The Commonwealth Quarterly

News from around the circuit.

Summer 2005

Commonwealth Electric Company of the midwest

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Beebe Runyan Building Renovation

Mark Ross – Project Manager

One of the early 1900's downtown Omaha landmarks was the Beebe Runyan Furniture Warehouse. Now a nationally recognized historical building next to the Heartland of America Park, is now being turned into upscale living residences just walking distance from the Old Market, Qwest Center, the Riverfront and the new Performing Arts Center. The original maple wood floor is being reclaimed and reused throughout the building, making it the first residential development project in the history of Nebraska to recycle at least 75% of qualifying construction waste. Other green features include native plants surrounding the building and on the roof, all natural finishing materials and a bike storage room to promote riding instead of driving.

BOCA Development, a Nebraska company, is partnering with Tackett Company, a premier home builder, to build the highest quality residences available in Downtown Omaha. Leo A. Daly was hired as the design firm. Completion date is set for June 2006, with all trades working to improve the end date as much as possible.

Building Exterior

Model Unit

Wittson Hall Project

Chuck Fintel – Project Manager

Wittson Hall, an 8-story building, is a very important part of the University of Nebraska Medical Center (UNMC). Built in 1970, it is an extraordinary facility, occupied with very special customers (e.g., College of Medicine Library, Pathology/Microbiology, Comparative Medicine, Cell Biology & Anatomy, multiple professors, directors, deans, vice-chancellors, and the Chancellor, Harold Maurer, M.D.).

Level 2 of Wittson Hall includes the "Hot Lab", containing radioactive isotopes; the Gross Anatomy lab; primate animal holding areas and small rodent holding areas; and the animal cage wash areas. The amphitheater is on Level 3; the biohazard lab on Level 4; the Chancellor's office on Level 5; and the McGoogan Library and atrium, on Levels 6, 7 and 8. Included in the McGoogan Library is a multi-million dollar collection of rare medical books.

On 8/10/04, CECM was awarded a contract by UNMC for electrical upgrades to the Normal and Emergency Systems in Wittson Hall.

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The normal power system was in need of upgrading because of the following:

(1) A fused switch serving a motor control center was overheating.

(2) The network transformers serving Wittson Hall and Eppley Science Hall were not connected properly to provide maximum efficiency and redundancy.

(3) Grounded neutral conductors throughout the normal distribution system were undersized and did not comply with current NEC requirements.

(4) Voltage drop problems plagued some of the research areas causing ultra low freezers to drop off-line.

(5) Several of the fused switches in the main switchboard were worn out or damaged and were difficult to open/close.

(6) The existing switchboard did not have any spare fused switches available to allow for future load growth and expansion.

The original intent of the emergency power distribution in Wittson Hall was to support the emergency/egress lighting, as required by the Life Safety Code and to provide for some critical HVAC loads. Over the years, the amount of critical equipment needed to support research operations in the building outgrew the emergency distribution system. The 5KV dry-type transformer in the basement was too small to support all of the connected loads during emergency conditions.

Our scope of work included upgrading both the normal and emergency power systems. We concentrated on getting the emergency system completed first. This scope included the buildout of an existing space in the basement for the new emergency equipment. It included new stud walls, double door, HVAC equipment and concrete pads for the new equipment. This room now houses a new 1600 amp emergency switchboard, 4160/480 750KVA substation transformer and 4160V disconnect switch. Also installed in this room are 2 each 600 amp ATS, 1 each 150 amp ATS, a new 300KVA transformer, a 1000 amp distribution panel and a few other smaller panels.

Also included in the emergency upgrade scope of work was the furnishing and installation of 2 each 600 amp MCC's. One of these was located in the basement and one on the 5th floor.

There were also 15 each 225-amp panelboards to furnish and install. We installed these panels on floors 2 through 6. The majority of these were recessed panels, installed in existing block walls. A subcontractor cut and channeled the walls after hours. The channeling was for the panels and panel extensions, to extend above the existing lay-in ceiling. The panel extensions were then connected back to the basement with new conduit and wire, installed in congested ceiling spaces and hard to get to shafts.

3rd Floor move 750KVA XFMR into shaft

The most challenging part of the emergency upgrade was getting the emergency switchboard and 750 KVA transformer down to the new electrical room in the basement. Wittson Hall does not have a large freight elevator. Level 3 is the ground floor and building entrance. The two ways of accessing the basement are via a set of concrete stairs, or via a small maintenance elevator.

