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TECHNICAL BULLETIN
RADIANT BARRIER BASICS

GENERAL:

Energy emitted from a radiant source can strike objects or materials that absorb this energy and then heat up. In building structures, the outside materials of construction are exposed to the radiant energy of the sun and become warmer. They then radiate or conduct heat to other materials, ultimately subjecting the conditioned space to a higher heat load.

Radiant barriers are materials that serve to block radiant energy from further transmission. They do this via one or both of two modes: (1) reflecting radiant energy, and (2) not emitting radiant energy.

Radiant barriers have the greatest potential for energy savings in predominantly cooling climates. The benefit in heating climates may not be significant.

COMPAC PRODUCTS AS RADIANT BARRIERS:

Compac FSK (Foil-Scrim-Kraft) type products can work as very efficient radiant barriers because of the aluminum foil surface on one side. Aluminum foil has an extremely low emittance of 0.03. This means that it will emit only 3% of the radiant energy that strikes it and reflects 97% of that radiant energy. Additionally, if the kraft side of the FSK is exposed to the radiant source, only 3% of radiant energy striking it will be emitted through the foil side. So the FSK can work as a radiant barrier no matter which side is exposed to the source.

INSTALLATION OF SINGLE-SIDED RADIANT BARRIERS:

Radiant barrier has its biggest effect in roofs or ceilings. The preferred location is in the attic area, attached to the bottoms of rafters, foil side down. It is oriented foil side down to minimize dirt and dust accumulation on the foil side. Such contamination will reduce the effectiveness of the low emittance aluminum surface.

An alternate location is on top of the mass ceiling insulation, foil side up. In this case, it should be perforated or vented to permit moisture vapor passage. Compac can provide perforated FSK products. The drawback to this method is the likelihood of contamination of the foil surface.

In walls, the FSK should be installed foil side out. There must be a minimum of 3/4 inch free air space adjacent to the foil surface to allow for proper function. If not being used as a vapor retarder, it must be perforated or vented.

It is our opinion that, in most the cases, radiant barriers should be used to enhance building envelope thermal performance, and not as a substitute for mass insulation.

FURTHER INFORMATION:

For further information and to discuss specific questions, please contact our Technical Service Manager at 1-877-5COMPAC (1-877-526-6722).





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Cp10-25-05

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