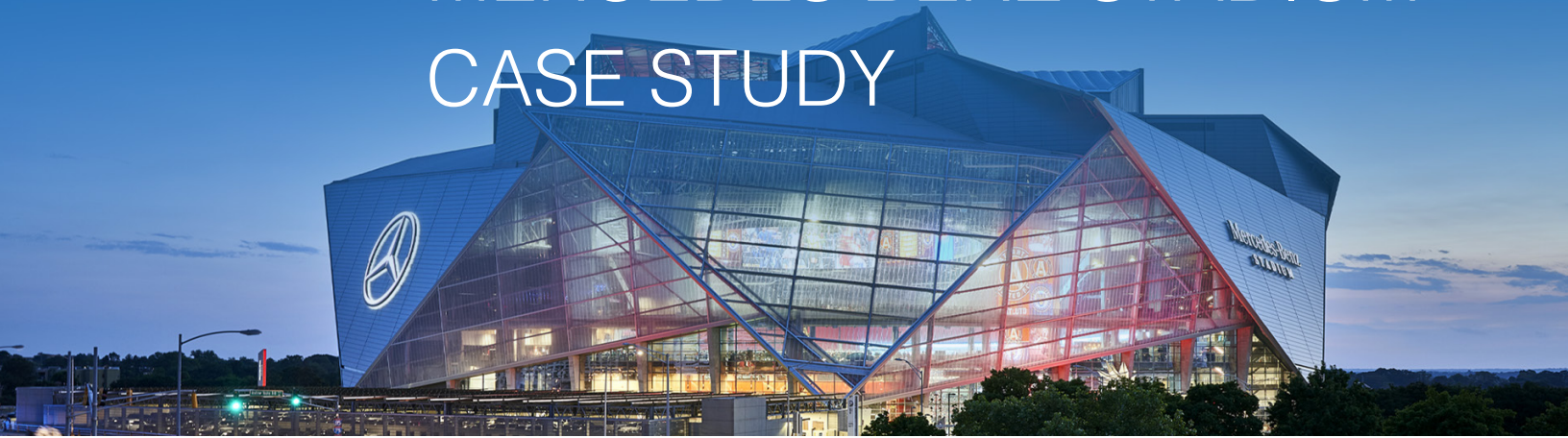




Vendor #00625



MERCEDES BENZ STADIUM CASE STUDY



The Mercedes Benz Stadium, home of the Atlanta Falcons, located in Atlanta, Georgia.

Problem

Arthur Blank, owner Atlanta Falcons, set out to build a world-class facility in the heart of Atlanta that would serve as the new home to the NFL's Atlanta Falcons and the new MLS soccer team, Atlanta United. Blank wanted the stadium to boast the best in design, innovation, fan experience and sustainability in order to attract the largest world events to Atlanta. That challenge was accepted when the designers proposed something that had never been done before.

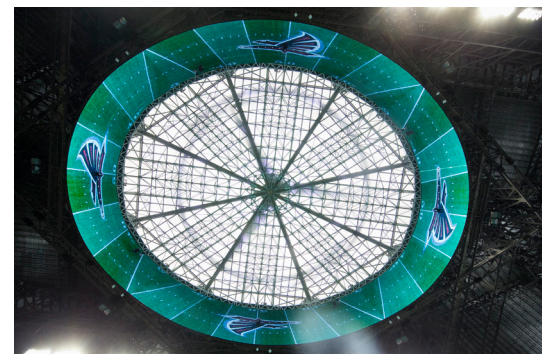
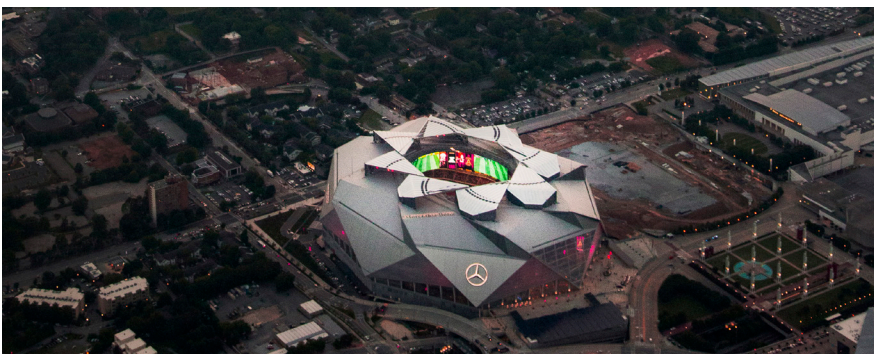
The new design for the stadium included an eight-panel retractable roof. Each of the eight panels (or petals) operates on two straight, parallel rails. One rail is responsible for moving the panel while the other rail is there for stabilization. The eight petals weigh 500 tons each and run on 230 feet of railing. The whole design operates on a system of rails and motors. The moveable

**Arthur Blank, owner Atlanta Falcons,
called it “the most complicated roof
design in the history of the world.”**

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petal structures are powered by eight mechanized “bogies” which drive the petals along an inner rail and are attached to the outer uplift rail by six roller mechanisms.

Because the roof needed to open quickly and without fail each time, the roof had to be designed perfectly and with incredibly intricate detail.



Solution

Uni-Systems Engineering, a design, construction, and manufacturing firm located in Minneapolis, Minnesota, was hired to design and build the engineering piece for the roof. They supplied all the mechanization equipment, as well as provided tech support and commissioning services for the installation.

Uni-Systems Engineering brought Osborn Load Runners into the project during the design phase to consult on the initial design. Once the project was underway, Load Runners was contracted to provide custom cam followers to incorporate into the Uni-Systems Engineering product.



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One of the strengths of Load Runners is their willingness to do custom products, whereas many competitors just want to sell one product.

– Mark Silvera

During the process, the original design for the stadium was reworked and the stadium builders added additional mechanisms that required the original rollers to be redesigned to meet the new weight requirements. Load Runners flanged crowned 10” rollers were installed on the rails to ensure the roof opened correctly. Special materials had to be used to ensure there was no internal deformation. The bearings were precision set so they could handle the load better and last longer. A special grease was also used to handle the load and make sure it didn’t wear out too quickly. Finally, a custom seal was designed since this was not an off-the-shelf bearing.

Mark Silvera, President of Uni-Systems Engineering, stated that this was a “technically challenging product due to the way the roof opens. New technologies had to be created.”

Outcome

The product that Uni-Systems and Osborn Load Runners created ensures the roof only takes eight minutes to open. The roof has an expected life cycle of 3,500 uses, which is the lifetime of the stadium. When opened, there is a 360-degree view of Atlanta. To date, the stadium has hosted over 5 million guests for over 60 ticketed events, including the National College Championship, Super Bowl LIII, and is slated to host the Men’s NCAA Final Four in 2020.

The partnership between Uni-Systems Engineering and Osborn Load Runners worked successfully because both companies shared similar philosophies of creating custom products that you cannot simply buy off the shelf. Both companies seek out challenging projects that showcase their unique engineering abilities.

When asked what it was like to work with the Osborn Load Runners team, Silvera said, “They managed to deliver the product on time and at a good price point. One of the strengths of Load Runners is their willingness to do custom products, whereas many competitors just want to sell one product.”

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