THE ELECTRIC TIMES

SERVING THE ELECTRICAL INDUSTRY IN ARIZONA

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Goodyear chosen as the location for Helix Electric's first manufacturing facility in Arizona

Alan M. Petrillo
Electric Times

Helix Electric, one of the largest electrical contracting companies in the country, will build its first manufacturing facility in Arizona in Goodyear.

The 112,000-square-foot facility will manufacture and fabricate building components for electrical construction, which then will be shipped to existing Helix Electric markets nationwide. Helix Electric expects to create more than 100 jobs in engineering, production, quality control, and administration at the Goodyear facility.

Boris Shekhter, president of Helix Electric, said, "After an exhaustive search, we found that Goodyear had the right mix of a trained workforce, a great business climate, and access to transportation networks that would suit our needs now and long into the future."

He continued, "This is a large investment for our company and we are very excited to partner with the city of Goodyear, the Arizona Commerce Authority, and the Greater Phoenix Economic Council to bring our vision of a modern construction manufacturing facility to life."

Helix Electric specializes in design-build and highly complex electrical projects throughout the United States. The company has offices in California, Nevada, Utah, Texas, Hawaii, and Virginia.

Helix Electric also prioritizes renewable energy and green build capabilities for its projects and has installed more than two gigawatts of renewable energy to date. Helix Renewables provides turnkey energy engineering, procurement and construction services in commercial, industrial, energy-storage and utility-scale solar.

A Helix Electric spokesperson pointed out that when Helix outgrew its existing facilities in California, the company realized it had the opportunity to re-envision what construction offsite manufacturing might look like in the future. With that vision, the company took on on a nationwide search to find the right location and chose Goodyear because the state offers a growing economy, a skilled and trained workforce, an affordable cost of doing business, close access to rail and highways, and a supportive partnership with local and state governments to provide continuous infrastructure and incentives.

A Helix Electric crew on a job site. The company is building its new manufacturing facility in Goodyear, Ariz.

Sandra Watson, president and chief executive officer of the Arizona Commerce Authority, noted, "We are excited Helix

See 'Helix' page 5

Study finds many Americans considering trade schools

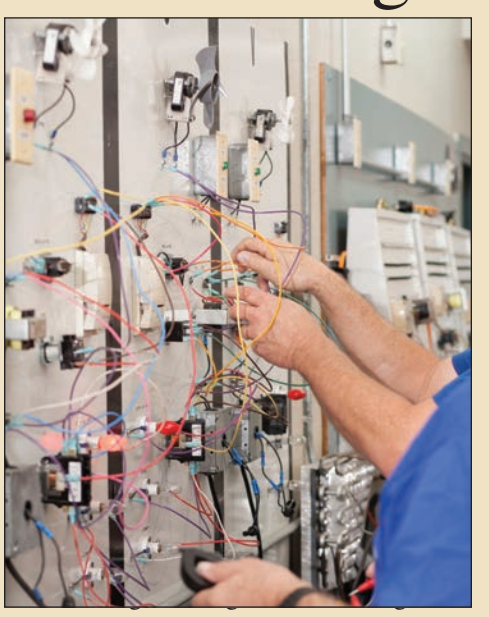
Jayme Cook
Electric Times

As COVID-19 continues to negatively affect everyday American life, its impact on the trade industry in particular has proved bittersweet. As conventional avenues of education have suffered a slowdown or halt in enrollment, the trade school industry has experienced a surprising influx, as trade skills were suddenly recognized as essential during the epidemic. A September 2021 StrataTech Education Group Study found that more than 87 percent of respondents considered attending, or began attendance at a trade school in the past year.

StrataTech Education Group acquires, grows, and develops specialized career education schools, focusing on skilled-trade programs that address the needs of the U.S.'s growing infrastructure. As a student-first company, it offers schools with technical career education programs, and is committed to elevating awareness around the skilled trades industry, education, and career opportunities available.

StrataTech's study highlights how its affiliates, including The Tulsa Welding School, founded in 1949, now with campuses in Tulsa, Okla., Jacksonville, Fla., and Houston, Texas, as well as The Refrigeration School, Inc. (RSI), founded in Phoenix, Ariz. in 1965, have increased outreach to those who might be considering (but not immediately choosing) a career in the skilled trades.

"The skilled trades are a lucrative and



occupations. According to a 2018 Deloitte study, 2.4 million skilled trade positions will go unfilled by 2028 if the current trajectory trend continues.

Regarding this cynical stigma, Heiman observed that, "We've been conditioned to believe that if we don't hold a four-year college degree that somehow we are not successful, but if the pandemic has taught us anything, it is that this belief simply is not true. What we saw during COVID-19 was a new definition of what is considered 'essential' in the economy."

Even though other industries were faltering, Heiman credited the jump in trade school education interest not despite COVID-19, but rather, because of COVID,

See 'Study' page 8

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Inside

News Briefs

NECA CEO attends White House Infrastructure Bill signing

Washington, D.C. – On Nov. 15 at the White House, David Long, CEO of the National Electrical Contractors Association (NECA) was in attendance as President Biden signed the Infrastructure Investment and Jobs Act into law. This historic bipartisan legislation represents a long overdue investment in the nation's infrastructure, and NECA contractors will benefit greatly from the projects it will generate, according to NECA.

Long made the following statement following President Biden's signing of the historic legislation:

"NECA has long supported the push for bipartisan legislation that provides the investment and resources to help rebuild and modernize our nation's infrastructure. I want to thank President Biden, the Senate, and House of Representatives for taking these steps to make the Infrastructure Investment and Jobs Act law, and it was an honor to be present today at the White House to witness this important moment. NECA applauds the hard work of both chambers to come together and pass this historical infrastructure legislation. This law will create new job opportunities for our contractors and ensure our nation's economic competitiveness."

Summit Electric announces Richardson, Texas, location

Richardson, Texas – In November, Summit Electric Supply announced its newest Service Center opening in Richardson, Texas.

"We're happy to provide electrical supplies and unique solutions to the growing Richardson community," said Service Center Manager Clay Choate. "Having another location near our North Texas Distribution Center allows us to keep a wide selection of products in stock and strengthen our market presence."

The new 6,500 square foot Service Center opened Nov. 1 and is located off the Arapaho Road exit from the North Central Expressway. It features a full counter, refreshment area, and a will-call desk for phone and online orders. "We're excited to bring the Summit Way Customer Experience to more electrical professionals throughout the metroplex," stated Jamey Lamm, Summit's DFW area manager.

Nora Lighting's Carol Dimaano retires after 25 years

Commerce, Calif. – Nora Lighting Executive Vice President Jilla Farzan has announced the retirement of Carol Dimaano, who joined the company in 1996, and was Nora's longest-serving employee. Dimaano initially worked in Nora's accounting department, but was promoted within a year to warehouse-traffic/logistics manager, where she served until her retirement. Her sister Mila Leyva, who worked in the company's human resources department and was one of Nora's first employees, introduced Dimaano to Nora. Together the sisters had more than 48 years of experience at Nora.

