Plumbing and Heating

The mission of the Plumbing & Heating program is to provide students with the foundation and skills required for entry level employment in the Plumbing, Heating, Ventilation, and Air Conditioning trades including methods for installation, maintenance, service, repair, and diagnostics of plumbing and heating equipment and systems.

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Length of Course: 614 clock hours, 102 training days
Enrollment: Early January
Training Hours: 8:30 a.m. to 3:30 p.m., Monday through Friday
Certificate Level: Plumbing and Heating
Occupational Levels:
Plumbing & Heating Technician
Plumbing & Heating Repairer
Plumbing & Heating Assistant Repairer

Industry Certifications:
During the program, students receive training and testing for the following industry certifications:

10-hour OSHA Construction Safety Certification
EPA Technician Certification Exam Section 608
Industrial First Aid and CPR
RCA HVAC Certification
RCA Plumbing Certification

Residential Construction Academy Exams:
Students also complete the RCA exams which places them on a national registry that employers may access to verify skill levels.

Prerequisites:
Reading and math skills at or above the 8th grade level.

TABE tests scores for this program **must be:**

Reading	552
Combined Math	552

For specific program entry guidelines and testing requirements in reading and mathematics, contact the Admissions Office at (800) 478-5389.

Students train on a variety of plumbing and heating systems. Heat pumps, air conditioning, and distribution systems, compressors, evaporators, condensers, control devices, control valves, electrical controls and motors, and electrical trainers are also used in training.

Physical requirements of the occupation are the ability to lift and carry 50 pounds, and stoop, crawl, and walk continuously. It also requires being able to work from a ladder and on rooftops. The occupation may also require working outdoors where physical hazards may exist.

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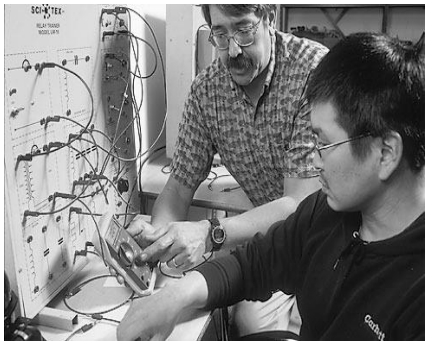

AVTEC's Plumbing and Heating program is a 5 month course designed to prepare students for jobs and apprenticeships in Alaska's workforce. Plumbing and Heating technicians install, maintain, and repair heating, ventilation, and air-conditioning systems. Students at AVTEC are also trained to troubleshoot and repair electrical controls and residential wiring. Their knowledge and skills are in demand throughout Alaska in homes, office buildings, and public buildings.

AVTEC's Plumbing and Heating program is credentialed through the Residential Construction Academy (RCA) program. The RCA certifies that the Heating and Plumbing program at AVTEC has exceeded industry standards in its instruction, curriculum, student and faculty qualifications, and facilities as set forth by industry in areas of Residential Plumbing and Heating.

The blend of classroom instruction, lab, and live work practice, helps students to learn the necessary skills to become a Plumbing and Heating technician. The course is fast-paced and challenging. The student should have some mechanical aptitude, good mathematics and reading skills, and an ability to use their time productively. Students train on a variety of plumbing and heating systems. Heat pumps, air conditioning, air distribution systems, compressors, evaporators, condensing units, control devices, control valves, electrical controls and motors, and electrical trainers are also used in training.

Approximately 50% of the training is hands-on and 50% is classroom instruction. Training includes outdoor activities, so students need appropriate clothing for cold and wet working conditions.

Accreditations and Credentials

AVTEC's Plumbing and Heating program is accredited through the Partnership for Heating, Ventilation, Air-Conditioning and Refrigeration Accreditation (PAHRA) program. Accreditation from PAHRA certifies that the HVACR program at AVTEC has exceeded industry standards in its instruction, curriculum, student, faculty qualification and facility standards set forth by industry in areas of residential air conditioning and heating and commercial refrigeration.

AVTEC's Plumbing and Heating program is also accredited through the National Center for Construction Education and Research (NCCER).

AVTEC's Plumbing and Heating program is also credentialed with the Residential Construction Academy.

Program Requirements

Occupational levels of Plumbing & Heating Technician, Plumbing & Heating Repairer, and Plumbing & Heating Assistant Repairer, will be assigned upon successful completion of the training program, based on the student's proficiency of the program's competencies.

To achieve a Plumbing & Heating certificate, students must complete the following requirements: Related Studies, Plumbing, Electricity, Heating, Refrigeration Practices, and Ventilation and Air Conditioning. This is a total of 614 contact hours.

Related Studies
Contact Hours: 29
Participate in school safety orientation, complete achievement tests, obtain First Aid & CPR card, complete basic applied mathematics, participate in resume writing and job search training, and participate in interview and communications training.

Plumbing
Contact Hours: 175
Identify and properly use common plumbing tools; install piping materials and fittings, valves, faucets and meters; install and maintain hot and cold potable water systems; install and repair drain, waste, and vent systems; and read and sketch plumbing and heating prints and isometric drawings.

Electricity
Contact Hours: 126
Understand basic electricity theory and use of test instruments; build and test motor control circuits; perform electrical tests; analyze basic series, parallel and combination resistive AC and DC circuits; sketch wiring diagram symbols; maintain and replace solenoids, pressure switches, thermostats, and relays; identify, select, install and maintain common electrical control devices; demonstrate circuit construction workmanship, techniques and practices; identify, install and maintain common motors.

Heating
Contact Hours: 164
Understand thermodynamics and heat transfer calculations; install and maintain gas burning equipment; demonstrate correct piping practices and sizing; demonstrate venting practices and sizing. Identify, install, and maintain oil heat components and electrical heating equipment. Identify, install and service hydronic heating boilers. Install, test and maintain air humidifying and filtration systems and air distribution systems.

Refrigeration Practices
Contact Hours: 60
Discuss theory of refrigeration and describe major components of refrigeration systems. Install, troubleshoot, and maintain air conditioning controls and refrigeration components. Review EPA refrigerant regulations and take the EPA 608 Refrigerant Handling exam.

Ventilation and Air Conditioning
Contact Hours: 60
Identify, select, install and maintain humidifiers and de-humidifiers, air conditioning, air distribution and filtration systems; select, install, and service thermostats, anticipators, sequential and electronic controllers, and air handler controls. Discuss and measure conditioned air characteristics. Measure and adjust air flow.