FORM & FUNC

DURABLE FLOOR SYSTEM, TURBINE REPAINT HELP UPDATE POWER PLANT

For as hard as a hydroelectric plant works, heavy-duty coating and flooring systems capable of withstanding significant repeated physical stresses are mandatory. But many of its industrial coatings needs can be aesthetic in nature.

Such was the case in southeastern Ohio recently, where a power plant's five electricity-generating turbines underwent a repaint. The steel turbines typically face little in the way of environmental threats — outside of the heat they generate — to coating integrity. Rather, management decided that the 50-year-old plant's turbines, which are often the star attraction for tour groups consisting of guests ranging from company stockholders to area school children, simply could use some freshening up.

That said, high operating temperatures of the turbines and a very tight shutdown schedule would challenge the contractor teams hired to perform the job.

Applying a flooring system to the concrete floor surrounding the turbines was another matter entirely. The turbines vibrate to such a degree that they are corralled by an inch-wide floor isolation joint surrounding each unit. The joint provides a gap and a layer of insulation intended to contain the unit's vibration to the floor inside the joint, thereby sparing the floor outside the joint from such stresses.

Nonetheless, the floor outside the joint was in a state of disrepair when teams from Gheen's Painting, Inc. of Racine, Ohio, and floor-prep subcontractor ICC Safety Surfaces Inc, of Columbus, Ohio, arrived on the scene last December. The contractors were determined to get both the turbine repaint and the floor replacement — using an advanced Mechanical Equipment Room (MER) system from Sherwin-Williams — finished with as minimal impact as possible on the plant's operations.

At A Glance

Contractors worked around outages to complete a repaint on five electricity-generating turbines using Sherwin-Williams Industrial Alkyd Enamel

They used an advanced Sherwin-Williams Epo-Flex Mechanical Equipment Room system on floors in the plant

Two systems

Gheen's Painting has specialized in a range of industrial painting since 1973 and turned about $3 million in 2005 revenues, according to Manny Gheen, the company's president. ICC is a flooring specialty firm led by Chris Duger, who has performed some shot blasting and floor preparation work for Gheen in the past.

Gheen partnered with Sherwin-Williams personnel to propose two specifications to plant management for the work to be done. For the turbines, a primary factor dictated the coating choice once the original lead-based coating was removed by orbital sanders fitted with vacuum

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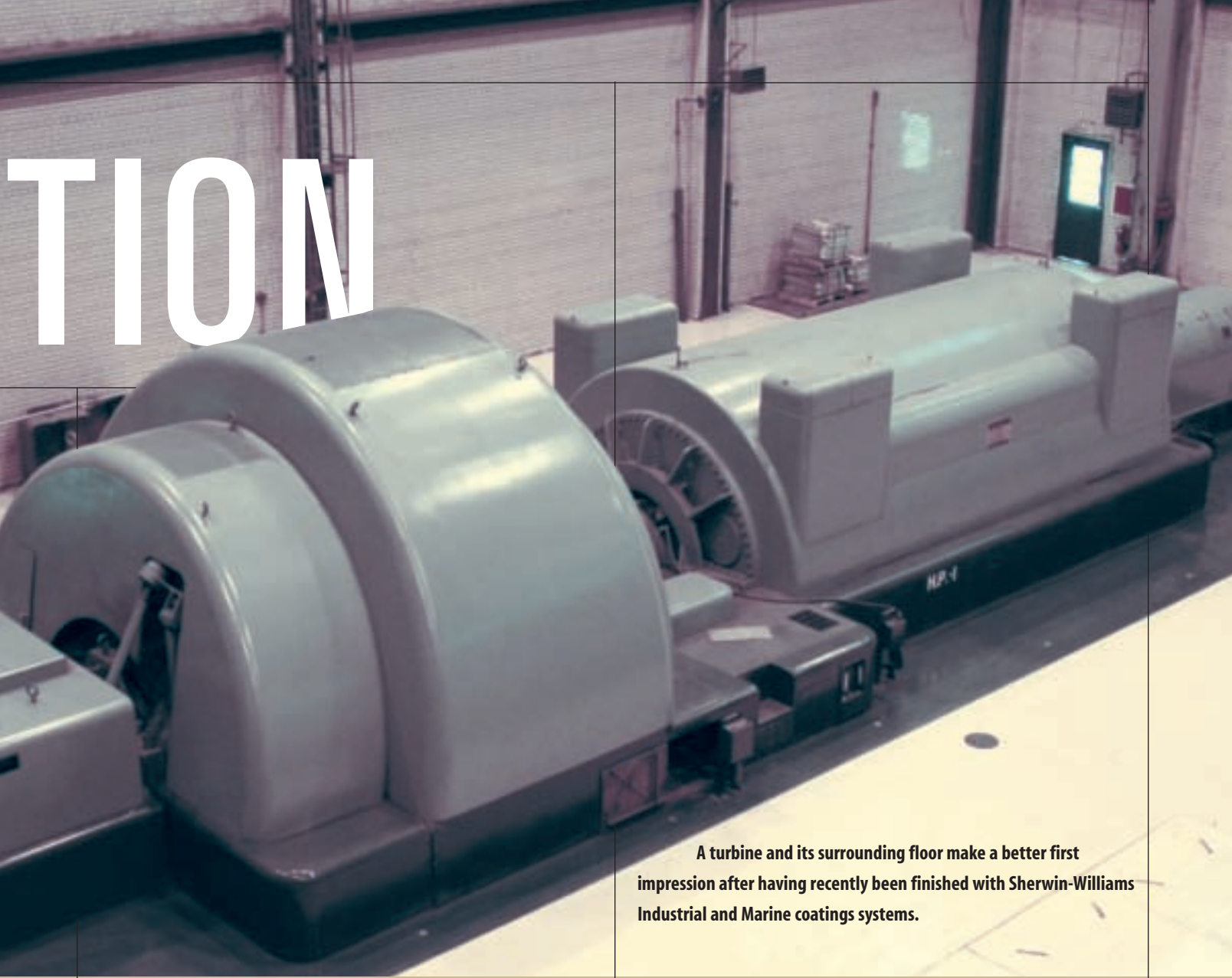