"Individuals like Carol Dimaano and Mila are the backbone of Nora Lighting," said Farzan. "Carol's loyalty, professional skills and pride in her work have helped make Nora the successful lighting company that it is today. "Our entire team will miss Carol, but we all wish her health and happiness in her well-earned retirement."

Shown in photo from left is Nora President and CEO Fred Farzan; Mila Leyva (former employee and sister) Carol Dimaano, and Nora Executive Vice President Jilla Farzan.

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Code Corner: Agricultural Buildings

Mark Cook
Electrical Training Instructor

In this month's column, I want to address some significant National Electrical Code (NEC) requirements essential for a compliant installation where the occupancy is designed for agricultural use.

NEC Chapter 5 contains specific requirements for hazardous locations and many special occupancies. In accordance with 90.3, these requirements may supplement or modify other requirements in Chapters 1 through 7. Article 547 contains special requirements for agricultural buildings and may supplement or modify some of the general requirements in other articles of the NEC.

Thinking of an agricultural building, you might imagine a red barn, some cows and horses, maybe a few chickens running around. But today's agriculture buildings and processes are big business and special considerations must be taken to avoid excessive dusts, corrosive atmospheres and special electrical systems to maintain animal health. Many factors must be considered, like the type and number of livestock being sheltered and fed, lean up process of wastes, and feed delivery for the animals. There may be classified locations with combustible and ignitable dust as identified in Article 502. In the case of poultry and animal excrement,, corrosive conditions, as well as ignitable gases, may warrant using metal conduit or nonmetallic wiring methods and equipment. The scope, as covered in 547.1 of Article 547, alerts the installer of these conditions and brings awareness to wiring methods that are approved for these conditions, as noted in 547.5. Because of the likelihood of spray down of areas where animals are contained, nonmetallic or stainless -steel equipment should be used. In most cases, any electrical equipment enclosures that are wall mounted and are located in damp or wet locations should have a 1/4" inch airspace, as required in 300.6(D), 312.2 and 547.5(B). This air space must be provided between the enclosure and the surface to provide adequate drainage of water and other liquids that might be corrosive.

Section 547.5(G) requires GFCI protection for all 15- and 20-amp, 125-volt receptacles within the following locations or areas having an equipotential plane, outdoors, damp, or wet locations, or dirt confinement areas for livestock.

Any agricultural building or structure for livestock located on the same premises shall be supplied from a distribution point. A Distribution Point is defined as "an electrical supply point from which service drops, service conductors, feeders, or branch circuits to buildings or structures utilized under single management are supplied." There are two informational notes that provide additional information about distribution points also being known as the "center yard pole, meter pole, or the common distribution point." The service point at the power source, as defined in Article 100, is typically at the distribution point. At these types of properties, a "site-isolation device" may be located at the "distribution point." The requirements for distribution points will be located in the subsections of 547.9. For example, the service for the buildings or structures could be fed overhead and would require a disconnect at the distribution point where two or more buildings are located on the property. This is also known to some in the trade as a "*pole top,*" "*yard pole,*" or "*meter pole*." Although the disconnect itself may be at the top of the pole, an operating handle must be remotely installed and capable of being operated at grade level by the remote operating handle or lever no higher than 2.0 m (6 feet 7 inches) above grade. Requirements for sizing the service and feeders for these buildings is in Part V of Article 220 for Farm Load calculations. Calculating the individual feeder size to the buildings, including the farm dwelling unit, are in 220.102 and the total connected load for the service calculation is in 220.103.

Some agricultural livestock confinement areas, such as barns, could require an equipotential plane, whether located inside or outside the building. Where livestock, other than poultry, interacts with metallic electrical equipment that may become energized, all metal components and the concrete floor shall be bonded together and connected to the electrical equipotential ground with a minimum size 8 AWG solid copper. The rebar or mesh within the concrete must be bonded to the metal parts and metallic electrical equipment to minimize the potential of electrical current flowing through the front and hind legs of livestock (often called step potential which may be much greater than a human's step potential since there is a greater distance between the hind legs and the front legs of an animal and the associated electrical current flow from front feet to back feet due to the difference of potential). Studies show even a small amount of current can negatively affect milk production in dairy cows. Examples of electrical equipment found in agricultural buildings could include milking machines, feeders and heated watering troughs.

Additional considerations for agricultural buildings or structures could involve locations classified as Class II because of the presence of combustible dusts, such as feed grain dust or very fine hay dust. Locations with the right amount of airborne grain dusts in the right mixture with oxygen could be explosive and require wiring methods found in Articles 500 and 502.

Some agricultural buildings are so large and containing so much livestock, that if the ventilation system fails, livestock could perish in hours. Ventilation backup systems or redundancy of equipment could be required.

The ideal red-and-white barn that initially might come to mind is an illusion of most agricultural areas. Corrosive conditions, hazardous locations, dangerous step-potential currents and man-made bodies of water, can all put the animals and the people who tend to them animals in danger. Bring your "A" game if tasked to install electrical equipment.

Additional information can be accessed in publications from:

ASABE - The American Society of American Agricultural and Biological Engineers.

NFPA 150, Fire and Life Safety in Animal Housing and Facilities Code

NFPA 499, Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas

Mark Cook is Electrical Education Specialist for Faith Technologies in Neenah, Wis. He has been in the electrical industry since 1978 and owned a contracting business from 1994-2015. He was an instructor for the IEC of Arizona and The Electric League of Arizona and has presented for NEC and other organizations. Questions/comments: mark.cook@faithtechnologies.com

244 golfers tee off at IEC of Arizona Dennis Casteel Memorial Golf Tournament

Alan M. Petrillo
Electric Times

Two hundred forty four golfers competed in the 2021 Independent Electrical Contractors Arizona Chapter (IEC-AZ) annual Dennis Casteel Memorial Golf Tournament held in early December at the Whirlwind Golf Club at Wild Horse Pass in Chandler.

Platinum sponsor for the tournament was ANIXTER/WESCO.

The Casteel family was present during the awards dinner, and Kathi Casteel presented a $2,000 gift to Apprentice of the Year Aaron Carter of Wang Electric.

Jon Pastiak, owner of WAV Electric and co-chair of the tournament committee, served as emcee of the event.

Companies fielding teams in the tournament included AES West, Allied Group Sales, AME Electrical Contracting Inc., AMS Electric Inc., ANIXTER, Border States Chain Solutions, the Casteel family, CPR Electric Inc., EATON Electrical, ESA Fabrication, Elliot Electric Supply, Graybar Electric Co. Inc., Hawkeye Electric Inc., and Hayden Electric Inc.

Also, Integrity Electric, Kortman Energy Driven Solutions, K2 Electric, Landco Rentals, Lang & Klain PLC, Look Electric Inc., Makyle Electric Inc., Milwaukee Tools, New Electric Inc., Redline Electric & Solar, Service Wire, SitePro Solutions, The Floor Store, Thomas Electrical Contractors Inc., Wang Electric Inc., and WAV Electric.

