

The Commonwealth Quarterly

News from around the circuit.

Fall 2007



Commonwealth Electric Company
of the midwest

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Jim Olson Joins the Office Staff in Des Moines

T. Michael Price – Vice President

I am excited to announce that Jim Olson has recently joined our office staff to transition into the service manager position. Jim is a long time Commonwealth employee and comes into the office with over 20 years of field experience as an IBEW electrician. Jim is a welcome addition to the Des Moines office and will allow us to better serve our customer's service needs and expand our service operation.

Mike Duffy has managed the Des Moines' service group since he came into the office in 1999 and took the service department over from Milo Ware. The service department has grown during Michael's management to include over 10 service vehicles and dozens of accounts. Michael will transition the service manager duties to Jim and continue to pursue his growing account and project customers.

Mike is working to get out and visit all of our service customers and introduce Jim as the new Des Moines service manager.

Please take some time and welcome Jim Olson in his new position.



Jim Olson

Columbus Safety Committee

Ruben Bera – Corporate Safety Director

Our newest branch (IEC) in Columbus, NE held their first Commonwealth Electric Company of the Midwest safety committee meeting. Present were Steve Kaup, Matt Schumacher, Brent Stutzman, Eric Speicher and myself. The members came prepared with notes and ideas that they had gathered from other employees. They had some real good ideas that we will explore. As one of our fellow employees said "Good stuff and I look forward to working with this committee to enhance their already good safe work practices."

Please join me in welcoming our new CECM Columbus to "our family".



Eric Speicher, Matt Schumacher, Brent Stutzman, Steve Kaup

Big Brother is Watching...

Gil Stensrud – Project Manager

It seems that the redundancy in our work just goes on and on. We recently completed a job in the Omaha area for the Nebraska Department of Roads that was entitled the “Roadway Sensor Test Bed”. Yes, it was comprised of the same pipe, wire and other materials that we’ve installed many times for so many years...but with a few twists. At the Harrison Street exit on I-80 we installed multiple sensors under the roadway and various cameras and sensors on towers. The sensors and cameras are able to monitor speed, road conditions, etc. Some of the sensors on the towers can monitor all 8 lanes of traffic simultaneously and with exceptional accuracy. The cameras have pan/tilt/zoom features so that an operator can control what he is seeing remotely. Each of these devices sends the information to control cabinets located near the off ramps. From the control cabinets, signals are relayed to other on-site towers which send signals back to a command post located at the Department of Roads Headquarters and the Nebraska State Patrol’s new command center. This command center was built with Homeland Security funds and is capable of consolidating all of the information from all of the locations that are being installed across Nebraska. If you can imagine the ultimate big screen display at your favorite sports bar, this is what the command center is like. Numerous monitors hang on the walls giving the operators many views and instant capability of focusing on trouble spots.



Coming to a location near you!

In discussing with NDOR what the purpose is for all of this technology, the simple answer was to “Keep the roadways moving. If we detect a reduction in speed we can pan around and see what the problem might be. We could send police, fire, and tow trucks, whatever it takes to respond.”

Is the intent of all this technology simply to monitor traffic? Without trying to sound like a Conspiracy Theorist, you have to ask yourself just what is all of this capable of....hmmm?

Thanks to Rick Brock for heading up the project, Kent Barber, Terry Braden, Scott Hunter and Hugo Valadez for their field expertise. Thanks guys!

Safety Award

Ruben Bera – Corporate Safety Director

Commonwealth Electric recently was awarded an “Award of Excellence” for safety by our insurance company. This is the 2nd highest award given and it reflects the achievements made by all of us to promote safety and encourage safe behavior.

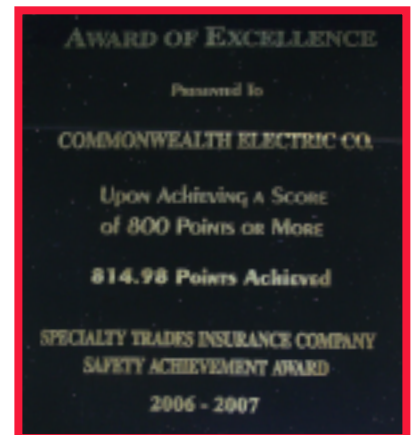
Although awards are nice to receive and look impressive when displayed, they do not reflect what has taken place to achieve the honor. Consider all you do in your daily work.

