



## Small Business Enjoys Comfort and Energy Efficiency of Radiant Heat in New Facility

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**As** Bill Kelly of Kelly Brothers Painting began planning his new business facility in Truckee, California two years ago there was one clear objective: achieve the maximum energy efficiency possible within the design/build budget at hand. Utilizing the best insulation and ENERGY STAR windows were immediately put in to the planning. Solar energy was another component Kelly realized was vital for energy savings. But with 5,376 square feet of space sitting at an altitude of 6,400 feet the question of an energy efficient heating system was paramount.

An electrician friend from Johannsson Electric introduced Kelly to STEP Warmfloor radiant heating. One of the first things that impressed Kelly with STEP Warmfloor was the ease and efficiency of installation. The STEP Warmfloor heating elements can be installed with any flooring. This was critical as the new facility included poured concrete in some warehouse and office areas, while the entrance had tile and the apartments in the upper levels had hardwood floors.

According to George Royce, Jr., president of Electric Radiant Heat & More – the area distributor of STEP Warmfloor – hydronics was not considered because of the need for a mechanical room requiring substantial space, extra engineering for the second floor with gypcrete and added labor costs for installation. The maintenance issues and uneven temperature in zones of hydronic heating were also factors against its use.

“When I talked with George Royce, our distributor, it was clear that the Kelly family wanted the buildings to be state-of-the-art and, most importantly, very energy efficient,” said STEP Warmfloor president, Monica Irgens. “They knew they would have a PV solar power system,

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and were impressed with our product because of its simplicity and compatibility with solar energy systems. They also appreciated the maintenance-free, self-regulating, low-consumption and easy installation advantages of STEP Warmfloor.”

“The versatility of STEP Warmfloor radiant heating is unique,” said George Royce. “It can be used in a partial space in a new or existing structure, any size and under any flooring.”

The installation of radiant heating for this project provides maximum efficiency. Before the slab in the buildings was poured a 1 ¼” insulation - the Barrier – was installed on the base material. STEP Warmfloor nine watt elements were then taped to the thermal insulation and covered with a 6 mil plastic sheeting before laying rebar and pouring concrete. Elements with 7.8 watts capacity were installed directly under the hardwood and tile flooring.

Calculations were conducted for comparison in this all-electric project. Estimates of using electric baseboards were 74,277 KWH at an estimated cost of \$9,879 per season. STEP Warmfloor came in at 21,393 KWH with an estimated cost of \$2,845 per season. The substantially reduced need of electricity to operate the STEP Warmfloor radiant heating results in fewer solar panels required to do the job.

The comparison of the estimated energy consumption using an electric hydronic system further demonstrates the reason to not use it for this project. The estimate for the electric hydronic system came in at 66,218 KWH at an estimated cost of \$9,406, nearly two and a half times more than the STEP Warmfloor estimate.

The comfort of radiant heat was best realized when business owner Bill Kelly opened the 16’ door in his new shop. The heat escaped outside, but when the door closed, the room was comfortable again. “I was impressed,” he said.

STEP Warmfloor, developed by Electro Plastics, Inc. in 1994, is a certified by Greener Product as a green product, confirming it complies with LEED®, LEED for Homes and NAHB. All materials used in the STEP Warmfloor system are ecologically safe. Its design allows it to be placed closer to the surface than any other radiant floor heating system. It reacts immediately to external temperature changes, and is 100% efficient: all electrical power is directly transferred to heat, drawing energy only when required to maintain the ideal temperature. Millions of square feet have been installed in homes, commercial buildings and institutions worldwide.

Electro Plastics, Inc. dba STEP Warmfloor is a US manufacturer of electric radiant heat underfloor heating, roof de-icing and snow-melt systems. For more information visit [www.warmfloor.com](http://www.warmfloor.com)

*STEP Warmfloor® is a US manufacturer of electric radiant underfloor heating, roof de-icing and snow melt systems located in Saint Louis, Missouri. Its 35,000 square foot LEED-registered building is a “living laboratory” as proof of the comfort properties and energy efficiencies of STEP Warmfloor®. For more information on residential or commercial STEP Warmfloor® systems visit [www.warmfloor.com](http://www.warmfloor.com)*