

STONHARD Solutions

Epoxy Membrane System Reinforces Substrate and Isolates Cracks

Shibley Company, Inc. is a manufacturer of specialty chemicals for plating on plastics. Their facility is located in Marlborough, Massachusetts. In the early nineteen eighties, Shibley renovated their plant and had a concrete slab poured. The slab, over the years, slowly corroded, leaving Shibley with a badly deteriorated concrete floor. Actual chunks of concrete had come loose and there were large spider cracks throughout the floor.

An outside study concluded that the concrete had too high of a calcium content and was the result of a winter pour. Shibley felt they had two options; one was to replace the entire slab, which would entail removing and replacing the existing concrete as well as re-installing piping and electrical wiring that lay beneath the slab. The other option was to repair the damaged concrete and find a durable, long-lasting overlayment. Either way, it was critical that Shibley make a quick decision because the chemicals stored in the area were acids and caustics. If these materials leaked, even slightly, they could seep through the cracks and contaminate the ground.

Estimates given on replacing the concrete were three to four times more than installing an overlayment system. Shibley was also concerned with having to shut down the facility to have the concrete poured and cured. Epoxy systems, due to their strength, wearability and quick cure times, offered Shibley a viable solution. However, the cracks still presented a problem. Due to their size they would have to be specially treated if the overlayment were to be successful.

In 1991, Stonhard, a leading manufacturer and installer of polymer floors, walls and linings, installed a 1/4 in. epoxy overlayment system in a 10 x 20 square foot test area. Included in the system was a reinforced membrane, Stonproof RH5. The RH5 incorporates



Fiberglass engineering fabric is used in conjunction with epoxy membrane to isolate cracks in substrate.

a fiberglass engineering fabric with an epoxy membrane material to reinforce the area and isolate the cracks in the original substrate. The results of the test area prompted Shibley to complete the entire 11,000 square foot area with Stonhard's products.

Stonhard's installation team installed the system during a shut-down period. John Davoren, Facilities Manager for Shibley explains, "The installation caused us no loss in production time because Stonhard was able to install it during our shut-down period. This was a tremendous convenience."

The substrate was prepared using a shotblast machine, which exposes the surface and leaves a smooth, dry and sound substrate for the application of the overlayment. Smaller cracks were routed and packed with an epoxy grout, Stonset TG5. The larger cracks were treated using the same RH5 crack treatment used in the test area.

Next, Stonclad PT, a three-component, troweled mortar consisting of epoxy resin, curing agent and selected aggregates was installed. A primer coat was roller applied and then the mortar was applied by hand trowel and power trowel. The power trowel is ideal for large open areas and reduces installation time.

Once cured, the entire surface was coated with a 100% solids epoxy coating, Stonkote GS4. Stonkote GS4 increases the chemical and abrasion resistance of the system. Additionally, a specially textured aggregate was added to the coating for increased slip resistance. Slip resistance and safety are priorities for Shibley.

Shibley now has an attractive floor surface providing durability, chemical, abrasion and impact resistance, as well as slip resistance. The problem of ground contamination is eliminated and daily plant wear and tear no longer presents a problem. The floor has been in place since July 1992.

The Stonhard Difference

Stonhard is a world-leading manufacturer and installer of high-performance polymer floor, wall and lining systems designed for tough commercial and industrial environments requiring protection against corrosion, impact, abrasion and continuous daily wear. We deliver long-lasting, high-performance systems for tough environments. We offer customized solutions to satisfy the most demanding design specifications and work with you directly from start to finish. You are protected with a single source warranty on both products and workmanship. Known around the world for excellence, the Stonhard name means quality products and unmatched service.

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For more information on Stonhard's high-performance polymer floor, wall and lining systems, visit us at www.stonhard.com or call toll free at 800/257-7953.

