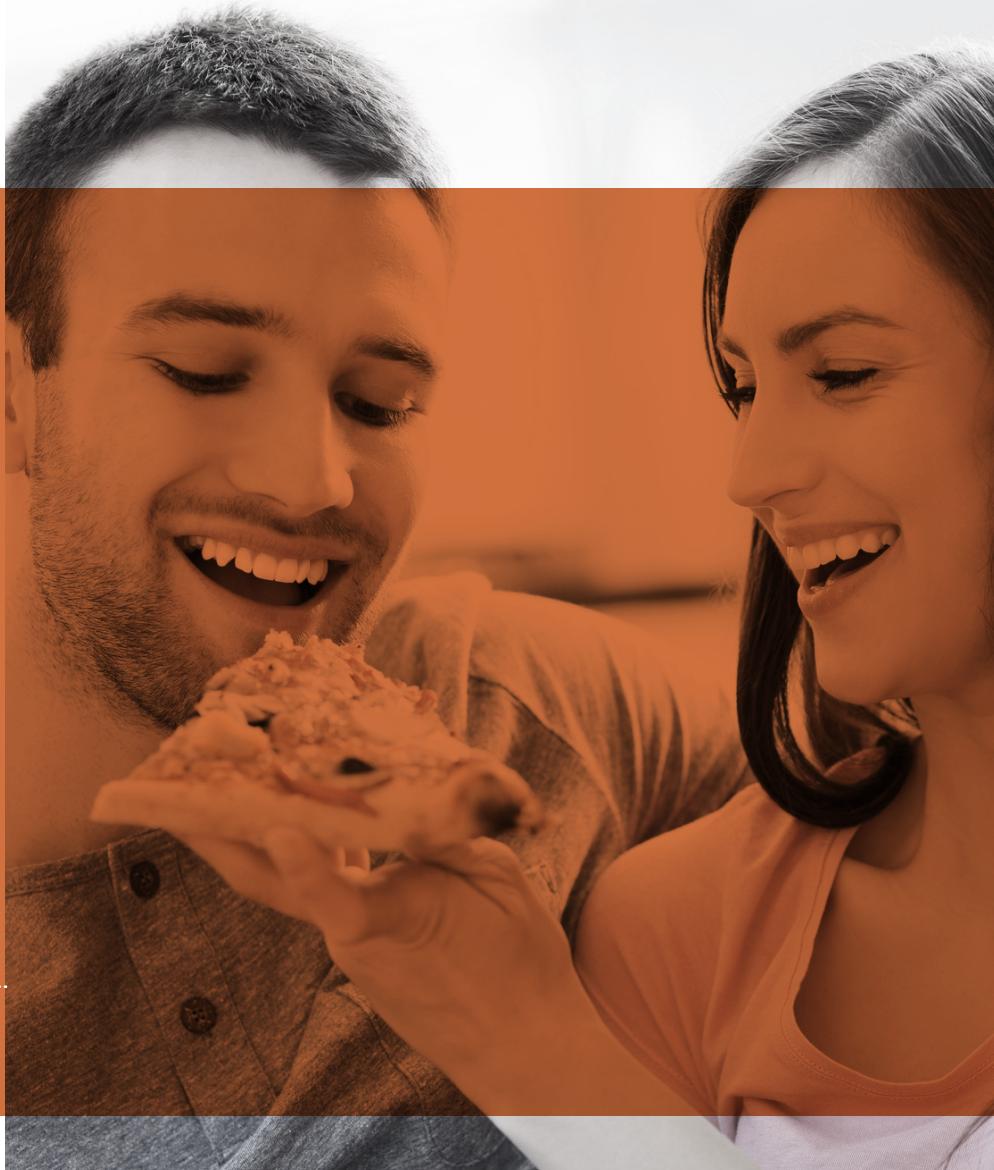


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SOLAR HEATING PAYS THE HOT WATER COSTS FOR ASHVILLE PIZZERIA

ENEREF INSTITUTE EXAMINES A RESIDENTIAL HOME USING SOUTHWEST GAS REBATE TO INSTALL SOLAR THERMAL FOR DOMESTIC HOT WATER

Mellow Mushroom already stands out from your average pizza place.

