Energy Star Roof Products – EPA Ratings

Americans spend about $40 billion annually to air condition buildings — one-sixth of all electricity generated in this country. Energy Star Roofing products can help reduce the cost of air conditioned buildings. Energy Star products generally have an incremental product cost and generally increase the cost of heating in cool climates.

ENERGY STAR qualified roof products reflect more of the sun's rays. This can lower roof surface temperature by up to 100F, decreasing the amount of heat transferred into a building.

ENERGY STAR qualified roof products can help reduce the amount of air conditioning needed in buildings, and can reduce peak cooling demand by 10–15 percent.

Solar reflectance is the most important characteristic of a roof product in terms of yielding the highest energy savings during warmer months. The higher the solar reflective value the more efficient the product is in reflecting sunlight and heat away from the building and reducing roof temperature. This is particularly important in areas of the U.S. where peak load is a concern.

Emissivity can also contribute to a cool roof. The *emittance* of a material refers to its ability to release absorbed heat. Scientists use a number between 0 and 1, or 0% and 100%, to express emittance. With the exception of a metallic surface, most roofing materials can have emittance values above 0.85 (85%). One example is a metal wrench left in the sun, which is hot to the touch because it has a low emissivity value. In warm and sunny climates highly emissive roof products can help reduce the cooling load on the building by releasing the remaining heat absorbed from the sun. However, there is also evidence that low emissivity may benefit those buildings located in colder climates by retaining heat and reducing the heating load. Research on the benefits of emissivity is ongoing. Discuss reflectance and emissivity with your roofing contractor to determine what characteristics matter most given your unique climate.

ENERGY STAR qualified roof products must meet minimum initial and aged solar reflectance values. Emissivity is not currently a requirement for ENERGY STAR qualification. However, starting December 31, 2007, EPA will post emissivity values for all products on the ENERGY STAR Qualified Products List to assist consumers in their purchasing decision. Longer term, EPA plans to revisit the possibility of adding an emissivity component to the ENERGY STAR specification.

The ENERGY STAR energy-efficiency criteria do not include a specification for roof insulation. However, in addition to reflectivity, roof insulation (measured by the R-value) plays an important role in building energy consumption for heating and cooling. The colder the climate, the greater the need for a higher R-value to ensure that less heat is lost from the building envelope. To determine the minimum R-value for a given location, refer to the International Energy Conservation Code.

Additional information at: http://www.energystar.gov/index.cfm?c=roof_prods.pr_roof_products