

RAISING THE WHITE ROOF

Energy Secretary Stephen Chu has urged Americans to retrofit their roofs to decrease energy costs and combat global warming.

A COST-EFFECTIVE SOLUTION?

We all know black materials absorb heat, while white materials reflect it. Scientists say roofs are no exception to the rule, and switching to "cool roof" technology can significantly decrease a home's energy use.

KEEPING COOL

Rooftop temperatures are measured by ability to release heat and solar reflectance — the percentage of sunlight that bounces off the roof.

Lower surface temperatures mean less heat gain inside the house, reducing the need for an air conditioner.

A Florida study shows insulating your roof, rather than the attic floor, could also reduce energy costs by 6 percent to 11 percent.

1 Solar energy is absorbed into the roofs.

2 Roofing material reflects the solar energy.

3 The heat raises the attic's temperature throughout the day.

4 Insulation helps trap some of the heat, but most infiltrates the house.

5 The hotter the house is, the harder an air conditioner works to cool the house.

The easiest retrofit could be having a special paint sprayed on the existing rooftop.

TEMPERATURE RISE: 9-28 degrees

SOLAR REFLECTANCE: 65%-85%

HEAT EMITTANCE: 90% efficient



FPL PHOTO

The average life span is 3 years, but with maintenance, the roof can last longer.

Roof coatings are made of thick, acrylic and white pigment.

A self-cleaning white shingle with a solar reflectance of 62% may be available locally.

Periodic washings are required, since dirt and growth accumulate easily.

Homeowners may have to re-coat their roofs periodically.

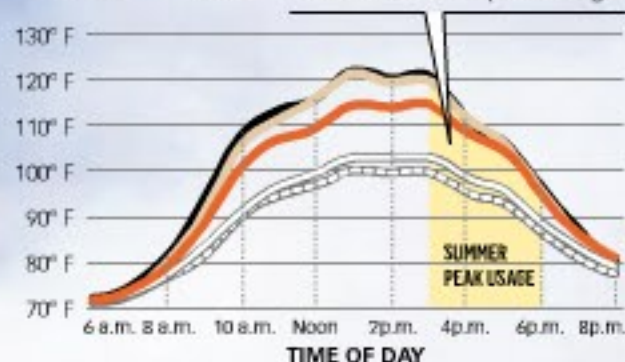
NOTE: Best for homes with sloping roofs.

AVERAGE ROOF SURFACE TEMPERATURES

Based on a study in Fort Myers

Standard dark shingle
Terra cotta barrel tile
Light-colored shingle
Standard white tile
White metal

Study shows white roofs overall can reduce energy consumption by 18%-26%, and 28%-35% in peak usage.



HOW DOES YOUR ROOF COMPARE?

South Florida homeowners know the value in having metal or tile roofs to help keep the house cool. But studies show cool roofs beat all types in solar reflectivity and temperature gain.



ASPHALT SHINGLES:

Typically, black, brown or gray shingles (although white is available).

TEMPERATURE RISE OF ROOF SURFACE: 55-83 degrees

SOLAR REFLECTANCE: 3%-31% reflection

EFFECTIVE AT RELEASING HEAT: 90% efficient

Standard white asphalt shingles can save between 3% to 5% in energy consumption, according to a Florida study.



COOL-COLOR ROOFS:

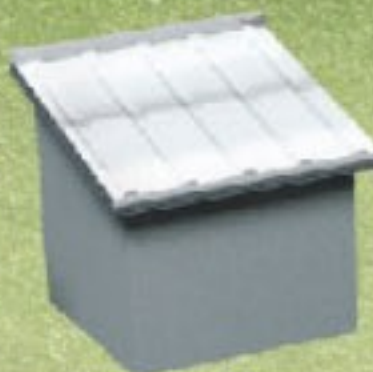
If white is too bright, there are a variety of colors to choose from that have high solar reflectance.

TEMPERATURE RISE OF ROOF SURFACE: 15-76 degrees (depending on color)

SOLAR REFLECTANCE: 12%-79% (depending on color)

EFFECTIVE AT RELEASING HEAT: 90%

Some available colors:



ALUMINUM ROOFS:

Materials can vary, from fiber-covered sheets to raw metal.

TEMPERATURE RISE OF ROOF SURFACE: 48-68 degrees

SOLAR REFLECTANCE: 30% to 61%, depending on type of metal roofing

EFFECTIVE AT RELEASING HEAT: 0.4% to 85% (depending on type)



Tile roofs can save 3% to 9% in energy consumption.

TILE ROOFS:

Includes clay, ceramic and concrete tiles.

TEMPERATURE RISE OF ROOF SURFACE: 20-71 degrees

SOLAR REFLECTANCE: 18%-74%, depending on color

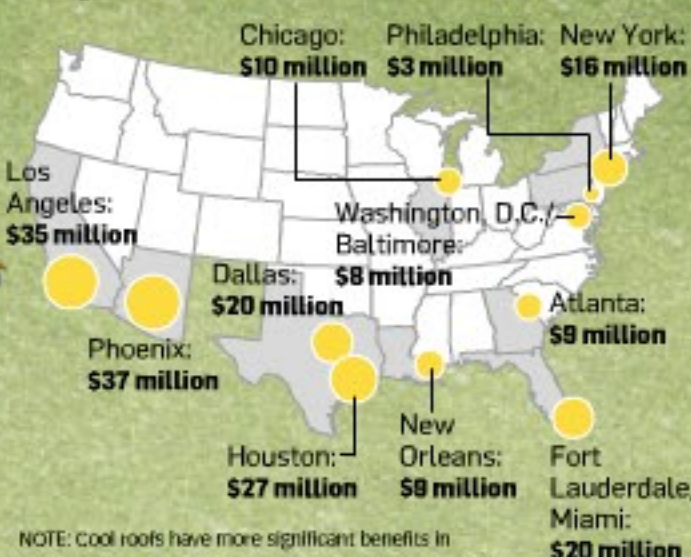
EFFECTIVE AT RELEASING HEAT: 90%

Cool colors are also available for terra cotta tiles, having a solar reflectance of 41-48 percent.



PROJECTED ENERGY SAVINGS

Scientists said there is a potential annual energy savings of more than \$190 million for these 11 cities.



NOTE: Cool roofs have more significant benefits in warmer climates. Some scientists say northern states can still use cool roofs because summer energy savings will offset the higher winter energy use.

READY TO SWITCH?

There are several federal and local programs that can help you factor the cost of retrofitting your roof.

The U.S. Department of Energy and the Environmental Protection Agency have roof calculators to help determine your energy savings. Go to www.ornl.gov or www.roofcalc.com.

Florida Power & Light Co. offers incentives to businesses that upgrade their roofs. For more, go to www.fpl.com/business/savings/building_envelope.shtml