

Specifications for Thermoblock



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Specification to eliminate or reduce thermal bridge at the junction of a masonry cavity 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 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.

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
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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 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)

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

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 where the base of a timber frame wall (sole plate) meets the floor.
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.

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

Properties: Declared λ value of 0.05W/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).

General Advice: The timber frame's sole plate is fixed directly on top of a row of Thermoblock which itself is fixed to the floor.

Standard Specification Method – directly between the slab/foundation blocks and the sole plate

One course of Marmox Thermoblock (600mm x 100mm/140mm/215mm x 65/100mm) is fixed on the slab or foundation blocks 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.

The damp proof membrane from the floor is usually lapped over the row of Thermoblock (*secured in place with a bead of sealant, Marmox MSP-360*)

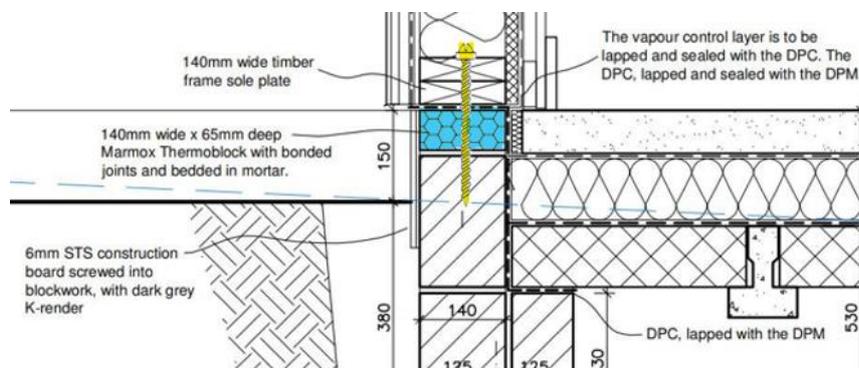
The height of the Thermoblock layer should be at least 150mm above ground height. If this is not the case, concrete/AAC blocks should be used beneath the Thermoblock to raise to timber sole plate to the required level.

The sole plate is now fixed directly onto the Thermoblock using mechanical fixings or straps.

1. Mechanical Fixing is the simplest method

Fixing bolts / resin anchors are placed through the sole plate and then the Thermoblock halfway across its width into the solid base underneath. These *must penetrate the concrete / foundation blocks by at least 60mm*

One example would be...



Screw, bolt or resin fixing (shown in yellow) penetrating through the centre of the Thermoblock (shown in blue) into the blockwork below

2. Fixing with a strap or bracket

To avoid penetrating the DPM or when it is not possible to place a bolt halfway across the Thermoblock's width, straps or brackets are used. These must be fixed to the masonry components directly underneath the Thermoblock, not the Thermoblock itself

Waterproofing: Although when sealed together Thermoblock creates a permanent waterproof barrier, Thermoblock is not officially a DPM. A separate Damp Proof Membrane may 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** (300ml tubes). Also used to seals the top surface of Thermoblock to the DPM.

- 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 otherwise 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.

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)

Specification to eliminate or reduce thermal bridge at the base of a SIP Panel walls 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 where the base of a SIP Panel meets the floor. 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.

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

Properties: Declared λ value of 0.05W/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).

General Advice: The SIP panel is fitted onto a sole plate which is fixed directly on top of a row of Thermoblock which itself is fixed to the floor.

Standard Specification Method – directly between the slab/foundation blocks and the sole plate

One course of Marmox Thermoblock (600mm x 100mm/140mm/215mm x 65/100mm) is fixed on the slab or foundation blocks 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.

The damp proof membrane from the floor is usually lapped over the row of Thermoblock (*secured in place with a bead of sealant, Marmox MSP-360*)

The height of the Thermoblock layer should be at least 150mm above ground height. If this is not the case, concrete/AAC blocks should be used beneath the Thermoblock to raise to timber sole plate to the required level.

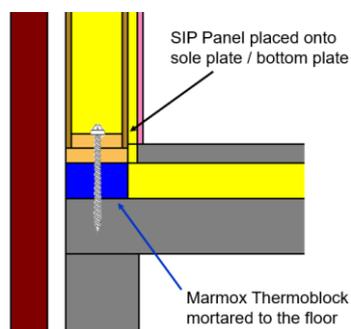
The sole plate is now fixed directly onto the Thermoblock using mechanical fixings or straps.

