



Going Green.... NECA Awards of Excellence

Without electricity and online access, we would be living in the dark ages...literally. All buildings require an electrical and voice/data infrastructure. From the installation of lighting to the more complicated structured cabling systems, electrical construction is critical to our daily lives. And in today's world, the depletion of our fossil fuels requires that renewable energy sources are utilized and building automation systems are integrated in all construction projects.

The Western Ohio Chapter, National Electrical Contractors Association (NECA) members have employed energy management guidelines in their projects for years and are leading the way in the installation of new, environmentally friendly technology. They are the most qualified contractors in the Dayton area and their work is unsurpassed because their employees are the best trained, drug free, work force in the country. These outstanding workers are members of the International Brotherhood of Electrical Workers (IBEW) Local 82.

This issue of *Connections* is dedicated to showcasing the projects and

people that are essential to building an energy efficient future.

Kastle Solar & Wind

Solar Arrays: Dayton Daily News Distribution Center; Kastle Electric; and Kastle Technologies

Kastle Solar & Wind, a companion business to 85-year-old electrical service contractor Kastle Electric, recently installed the largest rooftop solar array in southwestern Ohio and one of the largest in the state. The 119 kilowatt solar photovoltaic array has 528 solar panels and is located on the roof of the 4501 Kettering Blvd. building it shares with the Dayton Daily News' distribution operation. With the array, the 35,500



Kastle Electric 60 kW array located next to the 119kW Dayton Daily News array.

square-foot distribution site will save more than 209,000 pounds of carbon dioxide a year, Kastle estimates.

The Kastle Electric array is a 59.4 kilowatt array and is located on the same building

serving Kastle offices. In addition, Kastle Solar & Wind has recently installed a ground



Ground mounted solar array at Kastle Technologies.

mounted system in the back parking lot of their Kastle Technologies office in Monroe. The panels were manufactured by Schott Solar PV, Inc. in Albuquerque, New Mexico.

Even though Kastle Solar & Wind started operation in January, 2010, they are moving forward at a rapid pace, notes President Mark Wiley. "We are currently working on two Ohio Valley Schools, each about 290 kilowatts, that will come online in May and June," says Mark. "In addition, we are in the planning stages with other school districts to help them reduce their energy costs and take advantage of available tax credits."

According to Mark, it's important to Kastle that they purchase panels manufactured in the U.S. "Schott makes a superior product, using high quality standards," says Mark. "We believe that with time, solar

panels will become more efficient, and thus more cost effective. It is a technology

that will become more refined because it is here to stay."

For more than 80 years the Kastle name has stood for comprehensive electrical contracting services with

unsurpassed dependability. Today, The Kastle Group remains on the leading edge of services supporting the distribution and consumption of electricity and digital data. Separate Kastle divisions dedicated to electrical system installation, ongoing maintenance, high-speed data structured cabling systems, and renewable/green energy systems serve customers throughout the Midwest.

Chapel-Romanoff Energy Solutions

WPAFB Lighting Retrofit

Chapel-Romanoff Energy Solutions recently completed a major lighting efficiency retrofit at Wright Patterson Air Force Base. WPAFB is one of the largest, most diverse, and organizationally complex bases in the United States Air Force. This huge undertaking involved 45 buildings and

Awards (cont'd.)

included approximately 2,000,000 square feet of lighted facility space and an additional 10,000 linear feet of lighted steam tunnels. What started as a project designed to help reduce a staggering \$20 million dollar annual electric utility bill yielded far more than just the anticipated cost savings; it also vastly improved the quality of light, created a much safer, more productive working environment for all personnel, and reduced the Base's carbon footprint.

Several years ago, Base officials began looking for ways to reduce their overall electrical utility bill, which at that time was running over \$1.6 million dollars a month or \$20 million dollars a year, making WPAFB, Dayton Power & Light's largest single site customer.

