Specifications for Thermoblock
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Click on the reference below to see the specification sheet.
Spec 1 – cavity wall

Specification to eliminate or reduce thermal bridge at the junction of a masonry cavity wall with the floor

<table>
<thead>
<tr>
<th>Product ref:</th>
<th>Marmox Thermoblock (Standard Type)</th>
</tr>
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<tbody>
<tr>
<td>Manufacturer:</td>
<td>Marmox Ltd</td>
</tr>
<tr>
<td>Address:</td>
<td>Marmox UK, Caxton House, 101 Hopewell Drive, Chatham, Kent ME5 7NP. 01634 835290; Email: <a href="mailto:info@marmox.co.uk">info@marmox.co.uk</a>; <a href="http://www.marmox.co.uk/">http://www.marmox.co.uk/</a>.</td>
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Product Use: Elimination or reduction in cold bridging at the wall to floor junction. Reduction in the \( \lambda \) 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.

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

General Advice: Thermoblock replaces the masonry unit of the inner leaf at the wall to floor junction

Specification: A single course of Marmox Thermoblock: 600mm(l) x 100/140/215mm(w) x 65/100mm(ht) is used as 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. Thermoblock edges are sealed together with a ribbon of Marmox MSP360 on the stepped edges to provide a waterproof barrier.

Properties: Average \( \lambda \) value of 0.047W/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).

Authorities: BBA certified (10/4778)  
ATG Technical Approval (3093/2018)  
ISO9001 (Bureau Veritas)  
BRE – Certified Thermal Products Scheme, http://www.bre.co.uk/certifiedthermalproducts/  
Fire Safety Report: 16781B (Warrington Fire)
Fixing system:  Fix to the concrete floor slabs, blocks, beams or DPM exactly as if it was a masonry unit using standard sand and cement mortar.  
Ensure the Thermoblock is supported by an even base across its whole width. 
Fix to the bricks/blocks above using a standard brick/block laying sand and cement mortar. If using lightweight blocks, this initial layer of mortar should be at least 15mm.

Treatment:  The vertical sides of the Marmox Thermoblock must not be left visible. For typical installation, the exposed face is butted up to the floor and wall insulation layer or covered with the floor screed. 
Exposed vertical sides should be rendered with a cementitious material.

Waterproofing:  Although when sealed together Thermoblock creates a permanent waterproof barrier, Thermoblock is not officially a DPM. A separate Damp Proof Membrane should therefore 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. 
A permanent waterproof barrier is created by sealing the block edges to each other with a sealant: Marmox MSP360, supplied in 290ml tubes:

Marmox Thermoblock 100mm wide require 1 cartridge per 36 blocks 
Marmox Thermoblock 140mm wide require 1 cartridge per 24 blocks 
Marmox Thermoblock 215mm wide require 1 cartridge per 20 blocks

Limitations:
1) What is placed on top of the Thermoblock cannot be narrower than the width of the Thermoblock. 
2) One course only – Thermoblocks should not be laid on top of each other or the 9N compressive strength is not guaranteed. 
3) Temperatures in excess of 75°C are not appropriate 
4) Must not be used in environments where organic solvents such as petrol may come into contact with them. 
5) Must not be used with any adhesives, sealants, waterproofing treatments that contain organic solvents. The compatibility of ANY none standard material should be determined by checking whether that material is compatible with polystyrene – if it is not, then it cannot be used with Thermoblock.
Specification to eliminate or reduce thermal bridge at the junction of a timber frames wall with the floor

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**Product Use:** Elimination or reduction in cold bridging at the wall to floor junction. Reduction in the $\psi$ 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.

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

**Properties:** Average $\lambda$ value of $0.047\text{W/mK}$ (to EN13164/EN13167)  
Mean compressive strength of $9.0\text{N/mm}^2$ (to EN772-1)  
Fire resistance $>120\text{minutes}$ (to EN1365-1)  
Water Absorption $<3.5\%$ (to EN771-4).

**General Advice:** Thermoblock is fixed between the sole plate of the timber frame and the floor.

**Specification Under sole plate, directly on the concrete floor / foundation blocks**

One course of Marmox Thermoblock (600mm x 100mm/140mm/215mm x 65/100mm) is fixed on the slab/foundation blocks fixed with conventional sand and cement mortar. Blocks are sealed together with a ribbon of Marmox MSP360 on the stepped edges to provide a waterproof barrier.

Sole plate fixed mechanically to the slab using bolts placed through the Thermoblock halfway across its width into the solid base underneath.

