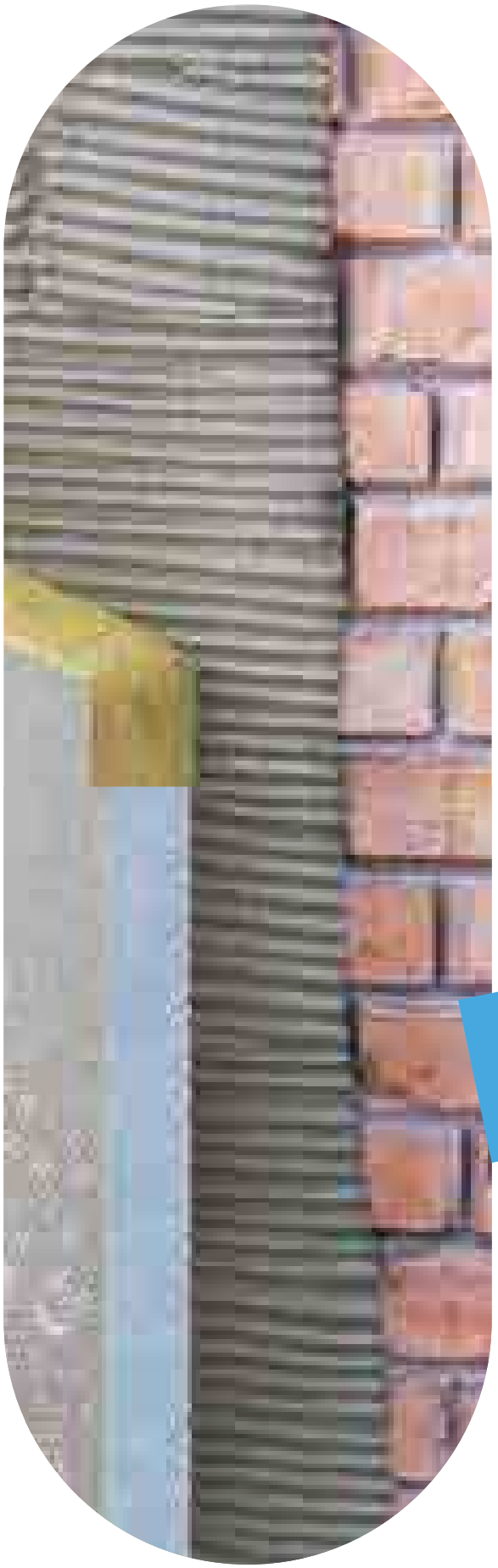
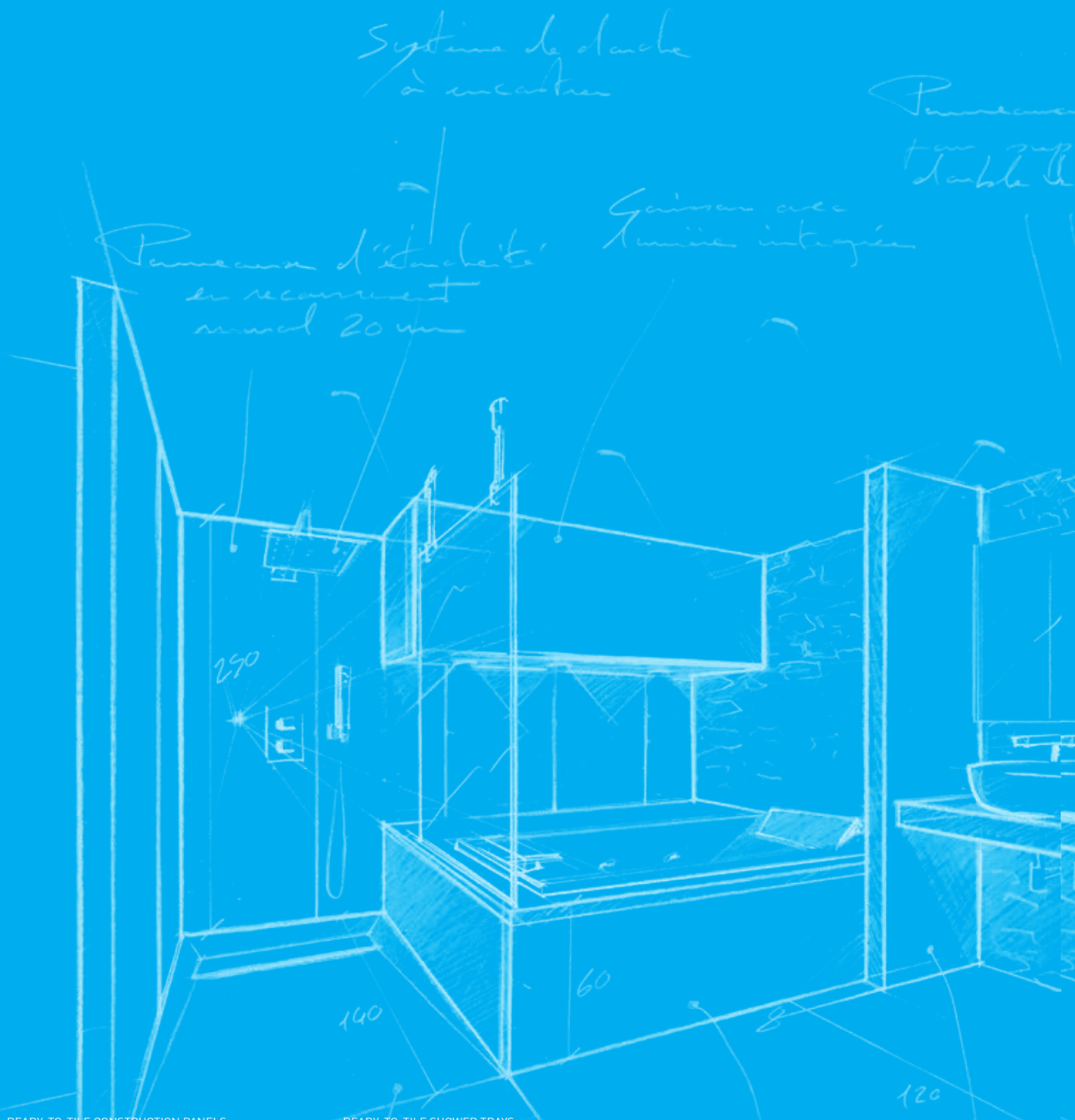


THERMAL
WATER
SOUND
FIRE

INSULATION

marmox®

BUILDING SYSTEMS



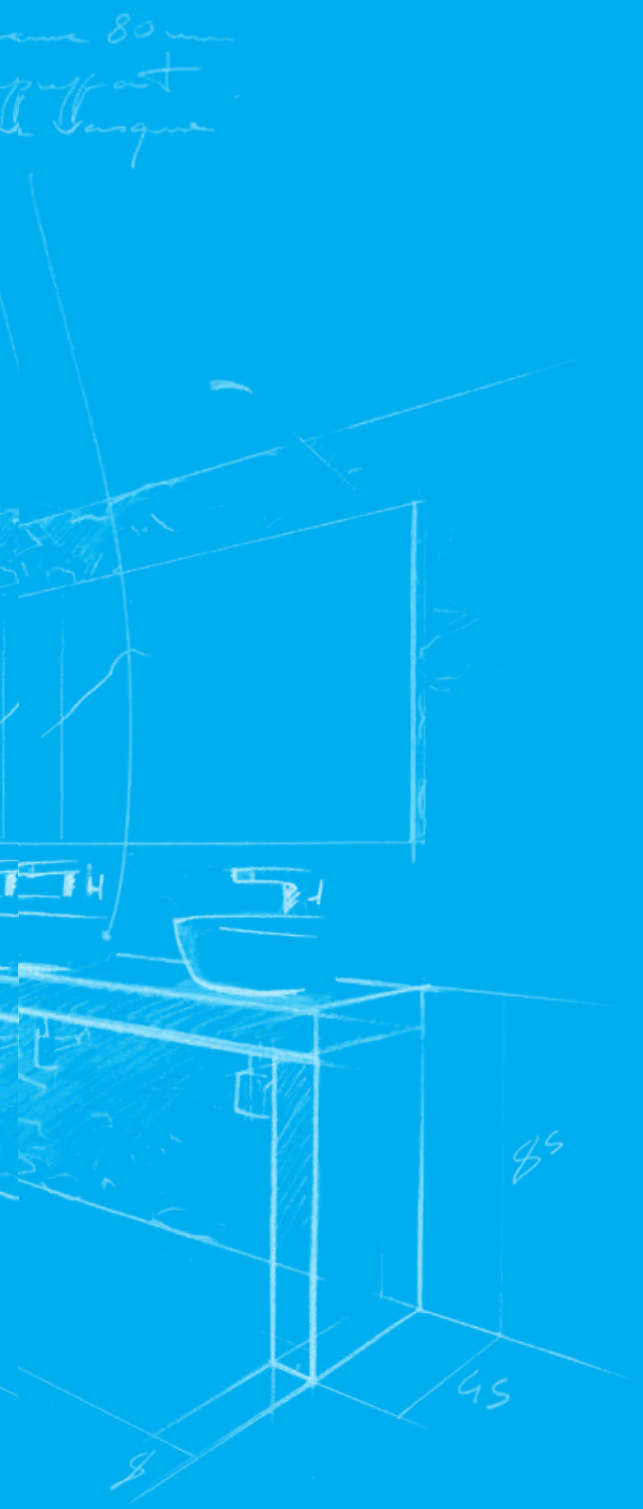
READY-TO-TILE CONSTRUCTION PANELS

HAMMAM

FLOOR DRAIN SOLUTIONS

READY-TO-TILE SHOWER TRAYS

Example of a project created by Project Bains Designs in Poitiers - project.bains@gmail.com



Marmox is part of the CMB group of companies, CMB manufactures and distributes a range of specialist building products for the construction industry in over 50 countries.

Marmox has been one of the world's leading building panel companies for over 30 years.

In 2013, Marmox introduced the famous honeycomb finish- a patented coating of the Marmox Multiboard.

In 2017 we introduced the Marmox Ultra panel, a new type of tileable panels with excellent waterproof properties, easier to cut and lighter in weight.

The Marmox building panel is the base material for a global range that is focused on renovating and building quality stylish bathrooms. Beyond the traditional ranges of tileable panels that enable you to clad and build walls, floors and bathroom furniture, our aim is to offer our distributors and customers, a complete and unique range of waterproof wet room systems.

We have developed three innovative solutions for you to make the barrier-free shower of your choice:

- Minilay - Traditional floor drain solutions.
- Marmox Showerlay - a tileable showerunderlay.
- The Marmox Swan Range – Contemporary designer shower trays & wall panels made from highly durable composite resins or beautiful natural stone materials.

