

*Cast-iron decorative cornice elements of the historic Marion County Courthouse, Fairmont, WV, are being returned to their original appearance with a comprehensive repair, paint-removal, and repainting program. The work is part of an extensive restoration campaign for the century-old building.*  
Photo by David Kemnitzer.

By Joe Maty, JAC Editor

**T**he job of removing multiple layers of coatings, including decades-old lead-based paint, presents one of many challenges to an extensive, ongoing renovation program for the century-old Marion County Courthouse in Fairmont, WV.

The courthouse, built in 1901 and designed by the prolific regional architects Yost and Packard of Columbus, OH, is described as a French Second Empire style building that features Beaux-Arts ornamental influences and classical elements in the form of Corinthian columns and a massive portico. When the Marion County Commissioners—the stewards of the building restoration program—turned their attention to the decorative cornices and balustrades surrounding the building's front tympanium, the job of paint removal and recoating moved to front and center.

Working under the direction of project architect David A. Kemnitzer, the painting subcontractor Lepi Enterprises Inc., Zanesville, OH, employed an abrasive blast method known as the Sponge-Jet process, a low-dust, dry system developed by Sponge-Jet Inc., Portsmouth, NH.

Lepi Enterprises' task began with removing accumulated paint layers of up to ¼ inch in thickness from the cast-iron architectural trim, balustrades, and cornices, with the specifications calling for a surface condition of near-white metal. The abrasive used was Sponge-Jet's Silver 80 Sponge Media, a composite of urethane sponge material and 80-grit aluminum oxide abrasive. The media is described as "fast cutting and aggressive," is recommended for demanding coating-removal projects, and is capable of producing a 2-mil-plus profile on steel. The material's low rebound allows blasting in close proximity to operating machinery, according to Sponge-Jet Inc.

The restoration project for the courthouse is a long-term endeavor, with work to proceed as funding allows. After removal of paint from the cast-iron elements, the surfaces are being repainted using



## Having a blast, gently

*Paint removal with composite sponge media lends power, precision to restoration program for exterior of historic West Virginia courthouse*

a high-performance epoxy primer and acrylic topcoat system supplied by PPG Industries Inc.

### Myriad challenges

Kemnitzer, of Washington, DC-based Powe Jones Architects PC, says the Sponge-Jet process addressed several key parameters of the project, including the capability to effectively remove the existing, multiple layers of old paint; the safe containment and removal of hazardous material in the form of lead-based paint; recycling of the abrasive media; and assurance that damage to the cast-iron substrate would be minimized. Kemnitzer says he

had been made aware of the composite sponge paint-removal process while visiting an industry trade show.

The architects issued detailed specifications for all facets of the paint-removal and paint-application methods and materials. The coatings specified were PPG's high-performance Pitt-Guard® Direct-to-Rust Epoxy Mastic primer and Manor Hall® TIMELESS™ exterior flat acrylic latex topcoat.

The two-component, solventborne primer is formulated for applications where barrier-type protection is required for ferrous-metal and other metallic substrates, and for application to surfaces where tightly adhered rust is present. A high level of performance is achieved in applications to abrasive-blasted surfaces, according to

product literature from PPG.

The topcoat is described as a "super-premium" waterborne exterior paint based on 100% acrylic, crosslinking resin technology. The coating offers high film build, crack bridging, low-temperature application, and strong algae and mildew resistance, according to company literature.

Kemnitzer says the original paint color of the cast-iron trim was a close match to the the courthouse façade's Ohio brown sandstone, although over time the painted metal had faded to near white, "which was not in keeping with the original appearance of the building." Kemnitzer adds: "I convinced the client that we needed to return the building to the original colors. I think we were very successful."

The project specifications spelled out highly detailed instructions on substrate preparation and paint application, reflecting the long



*Following removal of paint from the cast-iron elements by means of a composite-sponge blast technique, the surfaces are being repainted using a high-performance epoxy primer and acrylic topcoat system.*

*Photo courtesy of Sponge-Jet Inc.*

view championed by the program's managers. "We wanted to make sure the finish remained serviceable for a very long time," Kemnitzer says. Lepi Enterprises was required to submit four 12-inch-square samples of the proposed color applied to hardboard, followed by application to a 4-foot-long section of cast-iron trim for final approval.

The architects also required testing of the Sponge-Jet surface-preparation

process on a 20-linear-foot section of cast-iron trim to ensure attainment of the specified level of surface cleanliness and profile. Areas of metal decay or heavy pitting were repaired with a metal-patching compound consisting of a two-part polyester resin.

### The sponge technology

Sponge-Jet Inc. says its abrasive paint-removal process was developed in the late 1980s in response to expanding environmental,

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health, and safety requirements affecting workplace practices and waste generation/minimization. The process is described as "low dust" and "low rebound," employing reusable abrasive media. The sponge media are a composite of conventional abrasives, in various grit sizes as needed, and a sponge-like urethane polymer, with the composite produced in particle sizes ranging from 3.2 millimeter to 6.5 mm. The composite is designed to capture and contain dust at the point source of emission, and is tailored to produce a surface profile ranging from up to 4 mils to as low as zero, or simple cleaning.

Typical abrasives engineered into the sponge media include aluminum oxide, metal grit, calcium carbonate, melamine, plastic urea, glass bead, and staurolite. The urethane-sponge component of the media supplies the dust-suppression and rebound-reduction properties of the process, the company says.

In operation, the composite sponge media is propelled from a specially designed "blast pot"—the proprietary Sponge-Jet Feed Unit™—with the media amount and velocity tightly controlled to obtain the specified paint-removal and surface-profile results. The blast system also includes the Sponge-Jet Recycler™, which separates reusable blast media for reuse while diverting debris for collection and disposal. An air-filtration device employing a negative-air function is employed to maintain high levels of visibility and to restrict exposure to lead or other hazardous materials in containment areas during blasting.

Tony Anni, Sponge-Jet marketing manager, says the sponge material adds pliancy to cushion ricochet velocity, while the sponge porosity acts like a vacuum, trapping dust that would normally become airborne. These characteristics contribute to enhanced visibility for the operator and containment of debris. The process is well suited for situations where dust control and containment are key considerations, Anni says.

The process can be used on various sub-

strates, including cast iron, metal alloys, masonry, brick, concrete in certain cases, and some hardwoods.

The Marion County project is part of a multiyear, \$20 million restoration program for the courthouse. The results are getting strong reviews, with the credit going to gen-

eral contractor G.A. Brown & Son, painting contractor Lepi Enterprises, and the composite-sponge technology.

"It's turned out very well, or should I say exceptional," says Richard Walton, the Marion County planning and development director.

**JAC**

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