

Category: 7 – Best Building Project – Specialty Contractor [Over \$10 Million]
Subcontractor: Weifield Group Contracting
Project Name: Denver Water Operations Complex Redevelopment

The Denver Water Operations Complex Redevelopment Project was a five-year endeavor driven by Denver Water's need to upgrade certain outdated portions of its 34-acre campus to provide a safe, efficient headquarters with improved functionality, flexibility, and a public presence (water utility operations have been located on this site since 1881). The project presented many unforeseen challenges and successes throughout two main phases:

Phase 1 (Begun in Late 2015): Construction of Operations buildings on the campus's south side – Weifield built the entire medium voltage/fiber infrastructure and Central Utility Plant while the Meter, Fleet, Trades and Warehouse buildings were built, simultaneously, and executed a portion of the campus site lighting.

Phase 2 (Begun in February, 2018): Construction of the Administration and Wellness buildings, parking garage, and renovation of a 100-year old former pump house on the north side; Weifield built the Administration building on the occupied campus and installed the remainder of the site lighting.

The main utility infrastructure included all-new medium voltage transformers, switchgear, and a medium voltage generator with an ATO feeding the entire campus – as well as a new fiber optics duct bank to all campus buildings and the modular data center. The scope also included all-new site lighting and a daylight harvesting lighting system throughout the Admin building; the entire campus was designed with LEED goals (Silver and above).

Weifield also executed all electrical and controls for a reclaimed water system housed inside the Administration building which recycles and purifies the building's water for reuse in the outdoor irrigation and indoor restroom flushing systems.

“Site work for this five-year project was a continual challenge – the site held surprises with underground utilities and required intense coordination to determine proper routing and installation. Weifield did well assisting with these challenges,” said Jeremy Ross, Denver Water Director of Engineering Projects.

Solutions of Special Projects

Challenges during this project were many. The 187,000 sq. ft. Administration building was difficult to construct due to its concrete ‘bones’; a radiant heating/cooling system was implemented throughout the building and vigilant coordination was required to ensure the radiant heating/cooling, lighting, and electrical would fit within the under-floor, post-tension slabs. Weifield utilized BIM modeling and worked with the MEP trade partners to ensure precise placement.

“We only had one shot at it before the slab was placed; Weifield did a great job -- the coordination was impressive,” said Ross.

The six-story building was built in vertical segments (levels 1 – 6 on the west side, then the east, etc.), rather than story-by-story, due to the exterior façade’s metal panels requiring vertical installation.

“We would stop at a certain point and not return to that floor for another eight weeks,” said Chad Edens, Weifield Field Supervisor. “This created delays, but we worked together to mitigate gaps.”

Weifield also assisted with a campus-wide generator rebuild/relocation and other changes around bringing new buildings online while decommissioning old buildings.

“The Administration building’s enclosure was a unique design that was difficult to construct and did not create a tight enclosure – it took a long time to develop a workable solution,” said Thomas White, Mortenson MEP Project Manager. “The schedule for the interior trade partners,

including Weifield, became condensed. Weifield identified a solution to get the scope done in a shorter amount of time.”

Another challenge was around the building’s LEED goals – all of the power was under-floor but the lighting system was in the concrete ceiling on another floor; and so, installing the lighting controls and getting the systems to work together was a challenge.

“These phases took extra effort – there were a number of outages that were required. Weifield did a great job continuously updating our electricians on how things were working at any given time. That was above and beyond,” said Ross.

Safety Excellence

In addition to Weifield’s own stringent safety protocols, our GC partner, Mortenson Construction, had extensive safety requirements which required Weifield to execute additional processes and steps as the project progressed.

“Some of these requirements were more in-depth than OSHA would even require,” said Edens.

This required Weifield to develop multi-page, integrated work plans for every task, as we went – each week, Edens would submit stacks of safety documentation to Mortenson with our upcoming protocols included.

