

KomponentTM System News

For Non-Shrink and Low-Shrinkage Concrete

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CTS Cement Manufacturing

Higher Performance, Lower Cost Pavement at Airport

ROCKFORD, IL—The latest inspection of a taxiway at the Greater Rockford Airport 75 miles northwest of Chicago demonstrated that it is possible to construct durable shrinkage-compensating concrete pavement at a lower cost than a comparably designed portland cement concrete pavement. Not only can the pavement cost less, but the quality and performance can be far superior as well.

In response to the soon to be released 10 year performance report of the pavement, CTS Cement representatives traveled to Rockford to see the results for themselves, and to meet with engineering manager Stanley Herrin, P.E. of CMT Engineering (Springfield, IL) and Professor Ernest J. Barenberg, P.E. who was a consultant on the pavement design..

What they found was impressive.

10 years ago, a taxiway was constructed using three different pavement designs: one conventional and two innovative. The innovative pavement sections were designed to determine if control joints could be reduced or even eliminated without sacrificing the performance of the pavement.

An inspection of the conventional pavement showed spalling at the joints on about 90% of the slab sections. Mr. Herrin estimated the pavement condition index (PCI) to be approximately 67 on a scale from 1 to 100.

The first innovative pavement section utilized Type K cement concrete and steel fibers to construct shrinkage-compensated slabs. Joint spacing in this section ranged from 80' to 200' long by 75' wide. Like the conventional section, many of the joints required maintenance and had begun to spall. However, because of the decreased

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Above: Left to right, Sean Smith (CMT Engineering), Dr. Ernest Barenberg, P.E. (University of Illinois), Ed Rice (CTS Cement), Stanley Herrin, P.E. (CMT Engineering), Kyle de Bruyn (CTS Cement) at the Greater Rockford Airport.



Left: The Greater Rockford Airport has seen significant growth over the past decade, extending runway length and adding a UPS regional sorting facility in 1994.

Below: A cost analysis of the different kinds of pavement at the Greater Rockford Airport.

Rockford Airport Pavement Cost Analysis

<i>Conventional Pavement</i>	<i>\$50.36 / yd²</i>
<i>Fibrous Sh.C.C.</i>	<i>\$50.72 / yd²</i>
<i>Post-Tensioned Fibrous Sh.C.C.</i> ...	<i>\$46.29 / yd²</i>

*Prices based on market conditions May, 2003.

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amount of joint length, much less time and money would need to be spent to repair the section. The PCI of this section was estimated to be about 92.

The second innovative pavement section also consisted of fibrous shrinkage-compensating concrete, but was also post tensioned along the total 1200' length. No joints were constructed in this section. Because of the elimination of control joints in this section, no maintenance was necessary for this section over the past 10 years. PCI was estimated to be about 98.

Not only did the post-tensioned section perform better over the last decade, but it also costs about 8% less per square yard to construct in today's market. This technique ends up costing less because the pavement thickness can be reduced from 15" for conventional concrete to 7" for this innovative design. Additionally, joints do not need to be constructed or cut into the concrete—also eliminating the need for joint sealer.

In 1994, United Parcel Service (UPS) chose the Greater Rockford Airport to set up a new regional sorting facility. The new facility was constructed adjacent to the innovative pavements.

By 1997, 23 UPS flights each day—and more during the holiday season—were coming into and out of the facility, travelling over the pavement sections. Aircraft included fully-loaded B-727, B-757, B-767 and DC-8 jets.

Herrin commented about the increased traffic, noting that it was quite fortunate. It helped to demonstrate that the innovative pavements could stand up to repeated real-world aircraft loading.

