marmox thermoblock
Reduce heat loss at the base of walls

Specifications at the base of Thresholds

This document contains TWO specifications using Thermoblock used under door thresholds and under windowsills.

Junction Detail	Click the Hyper-link	SAP default ψ value	SBEM default ψ value
E5 Ground Floor to External Wall			
Beneath a **solid** masonry wall / **external** leaf	EXTWALL	0.32	0.36
E3 Window Sill			
Beneath windowsill in cavity wall	SILL	0.10	0.12

Specification to eliminate or reduce thermal bridge at a door Threshold

Specification:	**THRESH**
Product ref:	Marmox Thermoblock (Standard Type)
Junction Type:	**E5**
Manufacturer:	Marmox UK, Caxton House, 101 Hopewell Drive, Chatham, Kent ME5 7NP. 01634 835290; Email: sales@marmox.co.uk; http://www.marmox.co.uk/.

Product Use: Elimination/Reduction of cold bridge at threshold junction.

Description: Marmox Thermoblock is a load-bearing heat-insulating building block consisting of two rows of load-carrying epoxy-concrete columns of low thermal conductivity bonded to polymer concrete layers reinforced with fibreglass mesh which comprise the upper and lower surfaces. Thermally insulating Extruded Polystyrene surrounds the columns.

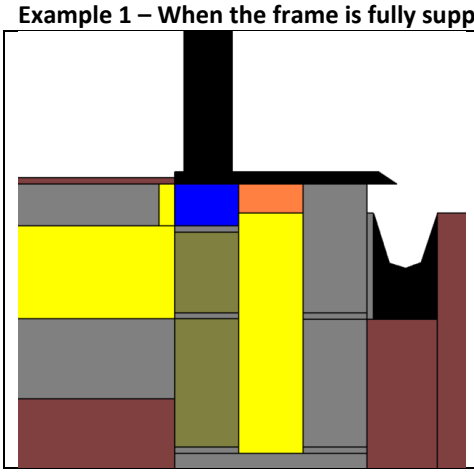
Properties: Average λ value of 0.05W/mK (*to EN13164/EN13167*)
Mean compressive strength of 9.0N/mm^2 (*to EN772-1*)
Fire resistance >120minutes (*to EN1365-1*)
Water Absorption <3.5% (*to EN771-4*).

Dimensions: Length = 600mm, Thickness = 65mm or 100mm, Width = 100mm, 140mm or 215mm

Authorities: ISO9001 (Bureau Veritas)
BRE – Certified Thermal Products Scheme, *http://www.bre.co.uk/certifiedthermalproducts/*
Fire Safety Report: 16781B (Warrington Fire)

Thermoblock is fixed to the blockwork or concrete ideally directly below the base of the door or window frame in a position where both its vertical faces are concealed or covered.
Thermoblock does not absorb moisture, it can therefore be used above and below ground level.

Example 1 – When the frame is fully supported on the inner leaf



- Using standard sand/cement mortar, a single course of Thermoblock is mortared onto the inner leaf blocks directly underneath the door frame.
- The row of Thermoblock is not in line with the floor insulation therefore a perimeter insulation strip (e.g. 25mm PIR/XPS) is required.
- The frame is mechanically fixed through the centre of the Thermoblock (*approx. half-way across its width*) into the blockwork that the Thermoblock is on top of.
- Marmox MSP360 is used to seal the base of the frame to the Thermoblock's top surface, to seal the bolt holes and to seal the interlocking edges of the Thermoblocks together.

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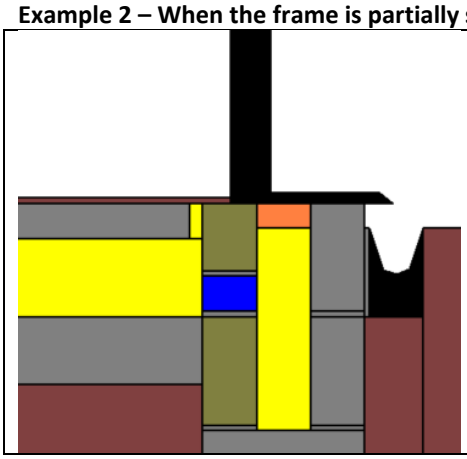
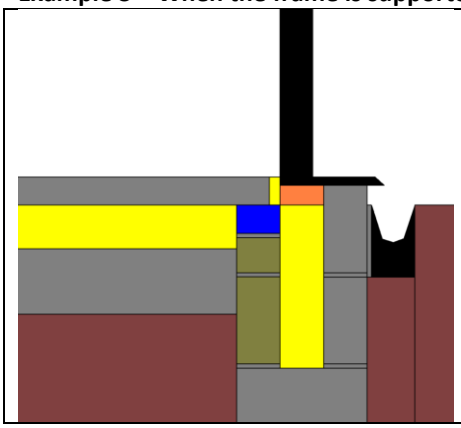
Specification to eliminate or reduce thermal bridge at a door Threshold

