marmox thermoblock
Reduce heat loss at the base of walls

Specifications External Wall to Roof Junctions

This document contains THREE specifications using Thermoblock in the outer leaf of a wall where it connects with a flat roof (PARAPET DETAIL) or when it is used to eliminate the transfer of heat from an adjoining flat roof structure to the wall.

Junction Detail	Click the Hyper-link	SAP default ψ value	SBEM default ψ value	Guideline ψ values with Thermoblock
E15 Flat Roof with Parapet				
External wall to flat roof + parapet	PARAPET	0.30	0.27	0.10
E14 Flat Roof				
External wall to timber flat roof	FLTROOF	0.16	0.27	
Staggered sloping roof line of insulation on a gable wall	ROOFLINE	*N/A*	*N/A*	

The final column on the right shows the calculated ψ value in **BRE's Certified Thermal Details** using a typical BRE junction design into which Marmox Thermoblock has been incorporated.

Specification to eliminate or reduce thermal bridge at base of a Parapet Wall
INSULATION ABOVE SLAB (WARM ROOF)

Specification:	**PARAPET**
Product ref:	**Marmox Thermoblock (Standard Type)**
Junction Type:	**E15**
Manufacturer:	**Marmox Ltd**
Address:	**Marmox UK, Caxton House, 101 Hopewell Drive, Chatham, Kent ME5 7NP. 01634 835290; Email: sales@marmox.co.uk; http://www.marmox.co.uk/.**

Product Use: Elimination or reduction of the cold bridge of the parapet wall with the internal surfaces in the room below.
The parapet wall insulation slab is not needed when using Thermoblock
Reduction in the ψ value used in SAP/SBEM or DEAP/NEAP calculations to enable compliance with UK / Irish building regulations.

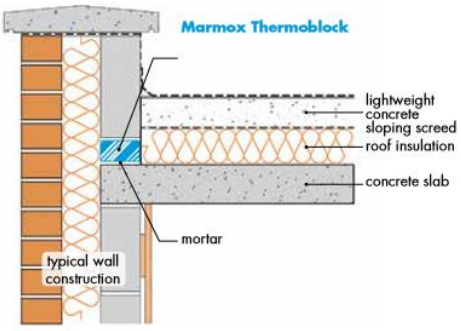
Description: Marmox Thermoblock is a load-bearing thermal break for use in walls. It comprises load-carrying epoxy-concrete columns which are bonded to the upper and lower surfaces which are polymer-concrete reinforced with fibreglass mesh. Thermally insulating Extruded Polystyrene surrounds these columns.

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

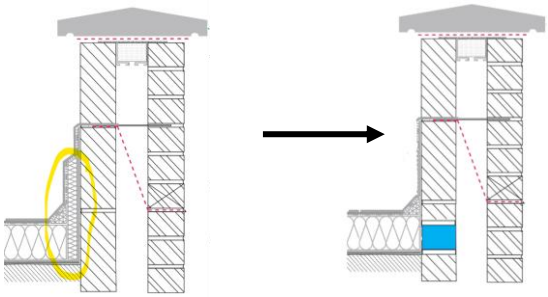
Dimensions: Length = 600mm, Thickness = 65mm or 100mm, Width = 100mm, 140mm or 215mm
(*140mm high blocks can be produced and supplied for certain projects upon request*)

With insulation Above the Roof Slab
Thermoblock is used as the parapet wall's starter course on the roof slab. It is positioned so that it connects the insulation above the slab
It can also be used in the location on the right as part of the extending inner leaf.

