



# PGF Surfacing

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## **SUDS (SUSTAINABLE URBAN DRAINAGE SYSTEM)**

Increasing urbanisation has caused problems with increased flash flooding after sudden rain. As areas of vegetation are replaced by impermeable concrete, tarmac or roofed areas the area loses its ability to absorb rainwater. This rain is instead directed into surface water drainage systems, often overloading them and causing floods.

The idea behind SUDS is to try to replicate natural systems that use cost effective solutions with low environmental impact to drain away dirty and surface water run-off through collection, storage, and cleaning before allowing it to be released slowly back into the environment, such as into water courses. This is to counter the effects of conventional drainage systems that often allow for flooding, pollution of the environment – with the resultant harm to wildlife – and contamination of groundwater sources used to provide drinking water.

The paradigm of SUDS solutions should be that of a system that is easy to manage, requiring little or no energy input (except from environmental sources such as sunlight, etc.), resilient to use, and being environmentally as well as aesthetically attractive. Examples of this type of system are reed beds and other wetland habitats that collect, store, and filter dirty water along with providing a habitat for wildlife.

Originally the term SUDS described the UK approach to sustainable urban drainage systems. These developments may not necessarily be in "urban" areas, and thus the "urban" part of SUDS is now usually dropped to reduce confusion. Other countries have similar approaches in place using a different terminology such as best management practice (BMP) and low-impact development in the United States, and water-sensitive urban design in Australia.

### **SUDS USE THE FOLLOWING TECHNIQUES:**

- Source control
- Permeable paving such as pervious concrete
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- Storm water detention
- Evapo-transpiration (e.g. from a green roof)

A common misconception of the SUDS systems is that they reduce flooding on the development site. In fact the SUDS system is designed to reduce the impact that the surface water drainage system of one site has on other sites. For instance, sewer flooding is a problem in many places. Paving or building over land can result in flash flooding. This happens when flows entering a sewer exceed its capacity and it overflows. The SUDS system aims to minimise or eliminate discharges from the site, thus reducing the impact, the idea being that if all development sites incorporated SUDS then urban sewer flooding would be less of a problem. Unlike traditional urban storm water drainage systems, SUDS can also help to protect and enhance ground water quality.