White Roof (Cool Roof) Project

Source: Energy Smart
Posted: Permalink

Many benefits are associated with "cool roofs" and the most publicized of these pertain to private benefits accrued by the property owner.

Other research suggests that increased albedo (reflectivity) will directly affect the mechanisms of global warming, and in the words of one researcher, *"cooling the planet by reducing urban albedo through white and other cool roofs is a direct effect, much larger and immediate than the 2nd-order cooling from reduced CO2 from reduced"* air conditioning use. If widely deployed, white roofs and *"cool roofs and cooler pavements can raise urban albedo by 10%. This directly drops the global average temperature by ˜0.05 /deg C. Though small compared to a likely 3 /deg C rise by 2060, an immediate drop of 0.05 /deg C represents a reprieve in global warming of 1 year, and represents avoiding a year's current annual world emissions"* of carbon dioxide.

The U.S. Environmental Protection Agency describes these benefits of cool roofs:

Over 90% of the roofs in the United States are dark-colored. These low-reflectance surfaces reach temperatures of 150 to 190°F (66 to 88°C) and contribute to:

- Increased cooling energy use and higher utility bills;
- Higher peak electricity demand, raised electricity production costs, and a potentially overburdened power grid;
- Reduced indoor comfort;
- Increased air pollution due to the intensification of the "heat island effect"; and
- Accelerated deterioration of roofing materials, increased roof maintenance costs, and high levels of roofing waste sent to landfills.

In contrast, cool roof systems with high reflectance and emittance stay up to 70°F (39°C) cooler than traditional materials during peak summer weather. Benefits of cool roofs include reduced building heat-gain and saving on summertime air conditioning, expenditures. By minimizing energy use, cool roofs do more than save money – they reduce the demand for electric power and resulting air pollution and greenhouse gas emissions.

In addition, cool roofs reflect more of the arriving sunlight and can reduce the overall albedo of Earth and this potentially offsets the mechanisms of global warming as explained by this paper issued through the Lawrence Berkeley National Laboratory.