



SELF-COOLING COLLECTORS



March 25, 2013

FOR IMMEDIATE RELEASE

SolarLogic Awarded Patent for Self-Cooling Solar Thermal Collector

Overheated collectors are now a thing of the past! This week, SolarLogic, LLC, was awarded a U.S. patent for a solar thermal collector that cools itself in any climate. The new solar collector design can be used to heat domestic hot water, radiant floors and other liquid-filled heating systems, pools, and spas, and can even be used to cool a building at night. This patent, SolarLogic's fifth, represents a great move forward for the solar thermal industry.

Two of the significant challenges of solar heating system design over the past 40 years have been managing excess heat produced by solar collectors when it is not needed (typically summer), and preventing solar collectors from overheating in case of failure of other components like pumps or electronic controls. Overheating damages the working fluid and system components, and can result in costly repairs and non-functioning systems.

In the past, standard designs addressed this issue by using large water storage tanks or other heat sinks, specialized pumps and controls, and redundant and oversized components. Use of the new SolarLogic solar collector design eliminates the need for any extra components or design compromises, resulting in systems that are easier to specify, less costly and complicated to install, and fail-safe. SolarLogic's new collector design is especially unique in that it is identical in size, appearance and plumbing to a conventional collector, not reliant on electricity, and will prevent solar collectors from overheating even in harsh environments.

Here's how it works: An ordinary solar collector contains large horizontal pipes at the top and bottom called "headers", connected by thin vertical pipes called "risers." A circulation pump is used to pump fluid through the solar collector and the fluid gets hotter as it rises through the collector. In SolarLogic's design, a second set of risers is installed inside the collector frame in contact with the back plate of the collector, and the back plate is used to cool the fluid by convection and radiation – but not always. A check valve is also included in the additional plumbing. In normal operation (collecting heat), the valve is held closed by the solar collector circulation pump and no fluid is pumped through the risers along the back plate. However, if the pump is turned off because there is no need for solar heat, or if it fails, the check valve swings open. This allows hot fluid, which expands and rises by convection in the front of the collector without need for pumping, to flow into the second set of risers where it cools and sinks through contact with the back plate. This process, referred to as thermosiphoning, continues passively and automatically until the sun goes down or until the collector circulation pump is turned on again.

"After 40 years of compromised designs, system designers and engineers can finally shift their focus from collector overheating and stagnation to optimizing the design for solar accumulation. Combined with our other products, our new collector makes SolarLogic heating systems the most effective and affordable solar heating systems ever available," said SolarLogic's Chief Technical Officer, Bristol Stickney.

Dr. Fred Milder, SolarLogic's CEO adds, "Our self-cooling collector design sets a new standard for the solar heating industry. We are excited about working with existing collector manufacturers to incorporate our technology and build products that completely eliminate this long-standing concern."

SolarLogic products include a solar heating system design web site (SLASH-D) and an integrated, web-enabled hardware/software system controller (SLIC) that operates an entire heating system, including all renewable and non-renewable components, with no programming. The SLASH-D is free and the SLIC is available for purchase direct from SolarLogic to solar and radiant heating professionals. Product trainings qualify for Continuing Education Credits from the North American Board of Certified Energy Practitioners (NABCEP).

SolarLogic LLC was formed in 2008 to eliminate the barriers to deploying integrated multi-source/multi-load energy systems by providing products and services that eliminate their complexity. Since formation, the company has developed its flagship products – the SLIC (SolarLogic Integrated Controller) and SLASH-D (SolarLogic-Assisted Solar Heating Design.) The logic embodied in these products is appropriate for any heating system of any scale, reduces design, engineering, construction and maintenance costs, and increases energy savings for the life of the system.

Contact: Claudia Pavel: claudia@solarlogicllc.com
505.577.4633. solarlogicllc.com