" A variety of best management practices are needed to improve our states storm water runoff. Paving with pervious concrete is one of those practices because it can restore the natural path of rainwater into the soil."

Jim Morris
Chief of General Permits
Branch of EPD Mississippi DEQ

Storm Water Phase II

Mississippi cities and municipalities are facing stricter storm water regulations under the phase II program. Areas within or adjacent to areas with populations greater than or equal to 50,000 and population densities greater than or equal to 1000 people per square mile are urbanized areas that are designated in the regulations by EPA. Small municipalities with a population of 10,000 and a population density greater than 1,000 people per square mile are also being evaluated by MDEQ to determine if they must comply with the phase II program. These areas and counties are listed below.

The phase II program requires every regulated city or county to develop a comprehensive program to reduce the discharge of pollutants and protect water quality from storm water discharge. Any development or redevelopment in these areas that disturbs one acre or more must comply with phase II regulations.

The EPA's phase II program requires six minimum control measures. These measures include: education and outreach, public involvement, illicit discharge detection and elimination, construction site storm water runoff control, post-construction storm water management in new developments and redevelopment, and pollution prevention for municipal operations.

The EPA offers an extensive list of best management practices (BMP) to help owners within these regulated areas to control runoff. Porous pavements have been named a BMP and have been approved to help owners comply with storm water phase II regulations.

Urbanized areas designated by EPA

Bay St. Louis
Biloxi
Brandon
Clinton
D'Iberville
Desoto County
Flowood
Forrest County
Gautier
Gulfport
Hancock County
Harrison County
Hattiesburg
Hinds County
Horn Lake
Jackson County
Lamar County
Long Beach
Madison
Madison County
Moss Point
Ocean Springs
Pascagoula
Pass Christian
Pearl
Petal
Rankin County
Richland
Ridgeland
Southaven
Waveland

Small municipalities evaluated by MDEQ

Brookhaven
Clarksdale
Cleveland
Columbus
Greenville
Greenwood
Indianola
Laurel
McComb
Natchez
Oxford
Yazoo City

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Pervious Concrete: the pavement that DRINKS

Are you looking for EARTH FRIENDLY pavements that send cleaner water back into the soil and reduce STORM WATER RUNOFF? Pervious concrete may be the material you are looking for.

What is pervious concrete?

Pervious concrete is a mixture of gravel or stone, cement, water and sand. Using little or no sand in this mixture creates an open cell structure that allows water and air to pass through. When pervious concrete is used for paving, this open cell structure allows storm water to filter through the pavement and into the underlying soils or act as a retention area while helping to protect our environment.

Pervious concrete paving models natural ground cover by filtering water through the surface. Pervious concrete can pass 3 to 5 gallons of water per minute through it's open cells for each square foot of surface area, which is far greater than most rain events. This system reduces or eliminates storm water runoff and replenishes groundwater.

A pervious concrete system can reduce the need for large retention ponds because the pavement acts as a retention area. The volume of the open cells in a 5-inch thick pervious concrete pavement can retain up to an inch of rainwater before runoff occurs or water is percolated into the soil. Pervious pavement assists in efficient use of land and puts rainwater back into the ground where it belongs. Owners and developers can use expensive land for development and not for ponds that hold water.

A pervious concrete pavement helps to reduce the amount of untreated runoff discharging into storm sewers, rivers, and streams. The open cells provide a media for aerobic bacteria that break down pollutants such a oil and other hydro-carbon liquids that seep from parked cars. This helps to prevent much of the polluted runoff that normally occurs with traditional pavements. According to the US Environmental Protection Agency, 90 percent of pollutants are typically carried by the first 1-1/2 in. of rainfall through traditional horizontal runoff into rivers and streams.

Benefits:

By allowing rainwater to seep through the pavement, pervious concrete pavements:

- water vegetation and reduce the need for irrigation
- recharge groundwater
- reduce stormwater runoff
- improve stormwater runoff quality

Pervious concrete pavements also:

- use land efficiently
- are ADA friendly
- stay cooler due to lighter color and open cell system
- can be custom colored
- meet requirements for pervious surfaces
- are recommended by EPA

Environmental Factors:

Light colored pavements are receiving attention from environmental groups interested in reducing ground level ozone by lowering the temperature of cities urban areas. The temperature in cities can be higher than the surrounding suburban areas because of deforestation and vast areas of heat absorbing dark colored roofs and pavements. This phenomenon is called the urban heat island effect. Stagnate air and pollutants found in these urban areas combine and form ground level ozone. Higher temperatures speed up this reaction and cause higher levels of ozone and increased health risks. Building with light colored pavements and roofs along with strategic landscaping are some strategies being considered to cool down cities to create a safer and more livable environment.

Concerns:

Concerns about clogging of porous pavements can be “designed out”, by reducing erosion and sediment runoff through strategic design and water retaining ground cover. Studies indicate that pressure washing a “clogged” porous concrete pavement can restore 80-90% of the permeability.

Projects:

Finley Stadium
Chattanooga, Tennessee

The design team at Finley Stadium had to meet several challenges when they built a new parking lot. The site was in an industrial area which had been gradually filled with foundry sand, had to meet the new EPA regulations and storm water run off laws, and was to be heavily landscaped with trees requiring irrigation.

They were able to solve their problems with a unique design involving pervious concrete pavement. The parking lot was designed so that rainwater would drain to the pervious concrete parking areas. Their design also included a system to reuse the rainwater collected from the pervious concrete for irrigation during the dry season. The designers were able to create an environmentally friendly and aesthetically pleasing parking lot with the help of pervious concrete pavements.

Wal-Mart
Savannah, Georgia

Designers in Savannah began using pervious concrete to protect trees that have lived for hundreds of years and add beauty to the area. They choose pervious concrete paving around these trees because it allows water and air through to the roots. They have also embraced pervious concrete to comply with local regulations for storm water control.

When management of this Wal-Mart Super Center wanted to build adjacent to protected wetlands, pervious concrete was an integral part of their storm water management system. Pervious concrete may be the total solution for storm water management or it may be one part of the overall system. Designers for this Wal-Mart used extensive planting of scrubs and trees, detention structures, and pervious concrete paving on all outlying parking areas to manage storm water at this site.