



Cool Roofs

Cool roofs offer homeowners an excellent way to stay more comfortable and cooler all summer long while cutting down on energy usage and cost.

A COOL ROOF CAN LOWER YOUR ENERGY COSTS EVEN WHEN THE SUN BLAZES

The term "cool roof" refers to a roof surface that reflects a high percentage of the sun's heat rather than absorbing it. Cool roofs help keep the roof up to 70° F cooler than conventional roofs in the summer sun. Lower roof temperature means less heat is transferred through the roofing material into the attic or living space. Consequently, your home uses less air conditioning and electricity during hot summer months. A cool roof may be a replacement roof or just a coating added to your existing roof. Cool roofs offer homeowners an excellent way to stay more comfortable and cooler all summer long while cutting down on energy usage and cost.

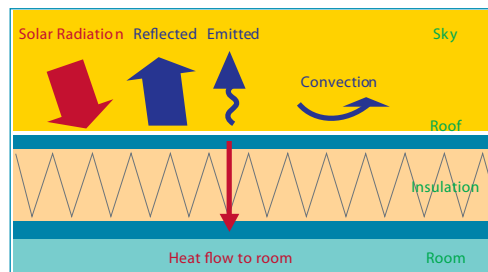


Figure1: Heat Transfer through a roof

Conventional dark colored roofs absorb much of the radiant heat from the sun. Manufacturers have now developed dark-colored pigments for cool roof materials. Options exist for most product types and materials, including metal, tile, roofing membranes, reflective coatings and shingles.

WHAT KINDS OF COOL ROOF PRODUCTS ARE AVAILABLE?

Cool roof products are typically sold either for low-sloped roofs (found on most commercial and industrial buildings) or for steep-sloped roofs (found on most single-family homes).

- Single-ply, cool roofing materials include coatings and membranes that come in pre-fabricated sheets and are applied in a single layer to a low-sloped roof.
- Reflective tiles for steep-sloped roofs come in colors like brown, terra cotta, and green, so they provide the same aesthetics as traditional concrete and clay roofing materials.
- Metal roofs with ENERGY STAR® labels are now available for residential use. They are specially treated to increase solar reflectance as compared to traditional metal roofs.

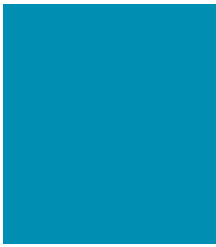
HOW DOES THE COST OF COOL ROOFS COMPARE WITH TRADITIONAL ROOFS?

Installation costs are typically within a similar range for either type of roof on the same building. The energy savings the cool roof may provide over its life cycle may make the cool roof far less expensive over time. If you are building a new home or your home is due for re-roofing, consult a licensed roofing contractor for specific costs of installing a traditional or cool roof.

Benefits of Residential Cool Roofs:

- Save up to 10% on electricity bills during the summer months by reducing air conditioning use
- Save peak electricity demand costs if you have time-of-use metering
- Increase indoor comfort in the summer by reflecting heat from the roof surface thus keeping indoor temperatures cool
- Reduce the heat island effect in cities and suburbs
- Reduce air pollution and smog formation
- Possibly reduce roof maintenance and replacement costs by extending roof life (depending on roof type)





The energy savings the cool roof can provide over its life cycle may make the cool roof far less expensive over time.

R=0.41	R=0.44	R=0.44	R=0.48	R=0.46	R=0.41
<i>black</i>	<i>blue</i>	<i>gray</i>	<i>terracotta</i>	<i>green</i>	<i>chocolate</i>
R=0.04	R=0.18	R=0.21	R=0.33	R=0.17	R=0.12

Figure 2: Shows some color options for roofs with respective solar reflectance ratings. (R = solar reflectance)



KEY TERMS TO KNOW

Low Slope	A low slope roof is a roof surface with a maximum slope of 2 inches "rise" (increase in height) for every 12 inches of "run" (increase in length horizontally). Generally, flat roofs have a small degree of pitch to them so that water will run off to a drain system and not pond.
Steep Slope	Steep-slope roofs are surfaces with a slope greater than 2 inches "rise" for every 12 inches of "run."
Solar Reflectance	A measure of how well a material reflects solar radiation. It is expressed as a ratio between 0 and 1. Higher ratios representing higher reflectance levels.
Thermal Emittance	A measure of a material's ability to absorb heat. Also expressed as a ratio between 0 and 1, or sometimes as 0% and 100%. Higher ratios representing a material's greater ability to shed heat.
Solar Reflectance Index	The Solar Reflectance Index (SRI) is a measure of the roof's ability to reject solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. Materials with the highest SRI values are the coolest choices for roofing.
Heat Island Effect	This phenomenon describes urban and suburban temperatures that are 2° F to 10° F warmer than nearby rural areas. Elevated temperatures can impact communities by increasing peak energy demand, air conditioning costs, air pollution levels and heat-related illness.

HOW DO I GET STARTED?

Cool roofs are usually not available at local retail outlets. Homeowners who want to install cool roofs should contact a roofing contractor or a manufacturer to help identify qualifying materials with a Cool Roof Rating Council (CRRC) rating label or visit their web site at www.coolroofs.org.

FOR MORE INFORMATION:

For Energy Efficiency Rebates for Your Home and the Cool Roof Rebate, call **PG&E's Smarter Energy Line** at **1-800-933-9555**, or visit www.pge.com/res/rebates.

Builders of new single-family homes may apply for incentives through the Residential New Construction program as long as the cool roof is not used to meet Title 24 compliance. Get more information by calling the **Residential New Construction Hotline**, **1-800-342-7737** or visiting www.pge.com/mybusiness/energysavingsrebates/incentivesbyindustry/newconstruction/.

