traditional method of heating pools and hot tubs with natural gas. These systems are often far simpler than solar heating systems for an entire home⁴ and therefore are less expensive and easier to install and use. The systems do require greater use of the filter to move the water through the panels and it is advisable to include the use of a cover to reduce loss of heat overnight. It may also be necessary to remove the panels in winter to prevent freezing of any remaining water.

¹New Jersey Green Home Remodeling Guidelines Version 1.0, pg. 225, Rutgers Center for Green Building, 2009, <http://rcgb.rutgers.edu/projects.asp?Level2ItemID=52> (accessed April 15, 2011).

²Marin Municipality Water District <http://www.marinwater.org/controller?action=menuclick&id=268> (accessed April 15, 2011).

³US Department of Energy - Energy Savers. http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=13140 (accessed April 15, 2011).

⁴New Jersey Green Home Remodeling Guidelines Version 1.0, pg. 225, Rutgers Center for Green Building, 2009, <http://rcgb.rutgers.edu/projects.asp?Level2ItemID=52> (accessed April 15, 2011).

Water saving filters. Pools and hot tubs often rely on filters to help keep the water clean. To conserve water and energy, consider choosing a water-saving pool filter.⁵ A traditional pool filter can use 180 to 250 gallons or more water during a single back flushing process.⁶ Back flushing cleans the pool filter by passing water back through the filter, removing debris caught in it, and flushing it out of the pool. Water saving filters use much less water and therefore save resources and money.

Chlorine alternatives. Chlorine is commonly found in conventional pools and hot tubs as a sanitizing agent. However, there are alternatives to this chemical, which can damage the environment and have negative health effects on individuals. Some examples of these alternatives include copper/silver electrolysis, ionization, UV treatment, and saltwater pools.⁷ Copper/silver electrolysis and ionization involve using copper and/or silver ions, rather than chlorine, to control bacteria, virus, and algae growth. UV treatment uses light to reduce chloramines in the air, which improves the swimming environment; however, it still needs to be used with some chlorine or other disinfectant product to ensure complete disinfection.⁸ Saltwater pools create pure chlorine naturally, not chloramines, to disinfect the pool.

How to implement eco-friendly pool and hot tub options

Besides using dedicated products to make residential pools and hot tubs more eco-friendly, there are a number of practices and techniques that can be used to further this cause. Reducing the temperature in your pool or hot tub by a few degrees can have an impact on water savings, since warmer water evaporates more quickly than cooler water.⁹ Manually cleaning the pool filter is also an eco-friendly choice. By cleaning manually, you will save water and be able to clean the filter more thoroughly than the automatic cleaning.¹⁰ Another technique for making the pool and hot tub area of the yard more eco-friendly involves landscaping. Planting shrubs or low trees around the area provides a windbreak that decreases evaporation.¹¹ Along similar lines, water

⁵ US EPA. Green Building. Conserving Water. <http://www.epa.gov/greenhomes/Outdoor.htm> (accessed April 15, 2011).

⁶ The Association of Pool and Spa Professionals, Pool and Spa Water Conservation Tips. http://www.nesapool.org/pdf/industry_pdf/water_conservation_tips.pdf (accessed April 15, 2011).

⁷ New Jersey Green Home Remodeling Guidelines Version 1.0, pg. 225, Rutgers Center for Green Building, 2009, http://rcgb.rutgers.edu/uploaded_documents/NJGHRG_v1.0.pdf (accessed April 15, 2011).

⁸ American Air and Water. UV Water Purification Applications. <http://www.americanairandwater.com/uv-water-applications.htm> (accessed November 22, 2010).

⁹ H2OUSE Water Saver Home. Tour. Pool/Spa. http://www.h2ouse.net/tour/details/element_actions.cfm?elementID=D21ACAE2-1FC4-41D0-BC9A16B993ED790A&roomID=32ABD0B1-B424-4AF0-9F6310997C7F0CF7 (accessed October 15, 2010).

¹⁰ H2OUSE Water Saver Home. Tour. Pool/Spa. http://www.h2ouse.net/tour/details/element_actions.cfm?elementID=D21ACAE2-1FC4-41D0-BC9A16B993ED790A&roomID=32ABD0B1-B424-4AF0-9F6310997C7F0CF7 (accessed October 15, 2010).

¹¹ Florida Department of Environmental Protection. Green Tips. Home. <http://www.dep.state.fl.us/green/tips/tips.htm> (accessed October 15, 2010).

can be saved by using water from pool back flushing to water the surrounding landscape.¹² Back flushing cleans the pool filter by passing water back through the filter, removing debris caught in it, and flushing it out of the pool.

Benefits

Water savings - Choosing eco-friendly pool and hot tub options can significantly reduce water use and loss. Reducing the temperature on pool and hot tub heating systems also saves water, since cooler water evaporates more slowly than warmer water. Pools can also go several years without draining, which should be done only when necessary, to limit the amount of water needed for refill and in a manner that is protective of stormwater systems.¹³

Energy savings - Eco-friendly pools and hot tubs save energy in multiple ways. Solar covers provide water heating using nothing but the sun. Using a solar cover may make it possible to reduce the temperature on the pool or hot tub heating system, saving energy. Solar pool heating systems also harness the sun's energy to heat the pool. Selecting the proper size pump, recirculating the water every other day, and keeping the grates free of debris also help to reduce the electricity needed to maintain pool water quality.¹⁴

Improved environmental and human health - The water and energy savings discussed above result in a healthier environment, since less resources are needed to operate pools and hot tubs. Additionally, both the environment and people can benefit from eco-friendly pool and hot tub sanitizing. Chlorine, used in many conventional pools and hot tubs, has negative impacts on both. In terms of the environment, chlorine evaporation has been shown to damage the ozone layer, as well as waterways that it gets into.¹⁵ People should also avoid chlorine exposure, as it has been shown to cause itchy skin and rashes, asthma symptoms, and increased risk of assorted long term health issues.¹⁶

¹² US EPA. Green Building. Outdoor Area. <http://www.epa.gov/greenhomes/Outdoor.htm> (accessed October 15, 2010).

