

# HSS: DESIGNS FOR THE 21st CENTURY



*"The Power Tower Experience," Cedar Point, Sandusky, Ohio*

# HSS ADDS STRENGTH, SAFETY, GOOD LOOKS TO CEDAR POINT'S NEW POWER TOWER FUN RIDE



## Power Tower Rises High Above Park's Dozen Coasters

Built with 300 tons of steel Hollow Structural Sections, Power Tower is taking thrill seekers to new heights at Cedar Point, the Sandusky, Ohio amusement park and resort that bills itself as America's Roller Coast® because of its dozen roller coasters and lakeside location.

Opened in 1998, the 300' tall Power Tower is a new landmark on the flat, northern Ohio skyline. The multimillion-dollar mega-thriller ranks as the tallest ride of its type in the world. It dwarfs the park's 137' tall Ferris wheel and the 205' high hill of its Magnum XL-200 coaster, another ride built from tons of HSS.

Power Tower consists of four 260' high towers that are, essentially, HSS space frames connected at the top by bridge sections of HSS that bear signs identifying the ride and the park. A soaring arch structure of HSS brings the ride to its full 300' height.

Powered by compressed air, Power Tower gives riders a choice of being blasted up or thrust down the 260' towers, reaching a speed of more than 50 mph in just three seconds! Two towers are used in both directions.

## Strength, Appearance Made HSS Ideal Choice

Power Tower was designed and built by S&S Sports Power, Inc. of Logan, Utah, with Knighton & Crow, P.C., also of Logan, serving as structural engineer. S&S President Stan Checketts says the company has built a number of rides like Power Tower, but none as tall. "Most rides of that kind are around 180' high," he says.

*Cover—The looping tracks of Cedar Point's Magnum XL-200 coaster frame the Ohio park's new Power Tower. Both rides contain hundreds of tons of HSS.*

Checketts says HSS was selected for Power Tower because of its strength and appearance. "The structure had to be able to withstand the fierce storms that blow in off Lake Erie," he noted. "In addition, we needed a flat surface to run the wheels of the cars up and down, and the square HSS is ideal for that. We like its neat and clean appearance, too, and it paints well. Pound for pound, it does a great job."



the park. The base section of each of the four tower structures was 78' tall. Four succeeding sections of each tower were 39' tall and the final section about 25' tall. All sections were 7' 6" wide. Bolt connections were used to join the structural elements.

S&S Sports Power managed the ride's construction, using a Sandusky ironworking firm, Bender Construction. Each tower was erected

The four "legs" of each tower are formed by 10" square HSS in wall thicknesses ranging from 5/8" down to 1/4". Horizontal connectors are 3" square HSS in a variety of wall thicknesses, and diagonal members are 3" x 5" and 3" x 6" rectangular and 3" square HSS.

The same structural sizes were used for the four connecting bridge sections.

The ride was prefabricated in sections by Intermountain Lift, Inc. at its plant in Springville, Utah, then shipped by truck to

individually from the ground to the top, with one section bolted to the next. The towers were then tied together with the bridge sections and topped by the HSS arch.





## 'Legs' Form Smooth Track for 'Cars'

The ride's "cars" are open seat structures that go completely around the four HSS "legs" that form each of the towers. They travel on the smooth outer surfaces of the hollow structural sections. Each "car" holds 12 riders, four on two sides and two on the other two sides, in outward facing seats, secured by over-the-shoulder harnesses with their legs dangling free.

Cedar Point General Manager Don Miears explains that on the two "up" towers, riders

are seated and, unexpectedly, blasted up the tower, experiencing negative gravity when they reach the top. They're then pulled back to the ground and bounce halfway back up before ending the ride. On the "down" towers, riders are lifted to the top, pause for a few seconds and, without warning, are thrust down to the ground. They experience negative gravity before plunging downward and then bounce halfway back up the tower. The ride lasts about 45 seconds.