WATERPROOF
LIGHTWEIGHT
EASY TO CUT
READY TO TILE
READY TO PLASTER

READY TO TILE

CONSTRUCTION PANELS

WATERPROOFING AND INSULATION OF FLOORS, WALLS AND CEILINGS

UNDERFLOOR HEATING INSULATION

BATHROOM PARTITION WALLS

STEAM ROOM WALLS

FABRICATION OF TILED BATHROOM FURNITURE

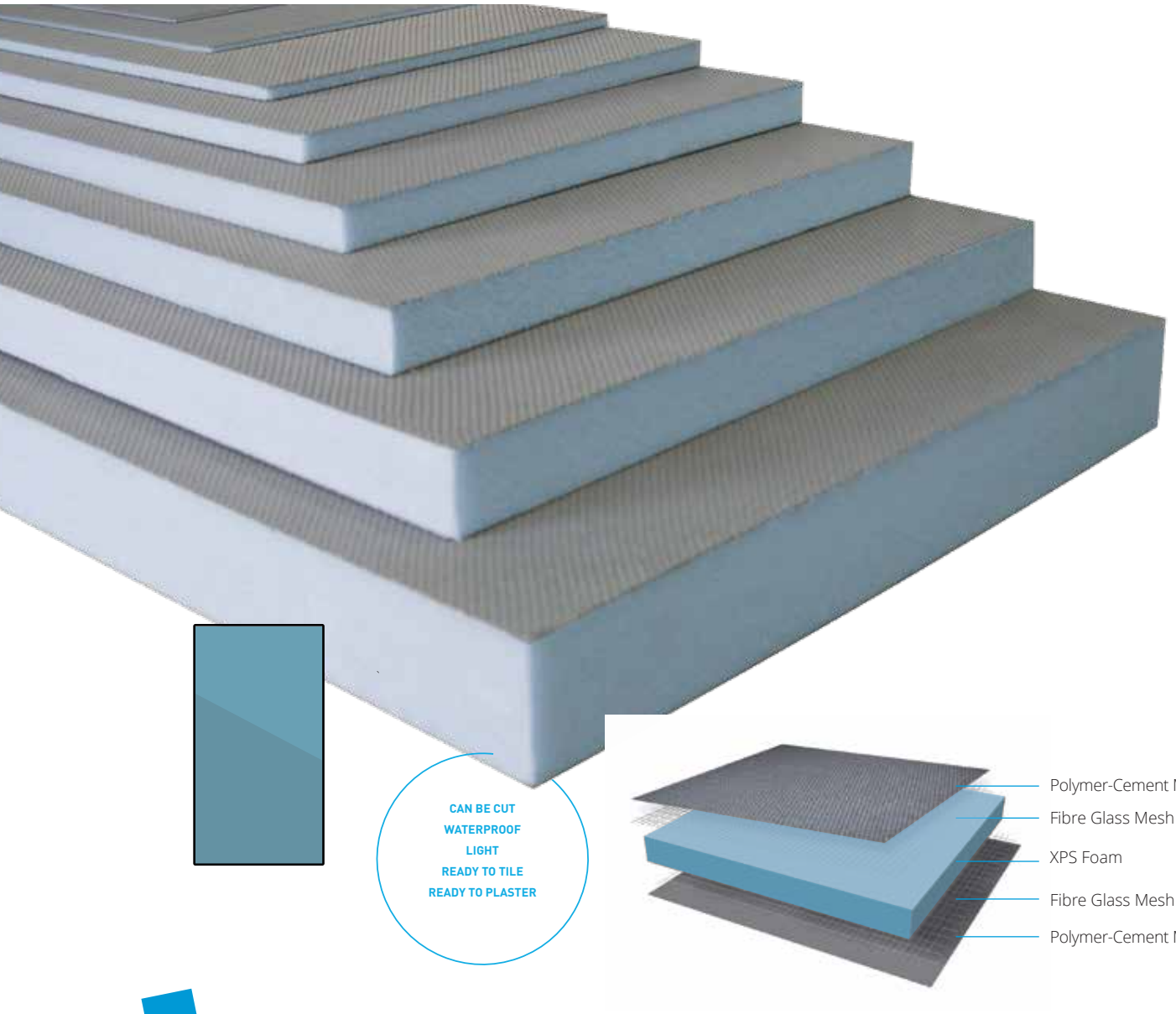
ROOF INSULATION SYSTEM

DECORATIVE AND ARCHITECTURAL FACADE DESIGNS

COVERING EXTERIOR STEEL FRAME STRUCTURES

USE AS AN EXTERNAL TILE BACKER OR AS A RENDER BOARD


WATERPROOF
HIGH INSULATION
LIGHTWEIGHT, EASY TO CUT
marmox
LIFETIME GUARANTEE
FOR TOTAL PEACE OF MIND



CAN BE CUT
WATERPROOF
LIGHT
READY TO TILE
READY TO PLASTER

marmox multiboard

Marmox Multiboard is a lightweight, high-performance tile backer board, used for waterproofing, dry-lining and thermal insulation, offering the best long-term adhesion in its class. Marmox Multiboard consists of a core of extruded polystyrene bonded between layers of fibreglass reinforced polymer concrete.

Thicknesses range from 4mm to 80mm allowing Marmox Multiboard to be used to provide a platform for tiling, a waterproof barrier, thermal insulation on walls, floors and ceilings. Multiboard is easy to cut and shape providing freedom of design and quick installation.

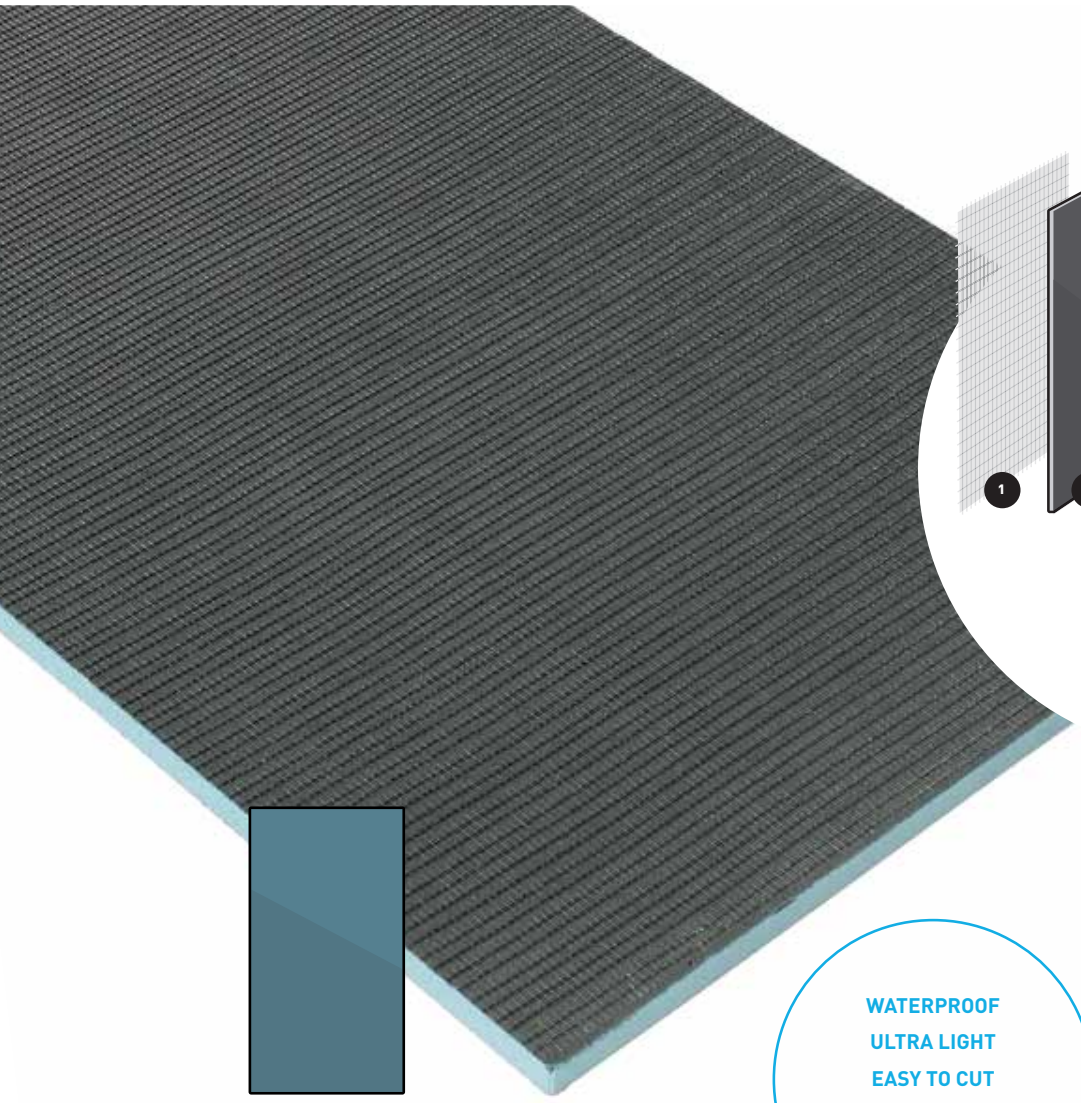
REF	THICKNESS (MM)	WIDTH (MM)	LENGTH (MM)	U VALUE (W/m2K)	R VALUE (m2.K/ W)	QUANTITY PER PALLET
4 MB 125	4	600 900 1200	1250	9.9	0.06	165
6 MB 125	6			7	0.12	150
10 MB 250	10		2500	3.5	0.25	215
125 MB 250	12.5			2.7	0.33	150
20 MB 250	20			1.5	0.56	106
30 MB 250	30			1	0.86	75
40 MB 250	40			0.7	1.16	60
50 MB 250	50			0.57	1.47	45
80 MB 250	80			0.5	2.33	25

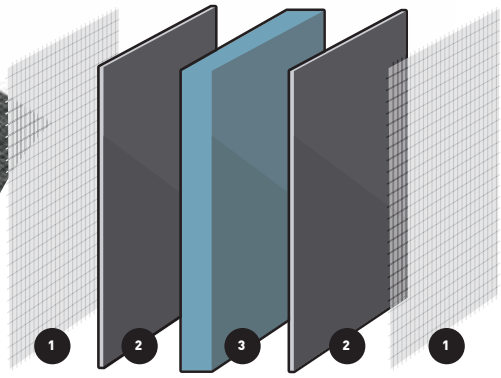
Panels are available in 260cm length on special order

Marmox Board Pro Technical Properties

Marmox Board are manufactured to the highest quality and meet or exceed industry standards and have been independently tested in the USA