¹³ Marin Municipal Water District. <http://www.marinwater.org/controller?action=menuclick&id=268> (accessed April 15, 2011).

¹⁴ US Department of Energy, Energy Savers. http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=13290 (accessed April 15, 2011).

¹⁵ GreenYour. Your Guide to Green Living. Swimming Pool. <http://www.greenyour.com/lifestyle/leisure-recreation/swimming-pool/tips/use-environmentally-friendly-materials-for-your-pool?subject=1701&category=9467> (accessed April 26, 2011).

¹⁶ GreenYour. Your Guide to Green Living. Swimming Pool. <http://www.greenyour.com/lifestyle/leisure-recreation/swimming-pool/tips/use-environmentally-friendly-materials-for-your-pool?subject=1701&category=9467> (accessed April 26, 2011).

Costs

Making eco-friendly pool and hot tub choices is a great way to potentially save money over time. In some situations, like purchase of solar covers, solar pool heating systems or disinfection systems that use chlorine alternatives, the upfront costs can be high. Solar pool covers typically cost \$85-\$150 for residential pools.¹⁷ Copper/silver electrolysis and ionizer systems average approximately \$300, and yearly maintenance costs can exceed \$120.¹⁸ However, a homeowner is sure to see a return on investment since these systems reduce, and can even eliminate, pool heating bills.¹⁹ Simply keeping a pool covered has been shown to reduce yearly pool energy costs by 50%.²⁰ Another way to save money on pool and hot tub energy costs is to reduce the temperature of the water. Reducing pool temperature from 82 to 78 degrees F can reduce natural gas heating costs by up to 40%.²¹ Finally, using an alternative to chlorine in pools and hot tubs can save money. Chlorine costs have increased significantly in the last few years.²² To run a 20,000 gallon pool all year, chlorine costs would be approximately \$600.²³ Using a sanitizing system of another kind means fewer or no chemicals need to be purchased.

Resources

New Jersey Green Home Remodeling Guidelines Version 1.0, pg. 225, Rutgers Center for Green Building, 2009

http://rcgb.rutgers.edu/uploaded_documents/NJGHRG_v1.0.pdf

Water Conservation Techniques, Outdoor Applications, Pool Practices

<http://www.purdue.edu/dp/envirosoft/watcon/src/pool.htm>

US EPA, Green Building, Outdoor Area

<http://www.epa.gov/greenhomes/Outdoor.htm>

¹⁷ Build It Solar. Solar Pool (and Hot Tub). Heating.

http://www.builditsolar.com/Projects/PoolHeating/pool_heating.htm (accessed April 26, 2011).

¹⁸ Houselogic. Swimming Pools: Alternatives to Chlorine. <http://www.houselogic.com/articles/swimming-pools-alternatives-chlorine> (accessed April 26, 2011).

¹⁹ *New Jersey Green Home Remodeling Guidelines Version 1.0*, pg. 225, Rutgers Center for Green Building, 2009, http://rcgb.rutgers.edu/uploaded_documents/NJGHRG_v1.0.pdf

²⁰ H2OUSE Water Saver Home. Tour. Pool/Spa.

http://www.h2ouse.net/tour/details/element_actions.cfm?elementID=D21ACAE2-1FC4-41D0-BC9A16B993ED790A&roomID=32ABD0B1-B424-4AF0-9F6310997C7F0CF7 (accessed April 26, 2011).

²¹ H2OUSE Water Saver Home, Tour, Pool/Spa, http://www.h2ouse.net/tour/details/element_actions.cfm?elementID=D21ACAE2-1FC4-41D0-BC9A16B993ED790A&roomID=32ABD0B1-B424-4AF0-9F6310997C7F0CF7 (accessed October 15, 2010).

²² GreenYour. Your Guide to Green Living. Swimming Pool. <http://www.greenyour.com/lifestyle/leisure-recreation/swimming-pool/tips/use-natural-alternatives-to-pool-chemicals?subject=1701> (accessed October 15, 2010).

²³ Houselogic, Swimming Pools: Alternatives to Chlorine, <http://www.houselogic.com/articles/swimming-pools-alternatives-chlorine> (accessed April 26, 2011).

H2OUSE Water Saver Home, Tour, Pool/Spa

http://www.h2ouse.net/tour/details/element_actions.cfm?elementID=D21ACAE2-1FC4-41D0-BC9A16B993ED790A&roomID=32ABD0B1-B424-4AF0-9F6310997C7F0CF7

Florida Department of Environmental Protection, Green Tips, Home

<http://www.dep.state.fl.us/green/tips/tips.htm>

GreenYour, Your Guide to Green Living, Swimming Pool

<http://www.greenyour.com/lifestyle/leisure-recreation/swimming-pool/tips/use-natural-alternatives-to-pool-chemicals?subject=1701>

The Association of Pool and Spa Professionals, “Pool and Spa Water Conservation Tips”

http://www.nesapool.org/pdf/industry_pdf/water_conservation_tips.pdf

American Air and Water, “UV Water Purification Applications”

<http://www.americanairandwater.com/uv-water-applications.htm>

Build It Solar, “Solar Pool (and Hot Tub) Heating”

http://www.builditsolar.com/Projects/PoolHeating/pool_heating.htm

Houselogic, “Swimming Pools: Alternatives to Chlorine”

<http://www.houselogic.com/articles/swimming-pools-alternatives-chlorine>