Some of you work in dirty trenches and go home at night covered in mud. Many do not realize the dangers of working in soils. Many of you work above the ceiling installing pipe and pulling wire. Working from elevated surfaces always present challenges and the fall hazards are always present. There are some who make the terminations and turn on the power. Electricity is a force that deserves respect. There are the drivers who deliver the goods to the job sites. These drives are always exposed to the hazards of daily road hazards. The service workers who never know what they will face when they hit the job. We face challenges and safety

hazards every day, yet we get it done safely. This is a reflection of the commitment we have made to keep everyone safe.

Our work does not focus on just installing pipe and wire; our work gets done because of the team work that we all are a part of. From the office staff to the apprentice in the trench, working together helps make us be successful. Take a moment to give yourself a pat on the back. This is your award and all of you should be proud. Let’s continue to work safe not to get awards but to demonstrate that just because we work in a dangerous field, doesn’t mean the job can’t be done safely.

Congratulations to all!



Safety Award

New Des Moines, Iowa Landmark Nears Completion

Mark Ramsey – Project Manager

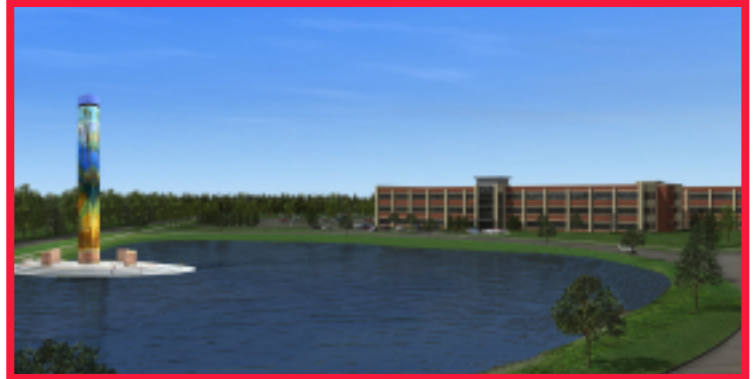
Commonwealth Electric Company of the Midwest is nearing completion of the Paragon Prairie Tower project located at the entrance of the new Paragon Office Park in Urbandale, Iowa. The 120 foot tall, 16 foot diameter tower was designed to be a tribute to Iowa and its heritage and is being donated by R&R Realty Group. Commonwealth Electric Company of the Midwest was selected by Construction Services Incorporated to perform the electrical work for the project including lighting which will illuminate the thousands of custom Italian glass tiles used to create the prairie scene on the tower.

“It has been a pleasure working with Construction Services President, Steve Bennett and his Project Manager, Eric Sanders on this one of a kind project,” said Mark Ramsey, Project Manager of CECM.

Along with lighting the tower itself, there will also be a 10 foot illuminated dome on top of the tower and 4 lighting murals located around the tower.



Paragon Prairie Tower



Rendering of new tower

The Boys of Summer Get a New Scoreboard

T. Michael Price – Vice President

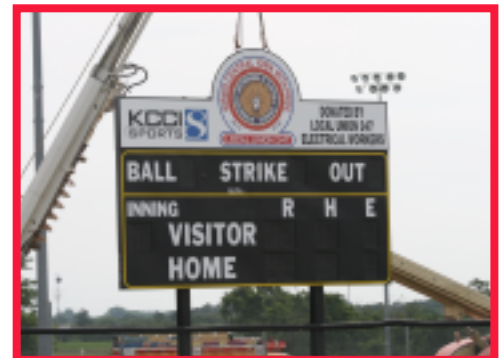
Over a year ago, in Des Moines, Iowa IBEW Local 347 and KCCI News Channel 8 joined forces to sponsor a contest to give away scoreboards to Iowa High Schools in need. A group of Winterset High School Baseball parents put their heads together and came up with a very unique contest submission for the Winterset High School Baseball program including pictures of the team and a scrapbook asking for a new scoreboard. The existing Winterset scoreboard was over 40 years old and badly needed replaced.

