

NATIONAL PROPERTY INSPECTIONS, INC.
TECHNICAL BULLETIN
February 1, 2003

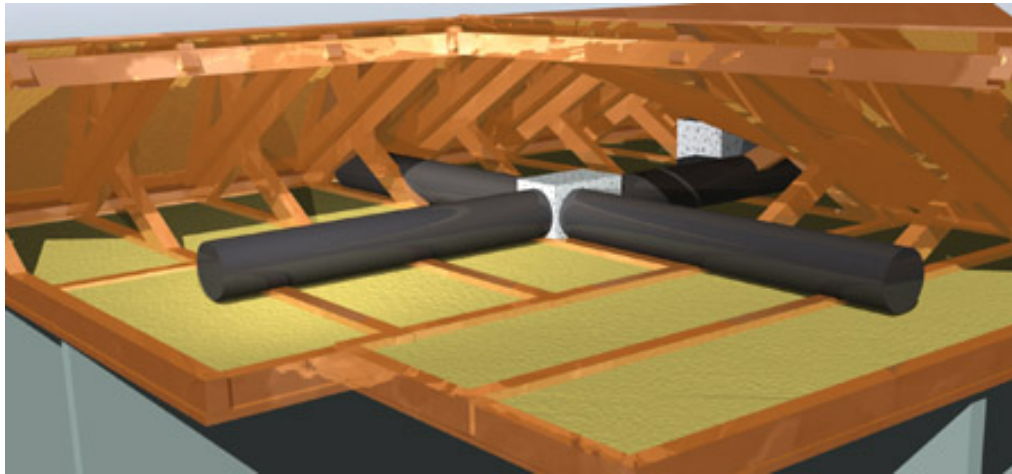


TOPIC: Silver Shield Radiant Barrier

Article, information, drawings and photos courtesy - **FI-Foil Company, Radiant Insulation Solutions**

Application-
Silver Shield Radiant Barrier

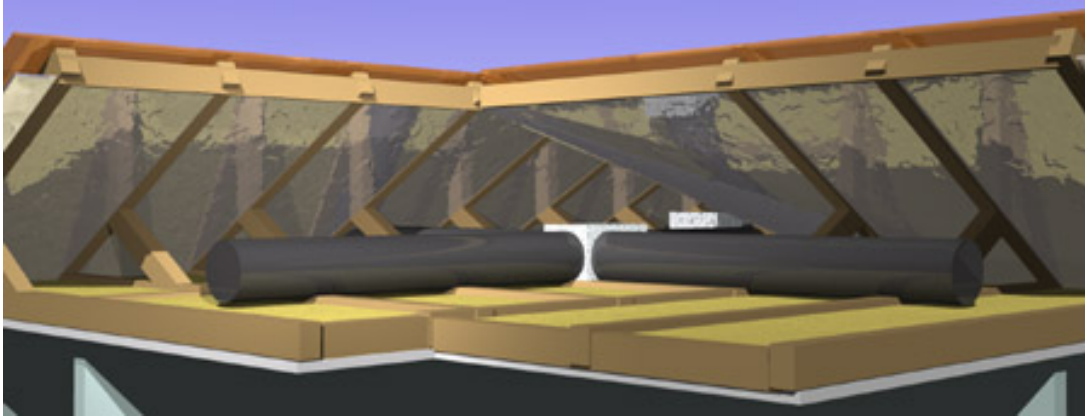
The Problem



An attic offers excellent potential for use of radiant barrier systems: First, because the roof is the surface most exposed to solar radiation, and second, because most of the solar gain absorbed by the roof is transmitted down to the attic floor by radiation. Since the attic airspace separates the hot roof surface from the ceiling, no heat will move down by conduction, and the heat will not convect down from the hot roof to the ceiling because heated air rises. If you place a radiant barrier (layer of foil) in the airspace between the hot roof deck and the cooler attic floor (insulation), you can eliminate most of the heat transfer.

- Solar radiation causes roof temperatures to reach 160 – 190 degrees F.
- Heat is conducted through roofing materials and radiated to the ceiling below.
- Attic temperatures climb to super-heated levels...typically to 140 degrees F in the summer.
- Ceiling insulation R-values are rated at 75 degrees and 50% relative humidity, as temperatures and humidity levels increase, R-values diminish.
- Radiant heat transfers into air conditioning ducts increasing energy costs.
- Attic structure and contents saturate and continue to transfer heat even after the sun has set.
- A/C run time increases and in peak loads cannot maintain internal temperature set points – comfort compromised.
- Air quality is compromised – hot humid air is drawn through leaks in the duct system.

The Solution



- Reduces radiant heat transfer up to 97%. Treats problem at its source – the roof
- A/C savings up to 12%. Significantly reduces attic temperatures up to 30 degrees.
- Increases insulation and air conditioning duct efficiency.
- Lowers temperatures and improves comfort in areas that are not typically air conditioned, such as garages and lanais.
- Qualifies for Florida Energy Code Credits.
- Energy Star Rating helps to qualify for energy efficient mortgages.



Of the three methods, installing a radiant barrier to the bottom of the top cord is the most effective for reducing radiant heat transfer. This installation method yields a 15% to 20% performance improvement. In addition, the top cord installation method reduces material costs especially in hip roof configurations.

- Radiant barriers are great for bonus rooms and other problem areas for cooling design.

- Installing radiant barriers in garages, lanais, and gable ends improves overall performance and comfort in building design.
- Radiant barriers will not harm roofing materials including shingles.

NOTE: Verbal authorization was obtained from Gene Bassham, Sales representative for the FI-Foil Company for National Property Inspection, Inc. to reproduce this information. Any other reproduction of this material must be approved by the FI-Foil Company. For additional information contact Gene Bassham at: 800-448-3401

Inspectors Tip:

This fairly new product and installation system has been designed mostly for new construction installation. It can however be retro fitted into existing structures. It does have the potential to cover over possible problems that may be associated with water intrusion that may not be detectable without removal of the systems, something of which inspectors cannot do. Make certain that when inspecting in attics and these systems are present that there is a separation gap of the system at the base where the roof joist or truss system connect for the ceiling joist or rafter for the room below. A good attic ventilation system such as soffit vents and ridge vents must be in place to allow for adequate and proper ventilation of the attic. This system is not designed to be a total replacement for any type of insulation blanket that would normally be in place covering the attic floor of a structure.

This Technical Bulletin has been drafted to be informative in nature and not technically exhaustive. National Property Inspections, Inc. in no way endorses this product.