

Category 2: Meeting the Challenge of a Difficult Job – Specialty Contractor

Specialty Contractor: Intermountain Electric, Inc.

Project Name: UCHealth Poudre Valley Hospital –Building ‘E’ Electrical Upgrade

Oh Baby! - Redefining Planning, Labor & Delivery.

As part of the Building ‘E’ electrical room upgrade project for UCHealth Poudre Valley Hospital in Fort Collins, CO, little did the project team expect the contingency plan for taking the Labor & Delivery department’s scheduled electrical outage would go into effect with the welcoming of a newborn during a scheduled outage. Fortunately, detailed planning and a full schedule of temporary power and sequences were in place.

This meant that the Labor & Delivery department’s short-term outage would take a back seat to the late-night arrival. Seemingly simple to simply forego construction progress, this was no small feat in execution as there were several departments in Building ‘E’ that were holding on to the agreed outage schedule. It was critical in the operations of the hospital and its patients to maintain these nodal scheduled outages. In a 6-week timeframe, the electrical upgrades in Building ‘E’ accounted for 30 planned outages.

And, since one of the most serious events in daily operations is the health of a newborn baby and laboring mother, the project team was ready to respond to minimize any snowballing effect of scheduled outages with other departments. To mitigate any interference with other departments, the team took solid and detailed coordination and planning between the hospital’s project manager, Stephanie Cooper, the various affected departments of Building ‘E’ and Intermountain Electric (IME). Together, on the night of the new birth, the clear strategy was to respond quickly if there was such an unforeseen laboring patient and the project team responded quickly. The team used their established plan, a detailed SOP, and assigned a rapid response crew to methodically ensure that the Labor & Delivery department remained on-line while simultaneously working in secondary areas to keep the remainder of the building outages schedule intact.

In general, switchgear removal is in itself a challenging undertaking; however, add the complexities of performing that task in an active hospital and tightly reachable spaces, and the orchestration of activities has little room for error. The project included removal and replacement of old electrical equipment and work at the basement level and first level of Building 'E'. In the basement, the existing 350 s.f. electrical distribution room included existing equipment upgrades, removal and/ or replacement per the scope in the contract documents. On the first level, 1,040 s.f. of existing office space was renovated to accommodate the new electrical room and re-configured office area.

Another challenge was the schedule. It was hit early with a six-week delay. The project started with the plan to take a couple staff offices and relocate occupants to temporary offices to gain access the existing electrical room equipment; however, the occupants of these two offices asked for a one-stop move instead. IME worked with the general contractor, Adolfson & Peterson (A&P), to buildout two new offices to accommodate their wishes. This move delayed our access to the electrical room, so our 6-month schedule was shortened by six-weeks. Since we were on a State requirement to have the new equipment on-line by May 31st, this delay, although seemingly insurmountable was overcome by a change in sequencing events to maintain progress.

A major construction challenge was space constraints and how to fit all the new replacement equipment into existing confined space, without disturbing the existing equipment. Access was also tight. IME navigated around a large AHU, and that caused some difficulty bringing equipment down and into the area and getting the old equipment up and out of the facility as well.

IME and A&P relied heavily on BIM as a key component to solving the space issue. The team first performed 3D scanning of the existing space to allow us to schedule and sequence our work in such a way that we would clear existing pipes out of the way as those items are fed into the new gear, and sequence work accordingly. So to accomplish that, after scanning the existing facility, we produced a detailed visual 3D view of the main electrical room which was then converted into Revit, and modeled in the new equipment.

This reliance on BIM and IME's in-house fabrication methods created a workable 6-week schedule to install new electrical distribution gear in a new electrical room in the 'E' building which served the Orthopedics patient unit, Neurology patient unit, Neonatal Intensive Care Unit

(where NO unplanned outages could occur at any time), inpatient pharmacy and the Labor and Delivery Unit. To achieve the cutover from existing distribution gear to the new, 30 planned electrical outages were carefully planned with the facility to ensure that all patient care and support areas had sufficient lighting and power at all times. The existing switchgear was nearing the end of its useful life and was no longer serviceable. With the addition of the new switch gear, it will provide additional future capacity as well as long term serviceability in a code compliant, modern electrical room.

BIM and in-house fabrication were also instrumental, not only access the tight electrical rooms, but also critical to the number of rigid conduits to bend. Since we performed the fabrication in our controlled environment, we used less of a footprint on site, recycled our product waste and ensured our processes were efficient and environmentally conscious. We recycled 100% of the old equipment through Omega Service and Supply in nearby Windsor, Colorado. They refurbish and resell old electrical components like breakers and switches, or recycle them.

In addition IME's in-house fabrication adding efficiencies and precision for quality, the most prominent ancillary benefit to working in a controlled environment is pivotal to the IME safety culture that exists in the shop as well as on the site. IME created a project-specific safety plan for the electrical scope, adhered to UCHHealth's safety standards and subscribed to A&P's safety plan as well. Careful safety planning and coordination was paramount to the successful removal of aging equipment and the installation of the new equipment. UCHHealth's Poudre Valley Hospital Building 'E' is a 35-year old wing of the hospital, a 24/7 active campus, and safety of its patients, medical staff and contracting crews was not compromised. With over 4,178 labor hours, there was not even as much as a scratch on one of IME's crew.

Client Quote: "The pre-planning and BIM modeling that was conducted by Intermountain Electric prior to the implementation of these required outages were absolutely crucial to this project's success. This allowed for our facility to clearly and concisely craft a plan that would provide the safest outcome for our patients and staff and also allowed for flexibility when required due to the nature of the occupants affected. It took commitment from every member of this team (and their families) as we ALL committed ourselves to the project and shifted to night shift for the majority of these 30 scheduled outages. It was an absolute success!" – Stephanie

Cooper, Project Manager Design & Construction – North Region – UCHealth Poudre Valley
Hospital.