

Porcelain Driveway Installation Guide

Recommended for a minimum of 30mm thick Porcelain flags



General Information

On delivery, the product should be inspected for any damage. If there are any issues, please report them immediately to our Technical Department and do not commence installation.



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 and utilised.



Porcelain Batch Variation

Whilst every effort is made to ensure consistency in the colour of this product, the manufacturing process can result in some variation between batches. It is, therefore, good practice to ensure the same batch codes have been delivered. Batch codes are labelled on all packaging. This ensures consistency of colour variation, texture and dimensional tolerance once installed.

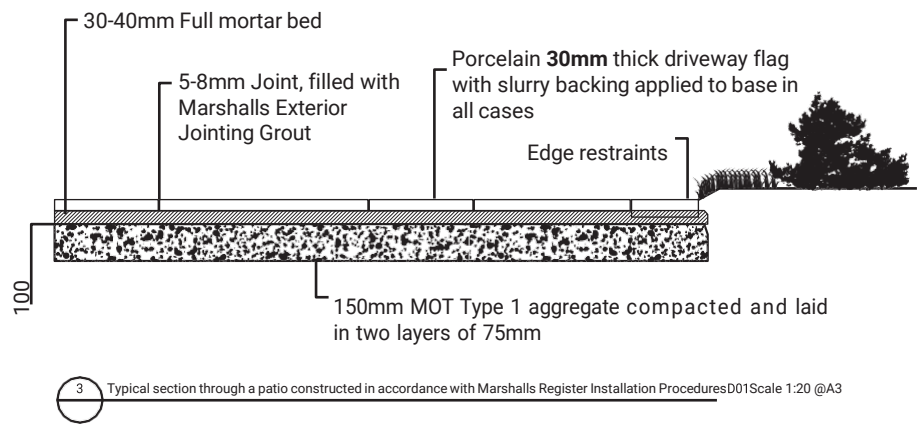
If you intend to order further material later, please make a note of the batch code number, which may help in locating appropriate new material.



Driveway Design

For most domestic applications, a sub-base of 150mm, compacted into two layers of 75mm, this should prove to be sufficient. However, the driveway design must be based upon the prevalent ground conditions, type and frequency of anticipated loads.

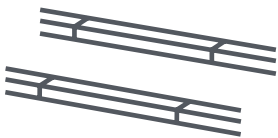
Consideration should be given for the inclusion of movement/expansion joints, at 6m centres.



Excavation

To allow the new driveway flags 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 sand and mortar, and the driveway flag thickness.

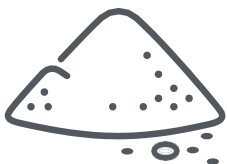
An extremely important factor to consider when working out the depth of excavation is the finished surface level of the paving. When being laid up to an existing structure, it must be a minimum of 150mm below the damp proof course. This is to prevent problems with rising damp in the structure.



Edge Restraints

Edge restraints, should be sufficiently robust to resist the lateral displacement from imposed loadings placed upon the paving surface and are 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.

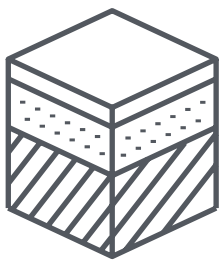
For steep inclines or gradients, (greater than 1:20) the provision of intermediate restraints should be considered. Their spacing should be related to the severity of incline and overall area of paving.



Sub-base - Material Selection

Granular sub-base material should be 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 movement.

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-grade, 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 introduced. 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 to a suitable drainage system or water harvesting area.



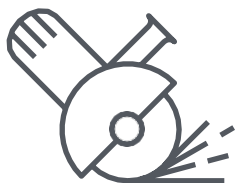
Rigid Driveway Installation - Materials Selection

Marshalls recommend mixing the contents of as many packs as possible to ensure an acceptable blend of colour can be achieved. If you intend to order further material at a later date, please make a note of the batch code number which is detailed on the packaging. This may help in locating appropriate new material.

30mm Porcelain driveway flags must 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 must be applied to the rear of the flag prior to installing onto the mortar bed.

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.

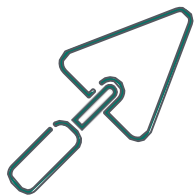


Cutting

The final aesthetic finish achieved will depend greatly upon the choice of cutting mechanism and level of skill used by the operator. Equipment and blades specifically designed for the cutting of porcelain driveway paving should be used. We would recommend using a water suppressed, diamond bladed power saw. This will control any dust and cool the blade. If you have use of a table saw, this can also be utilised, as long as it is water suppressed. Never cut porcelain flags with a fibre blade.

If more than 25% of a flag or slab requires cutting then the remaining piece should be cut from the internal corner of the cut to the external corner of the flag or slab, at an angle of preferably 45°.

Please note that high quality diamond 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 cutting porcelain paving, it is recommended to practice cutting of the material before the installation commences.



Jointing

Jointing should not commence until at least 24 hours after installation, to allow complete bonding of the flags to the sub base.

All joints should be fully filled with the supplied Marshalls' Exterior Jointing Grout, following the instructions supplied. Joint widths should be effectively 5-8mm wide and completely filled to the full depth of the flag. 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.

Separate installation instructions are available for Marshalls' Exterior Jointing Grout; please contact Marshalls Group Technical Services, if you require further support.



Top Tip

To facilitate the creation of narrow, uniform joints, removable spacers, such as window-packers, may be used. These must be removed prior to commencing application of all jointing material, to ensure joints are filled to the full depth of the driveway flag.



Cleaning

We **STRONGLY RECOMMEND** a light power wash 24 hours after the jointing installation is complete for a final clean down. **Failure to do so could result in a white residue or staining.**

For further guidance on cleaning and maintenance of our 30mm porcelain driveway flags, please consult our Cleaning and Maintenance Guide.



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 cease when the temperature is below 5°C on a falling thermometer and below 1°C on a rising thermometer, night-time temperatures should 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