

## **Impact Resistance of Fullback®**

One of the most significant problems associated with conventional vinyl siding is its tendency to crack and/or deform (dent) when struck by hail, a child's ball or other objects. For a vinyl siding product to be certified by the Vinyl Siding Institute, the panel must absorb an impact of 60 PSI without rupturing the vinyl panel – a relatively modest amount of force. Further, the VSI standard does not address denting, a common complaint of homeowners who have conventional vinyl siding.

In tests performed by an independent laboratory, panels insulated with the Fullback Thermal Support System absorb impacts from 160 PSI to 340 PSI, depending upon the kind of vinyl siding. It is conservative to conclude that the Fullback Thermal Support System increases the impact resistance of vinyl siding by more than 300%!

## **Durability and Impact Resistance**

### **Compressive Resistance and Flexural Strength.**

Fullback is a closed cell, lightweight and resilient, foamed plastic composed of hydrogen and carbon atoms. The mechanical strength of Fullback varies with its density. The most important mechanical property of Fullback insulation and building products is its resistance to compressive stresses, which increase as the density becomes higher. Fullback has a compressive resistance between 10 - 60 psi for most construction applications. Within that range Fullback can be produced to meet specific strength requirements.

Optimum performance of a load carrying insulation is often related to both strength characteristics and resiliency. Resiliency is the ability of a material to recover its strength following deformation caused by stress. If greater strength and rigidity are needed, compressive resistance up to 60 psi is available by increasing the density of EPS insulation to meet virtually any compressive strength requirement.

### **Compressive Strength**

Is the ability of a material to resist a force that tends to crush it.

### **Flexural Strength**

Is the maximum stress developed in a specimen just before it cracks or breaks in a flexural test.

**Density**

Is the mass per unit volume of a plastic, expressed in pounds per cubic foot. The insulation industry methods to determine density are outlined in ASTM C303.

Standard densities, available within the insulation industry today, generally range from .90 to 1.80 pounds per cubic foot. The reason for greater density is related directly to increased performance required by the product. The greater the density, the better the compressive strength, flexural strength, "R"-value, etc. Density increases have a direct correlation to cost and therefore don't always justify the increase.

The majority of Fullback products are made at .90 density. Accordingly, if you cut a Fullback block 12" x 12" x 12" it should measure a cubic foot and weigh .90 of a pound.