



## AA Registry Unit Plan

### HVAC Certification Boards & Requirements

Requirements for HVAC certification will vary by type of certification and by the organization offering it. For example, for some certifications, students might need to have a completed course of training, while for others, time on the job provides the sufficient knowledge needed to pass an exam.

Additionally, different types of testing may be required for certifying exams, varying from a written test to a hands-on display of skills. Here is a look at some common certifying organizations and their certifications:

#### **American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)**

[ASHRAE](#) offers seven certification programs as of March 2022, as follows:

- BCxP – Building Commissioning Professional Certification
- BEAP – Building Energy Assessment Professional Certification
- BEMP – Building Energy Modeling Professional Certification
- CHD – Certified HVAC Designer
- HBDP – High-Performance Building Design Professional Certification
- HFDP – Healthcare Facility Design Professional Certification
- OPMP – Operations and Performance Management Professional Certification

The courses and exams are available through the ASHRAE Learning Institute.

#### **HVAC Excellence**

[HVAC Excellence](#) offers several certifications for both high school students who have completed vocational training and for more advanced HVAC technicians.

- **For high school students:** Two certifications are available for students enrolled in high school HVAC programs: heating, electrical, air conditioning technology (H.E.A.T.) and H.E.A.T. Plus. The former is a 100-question assessment of the students' expertise with common HVAC topics such as electrical theory, fundamental motors and capacitors, and AC troubleshooting. The latter "Plus" program comprises not only the 100-question assessment, but also a hands-on exam component and an additional 25 questions to gauge abilities such as computer literacy, work ethics, and employability skills.

- **Employment-ready certifications:** Other HVAC Excellence offerings include employment-ready certifications for entry-level employees, and are ideal for students of vocational programs or trade schools. Each topic requires passing a 50- to 100-question exam. Exams are available in more than 15 areas, including carbon monoxide safety, fuel oil combustion, electric heat, and light commercial air conditioning, among others.
- **Specialty certifications:** HVAC Excellence also offers specialty certifications demonstrating a candidate's competence in highly specific areas such as green awareness, residential heat load analysis, and the use of R-410A refrigerant systems.
- **Professional technician certifications:** Additionally, HVAC Excellence provides progressive professional-level technician certifications to those with at least two years of verified work experience in a specific field (e.g., heat pump service, combustion analysis, residential air conditioning). These certifications all require an exam. For those with even more experience, the master specialist hands-on technician certifications require at least three years of verified work and a demonstration of skills.
- **Educator credentials:** Finally, there are various educator credentials, including the certified subject matter educator (CSME) for HVAC instructors, which demonstrates that a field professional is skilled to teach in a content area such as air conditioning, heat pumps, and oil heat, to name a few. The certified master HVAC-R educator (CMHE) credential is ideal for multi-area specialists who want to teach since it involves passing six CSME subject exams with a score of 80 percent or higher and completing a capstone project.

## EPA Certification

As mentioned above, the EPA requires those who work with refrigerants or refrigeration systems to seek an [EPA Section 608 certification](#). The EPA certifications that are available include Type I for small appliances; Type II for high-pressure appliances; Type III for low-pressure appliances; and Universal, which is a comprehensive credential.

A plurality of organizations provides coursework, preparation materials, and exam sites to test for these certifications. These include the Refrigeration Service Engineers Society ([RSES](#)) and the [ESCO Institute](#). ESCO additionally offers Section 609 (automotive HVAC) preparation and testing. The EPA also provides a full list of approved section 608 technician certification programs.

## North American Technician Excellence (NATE) & Industry Competency Exams (ICE) Exams

[North American Technician Excellence](#) (NATE) offers a wide range of specialty certifications at varying levels. NATE requires that aspiring HVAC technicians pass a core exam and one specialty exam to achieve certification. The specialty exams are divided into installation and service categories:

- **Installation specialties:** The five installation specialties include air conditioning, air distribution, heat pump (air-to-air), and gas heating (air).

- **Service specialties:** The several service specialties—with many offered in Spanish—include air conditioning, air distribution, oil heating (air), gas heating (air), heat pump (air-to-air), Hydronics gas, Hydronics oil, commercial refrigeration, light commercial refrigeration, and senior-level efficiency analyst.

NATE also offers the [industry competency exams](#) (ICE)—formerly called the ARI/GAMA competency exams—covering a range of residential and commercial HVAC systems and related skills, Section 608 certification, and certifications for ground source heat pump installers and HVAC performance verifiers.

### **Refrigerating Engineers and Technicians Association (RETA)**

The [Refrigerating Engineers and Technicians Association](#) (RETA) offers several certifications for technicians in the field of industrial refrigeration. As well as the CARO and CIRO certifications noted earlier, the organization also offers CRST – Certified Refrigeration Service Technician and CRES – Certified Refrigeration Energy Specialist exams for HVAC technicians specializing in industrial refrigeration.

