

CAREER AND TECHNICAL EDUCATION CERTIFICATE

Licensure Requirement Details

HEATING, VENTILATION, AIR CONDITIONING AND REFRIGERATION #2517

Prepared by the Office Career and Technical Education

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INTRODUCTION

The following information is provided by the Department of Education to serve as a self-evaluation guide for individuals interested in applying for a career and technical education teaching certificate in the State of New Jersey using the alternate route program. The guide provides information about eligible degrees, employment experience, and self-employment experience that can be used to apply for a certificate. It also contains information regarding required state-issued licenses or credentials, when applicable. Note that this guide is not meant to be used to determine actual eligibility to apply, and it does not contain all of the requirements for an actual certificate application. For complete application information, visit the Office of Licensure and Credentials website at: <http://www.nj.gov/education/educators/license/>. **Individuals who do not hold the required credentials listed on this detail page should consult Part F: Other Credentials.**

PART A: CAREER AND TECHNICAL EDUCATION CERTIFICATE AND PROGRAM

The holder of a **Heating, Ventilation, Air Conditioning and Refrigeration Career and Technical Education Certificate #2517** issued by the New Jersey Department of Education is eligible to teach the following career and technical education program and program of study:

- ***Heating, Ventilation, Air Conditioning and Refrigeration Engineering Technology / Technician, CIP Code # 15.0501:*** *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, ventilation, 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.*

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PART B: REQUIRED STATE-ISSUED OCCUPATIONAL LICENSE OR CREDENTIAL

Currently, there are no state-mandated occupational licenses required for this teaching certificate.

PART C: APPLICATION FOR CERTIFICATE USING A DEGREE

Option 1: Bachelor's degree or higher

Applicants using this option must meet all of the following requirements, and should review the requirements prior to submitting an application. The requirements include the following:

Requirements:

1. Applicants must submit an official, sealed copy of their transcript(s) for a bachelor's degree or higher in a Department-approved subject area for the certificate. Applicants must have completed at least 30 credits in a coherent sequence of courses in the subject area from a regionally accredited college or university. Examples of eligible subject areas include the following:

➤ *Mechanical Engineer*

The applicant's GPA must be 2.75 or higher. Applicants with a bachelor's degree or higher who graduate on or after September 1, 2004, with a GPA that is below 2.75 in a four-year degree program, but at least 2.50 when a GPA of 4.00 equals an A grade, are eligible to apply for the career and technical education certificate by submitting evidence of a minimum of two years (4,000 hours) of full-time employment or part-time employment or self-employment as per the requirements of **PART D or PART E**, below.

2. Applicants must complete a 24-hour introduction to teaching course through an authorized provider, which serves as an introduction to the teaching profession for those individuals who are exploring career options. Topics include classroom management, lesson planning, introduction to New Jersey core curriculum content standards, and assessment of pupil progress. To obtain information regarding this requirement, read the section titled, "New Requirement for Certificate of Eligibility," on the following website: <http://www.nj.gov/education/educators/license/advisories/applicant.htm>
3. Applicants must pass an examination in physiology, hygiene and substance abuse issues pursuant to *N.J.A.C. 6A:9-5.9*, including the effects of narcotics and alcohol. The examination is administered at the county offices of education. In lieu of this examination, the applicant may present basic military training or college level study in areas such as biology, health or nutrition. To obtain details regarding this test, contact a county office of education: <http://www.state.nj.us/education/counties/>

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Option 2: Associate's degree

Applicants using this option must meet all of the following requirements, and should review the requirements prior to submitting an application.