When Chapel – Romanoff Energy Solutions was awarded this project, the area's largest lighting retrofit, they immediately started the pre-planning phase. The first step in this process was to perform a lighting analysis for each building. So they gathered information regarding fixture quantities & types; took initial foot candle readings and determined building access requirements and restrictions. This information was then used to prioritize the buildings and create a work plan / schedule designed to minimize the

impact on the end user's personnel.

Materials: New & Recycled

This lighting upgrade included the replacement of over 8,000 incandescent lamps with Light Emitting Diodes (LED) or compact fluorescent lamps (CFL); replacing more than



HID conversion to F-Bay.

15,000 standard wattage T-12 lamps with T-8 lamps; replacing in excess of 6,000 magnetic ballasts with electronic ones; replacing over

were properly recycled and all old lamps were sent to a hazardous waste facility for proper disposal.

Improved Safety

Once the installation was complete, the quality of lighting throughout the Base was dramatically improved.

The effects of poor facility lighting go far beyond high electrical utility costs; they can also create safety & health hazards in the workplace. Studies show that frequent accidents, low employee productivity, eye strain, headaches and even bad posture can occur when lighting levels are insufficient.

Carbon Footprint Reduction

In the United States, lighting accounts for over 25% of all electricity consumed. This electricity is mostly generated by burning fossil fuels, some of which are proven to be harmful to our environment. Substantially reducing our lighting loads will result in a

proportional reduction in the emission of harmful greenhouse gasses.

Payback

Lighting retrofits offer immediate and substantial savings to the end user starting on day one.

On this project the net installation cost was \$988,000 and the annual energy savings is conservatively projected to be in excess of \$332,000. The monthly utility savings started immediately with the installation of the first lamp/ballast. In addition, the overall payback will take less than 3 years.

"The change in the facility is amazing," says Richard F. Henterly Jr., Director, Logistics Readiness 88. "Safety is significantly improved, as is the overall quality of the work area for our personnel in that facility. And it's all more energy efficient."

Chapel-Romanoff Energy Solutions, a Quebe Holdings Business unit, provides Alternative Energy and Energy Efficient consulting, sales, and installations. Projects include energy analysis, lighting retrofits, solar / photovoltaic and wind turbines. Staff certifications include North American Board of Certified Energy Practitioners (NABCEP) and Leadership in Energy and Environmental Design (LEED). **Chapel-Romanoff Energy Solutions** is your pathway to sustainability.

ESI Electrical Contractors

Human Performance Wing at Wright Patterson Air Force Base, Ohio

Wright Patterson Air Force Base (WPAFB) spent two years strategically planning for the Human Performance Wing. In March of 2008, they activated the plan. The HPW project consists of the design and construction (design/build) of a complex at WPAFB with two facilities. This is the largest single military construction contract awarded in the Louisville District's history, according to the Corp of Engineer's Louisville District contracting division. This project is a result of the Federal government's 2005 Base Realignment and Closure decisions.

Project Snapshot

Area's Largest Lighting Retrofit
45 Buildings
2,000,000 Square Feet
10,000 LF Steam Tunnels
2,461,000 KW Saved Annually
Immediate Cost Savings
Annual Taxpayer Savings: \$332,000
2.97 Year Payback

400 incandescent and fluorescent exit signs with new LED technology; removing unnecessary or excessive lamps; replacing greater than 250 high intensity discharge (HID) fixtures with T-5 high output fluorescent f-Bay fixtures and installing ceiling and wall mounted occupancy sensors where appropriate (a grand total of 1,700 sensors). All new fluorescent lamps were Eco Logic (with a 20,000 hour lamp life) and the ballasts selected were all high efficiency, high performance & low power factor. In addition, all fixtures that were removed,



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Your comments, suggestions and questions are welcome! Contact the Western Ohio Chapter - NECA.

e-mail: wocneca@choiceonemail.com
website: www.wocneca.org
phone: 937-299-0384
fax: 937-299-7322

ESI (cont'd.)

