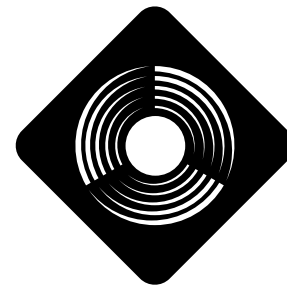


Solar Water Heaters for Swimming Pools



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SECO FACT SHEET **NO. 21**

HIGHLIGHTS

- ◆ **Solar heaters for swimming pools are cost-effective**
- ◆ **Installation is straight-forward**
- ◆ **Pool covers dramatically increase efficiency**

SUMMARY

In some parts of Texas, solar heating for the swimming pool is a practical application of renewable energy. When connected to the pool's existing water circulation system, solar pool heaters, which cost anywhere from \$2,000 to \$5,000, require very little maintenance and can extend the swimming season by several months per year.

COLLECTORS: SIZING AND ORIENTATION

Typical pool collectors are plastic panels that use large headers on top and bottom connected by a large number of small tubes. The square



Source: Sun Trapper Solar Systems

Solar panels *The solar panels are on the upper left section of the roof.*

footage of the collectors needed for a swimming pool depends on several factors including the size of the pool, climate, desired water temperature, wind conditions, pool shading and the planned pool usage. Normally, the amount of collector area will be at least half of the pool surface area. Thus, if the pool covers 500 square feet, collectors should be at least 250 square feet.

However, 100 percent coverage is not uncommon.

Collectors should face south and be tilted to latitude minus 10 to 15 degrees. If the collectors are laid flat or must face west, the amount of collector area will have to be increased to make up for the decrease in collector efficiency. Due to poor orientation or lack of



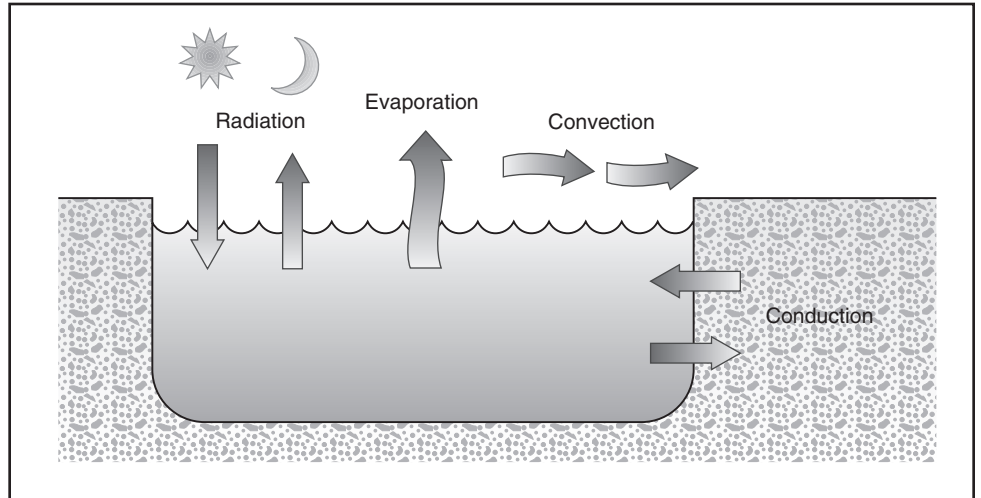
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rooftop space, pool collectors are sometimes “ground mounted” on a frame constructed near the pool.

Indoor pools used year-round require glazed, flat plate collectors that should slope between 35 and 45 degrees.

