

Category 5: Best Building Project – Specialty Contractor (\$2M - \$6M)

Subcontractor: Weifield Group Contracting

Project Name: Lakewood Data Center Remodel Project

All of the planning, organization, testing, precise execution, and 100% synchronous timing involved with shutting down an entire mission-critical center housing all of a confidential client's information for its holistic operations – and shutting it down not once, but twice – was quite a feat for Weifield, our GC partner, Howell Construction, and all other project partners involved.

The driver behind the Lakewood Data Center remodel was to upgrade the decades-old facility's capabilities by adding several new systems, bringing them up to code, and creating three new data center pods incorporating hot aisle containment technology – all while minimizing the facility's critical information downtime.

A majority of the work was completed during two weekend shutdowns and the five work days, in-between, in early October 2020.

Scope of Work

Electrical work comprised the bulk of this project; Weifield's scope of work included:

- Removing and replacing the main building circuit breakers
- Swapping out all main electric gear in electrical room and install all new switchgear and feeders to accommodate the updated design
- Removing and replacing the one generator ATS with 2 ATS for separation of life and safety
- Installing external connections for secondary back-up generator quick connections.
- Removing the existing UPS system with lead/acid batteries and replacing it with 2 new UPS systems with lithium batteries to create N+1 redundancy
- Adding redundant power distribution and overhead cable tray to the 3rd Floor data center
- Adding redundant power distribution to a separate communications space

- Adding three new eco-structure pods – incorporating hot aisle containment technology
- Removing three CRAC units and adding a cooling tower

For the first phase, Weifield built the entire infrastructure we could before the first six-hour shutdown. During this shutdown on October 4, 2020 – which began at 9 PM and ended at 4 AM the next morning – Weifield took the whole building off utility electrical service and then brought the building back up on temporary generators. Once the building was safely on generator power, Weifield started to demolish all of the ATS systems, UPS systems, the old wire, and the main switchgear – before bringing in new switchgear and systems and re-pulling all feeders and terminations over the course of the next five days.

During the second six-hour shutdown, exactly a week later, Weifield took the facility off generator power and restored regular utility power -- tying in all of the new feeds for the new switchgear.

With the mountain of work to complete in precise windows of time – Weifield worked to master the planning, procedures, and scheduling while contributing our technical knowledge to handle many of the issues that arose, on behalf of our GC partner, Howell Construction.

“Weifield’s pre-planning and construction experience alone was invaluable to this project – their ability to critically think through the design and provide options was huge,” said Anne Brummett, Howell Construction PM. “The technical know-how of the crew was definitely higher than I’ve seen with other electricals and the ability to make things happen and keep everyone on the same page was very important.”

Management of the Project

The client had no drawings for the project – so the Howell and Weifield teams went in and investigated every cable, looked at every breaker panel, and did a lot of discovery before developing as-is and redline drawings.

“We made our own drawings for dimensioning, pipe rooms, and electric rooms. We then secured the necessary GC and engineer approvals and then built off of those drawings,” said David Kyner, Weifield Supervisor.

Weifield then developed a 28-page Method of Procedure (MOP) detailing step-by-step instructions for every task associated with the weeklong process – which the GC and client reviewed and approved.

“We had an extensive MOP process – the level of detail and thought that Weifield put into those MOPs definitely made me feel better about the entire project,” said Brummett.

Designing the Shutdown

The team knew they had to get very granular when it came to what the shutdown would look like; this process allowed the team to identify items in the drawings and project scope that could be left out of the migration to eliminate some shutdown time and save the client money, up front.

“Weifield’s construction manager was amazing; working hand in hand with the engineer, RMH, he came up with the game plan for how we would do the shutdown and cut over to minimize the outage impact to the data center. It would have been a lot harder to get approval on the client’s side for the shutdown – if not for this plan,” said Brummett.

Communication and Project Execution

Weifield performed 6,700 total man hours on the project; the shutdowns themselves involved 20 team members and for the week in-between, two crews of 12, each, worked on alternating 24/7 day and night shifts.

The crew killed power at 9 PM on Sunday night, October 4 – and worked 24/7 to have all of the new items in place. The project ended up finishing on Thursday, instead of Sunday – which allowed the team time to tweak and confirm things before normal power was back up and running on Monday morning. After the second shutdown, it took three more weeks of work until Weifield was finished with the project.

To keep everything coordinated, a meeting was held across the GC and all trades, once per week, and Kyner talked to Weifield's Construction Manager and PM at least twice per day, while communicating the resulting conversations out to our team as well as the GC and other trades.

Said Chris Muniz, Howell Superintendent: "The shutdown was successful was due to a fairly detailed MOP – with that footprint, everything fell together almost to the letter; that was impressive. Weifield wanted to get started on the UPS startup early, in case we ran into issues. As it turns out, there was an issue and we were able to handle a week and a half's worth of repairs before the shutdown instead of having those issues happen, during – that was due to Weifield's insight."

"Weifield knew how to talk to the customer and explain exactly what was going on – issues were always brought up right away. The team wanted to make sure the project was done right – not quick, not cheap, not easy – but right," Muniz added.

Safety Excellence

In addition to the GC weekly safety meetings, Weifield held our own safety meetings each week before the shutdowns – and during the shutdowns, each day we discussed safety as part of our daily huddles, reviewing the daily job hazards and resolution plans.

The largest assist to safety was our policy and procedure focus – as every step from a safety perspective was documented thoroughly in our MOPs.

"It was such a small area to have 20+ electricians in, during the shutdowns, it was incredible to have that many people in that 20' x 30' space – who all knew exactly what they would do in that space, and when, due to the process," said Muniz.

Construction Innovation/State-of-the-Art Advancements

Weifield used our in-house prefabrication team to bend our conduits ahead of time so that installation would be expedited during the shutdown period. We also coordinated ahead of time

with our partners at Duffy Mill Rights to have our equipment shipped, ahead of time, so that we could get the breaker testing completed ahead of time. We also brought in our vendors ahead of time to commission and go through each piece of gear, ahead of time.

“Having all of that gear commissioned and set in for us helped take the risk out of the equation for Weifield,” said Mike Barron, Weifield PM.

The team identified numerous innovative ideas to achieve project phases quicker and better. These included custom-designing spaces for overhead gear, housing the new batteries in their own racks instead of a separate room to meet code, redesigning the electric room so bypass switches could sit in the old battery room (reducing conduit and wire), arranging for gear needed for shutdown to arrive via just-in-time delivery on shutdown days, and more.

Weifield’s focus on examining every part and piece of the job, and planning for the worst while hoping for the best, helped the entire team achieve a huge amount of work in a compressed time frame – and avoid major pitfalls along the way.

“Weifield’s construction management was the biggest part of our success – as well as their checks and balances for quality control,” said Muniz. “The team was fantastic to work with and since the project was so heavy on the electrical side, I stepped back and let them lead the way.”

This was one of the client’s biggest projects in 11 years; shutting down every one of the client’s customer divisions and gently bringing them up in a safe, organized fashion was a huge success.

“I was impressed with Weifield’s knowledge of work of this size and intensity. It was good quality across the board and Weifield ranks high on my list. I was proud of completing the project well and seeing the client so satisfied,” Muniz said.









