



PROJECT PROFILE



POLISHABLE CONCRETE TOPPING HELPS RESTORE 1950s FLOOR

Project Type:

Flooring

Application:

Polished concrete overlay

Location:

Falls Church, VA

Project Dates:

September - October 2015

Project Owner:

The Home Depot

Contractors:

R.L. Spencer Inc., Structural Services Inc.,
QuestMark Flooring

Project Size:

30,800 sq. ft.

Products:

Rapid Set® TRU® PC, TXP™ Epoxy Primer

Home Depot needed a showroom floor in a short amount of time. This fast-track project used fast-setting products to transform an old, wavy concrete slab into high-sheen flooring.

The Home Depot in Falls Church, VA, is one of the home-improvement retailer's busiest stores, with an ever-growing number of contractors picking up large loads of building supplies. Yet, the facility also is smaller than the average Home Depot store. In recent years, the Falls Church store has resorted to displaying much of its seasonal merchandise—as well as storing additional inventory—in the parking area. For this reason, the retailer is increasing the store size by 34,000 feet. The expansion is expected to resolve operational and storage challenges as well as free up parking spots, all of which will enable the store to better meet customer needs.

As part of the project, The Home Depot purchased adjacent storefront retail space to expand into and serve as a showroom for large appliances. The retailer wanted a polished concrete look for the new showroom's floor, but it could not be easily achieved with the space's existing substrate—an approximately 60-year-old cast-in-place suspended concrete slab that was covered with cracks.

To restore the concrete floor without completely replacing it, the project team needed a high performance cementitious topping that could be easily polished to a high sheen.

PROJECT CHALLENGES

"This plaza was built during the 1950s and had multiple tenant build-outs, so the floor was in very rough shape," says John Altwater, vice president and Eastern group director with QuestMark Flooring, Canonsburg, PA. "Also, various mastics and flash patching were on the floor." Terrazzo, metallic terrazzo strips, soft underlayment, coatings, glue and other surface-applied materials had to be removed via mechanical abrasion prior to refurbishing the floor.

Another issue was that the floor was extremely wavy, but pre-leveling was a step to be avoided due to time and budget constraints. As the project's flooring contractor, QuestMark had to work within a two-week timeline to place and polish the 30,800-square-foot floor.

THE SOLUTION

Project Consultant Bob Harris, with Structural Services Inc., Dallas, TX, inspected the flooring and recommended using Rapid Set® TRU® PC Polished Concrete Topping by CTS Cement Manufacturing Corporation to produce a level, durable surface ideal for grinding and polishing. Harris, who is also president of the Decorative Concrete Institute, provided the specifications for how the material was to be used. He worked with QuestMark and CTS Cement to create the best possible product for the application type. The three also worked collaboratively to direct the placement and polishing of the newly poured overlay.

"It truly was a team effort," says Altwater.

Made with hydraulic cement, the high-performance architectural topping cures to a gray color with the appearance of concrete. It rapidly self-levels, has high bond strength, and produces a dense surface that is ready for grinding in 24 hours. This was an important factor due to the project's tight timeline.

But most important, says Altwater, "Without the TRU PC topping, achieving the look of polished concrete wouldn't have been a viable option in this space unless you completely replaced the concrete slab."

HOW TO CREATE A SHOWROOM FLOOR

Prime the Floor: QuestMark came onto the job after surface prep was completed. The crew first applied Rapid Set® TXP™ Epoxy Primer, which is also part of the fast-setting Rapid Set family of products. The low-VOC, two-component primer can be used to seal porous concrete, prevent pinholes, minimize cracking and provide excellent adhesion of the polished topping to the existing substrate. The crew applied the primer by squeegee and then back-rolled to achieve a uniform thickness of 12 mils (0.3 mm). When applied at 12 mils thickness, the primer's adhesion with Rapid Set® TRU® Self-Leveling Topping will remain unaffected by moisture vapor transmission and alkalinity up to pH of 14.

After 12 hours of curing, the floor was ready for the polishable topping.

Apply the Topping: Crew members mixed TRU PC in large, five-bag batches with hippo mixers. Because the mix is designed with a significant amount of large aggregate, it was important to use the recommended water dosage to keep the aggregate near the surface. Otherwise, more time would be spent during grinding to expose that aggregate. A representative from CTS Cement was onsite to perform flow testing on each batch, to confirm the proper water dosage was used.

"By keeping the aggregate near the top, they were able to minimize the grinding time needed to get a consistent aggregate exposure, plus keep the project moving at a fast pace," says Joe Zingale, the CTS Cement representative who performed flow testing.

Each batch was poured into a transfer cart and transported to the work area. Using transfer carts made it easy to pour the material over a large area, says Altwater. The topping was placed at half-inch, gauge raked and finished with a smoother trowel.

The floor was ready for polishing after 24 hours of curing.

Grind and Polish: The crew performed initial coarse grinding with 80-grit metal-bonded diamond abrasives to expose the aggregate and achieve a consistent look. They then moved to 150-grit metal before switching to 100-grit resin-bond diamonds for polishing. The crew continued with 200-, 400- and then 800-grit resins before moving to 1,500-grit for high sheen. Next, they burnished with a densifier and 3,000-grit pads to produce a strong surface with a glossy, mirror-like finish. The final step involved applying a stain guard to protect the floor and make it easier to maintain.

"I really liked the products we used, and the project turned out spectacular!" Altwater says. "All parties worked to ensure a successful installation—from the consultants to the construction management team's pre-job planning and analysis to our installation crew. Plus, Bob Harris and Joe Zingale's extensive experience in the industry was critical to the overall success of this complex project. The end result was an excellent floor for Home Depot."

