

Vocational Schools: Striving To Provide Quality Workers

by Mark Skaer

June 9, 2005

Editor's Note: When asked about their top concerns, contractors have consistently reported that a lack of qualified skilled laborers is the primary issue. In a series of articles titled "Workforce of the Future," The News will focus on specific resources for HVAC training and profile traditional and nontraditional methods of recruiting and hiring. The first installment in our series examines vocational schools.

Contractors can be hard to please. Educators at vocational and technical schools know this like the back of their hands.

Instructors at vocational schools know that many contractors seek out graduates from their programs, but they also know that some contractors may not. Some, they realize, would rather wait until a vocational school graduate has a few years of experience under his or her belt. Other contractors prefer to teach their own new employees the ropes, as they do not have faith in the vocational education system.

How do vocational schools react to these disparate approaches to hiring, and how do they respond to those who assert that graduates may not be ready for work in the field? Their collective answer: Give us all a chance — especially if you have not done so already. The vocational school instructors, administrators, and department chairpersons who answered an informal News Internet survey said they would welcome the chance to sit down with the nonbelievers and doubters in this industry in order to convince them that they are doing everything within their power to fulfill the industry's insatiable need for skilled employees.

Vocational schools know that contractors want technicians that can turn a profit for the company. In the eyes of Mike Feutz, hiring graduates from technical education programs is the best way to achieve this goal, in both the short term and the long term.

"In the short term, contractors need someone that can effectively and efficiently work on their own as soon as possible," explained Feutz, chair of the HVACR Department at Ferris State University (FSU).

"While it is not realistic to expect a graduate to leave school on Friday and run service calls on Monday all alone, it is true that employees with training in HVACR will be prepared to work alone much quicker than a hire off the street."

When you consider the complexity of the industry and the diversity of knowledge required to be a good service tech, it is no wonder that contractors have a difficult time finding good employees when hiring off the street, said Feutz.

“In the long term, contractors need senior technicians that can mentor new hires and become the ‘go-to tech’ when difficult problems arise,” he said.

“The fundamentals of HVACR that students learn at Ferris State provide them the foundation to systematically troubleshoot the most complex problems. With experience, they become the technicians that can be relied on to fix the problem on their own. “More importantly, knowledge gained through a good technical school, combined with experience, produces technicians that fix a problem right the first time, reducing expensive callbacks and ‘parts changing.’ That saves money for the customer and the manufacturer. When you consider that your technicians are your best sales people, it only makes sense that you hire the best trained technicians possible. Not only will this make your customers happy, it will keep them coming back.”

Vocational schools prefer that contractors look to them as partners in the effort to turn out 20,000 top-quality techs that will be needed every year through 2020, according to statistics from the U.S. Department of Labor.

“My opinion is that the HVACR industry needs to promote this as a viable career choice,” said Katie Schiefen, the associate dean of Technical Education, Monroe Community College, Rochester, N.Y. “Education and industry really need to partner.”

Doing Their Part

According to the Air-Conditioning and Refrigeration Institute (ARI), there are 1,385 schools with an HVACR curriculum. This number includes private schools, high schools, secondary four-year schools, two-year community schools, accredited schools, and some utility-sponsored schools. (Not factored in are the abundance of union-led vocational schools and programs.) Those educators contacted by The News were quick to point out the merits of their respective programs.

“There is nothing I can say to convince contractors that graduates are ready when they come out of school, because that simply is not true,” said Feutz. “But I can say that graduates learn not only the ‘nuts and bolts’ of HVACR, but the methods of systematic trouble-shooting and the ability to problem solve. In short, they are taught to think.

“Going back to the bottom line, in order to make money for the contractor, technicians need the ability to problem solve and troubleshoot, and a solid knowledge of the fundamentals of HVACR. Technical schools are the best source to provide all three.”

Like most instructors, Chris Brueggeman, head of the HVACR Department at Ranken Technical College, St. Louis, was certainly not bashful to speak up for his school. “Ranken has a great ability to be flexible in its course offerings,” he said. **“Over the past**

98 years, we have used our advisory boards, made up of industry representatives, to help us respond to the needs of our students and the local workforce. I am confident that we will be able to meet increased demand for technicians, just as we've met the rising needs in other fields, like precision machining technology and information technology. We are very proud of our ability to adapt to changes in culture and technology and train our students to get jobs and advance in their chosen careers."

