

Cool roofs: Basking in reflected glory

The U.S. Energy Department wants you to save green by painting your roof white -- as long as it doesn't make your neighbors see red.

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Photo: Pacific Northwest National Laboratory

Go ahead. Lighten up.

The U.S. Department of Energy is encouraging the use of reflective paint and "cool roofs" to increase the energy efficiency of homes and commercial buildings. The move could reduce electric bills by 10 to 20 percent, because structures use less air conditioning when they absorb fewer of the sun's rays.

White or light-colored roofs can also cut down on what's known as the "heat island" effect that can make urban areas so dreadfully uncomfortable in the summertime. And lots of cool roofs decrease peak demand for electricity on summer afternoons, easing the strain on power plants and reducing the chances of brownouts and blackouts.

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The EPA says those "islands" in cities with more than a million people can be 2 to 6 degrees warmer than surrounding areas. In the evenings, that can sometimes jump to as much as 22 degrees!

That steamy scenario adds to energy use, increases pollution and greenhouse gas emissions, and can contribute to heat-related illnesses.

Paint companies are coming up with a variety of products to help alleviate the heat.

Hyperseal products both lighten roofs and do a double dose of recycling. The primer is made from recycled rubber; the topcoat contains tiny balls of recycled glass.

"It's a great way to get rid of rubber, and it improves the quality of the paint," says Hyperseal's R.C. Autry. "It's like making paint with inner tube toughness."

Autry says he hopes the California-based company can work with the state on some large projects. It's already working with Walmart, testing a paving product that Autry says is cooler than asphalt and concrete.

The brains behind many of Hyperseal's coatings is retired Air Force Col. Ronald Savin. As a military scientist, he worked on coatings for aircraft and spacecraft. Now in his 80s, he's still whipping up prototypes with a kitchen blender.

Valspar Corp. has a solar-reflective paint for aluminum roofs, awnings and windows, and the residential market for these products is growing.

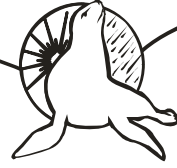
Contractors have used cool roofing products for more than 20 years. Cool roofs are installed on about 25 percent of commercial rooftops, according to the EPA, but just 10 percent of residences.

"We've had things out there since 1999 or 2000," says Valspar's Mary Ann Johnson. "But it's just now that tax credits are getting into residential markets. As energy bills go up and up, it's a good option. It decreases energy use, that also has the effect of lessening the peak energy load, reducing smog and pollution."

But before you head to the DIY store for a ginormous bucket of white paint, a few things to consider from Nadav Malin, vice president of Building Green LLC and chair of the Materials and Resources Technical Advisory Group for the U.S. Green Building Council's LEED Rating System:

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"Really reflective material on a pitched roof is hard to look at," Malin says. "The glare is horrible, and the neighbors are going to scream."

Light roofs are more popular in commercial buildings because offices, factories and warehouses usually have flat roofs. Bright, almost mirror-like finishes on pitched roofs in a residential area can temporarily blind drivers and permanently annoy neighborhood associations.

But when bright white is not right, there are other options.

"Because of that concern about glare, and about how a roof looks, manufacturers have invented some interesting products," Malin adds. "There are coatings and roofing materials that are reflective in the infrared spectrum, meaning they reflect heat but don't look reflective to the eye."

So a cool roof can be many different colors, if it's made from the proper materials.

The Department of Energy is now processing requests for \$37 million in stimulus funding for small businesses, to develop quick-turnaround, clean-energy technologies. Improving cool roofing is on the agency's top 10 list of ways to do that.