

TECHNICAL REFERENCE THERMAL RESISTANCE & TRANSMITTANCE U & R VALUE CHART



FIRE PROOF



FLOOD PROOF



IMPACT RESISTANT



TERMITE PROOF



MOULD & BACTERIA PROOF



FireCrunch Panel Thermal Resistance & Transmittance U and R Values

General application FireCrunch (MgSO₄) cladding has very good thermal conductivity properties with a base of 0.152 W/mK.

FireCrunch standard panels are produced in four different standard thicknesses: 10mm, 12mm, 16mm and 19mm. The chart below states the calculated Thermal Resistance (R-value) and Thermal Transmittance (U-value) of the standard thickness and custom thickness board based on test by SGS-CSTC Standards.

Board Thickness (mm)	U-value (W/m ² K)	R-value (m ² K/W)
10	15.20	0.066
12	13.70	0.079
16	11.02	0.098
19	7.60	0.132

Thermal Resistance (R-value) Units = m²K/W

A measure of the opposition to heat transfer offered by a particular component in a building element. R-values are created by dividing the thickness of the material (metres) by the K-value for a particular material.

Thermal Resistance will take into account the thickness of the material, thus allowing for more accurate comparisons between materials carrying out the same job. To allow for a more accurate comparison in the insulation properties of each material, an R-value should be calculated.

Thermal Transmittance (U-values) Units = W/m²K

A measure of the overall rate of heat transfer, by all mechanisms under standard conditions, through a particular section of construction. This measure takes into account the thickness of each material involved and is calculated from R-values of each material as well as constants accounting for surface transmittance (R_{si} and R_{so}, inner and outer surfaces respectively) and also for a small standard air gap (R_{so}).

Thermal Conductivity (K-values) Units = W/mK

A measure of the rate at which heat is conducted through a particular material under specified conditions. This figure has been calculated for a vast variety of materials from those common to the construction industry to those that are probably never used in the building industry.

