

PERMEABLE PAVEMENTS

New Pavement Options



PAVEMENTS THAT SOAK UP RAINFALL

Traditional asphalt and concrete pavements cause rainfall to run off into streets and storm drains. This runoff delivers pollutants that accumulate on these surfaces to local streams and lakes.

Permeable pavements allow water to soak into a layer of rock then move into the soil or to a subsurface drain.

By infiltrating most of the rainfall on-site, the amount of stormwater and pollution reaching storm sewers and streams is greatly reduced. The rock layer and soil beneath the permeable pavement removes pollutants as water moves through them.

Permeable pavements look very similar to traditional pavement systems while providing a number of benefits including water quality protection and reduced flood potential in local streams.

Permeable pavements can be installed at new or existing building sites with careful planning and soil testing. Traditional pavements make up 60-70% of impervious urban areas. As a result they provide a significant amount of runoff and pollutants to local streams. So, if permeable surfaces can be used there would be less runoff in urban areas.



Permeable Pavement Options

The illustration to the right shows a permeable paver system. It is similar to all permeable pavement installations in that there is a rock layer beneath the pavers that provides support for vehicles and a storage area to hold water for a short time. The water then soaks into the soil and groundwater below or a drainage pipe may be used to move excess amounts of water to the storm sewer.

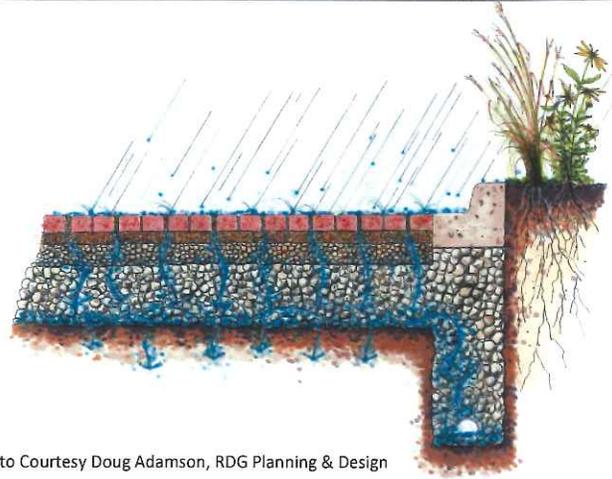


Photo Courtesy Doug Adamson, RDG Planning & Design

Permeable Pavers



Charles City, Iowa has more than 25 blocks of permeable paver streets.

Permeable pavers are not pervious but rainfall moves into the spaces between the pavers to the rock base below. These types of pavers are used in Iowa on streets, parking lots, driveways and patios.



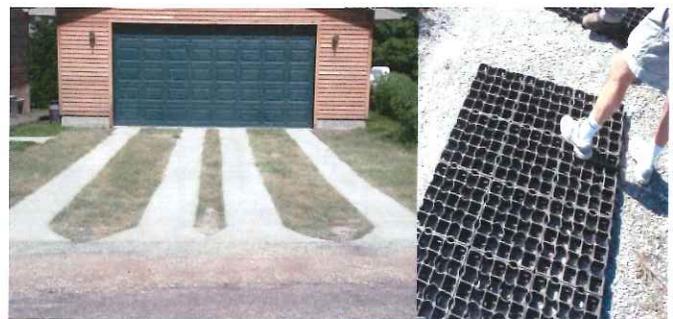
This homeowner in the Des Moines area had permeable pavers installed in the driveway.



A demonstration of how water moves quickly into the spaces between pavers in a parking lot in West Union, Iowa.

Gravel and Grass Pavement Systems

A plastic grid is used to provide support for this type of permeable pavement system. The grid can be filled with soil and seeded with grass or filled with clean rock.



Pervious Concrete

Rainwater soaks into the pore spaces in pervious concrete. The close-up portion of the photo to the right shows what looks like a giant grey Rice Krispie bar. Compared to regular concrete, pervious concrete consists of larger stones and a different cement mixture.



This pervious concrete residential street in Ames, Iowa soaks up rainwater. It looks like regular concrete except that the stones are much larger.



Specialized equipment is used to install pervious concrete.



Pervious concrete is shown on the left and regular concrete on the right.

Porous Asphalt



Photo Courtesy Fox Engineering

Porous asphalt street in Lake Manawa, Iowa.



The sidewalk in the foreground is porous asphalt and drains faster than regular asphalt in the background.

Porous asphalt functions similar to pervious concrete in that water soaks through it as well. It has larger stones compared to regular asphalt and has different asphalt binders.

Regular equipment is used to install asphalt. This sidewalk in Ames, Iowa is porous asphalt.



PaveDrain® System

The PaveDrain® system can be installed as individual concrete pavers or in connected sections as shown on the right. It sits on a rock layer similar to the other pavement systems. It may have an under drain system depending on site soils.



Photo courtesy of Doug Buch, PaveDrain®

Applications for Permeable Pavements

- Parking lots
- Streets
- Driveways
- Sidewalks
- Bike Paths
- Walking Trails
- Patios
- Campgrounds
- Boat Ramps

Maintenance

Like all pavement surfaces, maintenance is necessary with permeable pavements.

- Sand should NOT be used on any permeable pavement surface so that it does not plug pore spaces.
- Soils surrounding the pavement systems MUST be stabilized with permanent vegetative or relevant cover so that sediment does not plug the surface of the pavement system.
- Streets and parking lots should be cleaned with a vacuum truck on a scheduled basis.



For more information:

www.rainscapingiowa.org

www.iowastormwater.org