THE CONSTRUCTION RESOURCE

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The renovation and restoration of the historic Parliament Hill in Ottawa, Ontario, Canada

PHOTO: COURTESY OF RICHARD SECK, OJDROVIC ENGINEERING

Concrete Today I

Progressive Pours and Processes

A look at innovative mixtures, methods and mechanics of concrete solutions

By Vicki Speed

WHAT'S INSIDE

Crystalline Technology Protects Mexico City's Hydraulic Infrastructure

Xypex crystalline waterproofing protects a wastewater channel that runs along a new double tunnel underpass in Mexico City.

The recently completed Mixcoac-Insurgentes underpass interchange is the first double tunnel system constructed in Mexico City. It spans over 1.3 km, with one tunnel roadway over the other, creating some significant architectural and structural challenges, including the need to protect existing infrastructure.

Key in the development of the tunnel system was the protection of the three existing sewer collectors located adjacent to the interchange tunnels. To protect the hydraulic infrastructure, the engineering team installed concrete underground galleries around the sewer collector pipes and wastewater ducts.

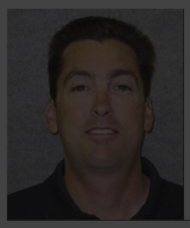
To ensure a waterproof hydraulic structure, the engineering team specified Xypex Crystalline Technology for the galleries. The technology was chosen because of its ability to protect against any dampness or leaks and its resistance to chemical attack.

Throughout construction, Xypex products allowed for a quick and easy waterproofing application as needed. For instance, during the tunnel construction, a segment of the wastewater pipes had to be replaced because of its location directly below an outgoing lower tunnel. The contractor applied 200 kg of Xypex Concentrate to the inner side of the wastewater channel and poured Xypex Admix C-2000 (dosed at 2%) as a cover slab of this channel as well as the deck of the upper tunnel.

Quoting architect Vladimir Sanchez, general supervisor of the project, "The use of Xypex technology by crystallization has been convenient and practical, even to solve unpredictable situations such as flooding by rain in some areas of the project."

The performance of Xypex satisfied not only for the project's engineers as well as the Mexico City Public Works Dept. ◆

PHOTO: COURTESY OF XYPEX



Industry-Wide Problems, Pocket-Sized Solutions

By **Jon Chastain**, Director, Preconstruction Services, Southern Region, Baker Concrete

No matter how far technology advances, the day-to-day work of concrete construction will always rely on 'back and muscle' to get the job done. But when it comes to improving how we operate, tech-driven innovations can make a positive impact on the bottom line.

The advent of smartphones has opened the door to solve some of our industry's perennial challenges: updating drawings, collecting time and tracking equipment, to name a few.

At Baker Concrete, we recently began testing a custom iPhone app to help us track and learn from rework. This particular challenge costs organizations such as Boeing, GM and Honeywell 3% of their annual revenue, according to the Construction Industry Institute. If we could reduce our need for rework, what kind of cost savings could result?

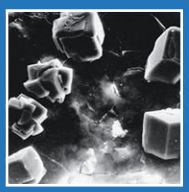
Using technology that's literally in our back pockets—the iPhone—Baker project leads can capture and report data via the app whenever they come across rework in the field. Typical issues might be related to weather, material defects, project management, reinforcing, etc. As reports start coming in, Baker's quality team can analyze the data for bigger-picture trends. Which types of rework occur most frequently, and which ones end up being the most costly? What lessons have we learned at one location that could be applied across all regions?

When problem areas become apparent, Baker's experts in the field help us develop best-practice procedures. Once approved, we publish and share those best practices for Baker crews to implement on projects.

The pilot has shown promise with hundreds of rework issues reported, tracked and analyzed so far. We plan to use this app and other tech solutions to continually improve and grow in 2018 and beyond. ◆

The World Standard in Concrete Waterproofing by Crystallization

NO EQUAL



Concrete (Untreated)

Xypex Crystallization (Initiated)

Xypex Crystallization (Mature)

XYPEX integral crystalline technology waterproofs concrete foundation structures as they're poured and cannot be damaged during installation or backfilling. Unlike membranes, Xypex is added to the concrete at the time of batching avoiding application errors. This sustainable technology also contributes to LEED credits. **When you select Xypex Crystalline Technology**, you've chosen the best… more than 40 years of independent testing, experience in over 90 countries, unmatched product and service standards … *and still no equal.*

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