#1 – Bolts etc, must penetrate the concrete / foundation blocks by at least 60mm  
#2 - Prior to inserting the bolt, squirt sufficient MSP360 into the hole to waterproof it. Additionally, apply a single ribbon of Marmox MSP360 to the surface of the Thermoblock so it seals to the underside of the sole plate.
Two variations on this method are:

A) Thermobloc sitting on top of a course of masonry blocks / bricks
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

B) Sole plate sitting on a course of blocks/bricks that is on top of the course of Thermoblocks
If it is necessary to “nail fix” sole plate, an initial course of Thermoblocks are laid using conventional mortar and then a course of bricks or blocks is laid on top them, again fixed with conventional mortar.

Authorities:
- BBA certified (10/4778)
- ATG Technical Approval (3093/2018)
- ISO9001 (Bureau Veritas)
- BRE – Certified Thermal Products Scheme, http://www.bre.co.uk/certifiedthermalproducts/
- Fire Safety Report: 16781B (Warrington Fire)

Fixing system:
Fix to the concrete floor slabs, blocks, beams or DPM exactly as if it was a masonry unit using standard sand and cement mortar.
Ensure the Thermoblock is supported by an even base across its whole width.

Treatment:
The vertical sides of the Marmox Thermoblock must not be left visible. For typical installation, the exposed face is butted up to the floor and wall insulation layer or covered with the floor screed. Exposed vertical sides should be rendered with a cementitious material.

Waterproofing:
Although when sealed together Thermoblock creates a permanent waterproof barrier, Thermoblock is not officially a DPM. A separate Damp Proof Membrane should therefore 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.

A permanent waterproof barrier is created by sealing the block edges to each other with a sealant: Marmox MSP360 - supplied in 290ml tubes - this is also used to seal the top of the Thermoblocks to the underside of the frame:

- Marmox Thermoblock 100mm wide require 1 cartridge per 15 blocks
- Marmox Thermoblock 140mm wide require 1 cartridge per 13 blocks
- Marmox Thermoblock 215mm wide require 1 cartridge per 11 blocks

Limitations:
1) What is placed on top of the Thermoblock cannot be narrower than the width of the Thermoblock.
2) One course only – Thermoblocks should not be laid on top of each other or the 9N compressive strength is not guaranteed.
3) Temperatures in excess of 75°C are not appropriate
4) Must not be used in environments where organic solvents such as petrol may come into contact with them.
5) Must not be used with any adhesives, sealants, waterproofing treatments that contain organic solvents. The compatibility of ANY none standard material should be determined by checking whether that material is compatible with polystyrene – if it is not, then it cannot be used with Thermoblock.
**Specification to eliminate or reduce thermal bridge at the junction of a light steel frame wall with the floor**

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

**Product Use:** Elimination or reduction in cold bridging at the wall to floor junction. Reduction in the \( \Psi \) 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.

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

**Properties:**  
Average \( \lambda \) value of 0.047W/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).

**Authorities:**  
BBA certified (10/4778)  
ATG Technical Approval (3093/2018)  
ISO9001 (Bureau Veritas)  
BRE – Certified Thermal Products Scheme, http://www.bre.co.uk/certifiedthermalproducts/  
Fire Safety Report: 16781B (Warrington Fire)

**General Advice:** Thermoblock is fixed between the base track plate and the floor.

**Three Specifications for use with Marmox Thermoblock**

1) **Under base track, directly on the concrete slab**  
One course of Marmox Thermoblock on slab fixed with conventional sand/cement mortar. Thermoblocks are sealed together with a ribbon of Marmox MSP-360 on the stepped edges to provide a waterproof barrier.  
Base track is fixed mechanically to the slab using bolts passing through the Thermoblock halfway across its width into the concrete below.  
Prior to inserting the bolt, squirt sufficient MSP-360 into the hole to waterproof it. Additionally, apply a single ribbon of MSP-360 to the surface of the Thermoblock so it seals to the underside of the plate.
2) Under base track on top of masonry blocks / bricks

If a DPM is positioned under the row of Thermoblocks......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.

Ensure that these bricks/blocks are: -
1) No narrower than the width of the Thermoblock
2) Solid design so that the mechanical fixings have something to anchor to.
A row of blocks/bricks is mortared onto the DPM
A single course of Thermoblock is mortared onto the row of blocks.

Follow instructions in method 1

3) Under base track on top of masonry blocks / bricks

This method is for used for the following two reasons: -
1) To avoid having to use a long bolt passing all the way through the Thermoblock into the concrete.
2) When the Metsec base plate is narrower than the width of the Thermoblock.
(Note: this method is marginally less thermal efficiency than having the Thermoblock in contact with the base of the Steel Frame’s base track.)

