

# Marshalls Porcelain Paving 20mm Installation Guide

*This installation guide is applicable to the following porcelain paving products: Arrento, Motus, Ardara and Symphony*



## General Information

On delivery, the product should be inspected. If there are **any** issues, please report them immediately and do not commence installation.

Before installation commences a certain amount of sorting of the product may be required to ensure consistency of colour, texture and dimensional tolerance.



## Health and Safety Information

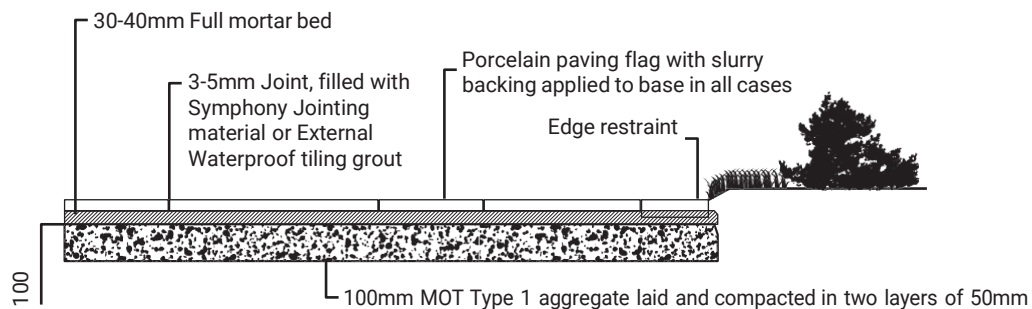
Safe working practices should be employed at all times during the construction process and all necessary Personal Protective Equipment (PPE) should be worn.



## Pavement Design

For most domestic applications, a sub-base of 100mm should prove to be sufficient. However, the paving design must be based upon the prevalent ground conditions and type and frequency of anticipated loads.

Consideration should be given for the inclusion of movement joints, at 6m centres, if the area is subjected to prolonged periods of direct sunlight, the area is a large open expanse of paving or the selected colour of paving is a darker option.



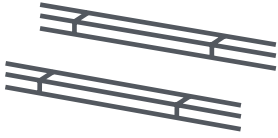
3 Typical section through a patio constructed in accordance with Marshalls Register Installation ProceduresD01 Scale 1:20 @A3

**Please Note:** If using Symphony Jointing Compound, drainage ports will need to be incorporated.



## Excavation

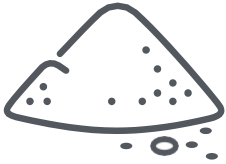
To allow the new paving to be installed correctly, a certain amount of excavation may be required. The depth of this excavation will depend upon the thickness of the required sub-base plus the mortar mix, and the paving flag thickness. An extremely important factor to consider when working out the depth of excavation is that the finished surface level of the paving, when being laid up to an existing structure, must be a minimum of 150mm below the Damp Proof Course (DPC) to prevent problems with rising damp.



## Edge Restraints

Edge restraints should be sufficiently robust to resist the lateral displacement from imposed loadings placed upon the paving surface and should be installed prior to the installation of the sub-base. The restraint must provide a consistent vertical face to a level below the laying course material.

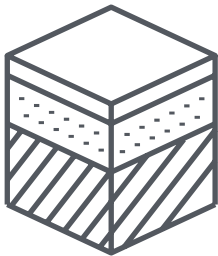
For steep inclines or gradients, (greater than 1:20) the provision of intermediate restraints should be considered. Their spacing should be related to the severity of incline and overall area of paving. (Please contact Group Technical Services for further information)



## Sub-base - Material Selection

Granular sub-base material should be well graded (40mm to dust) Type 1 quality stone material. Inferior quality material may be liable to failure under loading and be susceptible to frost or moisture settlement.

Recycled materials such as crushed masonry or concrete can be considered, provided it is well graded and compacts to give a close textured finish. Materials containing organic matter should not be used.