Turning his attention to HVACR (the private, nonprofit institution offers training in 14 technical disciplines), Brueggeman stated, "Ranken clearly recognizes the need for more highly skilled technicians in this area. Ninety-eight percent of our students have jobs in their field within six months of graduation, so we know that employers are hiring, and there's a steady increase in demand for the state-of-the-art courses we offer here. To meet this need, we are expanding our HVACR department and facilities, and increasing course capacity in order to give students the level of hands-on experience that Ranken is famous for."

It is this hands-on experience that makes Brueggeman confident that his students are ready to hit the ground running when they graduate. "Our students spend four hours, five days a week in their technical major, three of which are actual hands-on experience in the shop," he explained.

"Not only does this make the program more attractive to students because they aren't sitting and listening to lectures all day, but it ensures that when they graduate they can go straight to work and be an asset to their employer."

Features like this, and Ranken's focus on employability — all Ranken students are graded on work ethic, including attendance and appearance, as well as their ability to work as part of a team — keep employers coming back year after year to hire Ranken's graduates. Ranken also cooperates with industry partners to offer students sponsorships for their tools, or part-time jobs while still in school, which gives that company an edge when the student is ready to look for full-time work.

Ranken's advisory board is made up of industry leaders who offer suggestions about additions to course curriculum, and keep Ranken on the cutting edge of the industry.

"Our industry partners are an important part of the program here," said Brueggeman. "They tell us what they need our students to know when they graduate, and we are able to focus on those skills. The students are happy because they get great jobs, and the employers are happy because they've got exactly the employees that they're looking for. If a company wants to get the best of the available graduates, I would say that they need to get involved with the program early."

More Testimonials

Like Brueggeman, Feutz is not afraid to tell contractors that their involvement is not only needed, but requested.

“Connecting with a vocational program couldn’t be easier,” said Feutz. “Simply phone the instructor and let him or her know that you have a need for an installer or technician. Give your contact information and some details about the job, the type of work you do, and when you hope to hire.”

According to Feutz, the instructor will pass the information on to the students. “Better yet,” he added, “stop by for a visit and get to know the instructor or instructors. Develop a relationship with them, so when a student asks them for job leads, your company comes to mind. Even better, offer to be a guest speaker.

“Chances are, you are more of an expert in some sector of the industry than the instructor. Most instructors welcome guest speakers. It is good for the students because they get to hear about the industry from someone different, and that helps keep the class fresh. And it is good for you, too.

“Let’s be honest, every class has some stars and every class has some that are not stars. The more you interact with the students, the more you will get to know them and learn who the stars are.”

If contractors have never been involved with the local HVACR school, Feutz said a they will be surprised how welcome they will be at that school. Interaction with contractors helps the instructors keep abreast of current trends in the industry, keeping them apprised of what equipment works and what equipment fails. “If you think about it, your knowledge, when shared with your local HVACR school, will help ensure that the students are better prepared to work for you when they graduate,” he said.

Like Brueggeman, Feutz was not afraid to provide a laundry list of what FSU is doing to produce top-quality employees for the industry. His reply to the question of what his school was doing to help prepare students for the workforce was, “Everything we can think of!” (For more of Feutz’s comments, see the sidebar “OK, Since You Asked ...” below.)

In FSU’s case, this includes busing students from community colleges, high school tech centers, high schools, middle schools, and elementary schools to its facility for a tour. This tour consists of 10 different stations, located in labs and mechanical rooms throughout the building. Each station is hosted by a faculty member and the teachers’s students.

“Before the tour, we give a brief presentation about the industry to introduce what the students will be seeing,” said Feutz. “After the tour, we gather in the student common and give each of our guests a soft-serve ice cream cone to give them a delicious — and memorable — example of a product made possible by our industry.”

Last year Feutz and his staff offered tours to 700 prospective students. “Our purpose in these tours is to show the older students what opportunities lie in this industry,” he said, noting that the college reveals to the visitors the average salaries of its two-year (\$33,000) and four-year (\$49,000) graduates.

