

**CAREER AND TECHNICAL EDUCATION CERTIFICATE**

Licensure Requirement Details

**Drafting and Design Technology #2544**

*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 **Drafting and Design Technology Career and Technical Education Certificate #2544** issued by the New Jersey Department of Education is eligible to teach the following career and technical education programs and programs of study:

- ***Architectural Technology / Technician, CIP 04.0901:*** A program that prepares individuals to assist architects in developing plans and related documentation and in performing architectural office services. Includes instruction in architectural drafting, computer-assisted drafting and design, construction methods and materials, environmental systems, building codes and standards, structural principles, cost estimation, planning documentation, visual communication skills, display production, and architectural office management.
- ***CAD/CADD Drafting and/or Design Technology/Technician, CIP 15.1302:*** A program that prepares individuals to apply technical skills and advanced computer software and

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*hardware to the creation of graphic representations and simulations in support of engineering projects. Includes instruction in engineering graphics, two-dimensional and three-dimensional engineering design, solids modeling, engineering animation, computer-aided drafting (CAD), computer-aided design (CADD), and auto-CAD techniques.*

### **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:

➤ *Architecture*

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

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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/>

#### **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:
  - *Architectural Technology*
  - *Architecture*
  - *Architectural & Building Construction Technology*
  - *Architectural Technology*
  - *Computer Aided Drafting & Design*
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.

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The federal Occupational Information Network (O\*NET) lists the following additional applicable job titles for Drafter: *Computer-Aided Design Technician (CAD Technician), Civil Drafter, Computer-Aided Design Designer (CAD Designer), Computer-Aided Design Operator (CAD Operator), Computer-Aided Drafting and Design Drafter (CADD Drafter), Drafting Technician, Draftsman, Draftsperson, Civil CAD Designer (Civil Computer Aided Design Designer), Civil CAD Tech (Civil Computer-Aided Design Technician), Intern Architect, Drafter, Architect, Draftsman, Architectural Designer, Architectural Drafter, Architectural Intern, Project Manager, Architectural Draftsman, and CAD Technician (Computer-Aided Design Technician)*

#### **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](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 tools<sup>1</sup> for this occupation, as follows:

#### **TASKS:**

- *Produce drawings using computer-assisted drafting systems (CAD) or drafting machines, or by hand using compasses, dividers, protractors, triangles and other drafting devices.*
- *Draw maps, diagrams, and profiles, using cross-sections and surveys, to represent elevations, topographical contours, subsurface formations and structures.*
- *Draft plans and detailed drawings for structures, installations, and construction projects such as highways, sewage disposal systems, and dikes, working from sketches or notes.*
- *Determine the order of work and method of presentation, such as orthographic or isometric drawing.*

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- *Finish and duplicate drawings and documentation packages, according to required mediums and specifications for reproduction using blueprinting, photography, or other duplicating methods.*
- *Review rough sketches, drawings, specifications, and other engineering data received from civil engineers to ensure that they conform to design concepts.*
- *Calculate excavation tonnage and prepare graphs and fill-hauling diagrams for use in earth-moving operations.*
- *Supervise and train other technologists, technicians and drafters.*
- *Correlate, interpret, and modify data obtained from topographical surveys, well logs, and geophysical prospecting reports.*
- *Determine quality, cost, strength and quantity of required materials, and enter figures on materials lists.*
- *Knowledge of workplace safety/OSHA requirements for the occupation.*

#### **TOOLS:**

- *Curves — Flexible curves; French curves*
- *Graphics or video accelerator cards — Computer aided design CAD multi-unit display graphics cards*
- *Scales — Architects' scales; Electronic scales*
- *Scanners — Backlit digitizers; Sonic digitizers; Three-dimensional laser digitizers; Wide-format document scanners*
- *Triangles*
- *Computer aided design CAD software — Autodesk AutoCAD software; Bentley Microstation; ENERCALC FastFrame; Piping and instrumentation design PID software*
- *Graphics or photo imaging software — Adobe Systems Adobe After Effects; Bentley GeoPak Bridge; Intergraph Image Analyst; McNeel Rhino software*
- *Map creation software — Boundary survey software; ESRI ArcGIS software; Geomechanical design analysis GDA software; Topographic map software*
- *Spreadsheet software — Microsoft Excel*
- *Word processing software — Microsoft Word; Specification software; SpecsInTact Software*

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

<sup>1</sup>Based upon O\*NET: 17-3011.02 - Civil Drafters. Applicants may also use the O\*Net Summary Report for 17-3011.01 - Architectural Drafters.

O\*NET Website: <http://www.onetonline.org/link/summary/17-3011.02>

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,

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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/>
4. Applicants must pass the PRAXIS I<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> Pre-Professional Skills Test (PPST) link, which goes to the PRAXIS I<sup>®</sup> Overview page. Click on the light blue “Prepare for the Test” tab. Select one of the three PRAXIS I<sup>®</sup> 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<sup>®</sup> 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

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following federal U.S. Census North American Industry Classification Systems (NAICS) or the Standard Industrial Classification (SIC) numbers:

➤ *NAICS Code # 541340: Drafting services*

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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**\*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<sup>®</sup> 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

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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 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](mailto:ttnj@doe.state.nj.us).  
New Jersey Troops to Teachers Website: [www.nj.gov/njded/ttnj](http://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>