THE LINCOLN ELECTRIC COMPANY

Erie Institute of Technology

Success Story

Keeping Welding Alive On The Industrial Great Lakes — Erie Institute of Technology Trains Today's Welders with Tomorrow's Skill Sets

In any region boasting a strong industrial base, the need for skilled welders is a given. Erie, Pennsylvania, is no exception. This city on the shores of Lake Erie has thrived for years on a heavy manufacturing sector, including the presence of a General Electric locomotive factory – an industry that relies heavily on the latest advances in welding technology and other manufacturing skills.

In 2007, the Erie Institute of Technology (EIT) opened a new 50,000-square-foot training facility to help serve the needs of Erie's manufacturing community. From the start, school administrators sought to provide a constant base of educated welders and other skilled labor to local manufacturers through its Advanced Manufacturing program.

This comprehensive training program includes not only welding technology but also courses for CNC/machinist technicians; electricians; refrigeration, heating, ventilating and air conditioning (RHVAC) practitioners; and maintenance technicians. The college typically has about 300 students enrolled at any given time.

Graduates from EIT's welding program, which started in 2009, have learned the most common welding processes – MIG (GMAW), TIG (GTAW) and stick (SMAW) – and applications at the foundation, intermediate and advanced levels. They are qualified for such entry-level positions as welder, welding specialist, welding technologist and welding engineer. The school also provides specialized training programs for some of the area's manufacturers, including General Electric.

Fifteen welding booths are equipped with a variety of welders and weld fume control from Lincoln Electric.

"Local manufacturers recognize that a skilled, productive workforce is the key to keeping U.S. jobs," says Rick Griffith, EIT's owner. "It all comes down to industry specific training for the latest technologies on the most advanced equipment available."

Latest Technology

The key to success for any welding training programs lies in the design – and quality – of the facility itself. EIT offers 15 welding booths equipped with a variety of welders from Lincoln Electric, including:

- Five POWER MIG® 350MP wire welder units
- Seven Invertec® V350-PRO and LF-72 wire feeder packages
- Invertec® V350-PRO and DH-10 wire feeder package
- Invertec® V310-T AC/DC TIG welder
- Precision TIG® 275 TIG welder
- Pro-Cut® 80 plasma cutter

Future equipment purchases, according to EIT officials, will include submerged arc welders and also Lincoln Electric's VRTEX™ 360 virtual reality arc welding (VRAW™) training system.

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"We wanted to install top quality equipment when we were planning the program, and Lincoln had exactly what we needed," says Clayton Webber, an EIT instructor who has 20 years experience as a welder. "This equipment is easy to work with and easy to use. I've seen technology evolve over the years, and I believe in this technology."

EIT's Director Paul Fitzgerald says the local manufacturing base expects EIT graduates to know how to use the latest welding technology…and use it well.

"We use only high-end, state-of-the-art systems," he says. "We have major manufacturers, such as General Electric, relying upon our training programs to provide students – either for new hires or their current employees – with the most up-to-date education. We have to have the best technology possible in order to achieve this."

Pictured from right to left: Clayton Weber, Welding Instructor; Rick Griffith, Owner; and Paul Fitzgerald, Director.

Fume Extraction

The Lincoln Electric technology at EIT extends beyond welding equipment. The college also installed a 15-booth Lincoln Electric low vacuum central system for welding fume control – a major benefit in a heavy welding environment like a welding school.

The system removes and extracts welding fume at the point of welding and transports it via ductwork to a central location for filtration, helping to keep welding fume away from the operator's breathing zone and also reducing accumulation of welding fume in the facility.

Low vacuum systems draw air at a close proximity, between 6 and 15 inches, to the welding arc, thanks to an easy-to-position extraction arm. These energy-efficient systems are designed such that they remove a large volume of air at low transport velocity and low system pressure. Each system is custom engineered to meet facility and application requirements. They require minimal maintenance and have automatic filter cleaning. At EIT, each booth offers nearly 100 percent capture at 600 CFM.

What's more, low vacuum central systems are quieter than traditional weld fume extraction methods, something that enhances instructors' teaching ability.

The weld fume control system removes and extracts welding fume at the point of welding and transports it via ducts to a central location for filtration.

"The old systems sounded like a jet engine," Webber notes. "It would be hard to talk while students are welding. Plus a lot of welding is done by sound. For example, a good MIG weld sounds similar to the sound of bacon sizzling on a griddle. If you hear that sound, you know it's going well. If it's sputtering, you have problems and need to make adjustments to your wire speed, voltage or arc length. If you as an instructor can't hear this because of a loud fume extraction system, you wouldn't know which students might need help, or you would have to shut down the whole system, talk with the students and then power back up."

It's this kind of careful attention to training that makes EIT a go-to source when Erie-area manufacturers are looking for new skilled workers or want to upgrade the skill sets for their existing employees.

"The need for qualified welders is huge," Griffiths says. "And we're the ones training them. Our success hinges on having state-of-the-art equipment in our programs. We can't settle for anything less. No one else in the area or possibly even the state of Pennsylvania has this level of technology." ■

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