



## Certification Policies for Concrete Field Testing Technician - Grade I

*Last revised by the Certification Programs Committee  
January 12, 2018*

The statements contained herein are approved policies and procedures. This revised policy statement supersedes all previous action of the ACI Board of Direction with respect to Concrete Field Testing Technician certification.

The certification program policies are organized into seven sections as follows:

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**SECTION 1.0 CERTIFICATION CRITERIA**

- 1.01 The American Concrete Institute (ACI) certification program for Concrete Field Testing Technician - Grade I shall require successful completion of both a written examination and a performance examination.
- 1.02 No specific education or work experiences are required as prerequisites for Concrete Field Testing Technician - Grade I certification.
- 1.03 ACI certification for Concrete Field Testing Technician - Grade I shall be valid for a period of five [5] years from the date of completion of all certification requirements.
- 1.04 Recertification requires the successful completion of both a written and performance examination according to Section 5 of this policy.
- 1.05 Groups desiring to conduct ACI Certification program(s) shall adhere to the current *Policy on Sponsoring Groups for Certification* (Annex 610.1-1).

**SECTION 2.0 DEFINITIONS**

- 2.01 Examinee - a person taking either the written or performance examination, or both.
- 2.02 Examiner - a person authorized by ACI to be in responsible charge of an examination session.
- 2.03 Performance Exam Checklist - a list of criteria used by the supplemental examiner to judge the compliance of the examinee with the provisions of the performance examination.
- 2.04 Proctor - a person authorized to assist the Examiner in conducting the written examination.
- 2.05 Supplemental Examiner - a person who assists the Examiner by administering the performance examination.

**SECTION 3.0 ACI RESPONSIBILITIES**

- 3.01 ACI shall assemble, maintain and distribute all examination materials.
- 3.02 ACI shall approve the local sponsoring group.
- 3.03 ACI shall authorize the local sponsoring group to conduct examination sessions for Concrete Field Testing Technician - Grade I certification.

- 3.04 ACI shall approve the examiner.
- 3.05 ACI shall grade the written examinations, review the performance examinations, and notify the examinee and the examiner of the final results in writing.
- 3.06 ACI shall certify examinees who meet the certification requirements.
- 3.07 ACI shall issue a certificate, wallet card, and hard hat decal to examinees who meet the certification requirements.

**SECTION 4.0 EXAMINER, SUPPLEMENTAL EXAMINER, AND PROCTOR CRITERIA AND RESPONSIBILITIES**

- 4.01 To maintain access to ACI examination materials, the examiner shall maintain approval from ACI and authorization from the Local Sponsoring Group.
- 4.02 Applicants must be selected by an approved Sponsoring Group and shall submit a current ACI Examiner Application to ACI through that same Sponsoring Group.
- 4.03 In order to be considered for examiner status, the applicant shall have assisted in the administration of at least two (2) ACI examination sessions (any program including written and performance components where applicable), performing to the satisfaction of the examiner of record, and:
  - A) Satisfy the following criteria:
    - 1. Be a registered professional engineer, or hold equivalent international credentials; and
    - 2. Have been certified as a Concrete Field Testing Technician – Grade I; and
    - 3. Have had at least two (2) years of verifiable experience in concrete construction, inspection or testing.

OR

  - B) Satisfy the following alternate criteria:
    - 1. Be certified as an ACI Concrete Field Testing Technician – Grade I at the time of application; and
    - 2. Have had at least five (5) years of verifiable experience in ACI certification administration, concrete construction, inspection or testing; and
    - 3. Have participated in at least four (4) ACI examination sessions as a proctor and/or supplemental examiner for this program. This is in addition to the administration assistance, as stated above, but is permitted to be completed concurrently.
- 4.04 The examiner shall be present at, and supervise, the examination session.