Properties	Standards	Values
Compressive Strength-perpendicular to crosssection		
Modulus of Elasticity	ASTM D1621	2.66N/mm^2
Compressive Strength-perpendicular tosurface		0.33N/mm^2
Modulus of Elasticity	ASTM D1621	0.33N/mm^2
		0.72N/mm^2
Tensile Strength	ASTM D1623	0.52N/mm^2
Shear Strength	ASTM 273	0.37N/mm^2
Flexural Strength	ASTM C203	5.43N/mm^2
Linear Coefficient of Thermal Expansion	ASTM D695	Passed - 0.000029 (29 x 10 ^{4} CTE/°C)
		Passed - 0.000016 (16 x 10 $^{-6}$ CTE/°F)
ThermalResistance R-value (1'')	ASTM C518	R-4 (hr ft2-°F)/BTU
Field-Fabricated Tiling Kits	LATMO PS2010-46(Modified)	Passed
Flange-Fixture Seal	LATMO PS 46. Sections 5.0 through 5.1.2.2	Passed all sections
Nail Pull Resistance	ASTM C473-10	Wet 313.8 psi/Dry 668 psi
Robinson Floor Test	ASTM C627	Extra heavy Duty and high impact use
System Anti-Fracture Resistance	ANSI A118.12	Passed no visual defects, no cracks
Water Penetration	ASTM 331-09€	Passed No water penetration
Water Vapor Transmission	ASTM 96-05€ (ProcedureE)	1 / 8'' = 494 Perms,2'' .354 Perms (gr/ft^2/hr)
Water Vapor Transmission	ASTM 96-05€ (ProcedureE)	1 / 2'' = .008 Perms (gr/ft^2/hr)
Freeze & Thaw Resistance	ASTM 666-03€ (Modified). 25 CYCLES	Passed - No Visual Defects
Surface BurningCharacteristics	ASTM E84-12, Comparable to UL273,	Class A,
	ANSI/NFPA No.255and UBC No. 8-1	Flame Spread 0,
	NFPA 286	Smoke Developed 70
Flammability	2009 IBC Section 803.1.2	Complies
	NFPA 101 Life Safety Code 2009, Section	Complies
	10.2.3.7.2	Complies
		Complies
Accelerated Aging	AC71. Section 353 - 25 cycles	Passed - No Blistering or Delamination
Capillarity		0
Wateroroof	ANSI D4068/ANSI 118.10- 2008	Passed
Fungus / Bacteria Resistance	ASTIAG21	Passed - No Growth
Temperature Limits		-50/-25 °C
Global Warming Impact		-58/-168 °F
		Index of 1 (no negative impact)





1 - Fibre Glass Mesh

2 - Polymer Cement Mortar

3 - XPS Foam

WATERPROOF
ULTRA LIGHT
EASY TO CUT
READY TO TILE
READY TO PLASTER

marmox ultraboard

Marmox Ultra panel offers builders and tile contractors a strong, very lightweight, waterproof, and vapor-resistant tile base for wet areas. It is an XPS foam panel manufactured with a new waterproof coating structure of synthetic polymer mortar and an alkali resistant fiber mesh. This gives it a highly rigid structure and exceptional bonding strength.

REF	THICKNESS (MM)	WIDTH (MM)	LENGTH (MM)	U VALUE (W/m2K)	R VALUE (m2.K/ W)	QUANTITY PER PALLET
4 EB 125	4	600 900 1200	1250	9.9	0.06	165
6 EB 125	6			7	0.12	150
10 EB 250	10		2500	3.5	0.25	215
125 EB 250	12.5			2.7	0.33	150
20 EB 250	20			1.5	0.56	106
30 EB 250	30			1	0.86	75
40 EB 250	40			0.7	1.16	60
50 EB 250	50			0.57	1.47	45
80 EB 250	80			0.5	2.33	25

Panels are available in 260cm length on special order

1 - Polymeric Cement Mortar

2 - Alkali-Resistant Glass Fibre Mesh

3 - Rockwool Density 120 kg/m³

(Higher densities upon request)

1 - Polymeric Cement Mortar

2 - Alkali-Resistant Glass Fibre Mesh

3 - Mineral Wool Density 120 kg/m³

4 - Alkali-Resistant Glass Fibre Mesh

5 - Polymeric Cement Mortar

marmox® therm•rock®

SOUND & THERMAL INSULATION

Marmox ThermoRock board is a high performance, reinforced insulation board made with a non combustible mineral wool core and finished with a waterproof cement polymer mortar reinforced with alkali-resistant fiberglass mesh.

Available in a grey or white finish with a single or double sided cement polymer surface.

Thermorock Board is a perfect solution for facades, walls, suspended ceilings and steel frames, providing the highest standard in thermal, sound and A2 fire protection.

ThermoRock Board Dimensions & Weight

Product	Size mm	Thickness mm	Weight kg/m2	
			SS	DS
ThermoRock 20 DS/SS	1220 or 2440 x 600	20	5.4	8.4
ThermoRock 30 DS/SS	1220 or 2440 x 600	30	6.6	9.6
ThermoRock 50 DS/SS	1220 or 2440 x 600	50	9	12
ThermoRock 100 DS/SS	1220 or 2440 x 600	100	15	18

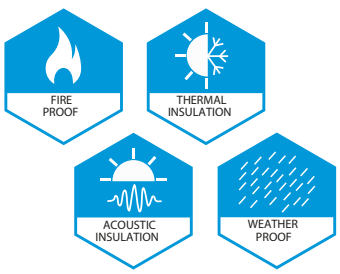
other dimensions upon request

NEW!
FIREPROOF
PROTECTION

marmox®
therm•rock®
SOUND & THERMAL INSULATION

Key Benefits

- Certified as A1 non-combustible
- Acoustic insulation
- Thermal insulation
- Lightweight
- Render or plaster
- External or internal



NEW **Marmox thermorock provides A1 fire resistance and both** acoustic & thermal insulation in a lightweight board.

These External Wall Insulation (EWI) boards are designed for use with masonry, timber and steel frame constructions, offering fireproofing and insulation to walls and ceilings, both internally and externally.

Not only fire protection, Marmox Thermorock not degrade, however wet it gets! Also, being made from mineral wool, the boards provide very good sound decoupling and sound absorption properties.

Coated on the sides of the Marmox Thermorock is the unique Marmox honeycomb surface, which has been tried and tested for many years on our Marmox Multiboards. This is an ideal surface for applying a finish coat of render or plaster.

Applications

- Use to fireproof any metal, masonry or wooden structures
- Use as a fireproof alternative to plaster board on internal walls and ceilings where fire protection & sound proofing is required
- Ideal for fire surrounds
- Provides thermal and acoustic insulation

marmox® therm•rock®
SOUND & THERMAL INSULATION

Fire Classification

Certified A1 non-combustible

Marmox Thermorock meets the stringent requirements, as defined in the Euroclass system (BS EN 1350-1).

Board Composition

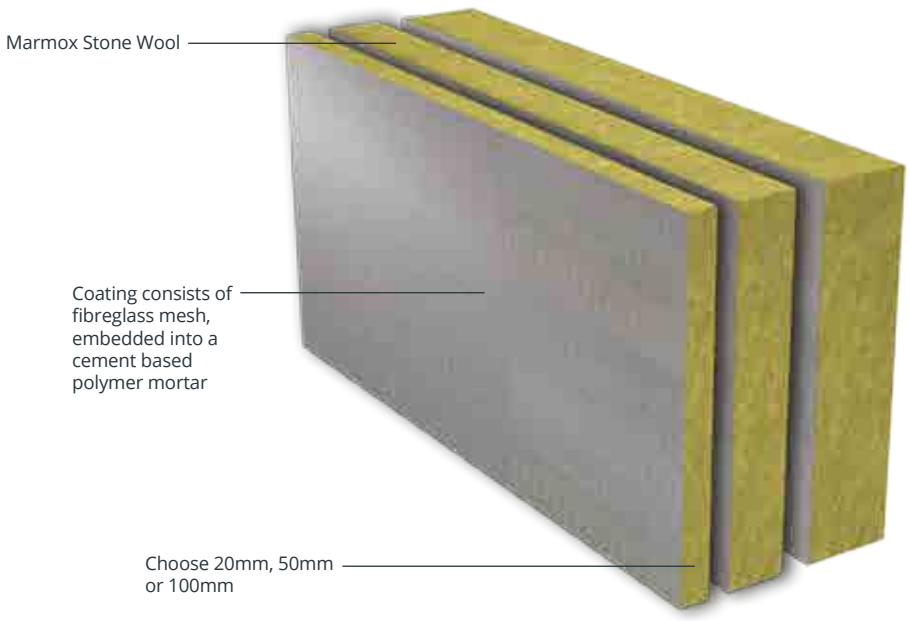
Marmox **Thermorock** is made using Marmox Stone Wool which offers fire protection, sound absorption and thermal insulation.

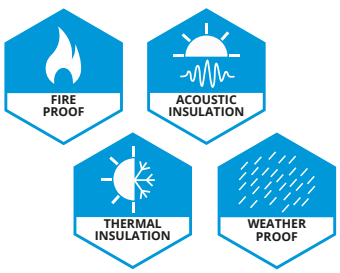
Thermorock is coated with the Marmox surface finish of fibreglass mesh, which is then embedded in a cement polymer mortar.

Acoustic Properties

Stone wool-based products are one of the most popular sound absorption materials.

Sound-waves need to pass through a substance, however, if an air gap is placed in the path of the sound-waves it will not have a medium to pass through. Marmox Thermorock, being a mass of fibres and air provides that interruption to the solid materials in a wall or ceiling.



