

Sustainable Drainage

Legislation came into effect on October 1st 2008 and applies to any driveway projects on or after that date. This only affects paved areas between the front of the property and the public highway. Therefore, not the side or rear of properties.

The new Legislation applies only to England, but it is thought that similar guidelines will be issued in Wales, while Scotland and Northern Ireland already have similar arrangements.

Planning permission is not required if the surface water from the driveway does not run onto the public highway or discharge directly into the surface water drainage system.

All paving and surfacing, whether it's new work, replacement, or extension, is subject to the new legislation, so even if you're only replacing your existing flags with Natural Stone Block Paving, the work will have to be installed in accordance with the new regulation. Do you have to use permeable paving? - no - The surface is permitted to drain to a permeable or porous area located within the grounds of the property.

The easiest and most cost effective solution is to drain all surface water onto gardens/borders. If the existing drive currently does so, and there are no problems, then just a straight forward replacement of the old drive is sufficient.

If the proposed driveway is significantly redesigned, then consider draining surface water with falls and/or line drainage to rain gardens or soakaways.

NB soakaways must be 5m from property.

The size of rain gardens needs to be 10% of the paved area.

There are design criteria for rain gardens but simply a depression at the back of the lawn which surface water can collect and percolate through the soil. Can be a flower bed or gravel.

Laying Guide

Flags and setts from Natural Paving are of the highest quality and will give you years of trouble-free service when laid properly. All paving should be laid to a level that is at least 150mm below the DPC of any adjacent buildings.

Preparation

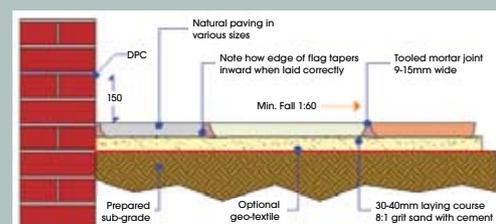
Mark out the area to be paved, allowing 100-300mm working room at the edges. Dig down to remove any vegetation, topsoil or loose material. Where ground is poor, it's better to dig down further and then build-up the levels using crushed stone. When working against a wall, the brickwork may act as a level guide, but for open spaces, a taut string line should be used. Use a spirit level to set the line as near to 'level' as is possible. Next, move one end of the string down by 15mm per metre of paving. So, if your paving is to be 4 metres wide, then move the string line down by (4 x 15mm) 60mm. This will give adequate fall to drain the paving once it's completed.

Laying Flagstones

Flagstones should always be laid on a "full bed" of sand-and-cement that supports the whole flag and not just the corners. Use 6-8 parts of sharp sand or all-in ballast with one part cement. Mix together and add just enough water to make a mixture that binds: a good guide is that there should be sufficient water to allow the mix to be moulded into a ball without falling apart, but not so much that water would run out of it were it to be squeezed in the hand.

Spread a layer of bedding mix that is roughly 50mm thick. Place the first flag onto this bed and use a rubber mallet to carefully tap it down until it is at the correct level. Place the next flag adjacent to that just laid, leaving a joint width of 10-15mm and again, tap down to level. Repeat this process, laying one flag at a time until the whole area is covered. The joints of flagstone paving look best when pointed with a mortar. Make a pointing mortar by mixing 4 parts building sand with 1 part cement. Again, add as little water as possible to bind the mortar without overwetting it.

Feed pointing mortar into empty joints from the edge of a trowel and use a pointing bar to press it down firmly and to polish it when the joint is full. Try to keep off the new patio for the first 24-36 hours, by which time the initial set of the mortars should be complete. After 5-7 days, the patio should be fine for full use.



LAYING TIP: Also ensure the widest surface is uppermost.



Laying Natural Stone Block Paving

All block paving, whether it's a patio, a driveway or a shopping centre requires at least three layers: a sub-base of crushed stone or concrete to give it strength; a laying course of sharp sand to support the blocks; and the paving blocks themselves. It also needs to have firm edges to hold the paving securely in place.

The sub-base should be at least 100mm deep, and the laying course should be approximately 30mm. Using a 50mm block, this means excavation must go down at least 180mm (100+30+50mm) below the finished level. It's often a good idea to hire a mini-digger or a larger excavator with an experienced operator to undertake this task. Diggers are also useful for loading spoil and spreading the sub-base material.

