

Pervious
pavement
allows
precipitation
to
percolate
through
to the
ground

PERVIOUS PAVEMENT

(porous pavement, porous concrete/asphalt)

Pervious pavement is made of either pervious asphalt or pervious concrete. Both materials resemble conventional asphalt and concrete, but have more air spaces that allow water to pass through the pavement into a reservoir base of crushed aggregate, then infiltrate into the ground. Pervious pavement is designed to accept precipitation only and is typically thicker than traditional concrete to support the same loads.

Pervious asphalt consists of coarse stone aggregate and asphalt binder, with very little fine aggregate. Water percolates through the small voids left in the finished asphalt. A thick layer of gravel underneath allows water to drain through quickly. Pervious asphalt looks similar to conventional asphalt, although with a rougher surface, which accounts for its common name "popcorn mix."

Pervious concrete consists of specially formulated mixtures of Portland cement, open-graded coarse aggregate, and water. It has enough void space to allow rapid percolation of water and resembles exposed aggregate concrete.



Pervious pavement reduces stormwater runoff flow rate and volume, recharges groundwater and maintains stream base flows. The subgrade also filters pollutants. Pervious pavement is less prone to cracking or buckling from freezing and thawing. Studies indicate it requires less frequent repair and patching than conventional paving. In some cases, pervious pavement may reduce or eliminate the need for an underground storm drain system or a curb and gutter system. Pervious pavement is an effective method of managing stormwater runoff without limiting use of the space.

Maintenance

It is important to control site erosion and sedimentation of the pavement surface to prevent clogging and maintain permeability. Cleaning or vacuuming the surface once or twice a year maintains porosity. Properly installed pervious paving systems last more than 20 years.

Cost

Pervious concrete pavements range in cost depending on the size of the installation. In the Bureau of Environmental Services North Gay Avenue Project (Summer 2005), a pervious concrete street cost about \$100 per square yard installed, including base rock.

Safety and Siting Requirements

- Follow manufacturer's installation instructions.
- Weather conditions during installation can affect the performance and longevity of pervious pavement. Check with manufacturers for guidelines.
- Slope must be less than 10% over the paved area.



- Use pervious pavement over soils that drain well, like gravelly or loamy sand.
- Do not use pervious pavements in areas with high sediment loads.
- Pervious pavement is not allowed in areas where hazardous material is stored or transported.
- Most systems include an under layer of at least 12 inches of clean gravel over a layer of geotextile fabric. The under layer serves as an underground detention basin and should include an overflow outlet to prevent water from rising through the pavement.
- Refer to Portland's Stormwater
 Management Manual for details on sizing,
 placement, and design.



Permits

- Pervious pavement systems used to replace public parking or walkway areas require a building permit from the City's Bureau of Development Services.
- Stormwater systems on non-residential sites need commercial building permits.

Examples

The Rebuilding Center of our United Villages, parking lot, 3625 N. Mississippi Ave.

N. Gay Avenue between N. Wygant and N. Sumner (pervious concrete and asphalt)

Pervious Concrete at Broadway Pump Station, NE 91st and Broadway

Ecotrust Building Parking Lot (Drive aisles), 721 NW 9th Ave.

