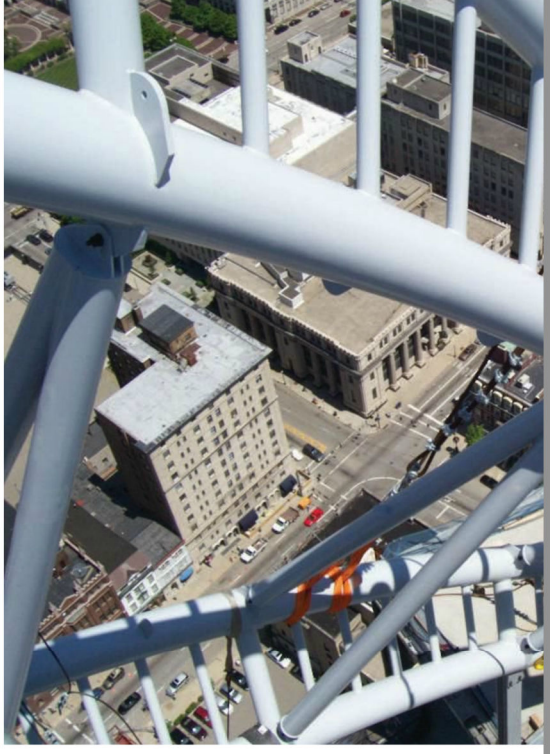
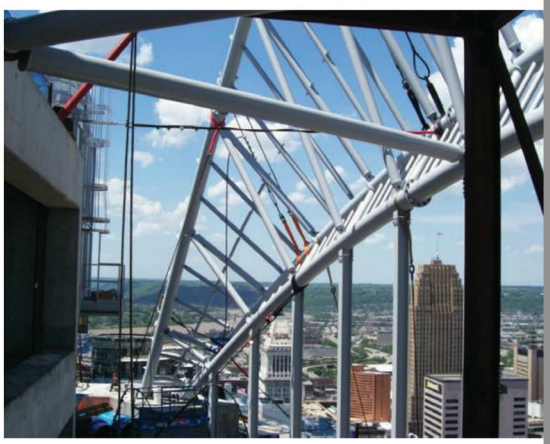




All photos in this spread by Rick Mayer.

Merit Award—Less than $15 Million

GREAT AMERICAN TOWER AT QUEEN CITY SQUARE ROOFTOP TIARA, CINCINNATI, OHIO

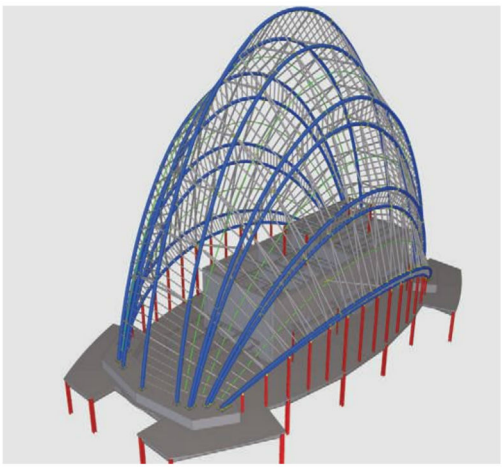
The steel tiara that crowns the 41-story Great American Tower at Queen City Square—Cincinnati's tallest building—is an iconic presence on the city's skyline.

The 400-ton, 130-ft-tall tiara was conceived by Gyo Obata, a founder and design principal of HOK. Obata was inspired by a photograph of a tiara worn by Diana, Princess of Wales, and by Cincinnati's nickname, the Queen City.

Several design iterations were required to ultimately produce a cost-effective and graceful crown. Working closely with HOK, structural engineer Thornton Tomasetti helped rationalize the tiara's geometry and produced a structural framing layout that could easily be fabricated and constructed. Thornton Tomasetti also provided HOK with a detailed 3D Tekla model containing all proposed framing sizes, geometries and connection information. The Tekla model enabled HOK to approve the aesthetic appearance of the structure before shop drawing production, thereby facilitating a smooth shop drawing preparation and review process.

The tiara has a hyperbolic silhouette and its plan dimensions measure 159 ft in the east-west direction and 93 ft in the north-south direction. Geometrically complex, it is composed of 15 ornamental arch elements uniformly supported by 14 arching columns woven through the tiara, creating a two-way support system. It features more than 750 individual HSS elements, ranging in diameter from 4 in. to 16 in. The smallest of the tiara's members account for nearly 50% of the pieces and serve to improve the aesthetic appearance of the structure. Fundamentally, the tiara is a self-supporting, two-way space frame possessing stiffness and strength both vertically and laterally.

To overcome complexities associated with the irregular geometry of the tiara, Thornton Tomasetti collaborated closely with Owen Steel Company and Runyon Erectors regarding



shipping methods, delivery methods and potential erection procedures for structural steel framing members. Load-bearing structural framing members needed to be designed to the tightest tolerances. To help ensure this, Thornton Tomasetti suggested a network of subassemblies for these members that were shop fabricated, leading to fewer construction components and allowing for geometric verification of the elements before erection began. They also provided on-site fabrication consultation, assisting in the development of specialized tools that helped specify geometry of the members where control points were inaccessible due to their location within the volume of the HSS members. This collaborative, shop-intensive process amounted to 80% of the assembly effort, reducing the number of pieces handled in the field and resulting in a total number of field modifications not exceeding 1% of the more than 750 individual components of the structure.

Owner/Developer
Port of Greater Cincinnati and Eagle Realty Group, Cincinnati

Architect
HOK, St. Louis

Structural Engineer
Thornton Tomasetti, Chicago

General Contractor
Turner Construction Co., Cincinnati

Steel Team

Steel Fabricator
Owen Steel Company, Columbia, S.C. (AISC Member/ AISC Certified Fabricator)

Steel Detailer
Thornton Tomasetti, Inc., Chicago