

A CareerZone Occupational Brief for:

Heating and Air Conditioning Mechanics and Installers

An occupation in Engineering and Technologies

New York State Department of Labor
David A. Paterson, Governor

Job Description

Install, service, and repair heating and air conditioning systems in residences and commercial establishments.

Interests

Realistic - Realistic occupations frequently involve work activities that include practical, hands-on problems and solutions. They often deal with plants, animals, and real-world materials like wood, tools, and machinery. Many of the occupations require working outside, and do not involve a lot of paperwork or working closely with others.

Tasks

1. Obtain and maintain required certifications.
2. Comply with all applicable standards, policies, and procedures, including safety procedures and the maintenance of a clean work area.
3. Repair or replace defective equipment, components, or wiring.
4. Test electrical circuits and components for continuity, using electrical test equipment.
5. Reassemble and test equipment following repairs.
6. Inspect and test system to verify system compliance with plans and specifications and to detect and locate malfunctions.
7. Discuss heating-cooling system malfunctions with users to isolate problems or to verify that malfunctions have been corrected.
8. Record and report all faults, deficiencies, and other unusual occurrences, as well as the time and materials expended on work orders.
9. Test pipe or tubing joints and connections for leaks, using pressure gauge or soap-and-water solution.
10. Adjust system controls to setting recommended by manufacturer to balance system, using hand tools.
11. Recommend, develop, and perform preventive and general maintenance procedures such as cleaning, power-washing and vacuuming equipment, oiling parts, and changing filters.

Skills

Troubleshooting - Determining causes of operating errors and deciding what to do about it.

Repairing - Repairing machines or systems using the needed tools.

Active Listening - Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Equipment Maintenance - Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.

Installation - Installing equipment, machines, wiring, or programs to meet specifications.

Social Perceptiveness - Being aware of others' reactions and understanding why they react as they do.

Critical Thinking - Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

Knowledge

Mechanical - Knowledge of machines and tools, including their designs, uses, repair, and maintenance.

Customer and Personal Service - Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.

Engineering and Technology - Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.

Design - Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.

English Language - Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.

Building and Construction - Knowledge of materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.

Mathematics - Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.

Education

Job Zone Three: Medium Preparation Needed

Education: Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.

Training: Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.

School Programs

Heating, Air Conditioning and Refrigeration Technology/Technician (ACH/ACR/ACHR/HRAC/HVAC/AC Technology). - A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using air conditioning, refrigeration, and heating systems. Includes instruction in principles of heating and cooling technology, design and operational testing, inspection and maintenance procedures, installation and operation procedures, and report preparation.

Solar Energy Technology/Technician. - A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing solar-powered energy systems. Includes instruction in solar energy principles, energy storage and transfer technologies, testing and inspection procedures, system maintenance procedures, and report preparation.

Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician (HAC, HACR, HVAC, HVACR). - A program that prepares individuals to apply technical knowledge and skills to repair, install, service and maintain the operating condition of heating, air conditioning, and refrigeration systems. Includes instruction in diagnostic techniques, the use of testing equipment and the principles of mechanics, electricity, and electronics as they relate to the repair of heating, air conditioning and refrigeration systems.

Wages

In NY the average wage for this occupation was:

\$29,420 (per year) for entry level workers, and \$55,880 (per year) for experienced workers.

Job Outlook

Based on the total number of annual openings and its growth rate, the employment prospects for this occupation are described as Very Favorable.

In 2006, employment for Heating and Air Conditioning Mechanics and Installers in NY was: 18,390.

It is anticipated that in the year 2016, employment in this area will number 19,690. There will be an increase of 130 new positions annually (0.01%). In addition, 320 jobs per year (0.02%) will become available due to employee turnover.

Similar Jobs

Electric Motor, Power Tool, and Related Repairers - Repair, maintain, or install electric motors, wiring, or switches.

Motorboat Mechanics - Repairs and adjusts electrical and mechanical equipment of gasoline or diesel powered inboard or inboard-outboard boat engines.

Motorcycle Mechanics - Diagnose, adjust, repair, or overhaul motorcycles, scooters, mopeds, dirt bikes, or similar motorized vehicles.

Outdoor Power Equipment and Other Small Engine Mechanics - Diagnose, adjust, repair, or overhaul small engines used to power lawn mowers, chain saws, and related equipment.

Control and Valve Installers and Repairers, Except Mechanical Door - Install, repair, and maintain mechanical regulating and controlling devices, such as electric meters, gas regulators, thermostats, safety and flow valves, and other mechanical governors.

Refrigeration Mechanics and Installers - Install and repair industrial and commercial refrigerating systems.

Home Appliance Repairers - Repair, adjust, or install all types of electric or gas household appliances, such as refrigerators, washers, dryers, and ovens.

Locksmiths and Safe Repairers - Repair and open locks; make keys; change locks and safe combinations; and install and repair safes.