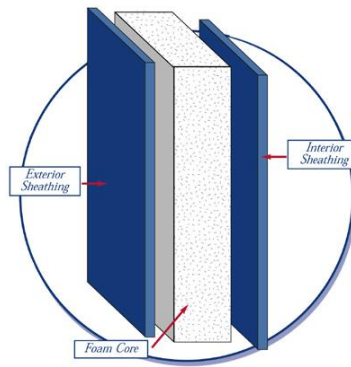




Polyurethane Vs. EPS (Expanded Polystyrene) Cores



R- Value - Polyurethane is the highest rated insulation in the world. Per centimeter of insulation it has no equal. The walk in coolers and freezers for use throughout the country are made of polyurethane. Refrigerators are made with PUR insulation replacing EPS worldwide over 20 years ago.

EPS has a value of R-2.5 to R-2.5 per 100 mm.
Polyurethane has an R-Value OF R-4.55 to R-5 per 100mm.

Polyurethane	Polystyrene (EPS)
R-Value	
100mm Polyurethane Panel= R-4.6	100mm EPS Panel= R-2.8
150mm Polyurethane Panel= R-6.9	150mm EPS Panel= R-4.1
250mm Polyurethane Panel= R-11.4	

Moisture Resistance - With all the problems of mold and mildew, moisture resistance is today a very important factor. Polyurethane has one of the lowest moisture Permeability ratings of any product manufactured for the building industry today. This difference in a high humidity area would warrant another moisture barrier for EPS panels. To create an effective comparison often it is necessary to include the cost of additional moisture barriers in your end price calculations.

Fire Resistance - The polyurethane is a UL Class 1 rated foam. This means that polyurethane is not a source for fire. On its own, polyurethane will not burn. When left on its own, it will extinguish itself. Also, polyurethane is a thermo-set plastic. This means, that it will not melt. Polyurethane is not affected until temperatures reach 450 degrees. At those temperatures, it chars but does not burn, so it minimizes the spread of fire. In fact, the material normally self-extinguishes. EPS on the other hand is not a thermo-set plastic and will begin to soften at temperatures of 85 degrees, and melt at temperatures of 115 degrees. Polyurethane has a distinct advantage.

DENSITY - The density of a product will determine the strength of it. EPS typically has a density of $16 \pm 2 \text{ kg/m}^3$. The polyurethane has a density of $42 \pm 2 \text{ kg/m}^3$.

CHEMICAL RESTANCE - Polyurethane is resistant to most counter chemicals. EPS react violently to petroleum based products.

Selecting a Polyurethane core sandwich panels couldn't be more obvious.