

What is a radiant barrier?

Radiant barriers are materials that are installed in buildings to reduce summer heat gain and winter heat loss, and hence to reduce building heating and cooling energy usage. The potential benefit of attic radiant barriers is primarily in reducing air-conditioning cooling loads in warm or hot climates. Radiant barriers usually consist of

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a thin sheet or coating of a highly reflective material, usually aluminum.

Radiant barriers can be used in residential, commercial, and industrial buildings. However, this fact sheet was developed only for applications of radiant barriers in ventilated attics of residential buildings.



A roof mounted radiant barrier installation in an older home.

How are radiant barriers installed in a residential attic?

Attach the radiant barrier to the bottom surfaces of the attic truss chords or rafter framing. Staple the barrier to the rafters and use two sided aluminum foil tape to tape any gaps.

How do radiant barriers work?

Radiant barriers work by reducing heat transfer by thermal radiation across the air space between the roof deck and the attic floor, where conventional insulation is usually placed. All materials give off, or emit, energy by thermal radiation as a result of their temperature.

What will it cost? It depends if --

- n You do it or hire a contractor*
- n Its new or existing construction*
- n You require any necessary retrofit measurers*

What are the characteristics of a radiant barrier?

All radiant barriers have at least one reflective (or low emissivity) surface, usually a sheet or coating of aluminum. Some radiant barriers have a reflective surface on both sides. Both types work about equally well, but if a one-sided radiant barrier is used, the roof mounted reflective surface must face the open air space (shiny side down). Some products are made with small perforations to allow moisture to pass through the surface.

How does a radiant barrier differ from conventional attic insulation?

A radiant barrier reduces the amount of heat radiated across an air space that is adjacent to the radiant barrier. The primary function of conventional insulation is to trap still air within the insulation, and hence reduce heat transfer by air movement (convection). The insulation fibers or particles also partially block radiation heat transfer through the space occupied by the insulation.