

WHAT IS IT?

Pervious concrete is a highly permeable pavement that captures rainwater and allows it to pass through the concrete and percolate into the underlying soil. The pavement mimics natural groundcover by allowing filtered stormwater to recharge the ground water. The system helps minimize stormwater runoff and reduces or eliminates the need for on-site holding ponds.

The Process

Pervious concrete is a mix of specially graded coarse aggregate, cement, water and little-to-no fine aggregates. This concrete is also known as “no-fines” or porous concrete. Mixing the ingredients in a carefully controlled process creates a paste that coats and bonds the aggregate particles. The hardened concrete contains interconnected air voids totaling approximately 15 to 25 percent. Water runs through the voids in the pavement to the soil underneath. Air-entrainment admixtures are often used in freeze-thaw climates to minimize the possibility of frost damage.

Pervious concrete can be placed directly on 6 to 12 inches of drainable aggregate base (i.e., $\frac{3}{4}$ inch or larger clean crushed stone or gravel), above sand or on soils with sufficient percolation capability. The base layer underneath the pervious concrete forms a holding basin where rainwater is stored and allowed to percolate into the underlying soil.

Pervious concrete may require limited maintenance, consisting of sweeping or vacuuming to prevent clogging and to restore porosity and high permeability. Routine sweeping is recommended. If the pavement becomes clogged, pressure washing can restore most of the porosity to nearly new conditions.

When to use it

- Parking lots
- Low-traffic roads
- Shoulders
- Driveways
- Pedestrian walkways, sidewalks, and golf cart paths
- Retaining walls, slope protection, and pavement edge drains.



PERVIOUS CONCRETE

The open-cell structure of pervious concrete provides a medium for aerobic bacteria that break down many of the pollutants that seep from automobiles.

Solutions

- Reduces pollution of natural bodies of water: The EPA estimates stormwater runoff can send as much as 90% of the pollutants (such as oil and other hydrocarbon liquids) found on the surface of traditional parking lots directly into rivers and streams. The open-cell structure of pervious concrete provides a medium for aerobic bacteria that break down many of the pollutants that seep from automobiles.
- Mitigates surface pollutants – Pervious pavements capture the first flush of rainfall, allowing the water to percolate into the ground. Soil chemistry and biology naturally “treats” the polluted water.
- Helps replenish water tables and aquifers.
- Minimizes flash flooding and standing water.
- Allows for more efficient land development by eliminating the need for retention ponds and drainage structures.
- Enhances air quality: Pervious concrete naturally reflects heat and light due to its lighter color and lower density. In turn, the pavement lowers atmospheric heating, decreasing the impact of heat island effects.
- Saves money:
 - Pervious pavements benefit property owners by reducing the reliance on sewer systems and the subsequent stormwater impact fees.
 - Pervious concrete pavements require less labor and fewer dollars for construction and maintenance of detention ponds, skimmers, pumps, drainage pipes, and other stormwater management systems. Expensive irrigation systems can be downsized or eliminated.

Features

- Drainage rates range from 2.5 to 18 gallons per minute per square foot.
- Pervious concrete will last 20 to 40 years with little or no maintenance and offers a low life-cycle cost option.
- The EPA recognizes pervious concrete as a best management practice for stormwater management because it provides first flush pollution control.
- Simple tests can be used to measure strength and permeability.



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