DICTIONARY OF TERMS

Rev 1/15/96

Air to Liquid A heat transfer term referring to the transfer of heat from air to liquid or vice versa.

Attic Temp The temperature of the attic as measured from within the attic and at the attic's peak. The attic temperature is also measured out of the airstream of any passive or powered vents. And, as measured with all power or wind driven ventilators disabled.

Bypass Valve A valve used to route water up to the PCS1 when heat is available in the attic.

BTU British Thermal Unit. The quantity of heat required to raise one pound of water one degree Fahrenheit. A way to measure heat transfer.

BTU'S/HR The hourly rate of BTU heat transfer. Calculated by the formula: BTU'S per hour = ΔT x 8.34 x 60 x GPM

ΔT Symbol for temperature differential. Usually the output temperature minus the input temperature. This can be either air or liquid temperatures. It can also be the temperature difference between two heat containers. In our material, it refers to the temperature difference between the output and the input of the PCS1. This can be either the water temperature difference or the air temperature difference. It also can be the difference between the pool's water temperature and the attic temperature.

8.34 The weight of a gallon of water. A factor used in BTU calculations.

60 The minutes in an hour. A factor used in BTU calculations.

CFC Chlorofluorocarbon chemicals found to damage the earth's protective ozone layer. Found in swimming pool heat pumps.

Circuit Refers to the heat transfer pipes that carry or are surrounded by swimming pool water inside a heat exchanger.

Coil Refers to the water coil used in the PCS1 which is used to transfer heat from the attic air into the swimming pool's water.

Comfort Zone The temperature at which water is the most comfortable for swimming. That zone is from 80-84° F. Olympic and competitive pools maintain 78-80° F.

Convection A heat transfer principle where heat moves from one substance to another by "convection". This usually means passive heat transfer. An example would be an item physically sitting in a hot attic getting hot just from being there.

C.O.P. Coefficient of Performance. A term used primarily with heat pumps to rate their performance against that of an electric resistance heater. C.O.P. is calculated by the formula: C.O.P. = BTUS OUT ÷ BTUS IN

Efficiency Another term used with heat pumps to reflect how efficient heat pumps are to an electric resistance heater. For example: a heat pump with a C.O.P. of 4 would be called 400% efficient. Able to deliver four times the energy out than the amount used. Efficiency is calculated by the formula: Efficiency = C.O.P. x 100%.

Flowreversal™ Valve

A valve used to reverse flow of water in a swimming pool so that the pool will use heat efficiently. This means taking the water off the top of the pool from the return lines and returning the water into the main drain at the bottom of the pool. Flowreversal™ is a trademark of Innovative Pools & Spa.

Forced Air A heat transfer term referring to the use of an air moving device such as a fan in conjunction with another device such as a water coil.

Forced Air Convection

The use of forced air to accelerate the heat transfer that would normally occur passively by "convection".

Gallons/Cu Ft Gallons per cubit foot. There are 7.5 gallons in the volume of one cubit foot. Factor used in some pool heating calculations.

GPM Gallons per minute. The flow rate of water in the swimming pool's support system. A factor used in BTU calculations.

Heat Exchanger A product that takes heat from one area and transfers it to another area. The PCS1 transfers heat from the attic to the swimming pool.

Heat Pump A method used to heat swimming pool's by using a reverse refrigeration cycle. This method uses a compressor similar to the one in your refrigerator. The product takes heat out of the ambient air to heat swimming pools and is four times more efficient than using an electric resistance heater.

Internal Float Design protection feature. An internal leak detection float built into the PCS1. The float opens the attic temperature sensor circuit if excessive water is detected. This causes the LX220 solar controller to shut the PCS1 off. LX220 "Solar Sensor Service Required" light is then turned on.

KW KW refers to Kilowatt and is a measurement of electricity equal to 1000 watts. One KW contains 3,412 BTUs of heat.

LX22/2Y A temperature controller manufactured by Compool Corp. Used with the PCS1 until June 1992.

LX220/2Y A temperature controller manufactured by Compool Corp. See the PCS1's technical manual for a complete description of front panel controls, indicator lights and internal parts diagrams. This is the current controller used with the PCS1.

PCS1 Acronym for "pool convection system one". Refers to the complete heat exchange unit that is physically placed into the attic for heating swimming pools.

Porous Wall Duct A new duct design with holes that allow for uniform heat collection or distribution along the entire length of the duct. Developed by SolarAttic, Inc. with a patent pending. For use in controlled ventilation of the attic. Eliminates the need for roof holes or vents of all types. Also for use in enhancing the heat collection of SolarAttic pool, space and hot water heaters.

PRO3 Valve A bypass valve manufactured by Compool Corporation. Used with the LX22. Requires periodic lubrication.

FRE2Y Valve A bypass valve manufactured by Compool Corporation. Used with the LX220. Maintenance free. Requires no lubrication.

Proportioner Valve

A valve used in conjunction with a flowreversal valve so that proper operation of the swimming pool's skimmers can be obtained during reverse flow of water in the pool.

Sensor Service Required Lights Two lights on the front panel of the LX220 which indicate either a short or open temperature sensor and/or sensor circuit. In the case of the solar or "attic" sensor, it could also indicate an excess water condition detected by the PCS1's internal float.

Share-A-Heater™ A special valve manufactured by Mark Urban Products of Tustin, California that allows a common heater to be shared by a pool and a spa. Share-A-Heater™ is a Mark Urban Products.

SolarAttic Pool Heater The PCS1 which is (acronym for **P**ool **C**onvection **S**ystem **1**) along with its associated valves and solar controls. A pool heating system that extracts warm & hot attic air for use in heating swimming pools and spas. Shown to eliminate over 90% of the fossil fuels used in most pool heating applications.

SolarAttic Space Heater A space heater that extracts warm air from the attic during the Fall-Winter-Spring and returns this heat back into the house as supplemental heat for the house or for other space. Shown to reduce annual space heating costs in the Ohio/West Virginia area by 20-25%

SolarAttic Hot Water Heater An attic based heat transfer system patented and under current development that reduces or eliminates the cost of heating hot water with electric hot water tanks. By using hot attic air.

SolarAttic Ventilator A ventilation system that eliminates the hole on the roof by controlling the attic ventilation from within the attic. Employs a unique "porous wall duct" developed by SolarAttic, Inc.

Support System Refers to the swimming pool equipment pad which usually is comprised of the pool's pump, filter and other equipment used to run the pool.

Temperature Controller

An electronic device used to automate the bypass valve so that water is automatically routed up to the PCS1 in the attic when heat is available.

Therm One Therm equals 100,000 BTUs.

TmMr A manual proportioner valve manufactured by Mark Urban Products of Tustin, California.

Volume of Pool Equal to the pools surface area times the average depth and is expressed in cubic feet. Factor used in some pool heating calculations.

XmMr A manual flowreversal valve manufactured by Mark Urban Products of Tustin, California.

If you have a question about a technical term, you can address them to:
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