

Block Paving is to be installed in accordance with BS 7533 - 3:2005 A1: 2009, 'Code of practice for laying precast concrete paving blocks and clay pavers for flexible pavements and shall follow the process set out in the flow chart, Annex A, figure A1.

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 230 to 240mm from the finished paving level to allow for 150mm of sub-base, 30mm of bedding layer and between 50 to 60mm depending on which type of concrete block paving is to be used.
- 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.
- If the ground is weak, repair soft areas and lay a geotextile directly on the ground prior to the installation of the sub-base.

Step 2: Sub-base Construction:

- Construct a Type 1 sub-base with a final compacted thickness of 150mm, replicating the falls created in the sub-grade. *(Note: Think about the amount of surcharge required to achieve a compacted thickness of 150mm. If you are not familiar with a material, trial an area to see how much surcharge is required. As a rough guide, 185mm of uncompacted Type 1 will compact down to 150mm when fully compacted. Install the sub-base in a maximum of 100mm layer, compact each for final levels.)*
- Ensure the surface of the sub-base is compact and dense to prevent loss of laying course material.

Step 3: Edge Restraint Installation:

- Install secure edge restraints before laying and screeding the bedding course and paving units.
- The edge restraints should have a vertical face down to the level of the underside of the bedding course and require haunching in concrete to the base and rear to mitigate lateral movement.

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.
- Use sharp sand or grit sand as the laying course material, this should be installed to a pre-compacted thickness of 30mm:
- 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:

- 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).
- When installing more than one pack of paving it is important to pick blocks from a minimum of 3 packs at a time to ensure a thorough random colour mix, this should be done with any colour of blocks, however it is critically important with multi-coloured blocks to avoid banding or patching. Blocks should be taken vertically from the packs in a diagonal manner rather than horizontally across the top of a pack. This will ensure an even distribution of colour throughout the installation and will disguise any slight colour variance which may be encountered between batches.
- 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.
- 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:

- Compact the paving using a vibrating plate compactor.
- For chamfered or pre-distressed edge blocks, compact the surface without joint filling sand initially.
- For pencil edge blocks, spread joint filling sand over the surface before compaction to protect the edges of blocks and to stop them coming into contact with each other.
- Inspect the paved surface, remove or remediate any cracked or chipped blocks.
- Cover the surface with kiln-dried joint filling sand 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.

By following these step-by-step instructions, you can successfully install concrete block paving, providing a durable and hard-wearing driveway or pedestrian areas suitable for vehicular traffic.