



# HEATING AND COOLING (HVAC-R)

COLLEGE. CREDENTIAL. CAREER.



## HVAC-R is a Hot Job in Michigan

People who work in heating, ventilation, air conditioning, and refrigeration (HVAC-R) create comfortable, healthy, and energy-efficient environments that are important to everyone. From ensuring homes are warm in the winter, to safeguarding food from spoiling, to ensuring the ice is solid for a hockey game, HVAC-R specialists make it possible.

To succeed in this industry, HVAC-R specialists must be skilled in troubleshooting and repairing equipment as well as communicating regularly with customers and coworkers. They must also follow safety protocols to ensure their own and others' safety. You can build on the skills you learn and the training you acquire to specialize in installation, maintenance, or repair, or you can hone your skills to service particular types of equipment, such as water-based heating systems, solar technology, or commercial refrigeration.

## Cool Classes You Can Take

Keeping people and places at just the right temperature requires careful planning. With interesting classes, you can learn about what it takes to get it just right:

### Principles of Air Delivery Systems

This course familiarizes students with air flow as applied to forced-air comfort systems. Students will lay out and fabricate sheet metal ducts, study air flow principles and measurements, as well as test and balance air distribution systems. They will also learn about various duct configurations and how duct work is applied to an indoor air quality system.

### Advanced Commercial Refrigeration

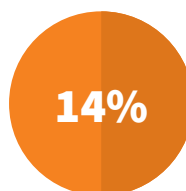
This course is designed to continue in advanced study of commercial refrigeration and air conditioning systems and their application. Topics include all areas of the system, including advanced electrical wiring and control strategies, advanced troubleshooting, and installation and repair of air conditioning and refrigeration equipment. Pressure regulating controls, complex piping components, and special refrigeration applications—such as ice rinks and biomedical refrigeration—are emphasized.

## Financial Help

There are many federal grants, work-study funds, and low-interest loans available to help students cover the costs of tuition and fees, room and board, books and supplies, transportation, and other college-related expenses. The first step in securing necessary financial aid is to complete the Free Application for Federal Student Aid ([FAFSA](#)).



