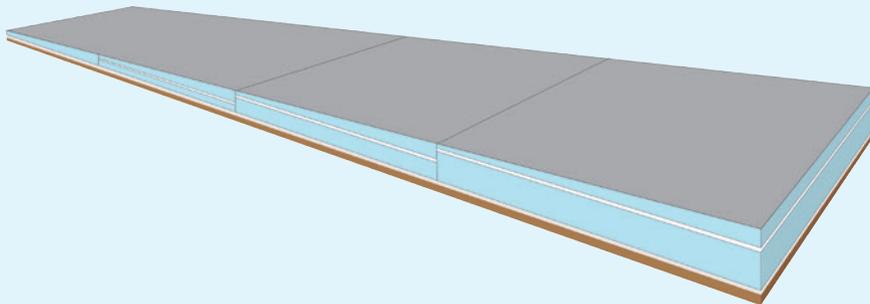


## Tiling onto Balconies and Terraces using Marmox Multiboard and Sloping board

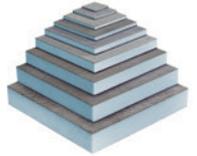


Marmox Multiboard and Sloping Board are low-profile, external grade tile backer boards ideally suited for tiling a balcony. Sloping boards provide both the slope and a waterproof and weatherproof base for stone and ceramic tiling.

- CE Marked thermal insulation panels so will assist in achieving Part L compliance.
- Provides decoupling which is to say, they absorb expansion and contraction in the balcony structure, isolating that movement from the tiled surface thereby preventing the tiles from cracking.
- Can be used on concrete, metal and timber balconies.
- Low profile.



Marmox Multiboard and Marmox Sloping Multiboard are BBA certified tile backer boards with a compressive strength in excess of 40 tonnes per square metre. They comprise a core of waterproof high density polystyrene and skin of a frost-resistant polymer-concrete. The optimum surface for durable bonding with tile adhesive.



## Tiling onto Balconies and Terraces using Marmox Multiboard

For balconies already with a slope built in, Marmox Multiboard can be used whereas if starting from scratch, Marmox Sloping Boards can be used to create the slope. Because Sloping boards are 10mm thick at one end and 33mm at the other, slopes can be extended as shown on this diagram by



placing the next sloping board on top of a standard 20mm thick Marmox Multiboard – with 3mm of tile adhesive the 10mm thick edge will match up perfectly with the adjacent board's 33mm thick edge.

Being just 33mm thick means that they do not detract significantly on the depth of the required splash zone.



### Problems Marmox Multiboard Can Solve

#### Unsuitable Coverings

Although offering a good level of waterproof protection, bitumen membranes cannot be tiled directly on to. The material is not classified as a solid material and this, coupled with its oily nature, make it both unstable as a base and impossible to adhere to with most tile adhesives.

A layer of Marmox Multiboard above the asphalt will stabilise the tiled surface. It should however be noted that most bitumen membranes found on balconies may be roofing grade that is not designed to be walked on, so it may have developed cracks. Before starting to tile such an area, the membrane should be checked and repaired or replaced if necessary.

# Tiling onto Balconies Using Marmox Multiboard

## Thermal Expansion

Exposure to direct sunlight, rain and freezing conditions will result in the balcony structure expanding and contracting. It is essential to isolate this movement from the tiled surface with a decoupling layer such as Marmox Multiboard or Sloping Board. The core of the Marmox boards will absorb the linear movement in the substrate before it can get to the tiling and damage it. To compensate for the additional thermal movement, expansion joints must not be tiled over and a larger than usual gap of 10mm around the perimeter edge should be created and filled with a flexible sealant.

Direct sunlight onto the tiled surface will cause the tiles to expand. Marmox Multiboard (and Sloping Board) have a similar coefficients of linear thermal expansion as a typical ceramic tile consequently any slight movement in the tiles will be mirrored in the top surface of the board beneath them. Consequently, the tiles and the grout will not be put under stress and so will not crack. The bottom surface of the board will be bonded to the balcony floor which is likely to exhibit more thermal movement than the tiling on top. Because the board's bottom layer is not rigidly fixed to the top layer, that movement will get absorbed by the foam core before it reaches the top surface.

It is also known that thermal movement is more noticeable when using larger format tiles and therefore smaller tiles are often used in external situations.

