



**Certification Policies
for
Concrete Strength Testing Technician**

*Last revised by the Certification Programs Committee
March 22, 2019*

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 Strength Testing Technician certification.

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

Section 1.0	Certification Criteria
Section 2.0	Examination Criteria
Section 3.0	Re-examination Criteria
Section 4.0	Appeals Criteria
Section 5.0	Sponsoring Group Criteria
Section 6.0	Examiner/Supplemental Examiner Criteria
Section 7.0	ACI Responsibilities
Section 8.0	Recertification Criteria

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SECTION 1.0 CERTIFICATION CRITERIA

- 1.1 The American Concrete Institute (ACI) certification program for Concrete Strength Testing Technician requires successful completion of a written examination and a performance examination. No certifications will be granted by ACI without successful completion of both examinations.
- 1.2 No specific education or work experience is required as a prerequisite for Concrete Strength Testing Technician certification.
- 1.3 ACI certification as a Concrete Strength Testing shall be valid for a period of five [5] years from the date all certification requirements are completed.
- 1.4 Certification is renewed by satisfying the recertification requirements.

SECTION 2.0 EXAMINATION CRITERIA

GENERAL REQUIREMENTS

- 2.1 The content of the written and performance examinations for certification as a Concrete Strength Testing Technician is derived from the *Job-Task Analysis for ACI Concrete Strength Testing Technician Certification* (Annex 620.2-1).

ACI will grant certification to examinees who successfully complete both the written and performance examinations within a one (1) year period.
- 2.2 There shall be no questions regarding general concrete technology on the written examination.
- 2.3 The examinations shall be conducted by the examiner, proctors, and/or supplemental examiners as applicable. [See Section 6.0]
- 2.4 The Examiners, Proctors, Supplemental Examiners, and/or Sponsoring Groups have no jurisdiction over the content of any examination or over the grading of the written examination.
- 2.5 All written and performance examinations are closed-book. Notes or other technical material will not be permitted in the examination area. Use of simple-function (*i.e.*, non-programmable) calculators will be permitted, but examinees will not be allowed to share calculators.

WRITTEN EXAMINATION

- 2.6 The written examination for certification as a Concrete Strength Testing Technician shall consist of approximately thirty-five to forty [35–40] multiple choice questions, with eight to ten [8–10] questions on each Test Method and/or Practice.
- 2.7 A maximum of one [1] hour shall be permitted for completion of the written examination.
- 2.8 Oral administration of the written examination is permitted, contingent upon prior approval in writing by the ACI Certification Department.
- 2.9 Successful completion of the written examination shall be considered as meeting both the following requirements:
- A) Score sixty percent [60%] or higher on each individual Test Method and/or Practice (*i.e.*, six [6] correct out of ten [10] questions); AND
 - B) Score a minimum of seventy percent [70%] for the overall examination (*i.e.*, twenty-eight [28] correct out of a possible forty [40]).

PERFORMANCE EXAMINATION

- 2.10 The performance examination for certification as a Concrete Strength Testing Technician requires the examinee to perform, in their entirety, each of the following Test Methods and Practices: ASTM C39/C39M, ASTM C78, ASTM C617 and ASTM C1231/C1231M.
- 2.11 The examinee shall conduct the performance examination in the direct presence of the examiner or supplemental examiner(s).
- 2.12 The examinee's performance shall be evaluated based on the criteria of the performance examination checklist.
- 2.13 Grading for the individual performance examinations shall be on a pass/fail basis only, with the examiner/supplemental examiner indicating a passing or failing score for each step of the checklist.
- 2.14 Incorrect performance, or omission of one or more of the steps of the performance checklist, shall constitute failure of that trial.
- 2.15 An examinee shall be allowed a second trial for each of the applicable Test Methods and/or Practices, on the same day of the examination, if the first trial was not successfully completed.

- 2.16 The second trial of a particular test shall not be conducted immediately following the first trial.
- 2.17 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.
- 2.18 The examiner/supplemental examiner shall not stop a trial when an error is made.
- 2.19 A second trial (or voluntary repeat of a trial) shall require performance of the entire Test Method or Practice from the beginning of the test, not from the point the error was made or the trial was suspended.
- 2.20 Immediately following completion of each trial, the examiner/supplemental examiner shall inform the examinee of the results, either pass or fail.
- 2.21 When a failure of a trial has occurred, the examiner/supplemental examiner shall inform the examinee of the particular step(s) performed incorrectly.
- 2.22 The examinee shall be permitted to leave the examining area between trials to consult notes or books.
- 2.23 It shall be the Sponsoring Group's responsibility to provide equipment that conforms to the applicable Test Methods and Practices and to ensure that the equipment is in proper working order. The examinee shall not be penalized as a result of faulty or incorrect equipment.
- 2.24 Failure on any of the prescribed Test Methods and/or Practices after two [2] trials will constitute failure of that part of the performance examination.

