

STONHARD Solutions

Slip-resistant epoxy flooring aids employee safety

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Editor-East

At a Southern textile mill, the existing epoxy flooring in the 7,200 square foot dyehouse where fabrics are tinted had worn out because of age, chemical attack and forklift traffic. The flooring and grout bed had become extremely deteriorated and was badly in need of repitching and resurfacing. This problem needed to be corrected in order to provide proper drainage and a safe working environment for employees in the dyehouse.

Solution

Competitive bidding was limited to pre-qualified flooring product manufacturers. Final selection included cost comparison and installation completion period. Since the company could not afford any additional downtime in the critical dyehouse operation, the shortest installation time was given special consideration.

The first step in the process was to remove the more than 7,200 square feet of old epoxy floor using jackhammers and a shot blasting machine. After this was completed, the area had to be repitched to the 22 floor drains. Using surveyor's equipment, a grid was laid out and proper elevations were determined that would allow positive flow of any surface liquids to the drains. Next, a penetrating primer was applied to maximize bonding, followed by a fast-setting epoxy grouting material. The grout not only filled in areas of the badly deteriorated concrete, but was also utilized to create the better than 1/4" per foot slope that was needed.

The grout was supplied in pre-measured batches for easy mixing and handling at the job site.

The three-component grout was mixed with a power blender to ensure a uniform, smooth mortar.

The grout was finished to a tightly closed surface profile. Then, a two-component epoxy primer was applied over the grout to ensure a secure bond between the grout and the floor overlayment.

The three-component epoxy overlayment was a troweled mortar consisting of epoxy resin, curing agent and selected, graded aggregates blended with inorganic pigments. It was applied at a nominal 1/4" thickness with a power trowel, which greatly reduced the time needed for installation.

After curing, a light grinding step was performed to obtain an extremely flat, uniform surface as workers prepared the floor for the finish coatings.

The first coating, a thixotropic, two-component epoxy material, was squeegeed onto the floor. This eliminated any small surface voids, providing a smooth surface for the finish coat. Since the plant was concerned with employee safety, the company specified a slip-resistant surface. To achieve this, a silica aggregate was scattered in this first coat of sealer.

This finish coating, formulated from a solid epoxy resin and a polyamide curing agent, was roller-applied over the base coating and allowed to cure. This produced not only a slip-resistant surface but provided cleanability and even greater chemical and abrasion resistance.

In eight hours, the new floor was able to withstand foot traffic, and in 24 hours it could handle moderate wheeled loads.

The entire 7,200 square foot dyehouse floor was repitched and resurfaced in just one week.

Results

The textile mill is pleased with the results. The speed with which the project was completed kept production downtime to a minimum. Also, the slip-resistant surface will help the plant maintain its good safety record.

Since the initial installation, another 5,500 square feet of traffic aisle adjacent to the dyehouse floor was installed with a similar system in three days.

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