

AquaPave Permeable Concrete Owners Manual & Maintenance Outline

Contents:

- 1.0 Introduction
- 2.0 General Guidelines
- 3.0 Infiltration Testing
- 4.0 Scheduled Maintenance
- 5.0 Occasional Spot Cleaning
- 6.0 Patching & Repairs
- 7.0 Recommended Resources

AquaPave Permeable Concrete

Owners Manual & Maintenance Outline

1.0 Introduction

The technology of permeable concrete has advanced considerably in the past two decades. During that time, we have made great strides in not just the quality of the finished product but also in our understanding of long-term maintenance and durability-related issues. One of the most important factors in determining the degree of maintenance required and long-term performance is whether or not the pavement receives run-off from adjacent pavements, hardscapes, or roofs*. A well installed permeable concrete pavement that only receives water from rainfall, and not adjacent surfaces, will perform at a very high level over its lifecycle with minimal maintenance if a few simple guidelines as outlined in this manual are followed. Pavements that do receive water from adjacent areas will, however, typically require a considerably higher level of maintenance.

2.0 General Guidelines

Your AquaPave permeable concrete should have been well protected during the construction phase and turned over to you in good working condition as verified with an infiltration test. As is true with most materials, a regular maintenance routine will be easier and cheaper than dealing with a problem caused by neglect or mis-treatment.

3.0 Infiltration Testing

Every permeable pavement has a different infiltration rate. The infiltration rate depends on the mix, the aggregate, the installation equipment, and the technique of the installer among other factors. The infiltration rate will fall from its original rate to its in-service rate as the pavement settles into its useful life. In many cases, the in-service rate is high enough to require only minimal maintenance. Conversely, if the in-service rate is too low to infiltrate a typical storm, increased maintenance will be required. An initial infiltration test is recommended before the pavement goes into service to establish a baseline reading. Subsequent biannual (or annual if in an area of heavy debris) testing will provide necessary guidance to establish the proper level of maintenance needed. To test the infiltration rate of your permeable concrete installation, a qualified technician can perform an ASTM C1701 Standard Test Method For Infiltration Rate Of In Place Pervious Concrete.

4.0 Scheduled Maintenance

The goal of scheduled maintenance is to maintain an operable infiltration rate. A certain amount of dust, decomposed vegetation, and other debris will accumulate on and within your pavement over time. Maintenance can be as basic as regular blowing (leaf blower) or sweeping of seasonal vegetative dropping/debris off the surface before it decomposes and makes its way into the pavement pores. On larger projects, scheduling a vacuum truck service

AquaPave Permeable Concrete Owners Manual & Maintenance Outline

may be more practical (just before and after the winter/rainy season is a good time). The precise maintenance schedule will vary by project, with the goal being to provide enough maintenance to keep the surface open and infiltrating water.

4.1 Activities to Avoid

Nearby construction areas should not use permeable pavements as a staging area for construction debris, soils, or fines. Washing vehicles on permeable pavements as well as heavy accumulations of organic matter or debris should be avoided.



Landscaping and or construction debris

Washing vehicles with heavy accumulations of dirt on your pavement



Heavy accumulation of Falling leaves, needles, or other vegetation left to decompose.

AquaPave Permeable Concrete

Owners Manual & Maintenance Outline

4.2 Surface debris

Surface debris such as leaves and pine needles are easily removed by sweeping or blowing. If you have a landscape maintenance crew on site on a regular basis, they can quickly and easily clean the surface with a blower, which may be all you ever need to do.

Where permeable concrete pavements receive run-off from adjacent surfaces, a steady quantity of fine debris will likely settle into the pores of the pavement, greatly reducing infiltration. Infiltration will eventually be prevented altogether where this run-off originates from asphalt (see section 5.3). In these cases, keeping the adjacent pavements clean will help minimize clogging of the permeable concrete. Loose dry sediment in the pores can be removed by vacuuming (sweeping will not be effective) on a regular basis as determined by the frequency of debris loading. Note vacuum trucks will need to run at a slower speed than typical in order to pull loose debris out of the pores.

5.0 Occasional Spot Cleaning

5.1 First step: Vacuuming to prevent clogging

Prevent clogging and maintain the effective life of your pavement by quickly removing fine debris or clay soils from the surface before they become tightly packed into the voids. Fine debris is generally easy to remove while it is dry using a Shop Vac for small areas, a walk behind vacuum unit (see section 7.1) for a medium sized area, or a vacuum truck for larger areas. Occasional exposure to sticky clay or other fine sediments is not good, but generally not irreversible. Use common sense and clean the surface as soon as possible for best results.

5.2 Second step: Pressure washing pavement

For small areas of acute clogging, pressure washing or pressure washing alongside vacuuming have proven to be more effective than vacuuming alone to regain lost infiltration. We recommend pressure washing with a 2,500 - 3,500 psi unit with a 25 deg nozzle.

5.3 Impossible Clogs

Items like chewing gum and migrated asphalt fines may be impossible to dislodge. In the case of something like gum, it is a small blockage and will not impact the steady state infiltration rate of the whole pavement. When asphalt pavement drains directly onto permeable concrete (which we do not recommend), debris and asphalt fines will migrate into the permeable concrete pores and clog large areas. When the temperatures rise, the asphalt softens and sticks in the pores becoming difficult if not impossible to remove. If the

AquaPave Permeable Concrete

Owners Manual & Maintenance Outline

permeable concrete area becomes sealed due to asphalt, the permeable concrete must be replaced to restore infiltration.

6.0 Repairs & Patching

6.1 Small repairs

Due to the coarse and open pore nature of permeable concrete, repair of surface defects and cracks can be successfully performed by a qualified permeable concrete contractor. Note that as is always the case with any concrete, the color of a repair/replacement section may not match the original.

6.2 Large repairs or sub-pavement access

In the case of utility access beneath the slab or damaged pavement, a section of permeable concrete can be removed and replaced. Saw cut approximately 2/3 the depth of the slab, and then chip out the rest to create a rough surface to allow the new section to mechanically bond to the existing permeable concrete. To replace the permeable material, contact your permeable concrete contractor.

7.0 Recommended Resources

7.1 Pavement Maintenance Service Providers

Look for street cleaning companies in your area who have combination pressure washing with vacuum capabilities.

National:

Eco Maintenance Facilities Management
ecomaintenance.co.nz
09 570 2303

North Island:

Civic Waste
civicgroup.nz
0800 124 842

South Island:

Wasteco
wasteco.co.nz
0800 341 11 11

AquaPave Permeable Concrete Owners Manual & Maintenance Outline

7.2 Maintenance Equipment

“Little Wonder” walk behind debris vacuum - For small to medium size installations, to do maintenance in-house. Can also be used on traditional impermeable surfaces.

OMC Power Equipment

03 366 1829

www.omcpowerequipment.co.nz

“Billy Goat” Walk behind & self-propelled. For small to medium size installations, to do maintenance in house. Can also be used on traditional impermeable surfaces.

Briggs & Stratton New Zealand Limited

T: 09 477 0827

sales.nz@basco.com