SECTION 3.0 RE-EXAMINATION CRITERIA

- 3.1 Failure of the written examination by either of the criteria cited under Section 2.9 shall require re-examination on the entire written examination.
- 3.2 Invalidation of the performance examination (e.g., non-conformance with Section 6.5) or failure on one [1] or more of the four [4] required Test Methods and Practices shall require re-examination on the entire performance examination.
- 3.3 Successful re-examination on the written or performance examination must be completed within one [1] year of the initial examination. Otherwise, both the written and the performance examinations must be retaken in their entireties.

SECTION 4.0 APPEALS CRITERIA

- 4.1 All appeals shall be directed initially to the examiner.
- 4.2 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 Chairman of the Certification Programs Committee, and the Chairman of Committee C 620]
 4. Committee C 620, Laboratory Technician Certification
 5. Certification Programs Committee
- 4.3 Appeals submitted to ACI for consideration must be received, in writing, within sixty [60] days of the receipt of the examination at ACI Headquarters.

SECTION 5.0 SPONSORING GROUP CRITERIA

- 5.1 Groups desiring to conduct ACI Certification program(s) shall adhere to the current *Policy on Sponsoring Groups for Certification* (Annex 620.2-2).

SECTION 6.0 EXAMINER / SUPPLEMENTAL EXAMINER CRITERIA

- 6.1 To maintain access to the ACI examination materials, the examiner shall maintain approval from ACI and authorization from the Sponsoring Group.
- 6.2 Applicants must be selected by an approved Sponsoring Group and shall submit a current ACI Examiner Application to ACI through that same Sponsoring Group.
- 6.3 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 an ACI Concrete Strength Testing Technician; 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 Strength Testing Technician 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 any ACI certification program. This is in addition to the administration assistance, as stated above, but is permitted to be completed concurrently.
- 6.4 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.
- 6.5 Examiners/supplemental examiners shall not examine anyone on the performance examination who is employed in the same organization. Governmental or other organizations may petition ACI, in writing, and request a waiver of this restriction. ACI may grant waivers, on a case-by-case basis, only if it can be shown that the intent of the policy will be maintained.
- 6.6 Supplemental examiners shall be permitted to assist in conducting the performance examination, and may be authorized to conduct the performance examination without the direct supervision of an Examiner with prior approval of ACI Committee C 620.
- 6.7 Supplemental examiners shall satisfy the following requirements:
- A) Have recent experience in concrete testing;
 - B) Be selected and adjudged qualified by the examiner or ACI Committee C 620;
 - C) Be considered trustworthy and conscientious.
- 6.8 Proctors shall be permitted to assist the examiner in conducting the written examination.
- 6.9 Proctors shall satisfy the following requirements:
- A) Be considered trustworthy and conscientious by the Examiner.
 - B) Be selected by the Examiner.
- 6.10 The examiner shall be directly responsible for the following activities:
- A) Select the supplemental examiners and proctors, except in cases where the supplemental examiners are approved in advance by ACI Committee C 620;
 - B) Verify the qualifications of the supplemental examiners and proctors according to the criteria outlined in Section 6.4 through 6.9 of this policy;
 - C) Order examinations;
 - D) Verify the identity of each examinee, and ensure that the examinees are aware of the certification criteria;
 - E) Verify that the examinees have signed the release statement on the written and performance examinations prior to testing;

- F) Verify that the performance evaluations were conducted by approved supplemental examiners, and co-sign the performance checklists where appropriate;
 - G) Enter the appropriate grade for the completed performance examination on the checklist report;
 - H) Ensure that all examinees have an opportunity to take a second trial on any failed procedure of the performance examination; and
 - I) Shall not define terms or interpret examination questions during the course of the written examination.
- 6.11 Examiners or supplemental examiners shall not observe more than one examinee conducting tests at any one time during the performance examination.
- 6.12 The examination sessions must be supervised constantly by the examiner, supplemental examiner(s) and/or proctor(s).

SECTION 7.0 ACI DUTIES AND RESPONSIBILITIES

- 7.1 ACI shall approve the Sponsoring Group.
- 7.2 ACI shall authorize the Sponsoring Group to conduct examining sessions for Concrete Strength Testing Technician certification.
- 7.3 ACI shall approve the examiner.
- 7.4 ACI shall grade the written examinations and review the performance examination, and notify the examinee, examiner and the Sponsoring Group of the final results in writing.
- 7.5 ACI shall authorize the issuance of certificates to examinees who have satisfied the certification requirements.
- 7.6 ACI shall certify the examinees who have satisfied the certification requirements.
- 7.7 ACI shall issue a certificate and identification card to successful examinees.
- 7.8 ACI shall keep all written exam scores confidential, unless authorized in writing by the examinee.

SECTION 8.0 RECERTIFICATION CRITERIA

- 8.1 Recertification as a Concrete Strength Testing Technician requires successful completion of the then current certification requirements outlined in Sections 1.0, 2.0 and 3.0 of this policy.