- 4.05 The examiner shall be directly responsible for the following activities:
- A) Select the supplemental examiners and proctors;
  - B) Verify the qualifications of the supplemental examiners and proctors according to the criteria outlined in Section 4.06 through 4.12 of this policy;
  - C) Order examinations;
  - D) Verify the identity of each examinee;
  - E) Assure that the examinees are aware of the certification criteria;
  - F) Verify that the examinees have signed the release statement on the performance examination prior to performing any test methods or procedures;
  - G) Verify the performance evaluations conducted by the supplemental examiners by co-signing the performance examination checklist report;
  - H) Enter the appropriate grade for the completed performance examination on the checklist report;
  - I) Assure that all examinees have an opportunity to perform each test method at least once and to take a second trial on any failed procedure of the performance examination;
  - J) Refrain from interpreting examination questions during the course of the written examination;
  - K) Assist, if requested, the examinee by providing definitions for general use words (i.e. “depict” = “shows”). Examiners shall not define terms specific to the ASTM Standards whose definitions are readily available through adequate study of the Standards.
- 4.06 Proctors may assist the examiner in conducting the written examination.
- 4.07 Proctors shall satisfy the following requirements:
- A) Be selected, and adjudged qualified by the examiner; and
  - B) Be considered trustworthy and conscientious.
- 4.08 Supplemental examiners shall assist the examiner by conducting the performance examination.
- 4.09 Supplemental examiners shall satisfy the following requirements:
- A) Have had experience in concrete testing;
  - B) Be selected and adjudged qualified by the examiner;
  - C) Be considered trustworthy and conscientious;
  - D) Be certified as an ACI Concrete Field Testing Technician - Grade I or be an ACI-approved examiner.
  - E) Be thoroughly familiar with current applicable ASTM Standards as appropriate
- 4.10 Examiners, supplemental examiners, examiners acting as supplemental examiners and proctors shall not conduct any portion of the examination for anyone with whom he/she is personally related.
- 4.11 Examiners, supplemental examiners, and examiners acting as supplemental examiners shall not examine anyone on the performance examination who is employed in the same organization. Governmental

organizations may petition ACI, in writing, and request a waiver of this requirement. Waivers shall be granted only if it can be shown that the intent of the policy will be maintained.

- 4.12 Supplemental examiners and examiners acting as supplemental examiners monitoring the performance examination for ASTM C 231 shall be qualified for whichever type meter he/she is monitoring.

## **SECTION 5.0 EXAMINATION CRITERIA**

- 5.01 The content of the written and performance examinations shall be derived directly from the *Job Task Analysis for ACI Concrete Field Testing Technician – Grade I Certification* (Annex 610.1-2).
- 5.02 Questions regarding general concrete technology shall not be included on either examination.
- 5.03 The examinations shall be conducted by the examiner, proctors, and supplemental examiners as applicable. [See Section 4.]
- 5.04 The examiners, proctors, supplemental examiners, and sponsoring groups have no jurisdiction over the content of either examination, or over the grading of the written examination.
- 5.05 Both the written and performance examinations are closed book. Notes or other technical material related to the subject matter shall not be permitted in the examination area. Non-programmable calculators shall be permitted.

### **WRITTEN EXAMINATION**

- 5.06 The written examination shall consist of approximately fifty-five [55] multiple choice questions, with five to ten [5-10] questions on each ASTM Standard.
- 5.07 One hour shall be permitted for completion of the written examination, after which the exam answer sheets must be collected. Additional time, up to one-half hour, with access to the exam question booklet will be allotted to the examinee to facilitate exam question challenges.
- 5.08 If an examinee is incapable of understanding the written examination, it may be administered orally upon approval of the Examiner.
- 5.09 Successful completion of the written examination shall require the examinee:
- A) Score sixty percent [60%] or higher on each individual ASTM Standard (i.e. five [5] correct out of eight [8] questions); AND

- B) Score a minimum of seventy percent [70%] for the overall examination (i.e., thirty-nine [39] correct out of a possible fifty-five [55]).

