



lasting strength
with fibre-cement

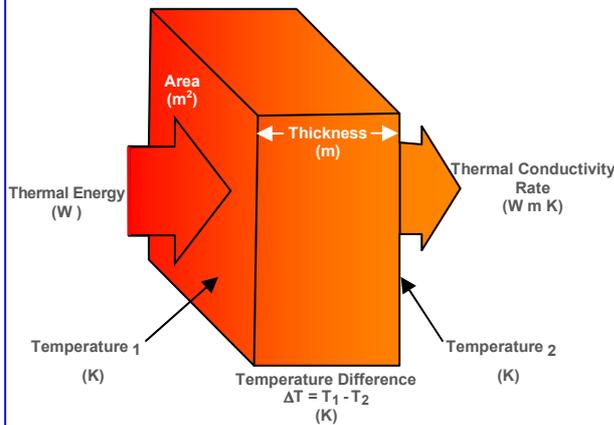


The Facts about Nutec's Thermal Properties

Table 1: Thermal Conductivity Values of the Nutec Product Range

	Unit of Measure	Nutec Roofing		Nutec Flat Sheets		Test Method
		Bigsix & Victorian Roof Sheeting	Slate	High Density Boards	Medium Density & Ceiling Boards	
Thermal Conductivity (K-Value)	W/m.K	0.346	0.19	0.30	0.19	ASTM C 518

Definition: Thermal Conductivity



Thermal conductivity, k, is a measure of the ability of a material to conduct / transfer heat.

Thermal conductivity is measured in watts per metre per Kelvin: $W/(m \cdot K)$

Interpreting Nutec K-Values per Table 1

Nutec products exhibit low thermal conductivity properties when compared with other sheet roofing and cladding products.

This is ideal when reduced heat build up in summer and heat loss in winter is required.

Nutec product K-Value's are influenced by the Density and Thickness of the product.

Generally the thicker and more dense the product the better resistance it will have to temperature and sound transmission.

Definition: R-Value

The measure of resistance to heat flow.

This is the ability of a material to slow the transfer of heat and is measured in R-values. *The higher the R-value, the better the material's ability to resist the flow of heat through it.*

The R-value of a material is dependant on knowing its K-Value.

The measure of resistance to heat flow, a material's insulation R-value, is simply the *reciprocal of the K-Value* multiplied by the thickness in metres.

For example, the k-value for 6 mm ceiling board is 0.19:

$$\text{The R-Value of 6 mm ceiling board is: } (1/0.19) \times 0.006 \text{ m} = 0.032$$

Note: U-Value

A U value is a measure of heat loss in a building element such as a wall, floor or roof. It can also be referred to as an 'overall heat transfer co-efficient' and measures how well parts of a building transfer heat.

A low U value usually indicates high levels of insulation. They are useful as it is a way of predicting the composite behaviour of an entire building element rather than relying on the properties of individual materials.

The U value is defined as being reciprocal of all the resistances of the materials found in the building element.

The U-value is the *reciprocal of the R-value* : $U = 1/R \text{ W/m}^2 \text{ K}$

Standards & Test Method

These are as set by ASTM International, formerly known as the American Society for Testing and Materials.

ASTM C 518, Standard test method for steady-state thermal transmission properties by means of the heat flow meter apparatus.

This is the same test method required and is noted as indispensable for the application of SANS 204

SANS 204, Energy efficiency in buildings