A course of Thermoblock is mortared onto the concrete slab with a single course of blocks/bricks mortared on top of the row of them. The base track is fixed onto this row of masonry.
Ensure that these bricks/blocks are: -
1) No narrower than the width of the Thermoblock
2) Solid design so that the mechanical fixings have something to anchor to.

Follow instructions in method 1

Fixing system: Fix to the concrete floor slabs, blocks, beams or DPM exactly as if it was a masonry unit using standard sand and cement mortar.
Ensure the Thermoblock is supported by an even base across its whole width.

Treatment: The vertical sides of the Marmox Thermoblock must not be left visible. For typical installation, the exposed face is butted up to the floor and wall insulation layer or covered with the floor screed.
Exposed vertical sides should be rendered with a cementitious material.

Waterproofing: Although when sealed together Thermoblock creates a permanent waterproof barrier, Thermoblock is not officially a DPM. A separate Damp Proof Membrane should therefore 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.

A permanent waterproof barrier is created by sealing the block edges to each other with a sealant: Marmox MSP360 - supplied in 290ml tubes: -

- Marmox Thermoblock 100mm wide require 1 cartridge per 15 blocks
- Marmox Thermoblock 140mm wide require 1 cartridge per 13 blocks
- Marmox Thermoblock 215mm wide require 1 cartridge per 11 blocks

Limitations:
1) WIDTH OF THE THERMOBLOCK MUST BE APPROXIMATELY THE SAME WIDTH AS THE FRAME’S BASE TRACK (The base plate can be wider but no more than 15mm narrower).
2) One course only – Thermoblocks should not be laid on top of each other or the 9N compressive strength is not guaranteed.
3) Temperatures in excess of 75°C are not appropriate
4) Must not be used in environments where organic solvents such as petrol may come into contact with them.
**Specification to eliminate or reduce thermal bridge at the junction of a light steel frame wall with the floor**

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

**Product Use:** Elimination or reduction in cold bridging at the wall to floor junction. Reduction in the $\psi$ 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.

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

**General Advice:** Thermoblock is positioned at the base of the solid masonry wall. It can be placed either above or below ground.

*If the wall is on foundation blocks, they must not be narrower than the width of the Thermoblock*

1. Fix to the concrete floor or foundation blocks using a standard brick/block laying sand and cement mortar.
2. Place a bead of Marmox MSP-360 on each stepped edge joint to seal the Thermoblocks together.
3. **If the vertical surface is to be subsequently rendered:** A piece of mesh/scrim tape should be folded over the top of the Thermoblock when mortaring the blocks on top so that it falls down covering the exposed polystyrene face. Not necessary is EWI is to be subsequently placed over the vertical surface.
4. Lay bricks/blocks/concrete on top using a standard brick/block laying sand and cement mortar. If using aircrte blocks or Porotherm blocks, this initial layer of mortar should be at least 15mm.

**Properties:**  
Average $\lambda$ value of 0.047W/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)*.

**Authorities:**  
BBA certified (10/4778)  
ATG Technical Approval (3093/2018)  
ISO9001 (Bureau Veritas)  
BRE – Certified Thermal Products Scheme, [http://www.bre.co.uk/certifiedthermalproducts/](http://www.bre.co.uk/certifiedthermalproducts/)  
Fire Safety Report: 16781B (Warrington Fire)
**Treatment:**

The vertical sides of the Marmox Thermoblock must not be left exposed. It is unaffected by moisture and weather but is susceptible to long-term UV radiation and can also be damaged by gnawing rodents.

The exposed face must be completely covered either with:

- External insulation, continued from the rest of the wall
- A sand/cement + polymer render which keys onto the mesh/scrim tape.
- Decorative stone, ceramic tiles or brick slips fixed to the vertical polystyrene surface (+ scrim) with a sand/cement + polymer mortar (or flexible tile adhesive)

**Fixing system:**

Fix to the concrete floor slabs, blocks, beams or DPM exactly as if it was a masonry unit using standard sand and cement mortar.

Ensure the Thermoblock is supported by an even base across its whole width.

**Waterproofing:**

Although when sealed together Thermoblock creates a permanent waterproof barrier, Thermoblock is not officially a DPM. A separate Damp Proof Membrane should therefore 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.

