CT Tech Educates and Inspires Next-gen Techs

Most of us in the trades have read the headlines saying America's experiencing a dire shortage of skilled trade workers. The most in-demand groups of technicians — machinists, electricians, plumbers, and welders — average 55 years of age.

While baby boomers dominate the trades now, what happens when they retire? Younger trade workers are abnormally scarce; it's a problem America's never faced before. The number of 18- to 21-year-olds entering the trades continues to drop.

Experts for the cause, like Mike Rowe of Discovery Channel's "Dirty Jobs," champion the value of trade professions. And, fortunately, schools like the Connecticut Technical high school system (CT Tech) are doing everything they can to make a difference.

CT Tech, the only school system in the nation run by a state, has focused on preparing young students for a future in the trades. While they also provide a healthy mix of standard education curricula, what sets CT Tech schools apart is the trade and technology opportunities they provide.

The 18 CT Tech schools throughout the state offer diverse training and educations tracks. Students have the option to, and are encouraged to, explore training for many different trades, such as plumbing, HVAC, electric, carpentry, automotive, culinary arts, facilities management, hotel hospitality, and more.

At the schools, students receive excellent training, and, upon graduation, each student receives a trade endorsement. This alone is noteworthy because graduates are then exempt from having to take the related instruction hours associated with an apprenticeship. According to school administrators, graduating students have excellent placement opportunities, so it's onward and upward toward a paycheck, on-the-job training, and job site responsibilities.

Some of the school's programs, such as the facilities management curriculum, provide students with an uncommonly advanced training regimen. Students who successfully complete that program graduate not only with a high school diploma, but also may qualify for an associate's degree.

"All our schools offer a full complement of regular high school courses like algebra, biology, and geometry," said David Telesca, principal at Waterbury, Connecticut-based Kaynor Tech. "The challenge is that our students have only 90 days for academics and another 90 days for career technology instruction. Regular high school students have 180 days for academic learning. Yet, CT Tech students get judged by the same metric system as regular high school students, and they still outperform them."

"Students who attend our schools all want to be here," said Raymond Mencio, education consultant, CT Tech. "Not only do they have to apply, but, if they get accepted, they need to pass all of their classes to stay in the program. It's widely known that we run rigorous, focused programs.

"Last year, we received 800 freshman applications, but we could accept only 200 new students," continued Mencio. "Our students need to be completely focused; we screen them well, and, through the years, the results have been rewarding for everyone involved, especially the students and the businesses they take their training to."

Even though the CT Tech schools are just high schools, school instructors see to it that their courses keep pace with entry-level manufacturer training and through on-the-job training with professional shops. Students are exposed to emerging technologies and applications. Local

Ekram Rizvani, a senior at Kaynor Tech, secures beam clamps to a Modine unit heater in the garage.

Sydney Craig (foreground) and Erika Hall (background) cut and secure Watts R-Flex in order to prepare the pipe ends for a transition to copper.

Cesar Quental prepares a pressure test for the Watts RadiantPEX. This will be charged throughout the construction to ensure no leaks occur.

Left: Henry Wheelahan, plumbing instructor at Kaynor Tech, goes over the Taco circulators that will be installed in the E-house. **Right:** Wheelahan prefers to share in-depth information on every piece of equipment used at the CT Tech locations.

Left: Wheelahan poses for a photo with the 2014 senior plumbing class at Kaynor Tech. **Right:** Hunter Delaney, a senior at Kaynor Tech, helps install a Modine unit heater in the garage.

residents can actually go to these schools for car repair, a haircut, or for plumbing and electrical needs. This is a good indication of the level of training received at CT Tech schools.

E-houses

"The very best teaching tools we can possibly provide for students are our E-houses. So far, seven CT Tech schools have one. Each has been built by the students themselves," said Pat Ciarleglio, education consultant, CT Tech.

Not quite four years ago, E.C. Goodwin, a New Britain-based CT Tech school, built the first Environmental House. Since then, each of the 18 schools has built, or is in the process of constructing, its own E-house. Typically these super-efficient spaces are approximately 600 square feet in size.

The E-houses are works of art prized by participating students and instructors alike. The projects are used to teach and inspire students. Local public school students are also exposed to the E-house projects.