“For younger students, our goal is to plant a seed that will lie dormant throughout the high school years and hopefully germinate when it is time to make a career decision.” In a nutshell, schools are approaching industry needs in several ways, including:

- * Getting community participation, which includes having advisory committees with local industry representatives.
- * Holding job fairs.
- * Developing curricula and programs designed to meet local business needs.
- * Starting work-study programs with local businesses.
- * Facilitating student certification (from school, state, and/or third-party entities).
- * Encouraging involvement with local unions.
- * Teaching HVACR as a second career to attract older workers.

“Program acceptance is critical,” said Ray Mach, director of education, ARI.

“It’s not just the numbers of workers that schools produce, but the quality. In the end, support is needed from guidance counselors, teachers, parents, and students. We have to sell the concept that not every capable and successful person must go to a traditional four-year college.

“HVACR is a skill and requires academic expertise in math and science. It pays well. It is not demeaning. In my estimation, junior and community colleges are great big win-win situations. A student can go to college and get a trade, too.”

Spread The Word, Get Involved

Jim Kroll is quick to point out that the changes the industry is experiencing are “mind-boggling.” In fact, the associate professor at Virginia Highlands Community College, Abingdon, Va., insists that “the doors of opportunity are just waiting for someone to step up and open them.”

However, Kroll has heard the drumbeat of negative criticism about the industry. “The single thing I hear most often is that motivation is in short supply,” he said. “It is not easy to get folks excited about hard work that can be sweaty and dirty, with sometimes seemingly never-ending hours.

“It definitely takes a special kind of motivation to get into some aspect of this industry. However, the rewards are just as high on the other end of the scale, as the hard work is on the ‘ugh’ scale.”

“Finding jobs for graduates is not a problem,” assured Feutz. “Finding prospective students interested in HVACR is a big problem!”

Feutz is definitely not a lone voice in the HVACR wilderness. Nearly every respondent in the News’ informal Internet survey echoed Feutz’s frustration. Each school agreed that the solution to this industry problem involves all parties working in harmony.

“Employers line up at the tailpipe of the university, waiting for the graduates to pop out,” is how Feutz put it. “But schools cannot do all of the recruiting that our industry needs. I need employers to help get students to school in the first place.”

Like most of the News’ respondents, Feutz was not apologizing for the way things are going.

“Schools are doing all they can to recruit,” he said. “We all have to compete for students to keep our programs alive, let alone the needs of the industry. Believe me, if we could be doing more, we would!”

Hampering the cause is the fact that many school budgets have been cut and more work is expected of fewer people. After prepping, teaching, setting up labs, seeking equipment and funding, and dealing with administrative requirements of the job, most faculty and instructors have precious little time left over for recruiting. However, all agree that recruiting is essential.

“Send a well-groomed technician to local elementary/middle schools to show the kids what neat things our industry has to offer,” said Feutz, who definitely had more than one suggestion. “Let them crawl through the van, or solder an elbow on a piece of tubing. Give them something hands-on to do to plant that valuable seed that just may lead to a future technician.

“If we all start recruiting not just for today, but for five to 10 years from now by planting seeds with our young children, and if we continue to plant those seeds, we just may overcome the shortage on a permanent basis.”

Yes, there might have been a time not too long ago that an ad in the paper would generate perhaps a hundred applicants to choose from. Now, it is much tougher. Like it or not, the bottom line from schools that teach HVACR is simply this: Every aspect of the industry

has to get involved in recruiting if the industry ever plans to have 20,000 techs join the ranks each year through 2020.

“The message I’d like to leave in your article is that we all have to recruit,” said Feutz. “Expecting schools to supply all the technicians that our industry needs is simply not realistic.”

Sidebar: OK, Since You Asked ...

Go ahead and ask Mike Feutz what Ferris State University (FSU) is doing to produce more HVACR graduates. Like most every instructor and vocational school administrator interviewed by The News, the chair of the HVACR Department at FSU is not bashful to inform one and all what his institution is doing.

