

Degree in HVAC Technology - Bldg Systems Energy Management Option

Program Details

Massasoit Community College prepares students for high-demand, future-focused careers in the Heating, Ventilation, and Air Conditioning (HVAC) and clean energy sectors through the HVAC – Building Systems Energy Management Associate of Applied Science (AAS) program.

The program features a modernized, industry-aligned curriculum that reflects emerging trends in building energy systems, electrification, and decarbonization. Students participate in hands-on training using state-of-the-art equipment, including heat pump technologies and advanced HVAC control systems.

Graduates are prepared for both traditional HVAC roles and evolving careers in clean energy and energy efficiency.

Graduates earn an Associate of Applied Science Degree.

Additional Information

Skills You Will Gain

Graduates of the HVAC – Building Systems Energy Management program develop the skills to:

- Perform residential and commercial load calculations
- Design hydronic, forced-air, and heat pump systems
- Install, maintain, and troubleshoot HVAC equipment
- Install and troubleshoot HVAC control systems

Career Opportunities

Graduates are prepared for careers in the residential, commercial, and industrial sectors, including:

- HVAC Technician
- HVAC System Designer
- Controls Specialist
- Estimator
- Project Manager
- Energy Efficiency Professional

Program Highlights

- Meets the requirements for the Massachusetts Refrigeration Technician License examination
- 522 CMR 9.00 – Massachusetts Refrigeration Technician regulations (545 instructional hours)
- 527 CMR 12.00 – Massachusetts Apprentice regulations (250 instructional hours)
- Aligned with Division of Apprenticeship Standards pre-apprenticeship pathways

Industry-Recognized Credentials

Students earn industry-recognized credentials that enhance employability, including:

- Environmental Protection Agency (EPA) Universal Certification
- Occupational Safety and Health Administration (OSHA) 10-Hour Construction Safety Certification
- Training in next-generation refrigerants
- Training in high-efficiency heat pump technologies

Program Outcomes

At the successful completion of the program curriculum, students will be able to:

- Manage building operations as applied to the HVAC field.
- Oversee outside contractors performing HVAC work.
- Install HVAC/R systems.
- Troubleshoot and repair HVAC/R systems.
- Write and understand cost estimates.
- Perform all heating and cooling load calculations.
- Design ducts to carry the proper airflow to conditioned areas.

Academic Map

Degree in HVAC Technology - Bldg Systems Energy Management Option

A minimum of 20 classes and 67 credits is required. At least 17 credits of your program must be taken at Massasoit. Note: Each course completed and passed can only fulfill one program requirement. The same course cannot be used to satisfy multiple program requirements.

Semester 1

3 Credits in SPCH 105
Speech Communication
4 Credits in HVAC 111
Basic Electricity and Control Theory
3 Credits in HVAC 113
Introduction to HVAC/R
3 Credits in ENGL 101
English Composition I
3 Credits in MATH 154 or higher
Topics in Mathematics or higher

Semester 2

3 Credits in Physics elective
Concepts of Technical Physics I or higher
3 Credits in HVAC Elective
4 Credits in HVAC 114
Heat Principles and Application
3 Credits in HVAC 118
Load Calculations and Duct Design
3 Credits in ENGL 102
English Composition II

Semester 3

4 Credits in HVAC 201
Refrigeration Principles and Application
4 Credits in HVAC 206
Hydronics and Piping Design
4 Credits in HVAC 213
HVAC Equipment Controls
3 Credits in HVAC elective
3 Credits in Social Science elective

Semester 4

4 Credits in HVAC elective
3 Credits in HVAC 223
HVAC Service Procedures
4 Credits in HVAC 224
HVAC Systems Control
3 Credits in HVAC 230
HVACR Internship
3 Credits in General elective

This academic map is a suggested semester-by-semester guide to keep you on a clear path to program completion. Please note that some classes are offered only in certain semesters, have prerequisites, or minimum passing grades. Winter and/or Summer Session classes may be available for some classes. Your [academic advisor](#) will provide you with clear direction needed to stay on course and discuss scheduling options with you. Taking courses not reflected on this map may result in courses not counting toward the completion of your requirements.

Advisory Committee

The Heating, Ventilation, and Air Conditioning (HVAC) Advisory Committee at Massasoit Community College plays a pivotal role in bridging the gap between industry standards and academic excellence. Comprising professionals from local businesses, technical experts, alumni, and educators, the committee offers strategic guidance to ensure the HVAC program remains current, relevant,

and responsive to workforce demands. Through collaboration and insight, the committee helps shape curriculum development, enhance student outcomes, and support the college's mission of empowering future HVAC technicians with the skills and knowledge they need to thrive in a rapidly evolving field.

- **Michael Carr**
Principal
Northeast Air Solution
- **Eric Edman**
Associate Principal
BR+A Consulting Engineers
- **Allan Ames**
CEO
BR+A Consulting Engineers
- **Sam Orlando**
Instructor
Blue Hills Regional Technical School
- **Thomas Geoghegan**
Owner
Thomas Geoghegan Heating and Cooling
- **Karl Hudson**
Principal
LC Anderson
- **Bob Perschini**
Vice President, NV5
- **Kevin Todd**
Controls Manager
Emcor Northeast
- **Anthony Castelline**
Associate Senior Associate / Mechanical Engineer
SMMA
- **Russ Eckel**
Director of Adult and Continuing Education (Ret.), Shawsheen Valley Regional Technical High School
- **Josh Smith**
Project Manager, New Balance