1. Applicants must submit an official, sealed copy of their transcript(s) for an associate's degree in a Department-approved subject area for the certificate. Applicants must have completed at least 30 credits in a coherent sequence of courses in the subject area from a regionally accredited college or university:
 - *Heating & Refrigeration & Air Conditioning*
 - *Heating & Ventilation & Air Conditioning Design Technology*
 - *Air Conditioning & Refrigeration & Heating Technology*
2. Applicants using a two-year degree must also submit evidence of at least two years (4,000 hours) of employment experience in accordance to the requirements of PART D or PART E, below.
3. Applicants must complete a 24-hour introduction to teaching course through an authorized provider, which serves as an introduction to the teaching profession for those individuals who are exploring career options. Topics include classroom management, lesson planning, introduction to New Jersey core curriculum content standards, and assessment of pupil progress. To obtain information regarding this requirement, read the section titled, "New Requirement for Certificate of Eligibility," on the following website: <http://www.nj.gov/education/educators/license/advisories/applicant.htm>
3. Applicants must pass an examination in physiology, hygiene and substance abuse issues pursuant to *N.J.A.C. 6A:9-5.9*, including the effects of narcotics and alcohol. The examination is administered at the county offices of education. In lieu of this examination, the applicant may present basic military training or college level study in areas such as biology, health or nutrition. To obtain details regarding this test, contact a county office of education: <http://www.state.nj.us/education/counties/>

PART D: APPLICATION FOR CERTIFICATE USING EMPLOYMENT EXPERIENCE

Applicants using this option must meet all of the following requirements, and should review the requirements prior to submitting an application.

The federal Occupational Information Network (O*NET) lists the following additional applicable job titles for Drafter: *Heating and Air Conditioning Mechanics and Installers, Service Technician, Heating, Ventilation, Air Conditioning Service Technician (HVAC Service Technician), Heating, Ventilation, Air Conditioning Technician (HVAC Technician), Heating, Ventilation, Air Conditioning Installer (HVAC Installer), HVAC Specialist (Heating, Ventilation, and Air Conditioning Specialist), HVAC Technician (Heating, Ventilation, and Air Conditioning Technician), Air Conditioning Technician (AC Tech), Heating, Ventilation, Air Conditioning*

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Mechanic (HVAC Mechanic), and HVAC Installer (Heating, Ventilation, and Air Conditioning Installer)

Requirements:

1. Applicants must submit evidence of at least four years (equivalent to 8,000 hours) of full-time or part-time employment under any of the job titles listed above.
 - a) The eligible employment experience must be within 10 years of the date of the application submitted to the New Jersey Department of Education. Employment experience that is older than 10 years will not be accepted.
 - b) The eligible employment experience must be documented by the applicant's employer(s) using the Department of Education's Statement of Employment Experience form. If the applicant's eligible employment experience was obtained from more than one employer during the period of time for which eligible hours will be calculated, then a separate Statement of Employment Experience form must be completed by each employer. Employment experience submitted in any other format will not be accepted. Applicants may download the Statement of Employment Experience form from the Department of Education's website at the following link: http://www.nj.gov/education/educators/license/forms/voc_employer_experience.pdf
 - c) The employer(s) completing a Statement of Employment Experience form(s) will comment on the applicant's work performance and safety practices the following general occupational competencies and tools¹ for this occupation, as follows:

TASKS:

- *Maintain current electrician's license or identification card to meet governmental regulations.*
- *Connect wires to circuit breakers, transformers, or other components.*
- *Repair or replace wiring, equipment, or fixtures, using hand tools or power tools.*
- *Assemble, install, test, or maintain electrical or electronic wiring, equipment, appliances, apparatus, or fixtures, using hand tools or power tools.*
- *Test electrical systems or continuity of circuits in electrical wiring, equipment, or fixtures, using testing devices, such as ohmmeters, voltmeters, or oscilloscopes, to ensure compatibility and safety of system.*
- *Use a variety of tools or equipment, such as power construction equipment, measuring devices, power tools, and testing equipment, such as oscilloscopes, ammeters, or test lamps.*
- *Plan layout and installation of electrical wiring, equipment, or fixtures, based on job specifications and local codes.*
- *Inspect electrical systems, equipment, or components to identify hazards, defects, or the need for adjustment or repair, and to ensure compliance with codes.*
- *Direct or train workers to install, maintain, or repair electrical wiring, equipment, or fixtures.*

