

Employment of heating, air conditioning, and refrigeration mechanics and installers is projected to grow 15 percent from 2016 to 2026, much faster than the average for all occupations. In 2016, there were 332,900 individuals employed in the HVACR industry, with 11,790 in Ohio.



For the next couple of weeks, we will feature...

# CAREERS IN BUILDING TRADES

## The type of work

- Test pipe or tubing joints or connections for leaks, using pressure gauge or soap-and-water solution.
- Test electrical circuits or components for continuity, using electrical test equipment.
- Repair or replace defective equipment, components, or wiring.
- Discuss heating or cooling system malfunctions with users to isolate problems or to verify that repairs corrected malfunctions.
- Repair or service heating, ventilating, and air conditioning (HVAC) systems to improve efficiency, such as by changing filters, cleaning ducts, or refilling non-toxic refrigerants.

## More Facts ?

**Some technicians** receive their training through an apprenticeship. Apprenticeship programs usually last 3 to 5 years. Each year, apprentices must have at least 2,000 hours of on-the-job training and a minimum of 144 hours of related technical education. Over the course of the apprenticeship, technicians learn safety practices, blueprint reading, and how to use tools. They also learn about the numerous systems that heat and cool buildings.



## HVACR MECHANICS & INSTALLERS

**Bill Kitinoja**  
President of Sales and COO  
LK Heating & Cooling, North Olmsted

Install, service, or repair heating, ventilation, cooling, and refrigeration systems that control the temperature and air quality in buildings.

## EARNINGS POTENTIAL

### Annual Salary for 2017

Location	Low	Median	High
United States .....	\$29,120 .....	\$47,080 .....	\$75,330
Ohio .....	\$28,120 .....	\$46,150 .....	\$68,070
Cleveland-Elyria-Mentor, OH PMSA .....	\$32,090 .....	\$50,680 .....	\$77,290

O\*Net Online, <http://online.onetcenter.org>

## THE FUTURE OUTLOOK

Commercial and residential building construction will drive employment growth. The growing number of sophisticated climate-control systems is also expected to increase demand for qualified HVACR technicians.

Repair and replacement of HVACR systems is a large part of what technicians do. Climate-control systems generally need replacement after 10 to 15 years. The growing emphasis on energy efficiency and pollution reduction is likely to increase the demand for HVACR technicians as climate-control systems are retrofitted, upgraded, or replaced entirely. In addition, regulations prohibiting the discharge and production of older types of refrigerant pollutants will result in the need to modify or replace many existing air conditioning systems.

## Pathways to success:

Because HVACR systems have become increasingly complex, employers generally prefer applicants with vocational or postsecondary education, or those who have completed an apprenticeship. Some states and localities require technicians to be licensed. Workers may need to pass a background check prior to being hired.

### Education

A growing number of HVACR technicians receive postsecondary instruction from technical and trade schools or community colleges that offer programs in heating, air conditioning, and refrigeration. These programs generally last from 6 months to 2 years and lead to a certificate or an associate's degree. To keep program costs lower, many schools are combining online lectures with in-class lab work.

High school students interested in becoming an HVACR technician should take courses in vocational education, math, and physics. Knowledge of plumbing or electrical work and a basic understanding of electronics is also helpful.

### Training

Some HVACR technicians learn their trade exclusively on the job, although this practice is becoming much less common. Those who do usually begin by assisting experienced technicians with basic tasks, such as insulating refrigerant lines or cleaning furnaces. In time, they move on to more difficult tasks, including cutting and soldering pipes or checking electrical circuits.

## What Employers look for in individuals:

- Mechanical - machines and tools, including their designs, uses, repair, and maintenance.
- Customer and Personal Service - principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.
- Building and Construction - materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.
- Design - design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.
- Physics - Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes.

- Q. How did you become interested in your particular field?  
A. When I was in my teen years, college was not of interest to me. I liked cars and working with my hands. But, after visiting Polaris Career Center, I decided to enroll in their HVAC (Heating, Ventilating & Air Conditioning) program.
- Q. How did you get to where you are today? What path did your employment journey take?  
A. After graduating from high school and the Polaris Career Center, my first job was as an installation helper with JEY Enterprises. I assisted with installation and service calls on residential and commercial work. My second job was at Bay Furnace and I worked there for five years. I started out as an installation helper and then lead installer. I eventually went back to school at Cuyahoga Community College and Baldwin Wallace, and received a bachelor of arts degree while working part-time and full-time. In 1995, I met the owner of LK Heating & Cooling and he mentioned that he was looking to hire someone to take over the sales and installation management responsibilities of his business. I was hired and have been there ever since. I am responsible for sales, purchasing, some hiring, and several other related business duties.
- Q. What skills or certifications do you think are needed to be successful in this field?  
A. Certainly have a positive attitude, be 'trainable', be willing to listen to your mentors, and know when it is time to step up and perform the hard work. One of my mentors once said, "each day is like a new story problem to be solved." You must have great customer service skills and get along with your coworkers. The starting point would be EPA certifications that are important in this job. There are short-term continuing education classes available to keep you up to date on industry trends.
- Q. What changes have you seen in the last few years in your industry?  
A. Some of the major changes I have seen are the advancement in technology, the sophistication and advancements in electronics, and product efficiency. HVAC equipment now includes advanced control systems for thermostats in heating and cooling your homes and businesses. The efficiency advancements have much improved over the last 5 years.
- Q. What is the best part of your job?  
A. 'Being the hero!' I don't mean to say that in a pompous way, but when you come into a home or business and restore their air conditioning on a blistering hot day, or their heat on a frigid day or night, you truly become their hero. They are so thankful for your service. It makes you feel good that you can help someone in their time of need or difficult situation.
- Q. What advice would you give to someone considering this career field?  
A. Talk to someone in the field. Explore the training opportunities at the career-technical schools. I am a product of vocational education and find it very helpful to hire young graduates from career schools like the Lorain County JVS. I sit on their advisory committee and welcome young students for work-based learning experiences and hopefully, onto employment. Also, watch or talk to a technician if they come into your home or business. Hopefully they will tell you it is a great career with lots of opportunities for growth.

## Sponsors



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Sources: Occupational Information Network, O\*Net Online, <http://online.onetcenter.org>, U.S. Department of Labor, Bureau of Labor Statistics, Occupational Outlook Handbook, <http://stats.bls.gov/ocoeHow.com>