

Placement of Pervious Concrete



Specifications should require Pervious contractor crews to be certified and experienced according to ACI 522.1-08. NRMCA Pervious Certification programs are administered by the *WA Aggregates & Concrete Association* and define 3 levels of

Certification. Pervious Contractor crews should be qualified to the "Installer" level of certification. Click on: www.nrmca.org/certifications/pervious

Conventional concrete equipment and placement methods are not applicable to Pervious Concrete. The contractor's compactive methods and equipment must be considered in conjunction with the pervious concrete mix design for an efficient and economical placement.



Pervious concrete is a *specialty concrete* and specialized

equipment and experience are necessary to successfully construct the Pervious Concrete Pavement. Test panels may be recommended to verify concrete quality and the contractor's placement method and equipment.

As for any concrete pavement, proper curing is essential. Positive curing with visqueen should be accomplished as soon as practicable but no more than 20 minutes after placement procedures. Visqueen must be properly secured, monitored and left in place for no less than 7 days.



TESTING AND INSPECTION
Many normal concrete field inspection and testing practices

do NOT apply to Pervious Concrete. Standard ASTM tests for Strength, Slump, and Air content should NOT be criteria used for acceptance of Pervious Concrete. ASTM C-138 (Unit Weight) modified by ASTM C-29 (Jigging method) is used to confirm the unit weight of the freshly delivered Pervious Concrete. Cores may be taken in accordance with ASTM C-42 for the measurement of pavement thickness; (ASTM C-174),

and the density of the cores determined in accordance with ASTM C-140. Non applicable or non standardized test methods not designed specifically for Pervious Concrete to measure density or void content in the hardened cores is NOT recommended.



What About Freeze / Thaw?

Pervious Concrete is not designed nor intended as a storage area. Water passes directly through the pavement and into the gravel retention layer below. Freeze / Thaw is not a concern in western Washington as NW temperatures and freeze / thaw conditions are nominal. Pervious Concrete should not be placed during freezing temperatures.

What About Clogging?

Clogging of any pervious pavement or surface may be a concern. It is highly unlikely a majority of any pervious surface will become 100% clogged. Leaves and conifer needles are easily removed. Water will always seek the next point of infiltration.

What About Maintenance?

Good common sense approaches are required to prevent run-on of landscaping, storage of materials and construction activity on a Pervious Concrete surface. If necessary, monitor site characteristics and implement a regular cleaning schedule of any pervious surface. For parking areas, your regular program for sweeping should be sufficient.

**To learn more about Pervious Concrete;
contact your local Ready Mix Supplier or
NRMCA Certified Pervious Contractor !**



PERVIOUS CONCRETE

An alternative strategy to creating, capturing, treating, and discharging storm water.



*Imagine this...
No Storm Water runoff...*

Designed to meet the growing environmental demands for Sustainable & Low Impact Development, LEED storm water guidelines, Municipal EPA requirements, and as a primary mitigation measure to restore the health of Puget Sound; Pervious Concrete Pavement is an effective solution for today's new approaches to storm water management. Pervious Concrete Pavement is designed to allow rainfall and storm water to directly infiltrate through to the native soils. Pervious concrete promotes more efficient land use, meet emerging LID requirements and eliminates the burden and expense of storm water for both public and private projects.



Washington Aggregates and Concrete Association

22223 - 7th Avenue South • Des Moines, WA 98198 • (206) 878-1622 • Fax (206) 878-6282
E-mail: info@washingtonconcrete.org • Website: www.washingtonconcrete.org

Salmon Friendly • Eliminates Run Off • Direct Recharge to Ground • Mimics Natural Infiltration



What is Pervious Concrete?

Pervious Concrete is a “specialty concrete” consisting of cement, recycled fly ash or slag, coarse aggregates, water, and other necessary components to produce sufficient paste and bonding ability to “glue” coarse aggregates together. This creates a highly permeable yet, structural system of interconnected voids that drains storm water quickly. Aggregate characteristics, paste content and proper placement methods will determine the available density or void content to produce infiltration rates sufficient to handle Pacific Northwest storm events.

Why is Pervious Concrete a Sustainable Solution?

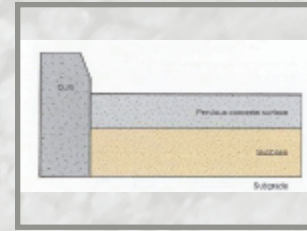
- Eliminates runoff of untreated storm water
- Directly recharges groundwater
- Mitigates “first flush” pollution
- Protects streams, watersheds and ecosystems
- Mimics the drainage and filtration of natural soils and bioswales
- Provides drip line irrigation for Urban trees and landscaping
- Provides a higher albedo surface reflectivity index (0.35 or higher)
- Reduces surface temperatures & heat island effects
- Eliminates need for expensive collection and detention systems

Designing and Specifying Pervious Concrete

Pervious Concrete may be used for: sidewalks, trails, residential driveways and streets, parking areas or when a reduction of Impervious surfaces is needed to reduce storm water.

Generally, Pervious Concrete Pavement depths range from 4-5” for sidewalks or pathways, 5-6 inches for residential driveways and light duty parking lots, and 8 – 10 inches for heavier truck traffic areas. For design assistance consult. *ACI 330R-08 “Guide for the Design and Construction of Concrete Parking Lots”*.

Proper specification of Pervious Concrete is important. Specifications must clearly communicate project objectives while recognizing the characteristics of Pervious Concrete are very different from conventional concrete and traditional concrete elements do not apply. Specifications should only incorporate specific criteria as it directly relates to Pervious Concrete based on known and recommended practices. For project specifications consult: *ACI 522.1-08; “Specification for Pervious Concrete Pavement.” Both technical documents may be obtained online at: www.concrete.org*



Design of the Retention Layer & Subgrade

Pervious concrete is a 2 part on site filter for storm water in a dry detention system consisting of the Pervious Concrete Pavement and a coarse gravel retention layer for storm water storage. Design of the retention layer is a site specific task and should take into account, percability and characteristics of native soils, volume of storm water anticipated, rate of flow, and duration. An initial soils survey and site specific storm water calculations should be performed by a storm water management engineer.

