

What is a Residential Cool Roof?

The term ***cool roof*** is used to describe roofing material that has high solar reflectance. This characteristic can reduce heat transfer to the indoors and enhance roof durability. It is not a specific material or construction method but rather a combination of variables, that can differ from house to house, intended to provide increased energy efficiencies by minimizing heat gain through the roof system. Cool roof construction is required when replacing 50 percent of the roof area.

When replacing the roof on your house, you may already meet the requirements of cool roof construction if you have any one of the following:

- You have an air space of 1 inch between the top of the roof deck to the bottom of the roofing product; or
- You have no air ducts in the attic; or
- Existing ducts in the attic are insulated and *sealed*¹; or
- You have at least R-38 ceiling insulation; or
- You have radiant barrier in the attic*; or
- You install R-4 or greater insulation above the roof deck.

If you do not have any one of the above listed items, you can meet the cool roof requirements by installing roofing materials that provide the minimum criteria as listed below:

- Shall have a minimum *aged solar reflectance*² of 0.20; and
- Shall have a minimum *thermal emittance*³ of 0.75; or
- A minimum SRI of 16
 - Low slope roofs (2:12 or less): Shall have a 3-year aged solar reflectance equal or greater than 0.63 and Shall have a minimum thermal emittance greater or equal to 0.75 or A minimum SRI of 75

This information is typically found on the labeling or packaging of roofing products. The information is also provided by the manufacturer in a specification or installation instruction sheet that comes with the product or, in most cases, can be obtained from the manufacturer's website.

Footnotes:

¹To establish if your attic ducts are properly sealed and insulated and/or if you have properly installed radiant barrier, consult with a licensed Heating, Ventilation, and Cooling Contractor, General Contractor, or Roofing Contractor.

²**Aged Solar Reflectance:** Reflective value after 3-years of service

³Determining the thermal emittance and solar reflectance of building materials, especially roofing materials, can be very useful for reducing heating and cooling energy costs in buildings. Combined index Solar Reflectance Index (SRI) is often used to determine the overall ability to reflect solar heat and release thermal heat. A roofing surface with high solar reflectance and high thermal emittance will reflect solar heat and release absorbed heat readily. High thermal emittance material radiates thermal heat back into the atmosphere more-readily than one with a low thermal emittance.