End of Policy Text

ANNEX 620.2-1

Job-Task Analysis (JTA) for ACI Concrete Strength Testing Technician Certification

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 C617/617M – Standard Practice for Capping Cylindrical Concrete Specimens

ASTM C1231/1231M – Standard Practice for Use of Unbonded Caps in Determination of Compressive Strength of Hardened Concrete Cylinders

ASTM C39/39M – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

ASTM C78/78M – Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)

ASTM C617/617M – Standard Practice for Capping Cylindrical Concrete Specimens

- Understand scope of practice
- Understand significance and use of practice
- Know dimensional requirements of capping plates
- Know criteria for sulfur melting pots
- Understand strength and thickness requirements of capping materials
- Understand requirements for qualification of high-strength gypsum plaster
- Understand requirements for qualification of sulfur mortar caps
- Know the procedures for capping freshly molded cylinders
- Know and perform the check of the end condition requirements for capping hardened concrete specimens
- Know and perform the procedures for capping hardened concrete specimens
- Know how to protect and store specimens after capping
- Understand safety issues related to melting pots
- Know and perform the procedure to check for planeness and hollow areas of caps, including the proper reporting of results
- Know and perform the procedure for thickness measurements of caps, including the proper reporting of results

ASTM C1231/1231M – Standard Practice for Use of Unbonded Caps in Determination of Compressive Strength of Hardened Concrete Cylinders

- Understand scope of practice
- Know compressive strength limits for the use of unbonded caps
- Understand significance and use of unbonded caps

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Job-Task Analysis (JTA) for ACI Concrete Strength Testing Technician Certification (Continued)

- Know dimensional, material, and hardness requirements of elastomeric pads
- Know dimensional, material, and planeness requirements of pad retainers
- Know requirements governing the use of elastomeric pads
- Know and perform the check of the end condition requirements for specimens tested with unbonded caps
- Know requirements for the use of unbonded caps in combination with other capping methods
- Know the dimensional requirements and pad use limits
- Know that the procedures for loading, testing, and reporting of results are to be completed according to Test Method C39/C39M
- Understand qualification of other elastomeric materials
- Understand qualification of pad reuse
- Understand methodology used to qualify the use of unbonded caps for various strength levels and to qualify the permitted number of pad reuses
- Understand the use of calculations used in qualification testing for computing the difference in strength for each pair of cylinders and computing the average strength of cylinders tested using unbonded caps and the reference capping system
- Know the minimum percentage of reference capping system strength that must be met to qualify unbonded caps for use

ASTM C39/39M – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

- Understand scope of test method
- Understand summary of test method
- Understand significance and use of test method
- Understand calibration requirements of testing machine
- Understand design requirements of testing machine
- Understand accuracy requirements of testing machine
- Understand general requirements for bearing blocks
- Understand requirements for bottom bearing blocks
- Understand requirements for upper spherically-seated blocks
- Understand requirements for load-indicating dials
- Understand requirements for digital load indicators
- Know requirements for allowable variance in cylinder diameter
- Know requirements for and perform check of perpendicularity and planeness of cylinder ends
- Know the requirements for determining daily average diameter
- Understand the requirements for determining density of test specimens
- Know the requirements for conducting length measurements
- Know the requirements for maintaining specimens in a moist condition until time of test
- Understand the permissible time tolerances for testing
- Know and perform the procedure for positioning and centering specimens in the machine
- Know and perform the procedures for zeroing the machine and aligning upper bearing block
- Know and perform the procedure for verification of alignment when using unbonded caps
- Know and perform the procedure for applying the test load at the proper rate
- Know and perform the procedures for applying the load to failure and identifying break type
- Know recording of the maximum load carried by the specimen and break type

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Job-Task Analysis (JTA) for ACI Concrete Strength Testing Technician Certification (Continued)

- Know the calculation of test results, including the proper reporting of compressive strength
- Know how to correct strength values for a given length-to-diameter ratio
- Know which information is to be included on reports

ASTM C78/78M – Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)

- Understand scope of test method
- Understand significance and use of test method
- Understand general requirements for testing machines
- Understand requirements for third-point loading apparatus
- Know requirements for dimensions, shape, and surface conditions of test specimens
- Understand technician qualification requirements
- Know requirements for testing moist-cured specimens
- Know and perform the procedure for positioning specimens on support blocks, including checking and correcting for gap widths at contact points
- Know how to calculate loading rate
- Know and perform the procedure for applying the test load at the proper rate
- Know and perform the procedure for measuring specimens for average width and depth after specimen fracture
- Know the calculation of modulus of rupture when fracture occurs in the middle third of the span length
- Know the calculation of modulus of rupture when fracture occurs outside the middle third of the span length
- Know the information to be included on reports
- Know the reporting of modulus of rupture with proper precision

ANNEX 620.2-2

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 ACI¹ 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.

¹ 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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Policy on Sponsoring Groups for Certification

- 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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Policy on Sponsoring Groups for Certification

- 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.