A turbine and its surrounding floor make a better first impression after having recently been finished with Sherwin-Williams Industrial and Marine coatings systems.

heads. The system would have to cure properly at surface temperatures up to 220 degrees F.

In best-case scenarios, all sanding, prep operations and coating would take place in 16-day maintenance "outages" the plant had scheduled for each of the turbines. But Gheen has been around long enough to know that a lot of industrial painting doesn't always offer best-case application conditions, and plans frequently change. So he called for a standard automotive body filler where necessary to smooth surfaces, then one brushed-and-rolled coat of Sherwin-Williams KemBond Automotive primer, followed by two brushed-and-rolled coats of Sherwin-Williams Industrial Alkyd Enamel.

"The Alkyd worked well because it gave us that flexibility in case we had to paint while the turbines were operating," says Anthony Bradford, the on-site project manager and brother-in-law of Gheen. "In those cases, the heat would cause it to dry quickly, but there would be no effect on the finish quality."

Floor followed

Closely following on the heels of the eight to 12 applicators working on the turbines was the ICC floor-prep team, usually consisting of five workers. But it took some experimentation before it was determined exactly what floor system would ultimately be applied.

Management was particularly concerned about the stresses the concrete floor faced on the corners of the isolation joints. In an early trial with an epoxy flooring system, the cracks on the corners transferred through the new floor into the concrete in a matter of days. This convinced Sherwin-Williams personnel and counterparts from their General Polymers floor system brand to step up the level of crack suppression and recommend an Epo-Flex MER (Mechanical Equipment Room) I system. The system provides a high level of flexibility and durability, is low in odor and has zero VOCs — an important consideration given that plant workers were still at work during the turbine

Anthony Bradford of Gheen's Painting (left) and Chris Duger of ICC Safety Surfaces (right) captained the coatings project at the hydroelectric plant.

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outages used for floor and coating work.

Once determination was made on the system that Gheen's workers would apply, ICC crews followed the turbine painters upon completion of their tasks, addressing the existing floor in 10,000-square-foot sections — roughly the area that surrounds a single turbine. Vinyl tile had once covered the floor, but it was damaged in some areas and gone in others, where it left loose, crumbling concrete and lengthy cracks. As a result, floor preparation would be critical. Shot-blasting was only part of the job, as workers also were required to saw-cut and "chase" all the existing cracks, before a fiberglass matting and a hand-troweled spot treatment of Epo-Flex HD Epoxy could be applied to bridge the crack sites.

Then followed a coat of Epo-Flex HD Epoxy, light sanding upon cure, followed by a second coat of Epo-Flex to finish the area surrounding a given turbine, usually within about seven days of beginning the floor prep.

After early consideration of an anti-skid finish, management opted for a smoother finish with the system by reducing the amount of silica additive in the topcoat, expecting easier clean-up of the smoother floor without compromising safety. The versatile Epo-Flex system also allowed flooring crews to address other safety issues, such as raising floor levels surrounding the isolation joints by as much as 1/4-inch to eliminate potential trip hazards.

Customer benefit

Scheduling was not as seamless as the contractors may have liked, according to Gheen, but the customer was never inconvenienced.

"As soon as we got an outage, we'd get on a turbine," says Bradford. "And the floor guys would follow the turbine painters. The floor guys really got it the worst as far as working around everybody's schedule. Plus, you get floor temps up to 180 degrees, which reduced the pot life of the floor material, but they got it done. It was really a very coordinated, joint effort with all the parties involved, including plant management and our supplier."

As a result, the plant now has a turbine room that produces an enormous amount of electric power — and does so in an area in which you can see your reflection in the floor.

"That's an area they wanted to see in showroom condition," says Bradford of the turbine rooms. "To use plant management's words, they were 'extremely pleased' with the way it turned out."