



COLORADO CONVENTION CENTER EXPANSION PROJECT

A largescale team collaboration driving new business for Denver, Colorado in the highly competitive meeting conventions industry



County of Denver
Denver, CO
2021- 2024

OVERVIEW

"This was a complicated design-build lump sum project, delivered the project to the city on-time and on-budget. Weifield had to manage and merge an existing system that had been in place since 2004 and had to go install and merge a new expansion and tie in all new electrical systems—which was no small feat," said **Jonathan Popiel, Hensel Phelps Project Manager**. "Weifield came up with several value-added ideas, such as a solution that made it so that we didn't have to add new transformers and could use existing transformers, instead—saving significant time and money early on."

BACKGROUND

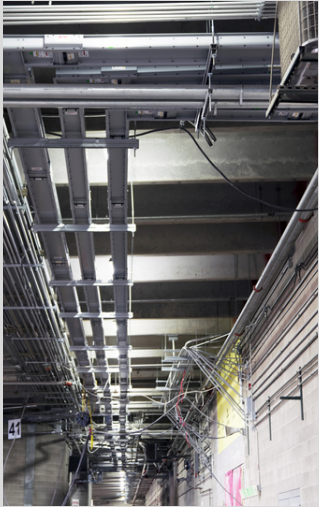


Already a key economic driver for Denver, the expansion of the Colorado Convention Center (CCC) in Denver, Colorado, is expected to generate an additional \$85 million in annual economic impact. Located on the roof of the existing building, this expansion project began in January, 2021 and included a new 80,000 square-foot ballroom—the largest multifunction ballroom in Colorado—as well as 35,000 square feet of wrap-around pre-function concourse space and a 20,000-square-foot outdoor rooftop terrace with sweeping views of the Rocky Mountains and Denver's city skyline.

Weifield's project scope was to relocate all the existing electrical systems and equipment to prepare for construction, add substantial new electrical infrastructure that could accommodate the facility's vertical expansion, and satisfy the increased electrical demands of the new areas.

What Weifield couldn't have predicted, however, were the unforeseen obstacles that arose at every turn—starting with the fact that all construction needed to take place within an active, operational building. Teamwork and thinking ahead beginning on Day 1 helped Weifield exceed expectations, despite the obstacles.

SCOPE OF WORK



Weifield was selected to serve as the design-build electrical contractor on the project by Hensel Phelps (GC)—once work began, the vast majority of construction took place in the rooftop expansion area while the Convention Center stayed open and operational on the floors below. The electrical scope involved:

- A series of sequential heavy lifts just to enable construction at the outset
- Executing a major bus duct routing implementation through the facility, involving 3,000 feet of bus duct
- Creating a interstitial space to install conduit that would help power the expanded ballroom area
- The extension of existing elevators and stairwells, along with the installation of six new elevators
- Erecting a 100-foot scaffold needed to reach the top of the spiral driving ramp within the indoor parking structure
- Tying an extraordinarily complex existing fire alarm system into the new fire alarm system

SOLUTIONS OF SPECIAL PROJECTS

From a preconstruction perspective, Weifield achieved target value design for the general contractor, Hensel Phelps, and maintained it all the way through the design process.

“One of the larger concerns on the construction side was the unforeseen issues involving the existing building conditions—we quickly had to get creative with how we would tie into the existing gear and how we would tie into the Xcel power,” said Brad Chapman, Weifield Superintendent. “We also experienced significant material and equipment shipping delays. Flexibility was key, and we always had a contingency plan in place for every phase.”

Once the material did arrive on site, every piece of it needed to be picked up and lifted to the rooftop level via tower cranes. Certain equipment phases drove creative problem-solving, such as retrofitting an air handling unit in the interstitial space, and Mother Nature threw in a curve or two of her own—with weather and high winds delaying the ability to continue construction on certain phases, periodically.

“We spanned our labor over the three-year duration biting off those other smaller phases – doing what we could while the structure was being completed. But all eyes were on us to meet the electrical schedule at the end,” said Chapman.

Overall, the team performed 85,000-man hours over a three-year construction period—and ran with 30 crew members, on average. Weifield documented a total of 50 Methods of Procedure (MOPs) to conduct various electrical activities — and more than 2,000 RFIs were submitted for changes over the course of the project.

SOLUTIONS TO OVERCOME ADDITIONAL PROJECT CHALLENGES



Utilization of Leading-Edge Technology

In addition to ingenuity, Weifield utilized our industry-leading technology to help inform our construction, ensure quality, and surmount the obstacles. The team engaged our in-house BIM/VDC team to execute design coordination and identify potential constructability issues through virtual modeling, in multiple areas of the project. We also trained our crew to utilize our Trimble Total Station technology to layout numerous installation points for areas such as the lights in the multifunction room – every single light had to be installed in an exact position to be aligned with the ceiling.

