

## Maryland business saves BIG with use of Pervious Concrete

When Dwight Hikel began planning for construction of his new manufacturing facility, one of his concerns was maximizing the amount of paved area on the 12 acre lot. Dwight is President of Shelter Systems Limited, a Westminster, MD-based manufacturer of engineered wood roof and floor trusses. The pavement, used as a staging area, was critical to the production rate of his truss systems. When at full capacity, Hikel expects 30 to 40 trucks per day loading out and hauling across the pavement. So when Carroll County officials calculated that, with a 131,000 square foot building on the site, it would require 1 ½ acres of detention pond, Hikel began to look at his alternatives.

That is when Roy Trent of Conewago Enterprises made the recommendation to use pervious concrete for the paved surface. Conewago is a Design-Build General Contractor and Ready Mix Producer from Hanover, PA. who had been successful with adjusting pervious concrete mixed design and placement procedures to provide a higher strength material.

In June of 2003, Conewago placed three separate pervious concrete slabs at their Hanover plant, two within the yard, and one for use as the employee parking lot. Beam-type samples were cut from the pavement,



and flexural strength tests at just seven days resulted in an average of over 600 psi. Everyone agreed that the concrete design would be acceptable to deal with this heavy duty application.

Now the Carroll County officials needed to be convinced that pervious concrete would satisfy local stormwater run-off regulations. Cores were taken from the test pavements and sent to Penn State University for permeability testing. Results of the testing on the six inch cores showed that the pavement could handle 80 inches of rain per hour. That is more than 10 times the intensity of a 100-year storm event at a five-hour interval.

Armed with these test results, Trent invited the local and county officials to the ready mix plant for a demonstration. He also arranged for the local fire department to bring their water tank truck to the site. As officials watched, the firemen opened the main discharge valve of the tanker, emptying all of its contents onto the pervious pavement. The water ran directly through the pavement with minimal sheeting. Trent provided the County with the pervious concrete infiltration rates, as well as with a pavement design that included a 6 inch stone base. The County approved the project with one exception. The 1 ½



acre retention pond was still required, and it would need to be maintained until such time as the officials were satisfied that the pervious pavement system could handle the run-off.

Conewago began the paving project in late summer of 2004. Daily placement averaged 1,000 to 1,200 cubic yards per day. When the project was completed, seven acres of parking lot had been paved.

After monitoring the pavement infiltration system during various rain events, the county officials have now approved the closing of the retention pond, allowing Hikel room to expand the operation. Besides being able to maximize development of the entire parcel, Hikel calculates that the pervious concrete pavement saved approximately \$400,000.00 in underground drainage work that was eliminated.

The completed project has weathered several winters and to date, the pervious pavement has performed excellently and Hikel is very satisfied. "We are in the lumber business," says Hikel, "and with pervious concrete, none of our lumber will ever be sitting in water."

