

Category: 6 - Best Building Project – Specialty Contractor (\$6 - \$10 Million)

Contractor: Encore Electric

Project: Colorado State University Translational Medicine Center

The C. Wayne McIlwraith Translational Medicine Institute (TMI) at Colorado State University is a state-of-the-art research facility, where the faculty, staff and students plan on implementing novel medical therapies and learning opportunities that will help develop better medicinal outcomes for both people and animals. When it came time to build this facility, general contractor JE Dunn partnered with Encore Electric to design and build the advanced technology required by the center for its operating rooms and sophisticated classrooms designed for interactive and distance learning. C. Wayne McIlwraith, for whom the TMI center is named, continues his 36-year career with Colorado State University. In 1985, a horse Dr. McIlwraith had performed surgery on was the first to win the Kentucky Derby following arthroscopic surgery. The center is designed to further groundbreaking procedures and was named after Dr. McIlwraith following the request of one of the major donors to the project.

Encore Electric provided all of the electrical construction needs on the project, as well as the numerous technology solutions needed to help this ultramodern research facility come to fruition. The project took massive collaboration with the entire construction team and several university faculty and staff to identify technology needs and resources to make this center the first-of-its-kind. It is the largest self-performed AV project for Encore to date and is an expression of the "all things technology" aspect of the Encore Electric vision. Kevin Zolitor, Encore Electric solution architect said, "For a project this complex, you need to immerse yourself and understand the context of what you're building. You need to know what's important to the customer, and you cannot just build to the drawings."

It is exciting to think of what students will experience in this facility during their studies for both human and animal medicine. TMI includes arthroscopic-equipped integrated operating theaters with attached observation rooms, equine-capable MRI and CT imaging (imagine operating tables and MRI machines that are large enough for a horse!), classrooms, event facilities, labs and offices, conference rooms, video studio and control room and an adjoining horse barn.

It features best-in-class educational technologies including classroom-to-operating suite interaction, real-time offsite collaboration, UHD/4K medical video capability, video production facilities, and an immersive classroom with panoramic video and virtual reality. Tiered

classrooms provide an innovative setting where students can interact with surgeons who are based at the center or remote, and allow the student to ask questions of the doctors through microphones at each seat. A remote AV operator in the control room can “direct” the video and audio that is seen by the students and instructors. In addition to those tiered classrooms, regular classrooms provide the most highly sophisticated immersive technology available to students, who will often feel that they are in the operating room with the rest of the surgical team. There is a recording studio, featuring unique lighting and power requirements to allow for flexible lighting situations, as well as a post-production suite where videos of procedures can be edited together.

Management of the TMI project was challenging from the start. Right at the tail end of design completion, the Encore Electric team was installing conduit in the ground, as well as incorporating more advanced design changes immediately after the first project phone call with the engineers. In addition, the first phase of the project had quite a bit of trade stacking and collaboration issues that needed to be overcome. The framing and block work fell behind due to the challenging weather conditions early on in the project cycle, as well as the challenging manpower issues that arose from staffing up the project. Because of the work that the Encore Electric team did during the underground phase on the clinical side of the building, the project was able to be completed on time. This foresight and advanced management of the team led the way in helping keep the rest of the trades on task and allowed for some flex room in the final schedule to ensure all tasks were completed.

The Translational Medicine Institute was a unique project to build not only because of its mission, but because of the challenge of building such a large, multi-purpose facility. Encore Electric was required to call on its experience building medical facilities and also university work. It was an interesting combination of skillsets.

During construction, electricians from Encore Electric applied some of the same concepts applied to the TMI that apply to building a hospital for humans. However, because of the size of these patients—horses--certain aspects of the operating rooms and electrical power needs were super-sized, along with the need for distance learning and recording capabilities in each operating room.

One side of the building is mostly classroom and lab spaces, and the other side features mostly clinical animal care areas, including four operating rooms, an MRI room and a CT room. In

addition, the building has an enormous audio-visual package that needed to be designed and installed, and everything was state-of-the-art.

Encore Electric brought those cutting edge technologies to the building to enable amazing feats of education for CSU students, including advanced distance learning. Classrooms have the ability to connect to any of the four operating rooms in the facility to get a hands on look at what is happening in each. Technology in the rooms includes 4K televisions, dynamically operated table-mounted microphones and remote AV operators in dedicated control rooms who are continually tweaking the sound and images seen by instructors and students on-the-fly. The immersive nature of these classrooms allows students to feel as if they are truly in the operating room, working alongside doctors and nurses for the care of the animals.

Another challenge was schedule compression. Due to weather conditions and time constraints, trades that were on the job before Encore Electric compressed the schedule in some areas. As the team was building the project, the design team made design changes, which required agility on the part of the electricians. In addition, a crane managed by another contractor fell on the building about 75% of the way through the construction phase, and although no one was injured, it created a bevy of challenges as the Encore Electric team worked away from the compromised areas for two weeks.

When considering the compressed schedule, Encore Electric team members brainstormed ways to work in other areas of the center to complete work immediately, or electricians installed underground to avoid overhead issues. While design was changing, Encore Electric worked closely with the electrical engineer to access information - allowing the team to get areas installed and planned before documents had been issued. Finally, during the crane incident, Encore Electric sent manpower to other projects for a couple of weeks to help out while they worked to get the crane off the building and make sure the structure was safe to allow craftsmen to get back in to work.

Work resumed and the Encore Electric team, along with JE Dunn and other specialty contractors, worked diligently to ensure that other snags to the project were dealt with in real time.

Encore Electric is honored to have worked on this project for both Colorado State University and JE Dunn. It's a place for education like nowhere else, and the team is looking forward to hearing not only about the discoveries made on campus, but also by those around the world who accessed the learning through the technology at TMI.











