

Product Performance Testing Methodology

Edition: 01 March 2020

Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

Description:

The steady-state thermal transmission properties of thermal insulations and other materials are determined in accordance with ASTM C518 – 17.

Thermal Resistance and Thermal Transmittance of Building Components and Building Elements

Description:

Thermal resistance and thermal transmittance of building components and building elements are determined in accordance with BS EN ISO 6946:2017.

The calculation method is based on the appropriate design thermal conductivities or design thermal resistances of the materials and products for the application concerned. The method applies to components and elements consisting of thermally homogeneous layers (which can include air layers). BS EN ISO 6946:2017 also provides an approximate method that can be used for elements containing inhomogeneous layers, including the effect of metal fasteners, by means of a correction term given in Annex D.

Performance Requirements:

1. Al SA'FAT, Dubai Green Building Evaluation System:

Building elements forming the external walls (that are exposed to ambient conditions) must have an average thermal transmittance (U Value) which does not exceed the following values 0.57 W/m²K (Bronze and Silver Sa'fa) and 0.42 W/m²K (Golden and Platinum Sa'fa).

2. Barjeel, Ras Al Khaimah Green Building Regulations:

The average U-Value of the external walls (that are exposed to ambient conditions) must not exceed the following thresholds:

Average external wall U-Value ≤ 0.48 W/m²K

Individual Private Villas are exempt from the above specified external wall U-Value if 200 mm thermal blocks with U-Value of maximum 0.5 W/m²K are used.

Product Dimension (mm) (Length x Width x Height)	Unit Weight (kg)	Gross Dry Density (kg/m ³) BS EN 772-13	Thermal Transmittance U-Value (W/m ² K)
400 x 200 x 200 60mm Polystyrene Insert	23	1400 - 1420	0.48
400 x 250 x 200 60mm Polystyrene Insert	28	1450 - 1500	0.42
400 x 250 x 200 110mm Polystyrene Insert	21	1100 - 1160	0.26