**PERFORMANCE EXAMINATION**

- 5.10 Successful completion of the performance examination shall require the examinee to satisfactorily perform each of the following ASTM Standard Test Methods: C172, C143, C138, C231, C173, C1064, and C31.
- 5.11 It shall be the sponsoring group's responsibility to provide equipment which conforms to the applicable ASTM Standards and that is in good working order. The examinee shall not be penalized as a result of faulty or incorrect equipment.
- 5.12 The examinee shall conduct the performance examination in the direct presence of the supplemental examiner or the examiner when acting as a supplemental examiner.
- 5.13 Supplemental examiners and examiners acting as supplemental examiners shall observe only one examinee conducting tests at a time while conducting the performance examination.
- 5.14 The procedures of ASTM C172 may be described verbally or performed at the local sponsoring group's discretion.
- 5.15 The examinee shall have the option of using either a Type A or Type B meter when performing method C 231 if a supplemental examiner qualified in the operation of a Type A meter is available (see Section 4.12).
- 5.16 For ASTM C31, the examinee shall fabricate a compression test specimen.
- 5.17 At the conclusion of performing each test method the examinee must record the results of the test.
- 5.18 The examinee's performance shall be evaluated based on the criteria of the performance examination checklist.
- 5.19 The supplemental examiner shall indicate pass or fail for each step on the checklist.
- 5.20 Grading for the performance examination shall be on a pass/fail basis only.
- 5.21 An examinee shall be permitted to suspend one trial and begin the procedure over again. A voluntary suspension of a trial shall not be counted as a failure of that trial.
- 5.22 The supplemental examiner shall not stop a trial at any point which an error is made.
- 5.23 Incorrect performance, or omission, of one or more of the steps of the performance checklist shall constitute failure of that trial.
- 5.24 An examinee shall be allowed a second trial for each standard test method if the first trial was not successfully completed.

- 5.25 The second trial of a particular test shall not be conducted immediately following the first trial.
- 5.26 The second trial shall be administered by a different supplemental examiner than the first trial if more than one supplemental examiner is available.
- 5.27 A second trial, or voluntary repeat of a trial, shall require performance of the entire test method from the beginning, not from the point the error was made.
- 5.28 Immediately following completion of each trial, the supplemental examiner shall inform the examinee of the results, either pass or fail.
- 5.29 When a failure of a trial has occurred the supplemental examiner shall inform the examinee of the particular step(s) performed incorrectly.
- 5.30 The examinee shall be permitted to leave the examining area between trials to consult notes or books.
- 5.31 Failure on any of the prescribed ASTM Standards after two [2] trials will constitute failure of that part of the performance examination.

#### SECTION 6.0 RE-EXAMINATION CRITERIA

- 6.01 Failure of the written examination by either of the criteria cited under Section 5.09 shall require a reexamination on the entire written examination.
- 6.02 Invalidation of the performance examination (for example non-conformance with Section 4.11) or **failure on one [1] or more** of the seven [7] required ASTM Standards shall require reexamination on the entire performance examination.
- 6.03 Reexamination on the written or the performance examination must be taken within one [1] year of the initial examination. Otherwise, both the written and the performance examinations must be retaken in their entireties.

#### SECTION 7.0 APPEALS CRITERIA

- 7.01 Appeals regarding the conduct of the exam should be made during the exam session and shall be directed to the examiner.
- 7.02 In the event that the examinee is not satisfied with the decision of the examiner regarding an appeal, the examinee may pursue an appeal with ACI according to the following order:
1. Sponsoring Group
  2. ACI Director of Certification
  3. The Certification Appeals Committee [consisting of the Director of Certification; the Certification Programs Committee Chairman, and the Chairman of Committee C 610.]
  4. Committee C 610, Field Testing Technician Certification
  5. Certification Programs Committee

- 7.03 Appeals submitted directly to ACI for consideration after the exam session must be received, in writing, within sixty [60] days of the receipt of the examination at ACI Headquarters.

## End of Policy Text





## ANNEX 610.1-1

# AMERICAN CONCRETE INSTITUTE

## Policy on Sponsoring Groups for Certification

Approved by the ACI Board of Direction  
March 21, 1991

Last revised by the ACI Certification Programs Committee  
October 18, 2011

In developing certification exams for the concrete construction industry, the American Concrete Institute (ACI) has set forth minimum criteria by which an individual's proficiency is to be judged. Typically, ACI is not in a position to deliver certification exams directly to participants; therefore, it is necessary for ACI to have the ability to delegate this authority. However, if the need arises, ACI reserves the right to conduct exam sessions itself according to each program Policy.