The SIP panel is then placed these timbers and fixed with sealant (*e.g. Marmox MSP-360*)

1. Mechanical Fixing is the simplest method

Fixing bolts / resin anchors are placed through the timber base plates and then through the Thermoblock halfway across its width into the solid base underneath. These *must penetrate the concrete / foundation blocks by at least 60mm*

One example would be...



Screw, bolt or resin fixing penetrating through the centre of the Thermoblock (shown in blue) into the blockwork below.

2. Fixing with a strap or bracket

To avoid penetrating the DPM or when it is not possible to place a bolt halfway across the Thermoblock's width, straps or brackets are used. These must be fixed to the masonry components directly underneath the Thermoblock, not the Thermoblock itself

Waterproofing: *Although when sealed together Thermoblock creates a permanent waterproof barrier, Thermoblock is not officially a DPM. A separate Damp Proof Membrane may 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** (300ml tubes). Also used to seals the top surface of Thermoblock to the DPM.

- 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 sole plate of the SIP panel can be wider than the width of the Thermoblock if it is centred but not narrower.
- 2) One course only. Thermoblocks should not be laid on top of each other otherwise 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.

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)

Specification to eliminate or reduce thermal bridge at the junction of a light steel frame wall with the floor

Product ref:	Marmox Thermoblock
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 between the junction of the floor junction and the SFS Infill walling.
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.
Marmox Thermoblocks exhibit no flexing and no creep so provide a stable rigid base.

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

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: 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: The base track plate is fixed to a row of coursing blocks which is mortared on top of the Thermoblocks.

Specification Detail

A single course of Thermoblock is mortared onto the concrete slab.

A single course of coursing concrete blocks mortared on top of that course of Thermoblocks.

Ensure that these coursing blocks are: -

1) No narrower than the width of the Thermoblock

2) Solid design with sufficient density so that the mechanical fixings have something to anchor to.

The base track is mechanically fixed to this row of masonry in the same way it would be fixed to a typical concrete slab.

- 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.*
- Limitations:**
- 1) One course only – Thermoblocks should not be laid on top of each other otherwise the 9N compressive strength is not guaranteed and falls outside of the BBA certification.
 - 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 solid masonry 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 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.

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 if 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 aircrete blocks or Porotherm blocks, this initial layer of mortar should be at least 15mm.

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: 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)

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

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 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.

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.
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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 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)
- 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

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 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.

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

General Advice:	Marmox Thermoblock is positioned at the base of the external leaf of masonry wall with its external vertical face covered with insulation or cementitious material.
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Specification	
<ul style="list-style-type: none"> • The foundation blocks / concrete base must be <u>no narrower than the width of the Thermoblock</u>. • 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. • <i>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.</i> • 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 aircrete or Porotherm blocks, this initial layer of mortar should be at least 15mm. 	

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:** 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

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/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 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: 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.
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Specification:	<p><u>1) Below a door frame:</u> A single course of Marmox Thermoblock (600mm x 100mm/140mm/215mm x 65mm) is directly beneath the bottom the 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.</p> <p><u>2) Above a door frame:</u> A single course of Marmox Thermoblock (600mm x 100mm/140mm/215mm x 65mm) is directly above the top the 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.</p>
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***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.

**Specification to eliminate or reduce thermal bridge at the junction of a
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/ .

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 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.

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 aircrete blocks or Porotherm blocks, this initial layer of mortar should be at least 15mm.

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/Metsec 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: 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.*

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

Product ref:	Marmox Thermoblock (standard)
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/.

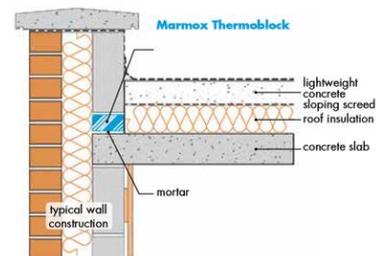
Product Use: Elimination/Reduction of heat loss through cold bridge comprising the base of the parapet wall with the flat roof enabling a low ψ value to be used in the SAP or SBEM or DEAP.

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.



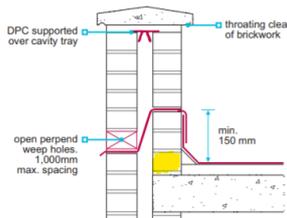
Specification

- 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 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).
 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.
 - 3) Temperatures in excess of 75°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.

Specification to reduce thermal bridge within a REBAR reinforced concrete wall

Product ref:	Marmox Thermoblock
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: to limit the vertical heat transfer up or down a reinforced concrete wall comprising hollow concrete blocks or constructed between shuttering or ICF blocks.

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 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).