Winterset’s contest submission was one of the best and most unique received. Winterset won 1 of 12 scoreboards given away through the contest. Commonwealth Electric Company of the Midwest spearheaded the installation of the new scoreboard; donating time, materials and equipment for the installation. Several businesses and organizations participated in the installation of the new scoreboard

including Winterset Utilities, Winterset High School Maintenance, Simon Welding, Fair-play Inc. and several active parents of Winterset ball players. Jason Lane was Commonwealth’s foreman and his crew included Jamey Carney, Mark Duffy and Danny Cahalan.

Special thanks to Local 347 Business Manager Gerry Grandberg, KCCI News, and all the members of The International Brotherhood of Electrical Workers Local 347.

The installation went very well and the Winterset High School boys of summer have a wonderful new scoreboard.



New Scoreboard

What's the Big Deal with Arc Flash?

Eric Hoge – Manager of Engineering Services

NFPA 70E is the Standard for Electrical Safety Requirements for Employee Workplaces. The standard covers many topics, but it is best known as the standard that spells out what is required for Arc Flash PPE. Burn hazards associated with electricity have existed since the advent of electricity itself. So, why is it such a hot topic in the industry now?

I have heard from more than one electrician that they fear the threat of burn even more than the threat of shock or electrocution. Their reasoning is that they were trained to avoid electrical shock, but the risk of burns on any given electrical system is unknown. The difficulty with predicting the magnitude of an arc fault is the reason that the topic has not been fully defined sooner.

The amount of energy an arc produces is dependent on the resistance of the electrical system and the resistance of the arc. For example, a falling wrench that makes contact with the A phase and B phase of a circuit has a relatively small resistance so the current flowing through the wrench produces a large magnitude of arc current.

The same wrench could also fall and connect with A phase and narrowly miss the B phase. However, B phase can arc over through the air causing a fault. But, this fault current will be a smaller magnitude because the arc path has to cross air and the wrench.

Air acts as a resistance which means the arc fault has less intensity.

The second question for arc fault PPE is how long does the fault last? The amount of damage to the skin is based not only on the intensity of the arc, but also the duration of exposure. The exposure time is as hard to define as the magnitude of the arc. Breakers trip at different rates depending on the amount of fault current. In addition, the victim of an arc fault is typically blown away from the fault so the intensity decreases as the victim is moving away.

The difficulty for years has been to determine the amount of Incident Energy given that there are two variables – amount of energy and amount of time. There have been many papers written and mathematical models considered. NFPA decided on a series of calculations that take into account the fault current of the power system and the breaker settings which determine the amount of time a fault is allowed to persist. Interestingly, it is often the case that lower faults can cause the most damage to skin because they are permitted to last longer.

Many of you have heard of the “Category” system used by NFPA to quantify the burn danger present. These Categories are 0 through 4 and are based on the incident energy in calories per square centimeter. This is basically the amount of heat required

to give the victim no worse than a second degree burn. The higher the category, the more incident energy is anticipated and higher rated PPE is required.

The most important thing to remember from this whole discussion is that the best way to prevent burns is to NOT work on hot gear. We all know that this is sometimes impossible. When we must work on hot gear, take the time to find out what the incident energy is. Remember that it is directly related to the amount of current and NOT to the voltage. It is possible to have more burn exposure on a 3000A 208V switchboard than a 20A 480V breaker.

When the customer does not have the category posted, please check with your foreman and project manager so that the proper PPE can be worn. All PPE is rated in terms of calories per square centimeter so that it can be matched to the dangers present. With an understanding of the dangers, then we can protect ourselves from a painful burn accident.

Commonwealth Electric Company of the Midwest has the expertise to study an electrical system and determine the Category required by NFPA 70E. If any of our customers are interested in an arc flash hazard study with labels applied to the gear, please contact Eric Hoge in the Omaha Office.

La Curacao: A Retail Store with a Southwestern Flavor

Ernest Jeffries – Project Manager

La Curacao: A Retail Store with a Southwestern Flavor

The Phoenix Office of CECM was awarded a \$640,000 contract on May 3, 2007 by Sletten Construction Company for the tenant improvements of a Westcor Company shopping mall at



La Curacao

75th Avenue and Thomas Road in Phoenix. Within three weeks, the contract was almost doubled to approximately \$1.2 million and was required to be completed within 60 days.

