Pervious Concrete: What’s it all about?

What is Pervious Concrete?
Pervious Concrete is a specialty concrete used to allow water to intentionally pass through the surface of a pavement, and allow, stormwater to eventually absorb back into the surrounding soils or evaporate. This keeps runoff water from downstream urban flooding and erosion. It also breaks the cycle of water treatment plants needing to treat stormwater where municipalities have combined sewer and stormwater systems. Pervious concrete pavements are “best management practices” (BMP’s) to collect, clean and cool stormwater. This usually eliminates the need for detention/retention ponds, thus reducing construction expenses, safety issues, and maintenance costs.

Why are we worried about Stormwater? The EPA NPDES Phase II requirements now mandate municipalities to implement stormwater mitigation policies. New developments, both residential and commercial, must show how stormwater leaving the property will not exceed predevelopment conditions. That includes both quantity and quality of stormwater. There are many types of stormwater mitigation techniques. Pervious concrete is one of many options available.

Why choose Pervious Concrete over other BMP Methods? Pervious Concrete not only collects stormwater but it also filters and cools it economically with local materials. Low impact developments (LIDs) are encouraged to save space, save natural resources and promote sustainable communities. What does this mean? Developments are encouraged to build up rather than out. With a pervious concrete parking lot or pavement the detention pond could be eliminated completely, thus conserving green space.

Pre Development

Post Development

Low Impact Development

What about freeze/thaw concerns and clay soils in Kansas City Metro Area? Pervious Concrete is usually more freeze/thaw durable than “conventional” concrete. Pervious concrete pavements have not been lost to freeze/thaw conditions. The voids in the pervious concrete allow for water (which expands 9% when it turns into
ice) to expand and contract within the voids which keep it from breaking up the pavement. Pervious concrete in clay soil markets becomes a “system”. It is designed with a rock base under the pervious layer to temporarily hold stormwater since the clay soils prevent fast recharging of the subsoil. Pervious concrete pavements typically loose ¾ of an inch to an inch of water a day to evaporation. A three inch rain would be gone in 4 days just to evaporation. The clay soils usually allow a slow exfiltration rate of .5 to .05 in the market.

![Diagram of Pervious Concrete System]

How does Pervious Concrete fit in with Sustainability & Green Building Ideas?
Pervious Concrete Pavements:

- Maximize Open Space (LEED SS 5.2), the temporary detention area is under the pavement rather than beside it, taking the system vertical rather than horizontal.
- Stormwater Quantity Control (LEED SS 6.1), pervious concrete can intake huge amounts of stormwater.
- Stormwater Design-Quality Control (LEED SS 6.2), filters the stormwater & cleans it.
- Heat Island Effect (reduction) Non-roof (LEED SS 7.1), improved solar reflective index (SRI) reflects the suns’ light rather than absorb it like dark or black pavements.
- Construction Waste Management (LEED MR 2), concrete is ordered as needed, & can be recycled.
- Recycled Content (LEED MR 4), there is pre-consumer recycled content in the concrete mix.
- Regional Materials (LEED MR 5), pervious concrete is delivered with local materials from a local company, typically within 20 miles of the jobsite.

More detailed information on Pervious Concrete’s role in qualifying for Leadership in Energy and Environmental Design (LEED) for Sustainable Building and Communities is available from CPG. See our website at [www.concretepromotion.com](http://www.concretepromotion.com) and look under the pervious tab on the left side of the front page.

What maintenance is needed? An occasional vacuuming or wet/vac is usually sufficient. As any dirt, leaves, or fines typically sit less than an inch under the surface. More maintenance information can also be found at [www.concretepromotion.com](http://www.concretepromotion.com).