

HVAC TECHNICIAN

Heating, ventilation, and air-conditioning (HVAC) mechanics and installers – also called technicians – install, maintain, and repair systems that control the temperature, humidity, and the total air quality in residential, commercial, industrial, and other buildings. HVAC consists of many mechanical, electrical, and electronic components, such as motors, compressors, pumps, fans, ducts, pipes, thermostats, and switches.

JOB TITLES COMMON TO THIS CAREER OCCUPATION INCLUDE:

HVAC Technician HVAC Mechanic HVAC Installer Furnace Repair

SAGINAW VALLEY

Each ladder depicts a series of work experiences that leads to more challenging and higher paying opportunities. While every level of the ladder can provide a satisfying job, some employees will choose to gain even more skills and responsibilities that will advance them in their careers. To do so, they will need more education, training and work experiences. Some jobs will require a certificate, a license or an advanced degree.

CLIMBING THE CAREER LADDER

There are three basic types of construction: commercial, residential, and industrial.

ADVANCED LEVEL

Bachelor's degree or proven technical skills that can be demonstrated through industry experience

Mechanical Group Leader

\$18.00-\$28.00/hour

Project Manager

\$18.00-\$50.00/hour

Project Superintendent

\$21.00-\$55.00/hour

MID LEVEL

Associate's degree or equivalent training and experience; post-secondary training or equivalent experience

Electrician

\$17.00-\$37.00/hour

Ceiling Installer

\$15.00-\$22.00/hour

HVAC Technician

\$17.00-\$28.00/hour

Electrical Inspector

\$16.00-\$32.00/hour

Drywall/Lather

\$13.00-\$26.00/hour

ENTRY LEVEL

High school diploma and completion of the Engineering/Manufacturing and Industrial Technology Career Pathway requirements and/or appropriate career and technical education classes

Apprentice Carpenter

\$9.00-\$15.00/hour

Apprentice Bricklayer

\$9.00-\$15.00/hour

Wages will vary within this occupation based on the complexity of the job and the employee's education, training, and years of experience.

JOB DESCRIPTION

Each occupation is described in terms of specific tasks and typical job duties.

The HVAC trade is really many trades – requiring electrical, plumbing, carpentry, welding, and some insulation and sheet metal work. HVAC technicians must:

- Install, maintain, diagnose, and correct problems in heating and cooling systems
- Discuss heating-cooling system malfunctions with owners to isolate problems or to verify that malfunctions have been corrected
- Inspect and test new systems to make sure they work properly and to detect and locate malfunctions
- Repair or replace faulty equipment, components, or wiring, then test electrical circuits and components to make sure they work properly
- Reassemble and test the equipment following the repairs
- Test pipe or tubing joints and connections for leaks

WAGES

WAGE RANGE

\$17.00-\$28.00/hour

Wage information was obtained from the Michigan Department of Labor and Economic Growth and from local employers to give a general idea of the wages and salaries for this occupation.

WORKING CONDITIONS

Working conditions vary from site to site and job to job. Generally, the heating systems are inside but may be in a small room. Air-conditioning units are generally located next to heating units, with the condenser located outside the building. The typical workweek is 40 hours with some overtime and after-hours work.

EDUCATION AND TRAINING

Courses, programs, and certificates that are needed for employment are offered by local education and training providers.



HIGH SCHOOL

- Completion of high school's Engineering/Manufacturing and Industrial Technology Career Pathway and/or appropriate career and technical education classes
- Algebra, geometry, and trigonometry
- English
- CAD and blueprint reading
- Career studies, such as "Introduction to Skilled Trades"
- Co-op work experience

POSTSECONDARY TRAINING

- Associated Builders and Contractors Construction Academy
- Delta College – individual classes, advanced industrial certifications, and apprentice education and training
- On-the-job training
- Corporate training
- Registered apprenticeship programs

LOCAL TRAINING PROVIDERS

- Associated Builders and Contractors Construction Academy
- Bay-Arenac ISD Career Center
- Delta College
- Employer and corporate training and apprenticeship programs
- Local school districts
- Saginaw Career Complex
- Saginaw/Midland/Bay Michigan Works!

WORKKEYS ASSESSMENTS

WorkKeys assessments measure skills that employers believe are critical to job success. The scores offer a way for students/job seekers to demonstrate their abilities to employers or readiness for education beyond high school.

WORKKEYS ASSESSMENT LEVELS

Employers have identified the following skill levels needed for this occupation.

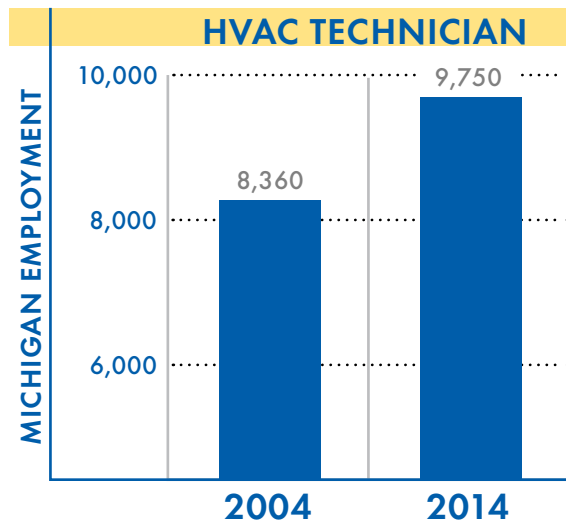
Applied Mathematics	Level	5
Locating Information	Level	5
Reading for Information	Level	4

JOB OUTLOOK

- The construction industry needs about 240,000 new employees each year
- Between now and 2014, employment in construction is expected to increase by 15 percent
- \$600 billion worth of new construction projects are started each year

There are roughly 800,000 construction companies in the U.S., employing nearly 7 million people.

