
Information and Policy Manual



Technician Certification Program

Soils/Aggregate

Asphalt

Field

ARIZONA TECHNICAL TESTING INSTITUTE

CONSTRUCTION • MATERIALS

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INTRODUCTION

In 1995, the Arizona Department of Transportation, consultant testing laboratories, material suppliers, and contractors jointly recognized the need to raise the professional standards and reliability of materials sampling and testing to provide industry-wide confidence in highway construction materials test results. With this as a goal, a steering committee was formed to implement a technician certification program for Arizona that establishes a minimum level of competency for the industry.

The steering committee began by evaluating similar certification programs that have proven successful in other states. Following intensive consultation and evaluation, the steering committee recommended American Concrete Institute (ACI) certification for technicians sampling and testing concrete, but was unable to identify a suitable existing program for soils, aggregates, and asphaltic concrete. Consequently, the steering committee recommended the development and implementation of a local program designed to provide examination procedures for the certification of technicians performing soils, aggregate, and asphaltic concrete sampling and testing related to ADOT construction projects.

The Arizona Technical Testing Institute (ATTI), a non-profit organization, was subsequently formed to manage and administer the certification of highway construction materials technicians in Arizona. ATTI became incorporated in February, 1996 and was charged with overseeing and providing performance based certification programs specific to sampling and testing methods used for Arizona Department of Transportation construction projects.

Mission statement for the Arizona Technical Testing Institute:

Provide valid examination procedures for the certification of technicians performing soils, aggregate, and asphaltic concrete sampling and testing.

ORGANIZATIONAL STRUCTURE

Figure 1 presents the organizational structure of ATTI.

Board of Directors

The Board of Directors is comprised of representatives from contractors, consultant testing laboratories, highway construction materials suppliers, and Arizona Department of Transportation. The board is responsible for the mission, objectives, financial, structure, policy, regulations, and all final decisions regarding the operation of the Arizona Technical Testing Institute.

Technical Advisory Board

A technical advisory board which reports directly to the Board of Directors functions as the overseer of curriculum, program revisions, certification processes, and general operations of ATTI. The technical advisory board shall meet on a regular basis to review the program and suggest changes or revisions to ensure that the program continues to meet the highest standards.

Specific duties of the Technical Advisory Board include:

- Certification program development and revisions,
- Curriculum design,
- Manuals and workbook development and revision,
- Performance and Written Examinations revision,
- Administration Manual development and revision,
- Review qualifications and approval of Exam Proctors and Examiners

Executive Director

ATTI contracts the services of a professional administrator to provide coordination of business and financial activities, student registration, instructor and examiner certification and scheduling, and technician certification examinations. The contracted administrator is designated as the ATTI Executive Director and reports directly to the ATTI Board of Directors.

Duties of the Executive Director include, but are not limited to:

- Maintaining ATTI bylaws and regulations,
- Accounting functions,
- Maintaining original copies of examinations, registration, certificates, etc.,
- Issuing certificates,
- Coordinating applicant registration,
- Coordinating examination schedules,
- Distribution of newsletter and informational bulletins,
- Publications and copying of materials.