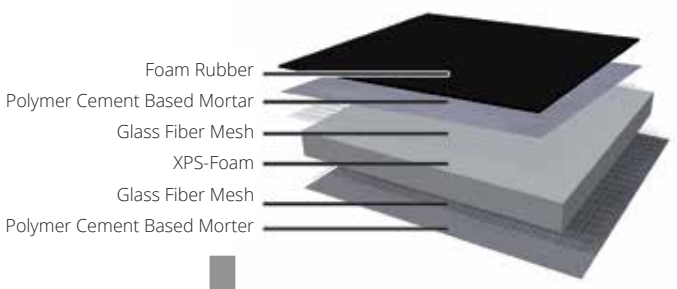


Dimensions	
Width / Length (mm)	600 x 1200
Thickness (mm)	20mm, 50mm, 100mm, other thickness upon request

Technical Data	
Sound Absorption	UKAS Testing *(pdf test report available upon request)*
Thermal Conductivity *(λ value)*	0.037W/mK
Resistance to Fire Testing *(Class A1 certification)*	Tests required passing in order to achieve Euroclass A1 certification: EN 1182 *(Non-combustibility test - carried out by Efectis, 2018)* EN 1716 *(Bomb calorimeter test - carried out by BRE, 2022)* EN 13823 *(Single burn test - carried out by BRE, 2022)*
Compressive Strength *(to 10% deformation)*	90kN/m² *(Equivalent to 90kPa or 9 tonnes/m² - Three times that of ordinary mineral wool)*
R Values	Varies with board thickness, for example: *20mm = 0.5m²K/W* *100mm = 2.3m²K/W* *200mm = 4.7m²K/W*
Expansion Coefficient	8 x 10-6K-1 *(fairly similar to concrete)*
Density of Stone Wool	120kg/m³ other density upon request

Stone wool TDS

Properties	Symbol	Unit	Tolerance	TS EN 13162	Standard
Material	MW				TS EN 13162
Density	d	kg/m^3	(+,-)% 10	120	TS EN 1602
Length	l	mm	(+,-) %2	1220	TS EN 822
Width	b	mm	(+,-) %1,5	600	TS EN 822
Determination of Squareness	S b	mm	Max. 5mm	2 mm	TS EN 824
Determination of Flatness	S max.	mm	Max. 3mm	1,8 mm	TS EN 825
Determination of Dimensional Stability	DS (T+)	mm	%	<1	TS EN 1604
Compressive S trength (%10 Deformation)	CS(10/Y)	kPa		≥35	TS EN 826
Determination of Tensile Strength Parallel to Faces	Σt	Kpa		≥7.5	TS EN 1607
Thickness	dN	mm	(- 3, +5)	50	TS EN 823
Declared Thermal C onductivity (10 °C)	λort	W/mK		max. 0,035	TS EN 12667
Reaction to fire				A1	TS EN 13501-1
Thermal Resistance	R D	m^2K/W		1.43	TS EN 13162
Max. Usage temperature		°C		760	
Melting Point		°C		>1000	DIN 4102
Water Vapor Diffusion Resistance Coefficient	μ		1	1	TS EN 12086
Short Term Water Absorption	WP	kg/m^2	<1	<1	TS EN 1609
Long Term Water Absorption	W IP	kg/m^2	<3	<3	TS EN 12087
Certificates	CE (SERT.NO:1020-CPD-010028090) ,ISO 9001,ISO 14001,ISO 18001 ,ISO 50001				



marmox soundBoard

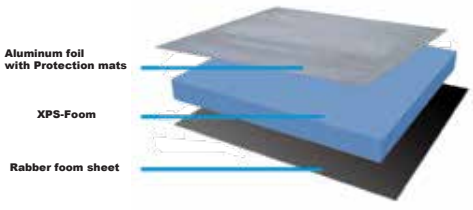
IMPACT SOUND & THERMAL FLOOR INSULATION

Marmox SoundBoard is a tile backer board which reduces the impact noise that passes through a floor into the room below. Like Multiboard it provides a complete waterproof layer, secure decoupling, thermal insulation and low compressibility but with the added benefit of effective impact sound reduction. One side of the board is coated with a sound attenuating layer of SBR Rubber that isolates the tiled surface from the floor so that there is nothing for the sound waves to travel through. The rubber compound is natural so there is no plasticiser migration ensuring the material neither shrinks,degrades or becomes brittle. SoundBoard will reduce the level of impact noise greater than the recommended minimum of 17dB.

Technical Data

Test	8mm	12mm
Thermal conductivity	0.042 W/mk	0.04 W/mk
Thermal resistance	0.19 m2 K/W	0.30 m2 K/W
Compressive strength to EN826	300 kPa	300 kPa
DL_w Weighted impact sound reduction to ISO 140-8	28 dB	28 dB
As above (with tiled surface)	20 dB	20 dB
Dimensions	1250mm x 600mm	1250mm x 600mm
Weight	4.5kg	4.9kg

Under Floor Heeting Using ML-PANEL



ML-PANEL Composition

marmox

ML-Panel

UNDERFLOOR HEATING PANELS

Marmox ML panels are formed of extruded polystyrene giving them their lightweight feature (1.2 Kg per Panel) while also providing additional properties such as; thermal insulation, decoupling and waterproofing. The panel features two thin layers of fibre-reinforced polymer concrete with a polyester fleece-coated layer on top of an reflective aluminium foil. The aluminium layer is designed to evenly diffuse the heat from the cables or pipes over the surface of the board. A version to reduce transmission of impact noise is available with a layer of synthetic rubber on the bottom side.

Technical Data

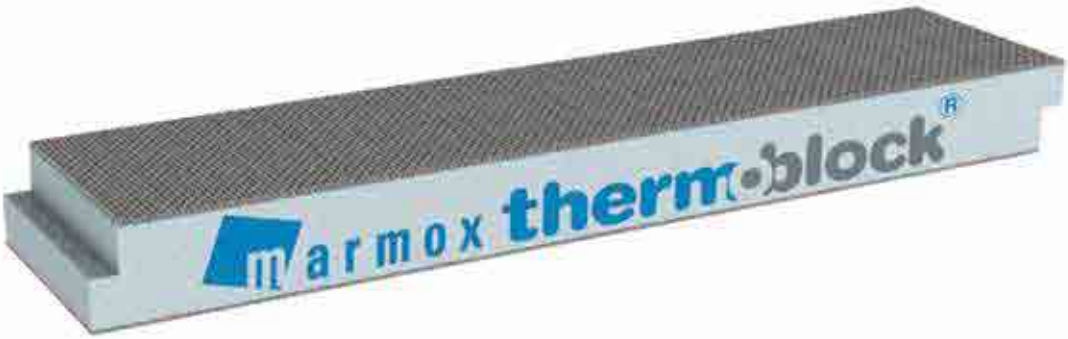
Panel Dimensions Length x Width (mm)	Standard 1200 x 600 other dimensions upon request
Panel total thickness (mm)	6, 10, 12.5, 20, 30, 40, 50, ... Other thicknesses upon request
Weight (Kg)	1-3 kg/ panel (according to thickness)
Thickness of top protective layer including Aluminum foil (mm)	0.4
Thickness of XPS core board (mm)	Panel thickness - 2.50
Thickness of rubber foam (mm)	2.5 (± 0.5)
Impact sound resistance of panel (decibels)	> 30
Thermal conductivity of XPS Foam (W/m K)	0.033
Thermal conductivity of rubber Foam (W/m K)	0.04
Thermal Resistance (m^2 K / W) related to panel thicknesses :	R- Value
6 mm (1/4 ")	0.15
10 mm	0.27
12.5 mm (1/2 ")	0.35
20 mm	0.57
25 mm (1 ")	0.73
30 mm	0.87
40 mm	1.16
50 mm (2 ")	1.46
60 mm	1.76
80 mm	2.35
100 mm (4 ")	2.94
Fire Classification :	
BS 476 part 6+7	Class O
DIN EN 13501-1	Class E

marmox

therm•block

Reduce heat loss at the base of walls

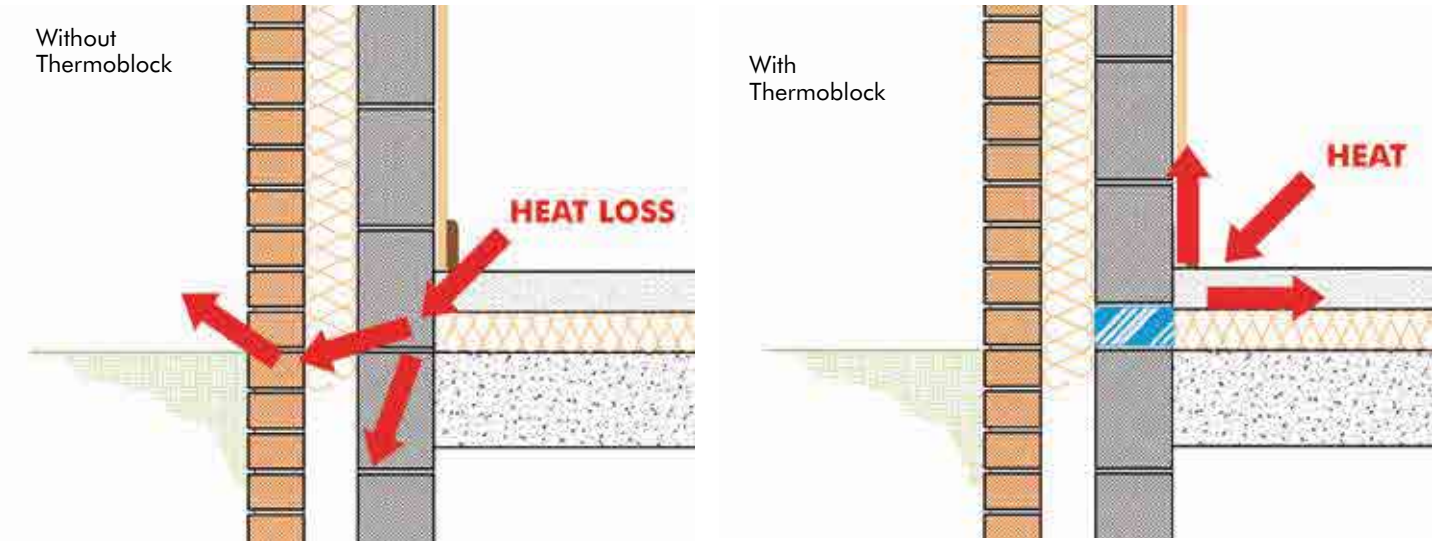
Solves cold bridging at the wall–floor junction



What is Thermoblock for?

Cold bridges occur where the wall meets the floor but until recently it was impossible to place insulation under a supporting wall because the insulation would have been crushed. It was for this reason that Marmox Thermoblock was developed.

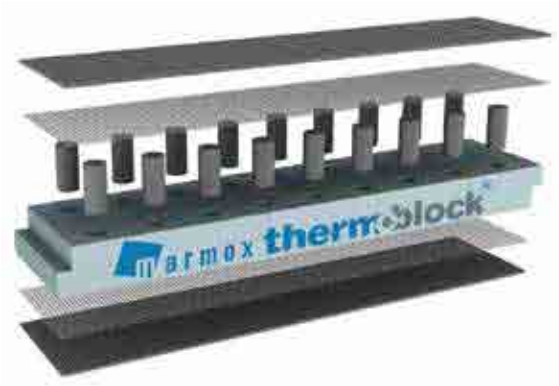
Thermoblock is a block of load-bearing insulation material with a thermal conductivity of 0.047W/mK strong enough to withstand a load of 9N/mm^2. Its function is to eliminate or reduce the thermal bridge at the wall to floor junction.



Marmox Thermoblock is used in both masonry AND timber-framed walls.

What a Thermoblock is

The standard Marmox Thermoblock comprises of a 60mm thick core of fire resistant XPS insulation encasing two rows of high strength, low conductive, epoxy-concrete. These columns are fixed to the top and bottom surfaces of the block, which are 2.5mm thick layers of fibre reinforced polymer concrete incorporating the latest innovation in building technology – Carbon Nano Tubes.