Volunteers recognized during the awards program were Angela Sims, Yareli Garcie, and Chris Graco of IEC of Arizona; Bridgette Dean of Fox Valley Electric; Lauri and Jon Pastiak of WAV Electric; Jennifer Green of ANIXTER/WESCO; Amy Taylor of Bob Jones & Associates; Dan Ellis of X 3 Tradesmen; Keith Shay of Hawkeye Electric; Mike and Charisse Rashford of Makyle Electric Inc., and Heather Turner of Lighting Unlimited. Charisse Rashford was recognized by the organization for serving as the official golf photographer for the last six tournaments.

Player Goodie Bag sponsors for the tournament were ABB, IDEAL, Milwaukee Tools, Graybar Electric Co. Inc., and Border States Supply Solutions.

The annual Dennis Casteel Memorial Golf Tournament was held Dec. 3

Hole sponsors were Cambridge Benefit Solutions, X 3 Tradesman, and Northwestern Mutual.

Eagle Raffle sponsors were EATON Electrical, Elliot Electric Supply, Fox Valley Electric, Arizona Electric Supply AME Electrical, Desert State Electric, K2 Electric, WAV Electric, Tilmann Electric, WYE Electric, Service Wire, Wang Electric, AMS Electric Inc., Golka Electric Inc., Hawkeye Electric, CPR Electric, Kore Safety, Look Electric, and AJP Electric Inc.

SRP donates EV to GCC automotive training program

Glendale, Ariz. – Students at Glendale Community College (GCC) pursuing an associate's degree or certificates in automotive technology will now have extra hands-on experience with the ability to train on an electric Ford Focus donated by SRP. Before this donation, students in GCC's program did not yet have a full-electric vehicle to train with.

The donated 2015 battery-powered electric Ford Focus was recently retired from SRP's fleet and will be used in GCC's Ford ASSET program (Automotive Student Service Educational Training). This is a factory-sponsored, four-semester program that prepares students to transition to the local Arizona workforce as productive, effective automotive technicians. Those who graduate from this program have training necessary to work in Ford or Lincoln dealerships as well as SRP's Transportation Services department which helps maintain all assets in SRP's fleet.

"It is hard to find the words to articulate what this vehicle donation means to the Ford ASSET program and GCC," said Ford Asset Program Director and ASSET Instructor Don Davis. "It will have an immeasurable positive impact on the automotive students who participate in the program, and the full electric vehicle is integral to the new training we implemented to ensure these students' success in the automotive industry."

GCC is one of a small handful of colleges in the U.S. that has purchased the widely acclaimed Lucas-Nuelle Automotive trainer, specifically designed and engineered for diagnosis and repair of hybrid-electric and full-electric vehicle technology.

"Training with up-to-date technology in

See 'EV' page 8

ABA holds 28th annual Leadership Graduation Lunch

Alan M. Petrillo
Electric Times

Arizona Builders Alliance (ABA) held its 28th annual Leadership Graduation Lunch on Dec. 16 with more than 500 ABA members and graduates attending the event at the Camelback Inn in Paradise Valley.

The event was designed to celebrate the graduation of 127 management education participants from five programs this year:

- Fifteen Senior Executive Program (SEP) graduates
- Twenty-eight Leadership Development Forum (LDF) graduates
- Nineteen Women in Leadership Program graduates
- Thirty Emerging Leaders Forum graduates
- Thirty-five Project Manager Development Program (PMDP) graduates.

Individuals who spoke to the group on behalf of their respective classes were Clayton Tarin, estimator at Rosendin Electric, Project Manager Development Program; Jonathan Kimble, assistant project manager, McCarthy Building Companies, Emerging Leaders Forum; Carla Jo Clary, project manager, Stevens Leinweber, Women in Leadership Program; Dan Elmer, president, J.B. Steel; Senior Executive Program; and Colleen Turski, account manager at

Climatec BTG, Rebecca LaMotte, project director at hardison/downey; and Boe Evanson, senior project manager at The Weitz Company, Leadership Development Forum.

The 59 companies that had people in one or more of the programs included A.R. Mays Construction, AGATE Construction, AZ Corporate Builders, Building Excellence, Caliente Construction, Canyon State Electric, CCS Presentation Systems, Chasse Building Team, Civic-CM, Climatec, Commercial Comm and Electric, Concord General Contracting, Corbins Electric, CORE Construction, DP Electric, and DPR Construction.

Also, General Air Control, GLHN Architects and Engineers, Global Roofing Group, Graywolf Integrated, H3D Solutions, hardison/downey, Haydon Building Corp., Hensel Phelps, Holden Willits, Hulse Construction, ICON Electric, Interstate Mechanical Corporation – IMCOR, J.B. Steel, Jenco, Johnson Carlier, K2 Electric, Kearney Electric, Kitchell, Kortman, Loven Contracting, McCarthy Building Companies, and Metal Weld Specialties.

In addition, Okland Construction, Opus Design Build, Partitions and Accessories, Paul Johnson Drywall, Pueblo Mechanical, Replay Destinations, Rosendin Electric, SAB-Chasse Building Team, Silver Fern Companies, Spectrum Mechanical & Plumbing Contractors, Stevens Leinweber Construction, Sundt, Suntec Concrete, Switch Electric, Tempe Mechanical, The Renaissance Companies, The Weitz Company, True Metal Solutions, Wespac, Willmeng Construction and Wilson Electric.

Arizona Builders Alliance is an affiliation of the Associated Builders & Contractors Inc. and the Associated General Contractors of America, and has as its mission advancing the productivity and profitability of its members and the construction industry through advocacy, education, and networking opportunities in the state.

Erica Lange, ABA vice president, pointed out at the graduation luncheon that ABA members had collected thousands of gifts for children in need through its annual toy drive.

The ABA Graduation lunch was held Dec. 16 (above). Toy drive recipients receive gifts.

She said that 150 construction companies and their employees donated tons of toys and more than $50,000 to the 13th Annual ABA Community Service Board's 2021 Toy Drive, which went to five nonprofit organizations serving underprivileged children in Arizona.

The benefiting organizations included Sunshine Acres Children's Home, Sunshine Residential Homes, Sequoia Charter School, Santo Nino Catholic Community, and ASA Now.

Toys were presented to children at Sunshine Acres Children's Home in Mesa during their annual Christmas Party, in which each child received $125 worth of toys from the wish lists that each put together. Children opened their presents, sang carols, played games, and got to meet with Santa and Mrs. Claus while celebrating the joy of the holiday.

"Running the annual toy drive and visiting Sunshine Acres never stops being rewarding," Lange said. "We see the way the children at the home remember us year after year. We have even had children grow up to pursue a career in the construction industry and join the ABA because of the impact we made on them each Christmas."

Gifts and toys also were distributed to Sunshine Residential Homes in Glendale, Sequoia Charter School in Mesa, and Santo Niño Catholic Community in Phoenix. The charities serve children who are separated from their parents, survived abuse and neglect, or whose families cannot afford to buy Christmas gifts. The ABA also donated $5,000 in toys to ASA Now, an organization that advocates, supports, and assists children and families impacted by foster care.