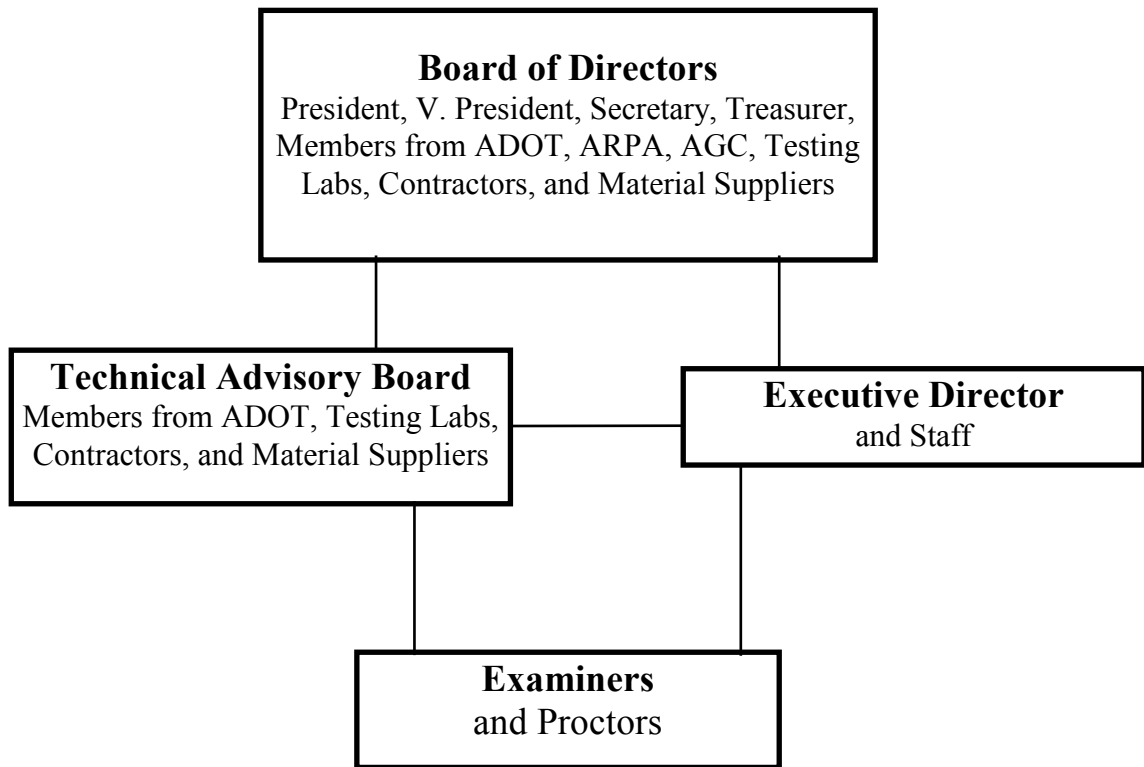


Figure 1 - ATTI Organizational Structure

CURRICULUM

Workbooks

Workbooks for each certification containing test methods and related information are issued at the time of registration or may be purchased separately. The workbooks are designed to be used as a quick reference while on the job, not as a replacement for official manuals. The Technical Advisory Board will coordinate revisions to the workbooks. The Executive Director will coordinate publication and distribution of the workbooks.

Prerequisites

There are no prerequisites for taking the Laboratory Soils/Aggregate, Field and Asphalt certification examinations. The ATTI program is designed such that applicants must have experience or have received training in the applicable test methods and calculations prior to taking examinations.

Certification Examination

The certification examination requires applicants to successfully perform all prescribed test methods, make correct calculations, and pass a short written exam. Because the ATTI program is designed to improve the consistency and reliability of construction materials sampling and testing, certification will not be granted for simply attending and taking the certification examinations.

Performance Exam

- Applicants must successfully perform each and every test method to receive certification.
- Closed book.

Written Exam

- Closed book.
- Approximately 30 true/false and multiple choice questions.
- Calculations.
- Must be completed within prescribed time limit of 3 hours.

Passing Grade

- To receive certification, the applicant must successfully complete 100% of the performance exam, receive an 80% minimum grade on the written exam, and correctly perform all calculations.

Retesting

- If an applicant fails to successfully demonstrate a test method as prescribed, the applicant may be allowed to demonstrate the failed test method a second time during the same examination period at the discretion of the examiners. Failed test methods must be re-demonstrated within 12 months of the original examination.

- An applicant failing the written or calculations examination is required to retake the entire written or calculations examination within 12 months of the original examination.
- If an applicant fails the performance and/or written examinations a second time, they will be charged a fee for additional testing that must be performed within 12 months of the original examination. If the failed items are not successfully passed the third try, the applicant will be required to register and retake the entire certification examination.
- An applicant who fails to appear for a scheduled retest will be given an automatic failure of the test elements needing retesting unless the retest has been appropriately cancelled through ATTI (see refund policy on page 17).

