



Q2 Stadium: A ConneCTID® Case Study

Objectives

When a home stadium was envisioned for Major League Soccer's new Austin FC, the central Texas climate was a noteworthy consideration, not only for fan and player comfort but also for the health of the grass on the field. Architects would ultimately design a 200,000-square-foot canopy—the second largest stadium roof in the MLS—to maximize shade and breezes; and Walter P Moore's multidisciplinary team of engineers would devise an innovative structure consisting of long-span trusses and a cable system to achieve the architect's light, floating aesthetic.

With Austin FC's inaugural season set to kick off in the Spring of 2021, the 432,000-square-foot stadium would require an aggressive design and construction schedule. The grass had to take root and grow in time for games to be played, which meant the roof had to be in place early, too. Construction would have to begin while the design was still underway.

Solutions

To meet the schedule constraints, Walter P Moore's integrated team of structural, enclosure, and construction engineers leveraged their collaborative digital process, ConneCTID®, to deliver a fabrication level (LOD400) digital model in increments throughout the design and construction documentation (CD) process. Issuing the model early, along with the 50% CD set, enabled close coordination with the design team as they continued to work toward 100% CDs. From the start, the precise digital model included detailing, fabrication, assembly, and installation information for each element.

This level of detail made it possible to continually assess the project's constructability, easing the coordination of slab edge details, connection points, steel finishes and more. It also ensured issues could be resolved in advance through a review of the model, rather than onsite during construction, shaving a valuable three months off the project timeline. The RFI process for the structural system was also streamlined—only 52 were issued, where there would typically be hundreds if not thousands of time-consuming RFIs on a project of this scale.

The ConneCTID® model was issued at the same time the permit set was delivered to the City and as the project's guaranteed maximum price (GMP) was set. Yet because Walter P Moore's structural steel was so detailed by the advanced modeling process—enabling quick turnaround on the mill order and fabrication—cost overruns could be avoided and pricing for the stadium's 4,500 tons of structural steel came in \$1 million under the GMP.

Providing a single point of truth, the integrated model kept decision makers informed about the impact of design options on budget and aesthetics. As the team tested and measured the impact of different materials and structural elements on embodied carbon, the digital model also aided in the sustainability strategy for Q2 Stadium, which was MLS' first to conduct a whole building life cycle assessment. The stadium was built in less than 20 months, ultimately earning LEED Gold certification and multiple industry awards.

