

Installing Block Paving

Paving Factsheet 4 - June 2023



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Each new paving and patio project is unique and have their own challenges to overcome. This factsheet is a simple description of the key stages of installing concrete block paving and does not address all possible on site issues and scenarios. The stages here apply to both non-permeable and permeable paving although there are differences in the materials to be used - refer to "Factsheet 2 - Permeable Paving" for further details. Full guidance can be found in BS 7533-101:2021.

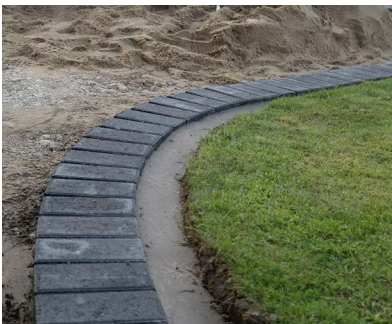


Excavation to the sub-grade level

Stage 1: Preparation

Before work commences it is a good idea for the householder to make a simple design sketch of how they would like the paving to be laid out. This will help the contractor fulfil their clients' expectations and make an accurate assessment of material quantities. The areas can be marked out with string or a line of sand.

A significant quantity of excavation spoil and waste will be generated during the installation which will need removing to a licensed disposal site and provision for this must be planned for.



Concrete bedding and haunching of edge blocks

Stage 2: Excavation

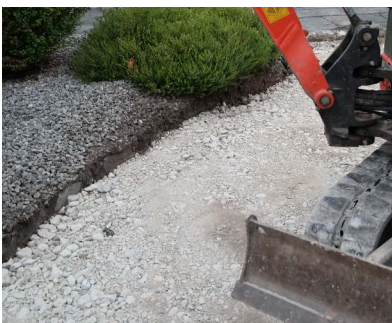
The area is cleared and dug out to 200 - 250 mm depth below the final paving level. Any weeds or roots should be dug out and removed at this stage and the application of weedkiller considered if the problem is particularly bad.

The underlying ground (often referred to as the 'sub-grade' or the 'formation level') should be assessed for solidity and firmness. This will usually be consolidated by the compacted sub-base material but for a particularly poor conditions (soft, clay-like or patchy), a geotextile membrane can be laid which will help prevent the subsequent sub-base material from sinking when it is compacted down.

Stage 3: Edge restraints

At this point the edging courses (blocks or kerbs) should be installed on a 100 mm bed of concrete and set to the final height of the finished paving. Edging blocks perform the critical task of restraining the paving and preventing spreading when loaded by vehicles for example.

The edging blocks should be sturdily haunched with concrete at their rear to keep them in position. If the edging blocks are butted against a wall then it is acceptable just to lay them on the 100 mm concrete base without the haunching.



The sub-base being spread prior to compaction

Stage 4: The sub-base

An MOT Type 1 aggregate is used to form the sub-base which is raked across the sub grade area and compacted down using a vibrating plate compactor to a thickness of 100 - 150 mm; this should be done in 50 mm layers until the final level is achieved. At this stage the slope and levels are formed. Any falls and slopes should not be determined by the sand laying course.



The final laying course of sharp sand being carefully screeded level and smooth



Cutting in of blocks using a block splitter and cutting saw



Final 'whacking down' of the paving using a vibration plate

Stage 5: The laying course

Having determined the slopes and falls using the sub-base, a laying course of sharp sand is formed by compacting down to approximately 35 mm. A final layer of sharp sand 25 mm thick provides the final laying course which is carefully levelled and formed using screed rails and boards and smoothing trowels. This final layer is not compacted down until the blocks have been laid.

Stage 6: Block laying

Ideally commence laying full blocks off a solid edge, typically the building and continue from one corner or right angle in the pattern of choice. Any doorsteps or decorative features are commenced at this point.

Blocks should be carefully butted up to one another to hand-tightness. Place the blocks vertically downwards and avoid 'dragging' the blocks together as this will disturb the laying course and partially fill the joints with sharp sand. This will lead to problems when finally vibrating down the blocks. At this point the blocks should be around 5 mm proud of the final desired height.

Regardless of block type or shade, blocks from at least 3 packs should be selected and mixed to avoid 'banding' of colours and provide a better finished effect.

Stage 7: Cutting in

The use of cutting saws or block splitters will generate dust so eye protection, gloves and a suitable dust mask should be worn throughout throughout this stage of the operation. A hosepipe or sprinkler to suppress the dust is recommended good practice.

Careful planning should help avoid the need to cut thin slivers of block and the use of as full a block as possible is always the best option for optimum performance and aesthetics.

Stage 8: Jointing & compaction

This operation should only be carried out in fair weather when the paving surfaces and joints are dry. Kiln dried silica sand is spread across the paving using a broom to get into the joints. This helps the blocks to move against one another when being 'whacked down' using the vibrating plate and therefore avoid chipping and spalling blocks.

The final compaction is carried out using a vibrating plate compactor in several passes using alternating directions. The area must be swept before compaction to remove any stones and debris which could be pressed onto the blocks and cause damage. A rubber mat should be placed between the plate compactor and the paving to avoid damage to the blocks.

Following this stage the paving is now ready for use and kiln dried sand is again spread across the surfaces and brushed into all of the joints to top them up.

Ongoing maintenance and care

- Over the following 4 - 6 weeks, the paving will settle and the joints will need topping up again with kiln dried sand and seasonally thereafter.
- Efflorescence or 'lime bloom' appearing on the surface of concrete pavers is very commonplace but is harmless and will disappear over time. Regular dry brushing of the surface will help remove these salts.
- Use pressure washers carefully and only when necessary. Frequent vigorous pressure washing will remove the jointing sand and can gradually wear the block surfaces.
- Once all efflorescence has disappeared, which can be up to a year after laying, a paving sealant can be applied to preserve the paving, repel stains and enhance the finished appearance.



See our Paving Factsheet 3 'Efflorescence' for further details



See our Paving Factsheet 1 'Cleaning & Maintenance' for further details

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