Category 7- Best Building Project- Specialty Contractor (Over $10 million)
Specialty Contractor: Intermountain Electric, Inc. ("IME")
Project: Gaylord of the Rockies Resort and Convention Center

Transforming the Aurora Plains- Building a Behemoth

Standing proudly on a sprawling 85-acre site that what was once an open expanse of breezy grass covered plains, amidst a backdrop of flatiron peaks, The Gaylord of the Rockies Resort & Convention Center (Gaylord Rockies) exudes grandeur and executive elegance. Creating what is essentially its own small city, Gaylord Rockies now houses the largest hotel in Colorado, with 1,500 rooms and just over one million square feet of meeting and convention space. Transforming this project from an untouched greenfield site to a world class hotel and convention space, quickly became the singular largest design assist project that Intermountain Electric, Inc. (IME) has ever completed.

The sheer size of this $800 million-dollar project called for over 3 years of construction, and at its peak, boasted 1,500 workers onsite. In the interest of keeping the schedule on the 5 million man-hour project, general contracting joint venture Mortenson/ Welbro decided that scopes of work needed to be broken into smaller, more manageable portions. This included all of the electrical systems and electrical infrastructure. Powering the two million square foot behemoth required two electrical outfits working in tandem between two separate scopes of work: the 1,500-room hotel and the one million square foot convention complex.

While Intermountain Electric was primarily responsible for the convention center space and supporting facilities, the scope also covered the central utility plant (CUP) and infrastructure that powered both the convention center and the hotel. Included on the convention center side was also a massive commercial kitchen and a state-of-the-art automated laundry facility.

Infrastructure Design

Beginning with permit level drawings, the splitting of the electrical scope allowed the IME team to be major contributors of the overall electrical design plan of the convention complex.

Working from the underground infrastructure all the way up through the exhibition space, they realized several issues early on. The convention hall's tiered architecture posed various distribution conflicts with its multiple level interferences. However, these were easily mitigated due to the collaborative planning process, and the IME team's extensive experience.

On a weekly basis, the IME site leadership and BIM team met with the project stakeholders to establish the proper medium voltage distribution for the space. Coordinating with the needs of each trade, IME assisted in the design concept for the distribution, providing power from the central utility plant's 13,200-volt primary power switchgear lineup in the central utility plant to 10-unit substations; three of which were placed on the hotel side's electrical rooms. For the convention complex side, 28 electrical rooms were also designed and energized from the power plant. Adding to the system, IME provided and installed three 1000kw generators in parallel, to serve as the main backup generator system in the unlikely event of a power failure.

Amazingly, in order to connect the vast reaches of the complex from the power plant, IME was responsible for routing over two million feet of cable (378 miles) or roughly the distance from Denver to Salt Lake City, Utah! This was undeniably the most cable IME had ever pulled on a single project.

Turning Accuracy into Savings

Due to the size and volume of work being completed on this project, IME dedicated 5 specially trained BIM personnel for coordination purposes during construction. Utilizing Total Station surveying for the layout, this team was tasked with documenting site conditions and comparing against the design. They would then upload the results to a shared site accessed by all trades to address conflicts such as tight pinch areas. This was vitally important when it came to the main power plant room which became the connection hub of the necessary conduit systems required for the infrastructure. This open and often daily communication aided immensely in overall conflict coordination.

Being a principal in the initial design process also allowed the IME BIM team to successfully create models that would be used to prefabricate the underground components with great

accuracy. In order to guarantee the correct location of each system, steel cages were prefabricated off site with the conduit pre-installed. Then, when the components arrived on site, they were aligned with the Total Station set points, ensuring the positioning as previously designed. This vastly sped up the onsite process and increased install accuracy. The outcome of the collaboration between IME's BIM Department, the onsite team, and other trades resulted in a substantial reduction in the amount of conduit installed, and ultimately a reduction in cost to the customer.

A Weighty Issue

During the design review process for the interior spaces, IME realized a need to redesign the entire lighting package. The original plan had included a mixture of LED and fluorescent fixtures. Our team was able to formulate a more cohesive design package containing predominately LED lighting which would last 4-5 years longer, was more energy efficient, and required lower maintenance. The system also qualified for a hefty rebate from Xcel Energy, offering hundreds of thousands in savings for the customer.

After honing in the design, the lighting continued to pose challenges for the onsite team. The lighting fixtures for the convention center ballrooms, exhibit hall and main entrances were massive in size, some tipping the scales at 15,000 pounds. Designed to complement the overall grandeur of the spaces, the weight of the fixtures became an issue.

The problem arose when it was discovered that the floor below where they would eventually come to hang was not rated for the combined weight of the fixture and the equipment required for installation. Thus, the IME team had to get creative. With our tradesmen's safety in mind, installation support systems had to be redesigned and strengthened. New protocols had to be continuously created for each individual fixture so that onsite crews could safely raise the elements to their final location with the assistance of various implements such as scaffolding and lifts.

Thanks to IME's safety department and the safety philosophy ingrained in each employee from day one, there was not a single serious injury in the 232,400-man hours that our employees devoted to this project. We attribute that to our daily onsite meetings and mobile app-based safety tools that employees can access around the clock that allow for reporting in real time.

IME was also recognized for our commitment to safety by Mortenson/ Welbro. One of our journeymen discovered that some landscaping material near the complex had ignited, and without a moment's hesitation, he jumped into action, making sure the fire was extinguished before it could spread and cause more damage. Thankfully, because of his actions, no one was hurt and the impact to the project was minimal.

Dawn of a New Aurora

Gaylord Rockies opened its doors in December 2018, to great acclaim. Having already booked over 1.1 million rooms over the next few years, it is expected to generate $275 million dollars a year in economic activity that Aurora would have otherwise forfeited to other well-established tourist and convention spaces across the country.

Despite the challenges and difficulty IME experienced while building this project, the team is proud to have been a part of making history with this monumental build on the Aurora plains and driving Aurora's economic growth for years to come. Intermountain Electric takes pride in helping shape the Denver skyline since 1946, and we are honored to add Aurora's Skyline to that list as well.


CAUTION