Supreme Court to hear arguments in cases challenging COVID-19 vaccine rules for large employers

Alan M. Petrillo
Electric Times

The United States Supreme Court will hear oral arguments on Jan. 7 in the cases challenging the Biden administration's COVID-19 vaccine requirements for large employers and certain health care workers.

The arguments were scheduled after Supreme Court Justices Samuel Alito and Brett Kavanaugh were asked to intervene in lower court disputes over the mandates. Kavanaugh had been asked by challengers to the employer mandate to reverse an appeals court ruling that said the administration could enforce its vaccine-or-testing rules for large companies.

Kavanaugh and Alito had separately been asked by the Justice Department to reverse appeals court orders against the health care worker requirement, which applies to health care staff at providers that participate in Medicare and Medicaid. The appeals court orders have left the mandate frozen in about half the country.

At the present, the court is leaving in place the status quo around the requirements. The Biden administration has said it will not begin enforcing the employer mandate until Jan. 10, and the government has said it's not implementing the health care worker mandate while the legal challenges play out. The Biden administration said it is confident in the legal authority for both policies and that the Department of Justice will defend both at the Supreme Court.

This is an unusual move on the part of the Supreme Court to bypass the normal process and to hear oral arguments. The employer mandate at issue would impact some 80 million workers across the country, while the administration's vaccine requirement for health care workers covers more than 10.3 million people in the United States.

Wednesday's order said that Kavanaugh and Alito had referred the requests for their intervention in the cases to the full Supreme Court. Previously, the justices had asked for written briefs to be filed by Dec. 30 in response to the requests.

The cases dispute the executive branch's power to act unilaterally. US Solicitor General Elizabeth Prelogar has argued that the Secretary of Health and Human Services exercised his express statutory authority to protect the health and safety of Medicare and Medicaid patients by requiring healthcare facilities that choose to participate in those programs to ensure that their staff are vaccinated. The mandate allows for medical and religious exemptions.

The employer mandate at issue would impact some 80 million workers across the country, while the administration's vaccine requirement for health care workers covers more than 10.3 million people in the United States.

But several lower courts have said that the requirement exceeded the authority Congress had given the secretary, while other judges have backed its legality.

The mandate for large employers had also been found to be an executive branch overreach when the United States Court of Appeals for the Fifth Circuit continued its stay on the implementation of the Occupational Safety and Health Administration (OSHA) Emergency Temporary Standard (ETS) on vaccine mandates and testing pending a full review on the request for a permanent injunction

However, that decision was reversed by the 6th US Circuit Court of Appeals in December, in a ruling that said the government could implement the requirements.

OSHA, an agency of the US Labor Department, is charged with assuring safe workplaces, and has said that it had the authority to act under an emergency temporary standard meant to protect employees if they are exposed to a "grave danger." It requires businesses with 100 or more employees to ensure that their workers are

See 'Vaccine' page 7

Helix

Continued from page 1

Electric has selected Goodyear for this first-of-its-kind, advanced facility. Goodyear is experiencing rapid manufacturing growth, and Helix Electric will contribute to the exciting economic activity happening in the area and create more than 100 high-skilled jobs for residents."

The Arizona Commerce Authority is the state's leading economic development organization with a streamlined mission to grow and strengthen Arizona's economy.

She added that Helix Electric's presence will add to Goodyear's manufacturing landscape. The Loop 303 Manufacturing Corridor, which has seen massive development recently, includes Sub-Zero, REI, Dick's Sporting Goods and Ball Corporation as tenants. Goodyear also is home to Chewy Inc.'s e-commerce facility since 2018, and Amazon, which is the city's largest employer with nearly 3,000 employees.

Goodyear Mayor Georgia Lord praised Helix Electric "as a respected name in electrical contracting since 1985. I welcome Helix Electric to Goodyear and I am very pleased they chose to become part of our growing city."

Goodyear has a diverse blend of amenities with abundant business, cultural, educational and entertainment resources. The city's population is more than 95,000 and features a highly educated and skilled workforce. Goodyear is the spring training home to Major League Baseball's Cleveland Indians and Cincinnati Reds, as well as home to Fortune 500 companies, including Microsoft, Amazon, Ball, Dick's Sporting Goods, United Parcel Service, and Darden Restaurants.

Chris Camacho, president chief executive officer of the Greater Phoenix Economic Council, said, "Helix Electric is the latest example of a California-based company expanding its footprint into greater Phoenix to maximize our robust talent pool and scale in the country's fastest growing region. The company is a welcome addition to greater Phoenix's contractor ecosystem, creating critical jobs and further enabling the region to meet the construction demands of advanced industry."

SRP receives Arizona Corporation Commission approval for High-Tech Interconnection Project

Alan M. Petrillo
Electric Times

The Arizona Corporation Commission (ACC) has voted unanimously to approve a Certificate of Environmental Compatibility (CEC) for the High-Tech Interconnection Project (HIP), a collaboration among Salt River Project (SRP), the city of Chandler, and Intel.

SRP is working with the city of Chandler and Intel on the HIP, a proposed transmission project that is required to provide reliable power to the $20 billion expansion of Intel's Chandler Campus. The Intel expansion is reported to be the largest private investment in Arizona history and should prove to be a major economic boost for Chandler, the region, and the state by providing thousands of new, high paying jobs.

The Intel expansion will require SRP to build a new 230-kilovolt substation on Intel's campus, as well as new 230-kilovolt transmission lines connecting the campus to two existing substations.

SRP said it is working with Chandler to meet the city's preference to underground a significant portion of the transmission lines, address conflicts with existing underground utilities, and ensure the technical feasibility of the underground segments.

The remaining overhead segments are located within areas that already have overhead transmission facilities or are commercial in nature. The underground portion of the route was approved between SRP and the city of Chandler that allows the city to pay for the incremental costs for undergrounding.

The Intel expansion will require SRP to build a new 230-kilovolt substation on Intel's campus, as well as new 230-kilovolt transmission lines connecting the campus to two existing substations.

Zach Heim, SRP's director of transmission line design, construction and maintenance, is the technical manager for the siting effort on the 700-acre Intel Ocotillo Campus with its main entry at Ocotillo and Dobson Roads in Chandler.

"Last April, Intel announced that it was adding two new fabrication facilities in Chandler, which would be a $20 billion investment in the city and surrounding communities, and adding 3,000 employees," Heim said. "We have a 69-kilovolt system that currently serves Intel, but with the additions, there would be additional electrical load needs, so SRP would have to extend our system to serve that load."

Heim said that SRP will connect two of its 230-kilovolt substations—at Henshaw substation to the north of the campus with double 230-kilovolt circuits and Schrader substation to the east with a predominately underground single 230-kilovolt circuit.

"From Schrader, we will build a second circuit to Intel, with 4.6 of that undergrounded," he noted, "with 2.7 miles of the underground circuit in the city of Chandler's right of way, and the balance of it funded by Intel," Heim said.

Heim noted that Intel is responsible for the full cost of the 230-kilovolt substation that SRP will build, and that SRP will fund approximately $65 million for two substations and a new 230-kilovolt overhead loop as part of the project.