EXAMINATION ADMINISTRATION

Preparation

1. The examiner is responsible for all preparation, setup, and take down associated with the certification examination being conducted by the examiner. After being contacted by the Executive Director with a scheduled exam date and location, the examiner should contact the laboratory, field office, and/or technicians to verify and make final arrangements for the following:
 - exam location and facilities,
 - exam date and times,
 - equipment and materials to be furnished by the lab or technicians,
 - equipment and materials to be furnished by the examiner.
2. The examiner shall obtain all registration, manuals, examinations, and other related materials from the Executive Director.

Performance Examination

1. Each applicant must perform every test method in its entirety.
2. The performance examination is closed book.
3. Each test method must be performed in an appropriate amount of time as determined by the Examiner.
4. The applicant may be asked to explain various steps of the test method to reduce the full test time.
5. The examiner must complete the performance checklist for each test method by indicating a yes or no for each noted step.
6. Additional instructions are provided for the technician and examiner in the performance examination checklist packet.

Written Examination

1. The written exam is closed book.
2. The exam must be completed within the time limit of 3 hours.

Passing Score

1. The Examiner shall grade the performance and written exams when completed.
2. Each test method checklist item must receive a yes to be considered a passing grade.
3. A score of 80% correct or better is considered a passing grade on the written exam.
4. All calculations must be performed correctly to receive a passing score.
5. A passing grade must be achieved on the performance examination, written examination, and calculations to receive certification.

Retesting

1. If an applicant fails to successfully present a test method as prescribed, the applicant may be allowed to demonstrate the failed test method a second time during the same examination period if time permits and at the discretion of the examiners. If the test method is failed a second time, the applicant must schedule a retake within 1 year of the original examination at a cost of \$50.00.
2. Anyone failing the written exam must retake the entire written exam at the convenience of ATTI.

Documentation and Notification

1. The examiner will inform each applicant of their pass/fail status following the exams.
2. At the completion of an examination, all applicant documents, including examinations, shall be returned to the Executive Director.
3. The Executive Director will notify the applicant of their status immediately upon receipt of examination materials from the Examiner. If an applicant has successfully passed the exams, the Executive Director will issue a certificate. If an applicant has failed any examination items, the Executive Director will notify the applicant which items were failed and provide retesting information.

Reciprocity

A few test methods, such as ARIZ 104, ARIZ 105, and ARIZ 103, are included in multiple certifications. For those test methods, an applicant is not required to demonstrate the method if they have received certification for it within 12 months immediately prior to the examination. Certification will be granted only if the test method has been successfully passed within the noted time period. If more than 12 months have passed since the test method was demonstrated, the applicant is required to perform the applicable test method.

EXAMINATION MATERIALS SECURITY

This policy applies to possession and retention of all examination materials, including blank and completed performance exam checklists, completed and blank written exams, and answer keys. It is imperative that examination materials are kept secure and confidential at all times. Violation of security compromises the integrity and validity of the certification process. The materials should be kept under lock and key by authorized persons.

Exam security must be maintained during development of exams, reproduction of exams, storage of blank exams, scoring exams, storage of complete exams, and destruction of old exams.

Access to exam materials is limited to:

- the Executive Director who shall maintain blank copies and completed exams,
- Technical Advisory Board members assigned to develop and revise exams,
- examiners during the examination process.

During the examination process, the examiner shall maintain constant inventory of the examination materials in a manner which will not allow any applicants the opportunity to view or copy the materials. All completed exams and blank exams not used by the examiner shall be returned to the Executive Director.

Retention of Examination Documents

After each Certification Examination process, all used exam materials, both passing and failing, will be retained, in conformance to guidelines contained in the section entitled Examination Materials Security for a period of five (5) years and will then be destroyed by shredding or other effective method. Originals or copies of applicants' exams and performance checklists are not to be given to the applicants.

EXAMINERS

Application to be an ATTI examiner is available from the ATTI Executive Director's office. The Technical Advisory Board reviews applications and administers the examiner apprenticeship program. Examiners are compensated in accordance with ATTI established rates based on examination time requirements, travel, and lodging.

