

# PERMEABLE PAVING SYSTEMS



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# Executive Summary

Permeable paving is a system of paving that provides a structural pavement allowing water to infiltrate the pavement construction for temporary storage prior to infiltration to the sub-grade. Alternatively it is a system to delay the water for discharge to stormwater systems or a combination of both the storage of water for later use and the filtering of contaminants via the stone aggregates of the bedding and base courses.

It is suitable for use in a wide range of applications and is particularly popular in car parks, residential streets, footpaths and bike paths. PPS is often used as a part of Sustainable Urban Drainage Systems (SUDS) but it can be used in isolation, especially where full infiltration into the soil is intended. The system is based on the same principles as traditional flexible pavements but uses a no-fines crushed rock and a fine granular bedding material.

Permeable paving in Australia is currently almost non-existent. In Germany PPS was first introduced in the mid 1980's and has been installed with increasing frequency since that time. Currently approximately 18,000,000 square metres of PPS is installed in Germany per annum. This is more than any other country in the world no matter how calculated – per capita or by area.

In Germany PPS is so widely accepted that it can be seen in many varied locations. It is most common in car parks and hardstand areas; even small car parks such as fast food outlets and motels are constructed using PPS. Industry figures in other European countries such as England, Scotland and Ireland are beginning to realise the enormous benefits of PPS and the number of projects is increasing rapidly.

Van Diemen's observation of overseas practices has helped him to realise that if PPS is to be successful in Australia, the following initiatives need to be taken:

- Federal, State and Local Governments need to be educated on the benefits of PPS and consequently specify PPS for appropriate Government projects.
- The benefits of PPS in regards to water quality need to be promoted to the entire community.
- Specifiers of SUDS projects in Australia need to be educated about the advantages of using PPS as opposed to traditional paving systems. Many of these specifiers know little about PPS.
- Paver manufacturers must promote PPS, not just permeable pavers. Most of the general population, including some in the paving industry, are not aware of the different specifications required for PPS projects.
- Suppliers of quarry products need to make materials needed for PPS more readily available.
- Paver manufacturers need to have permeable pavers available and in stock to allow PPS to be used on smaller projects as well as larger projects where they are made to order.
- Engineers, architects, designers and specifiers need to be educated in the application, design and specifications of PPS.
- Contractors need to be trained in the construction techniques and the materials used when constructing PPS.
- The general public need to know that PPS exists and the environmental benefits that can be achieved with its use.

The above skills and knowledge deficiencies can be addressed by designing a comprehensive and wide reaching educational initiative promoting the immediate and long term benefits of PPS as a stand-alone area of paving or as part of a SUDS project. This needs to be directed to the general public as well as all those involved in the paving industry:

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- Environmental designers and planners
- Architects and landscape architects
- Engineers
- Relevant Government departments
- Water authorities

If a better knowledge of the benefits of PPS can be disseminated throughout the community it would make the acceptance of the system quicker and benefits to the environment more immediate.