SRP is working with the city of Chandler to meet its preference to underground much of the new tranmission lines. Other sections will run along with existing overhead lines.

"Underground costs are being shared by Chandler and Intel, with the city contributing $12.5 million in funds and in-kind services to provide right-of-ways and some underground services," he added.

Hein pointed out that SRP plans to break ground on the Intel campus substation in January or February, while the transmission line elements will start work in the fall of 2022, looking at a goal of energizing the first phase of the project by September of 2023. He added that SRP would continue phase-in work to full capacity, anticipated for April of 2024.

K2 Electric volunteers to build home in Mexico

Phoenix, Ariz. – Serving others is a tremendous gift, but not just for the people receiving the help. That lesson was learned first-hand by 12 employees from K2 Electric who volunteered to help build a home for a family in Puerto Peñasco, Mexico. In November, these K2 Electric employees joined forces with 1Mission to complete the first phase of a home build.

1Mission is an organization that aims to provide housing for people living without safe and secure shelter by offering rewarding short-term mission trip experiences that honor the local leaders and provide positive, healthy outcomes for the communities in which they serve.

"I gained some good reminders by going—to really understand how much of a need there is for service and hospitality in all corners of our world, the importance of gratitude and thanksgiving for all that I've been blessed with, and a re-focus on how I might be able to serve my neighbor in a kind way," said K2 HR Director Josh Carmichael, who took part in the mission trip. "It was definitely what I expected—hard work, fun, building relationships with the K2 and 1Mission team, and great Mexican food."

The families selected for this opportunity have dedicated their lives to serving their communities and have positively impacted their neighbors. This gift allows these families to continue their impact without having to worry about shelter.

Twelve employees of K2 Electric, a Phoenix-based electrical firm, joined forces with 1Mission to complete the first phase of a new home for a deserving family that was living in a small camping trailer.

The K2 Electric team achieved its goal of completing Phase 1 of a home build during their three-day trip, where they were able to use their building knowledge and talent. The team was able to bond in an impactful way and particularly enjoyed interacting with the local foreman. Members of the K2 Electric party shared that the hardest part of the project was the concrete work to form the outer walls of the home.

The team was moved by the emotional response of all the volunteers during their trip, especially after seeing existing living conditions. K2 walked away with immense gratitude for the experience and plans to attend another trip with 1Mission this spring.

"I was reminded how fortunate I am to have a nice, climate-controlled place to lay my head every night," said Faron Balone, a field operations manager for K2. "The experience was not what I expected at all. Seeing families happy and content with so little in life made me realize how caught up I am in consumerism. Believe me when I say that changes will be made in my lifestyle."

The 1Mission experience was exceptional and K2 extends their continued support to this great organization and to the staff that made this trip so enjoyable.

"(1Mission is) very organized in what they are doing—from having a foreman ready to support each crew, to having a schedule of events for teams supporting their work there," said Carmichael.

For more information on how to support 1Mission visit www.1mission.org.

Allied Group Sales celebrates 25 Years of service

Phoenix, Ariz. – After 25 years of service, Allied Group Sales (AGS) reflects back on its humble beginnings. Founders Don Kaminski and Dave Mehrer purchased Allied Geis Sales, a local rep agency, on July 1, 1997 and renamed the company Allied Group Sales, Inc. and in doing so keeping the name AGS.

With only nine employees they began serving the electrical market in Arizona and Las Vegas. Now, 25 years later, as AGS celebrates this momentous anniversary, they have become one of the Southwest's leading hybrid electrical and lighting agencies serving the Arizona, New Mexico, Las Vegas and El Paso markets.

Current President and CEO, Tim Klei, has been with AGS since August 31, 2015. He initially served as the vice president of sales, until becoming the sole owner on March 1, 2016. Klei leads the overall business and focuses his sales time on distribution and contractors.

The Allied Group Sales offices in Phoenix.

"As I reflect back on what we have accomplished as a team over the past 25 years, I am proud of the consistent service and growth in our AGS team," remarked Klei. "I also highly value the many deep relationships we have built with our customers and manufacturer partners, many of which we call friends. For me, this milestone is more than a number; it's about longstanding partnerships and having the opportunity to serve others. The number 25 reflects that our employees, customers and manufacturer partners believe that what we do here at AGS has great value. We have done our best to put others' needs first and problem solve along the way. We have experienced continued growth and success and I want to thank each and every person who has made this journey possible. We would not be where we are without such a dynamic team of employees at AGS, industry leading manufacturer partners and faithful customers."

On Jan. 1, 2017, Klei brought on partner Michael Knoblock as VP Sales Lighting and Controls, to further realize the agency's full potential by investing in and expanding the lighting side of the business. AGS's plan to expand its lighting business included adding numerous lighting lines as well as a number of talented people. At the completion of Knoblock's first year, AGS accelerated the growth by acquiring another local lighting agency, Total Lighting & Control, on Jan. 1, 2018. This added seven new employees and many top lighting manufacturers to AGS, immediately more than doubling the size of the agency's lighting business. Today Knoblock continues to lead the lighting & controls business and focuses most of his sales time with distributors and contractors in Arizona.

Allied Group Sales plans to celebrate their milestone anniversary throughout 2022 in numerous ways including hosting an open house for customers later in the year at their newly remodeled office and publicly recognizing loyal long-term employees in the Electric Times each month.

Allied Group Sales is an electrical and lighting manufacturer's representative sales agency serving the Southwest for 25 years. With their corporate office and warehouse located in Phoenix Ariz., AG S also has resident sales offices in Albuquerque, New Mexico and Las Vegas, Nevada.

Vaccine

Continued from page 5

fully vaccinated or undergo regular testing and wear a face covering at work.

The stay issued by the Fifth Circuit set forth several reasons why the temporary standard should be permanently enjoined, including holding that

COVID-19 was not the proper subject for administrative action by OSHA. In its ruling the court stated that in order for an emergency regulation to be upheld, OSHA must show that it is necessary to protect employees from a "grave danger" to exposure to "substances or agents determined to be toxic or physically harmful."

The court pointed out that COVID-19 is widely present and not particular to any specific workplace, and that it did not pose a grave danger, was non-life threatening to a vast majority of employees, and did not arise to such a toxic or physically harmful substance or agent contemplated by the Occupational Safety and Health Act.

Biden's executive order in September requires private companies with 100 or more employees to mandate the COVID-19 vaccine for their employees and directed OSHA to develop an emergency rule that would require companies with 100 or more employees to mandate the vaccine or to put in place a weekly testing system.

WECA to hold open house at Phoenix training facility

R. Palmer
Electric Times

After launching in January 2021, the Western Electrical Contractors Association (WECA) is marking its first year of operation in Phoenix with an open house and ribbon-cutting ceremony on Jan. 12 from 4 p.m. to 7 p.m. at its electrical apprenticeship training facility at 2750 South 18th Place, Suite 100 in Phoenix.

"This will be an introduction and celebration of the center being fully open and growing," explained Don Black, WECA director of apprenticeship, IT and facilities, who is based in Rancho Cordova, Calif.