Typical Detail (parapet wall built on slab)



Detail with Thermal break in inner leaf
showing that the upstand insulation is not needed



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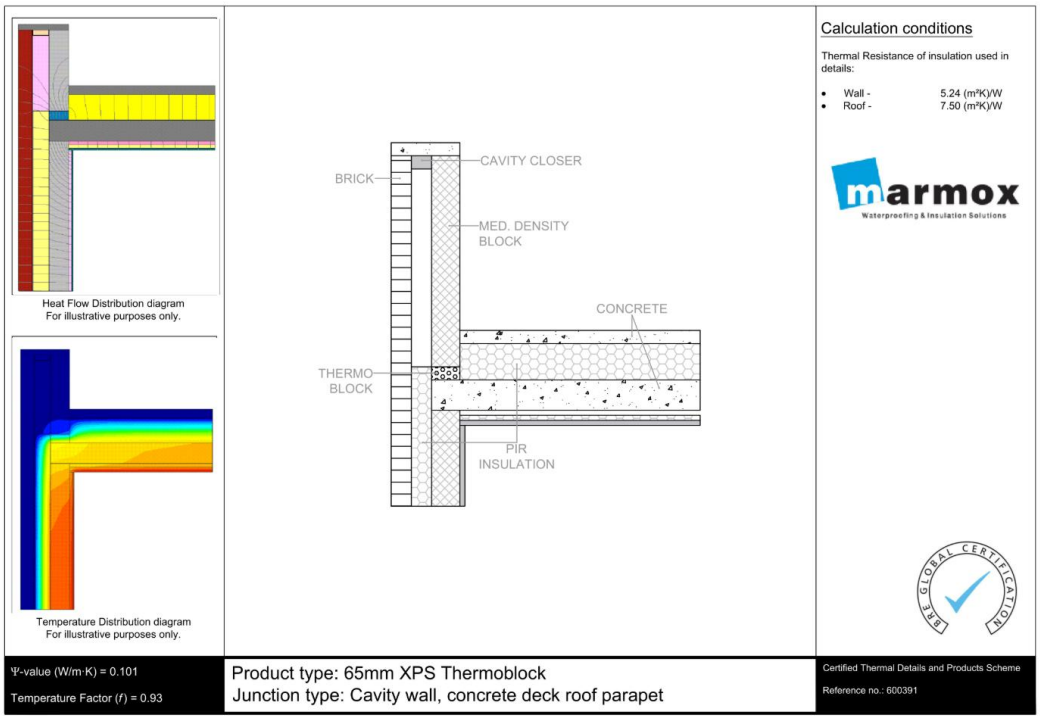
Specification to eliminate or reduce thermal bridge at base of a Parapet Wall

INSULATION ABOVE SLAB (WARM ROOF)

A single course of Marmox Thermoblock: 600mm(l) x 100/140/215mm(w) x 65/100mm(ht) is used as the starter course of the inner leaf at a position where it connects the roof insulation to the cavity insulation if present.

- Thermoblock is fixed to the slab with c.10mm normal bricklayers' mortar.
- The length of Thermoblocks can be cut using a brick saw.
- At corners where a 90 degree angle is required, a flat short edge can be achieved either by cutting the block with a brick saw or cutting off the overlap which can be done using a hand saw
- Thermoblock edges are sealed together with a ribbon of Marmox MSP360 on the stepped edges to provide a waterproof barrier to protect the insulation within the wall. *Approximately 1 tube (300ml) of MSP-360 will be sufficient for 25 blocks.*
- Normal mortar is used to fix the subsequent courses of bricks/blocks on top of the Thermoblock.

ψ value estimation: Marmox Thermoblock (*140mm wide x 65mm high*) is a BRE Certified Thermal Product when used at the base of a parapet wall. In the following example, the heat loss (ψ) is reduced to 0.10W/mK which is just one third of the default value.



BRE – Certified Thermal Products Scheme, *http://www.bre.co.uk/certifiedthermalproducts/*

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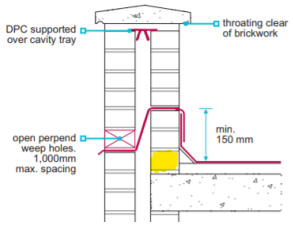
Specification to eliminate or reduce thermal bridge at base of a Parapet Wall
INSULATION ABOVE SLAB (WARM ROOF)

Important notes:

1. Thermoblocks should be fully supported and not span voids.
2. The width of the Thermoblocks should be approximately the same width as the blocks which are being laid on top of them.
3. **Thermoblocks cannot be stacked** – only one single layer is permitted
4. Standard Thermoblocks must not be used when there would be potential contact with flame applied bitumen membranes since heat applied with a flame gun could distort the shape. *An alternative Thermoblock should be used for this specific application.*

DPM: Although when sealed together with MSP-360 a row of Thermoblocks creates a permanent waterproof barrier, a DPM is still required. This can 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.