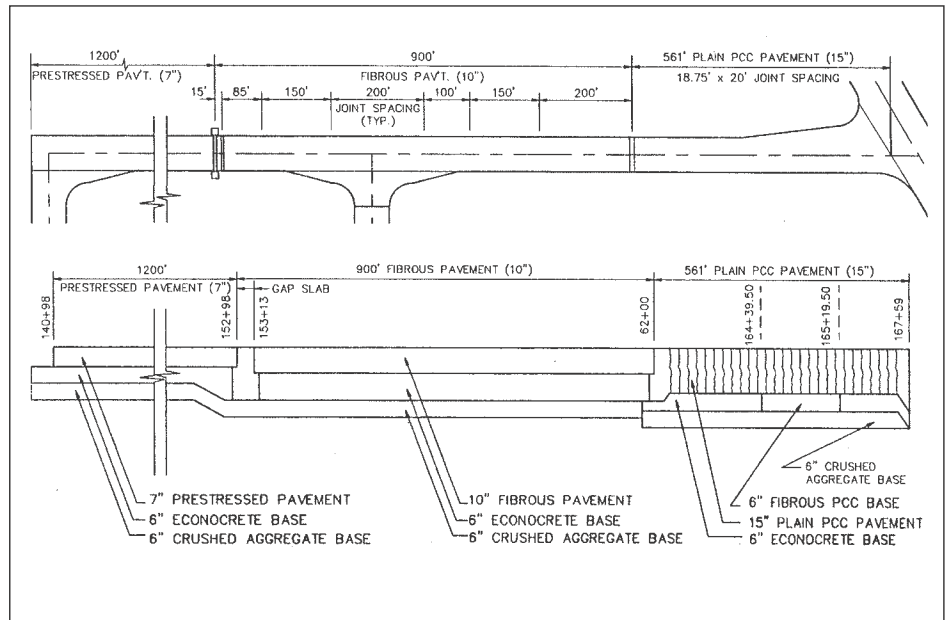
As the transportation industry begins to rebound from the lows of the past two years, expansion will be necessary to meet the increased demands

With construction budgets tighter than ever, many airport authorities are looking for ways to decrease construction and maintenance costs.

The study at the Greater Rockford Airport proves this can be done by using some innovative pavement designs.

Not only are construction costs reduced, but the pavement requires much less maintenance, and will likely last years—if not decades—longer than conventional pavement designs.

For more information on this project, please contact CTS Cement representative Kyle de Bruyn at (310) 266-4570. ••

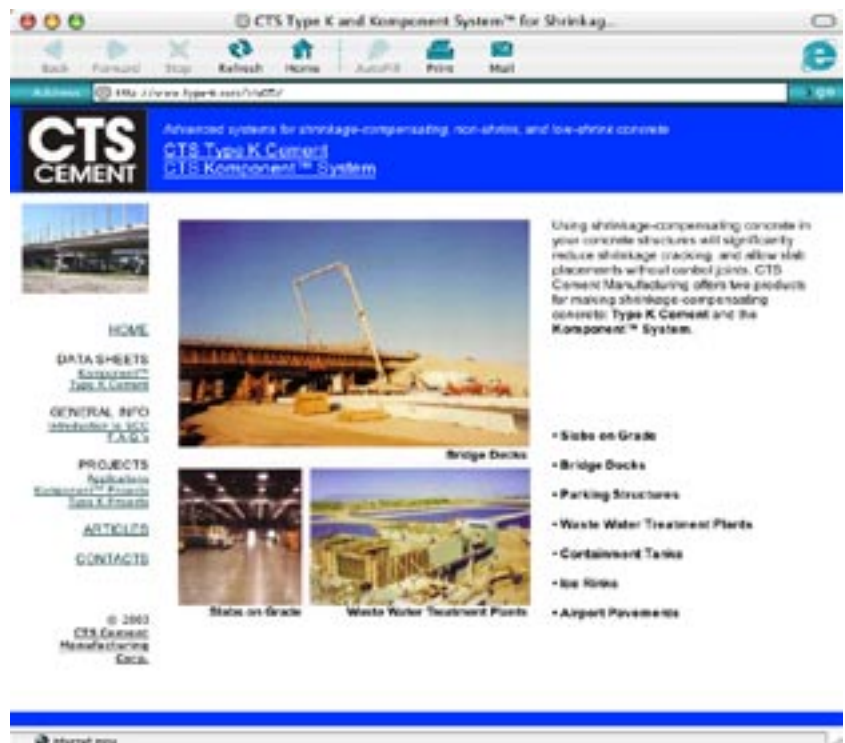


Engineers were able to construct the innovative pavement sections thinner than the conventional section without sacrificing performance. This, in addition to the elimination of joints, helped reduce the cost of these sections.