WECA has been operating in California for over 90 years, according to Black.

With some California connections, Corbins Electric—with offices in Phoenix, Tucson and Albuquerque—reached out to the organization to help expand the company's training programs and bring WECA's apprenticeship training program to the Phoenix area.

"That started the dialog," said Black. "So we went through the process of approval to get into Phoenix. We started with Corbins as our founding member, and we have grown since then."

Currently there are about 80 apprentices in the program representing about seven electrical contractors. By the end of January WECA should be close to it first-year goal of 100 apprentices, according to Black.

"Right now, the construction industry is going like gangbusters," Black added.

WECA's training is a commercial apprenticeship four-year program. Black explained that they start in their first year learning basic electrical theory, and as they move through the years the complexity increases towards such areas as industrial motor controls, advanced wiring techniques, lighting controls and more. "As well as all the physical tasks that electricians are required to do, like pipe bending and threading, layout and plan reading, with the goal that by the end of the four years they are journey-level."

WECA's phoenix facility instructor is Keith Smart. Smart was lead instructor at WECA's Riverside, Calif. location.

"Keith was eager to move out to Phoenix and help us get it going," said Black, adding that WECA employs full-time instructors. "We really try to seek out those tradespeople who have the heart of an educator, who might be a good mentor, and then train them to be good educators. We ask that all of our instructors become credentialed instructors, and they go through a formal training process for that."

During the open house on Jan. 12 tours of the training facility and labs will be given with the opportunity to meet with WECA team members. Food and drinks will be provided, and the event is open to anyone in the Arizona electrical industry community.

Currently WECA is operating in California and Phoenix, but future growth plans are on the horizon.

"We have four locations in California and the one in Phoenix," said Black. "Our members are asking us to look at other states, but we haven't got to that point where we have physically opened up in any other states, although that is something that will happen in the future."

Enphase Energy completes acquisition of 365 Pronto

Fremont, Calif. – On Dec. 21 Enphase Energy, Inc. (NASDAQ: ENPH), a global energy technology company and the world's leading supplier of microinverter-based solar and battery systems, announced the closing of its acquisition of 365 Pronto, Inc. Based in Scottsdale, Ariz., 365 Pronto is a predictive software platform dedicated to simplifying the cleantech service landscape by matching cleantech asset owners to a local and on-demand workforce of service providers.

The 365 Pronto software platform enables a two-sided marketplace. The buyers are customers consisting of installers, cleantech asset owners, or original equipment manufacturers. The sellers are service providers consisting of technicians and third-party installers providing services for residential and commercial solar, battery storage, and EV charging stations. 365 Pronto has hundreds of service providers nationwide who are qualified on its platform. A pre-priced work order is usually created by the customer and the 365 Pronto software platform algorithmically matches and dispatches a qualified service provider to complete the work order efficiently.

The acquisition is expected to provide the following benefits:

- Offers Enphase's installers the opportunity to service their own operations and maintenance contracts via the 365 Pronto software platform when necessary
- Provides Enphase's installers access to a nationwide qualified supplemental labor pool that can perform service calls at a time of severe labor shortages within the industry
- Increases the service level for current 365 Pronto customers with the addition of the highly skilled network of Enphase installers as service providers
- Enhances the homeowner experience of buying and owning solar, battery storage, and EV charging stations by helping to reduce wait times for maintenance services

"We are pleased to welcome 365 Pronto's customers, service providers, and employees to Enphase," said Badri Kothandaraman, president and CEO at Enphase Energy. "The company's software platform will provide our installers the ability to service their own O&M contracts with an on-demand network of service providers. We are excited about this opportunity to improve the installer experience as we continue to expand our digital platform."

"We are thrilled to join Enphase Energy," said Scott Tonn, CEO at 365 Pronto. "Our customers expect high-quality service, and Enphase is synonymous with high quality. Enphase's world-class customer service and digital platform align perfectly with 365 Pronto. We believe that the acquisition will help us to rapidly expand our customer base and achieve our vision of making service simple."

Study

Continued from page 1

explaining, "Individuals who worked 'normal' 9-to-5 jobs were being laid off in incredible numbers, and those industries dependent on them, like restaurant and entertainment, were also mercilessly shut down," he said.

"We reconsidered what was essential to our day-to-day lives," Heiman added. "The trade industry was found to be essential. If you think about it, this holds true in Arizona even more so than in other states. You need air conditioning just to live here. You need electricity, refrigeration for vaccines and medications. The trade industry is essential to all those who live here."

Additionally, the shift in college format during the pandemic may have created student interest in careers with tangible skills.

"A lot of traditional two-year and four-year college environments went remote," Heiman stated, "and with classes being held mainly online, students lost the social interaction aspect that is such an integral part of education. Hands-on training is so essential to the skilled trades that we began exploring ways to use technology to enhance the student experience. As a result, we now offer OcuWeld, a program that allows students to learn and practice welding techniques in a virtual environment using Oculus Quest 2 technology."

OcuWeld will be available to students in Tulsa and Phoenix starting January.

The study also reports the satisfaction rate of current surveyed trade school students is at an impressive 83 percent.

Heiman said the graduation and job placement rate of students enrolled in programs like those offered at RSI and listed under the Strata Tech umbrella companies further expresses the satisfaction and success rate.

"More than 1,800 students were placed in jobs in their field of study in 2020, and 3,000 in 2021," he said, "These students are typically placed in the field almost immediately upon graduation with an average starting salary of approximately $40,000."

Heiman said that the cost of traditional college tuition increasing annually is another reason individuals are looking into trade schools.

"Trade school can provide a better return on investment," Heiman said. "Many trade programs cost about $20,000 altogether and can be completed in as little as three months. When you can walk into a job that pays double what you just spent on your education, the payback speaks for itself."

StrataTech's local training facility, RSI, offers programs in refrigeration, electrical, welding, and more in different formats year round.

EV

Continued from page 3

automotive education is critical for an economy that is transitioning to low-carbon, electric vehicles and transportation," said Kate Kochenderfer, senior director of supply chain, transportation, and flight services at SRP. "We are honored to make this donation, as a full-electric vehicle is a valuable asset that will help round out GCC's training models and open up a pipeline of skilled resources to one day work at SRP or other local companies within our community."

The associate degree and certificates in Applied Science in Automotive Service at GCC prepares students to apply technical knowledge and skills to repair, service, and maintain all vehicles, especially hybrid electric and full electric vehicles.

SRP has been a leader in the EV space for some time and has spent over 20 years investigating and piloting electric vehicles for SRP employees, the SRP fleet and customers. At the end of its fiscal year 2020, SRP converted its entire sedan fleet to all EVs (hybrid and battery).

Education and awareness in electric transportation are critical facets to reaching SRP's EV- and carbon-reduction related sustainability goals. Among SRP's 2035 Sustainability Goals, the utility plans to support the enablement of 500,000 EVs in SRP's service territory.

"We're grateful to SRP for their support in the automotive community even beyond this donation," said Davis. "SRP employees are always willing to step up and donate their time at the Automotive and Heavy Duty Truck High School and Post-Secondary events and competitions. The utility has also donated money for scholarships, and helped facilitate many of Arizona's Automotive events and competitions."

