

Porous Concrete Sidewalk Cleaning Trial Using a Sidewalk Sweeper

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What We Did

The City of Olympia installed a porous concrete sidewalk in 1999. The surface was pressure washed in 2003. A year and half after the initial cleaning, the sidewalk was cleaned with commercially available sidewalk cleaning equipment.

The trial was performed with a Tennant 6400 power sweeper, a Power Boss Badger SW/6XV sweeper and a Green Machine 525 HS. The Tennant and Power Boss machines sweep the surface with a horizontally mounted brush the full width of the sweeper. Both machines use a vacuum system that applies a vacuum to the brush area for dust control. The vacuum is not directly applied to the surface. The green machine has two vertically mounted edge brushes and a center vacuum mounted parallel to the surface. The concept is that the edge brushes bring material into the vacuum slot. The vacuum slot is narrower than the width of the machine and vacuum is not applied directly to the surface.

How did it do?

The Tennant and Power Boss did a fair job of removing material from the surface of the porous concrete. Neither machine cleaned deep into the concrete pores. There were still some pine needles lodged in the surface voids after cleaning. The operations are quick and one can work at a walking pace. Both machines required two passes to clean the entire sidewalk width.

The Green Machine did not do a very good job of cleaning the porous surface. The edge brooms were able to move material to the center of the machine, but the vacuum is not applied in a way that allows the machine to pick up pin needles from the surface.

Conclusions

Commercially available sweepers provide a reasonable level of cleaning for porous concrete sidewalks. To be effective the sweeper must have a horizontal broom with a vacuum dust control system. The sweepers are able to clean at a much faster rate than pressure washing but do not clean as well as pressure washing. A sweeping program that uses these machines should reduce the frequency between sweeping to a point where material does not penetrate deep into the concrete pores. Given the speed of operation, these sweepers provide a lower cost sidewalk-cleaning program than pressure washing.

Photographs

Photo 1. Sidewalk Sweeping- Left side un-swept, right side swept with Tenant Machine



Photos 2 and 3. Tennant 6400 power sweeper, a Power Boss Badger SW/6XV sweeper