A permanent waterproof barrier is created by sealing the block edges to each other with a sealant: Marmox MSP360, supplied in 290ml tubes:

- Marmox Thermoblock 100mm wide require 1 cartridge per 36 blocks
- Marmox Thermoblock 140mm wide require 1 cartridge per 24 blocks
- Marmox Thermoblock 215mm wide require 1 cartridge per 20 blocks

**Limitations:**

1) What is placed on top of the Thermoblock cannot be narrower than the width of the Thermoblock.
2) One course only – Thermoblocks should not be laid on top of each other or the 9N compressive strength is not guaranteed.
3) Temperatures in excess of 75°C are not appropriate
4) Must not be used in environments where organic solvents such as petrol may come into contact with them.
5) Must not be used with any adhesives, sealants, waterproofing treatments that contain organic solvents. The compatibility of ANY none standard material should be determined by checking whether that material is compatible with polystyrene – if it is not, then it cannot be used with Thermoblock.
**Specification to eliminate or reduce thermal bridge at the junction of an EWI clad timber-frame wall with the floor**

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**Product Use:** Elimination or reduction in cold bridging at the wall to floor junction. Reduction in the $\psi$ 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.

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

**General Advice:** Thermoblock is positioned underneath the sole plate above the concrete slab, block and beam floor or foundation blocks.

**Specification:**

1) One course of Marmox Thermoblock (600mm x 100mm/140mm/215mm x 65/100mm) on slab/foundation blocks fixed with conventional sand and cement mortar.
2) Blocks are sealed together with a ribbon of Marmox MSP360 on the stepped edges to provide a waterproof barrier\(^2\).
3) Sole plate fixed mechanically to the slab using bolts\(^1\) placed through the Thermoblock halfway across its width into the solid base underneath.
4) A single ribbon of Marmox MSP360 is applied to the surface of the Thermoblock so it seals to the underside of the sole plate.
5) To enable the exposed polystyrene surface to be subsequently rendered, a piece of mesh suitable for the type of render being used should be fixed to the side of the sole plate and the Thermoblock (e.g. stapled) so that it covers the exposed polystyrene face.
6) When rendering, it is vital that the entire exposed polystyrene face is completely coated.

#1 – Bolts etc, must penetrate the concrete / foundation blocks by at least 60mm
#2 - Prior to inserting the bolt, squirt sufficient MSP360 into the hole to waterproof it.

**Properties:**

- Average $\lambda$ value of 0.047W/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).
**Authorities:**
- BBA certified (10/4778)
- ATG Technical Approval (3093/2018)
- ISO9001 (Bureau Veritas)
- BRE – Certified Thermal Products Scheme, [http://www.bre.co.uk/certifiedthermalproducts/](http://www.bre.co.uk/certifiedthermalproducts/)
- Fire Safety Report: 16781B (Warrington Fire)

**Fixing system:**
Fix to the concrete floor slabs, blocks, beams or DPM exactly as if it was a masonry unit using standard sand and cement mortar.
Ensure the Thermoblock is supported by an even base across its whole width.

**Waterproofing:** *Although when sealed together Thermoblock creates a permanent waterproof barrier, Thermoblock is not officially a DPM. A separate Damp Proof Membrane should therefore 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.*

A permanent waterproof barrier is created by sealing the block edges to each other with a sealant - this is also used to seal the top of the Thermoblocks to the underside of the frame:
- Marmox MSP360 - supplied in 290ml tubes:
  - Marmox Thermoblock 100mm wide require 1 cartridge per 15 blocks
  - Marmox Thermoblock 140mm wide require 1 cartridge per 13 blocks
  - Marmox Thermoblock 215mm wide require 1 cartridge per 11 blocks

**Limitations:**
1) What is placed on top of the Thermoblock cannot be narrower than the width of the Thermoblock.
2) One course only – Thermoblocks should not be laid on top of each other or the 9N compressive strength is not guaranteed.
3) Temperatures in excess of 75°C are not appropriate
4) Must not be used in environments where organic solvents such as petrol may come into contact with them.
5) Must not be used with any adhesives, sealants, waterproofing treatments that contain organic solvents. The compatibility of ANY none standard material should be determined by checking whether that material is compatible with polystyrene – if it is not, then it cannot be used with Thermoblock.
**Specification to eliminate or reduce thermal bridge at the junction of the outer leaf of a masonry wall with the floor**

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**Product Use:** Elimination or reduction in cold bridging at the wall to floor junction. Reduction in the $\psi$ 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.

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

**General Advice:** Marmox Thermoblock is positioned at the base of the eternal leaf of masonry wall with its external vertical face covered with insulation or cementitious material.