General Advice:	Thermoblocks can be safely pierced vertically to allow Rebars to pass through them. Concrete is poured onto the Thermoblock which forms the base of that section of wall.
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Specification: **With hollow concrete and some ICF blocks**

One course of Thermoblock is mortared to the floor using ordinary bricklayers' mortar. A bead of Marmox MSP-360 (*sealant*) is used along the short width of the Thermoblock edges to seal them together.

Holes are drilled in the Thermoblocks to allow the Rebars to pass through (*holes must not be along the outside edges – see limitation¹, below*)

Once the mortar has cured, the single row of Thermoblocks' upper concrete layer is now effectively the floor onto which the wall of hollow concrete blocks is built upon.

Before inserting the reinforcing rods, if possible, place a blob of MSP-360 into or on top of the pre-drilled holes.

Place the reinforcing bars into the hollows and in to the pre-drilled holes in the Thermoblocks.

With shuttering and some ICF blocks

With reinforcing bars already present prior to construction of the wall (fixed in the trench protruding upwards through the foundation/footing) holes are made in the Thermoblocks (see limitation¹) to allow the rebar to pass through.

Determine where the holes in the Thermoblocks need to be to allow the bars to pass through them – ensure these holes are not along the outside edges.

Drill holes in the Thermoblocks to allow the Rebars to pass through.

Placing the bars through the holes and mortar a single course of Thermoblock to the floor using ordinary bricklayers’ mortar.

A bead of Marmox MSP-360 (*sealant*) is used along the short width of the Thermoblock edges to seal them together.

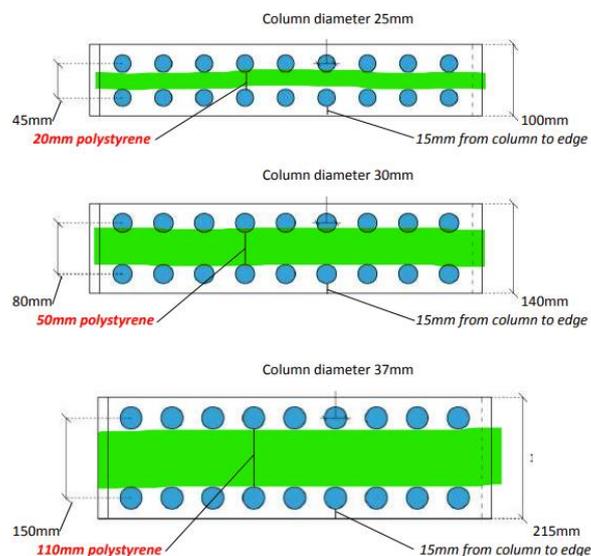
MSP-360 is also used to seal the hole housing the rebar.

Once the mortar has cured, the single row of Thermoblocks’ concrete top layer is now effectively the floor onto which the ICF is placed on top of / around.

Authorities: 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)

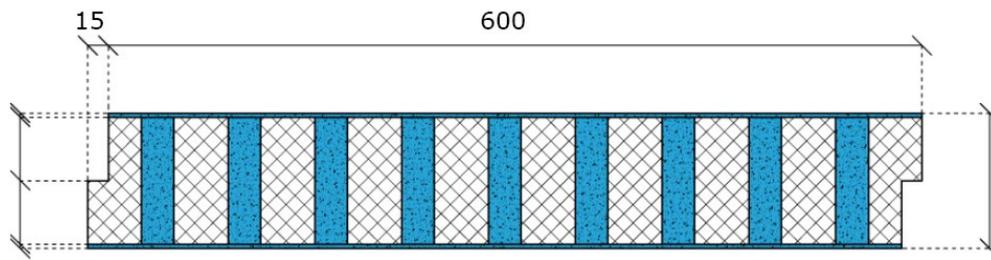
Fixing system: Fix to the concrete floor slabs, blocks, beams or DPM exactly as if it was a masonry unit using standard sand and cement mortar.
 Ensure the Thermoblock is supported by an even base across its whole width.

Limitations: 1) Holes in the Thermoblocks can only be made along the middle where there are no concrete columns present. The diagram shows that the safe areas (*marked in green*) which can be drilled through are along the middle only: -
 20mm wide corridor with the 100mm block
 50mm wide corridor with the 140mm block
 110mm wide corridor with the 215mm block.



