Swimming Pool Heating Options

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Inviting Swimming Pools and Spas are one way for Hotels to entice new patrons or to keep their existing ones. Whilst looking inviting is great, the water temperature must also be set to a level where the experience meets the expectation.

As we know there are a number of heating options and the most economical systems are not necessarily reliable all year round.

GAS

Gas has traditionally been the most common form of pool heating as it is easy to install, has a low capital outlay and can provide rapid heat up times. The heater usually has pool water pumped through a Heat Exchanger which sits above a gas fired burner tray; this heat is transferred to the water and returns to the pool. Newer style gas heaters utilise fan assistance that aids in the combustion and heat transfer process that increases efficiencies and reduces operating costs. A gas heater is the perfect back up for Solar or Heat Pump systems.

SOLAR

Solar is an economical way of heating and has a relatively low capital cost. Water is pumped from the pool to a heat collector fitted to the roof and returns to the pool. This heat collector can be made in many different styles; some are made from extruded PVC strip, moulded tube panels and more. When year round heating is required a backup system such as Gas or Heat pump is normally required.

High Efficiency Solar

High Efficiency Solar comes in a number of forms. One of the popular types is fully Glassed Panels that utilises a clear polycarbonate cover over HDPE (high density poly ethylene) coiled pipes that sit within a housing. When sunlight strikes the collector, the solar radiation travels through the clear glassing and is absorbed by the black HDPE inner tubing. These systems are not greatly affected by wind and can be angled to face the northern sun to increase efficiency and only a small roof area is required

HEAT PUMP

Heat Pumps have become more common for heating as capital costs have been

reduced over the past few years. Heat pumps are least efficient during the coldest months and it is common practice to have a gas heater as back up for prolonged cold spells.

Heat pumps work like a reversed air conditioner. Instead of taking air from a room or building, removing the heat and returning it, a heat pump takes large quantities of air from the atmosphere, removing the heat contained in the air and transferring this to water from the pool or spa passing through the unit.

As we know, the most economical heating systems for pools and spas can require a back up system and this is where a digital control system is required. The controller must monitor the most economical way of heating and switch between heat sources as required.

Smart Electronics means Maximum efficiency.

On Solar Systems the controller will monitor the pool temperature and when heating is required will turn the solar system on if there is solar gain. When auxiliary heating, normally gas or heatpump is fitted in conjunction with solar, the controller will determine which heat source is best to use. If heating is required the controller will check solar temperature and if not available will switch on the auxiliary heater and run till limit or until there is some solar gain. When there is some solar gain but not enough for the pool to achieve limit both heat sources should run in conjunction. When there is enough solar gain to achieve limit the auxiliary heating should be turned off and the more economical solar heat source should only be utilised.

When Salt Chlorinators are used in multiple or smaller systems over Chlorination is common as the Filter pump has to run for extended hours to keep the Heat Pump going. The controller should turn the Salt Chlorinator off when extended heating times are required or an electronic monitoring system should be fitted.

How to save on running costs and the Environment.

When multiple heat sources are utilised it is imperative to set the most economical heat source to a higher set temperature than the auxiliary set temperature. By doing this the cheaper heat source will push the temperature past the auxiliary limit that will minimise the auxiliary run time, the greater the difference the larger the savings will be. What needs to be considered is what the minimum temperature set point can be tolerated without customer discomfort and the maximum temperature taking into account customer satisfaction and accelerated chemical consumption. The minimum set temperature will be the Auxiliary heater with the highest energy consumption that can be set at about 26 degrees Celsius and the maximum temperature will be the least expensive to run to a temperature of about 29 degrees Celsius. This will differ from State to State as pool temperature needs to be set relevant to ambient air temperature to achieve a comfort level. ■