

## **2017 AGC ACE Awards**

**Category 4:** Best Building Project - Specialty Contractor (Under \$2 Million)

**Contractor:** Sturgeon Electric Company, Inc.

**Project Name:** Memorial Union Electrical Services Upgrades (ASU-MU) Arizona State University

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When you go to Arizona there is one place you can't miss; the Arizona State University Campus. Established as the Territorial Normal School at Tempe on March 12, 1885, when the 13th Arizona Territorial Legislature passed an act to establish a university to train teachers for the Arizona Territory. The humble campus consisted of a single, four-room schoolhouse on a 20-acre plot largely donated by Tempe residents George and Martha Wilson. Evolving over several years and changing names several times, Arizona State University (ASU) was officially established in 1958.

Due to the age of the campus, facility renovations are a common necessity. Among the most frequent and urgent upgrades needed involve the campus electrical systems. The electric rooms, vaults and underground tunnels running throughout the 642-acre campus bear outdated panels, aging switchgear and worn-out transformers. Even with consistent renovations, several buildings have long been in need of electrical overhaul. One of these buildings is the ASU-Memorial Union Hall. Originally built in 1954, the Memorial Union is the center of student life on the Tempe Campus. Nearly 25,000 guests pass through its doors daily.

*“For the past 50 years the Memorial Union has been central to our campus, offering a gathering place for students, faculty staff and visitors to engage,” says Kellie Lowe, MU director.*

The ASU-MU project on paper looked like a simple project. However, after the initial site assessment it was obvious that the work presented a serious logistical challenge as well as a huge impact on campus employees; the central ASU-Memorial Union Hall, located in the center of campus functions as a hub bustling with daily activity. Adding to the challenge was the fact that the work was required to be performed during the school year, potentially impacting the performance of the facility administration.

### **Solutions of Special Projects:**

The location of the project and schedule expectations were considerable problems shaped by the location of the ASU-Memorial Union Hall. We needed to coordinate the new underground electrical conduit system (duct bank), and resolve logistical problems associated with the removal of equipment from the severely congested loading dock.

Logistical Solutions:

1. Reduced the impact to the campus and student safety by employing Lean Construction methods, such as Just-In-Time delivery and the Last Planner System, reducing deliveries.
2. Boosted our capabilities for material procurement, staging, and delivery times by securing secured an office/warehouse unit very near to the project.
3. Boosted pre-fabrication resources - we were able to pre-fabricate items such as entire conduit assemblies and custom fabricated junction boxes, resulting in material getting to crews at the exact time they needed them. Crew leaders constantly gauged their installation schedules and coordinated with the remote pre-fabrication team to streamline this process.

### **Excellence in Project Execution and Management/Team Approach:**

Sturgeon Electric faced a major challenge with removing (5) three-section pieces of 60-year-old switchgear (approximately the size of five moving vans), one medium switch, overhead medium voltage buss and medium voltage feeders all while keeping the facility up and running. Sturgeon Electric rose to the challenge:

- (2)26 Foot refrigerated trucks were brought in to keep perishable food from going bad.
- Installed hundreds of feet of temporary cables to existing switchgear to keep the facility running, while removing equipment from the 1950's and getting ready for the new installation of the panels.

### **Construction Innovations/State-of-the-Art Advancement:**

Heavy use of Building Information Management (BIM) on the project translated to more efficient installations. Foremen were able to use detailed drawings to submit pre-fabrication plans to the off-site warehouse, while using iPads for document control, production tracking, and collaboration. Pre-fabrication was pushed to new levels; for example, our off-site warehouse fabricated bends and brought them to the site with little impact to the University.

### **Environmental/Safety:**

Executing work safely within the University required a commitment to disciplined planning and communication for Sturgeon Electric's crews. Managing work at the University with 71,000 students attending class all hours of the day, facing scorching Arizona weather conditions, and mitigating traffic and pedestrian concerns around the University Campus made for a challenging working environment. Despite all of this, Sturgeon completed the project ahead of schedule with zero injuries.

### **Excellence in Client Service and/or Contribution to Community:**

We are fortunate to have been part of the team who delivered such a challenging yet rewarding project. The following emails from our clients show that we were a value project partner.

“Good afternoon. I wanted to provide some quick feedback related to Sturgeon Electric who recently worked on the Memorial Union Electrical Upgrade project with Holder construction here at Arizona State University. From the beginning of the project in the summer of 2016 until the completion last week, Sturgeon Electric continuously provided exceptional service, communication and high quality work. I've shared the same sentiments with the Holder construction team. We were very fortunate to have Sturgeon as a leader on this project and I wanted to be sure to share our experience as this was a very unique, and sometime challenging project. Sturgeon was professional at all times and really made a difference in ensuring the project was completed without any major issues. We appreciate the services provided by Sturgeon Electric and look forward to working with you again in the future. Thank you.”

*Jeff Rensel Director, Operations & Events Memorial Union, Arizona State University*

“This project saw the same consistent results that previous SECO jobs I have been on experienced. The team did a great job and we look forward to working with them again. Additionally, this project was struck with a non-work related incident. That difficult time proved that SECO and Holder's

Relationship is more than just business. It's a real family feeling and we have each other's best interest in mind.”

*Eli Grief Holder Construction Project Manager*















