



ATLAS TUBE EXPANDS ITS SPHERE OF INFLUENCE

When Las Vegas' most iconic entertainment venue required difficult-to-source HSS to meet its lofty goals, Atlas Tube rose to the occasion.

Since its debut in September 2023, Las Vegas' Sphere at the Venetian Resort has drawn audiences from around the world seeking an immersive experience that engages all senses.

Atlas Fabricates the Future

The venue's massive, semispherical frame sits just south of Sands Avenue and east of Las Vegas Boulevard. The Sphere's revolutionary design takes up 750,000 square feet and comfortably seats 18,500 concertgoers. It boasts an eye-catching steel frame that has quickly become a landmark representative of the world-class entertainment and recreation that Las Vegas has to offer.

To meet the Sphere's aesthetic requirements, the engineering design called for unique sizes of round hollow structural sections (HSS). Atlas Tube was chosen as a partner due to its ability to quickly tool up, produce, and deliver those unique sizes within North America.

Atlas' Engineering Support team had worked with fabricator W&W | AFCO on challenging projects before, and the existing partnership paved the way for

collaboration that made the project a success. Achieving the intended vision of the Sphere required HSS sizes that are listed in the AISC Steel Manual but have never been rolled by Atlas Tube. Atlas invested in the necessary tooling to create the full range of required sizes for W&W, ultimately producing 2,460 tons of HSS for the project. The strict quality standards of Atlas' 100% domestically made steel combined with its wealth of experience and expertise with custom tooling and logistics helped W&W | AFCO deliver the project on time.



Photo credit: Sphere Entertainment



Though simple from the outside, the Sphere is composed of several interacting structural systems:

- A pile-supported foundation
- A structure supporting interior seating and vertical transportation
- The parametrically designed exterior skeleton, known as the geosphere
- A domed roof below the geosphere that supports an all-encompassing screen over the concert venue

The round HSS members of the geosphere are connected to custom nodes produced by Cast Connex, which reduced fabrication cost and provided precise, repeatable geometry at each of the many connection points.

These parts work in perfect balance to create a unique, jaw-dropping superstructure that greatly benefits from the HSS compact profile and its unique ability to accomplish the engineering and architectural goals of the project.

In addition to the Sphere itself, the venue features a 1,200-foot-long off-site pedestrian bridge with a unique serpentine pattern that connects the Sphere to the larger Las Vegas Strip. The bridge features a metal walking deck and a metal deck roof, founded on pipe piles just like the Sphere.

Ultimately, Atlas Tube's ability to quickly set up custom tooling for uncommon sizes of HSS, its close relationships with fabricators, and its speed of delivery helped to make the Sphere one of the world's premier concert venues and a contemporary American icon.

Partners:

Owner: Sphere Entertainment Company

General Contractor: MSG LV Construction LLC

Architect: Populous

Structural Engineer: Severud Associates

Erection Engineer: Stanley D. Lindsey and Associates Ltd.

STEEL TEAM

Fabricator and Erector: W&W | AFCO Steel

Detailer: Prodraft Inc.

Bender-Rollers: Max Weiss Co.; Chicago Metal Rolled Products

Casting Manufacturer: Cast Connex

More on the design and engineering of Las Vegas' Sphere is covered in **Modern Steel Construction** and **Informed Infrastructure**.

To learn more about Atlas or to discuss your design ambitions, call 800.733.5683 or visit atlastube.com

Introducing the **HSS Connections Hub™**
Fabrication-friendly, fully code referenced, and reliable HSS connections.

About Atlas Tube

Atlas Tube, a Zekelman company, produces a wide range of steel tubular products and is the leading provider of hollow structural sections (HSS) in North America. Other offerings include HSS Design Tools and straight-seam electric resistance weld (ERW) pipe piling.



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