

DRIVEWAYS & STORMWATER



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Time to Repave Your Driveway?

Is your asphalt driveway heavily cracked? Does it have deep ruts or dips? If so, you'll need to re-pave and it's likely you'll need to re-structure the soil underneath the pavement as well. Today, new porous paving materials are available which can make your driveway more attractive (potentially raising your property value) and at the same time help reduce pollution and local flooding.

Pervious (Porous) Pavement

Pervious pavement is an excellent alternative to asphalt and concrete. Unlike traditional pavement, water passes right through it. A properly constructed pervious driveway, has a base layer to temporarily trap stormwater. Some pollutants are filtered out so cleaner water flows into the soil. In addition, because stormwater percolates into the soil instead of flowing into the street, it helps reduce local flooding.



Examples of Pervious Pavement

- **Pervious concrete** (pictured above) is similar to ordinary concrete, but it's mixed with gravel of uniform size and without the usual smaller pebbles and grains (called fines). As you can see, water flows right through it.
- **Pervious asphalt**, like pervious concrete, is also made without small pebbles and fines. Pictured to the right is a parking lot after a storm. Half the lot was paved with conventional asphalt, the other half with pervious asphalt. The pervious area is dry; the conventional impervious asphalt area is still wet.
- **Paving stones** (called unit pavers) such as brick, concrete or stone blocks or cobble stones installed with joints filled with sand allow water to drain through the cracks.
- **Open-celled pavers** made from plastic or masonry are permeable when filled with uniform gravel or soil planted with grass. Pictured on the right is a combination of brick paving stones and open-cell concrete pavers used together to create an interesting design.
- **Crushed stone** provides porous pavement, but it's suitable only in light-traffic applications where it won't be displaced quickly, ground down, or mixed with organic matter. **Gravel** is also porous but car tires kick out pieces which are a nuisance to sweep up.



Before Installation

Get a professional design

Before starting, you need to know if your site is compatible with pervious pavement and if the project is within your budget. To do this, you need a knowledgeable contractor or a hardscape designer (as opposed to a landscaper) to evaluate your site, create a design and estimate costs. Some design elements may not be obvious such as underlying soil type and soil conditions near the driveway.

Get a Cost Comparison

Generally speaking, a driveway built with pervious pavement will cost more than one using traditional impervious materials. However, this is not always true. When comparing costs, it's necessary to include all the structural elements in addition to the paving material. For example, if an impervious design on your site requires additional drains, pipes, catch basins and outfalls to manage runoff, a pervious pavement alternative may be cheaper. So when asking for a pervious pavement cost quotation, also ask for a quote using traditional pavement materials.

Do It Yourself?

If you have experience with construction projects of this size and the needed equipment, you may want to do it yourself. However, you will still need a professional design and soil evaluation before starting.

After Installation

Pervious pavement is effective only if the tiny “pores” or open pathways are free of silt and dust to allow water to pass through. To prevent pores from clogging up, the following practices are recommended:

- Minimize use of salt or sand during winter months
- Keep landscaped areas well-maintained and prevent soil from being transported onto the pavement.
- Clean the surface using a vacuum sweeping machine 2 to 4 times per year.
- For paving stones, periodically add joint material (sand) to replace material that has been transported.
- After storms, check the surface to ensure that it is draining properly.
- Do not reseal or repave with impermeable materials.
- Inspect the surface annually for deterioration.
- Grass pavers may require periodic reseeding to fill in bare spots.

Examples of Pervious Pavement Near Belmont

Hurd Field, Arlington, MA

<http://www.fbenvironmental.com/project/PorousPavement.html>

Thorndike Park, Arlington MA

http://www.cenews.com/article/8423/runoff_remedy

Pervious Pavement Resources

The EPA

<http://www.epa.gov/region1/soakuptherain/learnmore.html>

Building Green

<http://www.buildinggreen.com/auth/article.cfm/2009/3/26/Porous-Paving/>

This Old House

<http://www.thisoldhouse.com/toh/article/0,,20153708,00.html>

Newton Conservators

<http://www.newtonconservators.org/stormwater.htm>

UNH Stormwater Center

Great source of technical information about pervious pavement in New England:

<http://www.unh.edu/unhsc/>

Dramatic Video – dumping 1500 gals of water on porous pavement in 5 minutes!

http://www.youtube.com/watch?feature=player_embedded&v=ScsQYHMfabU

Climate Change & Precipitation

Cambridge MA Climate Change Vulnerability Assessment

<http://www.cambridgema.gov/CDD.aspx>

Precipitation in New England and New York

<http://precip.eas.cornell.edu/>

Natural Resources Conservation Service

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/ma/water/>