In order to allow others to deliver its certification exams, ACI has adopted the "Sponsoring Group" concept. Sponsoring Groups act as agents of ACI in the delivery of ACI certification exams. Therefore, prior to being selected as an ACI Sponsoring Group, and for the duration of the period in which the group is authorized to act as a Sponsoring Group, such groups are subject to the following policies:

1. Sponsoring Groups shall be approved, in writing, by ACI's Certification Department (hereafter referred to as ACI) before they will be permitted to conduct an ACI<sup>1</sup> certification exam session. In all cases, approval of Sponsoring Groups shall be at the sole discretion of ACI.
2. In reviewing applications, ACI will consider, among other factors, the following:
  - A) The ability and willingness of the applicant to include in their constituency segments of the concrete construction industry impacted by the exams which they have applied to conduct. This includes individuals involved in the specification, production, design, construction, testing and inspection of concrete and concrete products. The applicant must establish a governance structure with representation appropriate to all of the exams for which the applicant has applied.

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<sup>1</sup> For the purposes of this policy, references to "ACI certification" and "ACI certification program(s)" include only those administered solely by ACI (ACI programs). Programs with cosponsors are not directly addressed by this Policy.

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- B) The interest, experience and technical expertise necessary to conduct exam sessions exhibited by the applicant and/or their certification governance structure.
  - C) The legitimate need for the applicant to conduct a specific ACI certification exam within their approved operational jurisdiction.
  - D) The primary objective of the applicant in applying for sponsorship, which must coincide with ACI's overall mission of improving the quality of concrete construction within the political, social, and cultural dynamics of the intended operational jurisdiction.
3. Sponsoring Groups are required to maintain a governance structure to oversee the delivery of ACI exams. The governance structure shall consist of a committee of at least three (3) individuals, each working for a different employer and each producing a different product or service related to the concrete construction industry. At all times, at least one (1) member of the committee shall be a member of ACI. Further, ACI shall be furnished with a complete and accurate listing of contact information for all committee members including names, employers, type of businesses, physical addresses, email addresses, and both office telephone and cell phone numbers as available.
  4. The certification committee shall obtain the services of ACI-approved examiners. The examiners shall operate under the direct supervision of the certification committee to conduct ACI certification exam sessions. Examiners are permitted to conduct ACI certification exam sessions only under the auspices of ACI or ACI-approved Sponsoring Groups; and they must comply with all ACI certification policies and procedures.
  5. At the time of approval, ACI shall assign Sponsoring Groups specific geographical areas within which they will have authority to conduct ACI certification exam sessions. This area is the approved operational jurisdiction for the Sponsoring Group.
  6. ACI shall approve each Sponsoring Group on a calendar year basis for a period not to exceed two (2) years. Prior to the conclusion of this period, all groups shall reapply to ACI for approval to continue to act as an ACI Sponsoring Group.
  7. In the U.S., in areas where no Sponsoring Group is actively administering a specific ACI examination, the local ACI chapter (not a student chapter) shall have first rights to administer that specific exam. International sponsorship for any ACI examination will be assessed on a case-by-case basis.