Example 2 – When the frame is partially supported on the inner leaf



- Using standard sand/cement mortar, a single course of Thermoblock is laid onto the inner leaf blocks in line with the floor insulation.
- A concrete or AAC block is mortared on top of the row of Thermoblocks up to floor height.
- The frame would subsequently be fixed into the concrete block which is above the Thermoblocks.
- ***A perimeter insulation strip*** *(as shown)* ***can be included however this makes only a very minimal improvement to the insulation.***

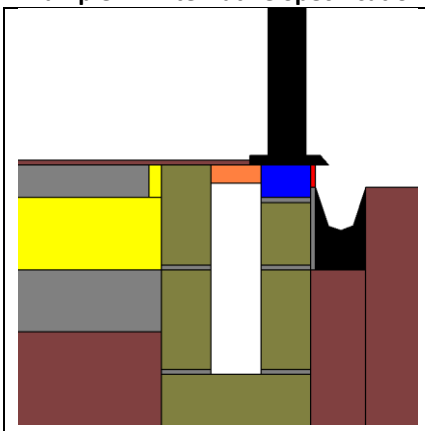
Example 3 – When the frame is supported on the outer leaf



- Using standard sand/cement mortar, a single course of Thermoblock is mortared onto the inner leaf blocks in line with the floor insulation.
- The screed is placed above.

A perimeter insulation strip *(as shown)* ***can be included however this makes only a very minimal improvement to the insulation***

Example 4 - Alternative Specification on the outer leaf



- Using standard sand/cement mortar, a single course of Thermoblock is mortared onto the outer leaf blocks directly underneath the door frame.
- A perimeter insulation strip (e.g. 25mm PIR/XPS) is required with this detail.
- The frame is mechanically fixed through the centre of the Thermoblock (*approx. half-way across its width*) into the blockwork that the Thermoblock is on top of.
- Marmox MSP360 is used to seal the base of the frame to the Thermoblock's top surface, to seal the bolt holes and to seal the interlocking edges of the Thermoblocks together.
- **The exposed face of the Thermoblock must be covered** with a cement-based render (*shown in red in this diagram*). To aid adhesion to the polystyrene face, a piece of mesh/scrim tape should be folded over the top of the Thermoblock when fixing the door frame on top so that it falls down covering the exposed polystyrene face.

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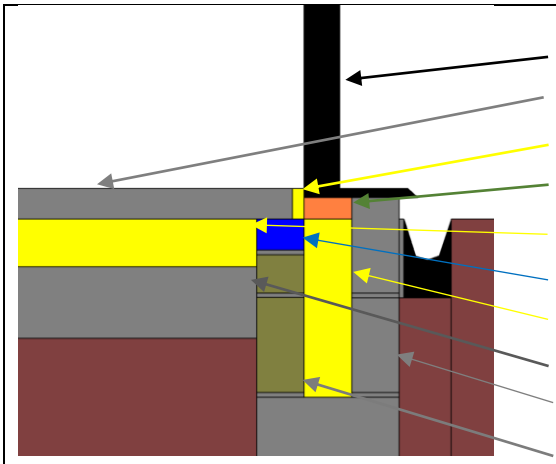


Key to materials used in ALL these examples

Door and frame

Screed

PIR Perimeter insulation (λ = 0.021W/mK)

Cavity closer (λ = 0.034W/mK)

PIR Floor insulation (λ = 0.021W/mK)

Marmox Thermoblock, 65mm (λ = 0.05W/mK)

Below ground cavity insulation (λ = 0.034W/mK)

Concrete slab

Dense concrete block (λ = 1.60W/mK)

Medium density concrete block (λ = 0.062W/mK)

Waterproofing:

A separate Damp Proof Membrane should be included in the detail. The DPM can be fixed directly above or below the Thermoblock but because Thermoblock is waterproof, typically it is fixed above the Thermoblock layer.
Additionally, Marmox MSP-360 should be used to seal the short edges of the Thermoblocks together. This creates a permanent waterproof barrier.

Important notes:

1) If fixing the frame directly on top of the Thermoblocks, the width of the frame must not be narrower than the width as the Thermoblock.