The plans and specs called for the contractor to do a structural analysis of the stairs, shore the stairs, and then somehow take the equipment down the stairs. Due to the physical size and weight of the equipment, this approach did not seem practical or feasible.

Our alternative plan was to lower the equipment down through the elevator shaft. We contracted with Crane Rental and Rigging Company to perform this work. Kone Elevator cleared the elevator shaft by moving the car to one of the upper floors. Hoisting beams were installed on level 4, a temporary platform was installed on Level 3 and a temporary landing platform was installed in the elevator pit in the basement. Chain-fall hoists were attached to the hoisting beams at Level 4 and then attached to the equipment as it was slid onto the temporary platform on Level 3. The chain-falls were then used to raise the equipment high enough for the ironworkers to remove the platform. Upon removal of the platform, the equipment was lowered down the shaft, on to the landing platform in the pit. The chain-falls then removed and the equipment rolled out of the shaft and rolled near the pad for final installation. We accomplished all of this work on one Saturday, thus not disrupting normal activity at Wittson Hall.

Our scope of work for the normal power upgrade included furnishing and installing a new 3000 amp switchboard, 600 amp MCC, 600 amp distribution panel and new 600 MCM feeders, from the transformer vault to the basement, in 6 each, existing 4" conduits. The scope also included demolition of all of the old equipment and main feeders.

Again, this equipment was to be installed in the basement. Since it was not as heavy as the emergency gear, we were able to move the sections down the stairs to the basement.

Some of the most challenging work on the normal upgrade included the work to split apart the secondaries from four transformers in a vault outside Wittson Hall. The secondaries of these four transformers were all routed to one side of a set of old Burndy moles. The other side of the moles distributed normal power to both Wittson Hall and Eppley Science Building. The feeder replacement scope, included replacing these existing moles, with new 17-port moles, socket and nut assemblies and cable limiters (on the load side of the moles). We also had to split the loads so two of the four transformers fed Eppley Science Building and two fed Wittson Hall. This work was accomplished during a number of 2 hours shutdowns on Saturdays. UNMC did not allow longer shutdowns of Wittson Hall because of the critical nature of the freezers and ongoing research in the building.

Included as part of the normal scope of work, the plans and specs called for furnishing a 750 KVA temporary gen-

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erator, to power Wittson Hall during the planned outages. This was a critical part of the scope. Since Wittson Hall could not be shut down for extended periods of time, we developed alternative ways of powering critical equipment. Through the cooperation of UNMC, we made extensive use of the new emergency switchboard as a means of providing temporary power to critical equipment, while the normal upgrade was going on. We were able to plan, coordinate, schedule and perform our work in a manner that allowed us to finish our work without needing or using the 750KW generator at all on the project.

This project was done mostly with a 2 to 4-man crew. Some of the shutdowns required more men, however we tried to keep the crew to a minimum. The four electricians most involved in this project were Don Schuette (foreman through 3-31-05), Cecil Duncan, Bob Bohling (foreman after 3-31-05) and Rod Moore, Jr. Chuck Fintel was the project manager.

Mole work

Dan Michalak was the project manager/electrical engineer on the project for UNMC's Facility Management and Planning Department. The engineer of record on the project was Morrissey Engineering.

This contract for the electrical upgrades to the Normal and Emergency Systems in Wittson Hall was a project that we were all very concerned about when it was awarded to us. We were substantially lower than the next bidders. However, through hard work in the field, careful planning, and close coordination and cooperation with UNMC, CECM was able to make this a successful project.

The Aftermath

CECM Contractors Rebuild School Damaged by F4 Tornado

Jeff Griffin

NATURAL DISASTERS ARE BIG NEWS. Television presents live images of the devastation and the faces and voices of the victims of hurricanes, forest fires, tornadoes and other catastrophes. Newspapers follow with detailed accounts of property damage, injuries and death tolls.

Cleanup and early recovery efforts usually receive media attention, but they quickly fade from the headlines. For disaster victims, however, the story is far from over—recovery and rebuilding is long term and lasts long past the attention span of the national press.

No one knows that better than Roy Baker, superintendent of Norris School District, just south of Lincoln, NE.