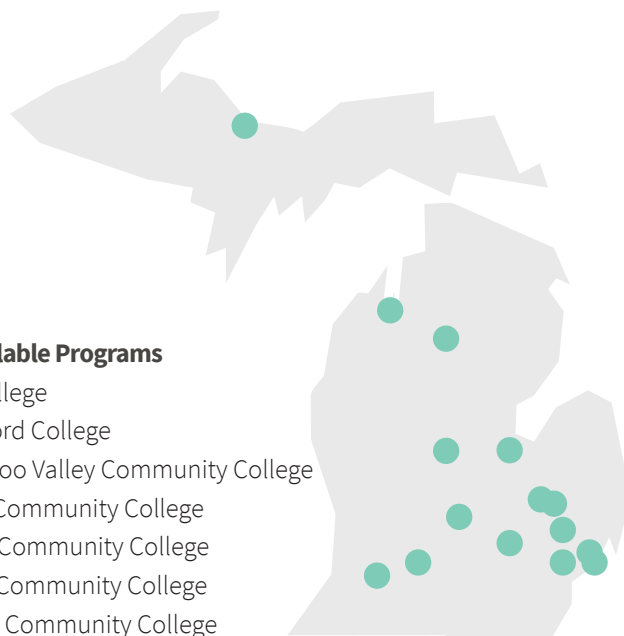
Projected job openings annually



Estimated job growth



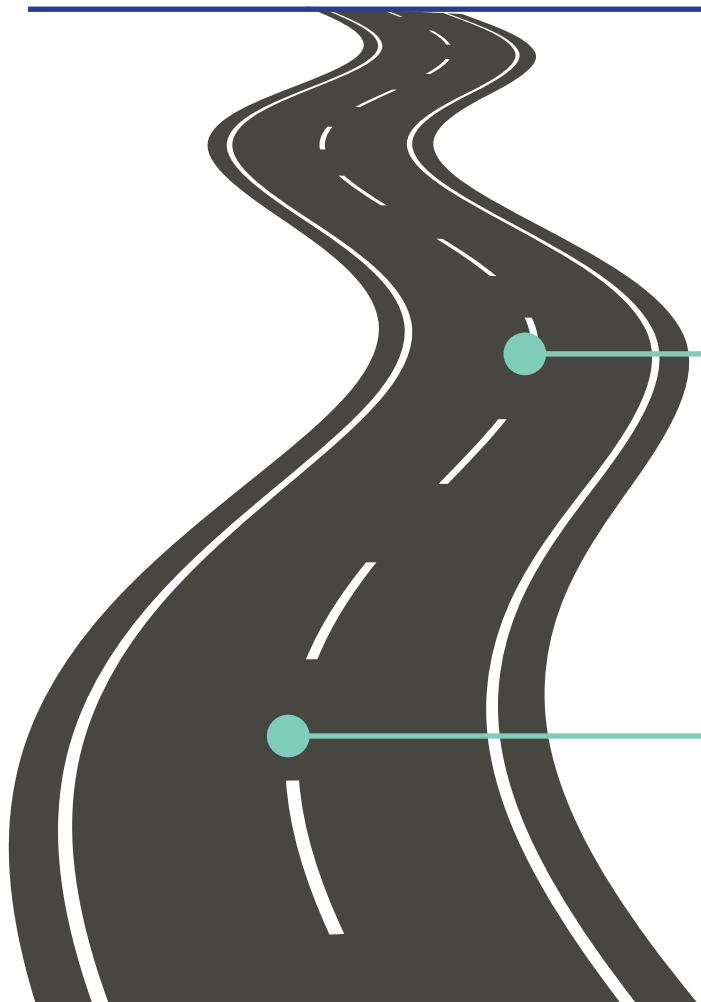
Hourly rates for HVAC-R mechanics and installers



### Some Available Programs

- Delta College
- Henry Ford College
- Kalamazoo Valley Community College
- Kellogg Community College
- Kirtland Community College
- Lansing Community College
- Macomb Community College
- MIAT College of Technology
- Mid Michigan College
- Mott Community College
- Northwestern Michigan College
- Northern Michigan University
- Oakland Community College
- Washtenaw Community College
- Wayne County Community College District

# There are many different education and career paths in **HVAC-R**. Here are a few you might follow after graduating from high school.



## **CERTIFICATE/ASSOCIATE DEGREE**

Depending on the program and your future educational plans, you may decide between earning a certificate or an associate degree. Often the difference is only a few classes. Students earning a certificate or associate degree in this field are qualified for the same jobs. With an associate degree you may qualify for a higher salary and/or be considered a stronger candidate for an apprenticeship. You might also have more responsibility or be a stronger candidate for promotions than those with a certificate only.

Heating and Air Conditioning Mechanics and Installer  
**\$46,830** annual salary

Refrigeration Mechanics and Installer  
**\$46,830** annual salary

## **BACHELOR'S DEGREE**

Energy Engineer  
**\$88,330** annual salary

Solar Energy Systems Engineer  
**\$88,330** annual salary

### **WHERE**

**College** refers to an educational institution or establishment that provides education beyond high school and/or specialized professional training that is credit bearing.

### **WHAT**

A **credential** verifies an individual's qualification or competence in a particular area and is usually issued by colleges in the form of certificates and academic degrees.

### **WHY**

A **career** is a series of jobs that offers opportunities for advancement and provides a path to economic independence.

### **WHEN**

Now! Don't wait to go to **college** to earn a **credential** that leads not only to your first job but also to a full and rewarding **career**!



To learn more about this pathway, check out the video at [roadmap2opportunity.org](http://roadmap2opportunity.org).

All occupational information provided by Roadmap to Opportunity is from O\*NET Online and is available at [ononline.org](http://ononline.org).