Material	Coefficient ( $\times 10^{-6}/^{\circ}\text{C}$ )
Marmox Multiboard	8
Ceramic Tiles	6 - 9
Marble and Travertine	5 - 8
Concrete	10 - 12
Air Entrained Concrete	8
Steel Frame	12 - 15
Asphalt	50 - 80
Timber Frame	30 - 90

Comparison of Coefficients of Linear Thermal expansions

## Frost Damage

Any water inside the screed, concrete, timber and even tile adhesive will freeze and thaw during a typical British winter. When water freezes and thaws it expands and contracts and can result in the concrete etc. cracking, breaking up and if it is tiled, the tiles may become loose.

One first and most obvious solution is to ensure there is no standing water on the tiled area by constructing the pavement with a gradient of 2mm/m to 3mm/m towards drainage points. This can be done either by building a slope into the screed or by using a Marmox Sloping Multiboard which slopes from 33mm to 10mm over a 1.2m length.

The second good practice procedure is to reduce the potential for the sub-floor to be able to absorb water. In designing the concrete or screed, the appropriate admixtures (air entrainers and plasticisers) should be used to engineer a concrete that will not absorb water and not be prone to frost damage.

The third solution is to use an external grade tile adhesive and always ensure that a continuous bed of adhesive is used with no air pockets that could become water pockets.

Using a waterproof Marmox sloping Multiboard instead of a sloping screed will reduce the material used that is susceptible to frost damage. Marmox Multiboards are resistant to freeze-thaw damage (tested to ASTM666-03) proving that even with a layer of tile adhesive correctly applied they are not damaged by freeze-thaw action.

Marmox Multiboard (standard or sloping) should be the layer immediately underneath the tiling. It should be bonded to the tiles using a tile adhesive suitable for external use.

## How To Tile a Balcony or Terrace

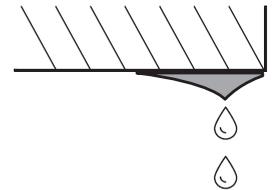
The balcony or terrace should be of sound construction with no signs of movement. Any fresh concrete (ideally air entrained) should be left to cure for 28 days before tiling on. In addition to being used on the floor, Marmox Multiboard can be used as the base for upstands against the perimeter wall providing waterproofing and thermal properties.



## Maintaining long term structural integrity

The edge or underside of the balcony or terrace should have a means of directing the water away. It is especially important that the water cannot run back along the underside of the structure, where it could cause long term damage – not to mention being undesirable to anyone or anything beneath!

Marmox drip strips are designed to direct the flow of water. The prefabricated polymer concrete profiles are simply bonded to the underside of the balcony or terrace so that water will drip away, thus reducing the risk of concrete damage caused by water back-flow.

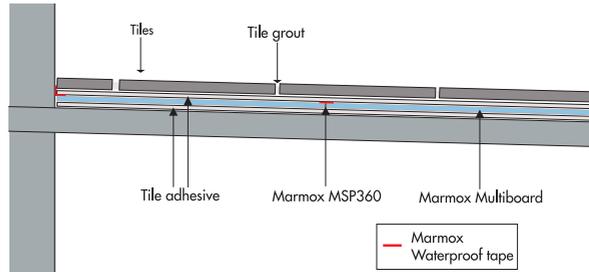


### 1) On a Cantilever Balcony (no habitable room below)

Whatever the structure of the balcony is, it must always have a flat supportive base onto which a layer of Marmox boards can be fixed with cement-based tile adhesive. No vapour barrier is necessary when the balcony is not directly above a living space. Marmox boards are completely waterproof and if sealed together correctly constitute a waterproof tileable layer.

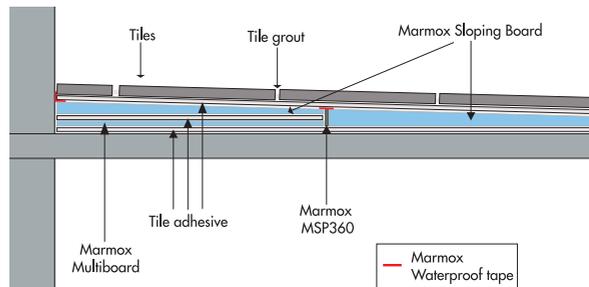
#### 1a) For a tiled surface with the same gradient as the base structure

- Fix the Marmox board to the base with a continuous bed of exterior grade tile adhesive.
- Squeeze a ribbon of Marmox MSP360 on to the edge each board then lay the boards together maintaining a gap between all boards of about 2mm filled with sealant.
- Leave a gap of about 10mm around the perimeter edge and fill this with Marmox MSP360.
- Cover all the board joints and connections to walls and features with Marmox self-adhesive waterproofing tape.