The 2003-04 school term ended on Friday, May 21. As Baker looked out his office window that afternoon, he saw a beautiful, 160-acre campus. More than 300 trees and shrubs offered varied shades of green. All was quiet after the departure of the school's 1,700 students, ranging from kindergartners to high school seniors.

The following night, the school was struck by one of a series of tornadoes that raged across Nebraska. Tornadoes are classified according to the Fujita Scale, which is based on damage. The scale ranges from FO to F5, with F5 causing the most damage.

The storm that hit Norris School became known as the Hallam tornado, named for the small community 10 miles to the west. Hallam was virtually obliterated by an F4 tornado during the outbreak (winds from 207 to 260 mph and capable of devastating damage)—142 of its 150 homes and businesses were destroyed or seriously damaged. In Nebraska, 27 funnels were reported that night. The only fatality, 73-year-old Elaine Focken, lived in Hallam.

The Norris school was hit just as hard. "The whole complex was devastated," said Baker. "We always considered it an advantage to have grade, middle and high schools concentrated on one campus. But in this instance it wasn't—every building was hit. Every square inch of every building suffered water damage."

In Lincoln, the management of Commonwealth Electric Co. of the Midwest (CECM) knew that areas struck by the storms would require immediate assistance and the company's Lincoln facilities were near some of the hardest-hit areas. In the past, CECM had completed projects for Norris Public Power, the electrical provider for much of the area, including Hallam and Firth, the town nearest the Norris school complex. Norris School District is a service account for CECM. The company had installed lighting on the school's softball field.

"Not knowing the severity of damage, we tried calling, but the telephone service was out," said Nick Cole, manager of construction services. "We contacted Sampson Construction in Lincoln, a large general contractor that we thought might be involved in the emergency. We said CECM was ready to help however we were needed."

Cole went to the school soon after the storm.

"Driving south from Lincoln, everything looked normal," Cole said. "Then, about a half mile from the school, you saw this swath marking the path the tornado took. Everything was swept away, trees uprooted, drives leading to where homes had been now were gone. It was chilling."

By the end of the week, a dozen CECM electricians were on-site evaluating damage and planning the most logical approach to ensure the electrical safety of the severely damaged facilities and making preliminary plans for rebuilding its electrical systems. Ultimately, the company was awarded the contract for both storm mediation and construction phases of restoring the school's electrical, information transport and related systems. Commonwealth's client was a consortium made up of general contractor, Sampson Construction, the Norris School District, its insurance carrier, and the Federal Emergency Management Agency (FEMA).

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"Because of the nature of the emergency, there wasn't time to go through the normal bidding process," said Cole. "It was obvious from the outset that a very large and well-trained work force would be needed, and we could provide that and the experience and capabilities required to complete the project in a timely manner."

Norris High School Tornado Damage

Cole said most of the walls of the school's buildings were standing, but many roofs and walls had collapsed in the elementary and middle school gymnasiums, sports concessions and press boxes, bus barn, greenhouse, kitchen, cafeteria areas, and auto and wood shops.

"Windows were out and even where the roof was structurally intact, roof surfaces were heavily damaged or gone entirely, causing water damage throughout every structure," Cole said. "Even in the enter part of the high school, walls looked as if they had been sprayed with seaweed—the force of the wind was that strong. Steel girders shook so violently, upper portions of concrete block walls were cracked. Mechanical equipment that had been on roofs was now in hallways, classrooms and other areas. There were mazes of twisted steel and conduit raceways."

After confirming that all areas were electrically safe to enter, the next task was to identify any electrical equipment and wiring that could be salvaged and reused.

"As soon as we could get power restored to the line side of the main service disconnects, we began electrically and visually inspecting each and every breaker, feeder, branch circuit and systems circuit to verify the electrical integrity of the wiring that remained after the storm," said Cole. "With safety and compliance with National Electrical Code requirements paramount, we literally worked our way from the main service disconnects through each and every circuit, clear to the final device to verify electrical integrity and to establish what could be reused."

Working through the debris, representatives of the insurance company, CECM, the mechanical contractor, engineers, school officials and others determined what could be saved. The process took about a week. Removal of the wreckage came next.

"After circuits were safe, the demolition contractor came in," Cole said. Debris was removed so work could begin. Books and other items were removed and cataloged, salvaging everything possible.