Data from local employers and the Michigan Department of Labor and Economic Growth.



ADVANCEMENT

A journeyman HVAC technician can advance to the position of crew leader, foreman, or superintendent. They may also open their own repair/installation business.

WHAT THE EMPLOYER SAID



WHAT DO YOU LOOK FOR IN A POTENTIAL EMPLOYEE FOR THIS POSITION?

"I look at their appearance. The employee will be going into people's houses, so I want them to make a positive impression on the homeowner. I am looking for ambition and initiative. Did this applicant take any additional classes to learn more about the field? I need to know that they will be here for work at 7:30 in the morning and be ready to go."

Jeff Kohtz, owner
All Seasons Heating and Cooling

STAR PROFILE

This interview is intended to show you what is needed to be a star employee.



EMPLOYEE:
MARK KOHTZ

OCCUPATION:
HVAC TECHNICIAN

COMPANY:
**ALL SEASONS HEATING
AND COOLING**

TELL US HOW YOU ATTAINED YOUR CURRENT POSITION.

This is a family business. While I had a slight advantage because my father owns the company, I had to prove myself. I had to show what I could bring to the business besides my last name. I did start working with him when I was younger and found I actually liked it. That's because there are so many different aspects to the heating and cooling systems.

DESCRIBE YOUR TYPICAL DAY.

It starts with a morning meeting to determine who has what jobs to finish up from the day before, to assign new jobs to those with openings in their schedule, and, finally, to make sure you have all the parts for the jobs you will be working on that day.

WHAT QUALITIES MAKE SOMEONE A "STAR" IN THIS OCCUPATION?

You have to be careful. You are working with chemicals and gases that can cause damage to the environment. You have to be able to remember a lot of different items on the units and which one can cause what problem. Of course, liking spiders would be a good thing, especially if you have to go into a crawl space to fix a furnace.

WHAT TRAINING AND EDUCATION DID YOU NEED TO ENTER THIS POSITION?

I took Delta College's refrigeration, heating, air-conditioning service technology program. I hear they have really improved it, and there is even a new facility now.

WHAT DO YOU LIKE MOST/LEAST ABOUT YOUR JOB?

I like that it is different every day. I like seeing new homes, businesses, and subdivisions going in.

I dislike having a day of all service calls. Solving the problem is fun, but determining the problem and finding it can be tiring. Was it the dog chewing on wires outside? Did the filter just get too dirty? Sometimes, the person isn't sure enough of the problem to tell you what is happening, other than to say it does not work. That can be a challenge.

WHAT ADVICE CAN YOU GIVE SOMEONE SEEKING A JOB IN YOUR FIELD?

Math is important. You have to determine how much air is going down the tube by adding and subtracting to air-flow charts. You use it to check how much refrigeration is needed. Be prepared to be versatile, too. HVAC technicians must use their athletic abilities. Eye-hand coordination, manual dexterity, and physical balance are important. You might be wiring thermostats one day, then up a chimney or down in a crawl space the next. Every day is different. Also, general construction classes are helpful – especially when determining which boards you can and cannot cut.

ARE THERE ANY LICENSES OR CERTIFICATIONS NEEDED FOR YOUR POSITION?

Yes, you need a special license to handle the potentially harmful chemicals in air conditioners. Some vendors also have certifications for their units.

SOURCES OF ADDITIONAL INFORMATION

- Professional societies, trade groups, and labor unions
- Employers and people in construction
- Guidance and career counselors
- State employment service offices
- Internet resources:
 - Career OneStop: www.careeronestop.org
 - O*NET Online: www.onetcenter.org/
 - Career Voyages: www.careervoyages.org
 - Bureau of Labor Statistics: www.bls.gov/oco/home.htm
 - Career Guide to Industries: www.bls.gov/oco/cg/home.htm
 - Wage data: <http://www.bls.gov/bls/blswage.htm>

ACKNOWLEDGMENTS

The Career Ladders began as a Saginaw County Vision 2020 initiative and has grown to include the whole Saginaw Valley area. To date, more than 200 individuals have been involved in the project. It is impossible to list them all, but MITECH+ appreciates each one and the incredible participation by our major employers and educational institutions, as well as the support from Midland County's local school districts, Midland County Educational Service Agency, Saginaw/Midland/Bay Michigan Works!, Michigan Department of Labor and Economic Growth, and Saginaw Valley Tech Prep Partnership. We also want to thank Saginaw County Business and Education Partnership for their guidance.

EQUAL OPPORTUNITY EMPLOYER/PROGRAM. AUXILIARY AIDS AND SERVICES ARE AVAILABLE UPON REQUEST TO INDIVIDUALS WITH DISABILITIES.