



Reflective Insulation

HI-TECH ENERGY BARRIERS



“The yurt’s spacious and aesthetically pleasing interior provided ample warmth and comfort.” - Tom S.

“We are amazed at what we accomplish in the great comfort and coziness of our yurt!” - Pat D.

“With a small wood stove and insulation our yurt is toasty warm.” - Tracey B.

“It’s very cozy with our wood stove humming.” - John K.

- **Controls condensation**
- **Class A/ Class 1 fire rating**
- **Reduces heating/cooling cost**
- **Does not promote nesting of insects/rodents**
- **Non-toxic**
- **Tough**
- **Lightweight**

Reflective Insulation

Pacific Yurts' insulation is a 5/16" thick, seven layer, reflective insulation. Two outer layers of aluminum foil reflect up to 97% of the radiant energy that strikes them. Each layer of foil is bonded to a tough layer of polyethylene for strength. Two inner layers of insulating bubbles resist conductive heat flow, while the center layer of polyethylene gives the reflective insulation additional strength. We cover this foil insulation with an attractive white polyester liner.

HOW REFLECTIVE INSULATION WORKS

Radiant heat, the major source of heat flow, is energy in the form of infrared waves. It travels at the speed of light and is either transmitted through, absorbed into, or reflected by any material it contacts. Our insulation is a radiant energy barrier that reflects up to 97% of radiant energy that strikes it.

There are three basic methods of heat transfer:

Conduction - Heat flow through material: By passing from molecule to neighboring molecule, heat can move through one solid object to another, providing the two are touching. The denser the material, the more conductive it is.

Convection - Heat flow via air movement: Air motion can carry heat from warmer surfaces to cooler ones. As air warms, it expands, becomes lighter and rises. After it gives off heat to cooler surfaces, the air cools, condenses, becomes denser and falls. This occurs when there is enough room for the air to form convective currents.

Radiation - Heat transfer via infrared waves (radiant energy): Like light, heat is transmitted by electromagnetic wave motion. This is radiation. Heat can jump from warm objects to cooler ones without heating the air between. *According to analysis performed at Penn State University, approximately 75% of total heat transfer in structures is through radiation.*

WHAT ABOUT R-VALUES?

R-Value is commonly used to indicate the insulation's effectiveness. However, R-Value is only a measure of thermal resistance (conductive heat transfer) and is not applicable to the other modes of heat transfer. It serves no purpose in rating a product's ability to reflect radiant heat energy.

For example, a foam cup insulates a cup of coffee as mass insulation does and attains an actual R-value. The reflective surface of a Thermos jug lining keeps liquid hot or cold. Let's take hot coffee for example, the heat within a Thermos is reflected back inside while the cold outside is reflected away. Like the Thermos jug in the illustration, Reflective Insulation reflects and separates "heat" from -60 degrees to a +180 degrees without an R-value. Would you rather drink coffee from a Thermos jug or a foam cup hours later?