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- *Diagnose malfunctioning systems, apparatus, or components, using test equipment and hand tools to locate the cause of a breakdown and correct the problem.*
- *Knowledge of workplace safety/OSHA requirements for the occupation.*

TOOLS:

- *Hammers — Claw hammers; Soft face hammers; Tinnners hammers*
- *Power saws — Circular saws; Jig saws; Power hacksaws; Reciprocating saws*
- *Pressure indicators — Differential pressure detectors; Pneumatic air gauges; Refrigerant pressure meters; Water pressure gauges*
- *Screwdrivers — Flared tip screwdrivers; Phillips head screwdrivers; Slotted screwdrivers*
- *Voltage or current meters — Alternating current AC line splitters; Electrical current meters; Non-contact voltage detectors; Voltmeters*
- *Computer aided design CAD software — HVAC tools software*
- *Data base user interface and query software — Data logging software; Database software*
- *Graphics or photo imaging software — Graphics software*
- *Spreadsheet software — Microsoft Excel*
- *Word processing software — Atlas Construction Business Forms; Microsoft Word*

Applicants will attach the above list of tasks and tools to the Statement of Employment Experience form(s) prior to submitting the form(s) to an employer(s) for completion.

¹Based upon O*NET: 49-9021.01 - *Heating and Air Conditioning Mechanics and Installers*

O*NET Website: <http://www.onetonline.org/link/summary/49-9021.01#menu>

2. Applicants must complete a 24-hour introduction to teaching course through an authorized provider, which serves as an introduction to the teaching profession for those individuals who are exploring career options. Topics include classroom management, lesson planning, introduction to New Jersey core curriculum content standards, and assessment of pupil progress. To obtain information regarding this requirement, read the section titled, "New Requirement for Certificate of Eligibility," on the following website: <http://www.nj.gov/education/educators/license/advisories/applicant.htm>
3. Applicants must pass an examination in physiology, hygiene and substance abuse issues pursuant to *N.J.A.C. 6A:9-5.9*, including the effects of narcotics and alcohol. The examination is administered at the county offices of education. In lieu of this examination, the applicant may present basic military training or college level study in areas such as biology, health or nutrition. To obtain details regarding this test, contact a county office of education: <http://www.state.nj.us/education/counties/>

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4. Applicants must pass the PRAXIS I[®] basic skills tests*, including the following:
 - Praxis Pre-professional Skills Test Reading (#10710)
 - Praxis Pre-professional Skills Test Writing (#20720)
 - Praxis Pre-professional Skills Test Mathematics (#10730)

For more information regarding the PRAXIS I[®] basic skills tests, visit the “New Jersey: Praxis Test Requirements” page of the Employment Testing Service (ETS) website at the following link: <http://www.ets.org/praxis/nj>. Scroll to the bottom of the page to “Career and Technical Education.” The three required tests are in the column to the right. Test preparation information and materials are also available from ETS. On the webpage, go to the “In This Section” selection in the upper left-hand corner and click on “For Test Takers.” Select the PRAXIS I[®] Pre-Professional Skills Test (PPST) link, which goes to the PRAXIS I[®] Overview page. Click on the light blue “Prepare for the Test” tab. Select one of the three PRAXIS I[®] tests. Each link goes to a page that contains free test prep information as well as test guides that may be purchased.

***NOTICE:** Applicants who have completed a college degree (two-year, four-year or higher) in any subject area and regardless of GPA are not required to take the PRAXIS I[®] tests.

PART E: APPLICATION FOR CERTIFICATE USING SELF-EMPLOYMENT EXPERIENCE

Applicants using this option must meet all of the following requirements, and should review the requirements prior to submitting an application.

