

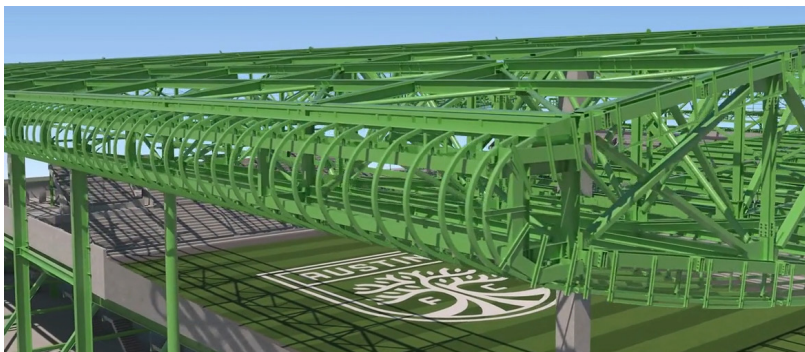
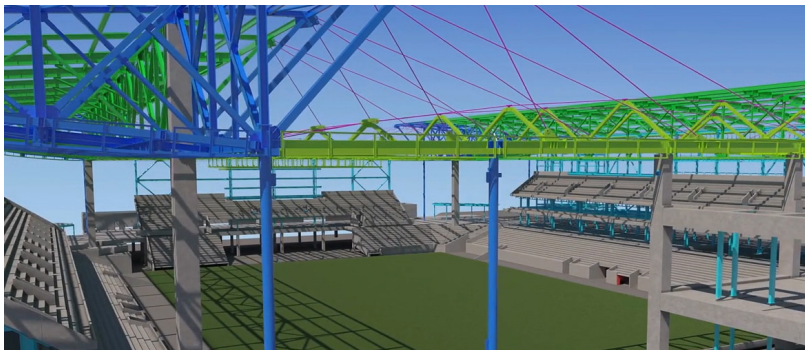
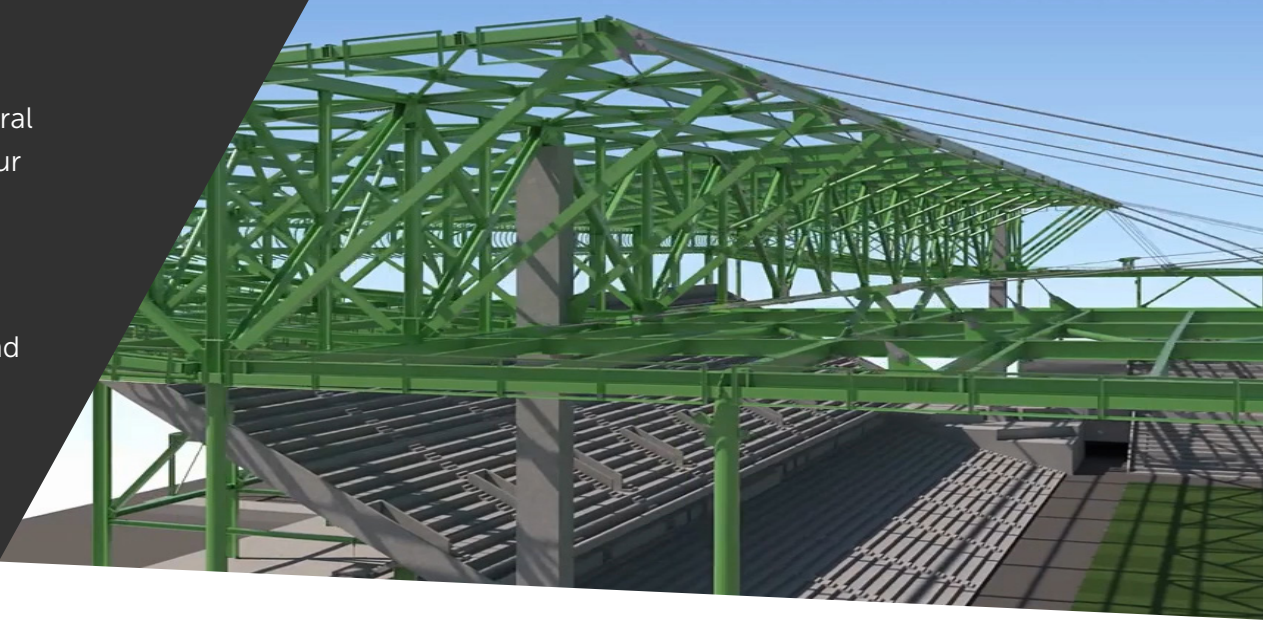
Case Study

