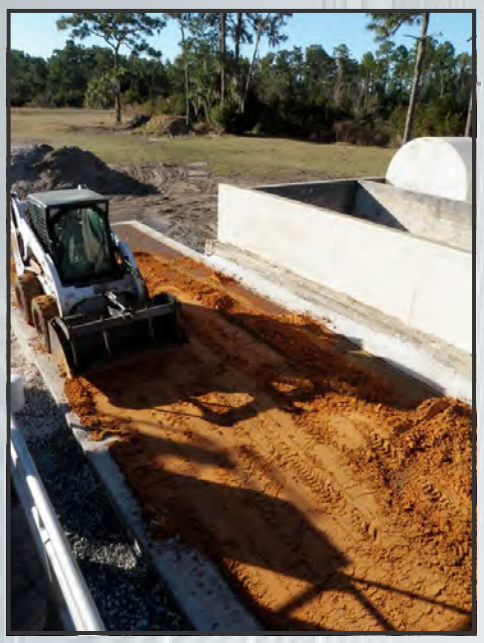
FILTER PAVE®
Featuring BASF Chemistry

# Performance Testing

## Stormwater Management Academy at the University of Central Florida (UCF)




## Testing Scope

***The Stormwater Management Academy at the University of Central Florida (UCF)*** **was contracted to perform an evaluation of the FILTERPAVE® porous pavement system. The objective of the evaluation was to determine the 1) infiltration rate, 2) water quality improvement, 3) compressive strength and 4) porosity (sustainable void space) of the FILTERPAVE porous pavement system.**

The FILTERPAVE cross section consisted of a non-woven geotextile separation layer placed over the existing sub grade, a water storage layer consisting of 8-inches of 0.5 to 1.5 inch diameter aggregate and 2.5 inches of FILTERPAVE.

### 1) Infiltration Rate

Three embedded ring infiltrometer kits (ERIK) developed by the Stormwater Academy were installed in the test area. Two 16-inch infiltrometers were installed 4-inches into the sub grade and one infiltrometer penetrated 4 inches into the storage layer. Determination of the infiltration rates were conducted for normal operation, intentional sediment loading and after rejuvenation.

Regardless of the amount of fine grained sand loaded onto the FILTERPAVE, the lowest infiltration rate measured was 6.2 inches/hour after two sediment loading cycles. Following a rejuvenation cycle, the infiltration rate increased to 33.1 inches/hour—a 434% increase. These values are representative of a field application that has been subject to excessive sediment build-up on the surface over a long period of time.

**The testing demonstrates that FILTERPAVE will provide infiltration of storm water even under excessive sediment loading.** The infiltration rate significantly exceeds the Florida draft storm water standard of 2.0 inches/hour. It was also noted that vacuuming the surface with a standard vacuum truck significantly improved the infiltration rate.

FILTER PAVE®
Featuring BASF Chemistry

# Performance Testing

## Stormwater Management Academy at the University of Central Florida (UCF)

### Testing Scope

***The Stormwater Management Academy at the University of Central Florida (UCF) performed an evaluation of the FILTERPAVE® porous pavement system to determine the following performance values: 1) infiltration rate, 2) water quality improvement, 3) compressive strength and 4) porosity (sustainable void space).***

### 2) Water Quality Improvement

Water quality samples were collected through an under drain system and analyzed for nutrients. While stormwater may be treated prior to discharge to surface water, FILTERPAVE allows the stormwater to infiltrate on-site. The water quality benefit of using FILTERPAVE is based on the amount of storm water that is allowed to infiltrate.

**The testing confirmed the water quality benefits of using FILTERPAVE.** Based on a 25 year design storm (8.4 inches/hr) in Florida, a 33% reduction in phosphorus and nitrogen was achieved. The yearly phosphorus and nitrogen mass reductions will be significantly higher for most regions considering more than 90% of all rainfall events are less than one inch in intensity.

### 3) Compressive Strength

Strength analysis included laboratory compressive and flexural strength testing and field investigations using the FDOT falling weight deflectometer equipment. FILTERPAVE exhibits the best characteristics of both flexible and rigid pavements. As such, the material has stronger compressive strength than porous asphalt and better flexibility than pervious concrete. **The average compressive strength of FILTERPAVE is 1160 psi and its flexural strength is 508 psi. These characteristics make FILTERPAVE appropriate for low and medium duty applications.**

### 4) Porosity : Sustainable Void Space

The porosity of FILTERPAVE was determined to be 39%, which is the amount of storage within the material. The table to the left provides the sustainable void space values (porosity) for porous pavements tested at UCF. **These results indicate that the FILTERPAVE porous pavement system is nearly twice as porous as pervious concrete and maintains the highest sustainable void space of any porous pavement system.**

| Porous Pavement | Sustainable Void Space[1], % |
|---|---|
| FILTERPAVE® Glass[1] | 39 |
| FILTERPAVE® Stone[1] | 47 |
| Pervious Concrete | 20 |
| Porous Asphalt | N/A |
| Flexipave® | 18 |
| Pavers | 10 |

**[1] Per Stormwater Management Academy at UCF, Pervious Pavement Water Management Analysis Model**

Filter Pave™ Products LLC. | 780 County Road 122 | Higbee, MO 65257
Filter Pave is a registered trademark of Filter Pave Products, LLC. (573) 819-0548 | www.filterpave.com