



Certification Policies for Adhesive Anchor Installer

*Revised by the Certification Programs Committee
January 29, 2016*

*Editorially Revised by ACI Certification Staff
July 13, 2017*

The statements contained herein are a consolidation of approved policies and procedures. This policy statement supersedes all previous action of the ACI Board of Direction with respect to Adhesive Anchor Installer 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
- 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 Adhesive Anchor Installer (AAI) shall require successful completion of both a closed-book written examination and a two-part performance examination, all to be passed within a one-year period.
- 1.2 ACI requires applicants for the AAI certification examination to meet the following eligibility criteria:
1. Be of age adequate for legal employment as a concrete anchor installer.
 2. Be able to read and communicate in English.
 3. Be able to perform all physical tasks associated with installing adhesive concrete anchors, including but not limited to operating a drill, assembling and using adhesive injection apparatus, and the ability to reach overhead.
- 1.3 There are no work experience or education prerequisites for Adhesive Anchor Installer certification, though ACI recognizes the value of proper preparation for the examinations and strongly encourages participant attendance in training, review, and practice sessions when they are offered.
- 1.4 ACI certification for Adhesive Anchor Installer shall be valid for a period of 5 years from the date of certification.
- 1.5 Certification may be 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 an ACI Adhesive Anchor Installer is derived from the information contained in the *Job Task Analysis for ACI Adhesive Anchor Installer Certification* (Annex 680.1-1).
- 2.2 The written examination is closed-book; participants will be provided with reference material in the performance exam as needed. The following items are NOT PERMITTED in the exam room:
- Dictionaries or other reference materials
 - Papers of any kind, except as provided by the proctor
 - Telephones, signaling devices such as pagers or cell phone
 - Alarms or recording/playback devices
 - Photographic or image copying devices
 - Electronic devices of any kind

- Food or beverages
- 2.3 The examinations shall be conducted by the examiner, proctors, and/or supplemental examiners as applicable (See Section 6).
- 2.4 The examiners, proctors, supplemental examiners, and/or sponsoring groups have no jurisdiction over the content of examination materials, or over the grading of the written examination.

WRITTEN EXAMINATION

- 2.5 The examinee will be required to pass a closed-book written examination covering knowledge and procedural issues related to installation of adhesive concrete anchors as addressed in the reference materials.
- 2.6 The entire written examination will consist of approximately 75 questions. The questions will be multiple-choice.
- 2.7 A maximum of 90 minutes shall be permitted for completion of the examination. The examiner may allow additional time for an oral examination.
- 2.8 Oral administration of the written exam shall be permitted in special cases when conducted in accordance with ACI guidelines.
- 2.9 Passing scores for each exam form are based on the combined difficulty of all scored questions determined through statistical analysis.

PERFORMANCE EXAMINATION

- 2.10 The performance examination has a two-part structure:
- A. Part 1 tests the examinee's ability to read, comprehend, and execute a set of Manufacturer Printed Installation Instructions (MPII) in the process of installing an adhesive concrete anchor in a vertical-down orientation.

- B. Part 2 tests the examinee's ability to inject adhesive into simulated drill holes in concrete (clear polycarbonate tubes*) overhead in a vertical-up orientation with no or an acceptable amount of air voids with the use of a rigid or flexible nozzle end and a retaining cap, and separately with the use of a flexible nozzle end and a piston plug or similar device.
- C. This program requires that the sponsoring group offer both systems in each session.

2.11 Part 1

- A. Anchor kits will be selected at random by the Examiner, provided to the examinee, and may be any one of the adhesive concrete anchor systems qualified under AC308 or ACI 355.4-10 which have been incorporated into the ACI Adhesive Concrete Anchor Installer certification program.
- B. A complete set of tools and materials and the Generic MPII will be provided by the Examiner along with the anchor kit. Some tools and materials may be inappropriate for installation of the anchor provided; examinees must select and properly use the correct tools and materials according to the kit, the examiner-provided installation information (i.e., anchor type, diameter, length, and installation depth), and the Generic MPII for completion of this Part.
- C. The examinee may be asked specific questions during the performance exam that are designed to assure the examinee possesses specific knowledge critical to proper installation of adhesive concrete anchors. This knowledge may also be covered on the written exam.

2.12 Part 2

- A. The Generic MPII will be provided by the Examiner to the examinee that covers both methods of overhead injection currently represented in concrete anchor systems qualified under AC308 or ACI 355.4-10: one with use of a piston plug and one with the use of a retaining cap. Appropriate injection equipment and adhesive cartridges will be provided by the Sponsoring Group/Examiner.
- B. The examinee is instructed to inject adhesive into simulated drill holes in concrete (clear polycarbonate tubes* with an end-cap) in an apparatus that suspends the tubes and holds them fast in an overhead position shielded from direct view of the examinee except for the bottom opening (approved Sponsoring Groups are provided with schematic of a suitable apparatus). The examinee shall be offered two tubes, one for a piston plug system and suitable adhesive, and one for a retaining cap and suitable adhesive.