Damaged walls, ceilings, carpets and other debris were cleared. Areas that should be given priority were addressed with engineers and architects, and working drawings were produced. With staff from the Lincoln engineering firm, Olsson Associates, CECM assisted in the design and preparation of working drawings for the school's new electrical, fire alarm and intercom/paging systems. CECM completely engineered and designed new information transport systems (ITS). A state-of-the-art voice over Internet protocol (VoIP) system also would be installed.

Left to right: Larry Lahman (manager, CECM Testing Division); Roy Baker (Norris School District superintendent); Nick Cole (manager, CECM Construction Services); and Greg Derks (general foreman)

Cole said every effort was made to salvage as much as possible, but most light fixtures and about 90 percent of the electrical system were replaced, including service entrances, feeders, switchboards, panel boards, transformers, disconnect switches, motor and branch circuit wiring, fire alarm systems, intercom/paging equipment, HVAC controls, and parking lot and sports lighting.

During the peak of construction, CECM was tracking 33 separate projects. The number of electricians on the project varied, but at one point in midsummer, the number reached 95. Through one 11-week period, crews worked 70-hour work-weeks. By December 2004, more than 65,000 hours had been logged.

Electrical work is on tract to be completed in late spring, almost one year after the tornado struck. Cole estimates by that time approximately 75,000 hours will have been devoted to electrical and ITS work.

The CECM management team consisted of Cole, responsible for the electrical systems rebuild, and Todd Havlat,

Lincoln manager of Commonwealth Communications, in charge of ITS, security, CCTV and HVAC control work.

Three of CECM's top people supervised on-site crews. Greg Derks, project general foreman, and Larry Lahman, Testing Division manager, supervised the storm mediation and construction phases. Gerald VanAmerongen, technical services general foreman, led 10 workers who installed ITS security, CCTV, clock, intercom/paging and HVAC controls.

From the school's perspective, reconstruction has proceeded slowly but smoothly, said Baker. Work was intense throughout the summer to accomplish as much as possible before the next school term. However, there was far too much to do to have facilities ready for fall classes, and 12 portable buildings, each with two classrooms, were positioned on the campus.

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"The school year proceeded, and we met key construction completion target dates," Baker said. "Students and staff adapted very well. There have been no critical issues. Construction crews have worked efficiently; Commonwealth Electric came in with a large workforce that helped speed construction."

By the Christmas break, the middle school classrooms and kitchen, high school vocal music, foreign language, 3-D art and home economics rooms were in use. Work on the bus barn and track are complete. Leases on the portable structures expired Jan. 31 and all but two were removed.

Although school activities are settling into a familiar routine, evidence of the storm is everywhere. The once-wooded campus is starkly bare by the loss of 80 percent of its trees and shrubbery. Many of the renovated buildings have new, modern appearances and the two temporary classrooms are visible reminders of what school was like during the previous term.

Throughout construction, cooperation has been a key to completing the project.

"With all the different contractors and trades involved, often working in close proximity with one another, and with school staff and pupils, and numerous volunteer workers on-site, everyone had to work together," said Cole.

The school district still must deal with costs, which are an estimated $35 million.

"Insurance and grants will not cover all of the costs, and we do not yet know how much funding we will receive from FEMA," said Baker. "We took the opportunity to make some improvements during the rebuilding, enlarging areas some where walls were down, adding safe rooms for protection in case of future storms, and those costs are not covered by insurance.

"The insurance limit for Code-required upgrades has been exceeded, and those costs are the school's responsibility. Our cash reserves will, no doubt, be quite depleted by the end of this project," Baker added.

Donations are helping.

"We can recount literally hundreds of stories of generosity," said Baker. "Businesses set out jars for donations, neighboring schools have raised funds to help us."

Lincoln's IBEW Local 265, whose on-site members worked on the school, sponsored a lunch, did the cooking themselves and donated proceeds to the school.

"A positive result of disasters is that they bring out the goodness in people," said Cole. "Put most people in a situation where other people need help, and they want to do everything possible to help. The good things people do for others is a positive lesson for life."

YWCA Step Program

Ruben Bera – Corporate Safety Director

Tom Price, our CEO, often reminds all of us of the good fortunes we have. Family, friends and great co-workers all sharing the good things we work so hard for. We all have many things to be thankful for. Many of you in the Commonwealth Electric Company family also contribute time by sharing personal time with others through volunteer work with church groups, coaching sports for youths and many other worthy activities. Your way of giving back to your community.

