

AMERICAN NATIONAL STANDARD

**STANDARD FOR
CERTIFICATION OF
ELECTRICAL TESTING TECHNICIANS**

Secretariat
**InterNational Electrical Testing
Association**

Approved by
American National Standards Institute



American National Standard

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This standard is intended to be suitable for mandatory application by governmental bodies exercising legal jurisdiction over electrical installations and facilities; it may be used by insurance inspectors and others to codify the expertise of electrical testing personnel.

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These lists represent the membership at the time the text of this document was balloted. Since that time, changes in the membership may have occurred.

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FOREWORD

(This Foreword is not part of American National Standard ANSI/NETA ETT-2000)

The InterNational Electrical Testing Association (NETA) was established in 1972 to establish uniform testing procedures for electrical equipment and apparatus.

NETA developed specifications for the acceptance of new electrical apparatus prior to energization and for the maintenance of existing apparatus to determine its suitability to remain in service.

In 1987, NETA recognized the need for guidelines for the technicians who perform electrical testing services. The Preface of *Standard for Certification of Electrical Testing Technicians* states the reasons succinctly.

At the NETA quarterly meeting in October 1993, a task group was formed to codify NETA's experience, education, and training requirements necessary for an individual to obtain a level of competency as an electrical test technician. Because NETA accredits the qualifications of the member company as well as certifies the individual, another directive of this task group was to assure that the NETA requirements were aligned with the National Institute for Certification of Engineering Technologies (NICET) for an alternate certification path for qualified individuals.

From 1993 through 1995, this task group conducted many meetings. In September 1995, the group presented a draft document which normalized the NETA program with that of NICET by instituting four levels of technicians. The document also provided definitions and requirements for each level. Members present voted unanimously to accept this proposal. Subsequent to this meeting, the NETA Board of Directors recommended, and the membership concurred by vote, to continue development of the program for ultimate acceptance by ANSI as an American National Standard. At each step of the development process, reports of progress were published in *NETA World*. In addition to public announcements that the document was available for review, NETA has also actively solicited the input of interested stakeholders. The various working drafts were offered and supplied to a broad spectrum of the industry.

Development of the NETA/NICET technician certification program continued from September 1995 through February 2000 with input from Membership, Board of Directors, Technical Committee, and the Standards Review Council. In February 1997, the Board of Directors approved the test technician matrix and recommended it to the Members at the March 1997 Membership Meeting. At this meeting, the Members approved the matrix unanimously.

Following approval of the matrix and overall concept by NETA Members, all documents were compiled and working drafts were prepared. Revised drafts were circulated to the NETA Board, Officers, Standards Review Council, Accredited Representatives, and other interested stakeholders, such as educators, consultants, users, specifiers, etc. This process involved considerable review and incorporation of comments. The participation of a wide variety of stakeholders during the review process contributed to the acceptance of this document.

Standard for the Certification of Electrical Testing Technicians was approved by ANSI on March 15, 2000.

Suggestions for improvement of the standard are welcome. They should be sent to the InterNational Electrical Testing Association, PO Box 687, Morrison, Colorado 80465.

PREFACE

Specifying requisite levels of training, experience, and education for the evaluator of electrical power equipment is as important as the test procedure itself. The requirements herein parallel those of the National Skill Standards Board in Washington, DC, which promulgates skill levels for various occupations.

An Electrical Testing Technician (ETT) performs tests and inspections and evaluates the suitability of electrical power equipment and systems for the intended use.

Inherent in the determination of the serviceability of electrical equipment is the prerequisite that individuals performing these tests be capable of conducting the tests in a safe manner and with complete knowledge of the hazards involved. They must also evaluate the test data and form an opinion on the continued serviceability or nonserviceability of the specific equipment. The evaluation of service-aged equipment requires subjective assessment by the ETT.

Certification is a means for individuals to indicate to employers, co-workers, the general public, and others that they have met the standards of an impartial, nationally-recognized organization for the performance of specific technical tasks by virtue of their technical knowledge and experience.



NETA STANDARD FOR CERTIFICATION OF ELECTRICAL TESTING TECHNICIANS

1. SCOPE

- 2.1 This standard establishes minimum requirements for qualification and certification of the electrical testing technician (ETT).
- 2.2 This standard details the minimum training and experience requirements for electrical testing technicians and provides criteria for documenting qualifications and certification.
- 2.3 This standard details the minimum qualifications for an independent and impartial certifying body to certify electrical testing technicians.

2. DEFINITIONS

The definitions in this standard are intended to clarify the meaning of terms used in this standard, as they apply to this standard, and only to this standard. No broader application of these definitions is implied.

Annex

Supplementary information which is mandatory to this standard.

Appendix

Supplementary information which is informational but not mandatory to this standard.

Candidate

Individual who does not hold a current and valid certificate but may be involved in a certification system as an applicant or examinee.

Certificant

Individual who holds a current and valid electrical testing technician (ETT) certificate.

Certification Body (Certifying Body)

Organization that meets the criteria as outlined in this standard for offering an electrical testing technician (ETT) certification program.

Certification System

System that has its own rules of procedure and management for carrying out certification.