**Specification**

- The foundation blocks / concrete base must be no narrower than the width of the Thermoblock.
- Fix to the concrete floor or foundation blocks using a standard brick/block laying sand and cement mortar.
- Place a bead of Marmox MSP-360 (sealant) on each stepped edge joint to seal the Thermoblocks together.
- **ONLY IF RENDERING THE FACE OF THE THERMOBLOCK IS NECESSARY**.....To enable the exposed polystyrene surface to be subsequently rendered, a piece of mesh/scrim tape should be folded over the top of the Thermoblock when mortaring the bricks/blocks on top so that it falls down covering the exposed polystyrene face.
- The blocks/bricks directly on top of Thermoblock must be no narrower than the width of the Thermoblock.
- Fix to the bricks/blocks on top using a standard brick/block laying sand and cement mortar. If using aircrere or Porotherm blocks, this initial layer of mortar should be at least 15mm.

**Properties:**

- Average $\lambda$ value of 0.047W/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).
Authorities: BBA certified (10/4778)
ATG Technical Approval (3093/2018)
ISO9001 (Bureau Veritas)
BRE – Certified Thermal Products Scheme, http://www.bre.co.uk/certifiedthermalproducts/
Fire Safety Report: 16781B (Warrington Fire)

Fixing system: Fix to the concrete floor slabs, blocks, beams or DPM exactly as if it was a masonry unit using standard sand and cement mortar.
Ensure the Thermoblock is supported by an even base across its whole width.

Treatment: The vertical sides of the Marmox Thermoblock must not be left exposed. It is unaffected by moisture and weather but is susceptible to long-term UV radiation and can also be damaged by gnawing rodents.

The exposed face must be completely covered either with:
- External insulation, continued from the rest of the wall
- A sand/cement + polymer render which keys onto the mesh/scrim tape.
- Decorative stone, ceramic tiles or brick slips fixed to the vertical polystyrene surface (+ scrim) with a sand/cement + polymer mortar (or flexible tile adhesive)

Waterproofing: Although when sealed together Thermoblock creates a permanent waterproof barrier, Thermoblock is not officially a DPM. A separate Damp Proof Membrane should therefore 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.

A permanent waterproof barrier is created by sealing the block edges to each other with a sealant - this is also used to seal the top of the Thermoblocks to the underside of the frame: Marmox MSP360 - supplied in 290ml tubes:
- Marmox Thermoblock 100mm wide require 1 cartridge per 36 blocks
- Marmox Thermoblock 140mm wide require 1 cartridge per 24 blocks
- Marmox Thermoblock 215mm wide require 1 cartridge per 20 blocks

Limitations: 1) What is placed on top of the Thermoblock cannot be narrower than the width of the Thermoblock.
2) One course only – Thermoblocks should not be laid on top of each other or the 9N compressive strength is not guaranteed.
3) Temperatures in excess of 75°C are not appropriate
4) Must not be used in environments where organic solvents such as petrol may come into contact with them.
5) Must not be used with any adhesives, sealants, waterproofing treatments that contain organic solvents. The compatibility of ANY none standard material should be determined by checking whether that material is compatible with polystyrene – if it is not, then it cannot be used with Thermoblock.
Specification to eliminate or reduce thermal bridge at a door (window)

**Threshold**

<table>
<thead>
<tr>
<th>Product ref:</th>
<th>Marmox Thermoblock (Standard Type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer:</td>
<td>Marmox Ltd</td>
</tr>
<tr>
<td>Address:</td>
<td>Marmox UK, Caxton House, 101 Hopewell Drive, Chatham, Kent ME5 7NP. 01634 835290; Email: <a href="mailto:info@marmox.co.uk">info@marmox.co.uk</a>; <a href="http://www.marmox.co.uk/">http://www.marmox.co.uk/</a></td>
</tr>
</tbody>
</table>

**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.

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

**Properties:**
- Average $\lambda$ value of 0.047W/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).

**Authorities:**
- BBA certified (10/4778)
- ATG Technical Approval (3093/2018)
- ISO9001 (Bureau Veritas)
- BRE – Certified Thermal Products Scheme, http://www.bre.co.uk/certifiedthermalproducts/
- Fire Safety Report: 16781B (Warrington Fire)

**General Advice:** Thermoblock is fixed below the base of the window or door frame with mortar and the frame is bolted through it into the solid base below.

**Specification:**

1) **Below a door frame:**
A single course of Marmox Thermoblock (600mm x 100mm/140mm/215mm x 65mm) is directly beneath the bottom frame, fixed with normal bricklayers’ mortar. The doorframe is mechanically fixed to the solid material underneath the Thermoblock using one bolt per Thermoblock (i.e. every 600mm) placed approximately halfway across the width (i.e. 50mm, 70mm or 107mm). Marmox MSP360 is used to seal the base of the frame to the surface of the block and to seal the bolt hole.

