

# NASA TECH BRIEF

## Goddard Space Flight Center



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### Structural Heat Pipe

#### The problem:

One of the basic problems in the design of insulation systems is the prevention of unnecessary heat loss or gain. Many insulation configurations, however, include structures that cause excessive heat exchange.

In one configuration, for example, shown in Figure 1, solar heat is input through the structural support and is transmitted to the interior structure by conduction. This can cause local hot spots to occur on the sun side and excessive heat leaks on the dark side.

#### The solution:

A more efficient arrangement uses heat pipes as an integral part of the structural support, to equalize the heat.

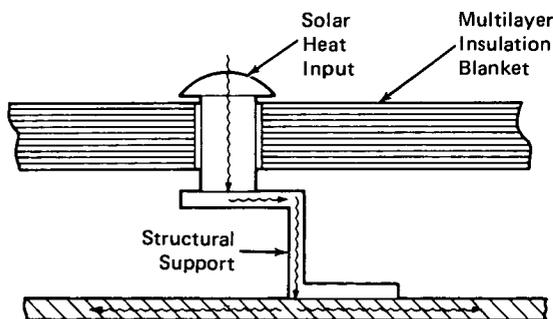


Figure 1. Inefficient Configuration

#### How it's done:

In the arrangement shown in Figure 2, the heat pipe is an integral part of the structural support. Again, the solar heat is absorbed through the structural support member but this time is fed directly to a heat pipe. The heat pipe transfers the energy around to a cooler spot before it can find its way to the structure.

#### Note:

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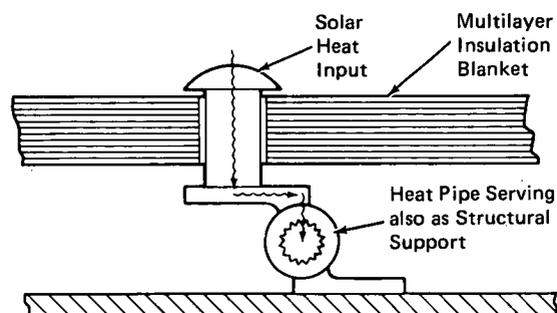


Figure 2. Improved Heat Pipe Configuration

#### Patent status:

This invention is owned by NASA, and a patent application has been filed. Inquiries concerning non-exclusive or exclusive license for its commercial development should be addressed to:

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