*Note: *Adhesives generate heat when curing; polycarbonate tubes have demonstrated the ability to withstand the level of heat generated by the adhesive without deforming. SGs/Examiners must use the materials prescribed by these policies and supplemental supporting instructions and may make no substitutions without prior written consent of ACI.*

- C. Following cure[†], the tubes are cut longitudinally or length wise and the injections evaluated and graded according to a rubric developed by the C680 committee. The rubric is provided to Sponsoring Groups approved to offer the AAI program.

Note: [†]Adhesives generate heat when curing; all personnel on site must exercise care and use appropriate personal protection when working with or around this material to avoid injury.

- 2.13 Examinees must satisfactorily perform both the down installation and at least one of the overhead installations to be eligible for certification.
- 2.14 If the examinee passes the written exam, the down installation, and the Piston Plug overhead system, their certification will reflect that they are certified in the Piston Plug system only.
- 2.15 If the examinee passes the written exam, the down installation, and the Retaining Cap overhead system, their certification will reflect that they are certified in the Retaining Cap system only. ®
- 2.16 If the examinee passes the written exam, the down installation, and both overhead systems, their certification will reflect that they are certified in both systems.
- 2.17 All work shall be done in the direct presence of the examiner or supplemental examiner(s).

SECTION 3.0 REEXAMINATION CRITERIA

- 3.1 Failure of the written examination by the criteria cited in Section 2.9 shall require reexamination on the entire written examination
- 3.2 Failure of either Part (1 or 2) of the performance examination as described in 2.10 shall require reexamination on only that Part of the performance examination.
- 3.3 Reexamination of a performance examination on the same day as original examination will only be permitted at the examiner's option and on a time-and-materials-available basis, subject to processing all other scheduled examinees. Examinees are allowed only one reexamination on Part 1 and one reexamination on Part 2 of the **Performance Examination** on the same day.

In the event of equipment malfunction during injection of a tube, the examinee is permitted to restart injection of a new tube with properly-working equipment; the suspended examination will not be counted as an examination in the event the examinee needs to retest after injecting with properly working equipment.

- 3.4 Reexamination on the written or the performance examination (Full or either Part) must be passed within one year of the initial examination. Otherwise, both the entire written and the performance examination (both Parts) must be retaken.

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 Managing Director of Certification
 3. The Certification Appeals Committee (consisting of the ACI Managing Director of Certification and the Chairman of Committee C680)
 4. Committee C680, Adhesive Anchor Installer 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

Groups desiring to conduct ACI Certification program(s) shall adhere to the current *Policy on Sponsoring Groups for Certification* (Annex 680.1-2).

SECTION 6.0 EXAMINER/SUPPLEMENTAL EXAMINER CRITERIA

- 6.1 The examiner shall be approved by ACI. Applicants must submit their qualifications on an ACI application form.
- 6.2 In order to be considered for approval as an examiner, the applicant must be knowledgeable about the application and installation of adhesive anchors. The applicant must:
- A) Be currently certified as an ACI Adhesive Anchor Installer; AND
 - B) Pass the written exam for this program with a score of 90% or more, AND
 - C) Assist in the administration of at least one (1) ACI-sanctioned examination session (including evaluation of tube cross-sections), performing to the satisfaction of the examiner of record, OR

- D) Participate in an ACI Adhesive Anchor Installer Certification Program Administration orientation program, performing to the satisfaction of the program facilitator.
- 6.3 Examiners are responsible for the overall administration of the certification exam session, and its adherence to the program's administrative policies. The examiner must be present and in full supervision during the examination sessions.
- 6.4 Proctors are assigned by Examiner to assist in administration of the written exam, if offered. There are no experience requirements for proctors; examiners must select individuals who they believe are trustworthy and conscientious.
- 6.5 Supplemental examiners shall have experience in installing adhesive concrete anchors; certification in this program will be deemed adequate experience to assist in administration of the performance exam. In the absence of certification, the Examiner must verify the Supplemental Examiner's ability to properly install an adhesive anchor through either industry experience (i.e., employment as an installer or as a manufacturer technical or training representative, etc.), or by demonstration. Manufacturers or suppliers of adhesive anchoring systems may participate as Supplemental Examiners, assisting in the evaluation of the vertical-down portion (Part I) of the performance exam only. Supplemental examiners for the overhead installation portions (Part 2) of the performance exam cannot be affiliated with manufacturers or suppliers of adhesive anchoring systems.
- 6.6 Supplemental examiners are assigned to assist in administration of the performance exam.
- 6.7 Examiners, supplemental examiners, and proctors shall not be professionally or personally related to the examinees.
- 6.8 Examiners and supplemental examiners shall not examine anyone on the performance examination who is employed by their same employer.
- 6.9 Examiners or supplemental examiners shall not observe more than one examinee conducting tests at any one time during the performance examination.
- 6.10 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 6.3 through 6.9.
 - C) Order and receive examinations, or coordinate these activities with an SG representative.
 - D) Verify the identity of each examinee, and assure that the examinees are aware of the certification criteria.
 - E) Verify that the examinees have signed the release statement on the examinations prior to testing.
 - F) Verify that materials and equipment are suitable for the program.