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Specification to eliminate or reduce thermal bridge at base of an External wall with a timber flat roof

Specification:	**FLTROOF**
Product ref:	**Marmox Thermoblock (Standard Type)**
Junction Type:	**E14**
Manufacturer:	**Marmox UK, Caxton House, 101 Hopewell Drive, Chatham, Kent ME5 7NP. 01634 835290; Email: sales@marmox.co.uk; http://www.marmox.co.uk/.**

Product Use: Elimination or reduction of the cold bridge at the junction of a flat roof with an external wall to reduce heat loss from the room below.
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 thermal break for use in walls. It comprises load-carrying epoxy-concrete columns which are bonded to the upper and lower surfaces which are polymer-concrete reinforced with fibreglass mesh. Thermally insulating Extruded Polystyrene surrounds these columns.

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

Authorities: ISO9001 + European Technical Assessment 20/0744
BRE – Certified Thermal Products Scheme, *http://www.bre.co.uk/certifiedthermalproducts/*

Dimensions: Length = 600mm, Thickness = 65mm or 100mm, Width = 100mm, 140mm or 215mm
(*140mm high blocks can be produced and supplied for certain projects upon request*)

With insulation above a wooden joisted roof
Where a timber roof plate is fixed on top of the inner leaf, the top course of blocks is replaced with one course of Marmox Thermoblocks and the roof plate is fixed onto that by screwing it through the Thermoblock into the solid block below.

Important notes:

1. Thermoblock's **vertical face must be clad** either with a cement board or by incorporating a layer of scrim tape, a coating of cement-based render or plaster. Even if in the roof void, the blue coloured vertical face must be covered.
2. Timber roof joists should not be lain directly on top of Thermoblocks at 90^O which would impose a point load. A load-spreading roof plate must first be present.
3. Thermoblocks should be fully supported and not span voids.
4. The width of the Thermoblocks should be approximately the same width as the blocks which they are on and the same width as the roof plate.
5. **Thermoblocks cannot be stacked** – only one single layer is permitted
6. Thermoblocks must not be used when there would be potential contact with flame applied bitumen membranes. (*heat applied with a flame gun could distort the shape*)

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Specification to eliminate or reduce thermal bridge at base of an External wall with a timber flat roof

- A single course of Marmox Thermoblock of the same width as the blocks comprising the inner leaf is fixed on top of those blocks using ordinary bricklayers' mortar.
- The length of Thermoblocks can be cut using a brick saw.
- At corners where a 90 degree angle is required, a flat short edge can be achieved either by cutting the block with a brick saw or cutting off the overlap which can be done using a hand saw
- To provide a continuous waterproof barrier and improve airtightness, Thermoblock are sealed together with the sealant Marmox MSP-360 by applying a couple of vertical and horizontal stripes to the stepped polystyrene edges. *Approximately 1 tube (300ml) of MSP-360 will be sufficient for 25 blocks.*
- The timber 'roof plate' which would normally be screw fixed onto the top layer of blocks is now screw fixed to that top layer of blocks but through the middle of the Thermoblocks
- Fixing bolts / resin anchors are placed through the sole plate and then the Thermoblock approximately halfway across its width into the solid base underneath. These *must penetrate the concrete blocks by at least 60mm*
- The roof joists are now fixed to the roof plate as normal.