2) **Above a door frame:**
A single course of Marmox Thermoblock (600mm x 100mm/140mm/215mm x 65mm) is directly above the top frame, fixed to the lintel with Marmox MSP360. The doorframe is fixed to the lintel above with a bolt placed halfway* across the width (i.e. 50mm, 70mm or 107mm), one per Thermoblock (i.e. every 600mm). MSP360 is also used to seal the top of the frame to the surface of the block and to seal the bolt hole.

**Spec 7 – threshold**
**Bolt position:** If using 100mm wide Thermoblocks, the bolt should go through the block at a position of 40mm to 70mm from one edge. If using 140mm wide Thermoblocks, the bolt should go through the block at a position of 45mm to 95mm from one edge. If using 215mm wide Thermoblocks, the bolt should go through the block at a position of 55mm to 165mm from one edge.

**Fixing system:** Fix to the concrete floor slabs, blocks, beams or DPM exactly as if it was a masonry unit using standard sand and cement mortar. Ensure the Thermoblock is supported by an even base across its whole width.

**Treatment:** The vertical sides of the Marmox Thermoblock must not be left visible. For typical installation, the exposed face is butted up to the floor and wall insulation layer or covered with the floor screed. Exposed vertical sides should be rendered with a cementitious material.

**Waterproofing:** Although when sealed together Thermoblock creates a permanent waterproof barrier, Thermoblock is not officially a DPM. A separate Damp Proof Membrane should therefore 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.

A permanent waterproof barrier is created by sealing the block edges to each other with a sealant. Sealing the frame to the top of the Thermoblock layer using a bead of MSP360 is also necessary for waterproofing and air tightness purposes.

Marmox MSP360 - supplied in 290ml tubes:

- Marmox Thermoblock 100mm wide require 1 cartridge per 15 blocks
- Marmox Thermoblock 140mm wide require 1 cartridge per 13 blocks
- Marmox Thermoblock 215mm wide require 1 cartridge per 11 blocks

**Limitations:**

1) The frame on top of the Thermoblock is no narrower than the width as the Thermoblock.
2) Thermoblocks cannot be laid on top of each other.
3) Temperatures in excess of 80°C are not appropriate *(for temperatures above 80°C, use the PIR version)*
4) Effectively creates a waterproof barrier but not classified as a WPC
5) Must not be used in environments where organic solvents such as petrol may come into contact with them.
6) Must not be used with any adhesives, sealants, waterproofing treatments that contain organic solvents. The compatibility of ANY none standard material should be determined by checking whether that material is compatible with polystyrene – if it is not, then it cannot be used with Thermoblock.
7) Should not be used when there would be potential contact with flame applied bitumen membranes *(for these applications use the PIR version)*

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* Nov - 2019
**Specification to eliminate or reduce thermal bridge at the junction of an internal (partition) wall with the floor**

**Product ref:** Marmox Thermoblock (Standard Type)  
**Manufacturer:** Marmox Ltd  
**Address:** Marmox UK, Caxton House, 101 Hopewell Drive, Chatham, Kent ME5 7NP.  
01634 835290; Email: info@marmox.co.uk; [http://www.marmox.co.uk/](http://www.marmox.co.uk/).

**Product Use:** Elimination or reduction in cold bridging where an internal wall would otherwise sit on the floor slab causing a break in the floor insulation.  
Reduction in the $\psi$ 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.

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

**General Advice:** Thermoblock is positioned at the base of the internal wall, mortared to the floor slab.  

The width of the wall must not be narrower than the width of the Thermoblock

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**MASONRY WALL**
1. Fix to the concrete floor or foundation blocks using a standard brick/block laying sand and cement mortar.  
2. Place a bead of Marmox MSP-360 on each stepped edge joint to seal the Thermoblocks together.  
3. Lay bricks/blocks/concrete on top using a standard brick/block laying sand and cement mortar. If using aircrert blocks or Porotherm blocks, this initial layer of mortar should be at least 15mm.

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**TIMBER FRAME/STEEL FRAME WALL**
1. Fix to the concrete floor or foundation blocks using a standard brick/block laying sand and cement mortar.  
2. Place a bead of Marmox MSP-360 on each stepped edge joint to seal the Thermoblocks together.  
3. Fix the sole plate/Metsc base plate onto the row of Thermoblock bolting through the Thermoblocks approximately halfway across its width. A ribbon of Marmox MSP-360 is also applied between the top of the Thermoblock and the base plate.
REINFORCED CONCRETE WALLS

1. pre-drill the Thermoblocks to allow the vertical bars to pass through ensuring that the holes are approximately halfway across the width of the Thermoblocks.
2. Fix to the concrete floor using a standard brick/block laying sand and cement mortar.
3. Place a bead of Marmox MSP-360 on each stepped edge joint to seal the Thermoblocks together and also around the rebar penetrations.
4. Shutter the Thermoblocks and create the concrete wall.

