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To slow global warming, install white roofs

Such roofs and reflective pavement in the world's 100 largest cities would have a massive cooling effect, according to data released at California's annual Climate Change Research Conference.

By Margot Roosevelt, Los Angeles Times Staff Writer
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Builders have known for decades that white roofs reflect the sun's rays and lower the cost of air conditioning. But now scientists say they have quantified a new benefit: slowing global warming.

If the 100 biggest cities in the world installed white roofs and changed their pavement to more reflective materials -- say, concrete instead of asphalt-based material -- the global cooling effect would be massive, according to data released Tuesday at California's annual Climate Change Research Conference in Sacramento.

Since 2005, the Golden State has required that flat commercial structures have white roofs. Next year, new and retrofitted residential and commercial buildings, with both flat and sloped roofs, will have to install heat-reflecting roofing, as part of an energy-efficient building code.

But the state has yet to pass any rules to encourage cooler pavement on its roads, which are largely coated with heat-absorbing asphalt, a cheap byproduct of oil refining.

According to Hashem Akbari, a physicist with the Lawrence Berkeley National Laboratory, a 1,000-square-foot roof -- the average size on an American home -- offsets 10 metric tons of planet-heating carbon dioxide emissions in the atmosphere if dark-colored shingles or coatings are replaced with white material.

Globally, roofs account for 25% of the surface of most cities, and pavement accounts for about 35%. If all were switched to reflective material in 100 major urban areas, it would offset 44 metric gigatons of greenhouse gases, which have been trapping heat in the atmosphere and altering the climate on a potentially dangerous scale.

That is more than all the countries on Earth emit in a single year. And, with global climate negotiators focused on limiting a rapid increase in emissions, installing cool roofs and pavements would offset more than 10 years of emissions growth, even without slashing industrial pollution.

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