“That level of accuracy was needed for many installations, from the beginning to the end—so we used it a lot,” Chapman said.

Planning the Largescale Bus Duct Installation to Support Elevator & Generator Electrical

A pressing question arose during the installation of the new elevators and generator—the electrical for which had to route back to the fire command center on the other side of the building.

“We had to pipe a city block from where the generator sits to where the command center was,” Chapman said. “We laid a plan to take the conduit across roads and all the way across the facility which required thousands of feet of material.”

Weifield leveraged Hensel Phelps’ 3D scanning tool to produce pictures of the existing building that Weifield used to align existing areas within the building with our bus duct model.

“Just installing it was complex as well—as these bus duct sections weighed 150 pounds each and were being installed 45 feet in the air,” Chapman added.

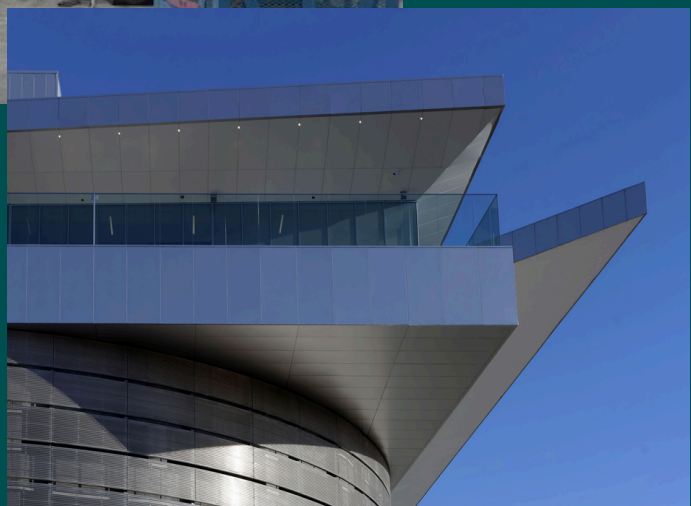
ENVIRONMENTAL & SAFETY



The overall project was completed with 1.5 million hours worked by all trade partners onsite without a single lost time accident—due to frequent safety meetings and proper documentation for every step.

As certain phases required specific equipment, Weifield ensured the proper equipment-specific trainings were taken by all associated crew members—and ensured anyone working in the interstitial space always wore air monitors to mitigate against carbon monoxide risks. Additionally, every Weifield crew member working in the interstitial space had radio communication with another person at all times.

“Due to the complexities and scale of this project I would go so far as to say that every minute of every day, we were considering safety,” Chapman said.



EXCELLENCE IN CLIENT SERVICE / CONTRIBUTION TO THE COMMUNITY

Overall—according to The City and County of Denver, the design and construction of the expansion project is projected to:

- **Create or support 2,691 jobs, including skilled trades and apprenticeships that will offer training opportunities for Denver residents currently out of work**
- **Generate \$195M in labor income**
- **Generate \$475M in anticipated sales**
- **Add approximately \$4B to the Gross Regional Product (GRP); GRP is the regional version of the national GDP (Gross Domestic Product) and is the single most useful and comprehensive metric for measuring economic impact**

The greatest achievement for Weifield was getting to the finish line, despite the daunting obstacles.



"This project was a big challenge for everyone involved," said Kevin Quern, RK Mechanical Project Manager. "Making modifications to an existing building is never easy – it was made more challenging when you put a building on top of it. I worked with Weifield for 2.5 years on the project – they were a talented group of guys to work with. As tough as it got though, we had a good experience in the field with Weifield – they communicated effectively, addressed issues, and always wanted to talk to us face-to-face about any issues at hand. Overall, we came out of this project as partners, teammates, and friends. I would be happy to do another job with Weifield in the future – which says a lot about the caliber of its team."

"The team worked really well with us – from initial concept and budgeting to final completion; Weifield did a great job," Popiel said. "This was one of the most complicated high-profile projects going on in the City and County of Denver, but it finished on time and on budget – and all the stakeholders were happy and proud of the work we did. We delivered a very high-quality project that will be able to be used for the city and its citizens. It was truly a landmark project."

"To have a design-build project of this caliber and scale complete within a three-year timeframe is unheard of," Chapman said. "I'm most proud of the entire team for finishing without any major injury—and for working through the of the unknowns, obstacles, and working conditions they had to face, successfully."

CASE STUDY

Inspired by Weifield's success story?
Get in touch with us to start your journey
toward outstanding results!

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