2) **Thermoblocks should not be laid on top of each other if part of a supporting wall** - use only one course.

3) If used on an outer leaf, it must be covered and should not be in a location where the blocks may come into regular contact with petroleum or organic solvents.

Specification to eliminate or reduce thermal bridge under a Window Sill

Specification:	**SILL**
Product ref:	**Marmox Thermoblock (Standard Type)**
Junction Type:	**E3**
Manufacturer:	**Marmox UK, Caxton House, 101 Hopewell Drive, Chatham, Kent ME5 7NP. 01634 835290; Email: sales@marmox.co.uk; http://www.marmox.co.uk/.**

Product Use: Elimination or reduction of the cold bridge from the base of the window frame to the masonry wall.
Reduction in the ψ value used in SAP/SBEM or DEAP/NEAP calculations to enable compliance with UK / Irish building regulations.

Description: Marmox Thermoblock is a load-bearing heat-insulating building block consisting of two rows of load-carrying epoxy-concrete columns of low thermal conductivity bonded to polymer concrete layers reinforced with fibreglass mesh which comprise the upper and lower surfaces. Thermally insulating Extruded Polystyrene surrounds the columns.

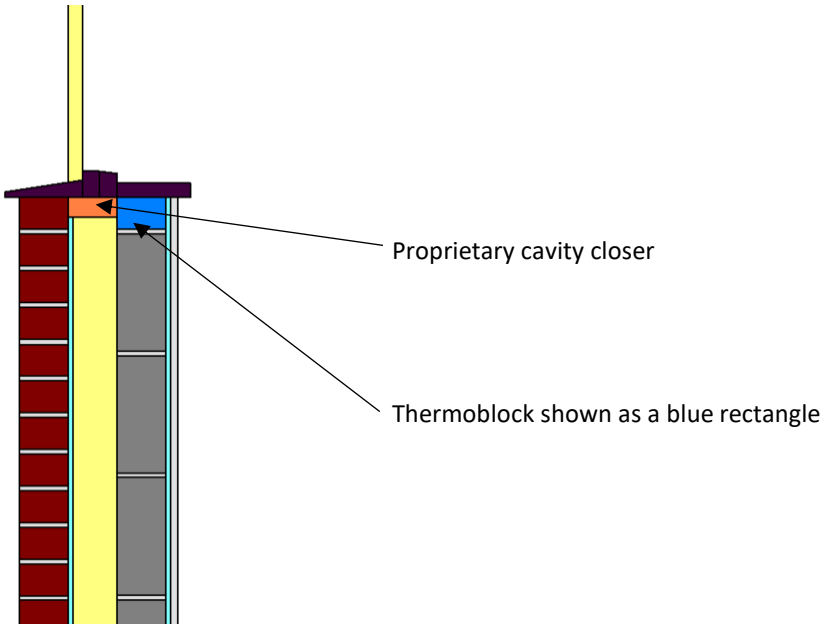
Properties: Average λ value of 0.05W/mK (*to EN13164/EN13167*)
Mean compressive strength of 9.0N/mm^2 (*to EN772-1*)
Water Absorption <3.5% (*to EN771-4*).

Authorities: ISO9001 (Bureau Veritas)
BRE – Certified Thermal Products Scheme, *http://www.bre.co.uk/certifiedthermalproducts/*
Fire Safety Report: 16781B (*Warrington Fire*)

Dimensions: Length = 600mm, Thickness = 65mm or 100mm, Width = 100mm, 140mm or 215mm

Marmox Thermoblock replaces the top 65 or 100mm of the inner leaf directly below the window frame.

Typical Detail



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Specification to eliminate or reduce thermal bridge under a Window Sill

- A single course of Marmox Thermoblock of the same width as the blocks comprising the inner leaf is fixed on top of those blocks using ordinary bricklayers' mortar.
- The length of Thermoblocks can be cut using a brick saw.
- Thermoblock edges are sealed together with a ribbon of Marmox MSP360 on the stepped edges to provide a waterproof barrier and improve air-tightness.
- The Thermoblocks present a strong and stable base for the window sill but the sill cannot be simply screwed into Thermoblocks below. *The sill can be fixed either by: -*
  - Adhering it to the row of Thermoblocks with Marmox MSP-360
  - Screw fixing the sill through the middle of the Thermoblocks into the concrete blocks underneath. Bolts are placed through the Thermoblock approximately halfway across its width.

Important notes:

1. The width of the Thermoblocks should be approximately the same width as the blocks which they are fixed onto.
2. **Thermoblocks cannot be stacked** – only one single layer is permitted.