What a Thermoblock is not

A Thermoblock is NOT a thermal block/aerated block/AAC/aircrete block which are lightweight thermally insulating building blocks. Marmox Thermoblock is a thermal bridging block, typically used at the base of a wall made of thermal, aerated blocks, specifically to eliminate the cold bridge.

marmox

thermoblock

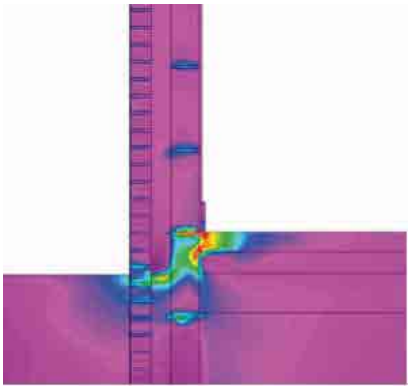
Reduce heat loss at the base of walls

Why Thermoblock should be used

Comply with building regulations

As buildings become more energy efficient with better insulation it is important to address the thermal bridge at the wall floor junction which can contribute up to 30% of a building's total heat loss.

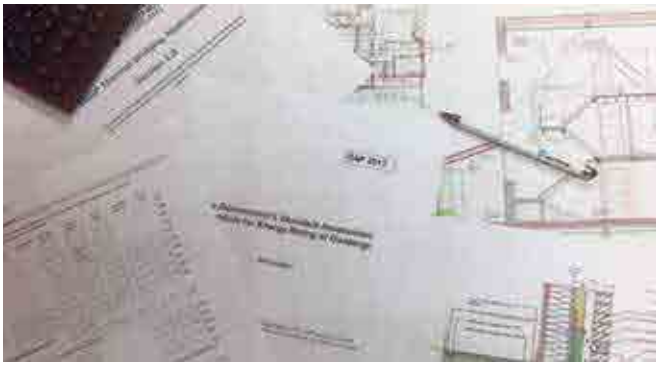
With approximately 40% of all the world's greenhouse gases coming from buildings, by reducing or eliminating thermal bridges, these greenhouse gas emissions can be reduced by almost a third.



Taking the lead from the EU's Energy Performance and Buildings Directive, all building regulations in the UK and Ireland now state the following:

"The building fabric should be continuous over the whole building envelope and constructed so that there are no reasonably avoidable thermal bridges in the insulation layers caused by gaps in the various elements."

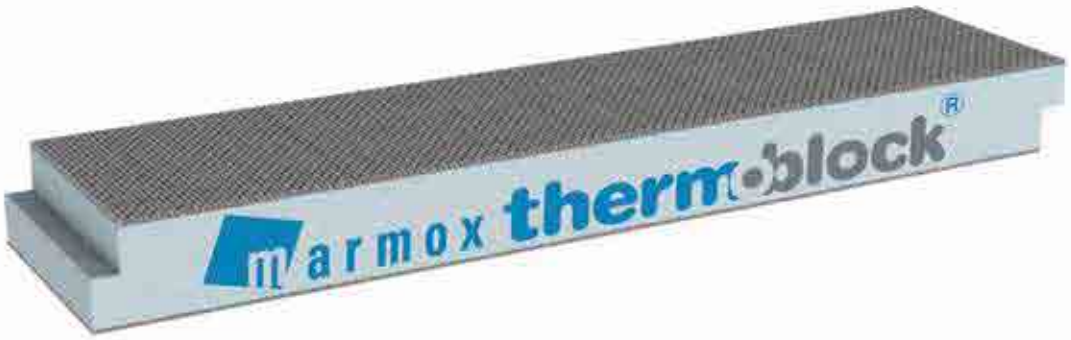
Marmox Thermoblock fully satisfies this requirement. It typically connects the wall insulation to the floor insulation by insulating below the supporting wall - it provides a layer of insulation with the compressive strength of a load carrying block.



The heat loss through thermal bridges is accounted for in the SAP and SBEM, or in Ireland the DEAP and NEAP energy assessment calculation. This combines all the individual ψ values into a single Y value which is then added to the U value to give the total energy loss.

Each thermal bridge in a building will have its own ψ value but the thermal bridge at the wall to floor junction is easily the most significant one with a ψ value usually in excess of all the other thermal bridges put together.

Not addressing the wall to floor junction could result in that the building not meeting regulations.



Lower heating costs and reduce greenhouse gas emissions

Studies have shown that the cost to heat an average home can be reduced by approximately £200 by incorporating Marmox Thermoblock in the wall to floor junction detail thereby removing or reducing that thermal bridge.

Clearly, such an effective method in reducing a building's energy consumption will have a positive contribution in reducing CO_2 emissions from power stations and consequently in global warming.

A healthier, more comfortable building

A thermal bridge at the base of a wall will cause that wall's surface to be colder. When there is little air movement, the chances of surface condensation and subsequently mold growth occurring are greatly increased. Mold growth is not only unsightly but can exacerbate health issues such as asthma and respiratory diseases. In drawing heat out of the wall, surface condensation can reduce the effectiveness of the wall insulation.

Building Regulations require f_{Rsi} or the surface temperature factor to be greater than 0.75 in homes or greater than 0.5 in non-residential properties to ensure there will be no mold growth. Incorporating Marmox Thermoblock at the base of the internal wall will almost always result in f_{Rsi} values in excess of 0.75.

Applications and specifications

Generally, the most significant non-repeating thermal bridges in buildings is at the wall to floor junction of the perimeter walls. Thermoblocks are typically used at the base of perimeter walls although they can be used in other locations as well

A selection of junction details incorporating Marmox Thermoblock have been thermally modelled by the BRE and presented as the following document.

This report provides third party accredited (BRE) thermal performance (ψ values) and temperature factors (f_{Rsi} values) which can be used without the need for any further assessments in **SAP**, **SBEM** or **DEAP** calculations.


bre

Certificate of Approval

Marmox UK Ltd

These junction details with the corresponding thermal and condensation values are free to down load at:

www.bre.co.uk/certifiedthermalproducts/

BRE modelled detail	BRE reference	ψ value (W/m.K)	f_{Rsi} temperature factor
Masonry Cavity Wall junction with a concrete slab	6000023 6000024	0.031 (100mm) 0.030 (140mm)	0.94
Masonry Cavity Wall junction with a block and beam floor	6000025 6000026	0.038 (100mm) 0.042 (140mm)	0.95
Timber Frame Wall junction on concrete slab	6000030	0.039 (140mm)	0.92
Timber Frame wall junction with a suspended timber floor	6000029	0.079 (140mm)	0.91
Masonry Cavity Wall junction with a suspended timber floor	6000027 6000028	0.081 (100mm) 0.085 (140mm)	0.88

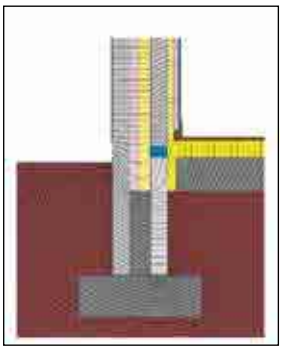
Specifications of the three highlighted models are shown in the following pages.

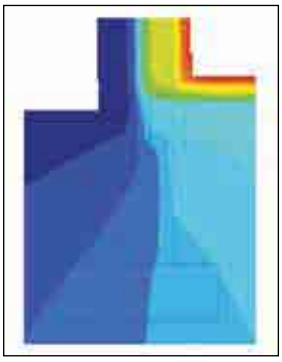
Other common examples of where to use are:

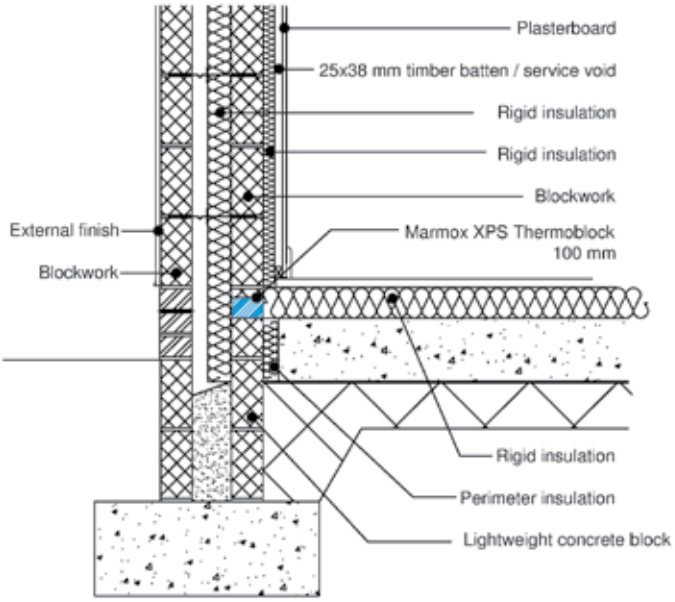
- Underneath a concrete slab, below a timber frame
- Underneath a solid wall
- Underneath a door threshold
- Internal and party wall junction to the floor
- Wall junctions with non-ground floors
- Roof eave to wall junction
- At the base of parapets

1. Masonry Cavity Wall junction with a ground floor

BRE detail 600023







Using 100mm Marmox Thermoblock with 100mm wide aerated concrete/ AAC blocks.

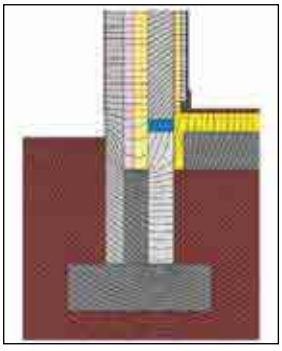
Ψ value = 0.031

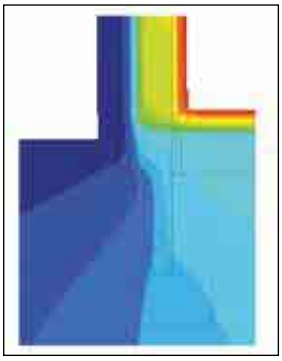
f_{Rsi} = 0.94

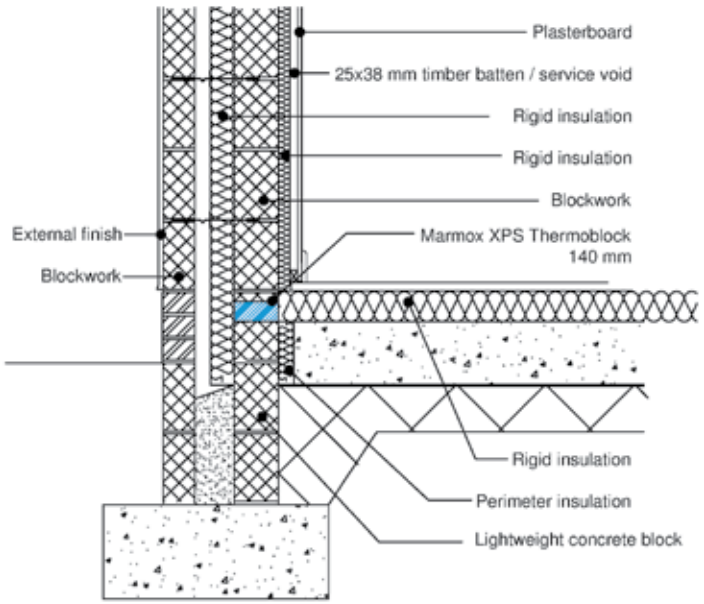
Typical Specification: A single course of Marmox Thermoblock: 600mm(l) x 100/140/215mm(w) x 65mm(ht) is the starter course for the inner leaf of the wall in place of the bottom row of blocks. Thermoblock is fixed to the floor with normal mortar which is also used to lay subsequent courses of bricks/blocks on top. If using lightweight blocks, this initial layer of mortar should be at least 15mm.