COVER UP

Up to 70 percent of the heat in a



Heat loss *Swimming pools can lose heat rapidly.*

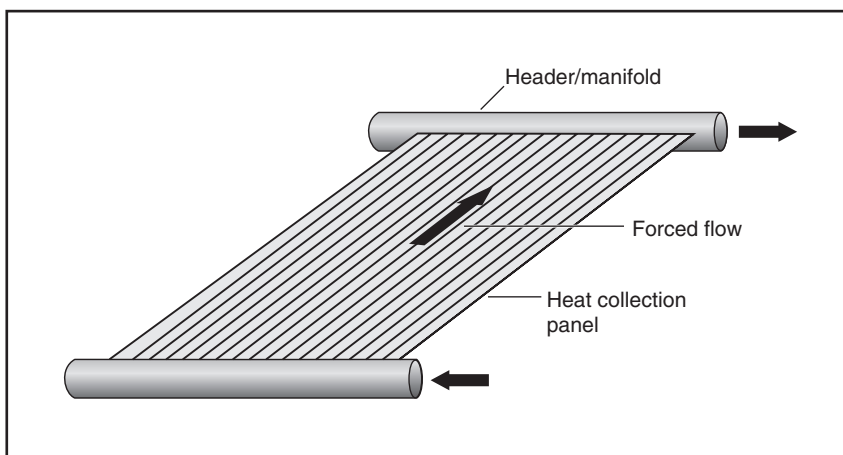
pool is lost through evaporation. The best way to prevent the cooling effect of evaporation is with a plastic pool cover, which costs about 50 cents per square foot and lasts up to

five years. Although the covers can be cumbersome, they help keep the water warm and reduce the amount of water lost to evaporation.

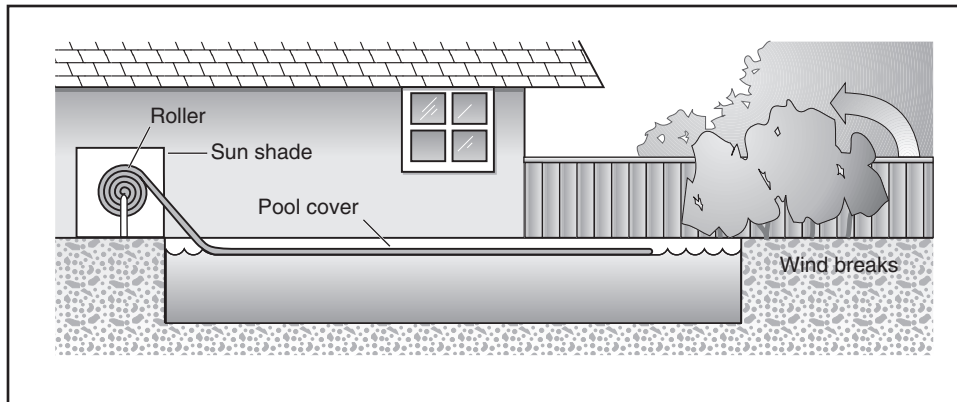
CARE AND FEEDING OF THE POOL HEATER

The plumbing of the solar heating system is connected to the existing filter system. During the day while the filter is operating, the water is sent through the collectors before returning to the pool. An automatic system adds a controller and sensors to operate a valve sending the water directly back to the pool or through the collectors to be heated.

In a more basic system, the homeowner sets the valve manually to



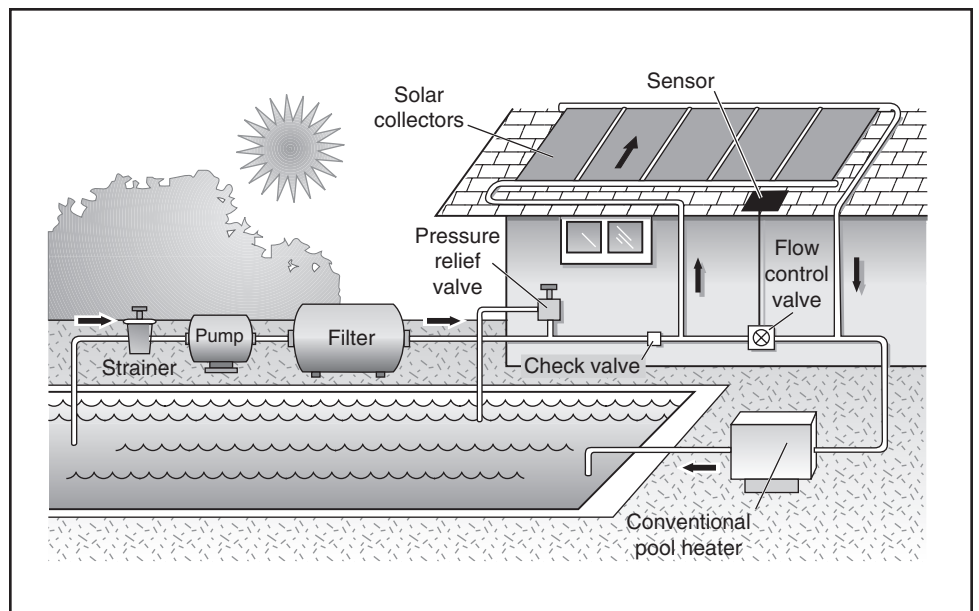
Typical pool collector *Square footage depends on several factors.*