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8. If an existing Sponsoring Group or ACI Chapter is solicited to administer an examination and participation is declined, or if a sponsor does not request an examination upon initial availability from ACI, or if a requested examination is not administered within two years following approval, administration of said examination may become available to other potential sponsors.
9. If more than one applicant wishes to sponsor an ACI certification exam in the same operational jurisdiction and there is documented need for more than one group to conduct the examination in that jurisdiction or portion thereof, a system of coordination between those groups shall be established. A description of this system shall be considered along with any new Sponsoring Group application and must be included in the governance system for any existing Sponsoring Group. In all cases, ACI reserves the right, in its sole discretion, to select a delivery system that in its judgment is best able to serve the interests of ACI.
10. Applicants wishing to sponsor ACI certification examinations on a "national" or "regional" basis will, in appropriate circumstances, be approved to conduct exams under specific conditions at the discretion of ACI.
11. Approved Sponsoring Groups are responsible for:
  - A) Maintaining control over the administration of ACI Certification exams offered within their operational jurisdiction. This includes, but is not limited to, maintaining control over the ethical and professional integrity of every sponsored examination session and providing ongoing oversight of exam session coordinators, examiners, and other exam delivery personnel.
  - B) Conducting a sufficient number of exam sessions and providing equitable access to those exam sessions for all individuals seeking ACI Certification within the group's operational jurisdiction.
  - C) Conducting all ACI exams in a manner which complies with the intent of ACI's policies and procedures governing certification.
  - D) Formulating, publishing, and enforcing consistent and equitable pricing for ACI Certification exams offered by the Sponsoring Group within their operational jurisdiction.
  - E) Developing and implementing participant registration processes that satisfy the policy requirements of each exam offered by the Sponsoring Group and verifying that each participant has met the eligibility requirements of the program before being allowed to complete an ACI exam.

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- F) Collecting exam fees from participants, paying materials invoices to ACI within 30 days of receipt, and distributing compensation to examiners and other program delivery personnel as warranted.
  - G) Developing a program delivery process that establishes separation between the education/training and testing divisions of the Sponsoring Group.
12. ACI has the right to revoke a Sponsoring Group's authority to conduct an ACI certification exam at any time, with or without cause, and with or without notice.
  13. Appeals resulting from the denial or revocation of Sponsoring Group status will be reviewed by ACI Staff for determination of appropriate action on a case-by-case basis.
  14. This policy shall become effective sixty (60) days after its approval by the ACI Certification Programs Committee, and shall render all previous Policy versions null and void. Sponsoring Groups shall be notified of this new policy in writing within thirty (30) days after it is approved by the ACI Certification Programs Committee.
  15. The Certification Programs Committee shall review, revise as necessary, and reapprove this Policy at intervals not exceeding two years in length.

## ANNEX 610.1-2

### Job Task Analysis (JTA) for ACI Concrete Field Testing Technician—Grade I Certification 5/7/15

#### HOW TO USE THIS JTA:

For each of the following assessment methods, the Candidate must:

##### On the written examination:

- **Understand** the following general concepts, which may not have specified values, procedures, or measurements; *and*
- **Know** the following specific procedures or values; performance of these items may also be assessed on the performance examination.

##### On the performance examination:

- **Perform**—or describe verbally, where allowed—the following tasks or steps, which are part of the specified procedure; knowledge of these items may also be assessed on the written examination.

#### RESOURCES:

ASTM C1064/C1064M—Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete

ASTM C172/C172M—Standard Practice for Sampling Freshly Mixed Concrete

ASTM C143/C143M—Standard Test Method for Slump of Hydraulic-Cement Concrete

ASTM C138/C138M—Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete

ASTM C231/C231M—Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

ASTM C173/C173M—Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method

ASTM C31/C31M—Standard Practice for Making and Curing Concrete Test Specimens in the Field

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#### **ASTM C1064/C1064M—Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete**

- Know the working requirements, including measurement range and accuracy, of the temperature measuring device (TMD)
- Know the calibration requirements of the TMD
- Know the allowance for measuring temperature of concrete in transportation equipment
- Know the requirements for measuring temperature of concrete in either the transporting equipment or the forms
- Know the sampling requirements when not measured in transporting equipment or forms
- Perform temperature measurement as specified
- Perform reporting of temperature to the required accuracy

#### **ASTM C172/C172M—Standard Practice for Sampling Freshly Mixed Concrete**

- Understand the scope and significance of use of practice
- Know and perform (or describe verbally) the time limit for sampling
- Know and perform (or describe verbally) the transportation and remixing requirements within maximum time limits
- Know and perform (or describe verbally) the time limits for starting tests for slump, temperature, air content, and molding specimens for strength tests
- Know and perform (or describe verbally) protection of sample
- Know and perform (or describe verbally) the requirements for sample sizes to be used for strength tests, air content, temperature, and slump
- Know and perform (or describe verbally) sampling procedures from stationary mixers, paving mixers, revolving drum truck mixers or agitators, and continuous mixers

