

Block Paving is to be installed in accordance with BS 7533 – 102: 2025, 'Installation of pavements using modular paving units – Code of practice.

Step 1: Ground Preparation:

- Determine the finished paving level, keeping it at least 150mm below the DPC (damp-proof course) of the building.
- Excavate the area to a depth of 180 to 290mm from the finished paving level to accommodate the chosen Sub-base method, this can either be between 100mm to 200mm of MOT Type 1, or 100mm of C20/25 Concrete, 30mm of bedding layer and between 50 to 60mm depending on which type of concrete block paving is to be used and the ground conditions. If constructing the pavement on firm solid ground then a 100mm thick layer of Type 1 can be used, however if the ground conditions are poor or is susceptible to heave or expansion and contraction under weather conditions, then the sub-base should be increased to 200mm thick or the 100mm of C20/C25 concrete base method should be chosen.
- Create falls in the sub-grade level with cross falls at 1.25% (1 in 80) and longitudinal falls at 1% (1 in 100). This will allow the water to run off, and avoiding ponding on the finished pavement.
- Compact the formation level to ensure a stable foundation.
- If installing onto weak ground, such as clay, improve any soft spots with extra Type 1 material and lay a geotextile directly on the ground below the sub-base to prevent material from being forced into the subgrade under compaction. (Note: a geogrid can be used instead of geotextile, this can perform the same function but will also provide better stability to the sub-base material).

Step 2: Sub-base Construction:

- If using the Type 1 Sub-base a final compacted thickness of between 100mm & 200mm needs to be achieved, replicating the falls which have been constructed at the sub-grade level. (Note: Install the sub-base in 100mm layers and compact each layer for final levels. (Note: Think about the amount of surcharge required to achieve a compacted thickness of 100mm. If you are not familiar with a material, trial an area to see how much surcharge is required. As a rough guide, 125mm of uncompacted Type 1 will compact down to 100mm when fully compacted.)
- If using the C20/25 Concrete base has been chosen then a final thickness of 100mm needs to be achieved, replicating the falls which have been constructed at the sub-grade level. Generally the concrete should be left to cure for 28 days to achieve a 90% cure therefore mitigating any significant shrinkage of the concrete after this time.
- Ensure the surface of the sub-base is compact and dense to prevent loss of laying course material into the sub-base.

Step 3: Edge Restraint Installation:

- Securely install suitable edge restraints around the perimeter of the patio area before laying the bedding course and paving units

- The restraints should be robust enough to withstand the desired traffic loading and should present a vertical face level with or lower than the underside of the bedding course. This should be bedded on a minimum of 100mm of C20/C25 concrete and require haunching in the same concrete to rear of the edging. This must be haunched a minimum of 50mm up the vertical face to mitigate lateral movement. In ambient temperatures haunching must be completed within 2 hours of installing the bedding concrete.

Step 4: Laying Course Preparation:

- Start the laying course installation once the sub-base is prepared. This layer provides a smooth level surface on which the block paving will be placed and then compacted into.
- If the Concrete slab has been chosen as the method to construct the Sub-base weepholes or other drainage should be installed prior to the installation of the laying to prevent it from becoming saturated. This can be done by drilling 50mm holes through to the subgrade on a 2m grid and filling the holes with a 6mm permeable chipping. Holes should be protected with a non woven geotextile patch, covering a distance greater than 100mm around the hole, to prevent the ingress of laying course material.
- Use sharp sand or grit sand as the laying course material, this should be installed to a pre-compacted thickness of 30mm. We do not recommend the use of a 6mm chipping for use as a laying course material on conventional pavements, as this will cause structural issues over the lifetime of the pavement.
- Option 1: Spread the material in one layer and compact it using a plate compactor. Then loosen the top 10mm with a rake.
- Option 2: Screed out 25mm of the laying course material, compact it, and then screed out an additional 10mm of loose material.
- (Note: The sand should be moist enough to bind together when squeezed in the hand, but not show moisture on its surface when opened. If there's a physical barrier between the sub-base and laying course, ensure drainage is in place to prevent moisture build-up. Fill voids with laying sand as you remove the screed rail. The final level should be about 3mm higher than intended as the blocks will settle into the sand during compaction).

Step 5: Laying Pattern Selection:

- Choose a suitable laying pattern considering the application and traffic flow.
- Basket weave is suitable for pedestrian traffic.
- Random stretcher course should be oriented perpendicular to traffic.
- Herringbone pattern provides the strongest interlock and can be installed at a 90-degree or 45-degree orientation.

Step 6: Block Paving Installation:

- If installing more than one pack of paving blocks ensure that the batch codes on each pack correspond and select paving from a minimum of 3 packs and work down the pack rather than across the layers when installing.

- Set up temporary string-lines for alignment. Place a temporary string-line at the bottom corner of any sloped area created by falls. Set it up slightly inward from the pavement's edge restraint to align the first row of blocks. Set up a second string-line perpendicular to the first one to ensure courses remain aligned. With the string-lines in place, fill the area between them with block paving.
- Start laying blocks at the edge restraint, working up the slope and beginning in one of the bottom corners.
- Maintain a 3mm higher level for the blocks than the final finished level and keep joints between blocks typically at 2-5mm wide. (Do not butt joint blocks or rely on nibs for spacing as these are only provided to stop the edges of the blocks from coming into contact in transportation).
- Maintain an open face while laying blocks for easier placement of adjacent blocks next to each other.
- Move string-lines up the paved area as you work and make adjustments as needed to the joints of the block paving to achieve the required 2-5mm.
- Use a mechanical block splitter or saw to cut the blocks accurately, ensuring a joint width of 2-5mm. (Note: Cut blocks should be at least 1/3 of their original length, and blocks smaller than 1/4 of their original size should not be used. Avoid cutting blocks along their length as it weakens them. If necessary, use inboard cutting away from the pavement edge).
- Whenever possible, position the cut face of a block against an adjacent block chamfer instead of an edge restraint.
- Do not load laying sand on the face of the blocks which you have installed to work from. Certain laying sands have a high iron content which, when damp, can leach out into the face of the paving. This will stain light coloured and textured block paving leaving an orange/brown stain.

Step 7: Paving Compaction:

- Compaction of the paving blocks into the laying course material should occur when the surface of the pavement is free of debris and kiln dried joint filling sand has been applied to the joints.
- Spread joint filling sand across the face of the paving so that the joints are filled, this should be done in dry weather and do not attempt in damp conditions.
- Compact the paving using a vibrating plate compactor with a minimum 4 passes over the of 2 longitudinal and 2 latitudinal passes over the whole area. A neoprene pad should be installed to the underneath of the compactor plate to protect the surface of the blocks.
- Do not compact within 1m of the open laying face or edges which are not retained.
- Inspect the paved surface, remove or remediate any cracked or chipped blocks.
- Cover the surface again with kiln-dried joint filling sand topping up any low joints and compact again.
- Complete compaction within 1m of any unrestrained edges at the end of each day of installation.

Step 8: Final Finishing:

- Sweep away excess sand from the surface of the blocks.
- Apply a joint stabilising solution such as the Resiblock 22 range of products to prevent the removal of jointing material and water ingress into the laying course.
- Ensure adjacent blocks do not differ in level by more than 2mm.
- Check for irregularities or depressions on the surface of the paving, which should not exceed 10mm when measured with a 3m straight edge.

Any information provided within this installation Guide by Brett Landscaping & Building Products is purely in compliance with the current British Standards suite of BS 7533 standards. Any advice for ancillary products used in conjunction with the installation of Hard Landscaping should be sought from the relevant manufacturer.