Additionally, there was risk involved with all of the medium voltage work; Weifield mitigated this risk by coordinating after-hours outages and outages during downtimes/on weekends, each executed within one eight-hour shift and planned/communicated well in advance. Weifield developed a comprehensive Method of Procedure (MOP) for each outage submitted to Mortenson and Denver Water for approval.

“Weifield’s field performance was strong and responsive – and we could tell that Weifield values a safe culture,” said Thomas White, MEP Project Manager, Mortenson Construction.

Construction Innovations/State-of-the-Art Advancement

Denver Water's Administration building is now much larger than the original facility which allowed Denver Water to combine administration functions into one building. The technologies implemented in this new building will help Denver Water better track their infrastructures and know when there are issues with their water infrastructure throughout Denver.

“With the Administration building, they decided midstream to install a solar system; Weifield was instrumental in assisting with routing for that,” said Steve Ward, Mortenson Superintendent. “Weifield also worked with Xcel to get our main distribution changed out – that was huge, getting all that work put into place. Throughout the project, Weifield pointed out problems and came to the table with solutions. They excelled at pre-planning, attention to detail, and executing their plan efficiently.”

Weifield utilized our BIM, Trimble, Bluebeam, iPads, and Procore technologies combined with our prefabrication capabilities to better plan and execute the project – resulting in increased speed and agility. We continually suggested ideas to the design team on how we could save the owner money and execute things in the most cost-efficient manner.

Excellence in Project Execution and Management/Team Approach

To keep up with design changes and evolving requirements, Edens held morning huddles with the Weifield team to keep everyone on the same page. Due to budget and schedule delays experienced with the vertical building process, Weifield helped the GC develop a recovery schedule and secure manpower to help push the schedule at the finish – and a ‘back-out’ plan to help get all trades completed by established dates.

“I proposed ‘drawing a line in the sand’ and telling the trades – no more work going forward until all of the existing tasks are caught up,” said Edens. “So, we went back and started at a section of the building with incomplete tasks and worked to completion, from there.”

The key to our success can be attributed to the same Weifield team (topping out at 35) being present throughout the project – which made communication flow more easily. The coordination

of the various wants and needs from the holistic team was challenging; Weifield provided completion schedules of what was required to keep the GC continually informed.

As a result of our work on this project, Weifield's Field Superintendent, Chad Edens, won the 'Superintendent of the Year' award from Mortenson Construction for his leadership.

Excellence in Client Service and/or Contribution to the Community

A primary reason Weifield was awarded the project was related to the infrastructure design and revising strange aspects of the medium voltage loop. Weifield's Construction VP worked with the engineers to reengineer the medium voltage one line for ease of execution at the lowest cost.

"Another engineering firm did the SD drawings and essentially said, 'Here's the big picture – go make it happen,'" said Mark Zappanti, Associate Principal and Sr. Electrical Engineer at MKK/IMEG. "MKK and Weifield then determined what made sense. Weifield was a huge help; we identified things to maintain flexibility, reduce cost, and meet owner requirements. Chad was also extremely knowledgeable with medium voltage and identified things we might want to do differently."

"Denver Water sought to be the #1 water utility in the nation and we needed a design that would meet that goal at every level," said Tony Thornton, Senior Associate & PM at Stantec. "We had to be aggressive in not only its aesthetic design but its functional design – the building needed to be a showpiece for the community. The onsite wastewater recycling system had never been done in Colorado at this singular building scale; ultimately, Weifield and Stantec were involved in bringing an entirely new fit for purpose water strategy to the Denver community."

He added, "Weifield also helped to achieve the building's very low energy use index through the installation of numerous energy-saving measures including: low energy use equipment, load monitoring systems, natural daylighting and efficient artificial lighting components, and an unusually high efficiency mechanical system with radiant in-slab heating and cooling."

“Weifield’s willingness to go a little above and beyond and support our own electricians – I don’t see that every day,” said Ross. “It seemed like they truly wanted our staff to understand the system. They were very proactive in seeking out issues and getting things resolved and have been a very good trade partner over the long haul. I’ve been impressed.”









