

## Cool Roofs Could Save Money, Save Planet

*ABC 7, KGO-TV San Francisco, CA  
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BERKELEY, CA (KGO) -- Scientists have known for some time that cities absorb more heat from the sun than rural areas. They also wonder how do to reduce that. California is taking the lead in the drive to discover ways to cool cities.

Scientists use infrared images to show just how hot cities can be, looking at areas where the least and most heat is being absorbed. The hot spots on the images are generally the darkest colored parts of a city, mainly the pavement that makes up streets and the roofs of buildings.

"The question was if we had made all these surfaces dark, is there a way to make them lighter color? And, if we make them lighter color, whether it would influence the energy and air quality of an area," explained Hashem Akbari.

Akbari is a senior scientist at the Lawrence Berkeley National Laboratory. He and his colleagues have been researching ways to cool cities and reduce the effects of climate change.

Dark colors absorb more heat, raising the temperature in cities. The lab found that subtle changes in color and reflectivity could bounce heat back towards outer space. The result would be cooler cities and a significant reduction in greenhouse gases.

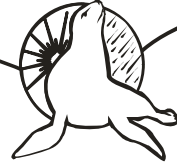
"If you cool the cities by just a few degrees you'd also be able to reduce the production of the smog in the urban area," said Akbari

In smog-plagued areas like Los Angeles the environmental impact could be huge.

"If you manage to cool down the Los Angeles Basin on a hot day by five degrees, they would get enough smog reduction that it is comparable to making 70 percent of the cars electric," Akbari explained.

California will institute the nation's first cool roof requirement this summer. Many industrial buildings are already required to use "cool roofing" material.

"Cool roofs are just a compromise," said Dr. Arthur H. Rosenfeld.



Dr. Rosenfeld is on the California Energy Commission and a leading energy conservationist. He is pushing the state to take cool roofs to the next level and he is looking back thousands of years for a way to do it.

"The Greeks or anywhere around the Mediterranean got it right thousands of years ago and realized that you're community was cooler, and the building was cooler, if you had a white roof," he said.

Research shows the benefits could be dramatic.

"For each 100 square feet of roof area that you can turn from a dark color to a white color, you offset one ton of CO2 carbon emissions," Akbari said.

That means the average 2,000 square-foot home would offset 20 tons of carbon emissions. Dr. Rosenfeld is pushing developing countries to raise the priority of their building codes to include white roofs. Closer to home he envisions a 20-year plan to incorporate white roofs.

He says, "If California leads the world then hopefully the rest of the world will follow."

Research shows that if everybody around the globe increased the reflectivity of their roof 44 gigatons of global warming could be saved.

"Forty-four gigatons of CO2 offsets is about one and a half years of the entire world's emissions" Akbari explained.

And, that is a savings that does not have to stop at your roof. Akbari told ABC7 everything that absorbs light, from paint and stucco on your home to the clothes we wear and the cars we drive, can all be made cooler with more reflective materials, turning down the temperature on global warming.

Cool roofing materials may also save people a little money in the long run while they help save the planet. Because they absorb less heat, they will last longer.

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