Kate Kochenderfer (left), senior director of supply chain, transportation, and flight services at SRP, gives keys to the donated EV to Susan Campbell, dean of instruction, career and technical education at GCC

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SPRING 2022 COURSE SCHEDULE

ELC 103 - ELECTRICAL/MECHANICAL CALCULATIONS

Dates: Wednesdays, January 19 - May 4, 2022
Time: 6:00 p.m. - 9:10 p.m.
Location: Online

Fundamental calculations in arithmetic, algebra, trigonometry, descriptive geometry, economics, and profitability. Application of theories and formulas to solve design, installation, maintenance, and troubleshooting problems for residential, commercial and industrial electrical and mechanical systems.
Who Should Attend: This class will help journeyman, apprentices and contractors upgrade their residential skills.

ELC 119 - CONCEPTS OF ELECTRICITY & ELECTRONICS

Dates: Tuesdays, January 18 – May 3, 2022
Time: 6:00 p.m. - 9:10 p.m.
Location: GateWay Community College

Introduction to theory and principles of electric circuits, magnetism and electromagnetism including basic motors, transformers and generators. Use of basic measuring instruments. Overview of Ohm`s and Kirchhoff`s law and electronics in the modern world.
Who Should Attend: Entry level electrical workers, utility and distributor personnel or anyone wanting to understand the basics of electricity.

ELC 124 - INDUSTRIAL ELECTRICAL WIRING & CODES

Dates: Wednesdays, January 19 – May 4, 2022
Time: 6:00 p.m. - 9:10 p.m.
Location: ELA Training Center

Commercial electrical power distribution techniques of low voltage (under 600 volt) systems. Selection of electrical distribution components, single and three systems, one-line diagrams and conductor selection. System grounding, planning and over current protection.
Who Should Attend: This class will help upgrade the skills of those journeyman and apprentices who are competent commercial wiremen.

ELC 125 - COMMERCIAL ELECTRICAL WIRING & CODES

Dates: Thursdays, January 20 – May 5, 2022
Time: 6:00 p.m. - 9:10 p.m.
Location: Hybrid (Online & In-Person at GateWay Community College)

Commercial electrical power distribution techniques of low voltage (under 600 volt) systems. Selection of electrical distribution components, single and three systems, one-line diagrams and conductor selection. System grounding, planning and over current protection.
Who Should Attend: This class will help upgrade the skills of those journeyman and apprentices who are competent commercial wiremen.

ELC 218 - VARIABLE FREQUENCY DRIVES

Dates: Mondays, January 24 - May 9, 2022
Time: 5:50 p.m. - 9:15 p.m.
Location: ELA Training Center

Principles and operation of frequency controlled AC motor drives, including current source inverters (CSI), variable voltage inverters (VVI) and pulse width modulated inverters (PWM). Heating, ventilation and air conditioning (HVAC) applications along with energy savings, motor pump sizing and torque load calculation.
Who Should Attend: This class is designed for anyone interested in learning more about VFD's including electricians, engineers, facilities maintenance, and planners.

ONE-DAY NON-COLLEGE CREDIT SEMINARS

ELA 13 - NEC 2020 CODE UPDATE

DATE: Wednesday, April 6, 2022
COST: $270 Members/$300 Non-Members
INSTRUCTOR: Marc Ramirez
TIME: 9:00 a.m. - 5:00 p.m.
LOCATION: ELA Training Center, 2702 N. 3rd St., Ste. 2020, Phoenix, AZ 85004

Note: Course fees include copy of the NEC 2020 Soft Cover, handouts, breakfast, and a light lunch. ($50 off for those with Code Books)

Description: This course will cover modifications in the NEC and discuss why the rule changes were made. Topics also include safety aspects of the NEC changes, conflicting rule changes, how to apply the changes to real world projects and how the rule changes affect overhead costs.

Who Should Attend: Highly recommended for Facility Maintenance Technicians, Building Operators, Electricians & Supervisors.

ELA 70 - ELECTRICAL SAFETY FOR COMMERCIAL / INDUSTRIAL FACILITIES

DATE: Wednesday, April 13, 2022
COST: $270 Members/$300 Non-Members
INSTRUCTOR: Marc Ramirez
TIME: 9:00 a.m. - 5:00 p.m.
LOCATION: ELA Training Center, 2702 N. 3rd St., Ste. 2020, Phoenix, AZ 85004

Note: Course fees include copy of the NFPA 70E 2021 book, handouts, breakfast, and lunch.

Description: This full-day class will cover an overview of NFPA 70E including: Arc Flash & Arc Blast Hazards, Flash Protection & approach boundaries, Hazard Risk Categories & selection of appropriate PPE. Lockout Tagout procedures, general Electrical Safety related to electricity in Commercial and Industrial facilities. Recommended Safety practices and OSHA Codes.

Who Should Attend: Highly recommended for Facility Maintenance Technicians and Building Operators, Electricians, HVAC technicians and their Supervisors.

Register online http://edu.elaz.org or contact us for more information.
E-mail: education@elaz.org | Phone: (602) 263-0115

FACILITY MAINTENANCE TECHNICIAN PROGRAM

SPRING 2022

Sponsored by SRP® Operated by

The Electric League of Arizona education department and the Arizona Heat Pump Council present an integrated, HVAC and Electrical maintenance program to meet the unique training need of facility maintenance departments. Graduates of this program receive the "Facility Maintenance Master Technician" designation.

About the Program:

This program has been designed by industry educators and practitioners, associated with the Electric League of Arizona's education department and the Arizona Heat Pump Council. This session will be taught by one of the League's electrical instructor and a lead instructor for the Arizona Heat Pump Council education program. Upon completion of this 16 week 2 nights a week program, successful students will receive a Certificate of Completion and Facility Maintenance Master Technician Patches.

Course Coverage

HVAC Curriculum:

The HVAC training will include a comprehensive review of refrigeration system fundamentals, refrigerants, HVAC equipment, air movement and measurement, air quality, residential & commercial systems, air & water source heat pumps.

- Refrigeration Theory I
- Refrigeration Theory II
- Refrigeration Components
- Introduction to Refrigerants
- Charging & Piping
- A/C Control Systems I
- A/C Control Systems II
- Review and Quiz
- Refrigerators and Freezers
- Residential Systems - Air Conditioning
- Residential Systems - Heat Pumps
- Commercial Systems
- Air Quality and Distribution (Air Flow)
- HVAC Systems Troubleshooting
- Servicing Commercial Systems
- Review & Final Exam

Electrical Curriculum:

The electrical training will include a comprehensive review of basic electrical fundamentals; practical installation, operation, maintenance, and troubleshooting techniques, with an emphasis on electrical safety procedures.

