



RainScapes

Environmentally-Friendly Landscapes for
Healthy Watersheds

Permeable Pavers

Why should I choose permeable pavers for my hard surfaces?



Patios, sidewalks, and driveways are hard surfaces that prevent water from soaking into the ground. Various changes, or retrofits, can be applied to these hard surfaces to help prevent stormwater runoff and pollutants from entering our streams. An effective retrofit to reduce runoff from residential properties is the installation of permeable interlocking pavers.

Permeable pavers

- increase onsite infiltration and reduce runoff
- are easy to install
- can be an effective alternative

Permeable surfaces address important environmental issues and support sustainable living. They not only have a positive environmental impact, but can also be economical and function well with little or no maintenance.

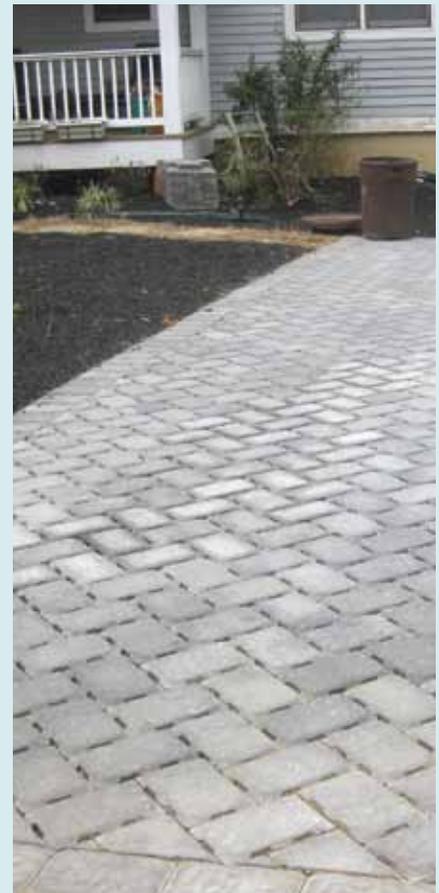
What are permeable pavers?

Permeable interlocking pavers are connected blocks with materials such as stone or gravel that let water pass through, filling the gaps between the paving blocks. Replacement of traditional concrete or asphalt driveways with permeable interlocking pavers allows rainwater to naturally filter through the ground and reduces stormwater runoff.

Permeable interlocking concrete pavers provide a strong, solid surface. They can be installed on driveways, walkways, and patios and can also serve as attractive landscaping features, raising property values.



Patio retrofit



Driveway retrofit



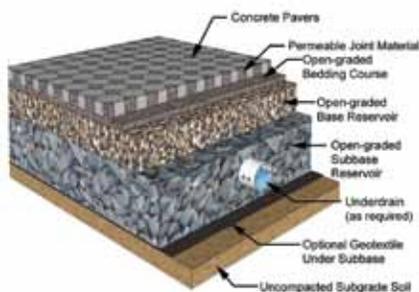
Sidewalk retrofit

What are the benefits and incentives?

Installing permeable interlocking pavers on your property reduces the stormwater contribution to our streams from driveways, walkways, and patios. The site drainage improvements you make with these techniques can be cost effective. You will play a positive role in preserving the environment and water resources. Replacing hard surfaces that do not allow water to infiltrate with permeable interlocking concrete pavers have also been shown to increase property values.

To receive a rebate for this technique for residential properties, you must hire a **certified contractor** and convert a **minimum of 150 square feet** of hard surface to a permeable interlocking paver surface. To receive rebates for commercial, multi-family, and institutional properties, a **minimum of 450 square feet** of hard surface area must be converted to permeable interlocking pavers.

The **RainScapes Rewards Rebate Program** offers a rebate for residential, commercial, multi-family, or institutional lots. To see the requirements and submit the RainScapes Rewards Rebate Application, please visit www.rainscapes.org



Cross-section of permeable paver system

How to...

Assess Your Property

Follow these basic steps to assess your property and determine the best location for a permeable interlocking paver project:

1. Locate your property's hard surfaces. Are there large areas of driveways or patios where you would like to improve either rainwater infiltration or visual appeal? Consider that the area may need to have a gradient or slope, away from your foundation.
2. If you choose to install permeable pavers, determine if there is adequate space for them to meet the minimum eligible project size. **The minimum project size to receive a rebate for residential properties is 150 square feet of existing hard surface that will be converted to permeable pavers.**
3. Assess your current landscaping features and choose products that will enhance the overall character of your property. Permeable interlocking pavers can be decorative as well as functional.
4. Choose a location where the practice best fits your budget. Larger applications will result in a higher cost. Smaller-scale projects may be more practical if you are looking to start simple and are working with a smaller budget.
5. You do not want to use pavers in areas that accumulate a lot of sediment and debris. They can clog and not let the water infiltrate.



Brookside Gardens permeable walkway
Photo credit: Jann Rosen-Queralt

How to...

Design and Plan

Can I do this project myself?