Certification Element

An area of job performance on which a candidate for certification will be tested by written examination.

Certification Process

The process by which a third party provides written assurance that a person's competence conforms to specified requirements.

Certify

To confirm formally that a candidate has met the criteria and passed a comprehensive written examination that indicates competence in electrical testing.



Closed-Book Examination

An examination administered without access to reference material except that supplied with or in the examination.

Documented

The condition of being in written form.

Education

An institutionalized program, prescribed by appropriate authorities, that is offered by schools, institutes, organizations, colleges, or universities established for the sole purpose of providing instruction in an orderly, planned, and systematic fashion.

Electrical Testing Technician (ETT)

An individual who performs tests and inspections and evaluates the suitability of electrical power equipment and systems for the intended use.

Employer

The corporate, private, or public entity that employs personnel for wages or salary.

Evaluation

Interpretation of measurements and observations, including determination of compliance with applicable specification.

Examination

A formal, written interrogation to determine an individual's understanding of procedures, codes, standards, specifications, and equipment or instrumentation for electrical testing.

Experience

Actual performance or observation conducted during work time resulting in the acquisition of skill and knowledge. Classroom or laboratory training time or both shall not be considered as experience.

Method

A systematic and regular means of accomplishing a given task.

Procedure

A detailed, written instruction for conducting an electrical test or for certifying technicians.

Proctor

Person who administers the written examination component of a certification system.

Psychometrics

Science and technology of mental measurement.

Qualification

The education, skills, training, knowledge, and experience required for an individual to perform at a specified ETT level.

Quality Control

Operational techniques and activities that are used to fulfill requirements of quality.



Stakeholder

Party with a direct interest in the use of a certification system, including candidates, certificants, employers, authorities, and specifying entities.

Testing

A procedure for critical evaluation.

Third Party

Person or organization that is recognized as being independent of the parties involved, as concerns the issue in question.

Training

An organized and documented program of activities designed to impart the knowledge and skills required by this standard. On-the-job experience does not qualify as training.

3. LEVELS OF CLASSIFICATION

Four levels of classification are defined in terms of the skills and knowledge required in a given method or methods to perform specified electrical testing and maintenance activities. To proceed to a higher level, an individual shall meet the qualifications set forth and pass the examination for all previous levels.

3.1 ETT Trainee Level I

The ETT Trainee Level I classification offers an entry-level gateway into the electrical testing industry. Typical duties include assistance and measurements as well as pre- and post-test sequence assembly and disassembly.

3.1.1 The candidate has a high school or general equivalency diploma (GED).

3.1.2 There are no requirements for related work experience in the electrical testing industry.

3.1.3 Annexes A, B, and C contains specific requirements.

3.2 ETT Assistant Level II

The ETT Assistant Level II generally requires direct supervision. Typical duties include being responsible for the safety of him/herself and an understanding of lockout/tagout procedures and requirements.

3.2.1 The candidate shall have two years of related experience in the electrical testing industry. This experience shall be verified by the employer using a form similar to the one in Appendix A.

3.2.2 The candidate shall have a minimum of 40 hours training in safety. This training shall be verified by the employer using a form similar to the one in Appendix A.



- 3.2.3 The candidate shall have a minimum of 160 hours of training related to the certification element categories. This training shall be verified by the employer using a form similar to the one in Appendix A.
- 3.2.4 The candidate shall pass an Electrical Testing Level II examination administered by a certifying body as defined in this standard.
- 3.2.5 Annex A, B, and C contains specific requirements.

3.3 ETT Certified Level III

The ETT Certified Level III is capable of supervising ETT Trainee Level I and ETT Assistant Level II. Typical duties include, but are not limited to, routine and moderately complex projects, record keeping, evaluation of test data, responsibility for the safety of others. Individual is capable of electrical power switching .

- 3.3.1 The candidate shall have a minimum of five years of experience in the electrical testing industry. This experience shall be verified by the employer using a form similar to the one in Appendix A.
- 3.3.2 The candidate shall have a minimum of 24 hours of additional safety training. This training shall be verified by the employer using a form similar to the one in Appendix A.
- 3.3.3 The candidate shall have 240 hours of additional training related to the certification element categories for Level III. This training shall be verified by the employer using a form similar to the one in Appendix A.
- 3.3.4 The candidate shall pass an electrical testing Level III examination administered by a certifying body as defined in this standard.
- 3.3.5 Annex A, B, and C contains specific requirements.

3.4 ETT Senior Certified Level IV

The ETT Senior Certified Level IV supervises large projects and multiple crews and can work independently. Person performs complex investigations, tests, and evaluations.

- 3.4.1 The candidate shall have a minimum of ten years of experience in the electrical testing industry. This experience shall be verified by the employer using a form similar to the one in Appendix A.
- 3.4.2 The candidate shall have a minimum of 40 hours additional safety education. This training shall be verified by the employer using a form similar to the one in Appendix A.
- 3.4.3 The candidate shall have a minimum of 200 hours of additional training related to the certification element categories for Level IV. This training shall be verified by the employer using a form similar to the one in Appendix A.