Type-K.com Website Now Online

CTS Cement Manufacturing is proud to present its latest online effort, Type-K.com. This website provides technical data, articles, sample projects, news and more related to shrinkage-compensating concrete. The website can be found on the internet at <http://www.Type-K.com/>.

Please contact CTS Cement representative Kyle de Bruyn at (310) 266-4570 for more information.



Menards Saves with Komponent, 4-inch Floors



The new Plainfield, Illinois Menards store is scheduled to open in September, 2003.

Ahren's Concrete placed the floor for this Menards store in Plainfield, IL. The floor was placed only 4" thick, reinforced with 4x4 W4.0/4.0 wire mesh. The entire floor consisted of only 5 slabs, each 25,000 to 30,000 square feet. No joints were sawcut into these slabs.

PLAINFIELD, IL—A new Menards hardware store is set to open in September, 2003, sporting a high performance 4" thick shrinkage-compensating concrete floor made with the Komponent™ System. This innovative floor design can be constructed at a cost competitive to a standard steel-reinforced 6" thick concrete floor.

In addition to being thinner than a standard reinforced concrete floor, the joint spacing is greatly increased. The entire floor consists of only 5 slabs, each ranging in size from 25,000 to 30,000 square feet.

Ahren's Concrete of Iowa City, IA per-

formed all of the concrete work on this project, and Ozinga Brothers supplied the ready-mix concrete.

Five other Menards stores have been constructed with this same floor design in Danville, IL; Effingham, IL; Bay City, MI; Winona, MN; and Columbus, IN. Ahren's Concrete was involved with all of those projects.

Future stores with the same innovative floor design are planned in the coming months in Omaha, NE; Lima, OH; and Ottumwa, IA.

For more information on these projects, contact CTS Cement representative Harry Moss at (610) 793-3423. ••

Crack-Free Ramp Improves Santa Barbara Co. Landfill



Workers with Tierra Contracting of Santa Barbara finish placing the Komponent™ concrete at the Foxen Canyon Landfill in Los Olivos, Ca. The ramp will be used for the loading of solid waste and recyclables on to trucks for transit.

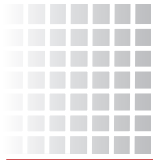
LOS OLIVOS, CA—As the Foxen Canyon Landfill began to reach its maximum capacity, The Santa Barbara County Department of Public Works needed to create a means for transferring waste and recyclables to alternate sites.

After attending an ACI seminar on slabs-on-grade, county civil engineer John Pet, P.E. decided to give shrinkage-compensating concrete a try in a new solid waste loading ramp.

By using the Komponent System™ and eliminating joints, the usual wear and spalling that occurs at joints and cracks will not materialize, and the ramp will be easier to keep clean, according to Mr. Pet.

One interesting feature of the dock is that it incorporates an 18-degree oblique radius approximately 2/3 of the way up the ramp. No joint was constructed at this radius.

Two months after project completion the slab was examined for cracks. None were found, even at the oblique radius. ••



ComponentTM System News

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The **Component System News** is published quarterly by CTS Cement Manufacturing. For questions or comments, please contact Kyle de Bruyn at (310) 266-4570, or email kdebruyn@ctscement.com. Visit CTS Cement on the web at <http://www.CTSCement.com> and <http://www.Type-K.com/>.

Recent Projects...

Some of the more notable CTS Type K and Komponent SystemTM projects from the last three months include...

Kroger Foods	<i>Chattanooga, TN</i>	Warehouse Floor
HEB Grocers	<i>San Antonio, TX</i>	Store Floor
Hershey Foods	<i>Pontoon Beach, IL</i>	Warehouse Loading Docks
Menards Inc.	<i>Lima, OH</i>	Store Floor
Michigan DOT	<i>Grand Rapids, MI</i>	M-6 Bridge Decks
Ohio Turnpike Commission	<i>Northern Ohio</i>	Bridge Decks

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