The installation of permeable interlocking pavers is not recommended as a do-it-yourself project. **To be eligible for a RainScapes rebate, you must use a qualified contractor to install your**

permeable interlocking pavers, unless you can demonstrate that you meet the DEP's minimum criteria.

What should I ask a potential contractor?

- What experience do you have installing permeable interlocking pavers?
 - Are you certified to install permeable pavement by any nationally recognized organizations such as the Interlocking Concrete Pavement Institute?
 - What is your experience assessing soil types and amending soils if necessary?
 - What is your experience with soil reinforcement or stabilization techniques?
 - What design do you envision for my permeable interlocking pavement retrofit?
 - » What type of system will be the most effective and visually pleasing?
 - » What type of materials should be used to fill the gaps between permeable interlocking pavers?
 - » What type of edge restraint will be used?
 - Do you typically install underdrains in permeable interlocking paver projects?
- Do you install permeable pavers manually or mechanically?
 - Can you supply references from previous clients?
 - Do you intend to use subcontractors?
 - Are you insured and bonded?
 - Do you have a portfolio of completed projects?
 - What is included in your services?
 - » Will you haul away excavated material?
 - » Will you provide all equipment needed?
 - How long do you expect the project to take?
 - Do you offer a guarantee for your work?
 - Are you available to perform ongoing maintenance of the permeable interlocking pavement if needed?
 - How much will your services cost?

Various landscaping, soil type, and drainage issues must be considered as they can affect the stability of the surface and rainwater infiltration. Once the location has been selected, evaluate what type of system will be the most effective and visually pleasing. Your certified contractor can help you select a system that works best for your needs.



Permeable patio



Driveway showing transition from impermeable to permeable

How to... Build and Implement

Installation requires an experienced contractor, equipment, and proper technique.

Once you have selected your location and determined the technique that best fits your landscape, your contractor should outline the project area. Here are some items to consider and discuss with your contractor:

- You and your contractor should consider underlying soil types when selecting any of these applications, and amend the soil as needed to promote infiltration.
- Careful attention should be given to any soil reinforcement or stabilization needs, so soil does not wash onto and clog the area between the pavers.
- Permeable interlocking pavers should be placed at least 10 feet away from foundations.
- Slopes of less than 5 percent are easier and less costly to design and build.
- If an underdrain is installed to collect water that seeps through the permeable pavers, the underdrain should discharge into your landscape, rather than the street.
- Pavers can be installed manually or mechanically, depending on the type selected. The joints and drainage holes are filled with pervious materials using sweeping and

vibrating tools. Once the paver system is laid, holes or voids are filled with the material you have chosen: pea gravel, or washed aggregate. The choice of material will vary depending on the final look desired.

- The use of edge restraints made of plastic, pre-cast concrete, steel, or aluminum should be used to keep pavers from moving or separating.

Do not use sand on permeable interlocking concrete pavers because it will clog the pavement joints. Use deicing salt or washed #8 stone.

Costs

Costs for permeable interlocking paver projects will vary widely depending on the application selected, the size of the area chosen, and the condition of soils. Typically, permeable interlocking concrete pavers cost approximately 20% more than traditional concrete pavers.

Maintenance

Permeable interlocking pavers do not require a lot of maintenance when installed properly. Regular cleaning and sweeping of your pavers is recommended. A wet/dry vacuum may also be used to remove surface clogs. After sweeping or vacuuming, sweep fresh, washed, #8 stone into the clean joints, or call your



contractor for maintenance needs. Some natural buildup of vegetation or sediment may occur over time in paver gaps, and it may be necessary to clean out and replace the filler material. Dirt, debris, fall leaves, and sand from winter activities can clog the paver gaps. Refer to the selected manufacturer's recommendations for proper maintenance. The permeable interlocking pavers should be inspected frequently, especially after a large storm event, to ensure that the drainage spaces are not clogged, or that the gravel has not washed away.

For More Information

Numerous product vendors sell permeable pavers. Area installation contractors may be able to assist in product selection.

A list of contractors who have attended the DEP's RainScapes Training Seminars is provided at <http://www.rainscapes.org>

A comprehensive list of national paver products and contractors is available at

<http://www.paversearch.com/index.htm>

or

http://www.icpi.org/homeowners/find_installer.cfm

These resources may be helpful for your contractor to review:

Permeable Interlocking Concrete Pavements

<http://www.ncsu.edu/picp/>

Permeable Interlocking Concrete Pavement Specification developed by the Low Impact Development Center

<http://www.lowimpactdevelopment.org/epa03/pavespec.htm>

New Jersey Stormwater Best Management Practices Manual: Standard for Pervious Paving Systems

http://www.njstormwater.org/tier_A/pdf/NJ_SWBMP_9.7.pdf

Interlocking Concrete Pavement Institute

<http://www.icpi.org/>

Design specifications developed in coordination with the Interlocking Concrete Pavement Institute are provided at [rainscapes.org](http://www.rainscapes.org).