Examiner qualifications

ATTI examiners shall:

- be certified in the appropriate area,
- have a minimum of 10 years of applicable experience directly related to the certification examination they will conduct,
- successfully complete the examiner training class,
- exhibit a positive attitude while interacting with others,
- and uphold the established standards and policies of ATTI.

Application process

1. Applicant submits an examiner application and a letter of reference from a registered engineer (P.E.) to ATTI Executive Director.
2. ATTI Executive Director forwards application and accompanying documentation to Senior Examiner.
3. Senior Examiner reviews application for (time, experience, and certifications).
4. Senior Examiner reviews applicants ATTI examination(s). Applicant must have received a minimum of 90% on written exam and no 2nd re-tests taken.
5. Applicants meeting the above requirements would be notified to attend ATTI Examiner training class.
6. After attending training class, the applicant will proctor a test station and will be evaluated by the Senior Examiner. A minimum score of 80% on the examiner evaluation will be necessary to be considered to be an ATTI Examiner.
7. At the next scheduled ATTI TAB meeting, the Senior Examiner will present results and recommendations on any applicants reviewed during the previous quarter.
8. TAB votes on applicant(s) based on Senior Examiners recommendations.

Continued Qualification

To continue qualification as an examiner for ATTI, an individual must remain current in the related area. This requirement includes the following:

1. Individual must currently work in the construction materials testing or related engineering/construction field.
2. Individual must maintain current ATTI certification in the area (field, soil and aggregate, and asphalt) in which they serve as examiner.
3. Retired individuals or those no longer working in a related area may be considered to continue as examiners if they meet criteria #2, applying for continuing status, and are approved by the TAB committee. Each individual will be evaluated on a case-by case basis.

Examiner Travel Expenses

Examiners are compensated for mileage in excess of twenty (20) miles each direction, to and from their residence, to the location of an ATTI exam. Mileage is paid at the State of Arizona rate in effect on the day of travel.

CERTIFICATION

Upon successful completion of performance and written exams, technicians will be awarded certification valid for five years. Grandfathering of registered engineers, college graduates, experienced technicians, NICET certified technicians, or for any other qualifications is not permitted.

Asphalt Certification

TEST METHOD	Procedure	Examination Written (W) Calculations (C) Performance (P)
ARIZ 104	Sampling Bituminous Mixtures	W, P
ARIZ 103	Sampling Bituminous Materials	W, P
ARIZ 247	Particle Shape and Texture of Fine Aggregate Using Uncompacted Void Content	W, C, P
ARIZ 406	Moisture Content of Bituminous Mixtures	W, C, P
ARIZ 410	Compaction of Bituminous Mixtures with Marshall Apparatus	W, C, P
ARIZ 415	Bulk Specific Gravity of Compacted Bituminous Mixtures	W, C, P
ARIZ 416	Preparing, Splitting, and Testing of Bituminous Mixtures	W, P
ARIZ 417	Maximum Theoretical Specific Gravity of Field Produced Bituminous Mixtures	W, C, P
ARIZ 421	Asphalt Content of Asphaltic Concrete Mixtures by Nuclear Method	W, C, P
ARIZ 424	Determination Voids in Compacted Bituminous Mixtures	W, C
ARIZ 427	Bituminous Material Content of A.C. Mixtures by the Ignition Furnace Method	W, C, P
AASHTO T312	Determining Density of Bituminous Mixtures by SHRP Gyrotory Compactor	W, C, P

