

## **SOLAR POOL HEATING SYSTEMS TARGET THE POOL MARKET**

Solar pool heating systems have definitely come of age. In 1980, the shipments of low-temperature solar collectors for use in solar pool heating systems for swimming pools totaled 63 percent of all solar collectors sold. Since then, the price of natural gas and other fuels for heating pools has sky rocketed and unglazed low temperature collectors now represent over 80% of all solar energy used in the world.

The simple payback period for active solar pool heating systems, which are used to heat pools has dropped to two years or less, and today's sophisticated pool builder has come to recognize solar pool heating systems as an accepted alternative to traditional methods.

Heating a swimming pool with solar energy is a very simple thing to do and it is an easy sale because a comfortable swimming temperature and a longer swimming season are desirable and appealing to the average pool owner.

## **EFFICIENT, COST EFFECTIVE SOLAR POOL HEATING SYSTEM**

The highest efficiency and most cost effective solar pool heating systems for outdoor swimming pools are made from long life polypropylene plastic materials. These solar pool heating systems have a life expectancy of 20 years or longer. The reason they are more efficient than the higher priced glazed solar panels used for heating domestic water is that the temperatures involved are relatively low. The optimum water temperatures for swimming are 78° to 84° F. The solar pool heating systems only have to heat the pool water to this temperature when the air temperature is 60° to 65° F or higher. Since the solar pool heating systems are operating with air temperature, which is only a few degrees cooler or perhaps even higher than the pool, the efficiency of a solar pool heating system is very high. In fact, when the air temperature is higher than the pool, the efficiency may exceed 100 percent, as convection gains exceed radiation losses. Plastic solar pool heating system collectors are lightweight and impervious to rust, corrosion and scale buildup. They are not sensitive to the pH level of the pool nor any pool chemicals and are easy to install.

## **SOLAR POOL HEATING SYSTEM IS SIMPLE**

Another reason for the simplicity of solar pool heating systems is the reduced number of operating components required. In a domestic hot water or living space heating system, five components are needed:

- Solar Collectors
- Circulator pumps
- Storage
- Automatic controls
- Fluid transfer system or piping

The swimming pool has two of these five components already supplied. The pool has a pump, which is used for filtering. If the pump was sized properly for adequate turnover rates in the pool, it will probably be adequate to deliver flow to the solar pool heating system. The pool itself provides the storage. Hence, no storage is necessary. The piping is simple, with the same materials used for the solar pool heating system as are used for the pool. This leaves only the collectors and controls as special items. The collectors themselves are actually the simplest part of the installation, being extremely lightweight and easy to handle. A typical four-by ten-foot solar collector panel, such as the one manufactured by Aquatherm/Solar Industries, weighs only 17 pounds. Since it will be operating under very low pressure, the coupling for joining the collectors together is a simple, quickly attached, hose and clamp system.

### **EASY INSTALLATION**

A solar pool heating system can be mounted almost anywhere that the collectors can “see” the sun for a good portion of the day. While southerly orientation is preferred, solar pool heating systems are tolerant of relatively wide variations in orientation to the sun and mounting angle. Roof mounting is usually the simplest technique since additional construction is not required. Almost any type of roof is acceptable. If the roof is not convenient, a solar pool heating system may be mounted on the ground or on a rack. A ground mount can often be done where there is an existing convenient ground slope or where earthen fill is available.

### **SET IT AND FORGET IT**

Using solid state controls, an automatic control measures pool temperature and compares it with the temperature selected by the pool owner. Whenever the pool temperature is lower than the set point, the water is directed through the solar pool heating system, provided the signal from the solar energy sensor indicates that the solar pool heating system is capable of delivering heat to the pool. The manufacturer carefully matches the electronic circuit characteristics of the controller with solar pool heating system characteristics to deliver maximum heat to the pool.

Some manufacturers offer a control which will automatically cool an overheated pool. This is popular in the Southwest and in Florida where overheating of a pool during the summer season can present a problem.

U.S.-based manufacturers provide complete application and installation material suited to U.S. climates. Their solar pool heating systems are also designed to provide the durability and high performance demanded by the American consumer. In selecting a solar pool heating system, as with any product, the manufacturer who has been in the solar pool heating business for a long time and has a reputation for trouble-free products will usually save the customer money in the long run.

### **CONCLUSION**

In conclusion, the factors contributing to the simplicity, cost effectiveness and trouble-free nature of solar pool heating systems are:

- Ideal operating temperatures for solar
- Low pressure
- Lightweight, durable polypropylene collectors
- System flexibility to be able to heat and cool pool water temperature to a comfortable range.

It is this resulting simplicity that makes solar pool heating systems the most cost-effective and largest use of solar energy known today.

