



'Cool' roofs help keep lid on summer utility bills

Source: [St. Louis Post-Dispatch](#)

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MARCH 31, 2010 -- Joe Neaf, of St. Louis, who works for White Caps, Green Collars, applies the first layer of solar-reflective coating to a roof along the 4400 block of Shaw Avenue. The company was founded last year. (Laurie Skrivan/P-D)

Last summer, Jim Zirngibl decided it was time to repair the roof on an 18-unit building he manages in the Southwest Garden neighborhood.

He knew it was going to be an expensive job — most of the roof needed about 3 inches of new insulation.

Since then, however, Zirngibl's summertime utility bills have decreased by about 25



percent, a benefit he believes is partly due to his decision to have a solar-reflective coating applied to the roof.

"When I got the first bill, I practically did an end-zone dance," Zirngibl said.

White or "cool" roofs are riding a growing wave in popularity across the country thanks in part to Steven Chu, the new U.S. Department of Energy secretary who is championing the idea as an easy way to increase energy efficiency and fight global warming.

Cool roofs achieve energy efficiency gains by reflecting the sun's rays and blocking heat, which reduces wear and tear on an air-conditioning system and lowers utility bills.

A study last year by the [National Center for Atmospheric Research](#) also indicated that if every roof were painted white in the world's cities, the urban heat island effect could be reduced by 33 percent. Heat islands occur in large urban areas where the natural landscape has been lost to roads, sidewalks and parking lots, which can raise surface temperatures. Some urban areas have heat islands that are 2 to 10 degrees higher than nearby rural areas.

While the city of St. Louis isn't currently offering incentives for white roofs like other major U.S. cities, the idea does seem to be catching on locally.

"In a town like St. Louis, with the weather that we have here, it's sort of a no-brainer," said Jean Ponzi, green resources manager for EarthWays Center, a division of the Missouri Botanical Garden.

Jill Miller, a former Sierra Club organizer who worked on climate change and energy issues for the environmental group in Missouri, last year founded White Caps, Green Collars, a company that applies solar-reflective roof coatings in the St. Louis area.

"I just realized that all over the Midwest there are great opportunities to improve energy efficiency," Miller said. "A lot of it is low-hanging fruit. It's inexpensive and easy to implement. This is one of those opportunities."



Miller says demand for white roofs is growing, particularly among homeowners in the city's historic neighborhoods where flat roofs dot the landscape.

Currently, she's working on four projects in the Southwest Garden neighborhood, including a four-unit complex on Shaw Avenue owned by Zirngibl.

It can be grueling work — temperatures on traditional asphalt roofs can soar up to 200 degrees in the summer.

But seeing customers reap the benefits of the work makes it all worthwhile, said Miller who estimates some homeowners experience a 20 to 40 percent reduction on their summer cooling costs.

"Usually, they tell me that within 48 hours they can tell a difference because it's noticeably cooler in the upstairs," Miller said.

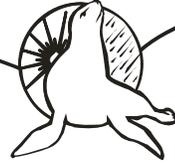
That was the case with Marsha Matthews, who hired Miller last year to apply a reflective coating to the roof of her Tower Grove-area home.

Matthews, who used to work at Lawrence Berkeley National Laboratory, a U.S. Department of Energy institution that conducts *cool roof* research, was already a believer in the benefits when she contacted Miller.

She estimates her summertime utility bills have decreased by 10 percent and expects an even bigger savings if St. Louis experiences a hotter summer than last year.

"Although my roof was in good condition, it was covered in black tar," she said. "That was wrong on all kinds of levels."

Matthews' home was an ideal candidate for a reflective coating — the roof was flat, didn't need any major repairs, and is located in a city with a warm climate, which helps achieve maximum savings.



Cool roofs have fewer benefits in a cooler climate. That's because they reflect solar energy year-round and can reflect away wintertime heat gains. The net effect, however, is usually positive in most U.S. cities, according to the EPA.

Cool roof coatings, which have the consistency of thick paint, cost between 75 cents and \$1.50 per square foot for materials and labor, according to an estimate by the U.S. Environmental Protection Agency.

If applied properly, coatings can last up to 20 years. Washing dirt and other material off a coated roof helps boost solar reflectance.

Roofing professionals generally do not recommend applying reflective coatings over shingles on steep-sloped roofs because doing so can cause water damage.

But that doesn't mean there aren't "cool" options for steep-sloped roofs.

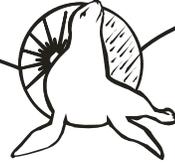
"Cool" colored tiles, metal shingles and some asphalt shingles can help lower temperatures for steep-sloped roofs.

The [Cool Roof Rating Council](#) ranks several kinds of roofing products based on their solar reflectance and thermal emittance, or how readily a surface gives up heat.

Traditional roofing materials have a solar reflectance of 5 to 15 percent, meaning they absorb 85 to 95 percent of the energy that reaches them. The "coolest" roof materials have a solar reflectance of 65 percent.

The council has given good marks to several products manufactured by TAMKO Building Products Inc, a Joplin, Mo.-based commercial and residential roofing products manufacturer.

Jerry Hannah, specialty roofing products manager for TAMKO's central district, said demand for "cool" roof materials like the company's metal shingle line has increased in



recent years — a trend he attributes to both improved aesthetics and customers' desire to achieve energy efficiency gains.

"Over the last five years, in general, consumers are becoming much more environmentally aware," Hannah said. "I don't think they're driven just by the Energy Star tax credits. I think it's more about being energy-efficient."

[Energy Star](#), a joint program run by the U.S. Environmental Protection Agency and the Department of Energy, designates energy-efficient products including some reflective roofing materials. Tax credits are valued at up to 30 percent of the cost of the job, up to \$1,500.

Roof coatings are not covered by the credit, something Miller hopes will change in coming years.

She also hopes the city of St. Louis will begin promoting white roofs much like Philadelphia is doing with a new contest. There, residents are vying to be named the "Coolest Block" in the city. The block with largest number of homeowners willing to have a white coating applied to their roofs will get that service for free, plus insulation and an energy audit.

"It just makes so much sense," Miller said. "With just a little bit of education, I really think we could make a difference here."