1. Submit evidence of at least 8,000 hours of self-employment under any of the job titles listed under PART D. The self-employment experience must be within 10 years of the date of application to the New Jersey Department of Education for the career and technical education certificate. Self-employment experience that is older than 10 years will not be accepted. Documentation must be submitted as a notarized letter from the applicant’s accountant or attorney verifying the applicant’s dates of self-employment and verifying that the applicant has filed for state and/or federal taxes using one of the following federal U.S. Census North American Industry Classification Systems (NAICS) or the Standard Industrial Classification (SIC) numbers:
 - *NAICS Code #238220 Plumbing, Heating, and Air-Conditioning Contractors*
NAICS Website: <http://www.census.gov/eos/www/naics/index.html>
2. Applicants must complete a 24-hour introduction to teaching course through an authorized provider, which serves as an introduction to the teaching profession for those individuals who are exploring career options. Topics include classroom management, lesson planning, introduction to New Jersey core curriculum content standards, and assessment of pupil progress. To obtain information regarding this requirement, read the section titled, “New Requirement for Certificate of Eligibility,” on the following website: <http://www.nj.gov/education/educators/license/advisories/applicant.htm>

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3. Applicants must pass an examination in physiology, hygiene and substance abuse issues pursuant to *N.J.A.C. 6A:9-5.9*, including the effects of narcotics and alcohol. The examination is administered at the county offices of education. In lieu of this examination, the applicant may present basic military training or college level study in areas such as biology, health or nutrition. To obtain details regarding this test, contact a county office of education: <http://www.state.nj.us/education/counties/>
4. Applicants must pass the PRAXIS I[®] basic skills tests*, including the following:
 - *Praxis Pre-professional Skills Test Reading (#10710)*
 - *Praxis Pre-professional Skills Test Writing (#20720)*
 - *Praxis Pre-professional Skills Test Mathematics (#10730)*

For more information regarding the PRAXIS I[®] basic skills tests, visit the “New Jersey: Praxis Test Requirements” page of the Employment Testing Service (ETS) website at the following link: <http://www.ets.org/praxis/nj>. Scroll to the bottom of the page to “Career and Technical Education.” The three required tests are in the column to the right. Test preparation information and materials are also available from ETS. On the webpage, go to the “In This Section” selection in the upper left-hand corner and click on “For Test Takers.” Select the PRAXIS I[®] Pre-Professional Skills Test (PPST) link, which goes to the PRAXIS I[®] Overview page. Click on the light blue “Prepare for the Test” tab. Select one of the three PRAXIS I[®] tests. Each link goes to a page that contains free test prep information as well as test guides that may be purchased.

***NOTICE:** Applicants who have completed a college degree (two-year, four-year or higher) in any subject area and regardless of GPA are not required to take the PRAXIS I[®] tests.

PART F: OTHER CREDENTIALS

Individuals who possess a Bachelor’s degree or higher in a related content area not listed on this worksheet may submit their degree along with an application for a career and technical education certificate to the Department of Education, which will review the submission in order to determine eligibility. There is a fee associated with this service. However, the Department of Education does not guarantee that credentials submitted will be accepted by the Department of Education as satisfying the requirements for a career and technical education certificate. For more information, visit the Office of Licensure and Credentials homepage at <http://www.nj.gov/education/educators/license/>

PART G: MILITARY SERVICE/TROOPS TO TEACHERS

Individuals with military service may have obtained qualifying employment experience, education, and/or training during their military service via the New Jersey Troops to Teachers program. The Troops to Teachers program (TTT) assists eligible military personnel with the transition to a new career as public school teachers. The New Jersey TTT office will provide participants with counseling and assistance regarding certification requirements, routes to state

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teacher certification and employment leads. For information, contact the New Jersey Department of Education Troops to Teachers office at 800-680-0884 or e-mail ttnj@doe.state.nj.us.
New Jersey Troops to Teachers Website: www.nj.gov/njded/ttnj

PART H: ARE YOU LOOKING FOR A TEACHING JOB IN NEW JERSEY?

Visit NJHire today, the New Jersey Department of Education's free education recruitment website. NJ HIRE Website: <http://www.njhire.com>