

What's COOL in STEEL

MSC's editorial staff highlights some of the coolest stuff in the steel industry.



COOL ART

Steel Sculpture at the St. Louis Zoo

A 107-ton steel sculpture, installed May 2006, is the new centerpiece of an outdoor plaza and pedestrian crossing at the St. Louis Zoo. "Animals Always" was designed and fabricated by the sculptor Albert Paley and is constructed of A588 weathering steel plate (or Cor-Ten, in popular parlance).

At approximately 130 ft. long, 40 ft. tall, and 15 ft. deep, the work is now one of the largest public zoo sculptures in the world.

"Animals Always" depicts a water scene, a jungle scene, and a savannah scene. Sixty animals, mostly endangered species, are represented throughout the piece, which is



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Paley's first entirely representational work.

"For a zoo, the animals have to be realistic," Paley says. "If you look at a giraffe, you have to know it's a giraffe. That being said, [the animals] are also all extremely stylized, and each one relates to the other."

Thousands of components were fabricated and welded together to create the sculpture's animals and plants. "It was incredibly complex," Paley says. "There were literally thousands of parts that had to be laser-cut, formed, and fabricated. Logistically, it was very demanding and extremely complex."

The sculpture began as a series of drawings that were converted to AutoCAD files. From there, components were laser-cut from patterns on a CNC plasma cutting machine, hydraulically formed or heat bent, and welded together. A large part of the

sculpture is elevated on a 6 ft. base, Paley says, but for components at the pedestrian level, the edges were ground and rounded. For public works like "Animals Always," Paley is also required to have a structural engineering firm verify the work is structurally sound. "The challenge was making it look realistic while meeting the structural needs of the piece," he says.

Paley began his career working with noble metals like gold, as well as copper alloys and other base metals. He first used steel in the mid-1960s in decorative artworks, mainly lamps. Then in 1973, he received a commission from the Smithsonian Institution for his first large-scale work in steel—a pair of forged and fabricated steel gates. The gates, which also employed brass, copper, and bronze, were installed in the Smithsonian American Art Museum in 1974. Since then, Paley has completed more than 20 large-scale architectural sculptures in steel, as well as dozens of smaller works.

Paley says he chooses to work with steel because of its strength and rigidity in large sculptures. He employs a staff of 15 and completes most of the fabrication for his work in his own studio and shop.

For projects as large as "Animals Always," he occasionally works with local steel contractors to accelerate the project's schedule. According to Paley, "Animals Always" took three and half years to complete, from design to installation.

—Lena Singer





On the right is a 1932 Auburn Boattail Speedster, the Corvette of the '30s.

COOL FABRICATOR

Terry Peshia

In some respects, a visit to Garbe Iron Works in Aurora, Ill., is no different from visiting any other fabrication shop. There's a large shed, large equipment, and lots of steel. And then there's the collection of antique automobiles.

"I started by customizing my first high school car back in the '50s," explained Terry Peshia, Garbe's chairman. "When I went to college, I found that the girls didn't appreciate the guys who smelled of gasoline and had grease on their hands, so I gave it up for a while, but within a year or two, I had bought a 1923 Model T Ford and started in on the collecting of old cars that you don't drive every day."



Peshia currently owns seven cars suitable for display and "maybe five or six more that need some time and money invested in them."

Time is the biggest obstacle for Peshia—he does have a business to run and a family. "I have cheated recently and sent some out for professional assistance. But even that takes time and I think my estate will end up with some unfinished relics when the time of the 'big sale' occurs," he said with a smile.

Storage is the second biggest problem. "I have designed a drive-in basement in my home that at one time held five cars," he said. "Currently I have taken over part of the fabrication shop where we used to park our rental cranes. But it's not true that we sold the cranes just so I would have space for my cars!"

Peshia is also on the collections committee for the Auburn Cord Duesenberg

Museum in Auburn, Ind. "It's a dream assignment for an old car nut. We have the responsibility of selecting what cars we would like to acquire and then figuring out a way to obtain them. A side benefit is that over the past 15 years I have either had my 1930 L-29 Cord or my 1932 Auburn Boattail Speedster on display at one of the finest auto museums in the world."

Peshia says his wife, Connie, is supportive—in part because of the side benefits. "With major car shows being held in places like Pebble Beach, Amelia Island, and other equally fine resorts, Connie looks forward to the parties. We have made friends with people all over the country from the car hobby."