### **Refrigeration Service Engineers Society**

The [Refrigeration Service Engineers Society](#) (RSES) provides several different levels and subject areas of HVAC certification, including the mandatory EPA Section 608 certification for refrigeration workers.

There are eight specialized written examinations: commercial air conditioning, commercial refrigeration, controls, domestic service, dynamic compression, heating, heat pump, and HVAC-R electrical. Please note that these specialized credentials are exclusively for active members of RSES. The organization also provides R-410A training and certification.

Please note that HVAC programs typically prepare students for the EPA Section 608 certification exam since it is a requirement for working with refrigeration systems. Some programs go beyond this minimum requirement and prepare students specifically for higher levels of certification.

### **Online Programs & Preparing for HVAC Certification Exams**

Several online HVAC programs aim to prepare students to sit for certification exams. Most of these programs provide EPA Section 608 certification exam preparation as part of the curriculum as well as coursework in specialized areas to give students a flavor for the various competencies of the profession. Following is a selection of online HVAC programs:

#### **[Ashworth College](#)**

Ashworth College offers an online diploma in HVAC which can be finished in just four months. Ashworth also includes preparation for the EPA Section 608 certification exam, which is proctored by the program's partner: the ESCO Institute. The school even gives students \$75 vouchers, which cover some or all of the Section 608 exams.

This HVAC diploma helps students gain the required skills and knowledge needed for successfully installing, troubleshooting, and maintaining HVAC systems for commercial and residential buildings. The program includes lessons such as a heating and air conditioning orientation; fundamentals of HVAC/R; HVAC/R systems; and HVAC/R system design, layout, and commercial applications.

- **Location:** Norcross, GA
- **Accreditation:** Distance Education Accrediting Commission (DEAC)
- **Expected Time to Completion:** Four months
- **Estimated Tuition:** \$799

### [Penn Foster College](#)

Penn Foster offers an online HVAC diploma. Students in this program will receive a voucher to sit for the EPA certification.

The program consists of 9 courses, providing students with the skills and knowledge for performing HVAC/R repair jobs in a variety of settings. The curriculum includes topics such as orientation to HVAC/R; math and electrical basics for HVAC/R; fundamentals of HVAC/R; refrigeration systems; electrical systems; commercial refrigeration systems; HVAC/R system design & installation; and residential and light commercial HVAC/R systems.

Students will gain an understanding of the usage and composition of HVAC/R equipment, tools, and materials that are required for installing and diagnosing tasks, understand the refrigeration cycle, recognize safety procedures, understand theories and processes for evaluating and installing electrical controls and systems, and comprehend procedures for installing, inspecting, testing, repairing, and maintaining HVAC/R systems.

Graduates will be ready to take up roles such as HVAC technicians, HVAC installers, refrigeration mechanics, refrigeration transporters, and refrigeration technicians.

- **Location:** Scottsdale, AZ
- **Accreditation:** Distance Education Accrediting Commission (DEAC)
- **Expected Time to Completion:** Seven to eleven months
- **Estimated Tuition:** Contact the school for a customized assessment

### [HVAC Training Solutions](#)

HVAC Training Solutions provides several online training programs, including HVAC technician, commercial refrigeration, and NATE certification training. These self-paced programs offer live, one-on-one assistance; a unique digital simulator to teach about procedures and equipment; and a multimodal (e.g., videos, quizzes, reading, online forums, simulations) approach to the fundamentals of HVAC/R.

The simplified approach offered here for learning HVAC is very non-traditional. When students learn the basics of HVAC, they will have the necessary skills to pursue their HVAC careers.

The HVAC technician course includes 20 modules covering topics such as matter and energy; heat, temperature, and pressure; basic electricity and magnetism; troubleshooting electric motors; air-source heat pumps; and more.

- **Location:** Online
- **Accreditation:** N/A
- **Expected Time to Completion:** 18 weeks
- **Estimated Tuition:** Full pay (\$985); monthly pay (\$217)

For a list of additional online HVAC programs, reach out to the [online HVAC training schools & programs](#) page.

In addition to the training received through an HVAC program, prospective HVAC professionals are encouraged to seek out other training materials, simulations, and practice exams to prepare for certification. Many testing websites provide preparation materials. For aspiring HVAC/R technicians seeking certification, there are a variety of resources that can help prepare a student for the exam, including:

- The ESCO Institute provides a comprehensive online store of specialized training manuals—many also available in Spanish—for competencies such as EPA Section 608, heat pump installation, electrical theory, hydrocarbon refrigerants, and many more. The group also has textbooks, interactive digital training materials, and a range of DVDs.
- HVACCertificationPracticeTests.com provides free practice tests for HVAC basics, NATE, and EPA 608 certifications.

For more information on test formats and tips for passing, reach out to the [Guide to Acing the HVAC Certification Exams](#).