The approximately 490,000 SF south building and 185,000 SF north complex, is



Industrial Hygiene Laboratories, Human Performance Wing, WPAFB

constructed in the northeastern corner of Wright-Patterson's Area "B." This project also included the renovation of five smaller existing structures. Buildings contain laboratories, classrooms, offices, auditoriums, research rooms,



Main Auditorium, Human Performance Wing, WPAFB

and training and medical testing facilities of human performance.

The project is awaiting issuance of its LEED Silver certification. Part of the LEED process for this job included the recycling of all construction waste. All waste from the scrap pieces of drywall and conduit, down to the boxes the fixtures came in were recycled. Other examples of "Green" construction were the installation of corn oil filled pad mounted transformers, all

lighting is controlled by occupancy sensors or the Building Management System; and energy measurement and verification are installed on the main switchgear to name a few. ESI was responsible for the electrical design/build assistance, installation of the normal and emergency power distribution, fire alarm and mass

notification, biometric security systems, intrusion detection, standard and BSL 3 labs, SCIF's, and the Teledata and over saw the Lightning Protection installation.

ESI Electrical Contractors provides the entire spectrum of electrical installations, from wiring and control systems to telecommunications installations.

Aztec Electric

Building 17, WPAFB

Bringing a vacant historical building back to life is a challenge. Especially when the updates include the installation of state-of-the-art lab equipment, complete with a vibration room. That is exactly what happened in the renovation of Building 17 at Wright Patterson Air Force Base (WPAFB). The facility (along with Building 12) will become home to the 77th Aeronautical Systems Group previously located at Brooks City Base in San Antonio, Texas.

The 77th AESG is the unit charged with providing advanced performance, survival, and force protection capabilities to US and allied air, ground, and naval forces through development, production, and sustainment



Two story open office area, Human Performance Wing, WPAFB

of human-centered systems which include life support; nuclear, biological and chemical defense; aeromedical services; AF uniforms; mishap analysis; health and fitness; and medical information systems.

Completed in 1929, Building 17 was a red brick two-story structure with a low-pitched gabled roof, wide copper entablature and rectangular columns with concrete capitals and typifies early Wright Field architecture. It originally housed the Aircraft Radio Laboratory and has been vacant for the last 7 years.

The renovation contract calls for the facilities to receive upgraded electrical systems, new force protection features, asbestos removal, lead paint abatement and improved energy

efficiency along with general cosmetic improvements. Aztec Electric was responsible for all of the required electrical upgrades. The project included the installation of a 400 hertz converter to run tests for air craft components. The lighting includes motion sensors to increase energy efficiency. Aztec upgraded the electrical service with a larger pad mount transformer and new duct bank into the existing building. A new Fire Alarm and Mass Notification System along with Access Control Security System was also installed.

The design/build project was managed by Heapy Engineering who was able to secure LEED Silver status. This included a thermal test on the building to check for leakage, in order to make the building more energy efficient. Edge and Tinney were the architects; Butt Construction, the General Contractor; Chapel-Romanoff Technologies (CRT) installed the required teledata cabling; and Maxwell Lightning Protection installed lightning and grounding protection.

Aztec Electric is a full service electrical contractor whose services include power wiring, high voltage, lighting, grounding, motor controls, fire alarm, security, telephone data, fiber optics and emergency generators. Aztec is a certified Minority Business Enterprise.



Building 17 at WPAFB is the new home for the 77th AESG.

Outstanding Performance Awards

Matt Hartshorn ESI Electrical Contractors Project Manager

Matt has worked for ESI since 2001 and has proven himself to be a leader, problem solver and to be very creative in his approach to getting the job done. His common sense approach to uncommon challenges has made him a standout with ESI.