Properties:
- Average λ value of 0.047W/mK (to EN13164/EN13167)
- Mean compressive strength of 9.0N/mm² (to EN772-1)
- Fire resistance >120minutes (to EN1365-1)
- Water Absorption <3.5% (to EN771-4).

Authorities:
- BBA certified (10/4778)
- ATG Technical Approval (3093/2018)
- ISO9001 (Bureau Veritas)
- BRE – Certified Thermal Products Scheme, http://www.bre.co.uk/certifiedthermalproducts/
- Fire Safety Report: 16781B (Warrington Fire)

Waterproofing: Although when sealed together Thermoblock creates a permanent waterproof barrier, Thermoblock is not officially a DPM. A separate Damp Proof Membrane should therefore 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.

- A permanent waterproof barrier is created by sealing the block edges to each other with a sealant: Marmox MSP360, supplied in 300ml tubes: -
  - Marmox Thermoblock 100mm wide require 1 cartridge per 36 blocks
  - Marmox Thermoblock 140mm wide require 1 cartridge per 24 blocks
  - Marmox Thermoblock 215mm wide require 1 cartridge per 20 blocks

Limitations:
- 1) What is placed on top of the Thermoblock cannot be narrower than the width of the Thermoblock.
- 2) One course only – Thermoblocks should not be laid on top of each other or the 9N compressive strength is not guaranteed.
- 3) Temperatures in excess of 75°C are not appropriate
- 4) Must not be used in environments where organic solvents such as petrol may come into contact with them.
- 5) Must not be used with any adhesives, sealants, waterproofing treatments that contain organic solvents. The compatibility of ANY none standard material should be determined by checking whether that material is compatible with polystyrene – if it is not, then it cannot be used with Thermoblock.

Fire Safety: Thermoblock is fire resistant but direct exposure to intense fire could result in the XPS component crystalizing creating hollows within the structure* which could allow fire to spread from one room to another. It is not a firestop. When used underneath connecting internal walls connecting floor insulations it should therefore be covered with a cementitious screed

*The strength is not compromised, the load-bearing columns are completely unaffected by fire.
Spec 9a – parapet + normal block

**Specification to eliminate/reduce the thermal bridge at the base of a Parapet Wall NOT waterproofed with a bitumen membrane**

<table>
<thead>
<tr>
<th>Product ref:</th>
<th>Marmox Thermoblock (standard)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer:</td>
<td>Marmox Ltd</td>
</tr>
<tr>
<td>Address:</td>
<td>Marmox UK, Caxton House, 101 Hopewell Drive, Chatham, Kent ME5 7NP. 01634 835290; Email: <a href="mailto:info@marmox.co.uk">info@marmox.co.uk</a>; <a href="http://www.marmox.co.uk">http://www.marmox.co.uk</a>.</td>
</tr>
</tbody>
</table>

**Product Use:** Elimination/Reduction of heat loss through cold bridge comprising the base of the parapet wall with the flat roof enabling a low $\lambda$ value to be used in the SAP or SBEM or DEAP.

**Description:** Marmox Thermoblock is a load-bearing heat-insulating building block. It is positioned at the foot of a load-bearing or non-load bearing walls to eliminate/reduce the cold bridge. Marmox Thermoblock consists of two rows of load-carrying epoxy-concrete columns of low thermal conductivity bonded to the block’s top and bottom fibre-reinforced polymer concrete surfaces. Thermally insulating Extruded Polystyrene surrounds the columns.

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

**General**
Thermoblock is used as the starter course of the parapet wall. Thermoblock is butted up adjacent to the floor/roof insulation to create a thermal break.

**Specification**
- Thermoblock is fixed to the concrete slab or wall blocks using a standard brick/block laying sand and cement mortar.
- A bead of Marmox MSP360 is placed on each stepped edge joint to seal the Thermoblocks together.
- The blocks of parapet wall are fixed directly on top of the Thermoblock with standard brick/block laying sand-cement mortar. If using lightweight (aircrete blocks) the layer of mortar should be at least 15mm.
- Vertical sides of Thermoblock must never be left exposed, adjacent insulation or screed should be butted up to these vertical faces.

