

White roofs could cool cities: study

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Reuters

Painting all the world's city rooftops white could significantly cool urban areas and perhaps ease the impact of global warming, according to a new study.

Considered a fanciful notion by some critics, research by scientists at the [US National Center for Climate Research \(http://www.ncar.ucar.edu/research/climate/ \)](#) indicates it has possibilities.

"Our research demonstrates that white roofs, at least in theory, can be an effective method for reducing urban heat," says Dr Keith Oleson, the study's lead author. "It remains to be seen if it's actually feasible for cities to paint their roofs white, but the idea certainly warrants further investigation."

Climate change hits cities harder than rural areas because many urban surfaces, including dark-colour asphalt roads and tar-covered roofs, absorb heat from the Sun. This creates so-called 'heat islands' where temperatures can be between 1°C and 3°C higher than in the countryside.

White roofs and lighter-colour roads would reflect this heat instead of absorbing it.

Researchers used a computer model to simulate how much solar radiation urban surfaces absorb, and figured that if all the roofs in cities around the globe were painted entirely white, the heat island effect could be cut by 33%.

That would cool the world's cities by an average of about 0.4°C, with the cooling effect most pronounced on summer days. And the white roofs would also keep the interiors of the buildings cooler.

In the real world, it would be difficult for any roof to be painted completely white, because of heating and cooling vents and other openings.

There wasn't enough detail in the model to figure how much white roofs would cool individual cities, but there was enough to show temperature change in big metropolitan areas.

For example, the New York area, white roofs would cool summer afternoons by almost 1°C.

The study has been accepted for publication in the journal [Geophysical Research Letters \(http://www.agu.org/journals/gl/ \)](#).



Painting the town white: Lighter coloured roofs could drop the average temperature by up to 3°C (iStockphoto)

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