The space was converted from a J C Penny store to a La Curacao retail out-

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let with a southwestern flavor featuring a Latin motif using bright colors. A family friendly style atmosphere is prevalent and includes a children's electronic game room and a stage area for mariachi music.

The construction included new lighting fixtures, utility power and devices along with a conduit system for TV/AV

wiring for a retail store of approximately 168,000 square feet. One prominent unique feature is a backlit "TV WALL" for display of big screen televisions.

A completion schedule of sixty days included an original work schedule of two, ten hour shifts working seven days a week.

CECM Project Manager Ernest Jeffries, supporting General Foreman Dan Will and his crew averaging eighteen electricians performed the work on time and within budget and most importantly with no accidents or safety incidents.

Bright Kavanaugh House Breaks Ground on New Facility in Des Moines

Ron Saf – Project Manager

The Bright Kavanaugh House started construction of their new hospice location on Des Moines' east side. Commonwealth Electric Company of the Midwest has been awarded the design/build electrical, communications, and systems work for the project. Graham Construction is the general contractor on the project; work is underway for the site utilities, building foundations and structure.

The project consists of a 24 bed hospice facility located in a residential neighborhood that backs up to a beautiful wooded area. The Commonwealth project team is looking forward to working with Graham Construction, Shiffler Architects and other team members to provide the electrical, communication, and special system needs for the facility. We are bringing all of our services to the table to provide Bright Kavanaugh House with a quality, state-of-the-art, efficient electrical installation.

The electrical portion of the project includes parking lot lighting, a 1200 amp electrical service, emergency generator including an automatic transfer switch, mechanical equipment wiring, elevator wiring, energy efficient lighting, normal and emergency electrical circuiting, fire alarm, nurse call, security system, voice and data communications cabling, cable TV, medical gas wiring and provisions for an additional future wing.

Commonwealth's project foreman is Rob Pearson, our estimator/CAD technician is Jeff Gero, and our P.E. of record is Eric Hoge.



Bright Kavanaugh House



Chandler Heights Community Facility, Chandler, AZ

Gene Hayes – Project Manager

Commonwealth Electric Company of the Midwest is again teaming with Mortenson Construction (GC) for the electrical construction of the Chandler Heights Community Facility. Mortenson awarded the \$2.063M sub-contract to us in December of 2006. We didn't begin work on the site until late January of 2007. The project started slowly when the City of Chandler (Owner) experienced problems in obtaining the necessary permits and clearances for work to begin. Subsequently, the work was divided into two phases, the first phase only releasing us to perform underslab conduit rough-in for two buildings. It was not until approximately mid-March that the entire project was completely released for construction. Since then, we have progressed significantly with our work which has included the installation of approximately fifty thousand feet of underground PVC conduit for site lighting and the Utility's power to the site's three SES's. There have been several significant changes to our work which has resulted in our current sub-contract increasing to \$2.370M.

This \$23 million dollar park facility when completed in late October of 2007 will be a multi-purpose facility which will include a police substation, a "learning center," a groundwater recharge/wetlands area and a recreation area all being built on 113 acres located on the northeast corner of Chandler Heights and Lindsay roads in Chandler, AZ.

The wetlands component of the project will be developed around the groundwater recharge basins in such a way as to provide for recreational opportunities such as wildlife observation, picnicking and bicycling. A trail system and 5-acre fishing lake also are planned. 78 acres of the park are for groundwater recharge and wetlands. The recharge site will consist of shallow basins, which will infiltrate high quality reclaimed water to the subsurface aquifer for storage and recovery. It will include the installation of underground reclaimed water supply line, construction of a reclaim water pump house and associated underground water distribution piping system. This project serves as an important component to the City's comprehensive reclaimed water management plan.

31 acres of the park area will consist of picnic areas, ramadas, trails and pathways, equestrian rest areas, a stocked fishing lake, an educational center and a police substation. The one story 10,000 SF educational Center will house exhibit space and a small gift shop, classrooms, and meeting spaces. The South Chandler Police Station will be approximately 20,000 SF one story building consisting of offices, briefing and debriefing rooms, holding areas, meeting space, and secured parking area.

Carl Pollock is the site Foreman for the project and Gene Hayes the Project Manager.



Aerial view



Chandler Heights Community Facility - Master Plan