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## **COOL Roofing Material**

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### **Cool Roofs**

*By: Patrick Breen*

The objective of having a Cool Roof is not one of aesthetics to out shine your neighbor, or to be a part of the in crowd; rather it is a term used to describe roofing material designed for longevity and energy efficiency. We have been lucky this year regarding hailstorms, but if by chance that luck should change, or you just need to replace your roofing before winter, you might consider using cool roofing materials.

A cool roof is also known as a reflective roof designed to mitigate the thermal transfer of heat into the building. Besides reflecting radiation cool roofs do not experience thermal cycling as much as other conventional roofs. This cycling between extreme heat and cooling is a major cause for premature failure for many types of roofing materials.

The two characteristics of a cool roof are solar reflectivity and thermal emittance. You probably know what reflectivity means, but thermal emittance refers to the measurable radiation of heat. For example a piece of asphalt paper has a very high emissivity coefficient while a piece of aluminum foil is very low. Put two pieces side by side in the sun for a few minutes and then put your hands on them. You'll quickly see what emittance feels like.

To have some scale for measuring, or rating, a cool roof the EPA has established minimum standards. In order to qualify the material must at least have a reflectance of 0.65 out of a scale between 0 and 1. In comparison the conventional asphalt roof has a reflectivity between 0.06 and 0.26.

There are basically three types of materials to choose from to accomplish a cool roof: coatings, single-ply materials and specially treated asphalt shingles. Coatings are applied directly to the roof surface using rollers, brushes or a sprayer and can be used on most surfaces if the correct coating is selected. Factory applied coatings are most notably used on metal and tiles. In this market metal roofing and tiles are primarily used because of our urban wild land interface and preference for fire protection.

Single-ply materials are very popular for flat or low pitch roofs and the most common is referred to as a rubber membrane roofing material. There are several types of single-ply thermoplastics, but if you choose a PVC (polyvinyl chloride) over a TPO (thermoplastic polyolefin) then you will have a product that is also fire-retardant. Some asphalt shingles are rated as cool roofing. This is achieved not by just choosing a light color, but by having special pigments that reflect high amounts of infrared radiation.

Cost for cool roofing material is often comparable to other similar products, however even when the cost is higher the savings you will achieve in energy to cool your home will quickly make up the difference. If you have a well-insulated attic the cool roof during the winter months will not be a major factor in your heating bill. If you would like more detailed information visit Cool Roofing Rating Council at [www.coolroofs.org](http://www.coolroofs.org).