

Technical Properties

The major component of Marmox board is rigid extruded polystyrene foam with a closed cellular structure and a flame retardant additive. Marmox board has a 0.5mm coating on either side comprising a glass fibre mesh embedded in a polymer-cement mortar

Properties of the Foam Component		
Property	Assessed to	Rating
Density	DIN 53420	36.7 kg/m ³
Thermal Conductivity (initial)	DIN 52612	0.027 Watt/mK
Thermal Conductivity (>5yrs)	ASTM C177-76	0.032 Watt/mK
Compressive Strength (10% deflections)	DIN 53421	0.3 N/mm ² (>30.0 t / m ²)
Flexural Strength	ASTM C203	2.05N
Shear Bond Strength	EN 1448	3.32kg/cm ²
Water Absorption (2-day immersion)	ISO2896	0.2% by volume
Water Absorption (Capillary)	DIN 53428	Zero
Coefficient of linear expansion	N/A	30 x 10 ⁻⁶
Water Vapour Diffusion Resistivity (μ)	DIN 52615	110 – 225 μ
Water Vapour Permeability	ASTM E-96	0.028 ng/Pa.m.s
Flammability	DIN 4102	B1
<i>Quality Management system</i>	<i>ISO9001</i>	<i>Bureau Veritas/231739</i>
<i>EU controlled substances content</i>	<i>N/A</i>	<i>none</i>

Properties of the Marmox Board		
Property	Assessed to	Rating
Thermal Conductivity (> 5yrs)	BS EN 13164	0.033 - 0.036 Watt/mK
Compressive Strength (10% deflection)	ASTM D 1621	371kN/m ²
Bond Strength	BS EN 1384	0.3N/mm ²
Maximum Tile Loading Weight	CERAM121107	62kg/m ²
Water Vapour Permeability (Sd)	DIN EN 12086	3.2m
Resistance to body Impact	ETAG 003	3 x 120N/m
Bending Stiffness, EI (20mm / 30mm)	EN 12089	601KNmm ² / 1285 kN/mm ²
Fire Ignitability	BS 476, part 5	“P” not easily ignitable
Fire Propagation	BS 476, part 6	8.1, “class O”
Spread of Flame	BS 476 part 7	1, “class O”

Impact Sound Reduction	BS-ISO140-8	dLw = 21
Quality Management system	ISO9001	Bureau Veritas/231739
EU controlled substances content	N/A	none

*Working temperature range: -50 to +80OC

Board Weights and Dimensions				
600mm x 1250mm				
Thickness	Density (kg/m3)	Weight (kg)	Weight (kg)	Weight (kg)
6mm	445	2.0	N/A	N/A
10mm	290	2.2	4.4	8.6

Dimensional tolerances for standard boards: Thickness +/- 1mm, Width +/- 2mm, Length +/- 5mm

The boards should be stored dry and flat. Slight bowing caused by incorrect storage or transport, for example, is not permanent and does not represent a technical defect. Slight curving can be rectified through storing the boards flat.

Thermal Specifications				
Nominal thickness in mm	Thickness of the foam in m	Thermal resistance R-value (m.K/W)	Thermal Transmittance (W/m ² x K) 10OC ambient temperature difference	Thermal Transmittance (W/m ² x K) 35OC ambient temperature difference
6	0.005	0.16	3.19	3.54
10	0.009	0.28	2.33	2.52

Marmox Boards offer **thermal insulation** that in most constructions satisfies the U-value requirements of part L of the UK building regulations (*0.22 for floors, 0.28 for walls*). The non-conductive surface reduces condensation by masking any cold bridging from the substrate beneath.

The cementitious surface is resistant to **heat and the chemicals within the sheathing around electric underfloor heating elements** making it safe to use with these types of systems.