- Concepts of Electricity I
- Concepts of Electricity II
- Basic Circuitry I
- Basic Circuitry II
- Basic Circuitry III
- Commercial & Industrial Buildings Practical AC Circuits
- Commercial & Industrial Practical AC Power Delivery
- Building Systems Control Systems
- Electrical Codes and Standards
- Basic AC/DC Rotating Electrical Machinery
- Variable Frequency Drive Systems I
- Variable Frequency Drive Systems II
- Electrical Power Quality Commercial & Industrial
- Electrical Troubleshooting I
- Electrical Troubleshooting II
- The Importance of Electrical Safety

Contact the ELA Institute for information at 602-263-0115

Dates: January 11 - May 5, 2022

Tuesdays & Thursdays • Time: 5:30pm - 8:20pm

HVAC Classes - Tuesdays • Electrical Classes - Thursdays

Operated by Electric League of Arizona and Arizona Heat Pump Council

ELA Institute - 2702 N. 3rd Street Ste. 2020, Phoenix, Arizona 85004

Fax 602-274-0029 or call 602-263-0115 or visit edu.elaz.org

BUILDING OPERATORS' CERTIFICATE PROGRAM

SPRING 2022

Sponsored by SRP® Operated by

The ELA Institute for Facility Management Education presents an educational program leading to a certificate in Building Operations. The certificate will be of most benefit to managers with total responsibility for multi-facilities, as well as those with single facility responsibility.

FME 101
HVAC Fundamentals in a Commercial/ Industrial Facility
Course Description: A discussion of commercial systems, chiller systems, and A/C control systems in a modern industrial setting.
Course Content: A discussion of types of systems and controls working with application sequences, energy efficiency, diagrams and specific HVAC Controls.

FME 102
Airflow Dynamics for the Commercial/ Industrial Facility
Course Description: A thorough understanding of airflow dynamics can enable you to uncover and resolve system problems.
Course Content: An overview of what causes most airflow related problems and how they can be prevented.

FME 103
HVAC Codes and Safety for the Commercial/Industrial Facility
Course Description: A discussion of local and national health, safety, energy and environmental codes as they relate to the HVAC system in a Commercial/Industrial Facility.
Course Content: An overview of codes, standards and specifications and how they apply in a Commercial/Industrial Facility.

FME 104
Electrical Codes and Standards for the Commercial/Industrial Facility
Course Description: Electrical, energy management and related codes that facility managers must know.
Course Content: Compliance with the most important maintenance related codes and their application to an energy efficient building.

FME 115
Design & Operation of Commercial Chilled Water Systems
Course Description: This class provides an overview of the design and operation of Building Chilled Water Systems including piping system design and unit components. their application to the facility.
Course Content: Piping system/Equipment.

FME 106
Electrical Safety for the Commercial/ Industrial Facility
Course Description: A discussion of commercial facility safety practices as it relates to electrical systems.
Course Content: An overview of safety practices related to electricity and how it relates to the Commercial/Industrial Facility.

FME 107
Lighting Fundamentals and Efficiency for the Commercial/Industrial Facility
Course Description: A broad-based discussion of lighting fundamentals and efficiency and how they're applied to a Commercial/ Industrial Facility.
Course Content: An overview of the Lighting Industry.

FME 108
Power Quality for the Commercial/ Industrial Facility
Course Description: The basics of important, "Need to know" power quality issues in your facility.
Course Content: An overview of what causes most Power Quality related problems and how they can be prevented.

FME 109
Indoor Air Quality for the Commercial/ Industrial Facility
Course Description: The purpose of this course is to familiarize the attendees with Indoor Air Quality.
Course Content: This course will cover how to identify and understand air quality issues, and how this impacts the facility.

FME 110
Energy Conservation Techniques
Course Description: The use of energy in commercial buildings and how to identify and prioritize conservation opportunities.
Course Content: An overview of the basics of energy accounting, evaluation of fuel options, operation and maintenance strategies to improve efficiency, and energy management planning techniques.

FME 111
Energy Audit
Course Description: The essentials that a building operator should know about how to measure the energy performance of their facilities.
Course Content: An overview of where your facility uses energy and how your facilities' energy use compares to your competition.

FME 112
Direct Digital Controls
Course Description: An introduction to the application of Direct Digital Controls (DDC) to operating a building's temperature control system.
Course Content: Topics will include:
- The ability of the system to process data
- Input & output types, transducers, variable frequency drive (VFD) theory, communication protocols (LON & BACnet), programming vs. configuring controllers
- Workstation basics
- How to make the controls act like an Energy Management System (EMS).
- Specific manufactures will not be covered, only the overall theory of how these systems operate.

"This Program should be a requirement for anyone with Facilities Management responsibilities in today's environment. The broad base of topics covers the entire spectrum of our profession."

Roger Smalley
Arizona Public Service, Facilities Administrator Sr.

Please contact the Institute for information at 602-263-0115 or visit edu.elaz.org

Dates: March 16, 2022 - May 4, 2022

Eight Wednesdays ~ 9:00am - 5:00pm

For more information, please contact the:

ELA Institute
Fax 602-277-9881 or call 602-263-0115 or
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for a complete course catalog: www.elaz.org or EDU.ELAZ.ORG

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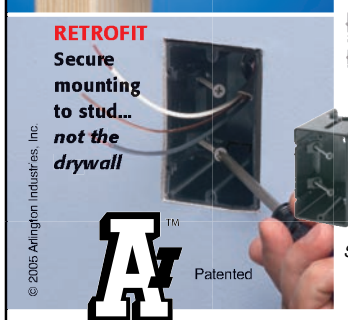

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8413	1-1/4"	1.000	1.460	.870	1.370	2-3, 2-4, 1-3, 1-4, 1/0-3, 1/0-4, 2/0-3, 2/0-4, 3/0-3
8414	1-1/2"	1.360	1.770	1.250	1.590	2/0-4, 3/0-3, 3/0-4, 4/0-3, 4/0-4, 250-3, 250-4
8415	2"	1.700	2.200	1.550	2.050	250-4, 300-4, 350-3, 350-4, 500-3
8416	2-1/2"	2.100	2.700	1.950	2.400	500-3, 500-4, 600-3, 600-4, 750-3
8417	3"	2.500	3.300	2.350	3.000	600-4, 750-3, 750-4
8418	3-1/2"	3.300	3.600	3.031	3.500	750-3, 750-4, 1000-4

NEW

Product info aifittings.com/landing/8412

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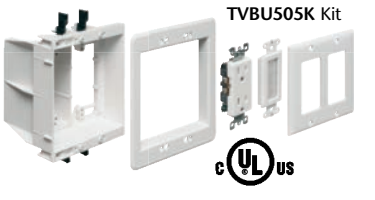
FOR FLUSH-TO-THE-WALL TV MOUNTING

Our recessed non-metallic combination power/low voltage TV BOX™ Kit includes the box *and accessories* needed to mount a TV flush against a wall. There's a power opening on *one side* and low voltage on *the other* for Class 2 wiring of satellite or cable TV, speakers and more.

The job looks great! Plugs and connectors stay inside this two-gang box without extending past the wall.

- For walls up to 1-1/2" thick in new work or retrofit. Box mounts to stud in **new construction.** In **retrofit** mounting wings hold box securely in wall.

Product info aifittings.com/landing/tvbu505k



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