

Chrome & Steel

BY DALE WILLIAMS



Photos: © Paul Warchol

Harley-Davidson puts its history—and plenty of galvanized steel—on display in its new museum.



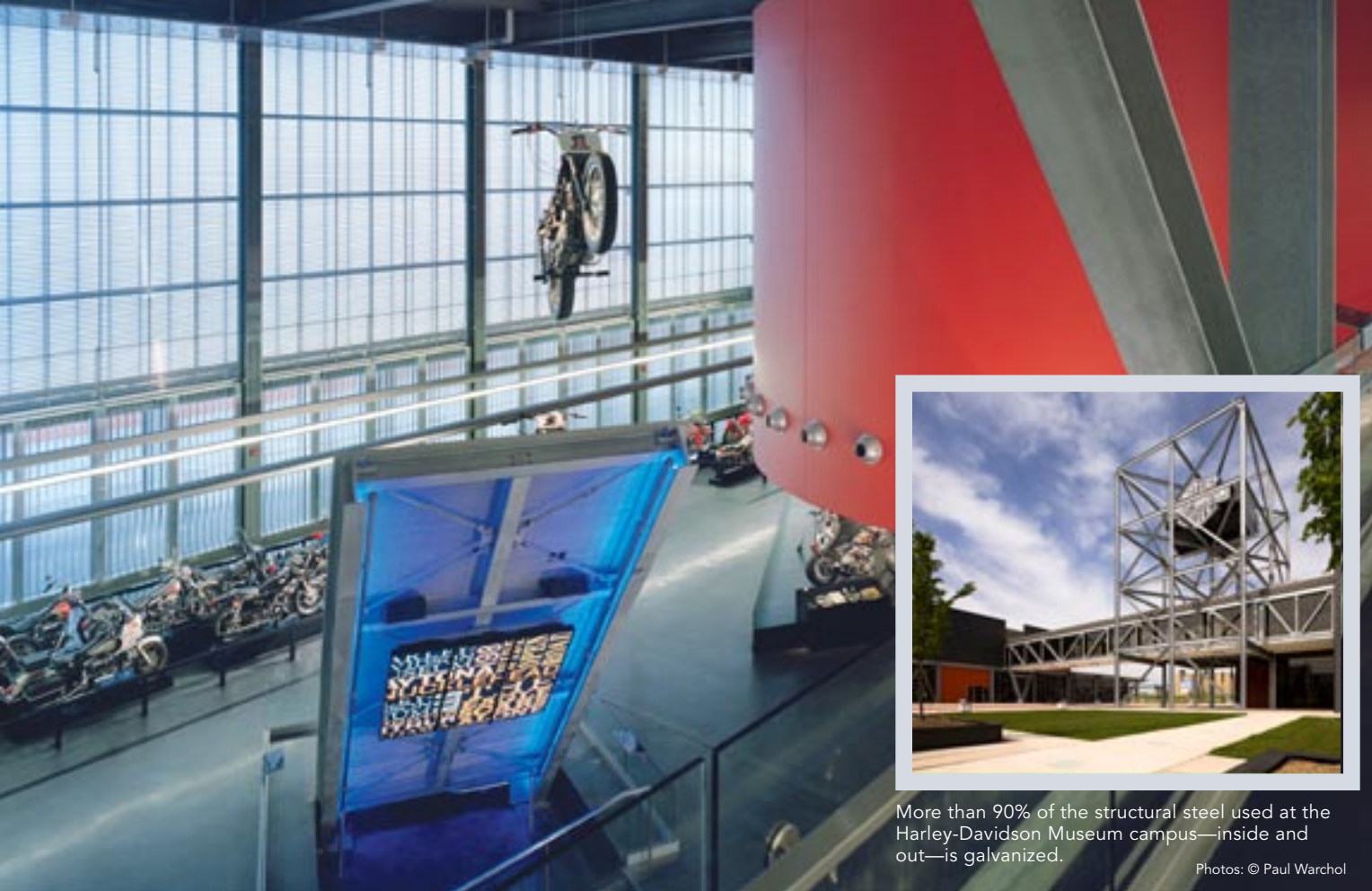
LISTEN CAREFULLY ON ANY GIVEN WEEKEND when the weather's nice and you're likely to hear the rumble of a Harley-Davidson. The Harley name has become a symbol of strength, freedom, and durability—and perhaps most of all, an American icon.