**Properties:**
- Average $\lambda$ value of 0.047W/mK (to EN13164/EN13167)
- Mean compressive strength of 9.0N/mm² (to EN772-1)
- Fire resistance >120minutes (to EN1365-1)
- Water Absorption <3.5% (to EN771-4).
- Vertical R Value: 1.1m²K/W
Authorities: BBA certified (10/4778), ATG (3093), ISO9001 (Bureau Veritas)

DPM: Although when sealed together with MSP360 a row of Thermoblock-PIRs creates a permanent waterproof barrier, Thermoblock is not officially classed as a DPM. The Damp Proof Membrane therefore should be applied to the parapet wall design as though the Thermoblock were simply just another brick in the wall. Typically, the DPM is fixed to the brick/block one or two courses above the Thermoblock:

However, if necessary, a DPM can be fixed directly on to the surface of a Thermoblock using standard bricklayers’ mortar.

Limitations:
1) The Thermoblock must not be narrower than what is laid on top of it. (*i.e. 100mm bricks cannot be laid on top of 140mm wide Thermoblocks*)
2) Thermoblocks should not be laid on top of each other.
3) The Thermoblock must be sitting on a flat, level surface.
4) Temperatures in excess of 75°C are not appropriate (*for temperatures above 80°C, use the PIR version*)
5) Effectively creates a waterproof barrier but not classified as a WPC
6) Must not be used in environments where organic solvents such as petrol may come into contact with them.
7) Must not be used with any adhesives, sealants, waterproofing treatments that contain organic solvents. The compatibility of ANY none standard material should be determined by checking whether that material is compatible with polystyrene – if it is not, then it cannot be used with Thermoblock.
8) Should not be used when there would be potential contact with flame applied bitumen membranes (*for these applications use the PIR version – Spec 9b*)
Specification to eliminate/reduce the thermal bridge at the base of a Parapet Wall waterproofed with a Hot-Melt Bitumen Membrane

Product ref: Marmox Thermoblock-PIR
Manufacturer: Marmox Ltd
Address: Marmox UK, Caxton House, 101 Hopewell Drive, Chatham, Kent ME5 7NP.
          01634 835290; Email: info@marmox.co.uk; http://www.marmox.co.uk/.

Product Use: Elimination/Reduction of cold bridge in a parapet wall when the base of the wall is to be covered and torched with a hot melt bitumen membrane.
*If a heat gun is not going to be applied directly to the base of the wall, this specification should not be used – spec9a (with normal block) should be followed.*

Description: Marmox Thermoblock-PIR is a load-bearing heat-insulating building block resistant to distortion if in contact with a direct heat source. It consists 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 PIR surrounds the columns.

Dimensions: Length = 600mm, Thickness = 53mm, Width = 100mm or 140mm

General
Thermoblock-PIR is mortared to the base to form the starter course of the parapet wall.
A hot melt membrane can be applied directly to the side of the Thermoblock prior to laying the screed.

Specification
- Thermoblock-PIR is fixed to the concrete slab or blocks using a standard brick/block laying sand and cement mortar.
- Place a bead of Marmox MSP360 on each stepped edge joint to seal the Thermoblocks together.
- If a primer is recommended, coat the vertical face of the Thermoblock-PIR with a solvent-free primer
- Apply the hot melt bitumen membrane lapping at least 50mm above the height of the Thermoblock-PIR onto the brick/block above it.
- Lay the parapet wall on top of the Thermoblock with standard brick/block laying sand and cement mortar.

Properties:
- Average λ value of 0.041W/mK (to EN13164/EN13167)
- Mean compressive strength of 9.0N/mm² (to EN772-1)
- Fire resistance >120minutes (to EN1365-1)
- Water Absorption <6.5% (to EN771-4).
- Vertical R Value: 1.1m²K/W

Authorities:
BBA certified (10/4778), ATG (3093), ISO9001 (Bureau Veritas)
Spec 9b – parapet + PIR block

DPM: Although when sealed together with MSP360 a row of Thermoblock-PIRs creates a permanent waterproof barrier, Thermoblock is not officially classed as a DPM. The Damp Proof Membrane therefore should be applied to the parapet wall design as though the Thermoblock were simply just another brick in the wall. Typically, the DPM is fixed to the brick/block one or two courses above the Thermoblock:

However, if necessary, a DPM can be fixed directly on to the surface of a Thermoblock using standard bricklayers’ mortar.

Limitations:
1) The layer of bricks/blocks on top of the Thermoblock is the same width as the Thermoblock.
2) One course only – Thermoblocks cannot be laid on top of each other.
3) Temperatures in excess of 150°C are not appropriate.
4) Effectively creates a waterproof barrier but not classified as a WPC.
5) Must not be used in environments where organic solvents such as petrol may come into contact with them.
6) Must not be used with any adhesives, sealants, waterproofing treatments that contain organic solvents. The compatibility of ANY none standard material should be determined by checking whether that material is compatible with PIR – if it is not, then it cannot be used with Thermoblock.