

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 0.7mm coating on either side comprising a glass fibre mesh embedded in a polymer-cement mortar enhanced with carbon nano tubes.

Properties of the Foam Component

Property	Assessed to	Rating
Density	DIN 53420	$36 \pm 0.02 \text{ kg/m}^3$
Thermal Conductivity (initial)	DIN 52612	0.027 Watt/mK
Thermal Conductivity (>5yrs)	ASTM C518	0.032 Watt/mK
Compressive Strength (10% deflection)	DIN 53421	Minimum of 0.25N/mm^2
Flexural Strength	ASTM C203	$0.30 \pm 0.02 \text{ MPa}$
Water Absorption (2-day immersion)	ISO2896	0.2% by volume
Water Absorption (Capillary)	DIN 53428	Zero
Coefficient of linear expansion	N/A	$70 \times 10^{-6} \text{ K}^{-1}$
Water Vapour Diffusion Resistivity (μ)	DIN 52615	110 – 225 μ
Water Vapour Permeability	ASTM E-96	0.028 ng/Pa.m.s
ODP (Ozone Depleting Potential)	N/A	Zero
GWP (Global Warming Potential)	N/A	<0.29

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)	BSEN 826	0.45N/mm^2 (45Tonnes/m ²)
Bond Strength	BS EN 1384	0.3N/mm^2
Maximum Tile Loading Weight	CERAM121107	62kg/m^2
Flexural Strength	ASTM C203	$2.05 \pm 0.02 \text{ MPa}$
Water Vapour Permeability (S_d)	DIN EN 12086	3.2m
Resistance to body Impact	ETAG 003	3 x 120N/m
Bending Stiffness, EI (20mm / 30mm)	EN 12089	$601\text{KNmm}^2 / 1285 \text{ kN/mm}^2$
Coefficient of linear expansion	N/A	$30 \times 10^{-6} \text{ K}^{-1}$
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"
Flammability	DIN 4102	B1
Impact Sound Reduction	BS-ISO140-8	dLw = 21
Shear Bond Strength	EN 1448	3.32kg/cm^2
Quality Management system	ISO9001	SGS/231739

- Working temperature range: -50 to +80°C

Technical Properties continued

Board Weights and Dimensions

	Short Board: 600mm x 1250mm	Short Board: 600mm x 1250mm	Long: 600mm x 2500mm
thickness	Board Weight (kg)	Pack Weight (kg)	Weight (kg)
4mm	2.3	24	N/A
6mm	2.4	20	N/A
10mm	2.7	17	5.3
12.5mm	2.8	18	5.5
20mm	3.1	17	6.1
30mm	3.4	14	6.7
40mm	4.0	13	8.0
50mm	4.2	9	8.4
60mm	4.5	10	8.9

- 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

Board thickness (mm)	XPS thickness (m)	Thermal resistance R- value (m.K/W)	Coefficient of Thermal Transmittance (W/m² x K)
4	0.002	0.06	4.20
6	0.005	0.16	2.96
10	0.009	0.28	2.08
12.5	0.0115	0.36	1.86
20	0.019	0.59	1.30
30	0.029	0.91	0.92
40	0.039	1.22	0.72
50	0.049	1.53	0.58
60	0.059	1.84	0.50

- 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.