

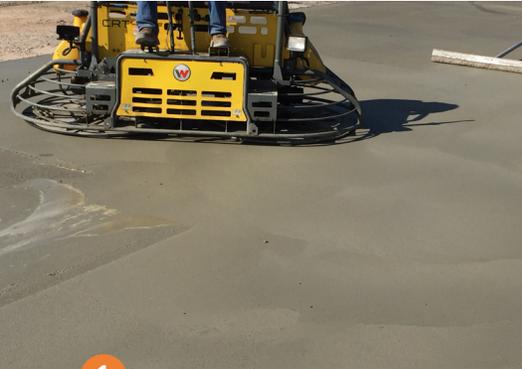


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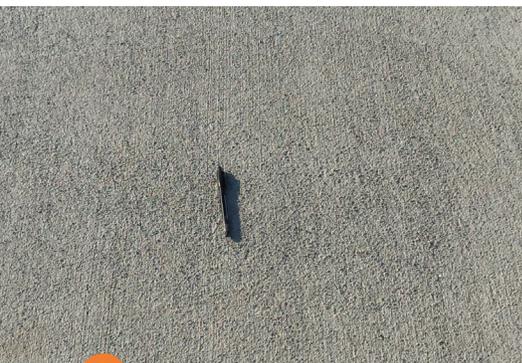
Caterpillar Uses New Paving Technology at its Athens, Georgia Manufacturing Facility



1 Troweling and curing CCP.



2 Freshly placed CCP around catch basin.



3 Close-up of CCP texture.

In Athens, Georgia, it is all about building and maintaining excellence in academic and athletic programs that compete with the best the Southeastern Conference (SEC) and the world has to offer. In bringing some “bark” to its business by coming to the Athens area, Caterpillar has created a world-class manufacturing facility that is second to none. The recently completed facility manufactures D-3, D-4, and D-5 Dozers and Hydraulic Mini Excavators. This world-renowned manufacturer of innovative, durable, and high-quality construction equipment decided to extend these qualities to its paving. To further its achievement of quality, innovation, and excellence, Caterpillar chose to enhance its equipment staging area with a tough, economical new generation of Roller Compacted Concrete (RCC) – Compacted Concrete Pavement (CCP).

Compacted Concrete Pavement – RCC Benefits with Traditional Concrete Appearance

CCP is a new generation of RCC that has all of the outstanding benefits of RCC but with the appearance of traditional concrete. This is achieved with the ACEiT admixture system developed by Andale Construction of Wichita, Kansas.

“I have worked with RCC for years and it’s a great material,” said Vice President of Andale Construction Matt Munsick. “But, getting a good surface texture is very tricky. Small variations in moisture content can create big variation in surface appearance. With the ACEiT admixtures,

we can control this and achieve a consistent, uniform texture.”

The finish on regular RCC comes from being rolled. However, CCP is smoothed with a power trowel and then given a broomed finish, providing the smooth, handsome appearance of traditional cast-in-place Portland Cement Concrete. Additionally, the ACEiT admixture facilitates compaction, virtually eliminating the need for rolling; the CCP comes out of the high-density paver at 95 percent modified Proctor density or greater. In addition to improving the ride, the elimination of rolling reduces the cost of CCP, making it competitive with other paving alternatives in first cost and superior in long-term costs.

CCP Can Take Harsh Loadings

The new storage and parking area required the placement of 34,000 square yards of heavy-duty pavement capable of withstanding the rigors of constant traffic of heavy-tracked vehicles, many with steel cleats. To handle this difficult loading, Caterpillar chose 6 inches of CCP over a sturdy base of 8 inches of soil-cement. The CCP was mixed at an onsite portable pug mill and placed in a single lift with a high-density paver by Andale Construction of Wichita Kansas. The soil stabilization with Portland Cement was accomplished by Atlanta Paving and Concrete of Atlanta Georgia. All Portland Cement was provided by Argos USA. The result is a tough new pavement designed to withstand the abuse of tracked vehicles that move along this



4 Close-up of CCP surface while finishing.



5 The ability to work CCP around structures.



6 Completed asymmetrical installation of CCP.



7 CCP for Tracked CAT Equipment parking.

path each and every day the plant is in operation.

Although CCP is often placed without any rolling, Andale used limited rolling to achieve the best surface texture with the particular local materials. “For some of the project, we used a 4-ton steel wheel roller for a maximum of 2 passes in static mode. The ACEiT admixture kept the mixture sufficiently pliable that no vibratory action was required beyond the paver’s screed,” said Munsick. “After we made some minor mix design adjustments, though, no rolling was necessary.”

The joints were cut on 15 foot intervals using an early entry saw, both transverse and longitudinal. Sawing began 2 to 3 hours after placement. Despite the prompt sawing, the joints were exceptionally sharp and the curing for the CCP was accomplished using ACEit Blue curing compound. Because of the characteristic of ACEit Blue, striping could proceed only two days after placement.

High Early Strength and Rapid Placement is No Problem

This facility needed high early strength in order to put the pavement into service quickly. Compressive strengths for the CCP reached 3500 to 4500 psi in 2 to 3 days. Ultimate 28 day strengths reached 6000 to 7000 psi. This allowed new tracked vehicles to use the CCP within 30 hours of placement, thus avoiding any slow-downs at the assembly facility. Overall, the 34,000 square yards of CCP were placed in 11 days, including several rainy days, while the site was still in use by Caterpillar.

Consider Using a Portland Cement-Based Paving Solution

CCP over soil-cement base is only one of many innovative, durable, and economical Portland Cement-based paving solutions. Whether you are building new pavement or rehabilitating pavement, contact the Southeast Cement Promotion Association and let us show you how you can apply the best paving solution for your next project.

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