- 2) The rebar is itself a small thermal bridge and so a low conductive version is preferable such as FRP or stainless steel rather than carbon steel (*Heat flow through carbon steel is three times faster than through stainless steel.*)
- 3) When possible, placing some MSP-360 between the steel bar and the concrete floor will be thermally beneficial.
- 4) What is placed on top of the Thermoblock cannot be narrower than the width of the Thermoblock.
- 5) One course only – Thermoblocks should not be laid on top of each other or the 9N compressive strength is not guaranteed.
- 6) Temperatures in excess of 75°C are not appropriate
- 7) Must not be used in environments where organic solvents such as petrol may come into contact with them.
- 8) 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.

Diagram showing locations of columns in the different sized blocks

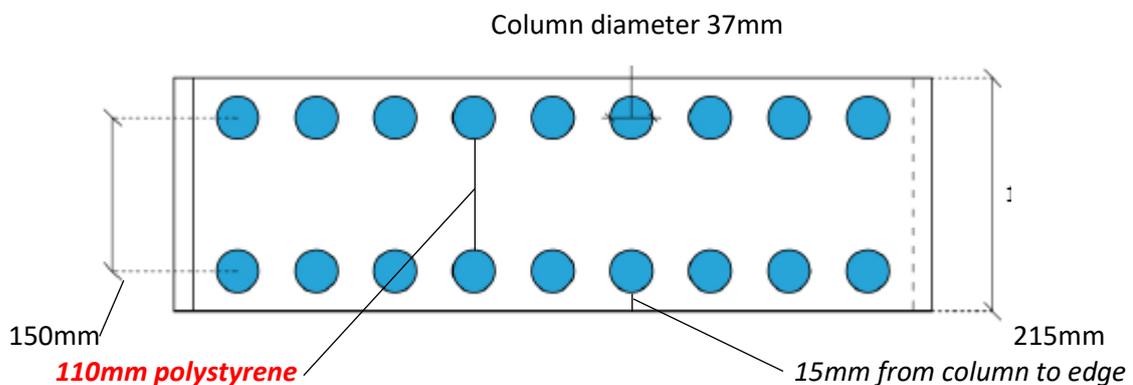
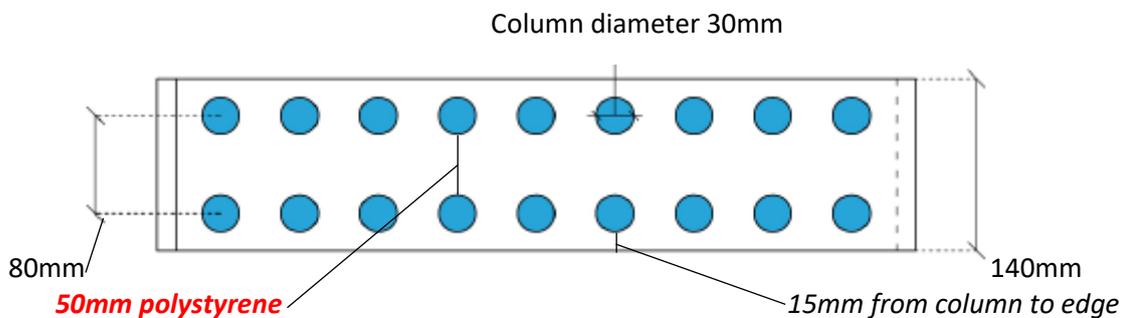
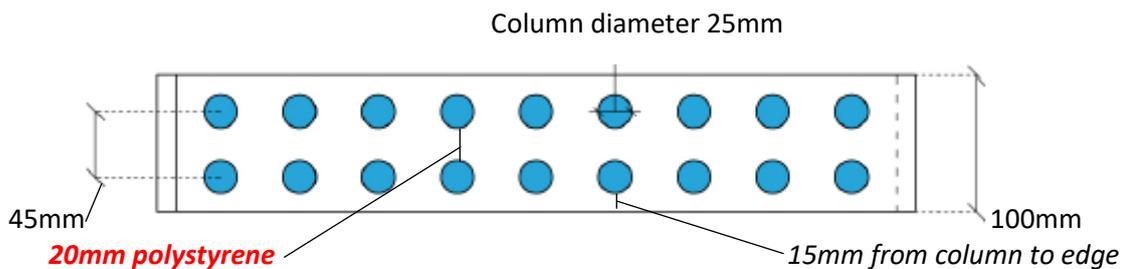


Composition of the 65mm high block "standard"

3mm concrete surface – 59mm extruded polystyrene – 3mm concrete surface = 65mm

Composition of the 100mm high block "extra thick"

3mm concrete surface – 94mm extruded polystyrene – 3mm concrete surface = 100mm



When fixed below timber frames, metal frames or door frames, screws and bolts must avoid the block edges where the concrete columns are located