Variation:

BRE detail 600024







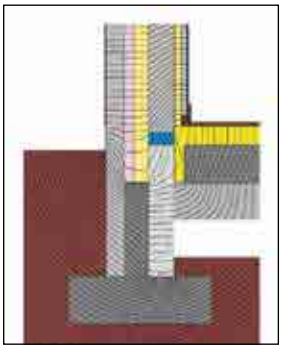
Using 140mm Marmox Thermoblock with 140mm wide aerated concrete/ AAC blocks.

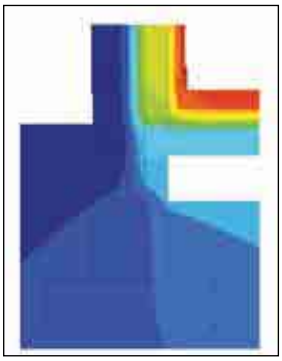
Ψ value = 0.030

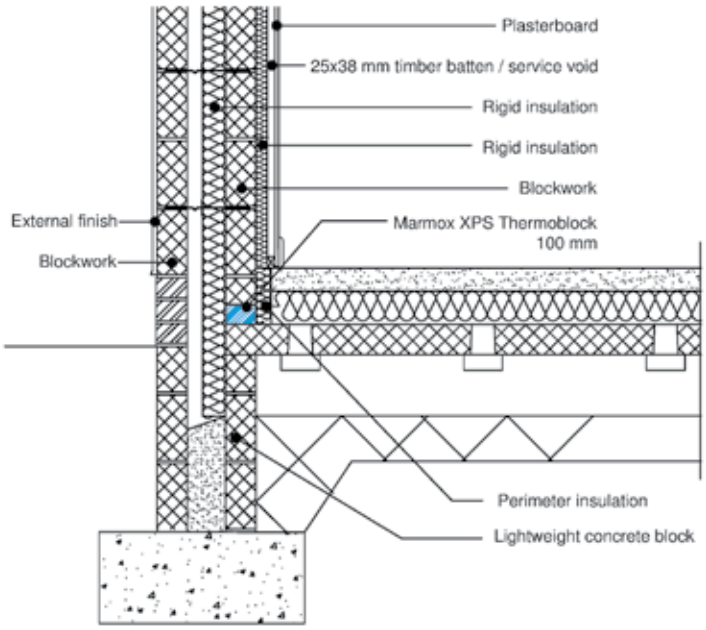
f_{Rsi} = 0.94

2. Masonry Cavity Wall junction with a block and beam floor

BRE detail 600025







Using 100mm Marmox Thermoblock with 100mm wide aerated concrete/ AAC blocks.

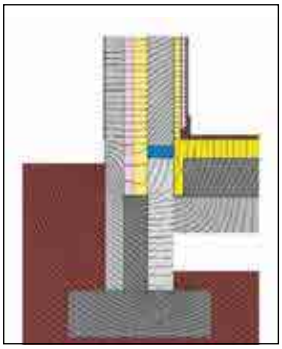
Ψ value = 0.038

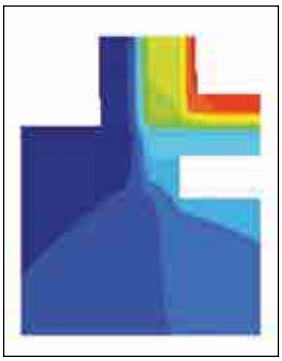
f_{Rsi} = 0.95

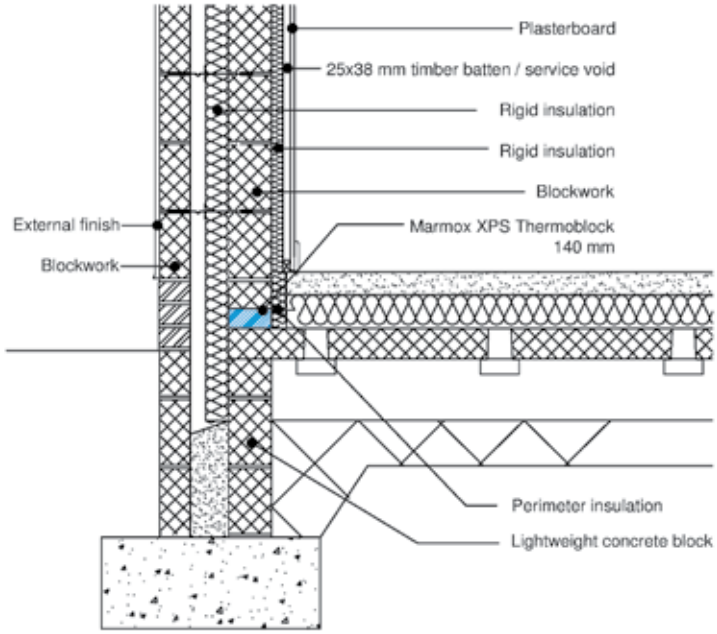
Typical Specification: A single course of Marmox Thermoblock: 600mm(l) x 100/140/215mm(w) x 65mm(ht) is the starter course for the inner leaf of the wall in place of the bottom row of blocks. Thermoblock is fixed to the floor with normal mortar which is also used to lay subsequent courses of bricks/blocks on top. If using lightweight blocks, this initial layer of mortar should be at least 15mm.

Variation:

BRE detail 600026







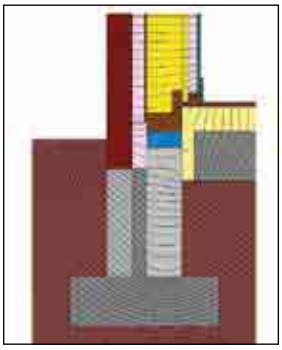
Using 140mm Marmox Thermoblock with 140mm wide aerated concrete/ AAC blocks.

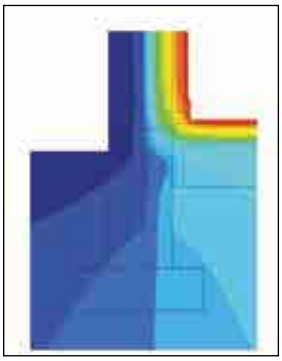
Ψ value = 0.042

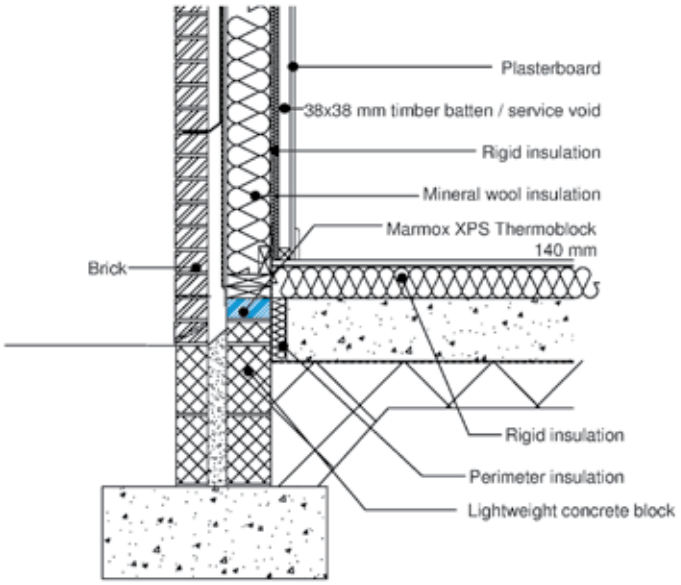
f_{Rsi} = 0.95

3. Timber Frame Wall junction on ground floor

BRE detail 600029







Using 140mm Marmox Thermoblock with 140mm wide timber frame.

Ψ value = 0.039

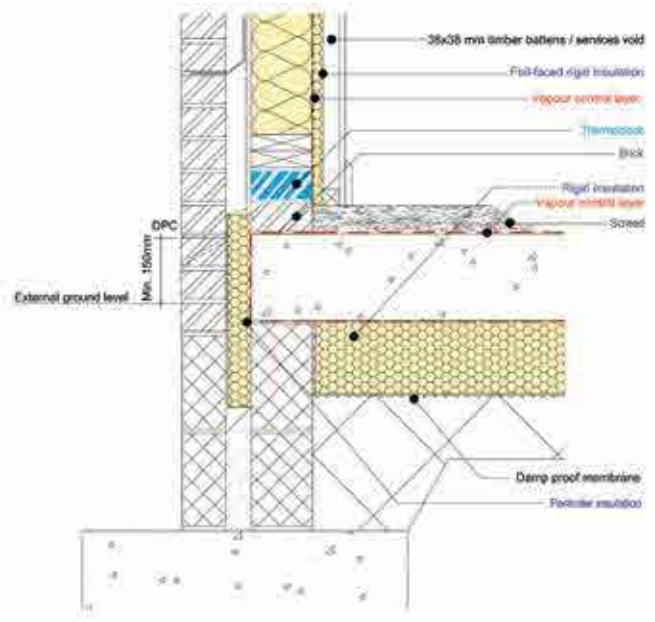
f_{Rsi} = 0.92

Typical Specification – Under sole plate, directly on the concrete slab / foundation blocks: One course of Marmox Thermoblock (600mm x 100mm/140mm/215mm x 65mm) is laid onto the slab/foundation blocks with conventional sand/cement mortar. Thermoblocks are sealed together with Marmox sealant on the stepped edges to provide a waterproof barrier. Sole plate is fixed mechanically to the floor using bolts placed through the middle of the Thermoblock (halfway across its width) into the concrete/blocks below.

