

Sustainable Hardscaping



Source: www.TurfMagazine.com

Sustainable pavement is taking center stage as erosion control and stormwater green infrastructure projects, particularly in the concrete jungles of our inner cities, aim to reduce runoff and improve water quality in many municipalities. Many retail and office complexes and other commercial project managers are looking to hardscape contractors to solve water runoff problems on their landscapes. There's also a growing class of green-conscious residents who want to reduce their contribution to the stormwater runoff problem.

Stormwater runoff regulation isn't the only issue driving the growth in pavements that allow drainage into the subsurface. In the freeze/thaw environment of the snowbelt, the near elimination of ice is a huge selling point for liability- and safety-conscious clients.

Mark Walker is an activist for sustainable pavement as new business developer for [Kuert Concrete](#). The Indiana-based company manufactures and distributes Xeripave pervious pavers used extensively for low-impact development and by several West Coast municipalities.



The EPA recently named permeable interlocking concrete pavement as a best management practice. Photo: Mark Walker

As Walker became a regular on the landscaping trade show circuit attending workshops on permeable pavers and interacting with landscape contractors about using alternative eco-friendly pavers, he realized that even the most formidable experts, even those with doctorate degree initials after their names, discussed "sustainable" pavers as all the same. He became most conscious about the family of "3Ps" – pervious, permeable and porous. "These three words have been used interchangeably without regard to their unique characteristics and, for that reason, have somewhat confused the industry," he says.

To prove his point, Walker even wrote a white paper on the subject, now widely circulated and in demand in the green industry. "The reason I wrote a white paper on the 3Ps is because I could not get a substantive answer from both members of the design community or members of academia when asked about the differences," he says. "My needs were simply to satisfy my curiosity. After I discovered that my findings seemed to be widely accepted, I realized that members of the design community – primarily engineers, architects, landscape architects and stormwater professionals – had no idea what the differences were either."

This made design in green stormwater infrastructure (GSI) challenging for Walker because practically every manufacturer made claims that they had the best product since sliced bread. Walker realized that several of these manufactured products are useful, yet for specific applications.



Photo: Mark Walker

"Permeable and pervious pavers require basically the same base and sub-base system," Walker explains. "The main difference between the two pavers is that the permeable paver requires the infiltration media (select aggregate) to be installed after the paver itself has been laid. The pervious paver, however, does not require this step because the paver itself infiltrates stormwater adequately."

An uptick in demand

Ross Causey is finding that permeable pavers, the only type he installs, are becoming more widely recognized as drainage solutions for his hardscape clients. His full-service landscaping company, [Garden Square Landscaping](#), lies 50 miles west of Philadelphia. Causey is a certified installer and instructor of both the [Interlocking Concrete Pavement Institute](#) and [National Contract Management Association](#), where he educates people on permeable pavers. Causey has been a contractor for 27 years, and one of the first things he looks at on clients' properties is drainage issues. He finds that what is below the surface when it comes to stormwater management is critical for any job.

The greatest recent stride forward for permeable pavers has been the [EPA](#) officially naming permeable interlocking concrete pavement (PICP) as a best management practice, according to Causey. "This has been huge because it has given PICPs immediate credibility with municipal officials. They have become more open to accepting and ultimately recommending PICPs. Those who become known for providing PICP drainage solutions will be the go-to guys when permeables really catch fire."

Just like rain gardens and bioswales, sustainable pavers are gaining in popularity, especially when it comes to hardscaping infrastructure projects for municipalities. Hardscape contractors are attributing increasing concerns with stormwater runoff in increasingly paved-over urban areas, water conservation in drought-stricken communities (particularly out West) and combined sewer overflow projects contributing to the interest in permeable

paving.

"We are currently on the cutting edge of this science as it applies to municipalities," says Walker. "There are numerous examples of this. The [Chicago Green Alleyway Project](#) has been leading the way in the past few years experimenting with permeable pavers, pervious pavers, pervious concrete and porous asphalt. We are learning a lot from this project."



Photo: Mark Walker

The city of Milwaukee reports in its [Green Infrastructure Study for the Combined Sewer Overflow Fresh Coast Green Solutions Report](#) that porous pavement is one of its least expensive green infrastructure elements in capital costs at 35 cents per gallon of water as compared to rain gardens at \$3.75 or green roofs at \$5.75. Only native landscaping out of a dozen other measures came in less.

Sustainable paving selling points

Causey is finding that half of the demand for his company is being driven by municipal ordinances and the other half by sustainability concerns by homeowners wanting to be good responsible citizens. When selling permeable pavers over traditional, Causey believes it's up to landscapers to show the value to their customers with regard to ROI. "Costs are considerably more for projects like this – at least 25 percent more due to several factors including the need for more stone material," he says. "Yet, if installed correctly, permeable pavement driveways will last a lifetime, whereas asphalt will have to be re-done every seven years. This story has to be told more often to residential customers."

Jen Kloter says it's been a little slow getting anyone to buy into the permeable pavement idea. She is a landscape designer and member of the sales team at [Bahler Brothers](#), a full-service residential design/build company in Hartford, Connecticut. "We generally don't have a shortage of water/rainfall here, so conservation isn't always the first thought most of our customers have on their minds," she says. "We mostly use it as a design solution for drainage issues, especially in a heavy clay soil situation. We've had a couple of customers request permeable, but most of the time it's an education process on the part of our sales team."

Bahler Brothers can install traditional and permeable pavers for roughly the same cost, but the biggest difference it finds in cost lies with the actual pavers themselves. "Many of the permeable pavers on the market today are selling for more money, so they are usually an upgrade for our customers," says Kloter.

Stormwater drainage is also a big concern in snowy locations in the winter, which can be a draw for customers who are trying to avoid icy driveways. "An older couple we serve live in a neighborhood where many of their neighbors' yards drain stormwater directly onto their driveway," says Kloter. "In the winter, their driveway was so icy they couldn't walk down it to get the mail."

Even getting the car up their driveway was a challenge most days. When we suggested permeable pavers, they got really excited. We installed a permeable driveway and walkway for them three years ago, and the reports each spring are very positive – no more ice!”

Although there is typically less icing on permeable pavement, Causey cautions other landscapers about using that as too large of a selling point due to liability issues. “Don’t make any promises about that benefit,” he says. “There’s always going to be someone who finds a patch of ice on permeable pavement and slips and falls, remembering what you promised.”



Stormwater runoff concerns and drought are two big drivers of sustainable hardscaping today, especially in urban areas. Photo: Mark Walker

Hardscape contractors are encouraged that currently there are close to a dozen different manufacturers handling sustainable pavers with a new myriad of colors and textures.

“There are more and more choices being introduced every year,” says Kloter. “Most paver manufacturers offer at least one style of permeable paver with many offering five to six different styles. The styles are becoming more residential customer friendly as well. They don’t look like boring industrial pavers anymore.”

Editor’s note: *This article was originally published in July 2015 and has been updated.*