Recently I was asked to speak to a group of ladies at the local YWCA. Being a Saturday with a tee time in place, I thought, play golf or meet with the ladies. I chose to meet with the group and I am so very glad I did. This group belongs to a project called STEP (Self Sufficiency-Through Training Education and Placement) This is a unique program aimed at helping women achieve economic independence through nontraditional employment opportunities. The program combines intensive case management, counseling, career and life strategy training and educational assistance. This includes basic worksite safety, hand and power tools and refresher math. The program offers many other classes to help prepare women for new careers.

YWCA Step Program

My day began with introductions and an overview of construction safety. From the class room we moved to a utility room where 2x4's and drywall were cut. The women hammered the boards together and asked a ton of questions. We all had a good time and I personally walked away feeling I maybe somehow helped them. It was a good feeling. I asked the ladies for a group picture which they gladly agreed to do. I have this picture in my office. It is a constant reminder of the good things I enjoy and the good feeling I got from helping others. All of us have special talents and I urge everyone, if you have the opportunity, give a little back to help others. You will be surprised at how good it makes you feel. My time was well spent. I hope they ask me back.

The Commonwealth Quarterly

Commonwealth Des Moines Helps Kum & Go Expand

Mark Ramsey – Project Manager

The Des Moines' branch of Commonwealth Electric recently completed the construction of a new Kum & Go in Ellsworth, Iowa. We teamed with Henning Construction to complete the project. Our work consisted of the construction and build out of the convenience store including power distribution, lighting, lighting control, and power branch circuit wiring. Site work included the electrical service entrance, power and control conduits for the gas pumps, 16 pole lights, and power to various equipment throughout the job site. The project foreman was Robin Pearson.

We are excited about how this project turned out for Kum and Go. We are currently working on additional Kum & Go stores in Grinnell, Iowa and Urbandale, Iowa. Next time you are traveling in Iowa, make it a point to stop at a Kum and Go.

Ruben Bera – Grill Master/Safety Director

Husker Village chows down!

Commonwealth Celebrates National Electrical Safety Month

Ruben Bera – Corporate Safety Director

May 2005 was National Electrical Safety Month. As part of our month long celebration, the Safety Department traveled to several job sites and had cookouts. It was a wonderful opportunity to thank everyone for their hard work and commitment to safety.

Everyday we are faced with opportunities to work safe. Putting safety in the front of your mind will eliminate accidents.

Everyday Practices that Will Keep You & Your Coworkers Safe:

- Plan your work.
- Wear your safety glasses, hardhat, and the proper protective equipment for the task at hand.
- Practice good housekeeping.
- Buckle up when operating or riding in a company vehicle.
- Always ask yourself, "Is this the safe way to do this task?"

This industry is a dangerous one, and all of us must look out for each other. Safety is everyone's job.

Think smart. Work safe.

Des Moines Commonwealth Supports Youth Hunter Education Challenge

Michael Price – Branch Manager, Des Moines

Safety Gear

Commonwealth Electric joined Iowa Archery, Madison County ISU Extension Office, Madison County Sportsman's Club and Pheasants Forever in supporting this year's Youth Hunter Education Challenge(YHEC).

Iowa YHEC (Youth Hunter Education Challenge) is a weekend-long event that takes place each June at the 4-H Education and Natural Resources Center in Madrid, Iowa. Youth from all over Iowa come to compete in eight events, learn about the outdoors, and have fun with other youth and adults that have similar interests. The events include four shooting events: archery, muzzle loading rifle, shotgun, and small-bore rifle. There are also four non-shooting events: wildlife identification, orienteering, hunter safety trail, and written exam. There are two age categories to compete in, Junior (ages 12-14) and Senior (15-19). Most youth compete as part of a team of five from their area, but youth can register as individuals as well. All participants must compete in all eight events.

This year, we took 2 teams of five boys each to compete in YHEC. We had a junior team and a senior team. Michael Price served as coach for the junior team and assistant coach for the senior team. Commonwealth sponsored one of the teams and donated hearing and eye protection for both of the teams. Although neither team placed in this year's competition, the boys had a great time and gained some valuable experience in hunter safety and education.