Field Technician Certification

TEST METHOD	Procedure	Examination Written (W) Calculations (C) Performance (P)
ARIZ 104	Sampling Bituminous Mixtures	W, P
ARIZ 105	Sampling Soils and Aggregates	W, P
ARIZ 103	Sampling Bituminous Materials	W, P
ARIZ 225	Appendix A - Calibration of Proctor Molds	W, P
ARIZ 227	Rock Correction for Max. Density & Opt. Moisture Content	W, C, P
ARIZ 229	Calibration of Standard Sand and Sand Cone	W, C, P
ARIZ 230	Field Density by the Sand Cone Method	W, C, P
ARIZ 232	Moisture-Density using Typical Moisture- Density Curves Method A	W, C, P
ARIZ 235	Field Density/Moisture Content of Soils/Agg. by Nuclear Method	W, P
ARIZ 246	Moisture-Density using Typical Moisture- Density Curves Method D	W, C, P
ARIZ 412	Density of Compacted Bituminous Mixtures by Nuclear Method	W, P
AASHTO T217	Moisture Content by Calcium Carbide Method	W, C, P
AASHTO T248	Reducing Field Samples of Aggregate to Testing Size	W, P

Laboratory Soils/Aggregate Technician Certification

TEST METHOD	Procedure	Examination Written (W) Calculations (W) Performance (P)
ARIZ 105	Sampling Soils and Aggregates	W, P
ARIZ 201	Sieving of Coarse and Fine Graded Soils and Aggregates	W, C, P
ARIZ 210	Specific Gravity and Absorption of Coarse Aggregate	W, C, P
ARIZ 211	Specific Gravity and Absorption of Fine Aggregate	W, C, P
ARIZ 212	Percentage of Crushed Particles in Cover Material or Mineral Aggregate	W, C, P
ARIZ 225	Maximum Dry Density and Optimum Moisture of Soils by Method A Proctor	W, C, P
ARIZ 233	Flakiness Index of Aggregate	W, C, P
ARIZ 236	Determining pH and Minimum Resistivity of Soils and Aggregates	W, C, P
ARIZ 245	Maximum Dry Density and Optimum Moisture of Soils by Alternate Method D Proctor	W, C, P
AASHTO T11	Materials Finer Than #200 Sieve by Washing	W, C, P
AASHTO T19	Unit Weight and Voids in Aggregate	W, C, P
AASHTO T21	Organic Impurities in Fine Aggregates	W, C, P
AASHTO T89	Determining the Liquid Limit of Soils	W, C, P
AASHTO T90	Determining the Plastic Limit and Plasticity Index of Soils	W, C, P
AASHTO T176	Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test	W, C, P
AASHTO T248	Reducing Field Samples of Aggregate to Testing Size	W, P
AASHTO T255	Total Moisture Content of Aggregate by Drying	W, C, P
AASHTO T265	Laboratory Determination of Moisture Content of Soils	W, C, P

ATTI Recertification

Certification renewal is required every 5 years. At a minimum, each certified technician requesting renewal will be required to successfully demonstrate each prescribed test method during a performance examination and successfully pass a written exam.

Complaints/Protests Procedures

Any applicant wishing to register a complaint or protest regarding an examination or examiner must do so in writing to the ATTI Executive Director within fourteen (14) days of the occurrence. A written complaint or protest must specify the examination date, the examiner and the nature of the complaint or protest.

Complaints and protests will be reviewed by the Technical Advisory Board and their recommendation will be presented to the Board of Directors. All complaints and protests will be answered in writing within sixty (60) days of receipt. All decisions by the Board of Directors are final.

Suspension or Revocation of Certification

Certifications awarded by the Arizona Technical Testing Institute may be suspended or revoked at any time for just cause by the ATTI Technical Advisory Board. Proposed suspensions or revocations will be sent to the subject individual in writing along with notification of the individual's right to appeal the proposed suspension or revocation. A suspension or revocation is effective upon receipt by the certified technician and will be affirmed, modified, or vacated following appeal. Just cause for a certified technician to be subject to suspension or revocation of their certification is *negligence* or *abuse* of their responsibilities.

Negligence is defined as unintentional deviation from ATTI policies and prescribed sampling and testing procedures, which may or may not cause erroneous results. The following penalties are guidelines for findings of negligence:

- The first finding of negligence will result in a letter or reprimand being sent to both the technician and the employer.
- The second finding will result in a one hundred eighty (180) day suspension of certification.
- The third finding will result in a one (1) year suspension of all areas of certification.
- The fourth finding will result in permanent revocation of all ATTI certifications.