Matt Hartshorn

Recently Matt managed the Human Performance Wing project at WPAFB. This is the largest project ESI has ever undertaken and possibly the largest single electrical contract ever signed in the Dayton area. By developing a good working relationship with the GC, Archer Western/Butt Construction JV, and the Corp of Engineers, he and his fellow managers, foremen and IBEW Local 82 electricians were able to complete the project on time and on budget. With approximately 675,000 square feet of new construction and the renovation of 5 existing buildings, the job presented unusual challenges, with actual construction being completed in just over 2 years.

His primary focus, since coming to ESI, has been working at WPAFB. The strict construction requirements for the facility have focused his eye for detail and have been an excellent educator on how to approach tough challenges. Matt's determination to offer a quality installation to all of our customers has enabled him to gain the respect of all those he works with. ESI is proud to say Matt is a member of our team.

Joan Fultz Chapel Electric Co., LLC Prefabrication Manager

Joan has been involved in the electrical construction industry for 34 years, beginning as an apprentice in 1977. She has been with Chapel Electric Company since 1994 and has worked in a supervisory role for much of that time. She became involved in prefabrication in 2003 and was instrumental in developing the Prefabrication Program for Chapel as it exists today. Recently Joan led the electrical prefabrication team at the Miami Valley Hospital Southeast Addition project, overseeing the design and installation of the prefabricated electrical systems for several components on that project. She is currently in the prefabrication design phase for the Miami Valley Hospital South Expansion project.



Joan Fultz

Off the job, Joan is an avid gardener and conservationist, earning a Master Recycler's Certification through Montgomery County and Five River Metroparks. She works as a volunteer at events presented by the Metroparks and volunteers as a material expeditor through Montgomery County for the McMRF Teacher Days. She has two daughters who live in the area and a son who lives in Athens and enjoys hanging out with them whenever she can.

Upcoming Events

Cookout for Scouting at Riverscape

The Miami Valley Council, Boy Scouts of America is proud to announce the 12th annual **COOKOUT FOR SCOUTING AT RIVERSCAPE**, to be held on **Friday, June 10th, 2011** from 11:30am to 1:00pm at RiverScape Park on Monument Ave. in downtown Dayton. This event benefits the Campership Fund of the Miami Valley Council. Sponsors for the Cookout include the Labor Management Cooperation Committee of the Western Ohio Chapter of the National Electrical Contractor's Association (NECA) and the International Brotherhood of Electrical Workers (IBEW) Local 82; and the Miami Valley Alliance of Construction Professionals (MVACP).

Ohio Energy Summit

June 17, 2011, JATC Electrical Training Center, Toledo, Ohio

Sponsored by the Ohio Electrical Labor Management Cooperation Committee (OELMCC) the **Ohio Energy Solutions Summit** will include exhibitors from solar array and wind turbine manufacturers and distributors; NECA Electrical Contractors; speakers; and demonstrations. This event will showcase the capabilities of the National Electrical Contractors Association (NECA), as well as acknowledge their leadership role in providing alternative energy and energy management solutions to businesses throughout the State.

If you would like to be an exhibitor at the Ohio Energy Solutions Summit, please contact Cindy Tucker at 937.297.3052. For additional information, please visit www.oelmcc.org.

The Western Ohio Chapter - National Electrical Contractors Association Directory:

NECA Members

Aztec Electric, Inc.
Chapel Electric Company
Chapel-Romanoff Technologies
ESI Electrical Contractors
High Voltage Maintenance
Kastle Electric Company
Kastle Technologies
Maxwell Lightning Protection
Mutual Electric Company
Sidney Electric Company
Studebaker Electric
Union Lightning Protection
Wagner Industrial Electric
York Electric, Inc.

Contributing Contractors

Automated Controls
Bright Street Electric
Cougar Electric, Inc.
DeBra-Kuempel, Inc.
Glenwood Electric
Lake Erie Electric
Power Services
Productive Electric, Inc.
Spurling Electric Co., Inc.
Triad Electrical
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*Western Ohio Chapter - NECA
3131 South Dixie Hwy. Ste. 415
Dayton, OH 45439*