

Holy Cow! New Floor for Milk Parlor

By Stephanie Marie Chizik

Photos courtesy of Mountain Liner, LLC.

About 4,000 head of cattle got a mini vacation from work at an Indiana milk parlor this past June. Over the course of eight hours, a four-person coatings crew over-coated the parlor's epoxy-covered concrete floor with polyurea. The approximately 300-square-foot (28 m²) parlor, which is where the farm milks the cows, was extremely damp and had several potholes throughout. The roughly quarter-inch (6 mm) trowelled-on epoxy floors were failing, and the owners needed a quick solution.



Although the old floor was fairly clean, the mild acid and hot water — both byproducts of the milking process — are natures of this beast. A dairy farm having trouble in the milking room? Well, that's just like a cow on roller skates! Luckily, the coatings crew from Mountain Liner offered not only an experienced team, but they also presented a viable solution and a time schedule that would work.

Chemical Solution

At this dairy farm, after the cows are milked in the parlor room, the raw milk goes into storage tanks in the milk house, and then it flows into semi-trailers to be taken outside for step processing. However, for this coatings job, the crew was only worried about the first step in the milking process.

Since the failures from the previous floor started occurring around the discharge areas in the milking/tank-filling process, the crew wanted to focus on finding a solution for that area. What they landed on was a polyurea product that could be applied over the old floor and would be water- and chemical-resistant.

Polyurea Prep

To start, the crew used PlazMask plastic to cover all of the stainless steel tanks and pipes that lined the perimeter of the room. Unfortunately, laying the plastic under the tanks and wrapping the pipes proved a bit of a challenge. "The tanks were only about 12 to 15 inches [31–38 cm] off the ground," explained Darrell Vinson, owner of Mountain Liner. "And some of the piping was only about two inches [5 cm] off the ground." That made for very close (hind) quarters.

Once everything was protected, the crew brought any worn, potholed, and holey areas up to the level of the rest of the floor. In those areas, they used Specialty Product, Inc.'s (SPI) EPL-9, self-leveling polyurea elastomer, to help prepare the substrate for the topcoat. After all, a divot in the substrate would have created a divot in the finished floor!

Around the drains in particular, the crew used EPL-9 to create a pitch "to keep the milk from ponding and generating bacteria," explained Vinson. This was especially important since the parlor floor had no concave areas. Finally, they cleaned up around the drains, put wire trim around the edge of the floor where they wanted it to finish, and wiped everything down.

The crew used four fans with high cubic feet per minute to expedite the drying of the prep wipe. This helped to "get the air moving in there and dry the floor out," said Vinson. Once everything was dry, they wiped the area once more and waited 30 minutes before moo-ving on.

Fresh New Coat

Working around a dairy farm might seem like an unusual scene for a coatings project, but for this professional crew, it was just another day on the job. As long as they didn't come into contact with the milk, there were no extra restrictions for working on this particular parlor floor. "Everything is a pressurized system with them," explained Vinson of this dairy farm. This meant that the freshly milked "juice" wasn't in any danger of being in open containers that could become contaminated from the coatings. With the milk contained, the only thing left to coordinate was the new floor itself.

Wielding a Graco Reactor EXP2, the crew applied a single coat of SPI's Polysshield HT-100F UB to the floor, a polyurea able to withstand the sanitation and pasteurization chemicals used in the parlor. To create a monolithic membrane, the crew spray-applied the polyurea to all of the floor surfaces. In some areas, this required a minimum of 80 mils (2,032 microns), while in other areas, such as around the holes to the drains, this required the crew to lay it on a bit thicker, closer to 100 mils (2,540 microns).

The crew used two different types of spray guns on this particular job: the Graco Fusion AP, which they used for the more open areas, and the Pentech Palm Gun, which they used on detail areas, under the stainless tanks, and around the stainless low-profile piping.

Wearing full Tyvek suits and full face masks with organic chemical cartridges by 3M, the crew sprayed the 80-mil (2,032 microns) areas in a north/south/east/west pattern. "For the non-slip surfaces, we put two base passes down, fogged the area once, then fogged it again while dispersing silica sand into the fog texture," Vinson explained. After five minutes, the crew pulled the wire trim from the edge of the floor. After about 20 minutes, the floor was ready to be walked on. Once all plastic and masking were removed, the Mountain Liner crew was ready to hit the hay.

Parlor Payoff

The meat of this job — covering the substrate, laying the wire, and applying the topcoat — took the crew about four hours to complete. Because the milking process is continuous, the crew only had five hours between milkings to get the polyurea laid. Therefore, the fact that they were able to save at least four hours by avoiding profiling and priming during the prep step paid off. And having the owners be "extremely happy with the results," as Vinson said, was a payoff as well.

If the success of this job is any indication, this coatings crew will be working on polyurea floor jobs until the cows come home!

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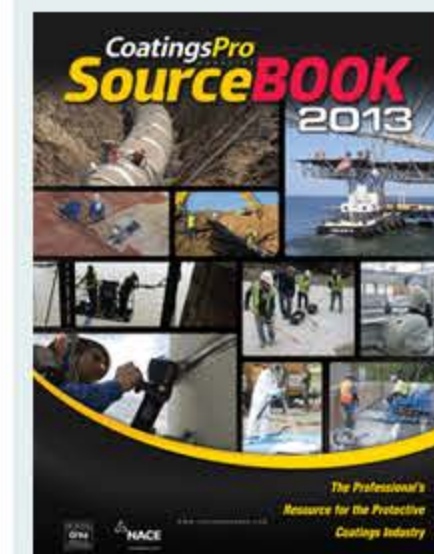
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