The national chain's pizza choices include names like Kosmic Karma and Magical Mystery Tour, and the crust's molasses "gives it a kind of a sweet

and intentionally crispy ... hint to it," says Jeremias Prenatt, manager of its Asheville, NC location. In Asheville, though, they thought they could make their operations as perfect as their pizza.

WE ARE A VERY HIGH VOLUME RESTAURANT SO WE HAVE A DISH WASHING MACHINE WITH AT LEAST ONE PERSON CONSISTENTLY

We're happy with the amount of money that he saves using solar panels.

DECISION TO INSTALL SYSTEM

While Mellow Mushroom is a franchise, Jeremias Prenatt explains the locally-owned restaurant tries “to be as much of a small local businesses as possibly even though we are part of the chain” by ordering local produce and independently improving its operations. This included recently installing a solar heating system to supply hot water for the restaurant’s dishwashers, sinks, and bathrooms.

When most people think of solar energy, they imagine solar photovoltaic cells, or PV. Solar heating panels is different than PV in that solar heating works on the basic principal of converting solar radiation, or sunlight, into heat rather than electricity. Solar water heating systems simply circulate liquid through rooftop panels heated by the sun. The liquid, food-grade antifreeze or water, transfers the heat to storage tanks that feed heated water into the conventional hot

water system.

According to Seth Warren Rose, Executive Director of Enerref Institute, a research and advocacy organization for sustainable development, “The potential for solar heating in the US is enormous. The technology is already quite common in both Europe and Asia. And now we are beginning to see the US employ more sunlight to heat water.”

CONSISTENT WITH COMPANY VALUES

Mellow Mushroom has gone “as green as possible for profit,” and Gerry Mahon “looked forward to the money that he would save,” with a solar heating system, as Prenatt explains. However, unlike many other businesses seeking a green image, Mahon didn’t “necessarily [do it] to gain a reputation; we thought it’s the right thing to do,” says Prenatt. And Mahon and his partners have begun other green initiatives solely for their environmental value. For instance, Mahon started a compost coalition that

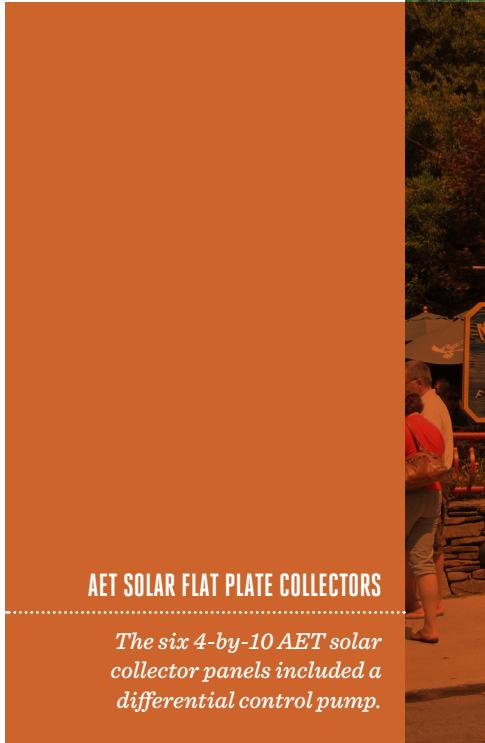
costs Mellow Mushroom a little bit more than standard waste disposal, but “sends out a tone of less waste,” Prenatt explains.

The belief that local focus and environmental efficiency make good business sense isn’t unique to Mellow Mushroom’s Asheville location, however. Admiring Mellow Mushroom’s “strong sense of ... efficacy,” Hollister observes that they take “the triple bottom line approach to their business.”