Abuse is defined as intentional deviation from ATTI policies and approved procedures. The following penalties are guidelines for findings of abuse:

- The first finding will result in a one (1) year suspension to permanent revocation of all areas of certification.
- Any additional findings will disqualify the individual from eligibility for any type of ATTI certification.

The Technical Advisory Board may deviate from these penalty guidelines if warranted.

Suspensions or revocations for abuse and negligence in one certification area will be considered suspension or revocation in all ATTI certifications held by the technician.

Allegations of negligence or abuse will be made to the ATTI Technical Advisory Board (TAB) in writing. The chairman of TAB will appoint a three (3) member review panel which will investigate the allegations. The allegations will contain the name, address, and signature of the individual(s) making the allegation. The accused and the individual(s) making the allegation will be given the opportunity to appear before the TAB review panel. All involved parties will be notified in writing of the findings of the TAB. Any warranted penalties will be imposed in accordance with guidance contained herein. Decisions regarding allegations of negligence or abuse may be appealed in writing to the ATTI Board of Directors who will independently consider such written appeals, but may rely on the advice and counsel of the TAB, and take such action as considered appropriate.

ATTI – Technician Code of Ethics

As an **ATTI** certified technician you recognize that the services you render have a significant impact on the quality of life for the traveling public. As you perform your duties and responsibilities on behalf of the public, employers and clients, you shall demonstrate personal integrity and competence. Accordingly, certificates shall:

- Engage in sampling and testing for only those activities for which you are competent by way of your certification and as required by specification and policy.
- Perform your duties in an efficient and competent manner with fidelity and honesty.
- Admit and accept your errors when proven wrong and never distort nor alter the facts.
- Avoid conflicts of interest.
- Not engage in bribery in any manner or form.
- Strive to maintain your proficiency by updating your technical knowledge and skills in materials sampling and testing.
- Have proper regard for the safety, health and welfare of the public in the performance of your duties.

EXAMINATION SCHEDULE

Scheduling of examinations and applicant registration for examinations are coordinated by the ATTI Executive Director. Examination enrollment is normally limited to a maximum of 15 applicants. Smaller ATTI certification examinations are periodically scheduled for 2-3 applicants at a time. The Executive Director must be contacted for information regarding the availability and coordination of the smaller examinations.

Asphalt Certification

The Asphalt Certification examination is conducted over a one day period. The examination includes demonstration of sampling and testing methods, a written exam, and calculations.

Field Certification

The Field Certification examination is conducted over a one day period. The examination includes demonstration of sampling and testing methods, a written exam, and calculations.

Laboratory Soils/Aggregate Certification

The Laboratory Soils/Aggregate Certification examination is conducted over a one day period. The examination includes demonstration of test methods, a written exam, and calculations.

REGISTRATION FEES

Registration fees are subject to change at any time. Current fees are as follows:

- Asphalt Certification Examination.....\$450.00

- Laboratory Soils/Aggregate Certification Examination.....\$450.00

- Field Certification Examination.....\$300.00

- Retest - Final Per Examination\$50.00

Refund Policy

- Cancellation must be received no later than five (5) days prior to a scheduled examination to receive credit. Substitutions for paid registrations will be allowed with at least two (2) days notice.

- If an applicant does not attend an examination they have been scheduled for, and does not notify ATTI prior to five (5) days of a scheduled examination, the registration fee will not be credited. This action may be waived due to extenuating circumstances with the approval of the executive director.

- Applicants dropping out of an examination after the examination begins will not be reimbursed their registration fee.

- Applicants who are scheduled for a retest and fail to appear for the retest will be given an automatic failure for all test elements needing retesting. Applicants wishing to reschedule a retest date must notify ATTI prior to five (5) days of a scheduled retest. This action may be waived due to extenuating circumstances with the approval of the executive director.

INFORMATION

Applications, examination schedules, information requests, and questions regarding the Arizona Technical Testing Institute can be directed to the ATTI Executive Director:

Meghaen Duger
Arizona Technical Testing Institute
8050 N. 19th Ave. #419
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