

**Category: Meeting the Challenge of a Difficult Job- Specialty Contractor**

**Contractor: ADK Electric Corp.**

**Project Name: AMAZON Fulfillment Center**

Amazon.com, more commonly referred to simply as Amazon, is the world's largest Internet-based retailer, leading in sales and market capitalization. NASDAQ/AMZN reported 2015 sales volume of \$107.01 billion. On April 27<sup>th</sup>, 2016, construction for Amazon's new Sortation and Distribution center in Aurora began. ADK Electric Corporation was chosen to rise to the challenge of completing the multi-million-dollar electrical project. The fast track schedule for this project was extremely compressed, given the overall project deadline was seven weeks. ADK Electric's role in the project was to completely finish and have operational the electrical systems for the highly efficient 452,196 square foot, 34-foot clear height building.

The project required power to be provided for the conveyor systems, ninety dock doors with powered levelers, lights and fans, over eleven hundred new LED light fixtures, twenty-six forklift battery charging stations, and thirty-six RTU's. The existing electrical service was removed and replaced with a 3000 Amp electrical service, and a 2500 Amp electrical service that would eventually accommodate the new generator connections and interfaces. All other equipment that was installed included utility connection cabinets, a 350 kilo-watt stand-by generator, two automatic transfer switches, two docking stations, and forty distributed electrical panels that were required for the branch circuit power. The entire building was outfitted with a Franklin lightning protection system, complimented with TVSS surge protection systems. An extensive power monitoring system complete with a Building Automatic Control interface was also added.

ADK Electric's Project managers and Project coordinators were put to task as well on this project, as the procurement process also started on April 27<sup>th</sup>. Almost all of the material necessary to complete the project needed to be detailed for expedited submissions, re-negotiated or substituted to accommodate the expedited schedule, released upon approvals, and tracked judicially for timely delivery.

The amount of electrical wire and electrical raceways used on the project was as vast as the building was large. Varying in sizes, the total length of wire installed was over 118 miles. A large portion of the wire was sized above 250 mcm (approximately ¾" in diameter). As we all know, the bigger the wire, the harder it is to install. There was roughly 2 miles of main feeder cable installed. The cable was pulled-in, tested, and connected in just a mere four days, an astounding feat. Various pieces of equipment, time tested methods, and hours upon hours of elbow grease were used to meet that goal. Of course, where you have wire, you have electrical conduit. Over 25 miles of electrical conduit was installed, 4 miles of that being three inches and larger. Due to the height of the building plus the size and weight of material, more stable 46' tall scissor-lifts were utilized, adding to the difficulty and risk. Underground conduit was installed to feed power to a remote guard shack, and the multiple pole lights positioned around the building. In addition to the electrical scope of work, ADK Electric also coordinated and installed the raceways and provided for the power needs of the Security and Data/Telecom systems.

In order to finish the project in the extremely narrow time frame, the crews worked long shifts in order to keep forty-five scissor-lifts in the air all day, every day. Forklifts were utilized to constantly feed materials to the lowered scissor-lifts. Additional equipment used consisted of boom forklifts, back hoes, trenchers, and tamper machines. ADK Electric initially started with training/re-training and certifying all of the crew members on the variety of equipment and conditions, that way, they were all ready to hit the ground running. With a total of 26,135 hours worked, ADK Electric personnel experienced zero work place injuries, and zero near miss incidents. With such a large crew moving with high intensity, the opportunity for a work place injury was high. With dedicated Safety Personnel and safety minded employees, as expected, all ADK Electric's personnel went home safe every day. Each shift started with reviewing the current Job Safety Analysis (JSA), discussed as a team, under the head Supervisor's direction. Use of hard hats, safety glasses, orange reflective vests, and gloves were strictly enforced and worn by every employee. ADK Electric's Safety Manager performed bi-weekly, project and task specific Tool Box Talks, in addition to the Safety Inspections that occurred frequently throughout the week. Various Fall Safety Plans were implemented and used in conjunction with other trades, to provide maximum protection to all the project's employees.

In addition to ADK Electric there were multiple other construction trades, and tenant's vendors, all working in concert on the project. With the fast paced schedule, working in close proximity to so many other crews presented considerable challenges. Those challenges were overcome by excellent communication, collaboration, and daily planning amongst the various disciplines. It was essential on this project that power to equipment and lighting be turned on as soon as it became available. Protecting workers from the electrical hazards for all of the trades was a high priority, so ADK Electric utilized its proprietary (patented) lockout/tag-out system to control access to the newly energized electrical panelboards. ADK Electric's lockout/tag-out system assisted the large crews and multiple disciplines in controlling access to live electric panels and helped to insure electrical safety.

The biggest challenge of the job, was the strict time frame. With only seven weeks to accomplish many milestones, the first critical step being the completion of the 18,000 square foot office space in just thirty days. ADK Electric personnel managed to finish the office space in twenty-seven days, which allowed for Amazon to use the completed space. ADK Electric successfully completed its full scope of work by the job deadline of June 15<sup>th</sup> 2016. On that date, the entire project had been finalized, tested, inspected and turned over to Amazon. It took immense planning and strict adherence to the set plan to finish the massive scope of work.

The dedication, professionalism, and skill of ADK Electric's Project Managers, Supervisors, and multiple Lead Foremen on the job all led to the successful planning, implementation, and completion of the project. From start to finish ADK Electric met, or beat, all project milestones incident free. It was because of overall team participation and pride that ADK Electric rose to, and overcame, the challenges.

ADK Electric Corporation is a "White Level" partner with the AGC/OSHA Chase Program, with a current EMR or MOD rating of .73.













