

Solar Radiant harnesses the sun's heat

TARA LEONARD - SENTINEL CORRESPONDENT

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Nothing is worse on a cold winter morning than stepping from a cozy bed onto chilly floors. Brrrrr!

A radiant heating system alleviates this problem with warmth rising up from a toasty flooring surface. William Shady and Gregory Cross of Pacific Solar Radiant Inc. are taking this technology a step further, harnessing it to the power of the sun.

Now, thanks to a recent extension of the federal solar energy tax credit, solar radiant has become a more affordable heating alternative for those who want to warm their home while helping to cool the planet.

The basic retrofit radiant heating system runs \$15-\$18 a square foot, according to Shady. Adding a solar hot water component to the system costs an average of \$10,000 per job. This would include a solar hot water collector, storage tank and controls.

According to Shady, more than 90 percent of homes in the U.S. are heated by central forced-air systems. In these systems, ductwork carries air to the furnace where it is filtered, warmed and blown back through vents into rooms throughout the house. For many of us, forced hot air heating has meant high electricity bills, drafty

rooms, dry skin and perpetually cold feet.

With a radiant heating system, tubing is laid out under the floor. Warm water is circulated through the network of tubes, gently warming the floor and radiating heat to all the objects in the room. The primary benefits, Shady says, are health, comfort and energy efficiency.

"Dust, pollen and other allergens are disturbed in a forced hot air system," he explains. "That can be a problem for those with allergies."

As for energy efficiency, we all know that heat rises. So it follows that the most efficient way to heat a room is from the bottom up. The floor is consistently comfortable, without hot spots or cold drafts, and when your feet are warm, your whole body is warm.

So where does the solar come in? Solar-assisted radiant systems use heat from the sun to warm the water that is then circulated under your floor. The systems combine efficient techniques for capturing the sun's heat with modern plumbing systems to store and transfer the water. The same basic technology can be used to heat an entire domestic hot-water system or a swimming pool. Solar thermal/heating should not be confused with solar voltaic/electricity, although the two systems do use similar-looking solar collector panels.

According to Shady, the basic technology has been around for a long time, ever since he attended the Solar Energy Technology Program at Cabrillo College in the late 1970s. He went on to

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receive his bachelor's in mechanical engineering at Chico State, then worked for more than 25 years as a mechanical engineer. Several years ago, during a surf trip in Mexico, Shady met Cross, a plumbing contractor. The two decided to join forces in Pacific Solar Radiant Inc., a design/build plumbing, heating and cooling construction company.

The timing was right, as recent advances in expertise and equipment have made solar radiant heating a more viable and affordable alternative for homeowners. Growing interest in renewable energy has also driven the market. According to Shady, the residential sector uses 22 percent of the state's demand for natural gas. Of that amount, 88 percent is used by space and water heating. "Consider the savings and the reduction of carbon emissions if you convert your heat and hot water to solar!" he says.

For further incentive, the federal government recently extended the solar energy tax credit for individuals who install residential solar electricity or heating and cooling equipment.

After just two years in business, Pacific Solar Radiant Inc. employs 10 people, works with clients across the nation, and has won several national industry awards, including one for innovation on a luxury Soquel home. The 6,700-square-foot structure uses solar-assisted radiant floors, domestic hot water, swimming pool and spa.

"Everything in the house was done with green in mind," says proud owner Nick Iuliano, Cross's

father-in-law. "Efficiency is what everybody's looking for, which naturally helps the environment too. Sure, I want to keep my utility bills down. But if more people went this way, it would save an awful lot of carbon emissions."

Iuliano admits his system was "a little costly to start with," but expects that it will pay off in five or six years.

"Solar radiant is not just for new homes," Shady asserts. "You can retrofit existing homes without tearing out the floors. You can always put in radiant as long as it's designed and installed properly."

Shady serves as president of the Central California chapter of the Radiant Panel Association, a trade group dedicated to education and referral. He also travels the state teaching professional development classes and seminars, including a radiant architecture class in Chico last Thursday for architects, designers and general contractors.

What's not to love about a heating system that's good for the environment, your wallet in the long run, your health and your no-longer-cold feet?

For more information, visit www.pacificsolarradiant.com or visit the Radiant Panel Association at www.radiantpanelassociation.org. Contact Tara Leonard at svreeken@santacruzsentinel.com.

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