Savanna® Linear Installation Guide

Must Follow during Installation

- Laying course material should consist of well-graded 'grit' sand (not building sand)
- Laying course should be 30mm no more than 40mm
- Repeated bond alignment maybe necessary to ensure lines are straight and true
- Paving units should be laid with a tight connection
- No units should be cut down to less than a half of its original size as this can compromise the structural integrity of the installation
- Prior to final compaction, the surface should be fully covered with kiln dried sand before the vibrating plate is introduced. A rubber or neoprene sole plate should be used with the vibrating plate to avoid impact damage to the surface of the units

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.

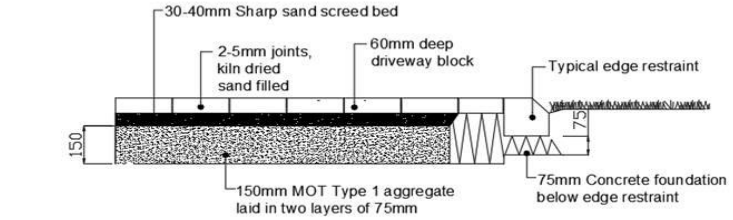
Before installation commences a certain amount of sorting of the product may be required to ensure consistency of colour, texture and dimensional tolerance.

Health and Safety Information

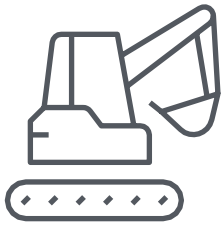
Safe working practices should be employed at all times during the construction process and all necessary Personal Protective Equipment (PPE) should be worn.

Pavement Design

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

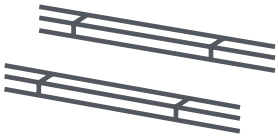


1 / D01 Typical section through a Driveway constructed in accordance with Marshalls Register Installation Procedures
Scale 1:20 @ A3



Excavation

To allow the block paving to be installed correctly, a certain amount of excavation is usually required. The depth of this excavation will be the thickness of the required sub-base plus the laying course sand and the blocks. An extremely important factor to consider when working out the depth of excavation is that the finished surface level of the blocks must be a minimum of 150mm below the DPC (damp proof course) to prevent problems with rising damp.

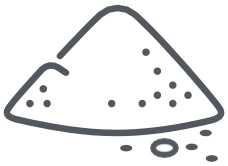


Edge Restraints

Edge restraints should be sufficiently robust to resist the lateral displacement from imposed loadings placed upon the pavement and are installed prior to the installation of the sub-base.

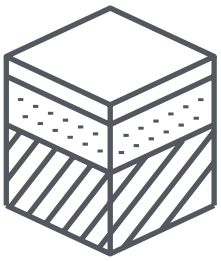
The restraint must provide a consistent vertical face to a level below the laying course material.

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 MOT quality material. Inferior quality material may be liable to failure under loading and be susceptible to frost or moisture movement.



Sub-base - Construction

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.



Laying Course - Materials Selection

Laying course material should consist of well-graded ‘grit’ sand (not building sand). The material should have uniform moisture content, being moist without being saturated. Under no account must any cementitious material be present in the laying course material.

Laying Course - Construction

Final compacted target thickness for the laying course should be 30mm no more than 40mm. A consistent thickness of bedding material should be maintained with gradients and falls being formed in the sub-base construction, not the laying course material. Under no circumstances should the bedding sand be used as a levelling course. Tolerances for laying course material are +10 -5mm.

The laying course material is completely compacted prior to installing the paving units and the surface levelled by screeding. A small trial area of laying course material can be compacted prior to the commencement of installation, to establish its compaction properties. As a guide, the material when squeezed in the hand should show no free water and bind together when the pressure is released.

Only sufficient laying course material should be screeded within the current working period. Any disturbance of the screeded laying course material should result in re-screeding, with screeding rails being removed on completion, taking care to compact and make good any voids.

On completion of the day's work, no more than 1m of laying course material should be exposed, without cover by the paving units.

All areas of exposed laying course material should be covered overnight, and during inclement weather to prevent saturation or frost damage.

Wearing Course - Laying

Paving units should be laid on the laying course material so that the final level is within the permitted surface tolerances. String lines should be utilised as often as required, this is necessary to ensure the bond pattern is maintained and straight lines are achieved in the finished paving. Paving units should be laid with a tight connection. We recommend that, when purchasing materials, especially in the case of larger quantities, they all come from the same batch and that the products are thoroughly mixed on site by drawing from a minimum of three packs.

Lay whole paving units first, followed by cut units around obstacles or at edges. No unit should be cut down to less than a half of its original size as this can compromise the structural integrity of the installation. Where it appears that only a small section of block will fit, the "inboard cutting" technique should be adopted. The use of a larger or full unit against the edge restraint, allows a smaller unit to be placed in the resulting place.

Where slopes, gradients or ramps are being constructed, placement of the units should commence at the lowest point i.e.: the bottom of the slope, working upwards. Where there is a risk of lateral movement of the paving units due to the gradient encountered, the provision of additional intermediate restraint should be considered.

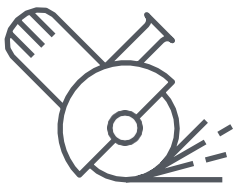
Wearing Course - Compaction

Compaction should be undertaken with a suitable plate vibrating plate. Prior to final compaction the surface should be covered with kiln dried sand before the vibrating plate is introduced. All joints should be filled with kiln dried fine jointing sand. All joints should remain full of jointing sand at all times, with periodic checking and re-sanding carried out where necessary.

Where these units are vibrated in an un-sanded condition, the risk of edge spalling and cracking is greatly increased. A rubber or neoprene sole plate should be used with the vibrating plate to avoid impact damage to the surface of the units.

General

The bond pattern should be suited to the application and likely use of the paving. Areas which receive frequent vehicle turning, accelerating or decelerating should be laid in a herringbone pattern. Stretcher bond may be used successfully in very lightly trafficked areas, providing the direction of the traffic is perpendicular to the laying pattern and the paving is not subjected to the above movements. Basket weave patterns should not be used in areas receiving vehicular traffic.



Cutting

Cutting may be carried out using a water and dust suppressed diamond tipped power saw or a block-splitting guillotine. It must however be noted that the aesthetic finish achieved will depend greatly upon the choice of cutting mechanism and level of skill. Cut blocks should be inserted prior to completion of the working period or before the onset of inclement weather.

Blocks should be cut such that the resultant joint width remains within the 2-5mm tolerance and no less than 1/2 of the block in size. When laying to tight curves it may not always be possible to maintain a maximum 5mm joint, in which case, cut or special shaped units may have to be considered.



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. 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**