- 3.4.4 The candidate shall pass an electrical testing Level IV examination administered by a certifying body as defined in this standard.
- 3.4.5 Annex A and B contain specific requirements.

4. TRAINING REQUIREMENTS

4.1 ETT Trainee Level I

- 4.1.1 The candidate shall complete sufficient organized training to become familiar with the principles of the industry and the practices of applicable electrical testing techniques applicable to Level I.
- 4.1.2 Representative training curricula may include, but not be limited to, the subjects contained in Annex B and detailed in Annex C.

4.2 ETT Assistant Level II

- 4.2.1 The candidate shall complete sufficient organized training to become familiar with the principles of the industry and the practices of the applicable electrical testing techniques applicable to Level II.
- 4.2.2 Representative training curricula may include, but not be limited to, the subjects contained in Annex B and detailed in Annex C.

4.3 ETT Certified Level III

- 4.3.1 The candidate shall complete sufficient organized training to enhance his/her knowledge and skills in the area of electrical testing applicable to Level III.
- 4.3.2 ETT certified technicians are “hands-on” field testing technicians. These technicians shall be trained concerning the hazards, components, operating characteristics, and limitations of electrical power and electrical power systems.
- 4.3.3 ETT certified individuals shall have knowledge in applied mathematics, physical science, and engineering science equivalent to that provided by course work and hands-on laboratory work of an associate degree program in electrical engineering technology. A degree is not a requirement for certification.

4.4 ETT Senior Certified Level IV

- 4.4.1 The candidate shall complete sufficient organized training to enhance his/her knowledge and skills in the area of electrical testing applicable to Level IV.
- 4.4.2 ETT certified individuals are “hands-on” field testing technicians. These technicians shall be trained concerning the hazards, components, operating characteristics, and limitations of electrical power and electrical power systems.

4.5 Training Curricula

4.5.1 Training shall include all topics contained in Annex B for the appropriate level plus additional topics as deemed necessary by the employer.

4.5.2 Training topics shall be directly applicable to electrical testing.

5. EXPERIENCE REQUIREMENTS

Candidates shall have acquired the practical experience to assure they are competent to perform the duties at the level in which classification is being sought. Complete experience requirements are set forth in Annex A.

5.1 ETT Trainee Level I

The candidate shall have a high school or GED degree.

5.2 ETT Assistant Level II

The candidate shall have been engaged on a full-time basis assisting in testing of electrical power systems for two years.

5.3 ETT Certified Level III

The candidate shall have been engaged on a full-time basis performing testing of electrical power systems for five years.

5.4 ETT Senior Certified Level IV

The candidate shall have been engaged on a full-time basis performing testing of electrical power systems for ten years.

6. EXAMINATION REQUIREMENTS

6.1 ETT Trainee Level I

6.1.1 Examination for the candidate shall be prepared by the employer to test for the knowledge and skills outlined in Annex B and Appendix A.

6.1.2 Examination for the candidate shall be administered by the employer.

6.2 Examination for ETT Assistant Level II, Certified Technician Level III, Senior Certified Technician Level IV.

6.2.1 Examinations shall be prepared by a certifying body as defined in this standard to test for the knowledge and skills outlined in Annex B and Appendix A.

6.2.2 Examinations shall be administered by a certifying body as defined in this standard.

7. CERTIFYING BODY

This standard provides fairness and multiple paths to the requisite certification through an independent, third-party, evaluator. Implicit in this document is that certifying bodies shall maintain and improve their certification systems.

7.1 General Provisions

- 7.1.1 The certifying body for electrical testing technicians shall be a nationally or internationally recognized evaluator of knowledge and experience in the area of electrical testing.
- 7.1.2 The certifying body shall detail its policies and procedures in documents available in electronic or print format. These documents shall be reviewed on a regular basis with a record of such review maintained.
- 7.1.3 The policies and procedures under which the certification body operates and its administration shall be nondiscriminatory and shall be administered in a nondiscriminatory manner. Procedures shall not be used to impede or inhibit access by qualified applicants.
- 7.1.4 The certifying body shall have no financial and/or other proprietary interest in the company which employs the certified individual.
- 7.1.5 The certifying body shall not be owned in whole and/or in part or otherwise subject to the influence of the company which employs the certified individual.
- 7.1.6 The certifying body shall meet the standards set forth in *Principles of Fairness: An Examining Guide for Credentialing Boards*.
- 7.1.7 The certification body shall make its services accessible to all qualified applicants. There shall not be undue financial or other conditions. Access shall not be based on biased conditions such as required training by a specific organization or a specific group of organizations; however, training recognized by the certification body may be required. Certain organizations have specific requirements involving ethics, fiduciary responsibility, malfeasance, etc. and, under these circumstances, may require membership in the organization as a condition of certification.
- 7.1.8 Certification shall not be conditional upon the number of persons already certified.
- 7.1.9 The certification body shall clearly define qualification criteria.
- 7.1.10 The certification body shall provide (through documents, electronic media, or other means), update periodically, and make available upon request:
 - 1. A documented statement of its certification system, including its policies and procedures for granting, maintaining, extending, restricting, suspending, and withdrawing certificates.

