

All of our installation guides are written with best practice in mind. It is strongly advised that any questions raised from the guidelines are directed to our technical team.

Suregreen PP40 porous plastic pavers provide a solution to a wide range of trafficking needs where a gravel/angular stone free draining surface is required. Traffic types may include pedestrians, bicycles, cars, vans, trucks and lorries. Applications include car parks, an emergency access routes and wheelchair/disabled access.

PP40 permeable pavers for gravel retention have been designed, using carefully selected plastics, to meet the demands and loadings imposed across a wide range of end requirements and site conditions. To ensure that PP40 operates at its optimum working condition for a long period of time (which could be 25 years or more), the plastic pavers need to be installed correctly as per our guidelines described below.



All Suregreen PP40 plastic paver installations will have some basic requirements to the construction profile. Some component parts of the profile will need to be designed to meet the needs of the client but the elementary building blocks are the same.

Please see our design guidelines for further information.

## INSTALLATION STEPS:

Prior to any work on site, it is highly advisable that a site survey – even if only a rudimentary one – is completed. Ask questions such as:

- Will the site drain naturally?
- What slopes - if any - need to be allowed for?
- What type of surface conditions and what type of soils are on site?
- Is the type of soil on the surface the same 200 - 400mm under the surface (will draining water be trapped on a non-porous layer?)

You will also need to consider an edge retention system or kerb of some form, as this is required by PP40 permeable pavers. This can be as substantial as 150mm x 150mm concrete road kerbs through to treated timber or metal stripping. Please refer to design guide or get in touch with us for technical advice.

## FOUR BASIC LAYERS TO ANY CONSTRUCTION PROFILE

### 1) The sub-grade

The sub-grade is at the bottom of the profile. This is the layer after removal of the existing soils. This soil is removed to the required depth which has been calculated based on the type and frequency of traffic and the ability of the existing soils to handle imposed loadings. The sub-grade could be as little as 100mm or as much as 500mm below the existing surface. It is advisable that the sub-grade is compacted (by roller or any other method) and an even working surface created.

### 2) The sub-base

On top of the sub-grade, a sub-base layer needs to be installed. The depth of this layer should be pre-determined (please see our design guidelines). This sub-base layer needs to be stable and porous. The sub-base ideally needs to be composed of a free-draining, sharp angular fill material (angular stone or aggregate), 95% of which the particle size is of a mixed nature between 5mm to 45mm (MOT type3 or similar) with reduced fine content which would produce a stable and porous sub-base/hard-core after compaction. MOT type 1/crushed concrete would be generally unsuitable because of the high fine content, leading to minimal porosity and permeability. The sub-base needs to be compacted to the required depth.

At the bottom and the top of the sub-base, a geotextile separation layer needs to be installed. The geotextile will stabilise the sub-base by separating/ filtering, and this will limit fine material migration into the sub-base while still being permeable and allowing water to infiltrate. The fines - if allowed in - would cause eventual deformation/dipping of the top surface and drainage issues. On top of the bottom layer of geotextile, a 20KN geogrid can be applied to reduce the depth of sub-base used and also reduce the amount of spill caused by works (please see our design guidelines for guidance). Not all sites will benefit from using a geogrid, mainly due to economies of scale. Please contact our technical team for further direction.

### 3) The bedding layer

For a gravel finish, the bedding layer needs to be a free-draining, sharp angular 5 - 20mm gravel laid to a depth of approximately 40mm on top of the top layer of geotextile which has been installed above the sub-base. This bedding layer may require compaction using a vibrator plate or roller. The bedding layer must be smooth and level to allow an even surface for PP40 porous pavers to be laid onto.

### 4) Laying Suregreen PP40

The PP40 permeable pavers should be laid from above onto the prepared gravel bedding layer, working from one corner and laying adjacent paving grids into their connectors. PP40 can be cut on-site using a handsaw, jig-saw or other mechanical saws to match site/client requirements, shapes and obstacles.

### 5) Filling the paver

PP40 then needs then to be filled with the same 5 - 20mm sharp angular gravel. With the spikes and the shearing action of the gravel, PP40 becomes locked within the gravel which enables it to resist the dynamic loadings imposed by the surface traffic. A light whacker plate after filling may be applied to settle the gravel, and then a small top up to refill the cells may be necessary. For cosmetic appearance, some clients may wish to overdress slightly with gravel. There is generally no reason to overfill the cells, as the extra gravel will simply be displaced to the edges by the traffic movements.

### Notes on Gravel

Experience has shown a 5mm - 20mm sharp angular gravel gives the best results for providing a long-term, very low-maintenance wearing surface. The gravel interlocks/shears with itself and, more importantly, with the specially designed PP40 pavers. The smaller particles fill the smaller voids and, working with the PP40, gives a secure, locked and sustainable finish.

Single size gravel - or worse, rounded gravel such as pea shingle - will lead to issues and failure. The more rounded and single size the gravel is, the faster problems are likely to happen.