## Sub-base - Construction

If you are unsure or have any doubts about the existing quality of the sub-base, we recommend the use of a Geo-Textile membrane.

Sub-base material should be placed in layers not exceeding 75mm in thickness or twice the nominal maximum aggregate size. Each layer should be fully compacted before the next layer is placed. Sub-base tolerance to be +5-10mm from specified levels. The surface should be clean and suitably close textured to prevent migration of finer material through the construction.

A minimum longitudinal fall of 1.25% (1 in 80) and cross fall of 2.5% (1 in 40) should be incorporated in the sub-layer construction to provide adequate surface water runoff from the wearing course.



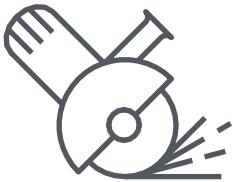
## Rigidly Laid Paving - Materials Selection

While every effort is made to ensure consistency in colour and shade in our Porcelain Paving, it is inevitable when using natural materials that there may be some variation between batches. Marshalls recommend mixing the contents of packs to ensure an acceptable blend can be achieved. If you intend to order further material at a later date, please make a note of the shade reference number which is printed on the packaging, which may help in locating appropriate new material.

**Porcelain paving is recommended to be installed on a full mortar bed and never on a five spot bed or alternative.**

Flags should be supported on a full 'wet' workable mix mortar bed (1:4 cement/sharp sand). The mortar bedding should be laid to give a thickness between 30mm and 40mm. To increase adhesion to the mortar bed and prevent separation, Marshalls' Paving Primer should be applied to the back of the flag prior to installing onto the mortar bed. It is also a very useful technique for ensuring elements, such as wall copings, caps and step treads, adhere and remain bonded.

Gently tamp down onto the mortar bed using an appropriate rubber maul. Adjustment may be necessary to ensure that the units are fully supported and do not rock or move, and that desired levels and falls are achieved.

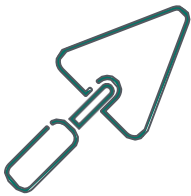


## Cutting

Cutting should be carried out using water fed (blade cooling) dust suppression equipment and appropriate diamond blade with either a petrol power saw or bench power saw, this is to control the dust and cool the blade.

It must, however, be noted that the final aesthetic finish achieved will depend greatly upon the choice of cutting mechanism and level of skill applied by the operator. Equipment and blades specifically for the cutting of porcelain paving should be used. Never cut porcelain paving with a fibre blade.

Please note that high quality diamond blades (sometimes called Ceramic blades) should be utilised at all times. If a blunt or worn diamond blade is used, shelling or oystering of the unit will occur. For installers unfamiliar with the practice of cutting porcelain paving, it is recommended to practice their cutting technique before the final installation.



## Jointing

All joints should be fully filled with Marshalls' Symphony Jointing Material or Marshalls' Exterior Jointing Grout. Joint widths should be effectively 3-5mm wide and spacers should be used to achieve uniform joints. Under no circumstances should dry or semi dry sand/cement mixes be brushed into the joints. This practice leads to staining of the paving and does not constitute a true rigid joint.

**Important:** Once paving has been laid on the mortar bed, rake out any excess mortar between the joints to the base level of the flag with a suitable tool. This is to ensure the jointing material fills all joints to the entire depth and width of the flag joint.

