

**Category: 4 – Best Building Project – SC (Under \$2M)**

**Contractor: Greiner Electric, LLC**

## **Project Name: Swedish Medical Center Fifth Floor Remodel**

The numbers tell a story in the remodel of Swedish Medical Center's Fifth Floor, which includes the Maternity Unit. The remodel required Greiner Electric to rewire the majority of the floor, including the patient rooms, nurse stations, offices, telecommunications and fire alarms.

Working on the dated systems in a fully functional hospital among staff, laboring mothers and visitors produced some interesting challenges—and successes.

- Amount scope changed: Doubled from \$880,000 to \$1,795,000
- Number of phases: 24
- Completion between phases: 100% before starting next phase
- Hours hospital remained operational: 24/7
- Age of existing wiring systems: 40–50 years
- Number of man hours on the project: 17,200 hours, 18 employees
- Number of hours hospital operations affected: 0
- Number of safety incidents: 0
- Amount of time and budget overruns: 0

The 12-month SMC remodel project presented challenges with its changing scope, intricate and unyielding safety procedures, hospital regulations, outdated electrical wiring and shared working space. The challenges did not deter Greiner Electric. From day one, all employees were committed to ensuring a positive, rewarding and safety-conscious environment that met the ambitious project goals — on-time, on-budget with zero safety issues. Today, the new wiring contributes to the unit's goal of providing a safe and special experience to all families.

## **Design Scope Doubles**

Before any plans came off the drafting board, SMC changed the project scope a week after awarding the project. This was not just a minimal change order, but an ambitious alteration—the scope more than doubled from \$880,000 to \$1,795,000. Within this change was an increase from four increments of generic scope to 24 different phases of work. Greiner tackled the new scope with relish, even though it required a rework of the entire schedule and staffing to meet the deadlines. Timetables, schedules, budgets and staffing needs were instantly adapted and the project started with no delay.

## **Working in a Fully Functional and Operational Hospital Environment**

The fifth floor of SMC houses the labor and delivery area, birthing and tub rooms, NICU and postpartum department along with nurse stations, triage, offices and corridors. For patient safety, an essential component of the SMC project was the ability to conduct inspections and proceed with installations while the hospital was 100% operational, 24/7. No mistakes or accidental shutdowns of critical electrical machines could occur at any point during the project.

SMC valued, respected and trusted Greiner Electric to successfully navigate and complete this daunting task. Greiner electricians were in constant contact with everyone who visited the floor, from doctors and nurses to laboring mothers, new babies and family members. Greiner electricians made sure to keep the safety—and comfort—of everyone on the floor at the forefront while working on the project.

## **A Sterile and Secure Area**

Working within a department that deals with the beginning of life itself presented unique challenges. As the hospital was a sterile environment, areas had to be rigorously cleaned and equipment moved whenever it was deemed necessary; this included moving out of a section on the same day if a patient had to be sealed off from contaminants or if surgery was taking place. When Greiner discovered asbestos and dust within the fifth floor, schedules were adjusted and safety policies realigned to accommodate this delay.

In addition to being sterile, the Maternity Unit is a secure area, requiring electricians to take certain routes, clear checkpoints and have equipment checked on a daily basis. Every visit to the

restroom required Greiner employees to clean up, pass secure checkpoints and traverse floors because the fifth floor has no public restrooms. This added extra time to the workday, which all employees absorbed without question.

### **Safety: First and Foremost**

Dealing with dated wiring, sharing workspace with other contractors and working around staff, patients and visitors created huge potential for safety issues to develop. This was not acceptable. “There was no room for mistakes, not even one small mistake, as that mistake could have a big impact on the hospital and patients,” said Korbin Kludt, Greiner Electric Foreman of the SMC project. Although Greiner staff encountered many possible safety issues, they handled each with the diplomacy and professionalism that SMC hired them for.

In the end, the 17,200 man-hour SMC project produced zero OSHA recordable accidents, zero OSHA restricted day-cases and zero OSHA lost-time accidents. To achieve this remarkable safety record, precautions included:

- **Containment.** Greiner electricians were on alert when transporting and working with equipment in public areas such as corridors. Greiner combated these situations by devising intuitive site-specific safety plans. For example, wherever a pipe was being installed, staff set up a temporary containment tent that held all the pipes and equipment, vastly decreasing the likelihood of an inquisitive patient wondering in to the area. They also used portable contaminant tents when working with ceiling tiles, which helped minimize dust debris and helped prevent accidents.
- **Off-site storage.** No materials could be stored on site, due to the lack of space and possible safety issues. Equipment had to be transported in and out of the hospital on a daily basis, so Greiner Electric provided a site truck that was parked about a quarter mile away. The truck transported both staff and equipment, making several trips in the morning and night. With up to 18 employees transported to and from the site each day, Greiner Electric worked the transportation requirements into their schedule, adding no extra time to the project.

- **Clear Communication.** During the project, Greiner posted safety posters and policies for the benefit of everyone on the fifth floor. Policy language was revised so that a layperson, such as a nurse or worker from another trade, could understand them.

### **Phases Completed from Start to Finish**

SMC required 100% completion between phases of the project, despite the impact on efficiency and scheduling. Greiner Electric treated this phasing requirement as a puzzle to solve rather than an insurmountable problem. Staff remained flexible while working in constant contact with the patients and staff within the current at-work phase. During a phase, Greiner electricians sometimes worked in a room that backed to another room where a mother had just given birth. They also shut down phases on command, such as an unseen requirement for a patient room, and opened them back up when able.

### **Dealing with Past (and Present) Power Problems**

Once the project started, issues with the outdated, possibly incorrect and potentially dangerous circuitry and wiring system came to light. Opening a box might reveal any kind of wiring from the past 40 to 50 years of electrical contractors, none of which could be trusted. With a full understanding of the dangers — to Greiner employees and SMC staff, patients and visitors — of mishandling the rewiring, Greiner electricians took extra precautions. This included:

- Following strict PPE procedures while opening any box according to a site-specific safety plan.
- Triple checking wiring prior to any shut-off.
- Isolating temporary power to fuel their work. This meant separating out the normal power system rather than tapping into power in any of the rooms.

### **High-Tech Communication Tools Increase Efficiency**

Greiner electricians are always looking to increase efficiency and make the working environment an easier and smarter place to work. As usual, the project managers, project foreman and senior staff all used iPads to simplify the day-to-day communication with SMC, subcontractors and other individuals working on the site. To simplify the SMC project, Greiner used the Annotate

application to document each wall after it was roughed in and digitally place the information within a drawing. This information was accessible to everyone on the project, and it will remain available for any future contractors.

### **Best of the Best Electricians**

Greiner Electric handpicked a crew of primarily senior electricians based on their electrical skills and experience along with their maturity and overall demeanor. Half the crew were foreman, almost all were journeymen, and of the handful of apprentices on the job, all were experienced third- and fourth-year electricians. All electricians on site at SMC passed a background check, completed a series of immunizations, and passed ABC's C3 Safety class, giving them an extra level of safety training and knowledge.

### **Service Above and Beyond**

During the SMC project, Greiner electricians went the extra mile to not only work unassumingly, but to comfort and help staff and patients whenever possible. It was not unusual to see a Greiner electrician talking with a laboring mother as she traversed the hallways, or congratulating a new dad on the birth of his child. In addition, Greiner electricians regularly provided pro-bono services to displaced family members who were staying in RVs near the hospital. This type of above-and-beyond behavior from Greiner employees showcased the attitude that prevailed throughout the project site for the duration of the job.