Here are some of the items on his list:

1. We have a Web site (<http://www.ferris.edu/cot/hvacr>) that contains information on all of our programs.
2. We purchase a booth at the annual International Air-Conditioning, Heating, Refrigerating Expo/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Winter Meeting.
3. We bus students from community colleges, high school tech centers, high schools, middle schools, and elementary schools to our facility for a tour. The tour consists of 10 different stations located in labs and mechanical rooms throughout our building. Each station is hosted by our faculty and students.

In the fuel oil lab, we fire an oil burner installed in a portable (and safe) demonstration cart so they can see the flame, and we do a quick lesson on how oil combustion takes place. We show where the oil gun is installed in boilers and furnaces.

In the natural gas lab, we have a sign that says ‘GAS LAB’ made of 1/2-inch black iron pipe connected to a natural gas source with a furnace burner at the other end. We fire that also, explain the control sequence, and show where the burners are located in the furnaces located below the sign.

In the control lab, we have our students display graphics on the computers and explain to our guests how mechanical systems in buildings are controlled by computers that need to be programmed by HVACR experts.

In the energy lab (full mechanical room), we have one of our students show how the graphics on the computer look like the actual mechanical equipment, which is sitting right next to the computer.

In the commercial refrigeration lab, we show the display cases, parallel refrigeration system, and ice machines and explain how our students learn to keep our restaurants, grocery stores, florists’ shops, convenience stores, etc., in business.

In the air conditioning lab, we show how rooftops, split systems, packaged terminal air conditioners (PTACs) and chillers all work to keep us comfortable in our buildings, and explain how HVACR technicians are involved in human comfort in every building in the country.

Other Than Tours...

4. We are lucky enough to have Jill Trinklein working for us. Jill serves as a marketing coordinator, and just happens to be an expert in career pathways. Jill visits local schools and explains how HVACR is a great career for those interested in the Engineering/Manufacturing and Industrial Technology pathway. She also helps teachers and counselors learn about HVACR as a career to recommend to their students.
5. We have marketing brochures and CDs that we use to disseminate information whenever needed.
6. We visit schools when our schedules allow and set up 'mini trade shows' to demonstrate as many aspects of our industry as we can, while explaining the career opportunities that exist.
7. We encourage current students and graduates to recommend the industry to family and friends. We are exploring offering a financial incentive to students that successfully recruit a friend/relative. Research shows that friends and family have the greatest influence on career choice (by a huge margin), so it makes sense to us to put our money where the biggest bang for the buck is.
8. We partner with as many HVACR programs at community colleges and technical schools as we can to encourage students to continue their education at Ferris. This helps us get more students at Ferris, but doesn't get more people into the industry overall, since these students are already in it.
9. We encourage employers to help recruit whenever we get the chance, utilizing opportunities such as this article.

One Final Thought...

"A study commissioned in the 1980's, titled 'Workforce 2000,' had a quote that I've never forgotten," added Feutz. "It went something like this: 'In the year 2000, you will be competing to hire technicians that you wouldn't hire to sweep the floor today.' Boy, hasn't that come true!"

Sidebar: Making Recommendations

The News sent out an informal survey over the Internet to selected HVACR schools across the United States, seeking feedback relating to the industry's need for qualified technicians. According to the U.S. Department of Labor, the industry will need the services of 20,000 techs per year through 2020.

The questionnaire centered on these basic questions:

- * How is your school approaching the industry's need for technicians? What, if anything, is it doing to help meet the demand?
- * From an instructor's standpoint, what else can be done to help meet the great demand

for future technicians?

What follows are some of the more interesting answers/responses.

Chris Brueggeman, HVACR Department head — Ranken Technical College, St. Louis:
“Ranken’s enrollment is very strong. Both our day and evening courses have been full for the last few years, and that includes 2002 when we doubled our day-school course capacity. Ranken has an aggressive recruitment effort in area high schools. We do what we can to get the word out that this is a thriving and well-paying field to enter. Really, that’s going to be the key — getting students and their parents to understand what a great career HVACR is.”