And his friends sometimes reap interesting benefits from his hobby. "Several years ago I was invited to chauffeur Steve and Sharon Porter's [owner's of Indiana Steel Fabricators and a friend from the steel business] daughter for her wedding."

What interests an individual collector is often a reflection of his age. "The most desirable cars now are those that a 45- or 50-year-old guy coveted when he was 16," Peshia said. "He can afford one and will pay whatever it takes to get the muscle car that he never had." Of course, the classics never go completely out of style.

As one of the closest fabricators to Chicago, Garbe is a popular spot for those looking for a tour of a fabrication shop (they even have signs they put out during tours explaining the various equipment). And the car collection is a pretty nice bonus.

—Scott Melnick



The 1936 Cord Phaeton is the classic "Cord."

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COOL CONNECTIONS Laser Cut, Welded HSS Connections

While architects love HSS for visual appeal and engineers appreciate its torsional benefits, fabricators and designers don't always appreciate the difficult connections required.

Mazak Optonics Corporation, a manufacturer of laser cutting equipment, has come up with a solution that may appeal to everyone.

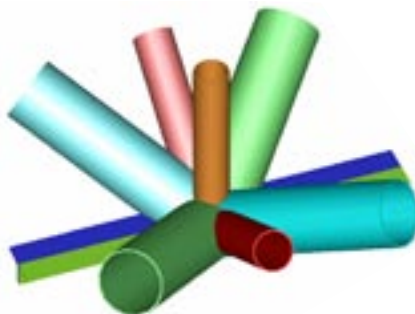
Because lasers can quickly and precisely cut steel, Mazak's solution is to create an interlocking system that allows simpler welded connections. Essentially, rather than requiring a cast connection, the Mazak solution bevel cuts the HSS, which allows for a stronger weld. In addition, the HSS have laser-cut ends that interlock. Finally, a temporary erection ear is inserted into a slot on each member. These ears overlap and are bolted together in the field to aid alignment and welding.

The system has only been used on two projects so far, both in Japan: a manufacturing facility for Mazak and an exhibition/concert facility. A third project, another exhibition center, is now in design.

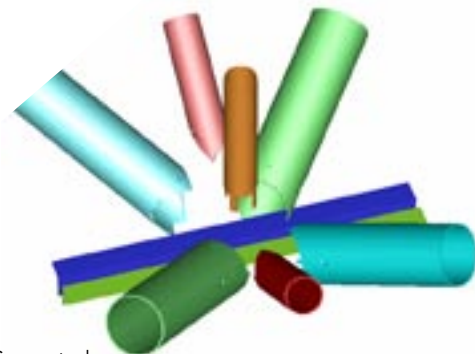
For the manufacturing facility, the designers utilized double-V HSS columns. One column supported a crane runway while the other supported the spaceframe roof.

Currently, the maximum member size is 300 mm round, but the company is considering producing a larger machine that can accommodate a larger member.

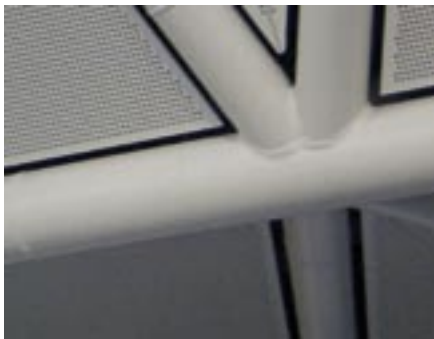
For more information on Mazak, visit www.mazaklaser.com. —Scott Melnick



Assembled



Separated



COOL CONCEPT

Balancing your Software Portfolio

How much is it worth to your company to be able to trade in a license for a CAD program and replace it with a design package? Bentley Systems is betting that companies will be willing to pay a 15% annual licensing fee for that plus a host of other features.

The company's new SELECT program allows firms to annually "re-balance" their investment in Bentley products, which range from the RAM Structural System and STAAD.Pro for design to MicroStation for CAD and ProjectWise for AEC integration. As an added benefit, the assigned value of any software exchanged is at the current price, rather than the cost at the time of purchase.

Other benefits of the program include:

- Pooled and trust licensing so the software can be loaded on many machines but only used at one time by the number of licenses available
- Continuous product development and updates
- OnDemand eLearning for MicroStation
- BE Conference registration
- Help desk
- ProjectWise user subscription
- Additional software such as a CAD viewer that allows mark-ups and MicroStation extensions
- Programming resources that aid the development and testing of new products and updates

The program kicks off in September. For more information, visit www.bentley.com. —Scott Melnick