Austin Q2 Stadium

Home to the Austin Football Club (Austin FC), the new Q2 Stadium in Austin, Texas USA, opened in June 2021. At 198,000 square feet, the stadium has the second largest roof of any MLS stadium and is capable of hosting over 20,000 fans. In addition to an exceptional viewing experience, the stadium offers a unique event atmosphere. It is designed to draw in outside breezes so that the lower bowl is a pleasantly cool environment for players and fans alike.

The stadium is framed with approximately 4,500 tons of structural steel, with roughly 2,700 tons dedicated to the roof canopy. Four concrete 'super columns' support each corner, and the trusses between these columns run parallel to the length of the pitch, making it the longest MLS stadium.

Besides soccer, the stadium can host a variety of community and spectator events, including concerts, community activities, and private events.



Scope of Work

DBM Vircon developed an LOD400 structural model with an integrated design for the Q2 Stadium in collaboration with engineer Walter P Moore. The company was also engaged by Irwin Steel to provide all shop drawings for the structural steelwork, and to provide fabrication-ready geometry for the MLS Stadium to meet the design and construction schedule. The DBM Vircon team was also responsible for the detailing of additional steelwork, including the steel supporting the bullnose to the canopies and coordinating and detailing of the steel to the curved soffit.

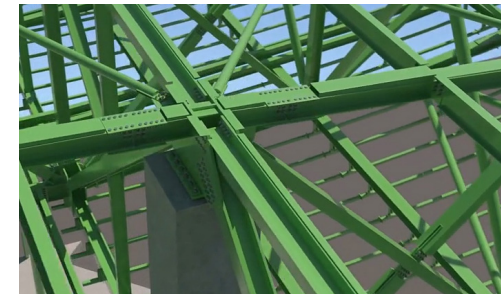
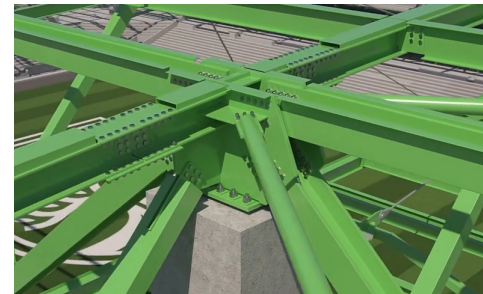
Highlights

- DBM Vircon developed a methodology to review the steel members and their associated connections to correct constructability issues during design when cost-effective solutions were still available prior to steel procurement.
- The detailed steel model was utilized beyond steel coordination and helped drive decision making for other critical trades including precast concrete and MEP.
- Integrated delivery process by Walter P. Moore centred around the LOD400 steel model and allowed the team to collaborate through 3D concepts in an iterative fashion.



Challenges

The design and construction schedule for the Austin Q2 stadium was extremely aggressive. All steel had to be erected by a specific and unmoveable date to enable the grass pitch could be laid and given time to be ready for the MLS team's opening game. DBM Vircon was instrumental in coordinating with other trades to ensure that schedule dates were met. During the model development, the main challenge was coordinating the connections for the stadium's precast seating since the precast company had not yet been appointed. All necessary connections to support the precast had been coordinated and finalized proactively by the design team before the models were provided to the fabricator, ensuring that shop drawings could be created and approved more quickly.



Conclusion

Venues for entertainment have strict deadlines, and events are often booked before design is complete. For these projects, it is most effective when the LOD400 team also produces shop drawings. This method ensures a much shorter turnaround for finalizing models and producing shop drawings.

To mitigate rework, the construction engineering team and detailer must coordinate efforts to sequence design and detailing to accomplish the schedule.

The Austin Q2 stadium project was designed and completed in 18 months. Together with the integrated delivery approach, the LOD400 model helped drastically reduce RFIs because accurate information was available to the building team throughout the entire project.

"On the 20,000-seat Q2 Stadium, Walter P Moore used an innovative technology-enabled process developed in-house to rapidly deliver the structural contract drawings and the fabrication-ready Tekla model for structural steel in parallel. This saved roughly 12 weeks from the schedule and eliminated preconstruction Requests for Information (RFIs)."