#### 1b) For a tiled surface with a sloping gradient on a flat base structure

- Fix the first row of Marmox Sloping boards to the outer part of the base with a continuous bed of exterior grade tile adhesive.
- To continue the slope for more than 1200mm..... using a continuous bed of exterior grade tile adhesive, fix a layer of 20mm thick Marmox boards to the rest of the base and butt it up to the thick edge of the Sloping Board where it should be sealed with a ribbon of Marmox MSP360.
- Fix the next row of Marmox Sloping boards on top of the 20mm thick Marmox Multiboards using a continuous bed of exterior grade tile adhesive. Press the board into place to achieve an adhesive thickness of 3mm.
- Seal the edges together with Marmox MSP360.
- Marmox Multiboards and Sloping boards can be cut to size using a hand saw.
- To continue the slope for more than 2400mm..... using a continuous bed of exterior grade tile adhesive, fix a layer of 20mm thick Marmox boards to the rest of the 20mm boards and butt it up to the thick edge of the Sloping Board where it should be sealed with a ribbon of Marmox MSP360.
- Fix the next row of Marmox Sloping boards on top of the 20mm thick Marmox Multiboards using a continuous bed of exterior grade tile adhesive. Press the board into place to achieve an adhesive thickness of 3mm.
- Seal the edges together with Marmox MSP360
- Leave a gap of 8 - 10mm around the perimeter edge and fill this with Marmox MSP360.
- Cover all the board joints and connections to walls and features with Marmox self-adhesive waterproofing tape.



### 2) On a balcony/terrace above a habitable room

Above a habitable space, a certified vapour membrane should also be included in the design. This physical VCL can be either bitumen based or non-bitumen based but if it is bitumen, additional measure need observing to fix the Marmox boards.

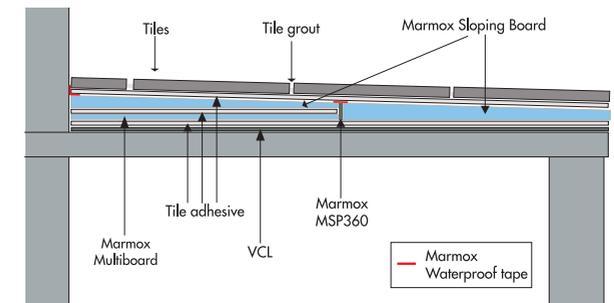
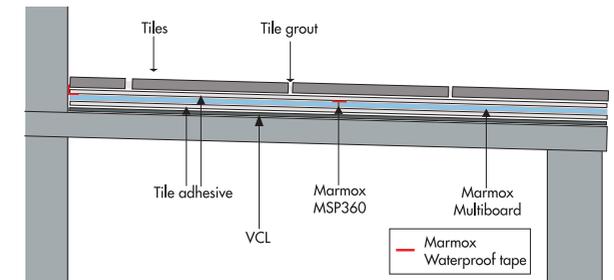
Marmox Multiboard and Sloping board are also CE marked thermal insulation boards so will therefore improve the insulation properties of the roof. In many applications, Marmox boards could be used to improve the U values it in accordance with current building regulations.

#### 2a) If using a non-bitumen VCL

On top of the non-bituminous membrane, either follow instructions 1a or 1b but first install a vapour control membrane on the surface.

#### 2b) If using a bitumen based VCL

Tile adhesives cannot form a long-term bond to bitumen therefore a "priming layer" needs to be added. The bitumen should be covered with a 2-part epoxy adhesive onto which kiln dried quartz sand is spread when still wet. After 24 hours, the excess sand is brushed away and the Marmox boards are then installed as details above in 1a and 1b.



### The Marmox Solution



Marmox Multiboard and Sloping board



Marmox Polyprofile drip strips



Marmox MSP360 adhesive and sealant



Marmox Self-adhesive waterproofing tape

---

## Quality Assurance

We are committed to the highest standards of excellence

A commitment to the highest standards of quality assurance underpins everything we do.

Below are some of our current accreditations.



NBS Plus

CONTACT  
MARMOX  
TODAY!

For information and advice on our products and services:

**Tel: +44 (0)1634 835290**

[sales@marmox.co.uk](mailto:sales@marmox.co.uk) [www.marmox.co.uk](http://www.marmox.co.uk)

Marmox (UK) Ltd  
Caxton House,  
101-103 Hopewell Drive,  
Chatham, Kent, ME5 7NP  
United Kingdom

  
Waterproofing & Insulation Solutions  
Marmox gives you more!