Alternative Specification – The Thermoblock layer may be laid on top of a row of bricks/blocks to raise the height and ensure that the DPM is not pierced by the fixing bolts: One course of Marmox Thermoblock (600mm x 100mm/140mm/215mm x 65mm) is laid onto the layer of blocks/bricks with conventional sand/cement mortar. Thermoblocks are sealed together with Marmox sealant on the stepped edges to provide a waterproof barrier. Sole plate is fixed mechanically using bolts placed through the middle of the Thermoblock (halfway across its width) into the layer of blocks/bricks below.

Additional fixing instructions

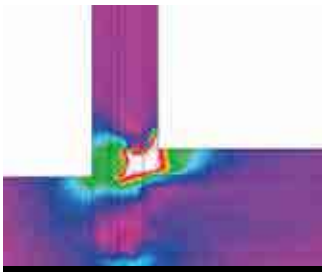
1. Fixing bolt can only pass through the middle of the Thermoblock where there are no concrete columns.
2. Ensure that the sole plate is not narrower than the Thermoblock.
3. Prior to inserting the bolt, squirt sufficient Marmox sealant into the hole to waterproof it.
4. Apply a single ribbon of Marmox sealant to the surface of the Thermoblock so it seals to the underside of the sole plate.
5. If bricks are used beneath the Thermoblock blocks (Alternative Specification), they must be solid bricks, without hollows or with holes, so that the bolts which pass through the Thermoblock have something to anchor in to.



In-house Specifications

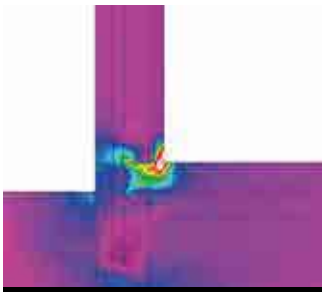
The following specifications include thermally modelled ψ values for specific details with specific materials so should not be assumed to cover all variants.

1. Underneath a concrete slab, below a timber frame



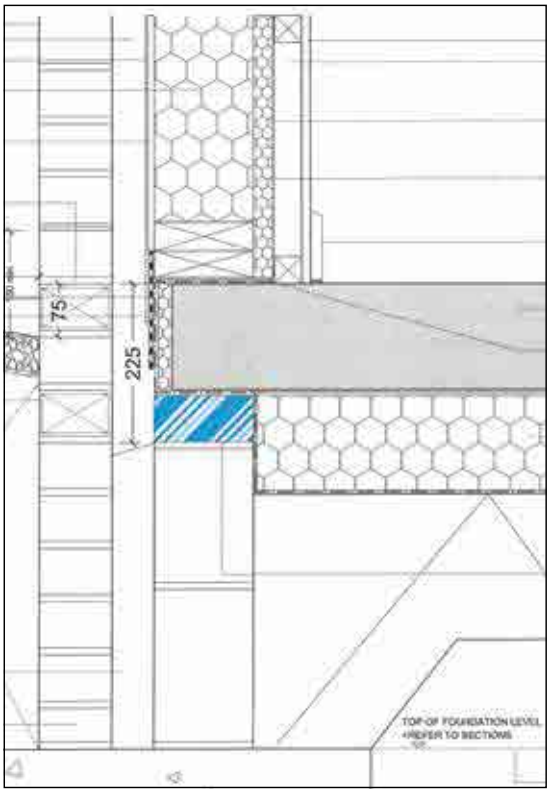
Ψ value = 0.064
f_{Rsi} = 0.89

Heat flux **without** Thermoblock



Ψ value = 0.039
f_{Rsi} = 0.95

Heat flux **with** Thermoblock



Product Type: 140mm Marmox XPS Thermoblock

Junction Type: Wall to Ground floor (insulation below slab)

Specification: A single course of Marmox Thermoblock: 600mm(l) x 100/140/215mm(w) x 65mm(ht) is fixed using normal mortar on to top of the foundation blocks (inner leaf) directly underneath the load bearing concrete slab on which the timber frame is fixed.

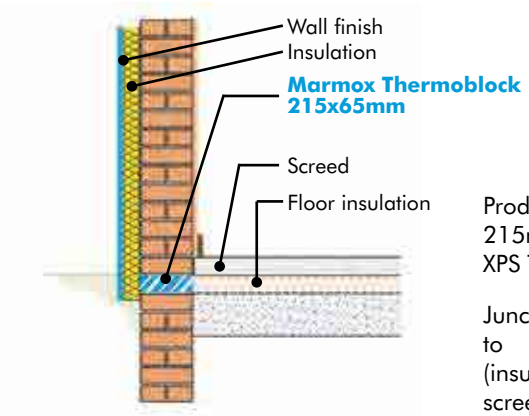
Additional fixing instructions

The compressive strength of Thermoblock is 9N/mm^2 – ensure this conforms with the requirements of the foundation wall blocks.

The foundation blocks below the Thermoblock must not be narrower than the width of the Thermoblock.

The edge of concrete slab above must be no more than 15mm away from the edge of the Thermoblock.

2. Underneath a solid wall

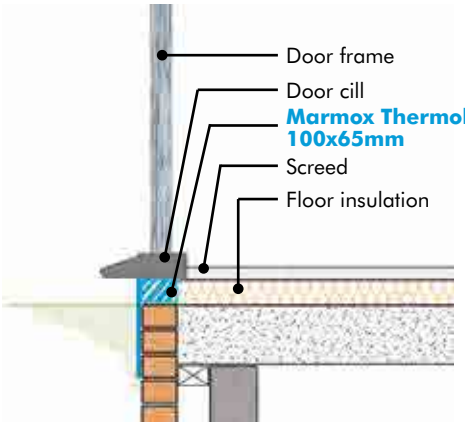


Product Type: 215mm Marmox XPS Thermoblock

Junction Type: Wall to ground floor (insulation below screed)

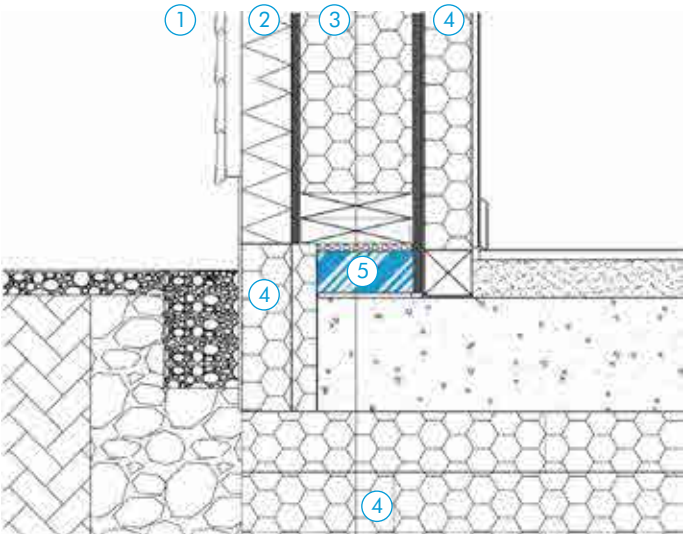
Marmox Thermoblock does not absorb water so can therefore be used in a damp environment with no effect on its insulation. To protect the floor insulation from moisture, ensure that the block edges are sealed together using Marmox sealant. Thermoblocks can be in contact with the soil but to discourage damage by rodents, the vertical surfaces should be protected, typically with a render.

3. Underneath a threshold



Marmox Thermoblock is suitable to use in the outer skin provided that its sides are protected from sunlight. The frame is mechanically fixed to the brickwork underneath the with a bolt or screw passing through the middle of the Thermoblock. Provided that the frame imposes its load evenly over the whole width of the Thermoblock, it may overhang the Thermoblock. Marmox sealant seals the Thermoblock to the frame.

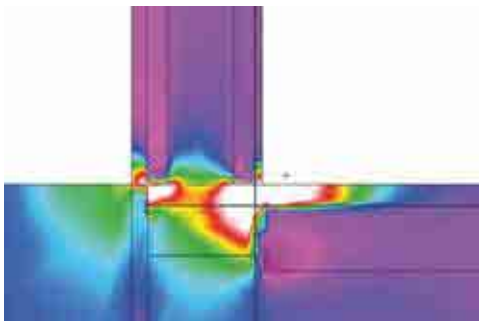
4. Achieving ψ value of 0.01W/mK on a Passivhaus design



Marmox Thermoblocks are often incorporated into Passivhaus designs such as the example here. In addition to having a primary energy demand less than 120kWh/m², very low U values, to achieve Passivhaus or zero carbon standards, the buildings need to be effectively thermal bridge free which means having a ψ value no more than 0.01W/mK. When used in the following design, Thermoblock resulted in making the junction a thermal bridge free.

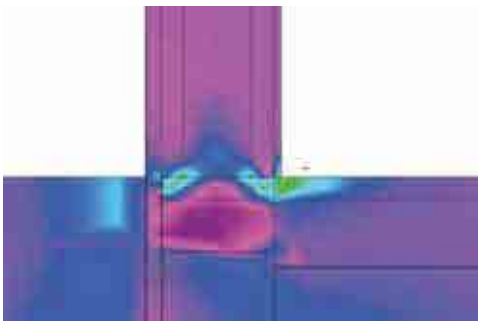
1. Timber cladding
2. Breathable external insulation
3. Insulating timber frame
4. Rigid phenolic insulation
5. Marmox Thermoblock
   215mm wide, 100mm high

5. At the base of an ICF wall



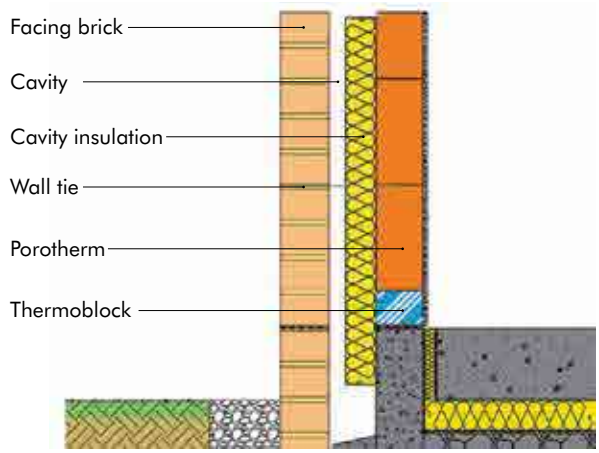
The ψ value of a typical ICF wall on a concrete slab is 0.15W/mK.

