

"It's not Global Warming, but It's a Fact!"

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There seems to have been a never ending stream of newspaper articles, radio and television segments and complete episodes documenting the global warming crisis. These have been complete with "facts", "scientific findings" and "expert" opinions. However there also appears to be a more quiet but significant population of counter arguments and supporters.

Let's leave that aside and consider one environmental problem that we can agree on, and which can easily be proved. It's called the Urban Heat Island (UHI) effect. Simply stated, this is the fact that it is warmer in the summer in large metropolitan areas than in the suburbs or in the countryside. The causes are quite simple. Urban areas have very high concentrations of dark surfaces. The lack of shade trees and the use of black asphalt paving and dark colored flat roofs absorb the heat portion of the solar spectrum during the day time and very slowly release it after the sun sets. Studies conducted by NASA using aerial infra red imaging technology on major urban areas such as Atlanta and Sacramento has confirmed this phenomenon and it is growing (read: getting hotter!). From an experimental and personal experiential perspective, this is why it is often 5°F cooler in a nearby park than in the center of a city at 8 PM on a July evening.

These dark colored materials transfer the heat to their surroundings such as buildings. Although the building may be somewhat insulated, it is not uncommon for black roof surfaces to reach 180°F by late afternoon in the summer. The building's air conditioning system must compete with this "heat blanket" in order to maintain a comfortable interior air temperature for the occupants.

Lawrence Berkeley National Laboratory (LBNL) data indicates that cooling costs can be lowered by as much as 40%, if the solar reflectance is increased and the Urban Heat Island is converted into an "Urban Cool Oasis". Studies have confirmed that the surface temperature of a white roof is typically 20-60°F cooler than a black roof.

The Energy Coordinating Agency of Philadelphia Agency, a non-profit organization that specializes in energy conservation, education programs and policy work has shown ambient air temperature reductions in a city block in the summer where the roofs of the town homes on that block were coated with white reflective coatings, compared to a "control" block where the roofs were dark colored. "This is critically important for a number of reasons," says Liz Robinson, executive director. "Our summers have gotten warmer and warmer, and that poses a health risk to the elderly, in particular. By using this roof coating technology, we reduce the indoor air temperature as well as the urban heat island effect, reducing energy costs and slowing the pace of global warming by increasing the reflectivity of the earth's surface. It is a very simple concept, but a really powerful and fantastic technology."

The California Building Code contains a section called Title 24 that requires roofs to be highly reflective, either through the use of coatings or installing a white membrane. Major metropolitan areas such as Philadelphia PA are amending their building codes to require highly reflective roof surfaces. Reducing the urban heat island effect by installing "cool", reflective elastomeric coatings are sustainable technologies that are simple, cost-effective ways for improving environmental comfort.

We have all heard about "An Inconvenient Truth", the Al Gore documentary. The recommendations are extreme and the guarantee of results are clouded by politics of environmentalism. However, the simple low cost implementation of light colored roofs and paving will be part of a very "Convenient Solution" that will benefit the building owner and the environment in many ways.

"Saving the Planet... One Roof at a Time!"