Try reducing urban heat island effect

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Warmer than the suburbs and even hotter at night, the urban heat island sounds like a techno club on the Lower East Side of Manhattan or a destination for spring break, but it's actually a contributor to climate change. The culprit is the increase of temperature due to overpopulation, resulting in increased energy use, which produces more pollutants. There are, however, ways of dealing with the urban heat island effect by redirecting the effects of the sun.

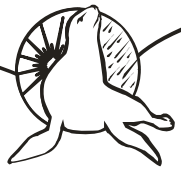
The sun is the most popular resource when it comes to environmental design. Energy-efficient homes are designed to use the sun every way it can. This usually means absorbing its energy, but sometimes, it includes reflecting it. This would be the case of the white roofs.

White roofs have been getting some press from our energy secretary, Steven Chu. He brings up the topic of white roofs when talking about simple solutions. So if this is a solution, how much does it save? Well, changing your roof color to white can reduce your cooling costs by as much as 20 percent. That would have been helpful this summer, for sure. Reducing your cooling costs by not having to use the air conditioner so much is of great benefit to the environment by not putting out additional harmful emissions. Chu also talked about the benefit of painting the pavement white, as well.

White roofs and pavement are about simple solutions to the urban heat islands, or UHIs, the idea being that paved roads, parking lots and rooftops in urban areas comprise wide surfaces. If these surfaces are dark, it allows for heat to get trapped, and then further trapped in the atmosphere by greenhouse gases, causing the UHI. The use of the color white reflects the sun's energy as light, releasing less of the heat into the atmosphere.

Can you picture it, all of America in white roofs and pavement? And we would ride our bikes everywhere and wave and smile at each other. Just like Greece and Spain, right? Well, comparatively, it would be the shortest bike ride ever. Here in New England, there is only about two months' worth of hot weather where air conditioning usage is a factor.

In fact, the white rooftop theory seems to be only beneficial to areas below New York State. Statistics from the Cool Roof Rating Council mentioned for Boston had about nine times as many heating degree days versus cooling degree days. This means that the measurements for heating energy consumption far outnumbered the measurements of



energy for cooling. This statistic is interesting, because even with a dark roof, which has an absorption rate of 90 percent of the sun's heat energy (with a shingled, tar or asphalt roof), it would still takes a large amount of energy to heat a house in the Northeast during winter, according to www. chesapeakeclimate.org. So, the only tops you might want to paint white include a deck, a shed rooftop, the rooftop to a deck, the summer cottage rooftop, the boathouse rooftop – you get the idea.

The contribution the Northeast can make to reducing the UHI effect may not include painting rooftops white, however, we can still contribute with our roads, parking lots and the use of concrete for its pale color, and, of course, in some places, green rooftops.

The use of a more porous concrete for parking lots helps slow down the absorption of heat, and the light color will help with reflecting. If possible, parking lots are better off covered or underground.

Green rooftops are a popular solution for the urban heat island effect. Mount Washington Resort has a rooftop landscape. This contribution is an inspiration to what can be done on a rooftop here in New Hampshire. Green rooftops absorb as much as 75 percent of rainwater, which helps to reduce the load on city sewers.

The garden on the roof is ideal for flat rooftops that are easily accessible. Moss and even garden vegetables grown in containers make up the rooftop garden.

Green rooftops are tremendous insulators. There are reported savings in both summer air-conditioning and winter heating of up to 30 percent in buildings that have a rooftop garden.

Before starting your own green rooftop, be sure to speak with professionals to find out what is safe as far as weight issues and placement of planters. If you are interested in designing your own green rooftop, check out www.greengrid roofs.com. The Web site offers modular units for planting and great for residential areas, as well as commercial. Its list of customers includes a home on Squam Lake.

In Chu's report, white roofs and pavement have been compared to taking 1 billion cars off the road for 11 years. That's a profound effect. Taking steps to adjust the UHI effect has great benefit for your personal health and your wallet – maybe enough to visit a less urban, more tropical island this winter.