

High-tech tip: Radiant barriers add comfort, efficiency

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The technology used by NASA to protect astronauts from extreme temperatures in space is also available as an effective technique to keep your home more comfortable and energy efficient.

The building materials, known as radiant barriers, are most often installed in the attics of homes to reduce summer heat gain and winter heat loss, helping lower a home's energy use. They can vary in substance and application, from fastening with nails or screws, to painting with a sprayer or even a brush, to simply laying over the attic floor.

The barriers, often made with an aluminized foil veneer on the surface, are excellent at reflecting heat and poor at absorbing it. This ability to both reflect heat away, while not emitting it from its surface, is how radiant barriers help lower utility bills. Maintaining a more moderate temperature in the attic by reflecting the sun's heat away from the house makes it easier to achieve a more consistent temperature within the living area. Duct work also is typically located in a home's attic, and a cooler summer attic yields a more efficient transfer of conditioned air into your home.

Radiant barriers in rolled foil-faced sheets can be installed across the bottoms of rafters or applied to the bottom side of a roof's sheathing, which is the plywood decking nailed to the rafters. They can also be placed directly over the attic insulation. In new construction projects I have used roof sheathing with a pre-applied radiant barrier, and have been very impressed with how much cooler the attic felt in the summer months. Specially designed radiant barrier paints are now on the market and can be directly applied to the bottom side of your roof, which some people may find an easier installation option.

Keep in mind that a house operates as a system with its many different components interacting and contributing to its energy use. A comprehensive strategy is the best approach to most effectively target and temper a home's energy needs, whether you're building a new home or evaluating an existing home's efficiency. A qualified energy rater can evaluate an existing home for energy loss and create and implement an appropriate strategy for improvement, which may include installing a radiant barrier.

Whether applied when your home is built, or retrofitted to your existing home, a radiant barrier will improve your energy efficiency. The result will be lower utility bills, a more comfortable home, less pollution released into the environment, more responsible use of our resources and another small step toward energy independence.