What better tribute to one of America's most recognized symbols than a museum designed to honor the company's 105 years in business. Designed by Pentagram Architects, the \$75 million, 130,000-sq.-ft Harley-Davidson Museum campus, which opened last year, showcases the people, products, culture, and history of the company.

The new facility sits on a 20-acre reclaimed industrial site directly across the Menomonee River from downtown Milwaukee and has been conceived as an urban factory ready-made for spontaneous motorcycle rallies. The three buildings include space for the museum, company archives, a restaurant/café, a retail shop, temporary exhibits, and special event space. On the exterior are open plazas and generous amounts of outdoor space along the river. The museum's indoor and outdoor components were inspired by the spirit of Harley rallies in towns like Sturgis, S.D. and Laconia, N.H., where thousands of riders congregate every year.

Showcasing the Metal

The museum features an exposed steel frame, and the designers chose hot-dip galvanizing as the coating type, as it ensures the durability, long life, and quality that Harley-Davidson is known for. The steel was galvanized by AZZ Galvanizing Services in Joliet, Ill.—one of the company's 20 locations—using its GalvXtra process, where nickel is added to the zinc bath to provide a more uniform coating. The Fort Worth, Texas-based galvanizer, a division of AZZ, incorporated., is the largest in America.



More than 90% of the structural steel used at the Harley-Davidson Museum campus—inside and out—is galvanized.

Photos: © Paul Warchol

The industrial quality of galvanizing is not added on but literally becomes part of the support and long life of the structure. When it came to the façade of the buildings, the designers turned to the motorcycles themselves for inspiration and developed an exoskeleton of exposed supports in a frame of galvanized steel. Like Harley-Davidson bikes, where the glistening chrome draws the eye, the steel is not concealed behind plastic or metal but is put on display for all to see. Pentagram was able to capture the maximum potential offered by galvanizing, using the changing zinc patina to aesthetically represent the long life of the coating—and again, of Harley-Davidson itself.

The site design required interior connections between the various buildings, so glass-enclosed bridges were used, maintaining the factory aesthetic. Like the buildings, the bridges reveal their structure on the outside, holding the glass to the interior. Both the inside and outside of the structure are simple and bold, using wide-flange beams and columns, exposed gusset plates, and cross-bracing to stiffen the frame. The project incorporates a total of 2.5 million lb of structural steel, 2.3 million lb of which is galvanized. The galvanized steel is not the typical painted finish, but rather an honest, hardy expression of the industrial process.

Cost Factors

While the initial cost of the project was important, the designers took the life-cycle cost of galvanizing into consideration as well. According to a study from KTA-Tator, Inc. (an engineering firm specializing in coating consulting) recently published in NACE Paper #06318, *Expected Service Life and Cost Considerations for Maintenance and New Construction Protective Coating Work*, the initial cost of galvanizing the steel was competitive with paint systems, and

the life-cycle cost associated with a 50-year project life is substantially less with galvanizing vs. paint. In addition, using hot-dip galvanizing as the corrosion protection system means there will be little, if any, maintenance for several years, thus avoiding future maintenance costs.

Speaking of the future, perhaps one of the best words to describe Harley-Davidson is “enduring.” It applies to the company’s brand, its bikes, and its existence. The new Harley-Davidson Museum pays homage to all of these, and thanks to its zinc-coated, exposed steel structure, is yet another of the company’s holdings that can be classified as enduring.

MSC

Dale Williams is AZZ’s marketing manager. James Biber, FAlA, was Pentagram Architects’ partner in charge for the Harley-Davidson Museum project and contributed to this article.

Architect

Pentagram Architects, New York

Structural Engineer

HGA Architects and Engineers, Milwaukee

Steel Fabricator and Detailer

Merrill Iron and Steel, Schofield, Wisc. (AISC Member)

Steel Erector

Area Erectors, Inc., Rockford, Ill. (TAUC Member)

Steel Galvanizer

AZZ Galvanizing Services, a division of AZZ, incorporated., Fort Worth, Texas (AISC Member)

General Contractor

Mortenson Construction, Milwaukee