Marshalls

Creating Better Spaces

INSTALLATION DETAILS FOR DRIVELINE 50 PAVING

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 and type and frequency of anticipated loads.

6 / D02 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 well graded (40mm to dust) Type 1 quality 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.

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% (1in 80) and crossfall 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 cementitous material be present in the laying course material.

Construction
Final compacted target thickness for the laying course should be 30mm. 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 placed within the current working period. Any disturbance of the screeded laying course material should result in rescreeding, with screeding rails being removed on completion, taking care to 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 action.

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. The manufacturing tolerances of the paving units, profile of the site and frequency of string lines used should be taken into consideration during installation. These factors may have a bearing on the straightness of line achievable. Paving units should be laid with a joint width of 2-

5mm. Joint widths may be varied slightly in order to achieve straight lines or maintain bond, but should never exceed this size range.
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 units should be cut down to less than one quarter of its original size to prevent looseness or dislodgement at a later date. 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 ie: 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.

Compaction
Compaction should be undertaken with a plate vibrator. Prior to final compaction of the surface, 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. When laying square edged pavers, the presence of jointing sand between individual units must be ensured, before compaction of the wearing course is undertaken.
Where such units are vibrated in an un-sanded condition, the risk of edge spalling is greatly increased. A rubber or neoprene sole plate should be used with the vibrator to avoid impact damage to the surface of the units. This practice is important when installing concrete paving units with a decorative surface.

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 diamond tipped power saw, a block-splitting guillotine, or hammer and bolster. It must however be noted that the aesthetic finish achieved will depend greatly upon the choice of cutting mechanism and level of skill. Specific equipment or blade types should be used when cutting natural stone units as those designed for cutting concrete pavers may blunt easily. 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. 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
Installation should be discontinued (and any open work face covered) if weather conditions are such that the performance of the paving may be jeopardised. In adverse weather conditions, units should not be laid on saturated laying course material. The filling of joints is not possible in damp conditions, and should be topped up at the earliest opportunity. All unfinished areas and stockpiles of materials should be covered in the advent of inclement weather to prevent saturation.

Further Information

For technical advice on commercial installations, or when confronted by unusual problems or circumstances, please contact Marshalls Technical Advisory Services on 0370 411 2233, or by email on advisory.services@marshalls.co.uk

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