DPM:

1. Although when sealed together with MSP-360 a row of Thermoblocks creates a permanent waterproof barrier below the roof plate a further DPM is usually still required. A DPM can be positioned above or below the Thermoblock. Because its top and bottom layers are concrete, it can be treated in the same way any concrete unit can be treated.
2. If adhering a DPM to the vertical side of the Thermoblock (*the blue polystyrene*), do not apply a solvent-based primer to the surface. Priming the XPS is not necessary, the DPM will adhere to the XPS without being primed and some primers can make the surface powdery.

Specification to eliminate or reduce thermal bridging where a pitched roof abuts a gable wall

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

Product Use: A sloping roof line of an extension built against an existing gable wall can create a cold bridge which can be reduced incorporating a sloping line of Thermoblocks into that wall.

Description: Marmox Thermoblock is a load-bearing thermal break for use in walls. It comprises load-carrying epoxy-concrete columns which are bonded to the upper and lower surfaces which are polymer-concrete reinforced with fibreglass mesh. Thermally insulating Extruded Polystyrene surrounds these columns.

Dimensions: Length = 600mm, Thickness = 65mm or 100mm, Width = 100mm, 140mm or 215mm
(*140mm high blocks can be produced and supplied for certain projects upon request*)

Marmox Thermoblocks are positioned within a gable wall form a thermal break in the along the line of the adjoining lower roof rafters by overlapping their ends but ensuring at least half their length is supported above and below structural masonry units.

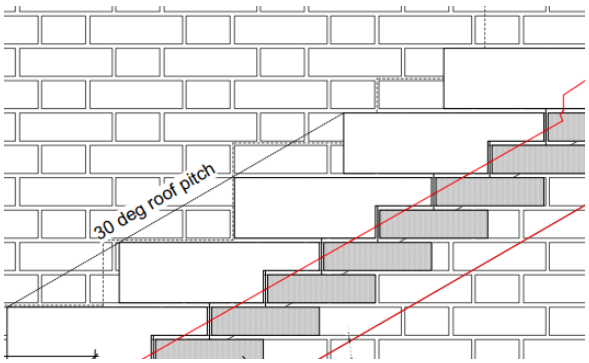
Conditions:

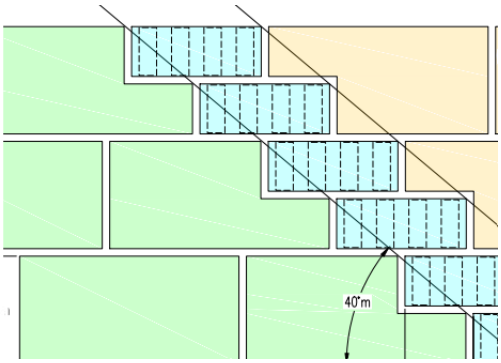
1) The bricks or blocks of the wall are no narrower than the width of the Thermoblock.

2) Thermoblocks can be overlapped but at least 50% of their total length must be in contact with a masonry unit. This is enabled by cutting the length of the Thermoblocks which is determined by the angle of the roof line.

3) The minimum length they can be reduced to is 250mm.

EXAMPLE SPECIFICATIONS -
Can be used in brick walls, block walls or combinations of both.
65mm high Thermoblocks can replace bricks whereas two rows of 100mm high Thermoblocks "semi-stacked" can replace one 215mm high block as the following examples show.





- In all applications, no more than 50% of the length of each Thermoblock touches another Thermoblock.
- Thermoblock is fixed with exactly the same mortar as is used to fix the concrete blocks and bricks.

Specification to eliminate or reduce thermal bridging where a pitched roof abuts a gable wall

Properties:

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

Authorities:

BBA certified (10/4778)
ISO9001 + European Technical Assessment 20/0744
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 visibly exposed**. It is unaffected by moisture and weather but is susceptible to long-term UV radiation and can also be damaged by gnawing rodents and insects.

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*)

Limitations:

1) No fixings, including that of the pitched roof can be mechanically secured into the Thermoblocks.

2) Must not be used with any adhesives, sealants, waterproofing treatments that contain organic solvents. The compatibility of ANY non-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.