Incorporating a Thermoblock at the base reduces this typically to 0.09W/mK



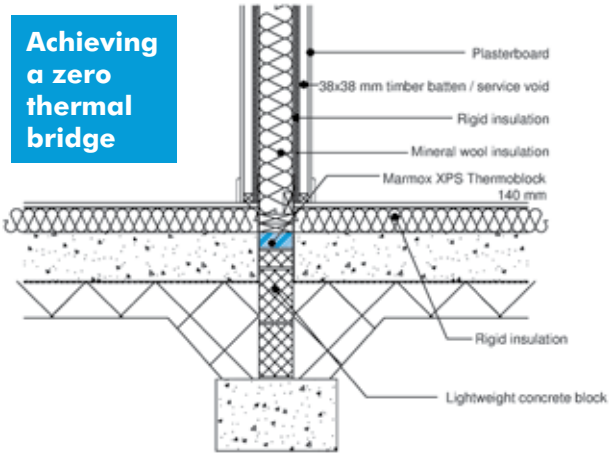
Specification: If the ICF unit is designed so that the width of the concrete component inside is at least the same width as the Thermoblock, the ICF unit is laid directly on top of the Thermoblock. For example, a 170mm wide ICF unit incorporates a 120mm wide section of concrete. This can be placed onto a 100mm wide Thermoblock but not a 140mm wide Thermoblock. If the width of the concrete component inside the ICF is narrower than the Thermoblock width, a starter course of aircrete is incorporated.

6. Use with cellular clay blocks



Specification: The cellular clay block (e.g. Porotherm T8) is fixed onto the Thermoblock with 12mm bricklayers mortar (min. mean compressive strength of 25 N/mm²). The cellular clay brick wall is laid directly on top of the Thermoblock if the combined dead and imposed load is <2N/mm². For loads in excess of 2N/mm², an aircrete block is laid on the Thermoblock to form the starter course of the cellular clay block wall.

7. Internal wall



Specification: A timber frame partition wall is mechanically fixed to the foundation blocks/concrete slab through the centre of the Thermoblock. The width of the wall is the same width as the Thermoblock. Fixings are placed every 600mm and the interface is sealed with Marmox sealant. The Thermoblock course should not be directly adjacent to the floor insulation on both sides of the wall. The Thermoblock should either be adjacent to the screed level or used in combination with a proprietary insulated fire stop.

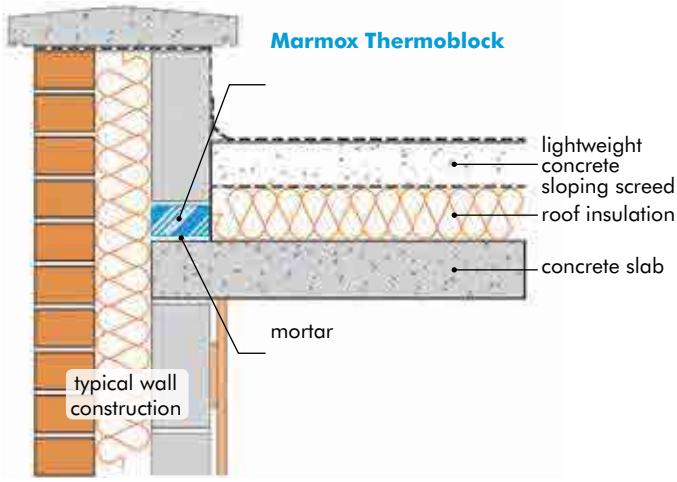
8. Base of parapets

Parapet walls can act as thermal fins accounting for significant heat loss since, in many situations, it has not been possible to integrate a thermal break between the inner leaf of the parapet wall with the inner leaf of the room below. A layer of Marmox Thermoblock can be safely and efficiently placed at the base of the external section.

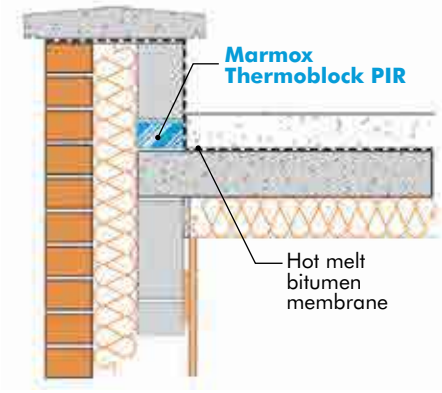
Standard application

Heat can be lost from a room below a flat or sloping roof that supports a parapet wall. In addition to wasting energy, parapet walls can result in condensation and mold growth on the walls underneath.

In most designs, the normal XPS Thermoblock is suitable, there is just one specific application when a variant needs to be used.



Hot melt bitumen membrane



If applying a hot-melt bitumen membrane to a roof junction with a parapet wall using a flame torch, Marmox Thermoblock-PIR should be specified as this version is resistant to distortion which the standard block may experience if in contact with the flame gun. The PIR version has a slightly lower thermal conductivity (0.041W/mK), is 53mm high and like the standard version a compressive strength of 9N/mm².

Important Installation Advice

Sealing the blocks together

Marmox sealant should be used to seal the ends of the Thermoblocks together to prevent moisture creeping up between blocks and to ensure air tightness of the building.

Not an alternative aircrete blocks

Thermoblock should be used with, not instead of lightweight aircrete / thermal / AAC blocks. These blocks typically provide λ values between 0.11W/m.K (for 3.6N blocks) to 0.22W/m.K (for 7.3N blocks) whereas the Marmox Thermoblock's λ value is 0.047 W/m.K.

Not an alternative to a DPM

Although when sealed together Thermoblock creates a permanent waterproof barrier, a Damp Proof Membrane must be applied to the detail as though the Thermoblock were simply another normal block in the wall. The DPM can be fixed above or below the Thermoblock layer.

Can a Thermoblock be laid on top of each other?

No. All independent testing has been carried out with just one course of Thermoblock – we are unable to provide a characteristic compressive strength when more than one layer is used.

In nearly all situations, the 65mm high version is sufficient in reducing the y value however a 100mm high version of Thermoblock is also available if necessary.

What is fixed above or below the Thermoblock must NOT be narrower.

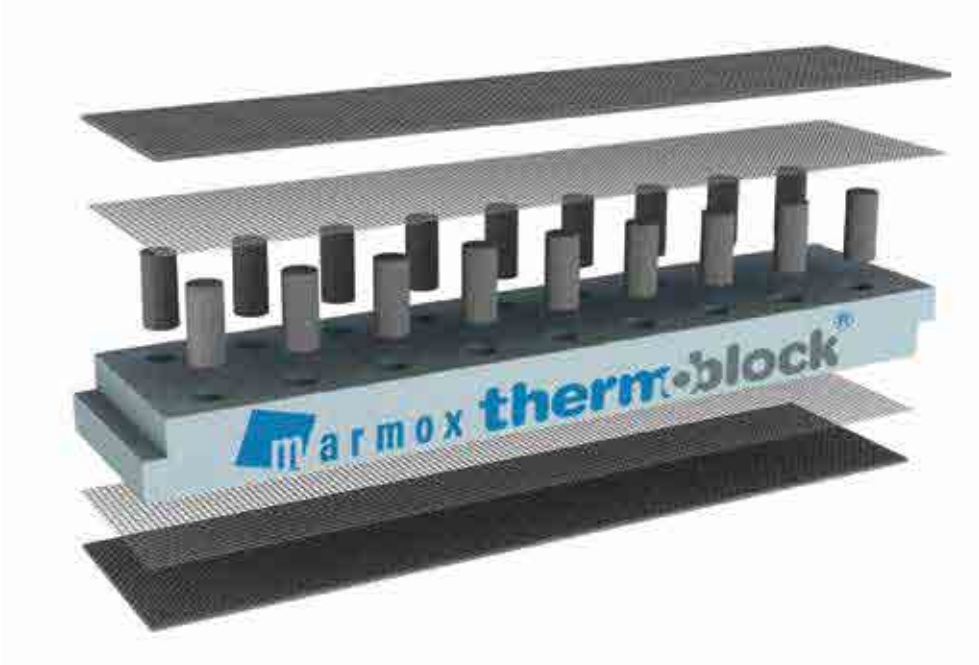
Thermoblock derive their strength from rows of concrete columns located along each side. What is sitting on top of a Thermoblock must therefore distribute its weight evenly over both sides. In other words, what's on top (and below) the course of Thermoblock must not be narrower than the width of the Thermoblock.

Can it be used as a Cavity Barrier?

No, if used to bridge two combustible insulation materials the core material could melt creating a conduit for flame to enter one living space from another. Therefore a cementitious covering such as a cement board should be fixed to one of the sides.

How are Thermoblocks installed?

Thermoblock can be cut on site using a brick saw, or through the polystyrene-only sections with a hand-saw. They are laid using ordinary bricklayers' mortar



marmox

thermoblock

Reduce heat loss at the base of walls

Table of characteristics

Property	Units	European Standard	Standard Thermoblock	Extra thick Thermoblock	Thermoblock PIR (Parapet)
Total Thickness	mm	EN 823	65	100	53
Thickness of insulation	mm	EN 823	60	95	47
Width	mm	EN 822	100	100	100
			140	140	140
			215	215	
Length	mm	EN 822	600	600	600
Weight	kg	EN 822	100mm = 1.6 140mm = 1.9 215mm = 2.5	100mm = 2.2 140mm = 2.6 215mm = 4.0	100mm = 1.4 140mm = 1.7
Thermal conductivity (λ) of insulant	W/m.K	EN 12664 EN 13165	0.028	0.028	0.026
Thermal conductivity of (λ) of support columns	W/m.K	EN 12667	0.130	0.130	0.130
Thermal conductivity of (λ) of slurry coating	W/m.K	EN 10456	1.15	1.15	1.15
Effective thermal conductivity of (λ) of insulation core	W/m.K	EN 12664/5/7	0.047	0.047	0.041
Vertical thermal resistance (R) of insulation core	m^2K/W	EN 12667	1.4	2.1	1.1
Declared compressive strength (f_b)	N/mm^2	EN 772-1	9.0	9.0	9.0
Characteristic compressive strength (f_k)	N/mm^2	EN 771-4	100mm = 6.6 140mm = 8.0 215mm = 8.0	100mm = 6.6 140mm = 8.0 215mm = 8.0	100mm = 6.6 140mm = 8.0 215mm = 8.0
Characteristic shear strength (f_{vk}) in masonry wall	N/mm^2	Eurocode 6	.018	n/a	n/a
Expansion coefficient	Mm/m.k	EN 53752	0.07	0.07	n/a
Water absorption	%	EN 771-3	3.1%	2.2%	6.4%
Maximum operating temperature	°C	EN 14706	75°	75°	250°
Fire resistance	Euroclass	EN 13164	E	E	E
Fire resistance	Minutes	EN 1365-1	>120mins	>120mins	>120mins

Protect your investment

with Marmox Egypt's engineered construction panels. Our panels offer exceptional performance in heat, water, sound insulation ,fire resistance and much more advantages

All of these benefits

make Marmox foam panels the ideal choice for modern construction projects. By reducing the need for traditional materials, Marmox panels not only offer superior quality but also contribute significantly to sustainable building practices

Discover our references:

- Architectural design projects

- Interior and exterior cladding projects

marmox®

www.marmox.com