

Tiling onto Balconies Using Marmox Multiboard

Marmox Multiboard and Marmox Sloping Multiboard are external grade tile backer boards providing a waterproof and weatherproof base for stone and ceramic tiling. They are the perfect solution for tiling a balcony.

- CE Marked thermal insulation panels so will assist in achieving Part L compliance.
- Provide 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.

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.

For balconies already with a slope built in, Marmox Multiboards can be used. These are made in thicknesses of 4, 6, 10, 12.5, 20, 30, 40, 50 and 60mm and the most convenient board dimension for balcony construction is the 600 x 1250mm size.

Marmox Sloping Board is the ideal board for creating a sloped floor. These are the exactly the same design as a standard Multiboard but with an in-built slope. They are made in just one size: 1200 x 1200mm with one edge being 10mm and the opposite edge being 33mm. Slopes can be extended by placing the next Sloping Board on top of a standard 20mm thick Marmox Multiboard – with the 3mm of tile adhesive, the 33mm thick edge will match up perfectly with the adjacent board.



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Problems Marmox MultiBoards Can Solve

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.

Heat Damage

Direct sunlight onto the tiled surface will cause the tiles to expand very slightly. Marmox Multiboard has a similar coefficient of linear thermal expansion as a typical ceramic tile consequently the slight movement in the tiles will be mirrored in the board beneath it consequently the grout will not be put under stress and will not crack.

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

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Comparison of Coefficients of Linear Thermal expansions

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

Unsuitable Coverings

Although offering a good level of waterproof protection, bitumen membranes cannot be tiled directly on to. The material is actually 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 isolate this material and stabilize the tiled surface. It should however be noted that most bitumen membranes found on balconies will 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.

How To Tile a Balcony

The existing balcony 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 attempting to tile upon.

The following pages give examples of various balcony types.

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1) On a True Balcony (no room below)

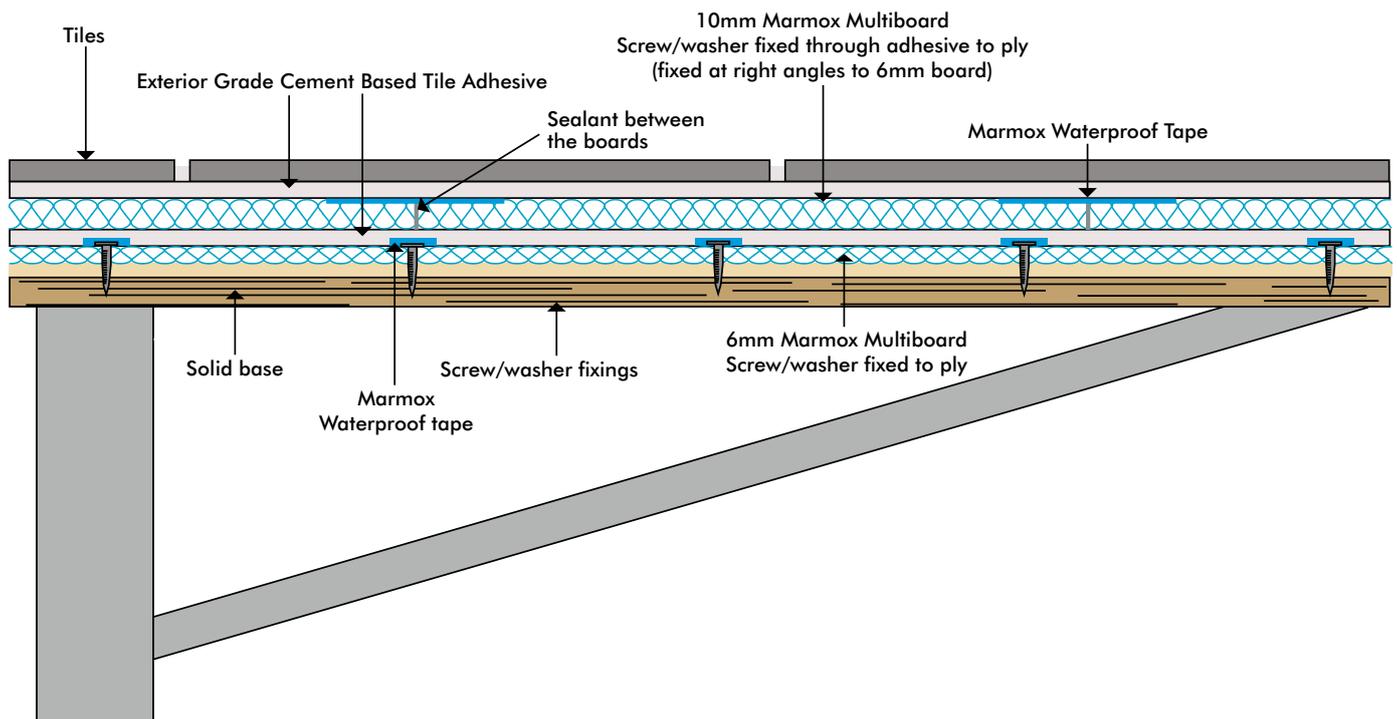
These balcony types can be metal or timber but must always have a flat supportive base onto which a layer of Marmox Multiboard can be fixed using a bed of tile adhesive.

No vapour barrier will be necessary when the balcony is not directly above a living space. Two layers of overlapping Marmox board are used to create a waterproof layer. To create a slope, the bottom layer is typically be 6mm thick Marmox Multiboard and the top layer is Marmox Sloping Board.

The first layer of Marmox Board (for example 6mm) is fixed to the base with a continuous layer of tile adhesive in addition to screws and washers. Screws and washers should be placed around the perimeter of the boards at a rate of approximately 6 fixings per board.

The Marmox boards are butted up to each other with a bead of sealant (Marmox Multibond) but it is not necessary to apply waterproof tape over the joints on this layer> It is however vital to apply pieces of waterproof tape (e.g. 100 x 100mm) over all of the screw fixings.

When cured, apply a second layer of boards (ideally aligned at right angles to those in layer 1) on a continuous bed of cement-based tile adhesive. Again, place a bead of sealant between the boards as they are butted together and for this top layer, cover all the board joints with Marmox self-adhesive Waterproof tape



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2) On a Concrete Balcony

If a slope has been built into the sub-floor, Marmox Multiboard is fixed to the concrete surface using a continuous bed of suitable cement based tile adhesive. Care must be taken to ensure that no gaps are left beneath the Multiboard. If the area has any open sides, proprietary edge profiles should be used in the thin bed of adhesive to secure the Marmox Multiboards. Please consult the adhesive manufacturer to determine the correct grade and the primer for the concrete. Joins should be covered with Marmox S/A Waterproof Tape. If the concrete floor is flat, Marmox Sloping Multiboard should be considered. This is 1.2m x 1.2m, 10mm at one edge, 33mm at the other. The slope can be extended by fixing the sloping board on top of 30mm Marmox Multiboard again using a continuous thin bed of tile adhesive.

3) On a Timber Balcony (above a habitable room)

To provide a vapour barrier compliant with building regulations, above a habitable room, a certified vapour membrane should be included in the design. If using a non-bitumen material, the Marmox board is fixed directly to this using a continuous layer of an external grade cement-based tile adhesive and the method is then as shown above on a cantilever balcony.

If a bitumen membrane is used, a long-term bond with most tile adhesives cannot be guaranteed so 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 two layers of Marmox Multiboard (or Multiboard + Sloping Board) are fixed as detailed above.