Pool covers *Stopping losses with a pool cover should be your first step.*

allow water to run through the collectors while a timer turns the filter system on during those hours the collectors will receive direct sunshine. Installing a shutoff valve between the collector and the pump will prevent debris from getting into the collectors when backflushing the filter system.

If solar collectors are being added to an existing pool, owners may need to consider beefing up the circulation pump as the existing pump may be too small to move the water through the collectors. In areas subject to winter freezing, the collectors and plumbing should be installed to allow all water to drain when the system is off. Finally, remember to paint all the PVC pipe to prevent damage from the sun.



Filter system *Solar collectors become part of the existing filter system.*

CHOOSING A CONTRACTOR

When choosing a contractor, ask around for recommendations. A qualified contractor will be insured and have references. Ask to see other

systems the contractor has installed and be sure to inquire about warranties. Finally, check your homeowner's insurance policy to see if the new system will be covered.

ORGANIZATIONS

American Solar Energy Society
2400 Central Ave., G-1
Boulder, CO 80301
(303) 443-3130
www.ases.org

Energy Center
University of Texas at El Paso
P. O. Box 645
El Paso, Texas 79968
(888) 879-2887
energycenter.utep.edu

Florida Solar Energy Center
1679 Clearlake Road
Cocoa, FL 32922
(407) 638-1000
www.fsec.ucf.edu

Passive Solar Industries Council
1511 K Street, Suite 600
Washington, DC 20005
(202) 628-7400
www.sbicouncil.org

Texas Solar Energy Society
P. O. Box 1447
Austin, TX 78767-1447
(512) 326-3391 or (800) 465-5049
e-mail: info@txses.org
www.txses.org

Texas Renewable Energy Industries Association
P. O. Box 16469
Austin, TX 78761
(512) 345-5446

RESOURCES

FREE TEXAS RENEWABLE ENERGY INFORMATION

For more information on how you can put Texas' abundant renewable energy resources to use in your home or business, visit our website at www.InfinitePower.org or call us at 1-800-531-5441 ext 31796. Ask about our free lesson plans and videos available to teachers and home schoolers.

ON THE WORLD WIDE WEB:

The U.S. Department of Energy Website offers free software that can be used to analyze current energy consumption in your pool. It will also help project savings from a variety of energy management systems from pool covers to solar heating systems. Go to: www.eren.doe.gov/rspec (Reduce Swimming Pool Energy Cost) www.eren.doe.gov/solarbuildings/pools.html

Renewables, products, sustainable living. A good place to start your search.
solstice.crest.org

El Paso Solar Energy Association. Lots of good information.
www.epsea.org

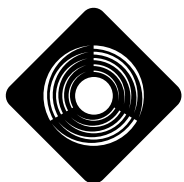
Florida Solar Energy Center. Offers pamphlets on collector performance (publication FSEC-GP-16), design and installation (FSEC-IN-21-82), system sizing (FSEC-GP-13) and other useful advice. Information on solar pool heating and other information.
www.fsec.ucf.edu

Solar heating systems, green building products.
www.oikos.com

City of Austin Green Builder Program's comprehensive guide covering energy, water, building materials, solid waste and other topics. A mammoth resource.
www.greenbuilder.com/sourcebook

BOOKS:

The Passive Solar Energy Book. Edward Mazria, Rodale Press, 1979. (Often available in libraries.)



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