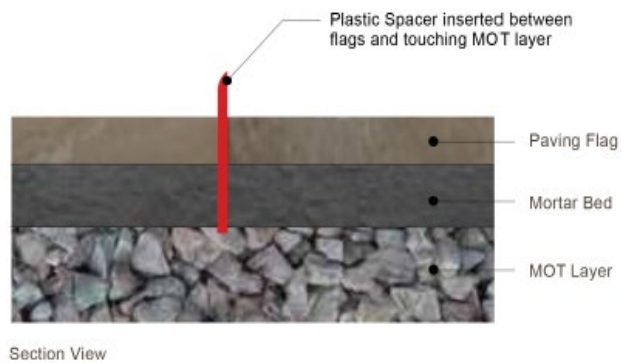
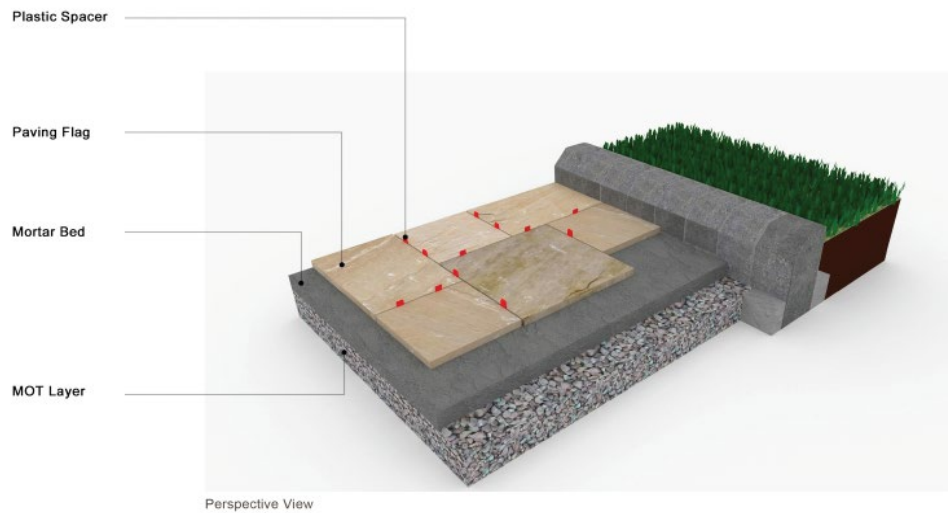
If utilising Symphony Jointing Material, drainage ports must be incorporated to allow free draining from the joint to the sub-base.

The joints should then be filled using the jointing compound, following the instructions supplied. Saturate the paved area with water prior to expelling the product onto the paving then brush diagonally into the joints.

## Before using Symphony® Jointing Compound

**PAVING MUST BE LAID ON A FULL BED OF MORTAR WITH SUITABLE DRAINAGE PROVISION THROUGH THE BEDDING LAYER TO THE SUB-BASE AND NEVER ON A FIVE SPOT BED**

When installing your paving it is recommended you introduce drainage ports. To do this rake out any excess mortar in the joint to the full depth of your chosen paving. Using spacers every 300mm on all sides of your paving. The spacers should be introduced to the full depth of the bedding mortar creating a channel down to the MOT Type 1 to create unhindered flow, see diagram below:



Once the mortar bed has partially cured remove the spacers and introduce Symphony® Jointing Compound.



### Tip

Jointing compound will need to be compressed into the void to ensure a solid joint. This can be achieved by using a Marshalltown jointing tool or similar. Extra jointing compound if required can then be swept into any exposed or hungry joints to ensure a compact and full joint.

Alternatively, an Exterior Waterproof Tile Grout may be used as a jointing compound.



## Cleaning

To finish the installation, gently spray the surface of the paving with water before sweeping off any excess jointing material with a soft bristled brush. Remaining jointing compound can then be stored in the tub. Fill tub to the maximum with water, ensuring all jointing compound is covered to prevent air ingress into the jointing material. This excess jointing compound can then be stored for up to 12 months provided the product remains fully immersed in water.



## Inclement Weather

Laying and jointing operations should be discontinued (and any open work face covered) if weather conditions are such that the performance of the paving may be jeopardised. Laying operations should not be undertaken when the temperature is below 5°C on a falling thermometer and below 1°C on a rising thermometer. (Night time temperatures must be taken into account). All unfinished areas and stockpiles of materials should be covered in the advent of inclement weather to prevent saturation.



## For more information

Please contact Marshalls Group Technical Services on **0370 411 2233** or email [grouptechnicalservices@marshalls.co.uk](mailto:grouptechnicalservices@marshalls.co.uk)