Jim Kroll, associate professor, Air Conditioning, Refrigeration, & Heating — Virginia Highlands Community College (VHCC), Abingdon, Va.:
“We offer a one-year certificate program in air conditioning and refrigeration, and a comprehensive two-year diploma program in air conditioning, refrigeration, and heating. We typically have 25-35 students a year operating various manufacturers’ equipment in our 4,500-square-foot lab. Our students take the Air-Conditioning and Refrigeration Institute’s Industry Competency Exam two weeks before graduation. EPA technician certification is available on campus. I teach a mechanical code class based on the current International Mechanical Code book being used by code officials in Virginia.

“Our HVACR students are student members in the Southwest Virginia RSES Chapter. I have an open invitation for contractors and suppliers to come into the lab and talk with students — and they do. Students may participate in the cooperative education program, receiving college credit for work related to their curriculum. Job placement assistance is available. In fact, for the past several years, more employers have contacted me looking for students to hire than we have students to fill the requests.

“We host manufacturer-sponsored training classes on campus, and invite manufacturer reps to speak with students for an entire evening, offering technical material as well as question-and-answer career sessions. We go to supply house ‘vendor days.’ We take field trips to Bristol Compressors manufacturing facility, which we are lucky to have on our doorstep.”

Kate Schiefen, associate dean, Technical Education – Monroe Community College, Rochester, N.Y.:

“We have an active advisory board that keeps us current with industry needs and trends. With regard to program growth, the college has added sections and classes based on enrollment and increased demand. We partner with the advisory board and local industry to find creative and effective methods of recruitment. We try to take every opportunity to promote the program and the HVAC industry from visiting high schools, attending job fairs, talking to tech teachers and high school guidance counselors, etc. ...

“It is possible for post-secondary schools to partner with vocational high schools teaching HVACR for resources, as well as providing seamless transitions from high school to

college for students interested in HVACR college programs. Also, accreditation support needs to be provided, along with the sharing of resources.”

Dick Wirz, air conditioning and electric instructor – Northern Virginia Community College (NVCC), Woodbridge, Va. Also, commercial refrigeration instructor — National Association of Power Engineers (NAPE), Falls Church, Va.:

“I believe several things need to be done to meet the need for more HVACR technicians. Some of which we are working on, but it needs national attention and commitment.

“First, as an industry, we must improve our image. Most people think only those not smart enough for college go into construction. For some reason our nation does not give credit to those who have trade skills.

“Although I am a college graduate and have an MBA, it was more difficult and rewarding to become a good commercial refrigeration tech with master’s licenses in HVACR and electrical. I’ve been on both sides of the tracks and I know for a fact that a service or installation tech needs not only critical thinking skills, but manual dexterity to accomplish his/her tasks. ...

“Since large manufacturers and organizations have the marketing ability, I believe they are positioned best to re-educate the public. Yes, it will cost some big bucks, but these same manufacturers are complaining that the people installing and servicing their equipment are not as qualified as they need to be. I believe the funds needed could be added to the equipment prices, which would be a cost to contractors and passed on to the consumer, who will benefit most.

“Second, we need to go directly to the high school administrators, education boards, and especially the guidance counselors. Many counselors are college graduates and have been instructed by their schools to move as many of the better students as they can toward post-secondary education. There are guidance counselor groups, seminars, etc., where the message of construction as an honorable and lucrative living is presented.

“Finally, the ability of our HVACR schools to generate students who will eventually enter the HVACR industry is limited to what the industry and society is willing to do to make HVACR attractive. I believe our wage scales are rising, but that is more a matter of supply and demand. We must make this industry something special to young men and women as a primary source of employment, not as something to fall back on if higher education does not pan out.

“I don’t want a tech telling me that he’s doing HVACR because he can’t find anything else that pays as well. That’s not going forward. That’s going backward. I want to hear that they love what they do, they are proud of what they do, and that their friends, family, and society are proud of them as well.

“However, to really understand the problems we have in the HVACR business, we need to really look at ourselves. Did we want to go to college when we were in high school, or did our parents? Why did we? Do we want our children or grandchildren to go to college?

If so, why?

“When we figure out why, we will know what we need to do. I think the answer comes back to perception and status. We really need to work on this as a society.”

Publication date: 06/13/2005

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