Edge restraints hold the paving firmly in place and prevent it 'spreading'. Where the paving lies against a wall, this can act as the edge restraint, but elsewhere a restraining edge will need to be constructed. This may be a kerb or simply a course of paving blocks laid on concrete. Set up a taut string line and use this as a guide to both line and level while laying the edge course.

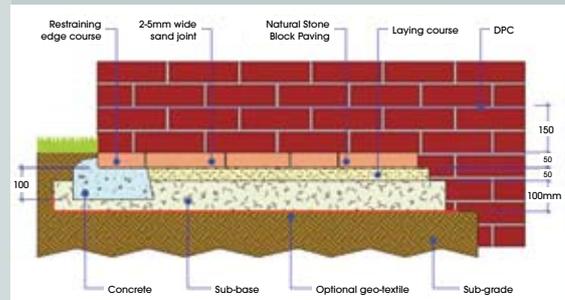
Mix a concrete using 4 parts gravel or 10mm chippings with 2 parts sharp sand and 1 part cement. Add just enough water to bind together the dry ingredients.

Place the edge course units onto a row of concrete approximately 100-125mm deep and tap down to level using a rubber mallet. When a kerb is used, it's a good idea to lay the kerb and the edge blocks in one operation. All restraining edge courses must be haunched by placing concrete at the back and packing it down. Haunching should cover roughly two-thirds of the unit and be at least 100mm wide. Remember: these edge courses are supporting and restraining the rest of the paving so it is essential that they are firmly constructed.

The next task is to spread, level and compact the sub-base material. A crushed stone known as "Type 1" is often used to form the sub-base, but some contractors prefer a lean-mix concrete, especially on sites where the ground is poor.

Whatever is used should be at least 100mm thick (150mm for driveways) and must be thoroughly compacted using a vibrating plate compactor. Level out the sub-base material to create a finished profile which matches that intended for the paving. It's vital that the next layer, the laying course, has a regular, uniform thickness, so the sub-base needs to be accurate to around +/- 10mm. Check the level and add or remove material as necessary to create a reasonably accurate profile. The laying course is formed by 'screeding' a damp sharp sand to the required level.

The laying course must be sharp sand: building or masonry sand is not suitable and will cause the finished paving to settle. Spread and level a layer of sharp sand roughly 50-70mm thick. Pass over the sand once or twice with the plate compactor to partially compact. Use a length of straight timber to scrape off the top of the sand layer, reducing its level in the process and creating a smooth, even surface, approximately 30-40mm thick, on which to lay the paving blocks.



You may need various lengths of timber and a float trowel to prepare the laying course. It should be borne in mind that the final profile of this laying course will be the same as that of the finished paving, so it is worth spending time getting it right. The finished screed should leave the blocks 5-8mm high so they can be compacted downwards when laid.

Try not to walk upon the screeded laying course, always work 'uphill', and choose a starting point that is a straight edge or a right-angle corner. Place each block carefully onto the laying course, keeping the joints hand-tight. Try to place the blocks straight down onto the bed so that sand isn't trapped in the joints. Once blocks have been laid, they can be walked upon with care, but try to keep back from the leading edge.

Take blocks from several packs at once to ensure they are fully randomised and there won't be any problems with colour banding. Lay all the full blocks first. Blocks to "piece-in" can be cut using a hired-in block splitter. Avoid very small cuts that are less than one-third the size of a full block. Instead, cut two blocks, each being more than half-a-block, and use these to fill the gap.

Once cutting-in is completed, the blocks can be compacted. Make four or six passes with the plate compactor, changing the direction of pass as much as possible. Check the compacted paving for any damaged blocks and replace them. The paving is jointed by sweeping kiln-dried sand over the surface allowing it to trickle into and fill the joints. Sweep any excess sand into a corner and then make another pass or two with the plate compactor to settle the sand into the joints. The surplus sand is used to top-up those joints that appear partially empty.

And that's it; your new Natural Paving driveway can be used immediately. Over the first few weeks, the jointing sand may settle further and if this happens, the joints should be topped-up with additional sand.