"Our E-houses were built to be used as functioning models for all different kinds of new and energy-efficient technologies," explained Mencio. "The carpentry, electrical, and plumbing students work in tandem to complete each E-house all in one school year. They learn about real-time, real-world needs and deadlines and the importance of maintaining complex scheduling for different facets of each construction project."

Students install many different types of insulation and HVAC equipment. As projects near completion, Plexiglass viewing ports are installed over some facets of home construction, offering a glimpse of radiant heat, wiring, and piping while giving a look below floors and behind walls and exposing various parts of construction that are typically unseen.

Only the Best Technology

"CT Tech schools choose advanced and energy-efficient products on the market to install in their E-houses," said John Blades, account manager at F.W. Webb Co., a Bedford, Massachusetts-based distributor that provides heating, cooling, and hydronic equipment for all CT Tech schools. "The students learn about energy efficiency and the newest green technologies."

"The heating technology for the Kaynor Tech E-house is radiant. The students installed about 300 lineal feet of Watts RadiantPEX within Watts' SmarTrac above-subfloor radiant track system. The source is solar hydronic with a storage tank and an integral propane backup for when the solar source has been exhausted. The storage tank is adjacent to a small, gas-fired backup unit boiler. Radiant warmth is supplied by heated water in the storage tank by way of a Taco Inc. variable-speed Bumblebee circulator," explained Henry Wheelahan, plumbing instructor at Kaynor Tech.

"When it comes to radiant heating technology, we always suggest Watts Radiant," said Blades. "It's reliable, versatile, and durable, which is what we want students to be exposed to as they have their first experience with products we hope will strengthen their desire to stay in the field."

The E-house also has a section of radiant baseboard under a window so students can experience an alternate form of heating technology. Baseboard radiation is controlled by a Taco 007 circulator.

"We also supplied Taco products for all E-house hydronic applications. Their product line is solid and constantly growing," added Blades. "We've had excellent results with Taco. Plus, Taco's online educational materials are a go-to resource for the kids."

At Kaynor Tech, the E-house roof is home for a photovoltaic panel that provides electricity as well as a solar thermal panel, which provides solar hot water as the primary source of heat.

The Dump Zone

"There may be circumstances when an E-house may have an overabundance of hot water. We made accommodations for that at the Kaynor Tech E-house," said Wheelahan. "There's a dump zone that feeds two 60,000-Btu Modine Mfg. Co. unit heaters in a large garage about 100 feet from the E-house. The glycol-mix hydronic fluid is piped underground with Watts R-Flex pre-insulated supply and return tubing trenched underground below the frost line.

"The Modine unit heaters in the garage produce very little noise and are more than capable of keeping the 110-foot-long building warm during the winter," continued Wheelahan. "It's where buses can be parked in the winter and lots of equipment is stored. It has to stay up to temp."

After several years, when newer, greener products have hit the shelves, they'll completely gut the E-houses and install all new equipment, offering invaluable learning experiences for new CT-Tech students.

Wright Tech

The 18th Connecticut Technical high school reopened in Stamford in August 2014. They're calling it "Wright Tech." Wright Tech had shut down in 2008 due to funding complications, but, with help and encouragement from Connecticut Gov. Dannel Malloy, Wright Tech was completely renovated and reopened in 2014.

Malloy became enamored with the CT Tech school concept and has become a strong advocate for the school system.

"The governor's hometown is Stamford, which is where Wright Tech is located. He was at the ground breaking and the ribbon-cutting ceremony. His words of encouragement were invigorating," said Ciarleglio. "Wright Tech is different from all our other schools in that it will have the latest and greatest technology features and specialized courses that have just been added to the curriculum. We want to help these kids be the best they can in their careers, so they can be amply qualified for any future jobs."

Mike Rowe, take note. With this sort of encouragement and training, America's youth are stepping to the plate.

Information courtesy of Rachel Vastyan, a writer and account manager for Common Ground. Common Ground is a Manhein, Pennsylvania-based trade communications firm that specializes in the hydronics, radiant heat, plumbing and mechanical, geothermal, and HVAC industries. Contact her at 717-664-0535 or at cground3@ptd.net.