



## ***White Roofs Can Cool Homes, Businesses and the Planet***

Reprinted from Environment News Service

**SACRAMENTO, California**, September 23, 2008 (ENS) - California scientists have devised a formula to calculate how much of the greenhouse gas carbon dioxide can be offset by increasing the reflectivity of urban surfaces like rooftops. They say that by making roofs reflective, homeowners will save money on cooling and white roofs installed on a global scale could cool the planet.

"White roofs can cut a building's energy use by 20 percent and save consumers money," says California Energy Commissioner Art Rosenfeld. "The potential energy savings in the U.S. is in excess of \$1 billion annually. Additionally, by conserving electricity we are emitting less CO<sub>2</sub> from power plants," Rosenfeld added.

Together with Rosenfeld, Lawrence Berkeley National Laboratory scientists Hashem Akbari and Surabi Menon have quantified the effects of white roofs in populated settings in terms of how much carbon dioxide they offset.

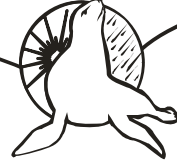
Replacing nonreflective, dark roofing materials with white ones on an average house with 1,000 square feet of roof would result in an equivalent CO<sub>2</sub> offset of 10 metric tons annually, the scientists estimate.

With an offset value of \$25 per metric ton, that could be worth \$250, according to European CO<sub>2</sub> markets.

Their study is to be published in the scientific journal "Climatic Change."

# Energy Seal Coatings

Acrylic Coatings for Roof and Wall Applications



Scientists have known for centuries that putting white roofs on homes and buildings is a simple and effective way to reflect the Sun's rays. Similarly, cool-colored pavements aid in the reduction of "urban heat islands."

When rooftops and pavements are more reflective, global warming can be reduced.

Since 2005, commercial buildings with flat roofs in California have been required to have white roofs.

Residential sloped roofs are also becoming more efficient. Beginning in 2009, new residential roofs and retrofit constructions in California will be required to have "cool-colored" roofs which reflect a higher fraction of the sun's rays than current roofing materials of the same color.

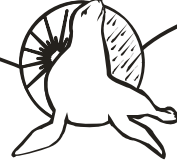


***This new California home will keep its occupants cooler with a white roof.*** (Photo credit [LBL](#))

Cool roofs reduce the roof surface temperature by up to 100 degrees Fahrenheit, according to the California Energy Commission, reducing the heat transferred into the building below. This helps to reduce energy costs by keeping attics and ducts cooler, improve occupant comfort, cut maintenance costs, and increase the life cycle of the roof.

There is so much recent interest in white roofs, that the Roof Coatings Manufacturers Association has established a White Coatings Council composed of 23 companies, including some of the largest such as Johns-Manville and Firestone.

"The technological advances and energy savings of today's reflective roof coatings present RCMA with an exceptional opportunity to increase the use of white coatings in the rapidly escalating market for energy-efficient roofing," said Anthony Ruffine, director of specialty products with GAF Materials Corporation, a member of the council.



**Chicago's Shedd Aquarium installed a white roof made of soy oil polymer in 2004.**  
*(Photo credit unknown)*

Naturally, the council's purpose is to sell roof coatings. "The White Coatings Council focuses on describing and promoting the benefits of white roof coatings," Ruffine said, "in terms that directly impact and positively motivate targeted end-users through a promotion plan to increase awareness and product promotion."

White roofs can not only improve the bottom line, they can fight global warming.

Because white roofs act as a geo-engineering technique to cool the Earth on a global scale, Akbari, Menon, and Rosenfeld propose an international campaign to organize 100 of the world's largest cities in tropical and temperate zones to develop programs to require white roofs and cool pavements when roofs are first constructed and pavements installed.

The projected estimate for worldwide CO<sub>2</sub> emissions in 2025 is 37 billion metric tons.

The proposed global CO<sub>2</sub> offset would be 44 billion metric tons, valued at \$1,100 billion, and enough to offset more than one year of the total global CO<sub>2</sub> emissions.

"This idea of a cool cities campaign could lead to significant energy savings, improved air quality, reduce the heat island effect in summer, and more importantly, cool the globe," says Akbari.

"This simple and effective idea can organize the world into taking measured steps to mitigate global warming," he said. "Our findings will help city leaders and urban planners quantify the amount of CO<sub>2</sub> they can offset using white roofs and cool pavements."

Copyright Environment News Service (ENS) 2008. All rights reserved.