

A primer on permeable pavers

By Miles Chaffee

With the rising popularity of permeable pavement systems in residential and commercial landscape designs, it is important for landscape professionals to educate themselves about the different materials available for paving options.

The primary purpose in the design of a permeable paving system is to effectively reduce and manage the quantity of surface rain water runoff while accommodating pedestrians,

vehicular parking and traffic. Permeable paving has proven particularly valuable in existing urban developments where the need to expand parking areas is hindered by the lack of space due to retention ponds.

By definition, for a surface to be permeable, it must allow for water to penetrate the surface through porous openings. In segmental or unit paving, the joints are what make the surface permeable. Some surface materials, such as gravel, do not have a solid surface and therefore allow water to pass through to the subsurface.

Typically a subsurface for segmental permeable paving would be designed using a crushed stone base that would provide filtration and partial treatment for rain water runoff pollution.

A full filtration system designed for permeable subsurface soils should allow the storm water to penetrate the surface and filter through the base course and the native soils back into the aquifers. If the capacity of the soil to filtrate the water is exceeded, the base may be designed to filter, partially treat and then slowly release the water into a storm sewer.

The different types of permeable paving have pros and cons. In terms of cost, gravel is the least expensive option. The drawbacks are that it requires frequent maintenance and renewal and the high upkeep increases the cost over time. Also, wheel ruts easily form in gravel, which detracts from the appeal.

Permeable concrete and asphalt are next in terms of expense, but studies have shown them to be prone to clogging, negating their efficacy.

Brick, concrete, and natural stone pavers require that the material in the joints be permeable since the pavers themselves are not considered to be permeable. The brick must be the correct type and manufactured to specific requirements in order to be used in paving applications, especially in freeze-thaw climates. Constant freezing and thawing is harder on materials than climates that freeze and

remain frozen for long periods.

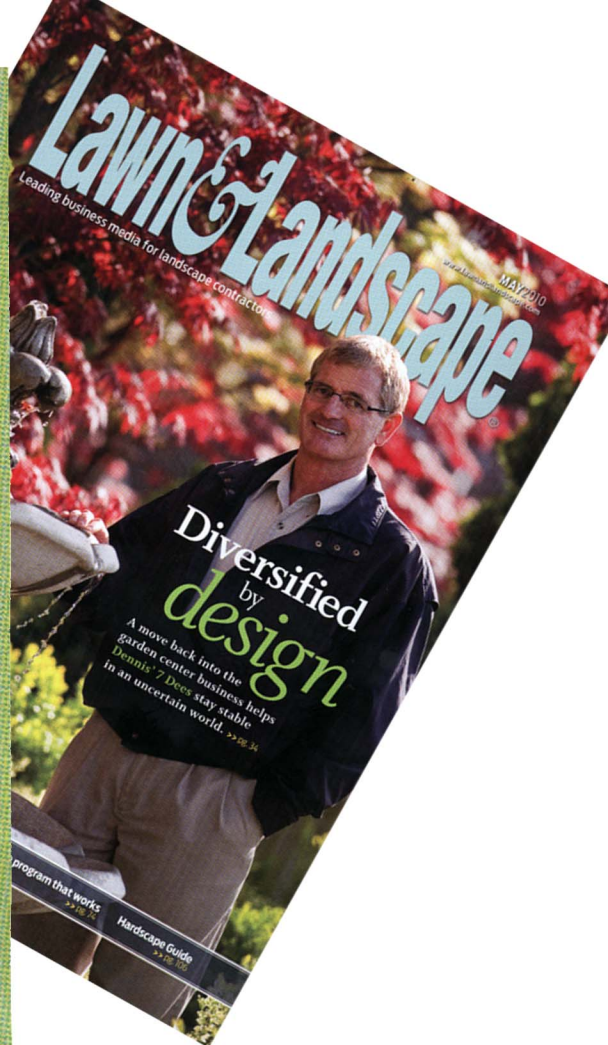
No matter the material chosen for a permeable paving project the benefits outweigh the additional costs. Permeable paving can free land designated for retaining ponds and has numerous environmental benefits. Done correctly with durable materials the paving can have a long life span and be aesthetically pleasing.



Permeable pavers can free up land used previously for retaining ponds.



The subsurface of a permeable paver installation helps filter and mitigate rainfall.



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