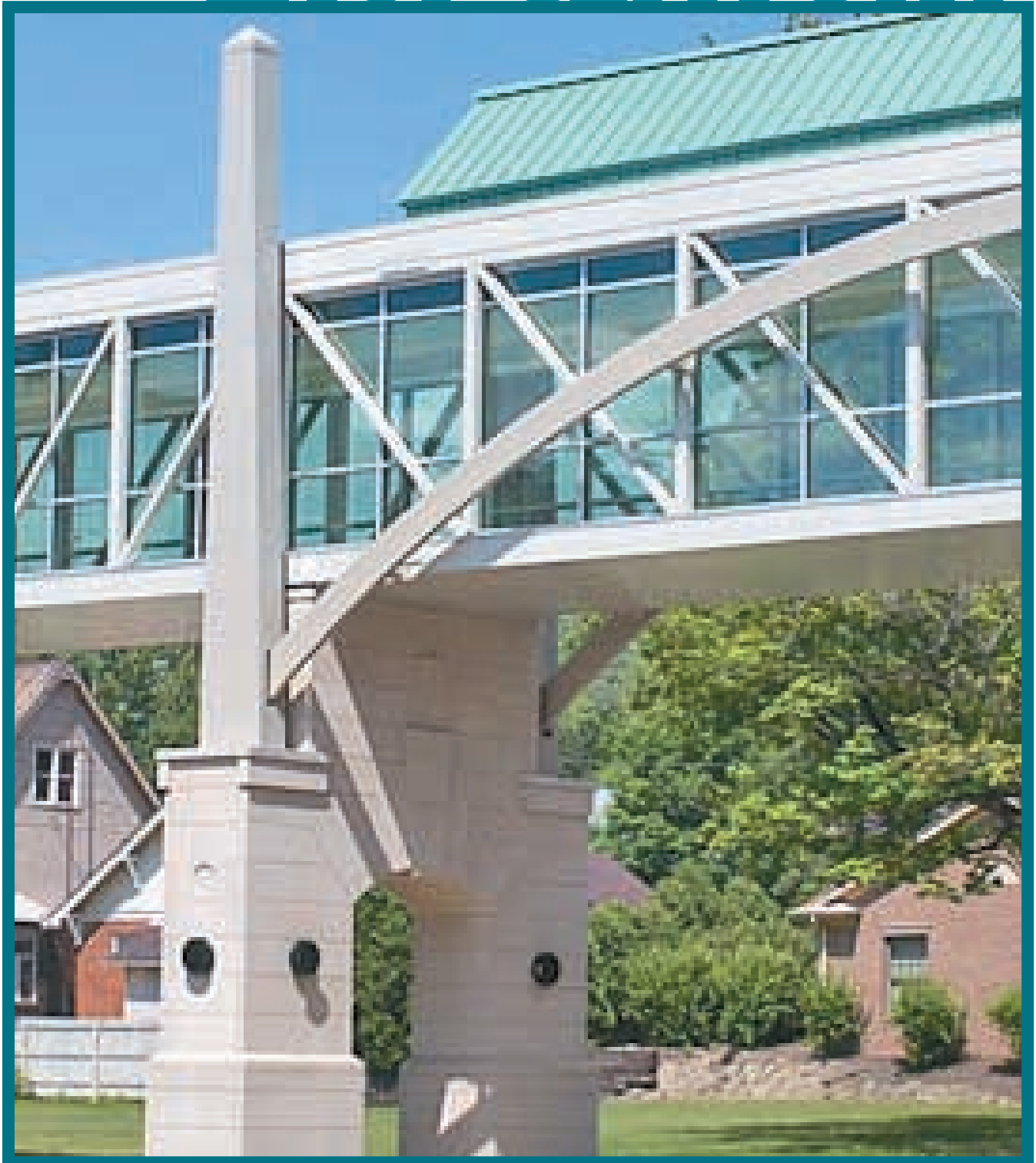


HSS: DESIGNS FOR THE 21st CENTURY



Gateway to Warren Pedestrian Bridge

ConTech Bridge Designs and Fabricates the "Gateway to Warren" with HSS



It's simple, but dramatic: a 139' x 12' skywalk at Trumbull Memorial Hospital in Warren, Ohio. This pedestrian bridge was built for staff and patients who need easy access to a new, stand-alone radiation oncology center. But in the process of building something functional, the bridge's architects, designers and fabricators created something special: a bold, graceful arch with stonework support pillars, as well as solar green glazing and a unique roof. It's become known as the "Gateway to Warren", and a significant part of its dramatic look comes from the designer's use of structural steel tubing (HSS).

Changing from Wide-Flange to HSS Tubing

When the "Gateway to Warren" pedestrian bridge was first conceived, it was designed with a combination of wide-flange and HSS. But ConTech engineers and specifiers suggested that the finished product would look better and be more cost effective if it could be built entirely of HSS. Said Courtney Smith, ConTech's Chief Bridge Estimator, "We don't like to use wide flange if we can use an all-tubular design. The bottom line is that when we design and build something out of wide flange, it

costs more and typically doesn't look as good. Right now, our fabrication shop deals with HSS every day, so they've learned how to fabricate it more efficiently. It actually gives us a competitive advantages in a lot of cases."

A Variety of HSS Sizes

The Gateway to Warren Bridge used a variety of square and rectangular HSS sizes, from 3" x 3" for some of the wind bracing members, all the way up to 16" x 4" for the arches that give the bridge its smooth, graceful look. "Though

this was a special project," Smith continued, "we didn't do anything differently than we normally do on a project of this scope. The look and feel of the completed structure was dictated by actual design requirements, not pre-conceived notions."

Better Torsional Resistance, Easier to Paint

ConTech used a lot of 4" x 3" tubing for the stringers beneath the walkway instead of wide-flange. Using wide-flange would have meant adding stiffeners because of wide-flange's torsional instability. But with HSS,



stiffeners weren't necessary, which meant a considerable cost savings. And when it came to painting the structure, it was easier to paint the HSS tubing because there are fewer surfaces than wide-flange ... and just as importantly, fewer nooks and crannies where dirt and debris can collect.

HSS: The Result of Experience

Along with its sister company, Steadfast of Alabama, ConTech fabricates between 300-400 bridges a year, and virtually every one of them is built with HSS. And that's not just because of HSS' strength, rigidity and good weldability," notes Smith. "With pedestrian bridges, there's usually a visual focal point, and virtually everyone agrees that from an aesthetic standpoint, a tubular structure just looks better." construction phases.

The Steel Tube Institute

The Steel Tube Institute was founded in 1930 and sponsors cooperative member efforts to improve manufacturing techniques in the welded steel tubing industry and informs customers and fabricators about the product's utility and versatility. It is headquartered in Coral Gables, Florida.

What Is HSS?

Hollow Structural Sections (HSS) is high-strength welded steel tubing used as structural elements in buildings and other structures and a variety of manufactured products. It is produced in round, square and rectangular shapes and a broad range of sizes. Benefits include aesthetic appeal, high strength-to-weight ratios, uniform strength, cost effectiveness and recyclability.