

2013 ACE AWARDS

ASSOCIATED GENERAL CONTRACTORS OF COLORADO

CATEGORY # 7

BEST BUILDING PROJECT – SUB (OVER \$10M)

PROJECT: CASTLE ROCK ADVENTIST HOSPITAL

OWNER: CENTURA HEALTH
188 INVERNESS DRIVE
Englewood, Colorado 80112

G.C.: GE JOHNSON
5613 DTC PARKWAY, SUITE 450
Greenwood Village, Colorado 80111

ENGINEER: CCRD
600 S. Fiddler's Green Circle
Greenwood Village, Colorado 80111

Architect: Hunton Brady Architects
800 N. Magnolia Avenue, Suite 600
Orlando, Florida 32803

ELECTRICAL CONTRACT: \$11.4 MILLION

SUBMITTED BY:



STURGEON ELECTRIC COMPANY, INC.

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Henderson, Colorado 80640
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Maximizing Technology

Douglas County dates back to the Colorado territory. One of the fastest growing counties in the United States, its county seat, the town of Castle Rock, ranks number 17 on Money Magazine's list of the Best Places to Live, with a median household income \$23,000 a year higher than the Colorado average, and residents whose average age is seven years younger than the rest of the state. Strategically located in the middle of the Denver/Colorado Springs Development Corridor, the town saw 44 new businesses open in just the first quarter of 2012. Castle Rock seemed to have only one remaining need. In its 139-year history, the town never had a hospital, not until August 1 of this year, when Centura's Castle Rock Adventist Hospital had its grand opening.

Reflecting the upscale city and county in which it is located, this hospital provides expansive, serene mountain views and designer touches to optimize the healing environment for patients and staff. Its full service restaurant offers healthy choices and an ever-changing menu reflecting area growing seasons. Connecting with the community, the hospital offers garden boxes and healthy cooking classes, organized running clubs and free bicycle usage. The construction methods used during the hospital's construction -- iPhones, iPads, Flat Screen TVs, BIM, and Revit, and the Last Planner System -- also reflect the area's high tech nature. We had spent months of beta testing and training on several new technologies so, after award of this contract, we chose this project to rollout our full technological package -- and the results were amazing.



Project Execution:

Although many of our Supervisors had experienced portions of the new delivery model, we took particular care to train, educate, and get buy-in from each of them on a completely integrated approach. Construction of the 212,240 square foot Castle Rock Adventist Hospital began in September 2011. Our team started before that though, hiring a LEAN scheduling consultant to help us study the LAST PLANNER system. As we peeled back the layers of the onion and began to understand the value in these principles, we were able to adjust our short interval scheduling, greatly improving the reliability for all stakeholders. We used that system to build our schedule, working backward from the end date, which greatly enhanced our own just-in-time delivery system.

When the General Contractor agreed to change their schedule to a six-week look ahead, it was like adding high-beam headlights to the project, allowing the entire project team to view further down the path to identify common deviations to the schedule, and track them daily, allowing for corrections to many issues before they became major problems. In addition, we added a feedback element to the process to document our planned percent complete against our actual and identified common deviations during weekly project team meetings. These areas were then the focus for improvement. This technology allowed us to add turbochargers to an old Sturgeon adage – Plan Your Work, Work Your Plan, Inspect What You Expect, and Apply Corrections Immediately.



The depth and experience in our BIM department allows accurate representation of the pieces of the project and their assembly over time. Our coordinated model enhanced efficiencies and created value for the customer by intensely scheduling the work. We married BIM 360 software to iPad Technology and uploaded CAD coordination daily, eliminating paper documents from the project floor. With iPads, Supervisors immediately received delivery and critical information to give to field personnel, tracked and evaluated schedule deviations, and worked internally with designers and other trades to correct deviations. Our technological package was so leading edge that individuals from other trades commonly approached our supervisors to view the “latest” updates.

The use of technology provided measureable achievements. We increased prefabrication utilization, improved accountability to the schedule, improved trade coordination, and captured field changes and quality issues daily, eliminating redlined documents and reducing punch list items. More accurate planning allowed us to reduce our labor headcount and reduce our labor rates.

Tying into an existing emergency clinic, the hospital facility completes the Health Campus and houses a full-service acute care hospital with inpatient surgery, obstetrics, orthopedics, cardiology, complete support services, cafeteria, and a full complement of medical/surgical patient services including intensive care. The facility has a four floor patient tower, and separate central utility plant.



Solutions to Special Problems: Unity is a word not often associated with multi-company construction teams. It takes a tremendous amount of coordination, cooperation, and balance to succeed with a complex construction project and yet the delivery methods used most often tend to create silos filled with individual goals. This “us vs. them” approach conflicts with many Sturgeon core values – respect, integrity, honesty, and teamwork. Nearly two decades ago we challenged our project teams to provide a relentlessly positive influence on every project to eradicate battleground jobsites. Our goal is to lead by example, understanding that every day decisions are not just about us and to be aware that our actions influence others. United, the Castle Rock Hospital construction team became the perfect team.

Through careful coordination and planning with the general contractor and other sub contractors, the Sturgeon team was able to develop highly reliable weekly work plans. By tightly connecting crew planning to execution in the field, the overall project team quickly came to understand that they could trust and rely on each other.

Job Site Safety: We believe good planning, good training, good supervision, and pride in a great safety culture keep injuries down. The Castle Rock Adventist Hospital project proved our hypothesis. Our crews -- topping out at 55 – suffered zero OSHA recordable injuries while working over 116,000 hours. There were four first aid only cases reported. We would like to note two of them. The first was a foreign body in eye (FBIE) injury, which we treated on site with apparent success. Due to a new safety policy



regarding FBIE injuries, we transported the worker to the clinic to insure no residue remained. The second was soreness in the back. With no ice on the project, our Superintendent improvised by placing a large cold pack, removed from his lunch box, onto the man's back, and wrapping the individual extensively in caution tape to hold the pack in place. By the time they reached the clinic, the swelling was down and the pain was gone. After his examination, the clinic released the individual to return to work with instructions to continue a treatment of ice and ibuprofen.

The fact that these injuries happened to newly hired employees caught the attention of Sturgeon's Incident Review Committee. A detailed analysis of several years of safety data revealed that employees on a jobsite less than six months were incurring a disproportionately larger percentage of injuries – regardless of their position.

The study led to our establishment of a Short Service Employee (SSE) Policy classifying individuals with less than six months employment as SSEs. A Certification of Hazard Assessment accompanies SSEs when they report to job sites. They must review and fill out the Assessment with their on-site supervisor before they begin work. SSEs must wear a special sticker on their hardhat with the date of their employment. The sticker is to give notice to crewmembers they work with that the individual may not be familiar with Sturgeon's safety culture or the conditions and hazards of the specific job site, and as a reminder to the individual SSE that they are statistically more prone to injury during their first six months. An evaluation by the SSE's supervisor is required at the end of six months to determine if they are competent in safety requirements to remove the sticker.



Our Recordable Injury Incident Rate as of September is 46% lower than the BLS average for our field. In 2008, we became the first electrical construction company to obtain Star Status in OSHA's elite Voluntary Protection Program (VPP), a level we have maintained continuously for five years. On March 15, 2012, the Associated General Contractors of America awarded Sturgeon Electric first place its nationwide Construction Safety Excellence Awards in the Specialty - Over One Million Hours Worked - Division.