## ANNEX 610.1-2

### Job Task Analysis (JTA) for ACI Concrete Field Testing Technician—Grade I Certification (Continued)

- Know and perform (or describe verbally) the procedure for removal of large maximum size aggregate
- Know the apparatus and procedure for wet-sieving

#### ASTM C143/C143M—Standard Test Method for Slump of Hydraulic-Cement Concrete

- Understand the significance of the test method
- Know the maximum aggregate size for the test method
- Know the applicability of test method for non-plastic concrete
- Know required equipment: sizes, shapes of mold, rod length and diameter, measuring device and scoop
- Know the requirements for obtaining a sample
- Perform the test procedure, including filling of the mold, consolidation, lifting, and measuring as specified
- Perform reporting of the slump to the required accuracy

#### ASTM C138/C138M—Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete

- Understand the scope of test method
- Know the requirements of the apparatus (balance, rod/vibrator, measure, strike-off plate, mallet, scoop) <sup>®</sup>
- Understand calibrated volume of the density (unit weight) measure
- Know the requirements for obtaining a sample
- Perform the test procedure, including tare weight, filling the measure, rodding/vibration, strike-off, cleaning, and weighing
- Know and perform the calculation and reporting of density (unit weight) to the specified accuracy
- Know how to calculate theoretical density
- Know how to calculate yield
- Know how to calculate relative yield
- Understand the influence of cement content on density (unit weight)
- Understand the relationship of air content and density (unit weight)

#### ASTM C231/C231M—Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

- Understand the scope and significance and use of test method
- Know the requirements for the proper working condition of the equipment
- Understand calibration recordkeeping and know how to verify that equipment has been calibrated as required
- Know the requirements for obtaining a sample
- Know and perform proper procedures for placement and consolidation of sample, including strike-off
- Know and perform preparation procedures and assembly of air meter for test
- Perform test procedure (using Type A or Type B meter), including proper sequence & use of water, petcocks, valves, pump, and gauge
- Perform reading of the pressure gauge
- Perform the release of pressure and disassembly of air meter
- Know and perform calculation of air content of sample tested
- Know and perform proper use of aggregate correction factor in calculating air content
- Perform reporting of air content to the required accuracy

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### Job Task Analysis (JTA) for ACI Concrete Field Testing Technician—Grade I Certification (Continued)

#### **ASTM C173/C173M—Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method**

- Understand the scope and significance and use of test method
- Know the requirements for the proper working condition of the equipment
- Understand calibration recordkeeping and know how to verify that equipment has been calibrated as required
- Know the requirements for obtaining a sample
- Know and perform proper procedures for placement and consolidation of sample, including strike-off
- Know and perform preparation procedures and assembly of air meter for test
- Know and perform initial addition of water and alcohol to the air meter
- Perform the process of inverting, shaking, and rolling the air meter to displace the volume of air in the concrete specimen
- Perform initial meter reading as specified, within allowable time & percentage limits
- Perform final meter reading as specified, within allowable time & percentage limits
- Perform the disassembly of air meter
- Know and perform examination of measuring bowl to verify a valid or invalid test
- Know and perform calculation of air content
- Perform reporting of air content to the required accuracy

#### **ASTM C31/C31M—Standard Practice for Making and Curing Concrete Test Specimens in the Field**

- Understand the scope of practice
- Know the allowable types and sizes of molds
- Know the sizes and proper use of equipment, including tamping rod, vibrator, mallet, and placement & finishing tools
- Know the testing requirements, including acceptable nominal maximum aggregate sizes
- Know the requirements for obtaining a sample
- Perform molding of cylindrical specimen, including placing, consolidation, and finishing
- Know the procedure for molding of beam specimens, including placing, consolidation, and finishing
- Know and perform the marking of specimens for identification
- Know and perform (or demonstrate verbally) the requirements for initial storage of specimens