When the franchise asked Sundance Power Systems, a local solar installation company, about installing a solar heating system, the numbers confirmed the wisdom of the restaurant’s decision. As Dave Hollister, who founded Sundance with his wife in 1995, recalls, Mellow Mushroom saw that he had “the ability to create a triple win for [his] business—you’ve got the marketing advantage, you have the tax advantage in the short term and you have a long term financial hedge against the rising energy prices.”

PAYING FOR THE SYSTEM

Mahon and the other owners of the franchise planned on a long life for the system. According to findings by Eneref Institute, a well designed and installed systems can last over 25 years. They chose to invest their own money to buy the system as opposed



AET SOLAR FLAT PLATE COLLECTORS

The six 4-by-10 AET solar collector panels included a differential control pump.

to a third-party Power Purchase Agreement (PPA) "because they saw in the long term it's a great foundation on which to build their business," explains Hollister.

Through a PPA, the third party financier guarantees customers' savings by covering the upfront cost of the installation and selling the energy produced by the system back to the building at a fixed discount to their utility rate.

According to Enerf Institute's Executive Director Seth Warren Rose, "We've found that power purchase agreements can often be a gateway for renewable energy systems into leased

spaces because the burden of the up-front cost is not on the facility operator, but rather on a third-party financer."

However, buying the system was still made easier because of state and federal incentives, including the federal Investment Tax Credits (ITCs). The state of North Carolina provided a 35 percent incentive, while the federal government provided an additional 30 percent ITC, which Hollister says "helped tremendously." In order to maximize the use of incentives and stay within budget, Sundance Power Systems and Mellow Mushroom

chose to install the panels in two stages. Six panels were installed in the initial installation, and another six will be installed next year, earning additional tax credits, with six panels installed each time, instead of all twelve at once.

Additionally, Mellow Mushroom was able to sell the renewable energy credits (RECs) it earned for creating its own hot water to Dominion Power, which is based in Virginia but has operations in North Carolina. The REC rules are different in each state, and the prices fluctuate greatly. Still, according to the Solar Energy

HEATING WATER IS ONE OF THE LARGEST ENERGY CONSUMERS IN YOUR HOME OR BUSINESS.

According to ENERGY STAR®, the use of a solar water heater with a back-up gas heater can cut those costs in half.

Industries Association, solar heating and cooling technologies have produced a strong of return on investment for the public dollar, and more than 90 percent of Americans want their use to increase.

SYSTEM SPECIFICATIONS

With the financial viability of the system assured, it was time for planning and installation. The six 4-by-10 AET solar collector panels included a differential control pump. The system also included a system to monitor heat levels.

This system consists of six 4x10 collectors and an 120 gallon storage tank, which produces about 240,000 BTUs per day. The system was sized to produce 20% of their hot water consumption in a day, and can be expanded to provide more in the future. Capturing the savings that North Carolina has to offer and considering the fuel costs, this system has a great payback.

Because the restaurant's water needs are heavy and constant, its storage needs were relatively low, and required only a 120-gallon storage tank. The collectors increase the temperature of the

water 40 degrees, to about 120 degrees. To bring it to the higher temperature (about 160 degrees) required for dishwashing, the restaurant uses natural-gas-powered water heaters located inside the building. The installation was so quick and unobtrusive that "many employees didn't even realize that it had happened," says Prenatt.

The panels themselves are also low-profile. While the panels are visible from other nearby locations, they can't be seen from the restaurant's patio seating. For curious customers, though, there are a few small signs in the restaurant to clue them in.

The panels are manufactured by Alternate Energy Technologies in Jacksonville, FL. They are the largest manufacturer of solar thermal collectors in the country and take pride in the one of a kind panels they produce. The Thermafin fin tubes which heat the water in the collectors are the most efficient product on the market, and are backed with a 30 year design life.

Prenatt says that customers have noticed the panels, and hopes they serve as an inspiration for

other local businesses as well. According to Prenatt they "are one of the highest volume restaurants in downtown" and they succeed in doing something helpful for the environment perhaps other restaurants will follow.

*Research and reporting compiled and provided by Eneref Institute.
(www.eneref.org)*