- G) Verify that the apparatus used to suspend the overhead injection tubes conforms to the requirements of 2.12B and the ACI-provided schematic.
- H) Verify that the performance exams were conducted by examiners or by approved supplemental examiners, review and co-sign the performance checklists where appropriate.
- I) Direct cross-sectioning of the injected tubes.
- J) Visually examine and grade injected tubes using supplied visual grading aids (rubric). Photograph all tube sections ensuring photos contain a method of identifying the tube sections with the examinee who performed the injection.
- K) Collect and summarize all test data (complete and sign the Performance Checklist and Checklist Report for each examinee) and collate with written examinations.
- L) Forward all test data to ACI Headquarters, Certification Department.
- M) Conduct detailed interviews of examiner applicants assisting in administering sessions, evaluating their abilities in administering examinations, and forwarding the results of their evaluation to ACI Headquarters.

SECTION 7.0 DUTIES AND RESPONSIBILITIES

- 7.1 ACI shall approve the sponsoring group.
- 7.2 ACI shall approve the examiner.
- 7.3 ACI may suspend or revoked Examiner Approval at any time.
- 7.4 ACI shall authorize the sponsoring group to conduct examination sessions for Adhesive Anchor Installer Certification.
- 7.5 ACI shall grade the written examinations and review the results of the performance examination/evaluations, and notify the examinee and examiner of the final results in writing.
- 7.6 ACI shall certify the examinees who have satisfied the certification requirements.
- 7.7 ACI shall issue program credentials to successful examinees.
- 7.8 ACI shall facilitate processing of appeals.

SECTION 8.0 RECERTIFICATION

- 8.1 Recertification shall be required on a five (5)-year basis, from the time the examinee successfully passes **BOTH** the written and performance portions of the examination, and is notified as such by ACI.

- 8.2 Recertification shall require successful completion of both the written and performance examinations.
- 8.3 ACI reserves the right to update the written examination at any time. This right shall extend to the convening of a subject-matter expert meeting to formulate new examination questions.
- 8.4 ACI reserves the right to update the performance examination at any time, based on new installation methods, new technologies, or improved examination techniques.

End of Policy Text



ANNEX 680.1-1

Job-Task Analysis (JTA) for ACI Adhesive Anchor Installer Certification 2/2/17

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:

ACI Adhesive Anchor Installer Workbook, CP-80

Preparing for Installation – Chapter 2

- Verify that adhesive is suitable for the intended application (dry, water-filled, submerged, overhead)
- Review manufacturer's printed installation instructions (MPII)
- Review material safety data sheet (MSDS)
- Select appropriate personal protective equipment (PPE)
- Verify concrete temperature falls within range for selected product
- Evaluate concrete condition, age, cracks, expansion joints, thickness, etc. (Chapter 4)
- Verify and layout anchor locations according to specifications

Drilling Anchor Holes – Chapter 3

- W** Adjust equipment components according to specifications
- W** Take appropriate action if drilling hits reinforcing steel or other obstructions
- P** Drill hole perpendicular to concrete
- W & P** Determine proper depth, diameter, and rod size for hole according to specifications
- W & P** Select appropriate drilling machine and bits as per manufacturer specifications
- W & P** Verify that hole depth and diameter meet pre-determined specifications

Cleaning Anchor Holes – Chapter 4

- W** Determine appropriate cleaning method per manufacturer instructions
- W** Remove water-concrete particle slurries
- P** Visually inspect debris coming from hole during drilling
- W & P** Select appropriate equipment to clean holes
- W & P** Remove debris from drill hole using appropriate cleaning method

Injecting Adhesive Using Cartridge Systems – Chapter 5

- W** Determine appropriate adhesive working (gel) time
- W & P** Verify adhesive expiration date
- W & P** Identify cartridge storage temperature requirements
- W & P** Verify that proper nozzle is selected with complete mixing element
- W & P** Assemble adhesive cartridge and nozzle per MPII
- W & P** Confirm that hole is clean prior to injecting adhesive
- W & P** Insert adhesive assembly into dispenser
- W & P** Select equipment suitable for installation location (horizontal to overhead)
- W & P** Discard initial adhesive and confirm proper mixing

ANNEX 680.1-1

Job-Task Analysis (JTA) for ACI Adhesive Anchor Installer Certification

- W & P** Inject adhesive per MP11 (rate, application, method, avoid air entrapment)
- W & P** Determine minimum depth of adhesive fill

Installing Anchors – Chapter 6

- W** Identify most appropriate installation technique per MP11
- W** Select the anchor appropriate for the adhesive system in use
- W** Take corrective action if air pockets are noted during installation
- W** Ensure that anchor remains undisturbed until adhesive is fully cured
- W & P** Inspect anchor element for contaminants and clean if needed
- W & P** Inspect anchor element for damage and replace if needed
- W & P** Insert anchor element into borehole per MP11
- W & P** Verify accurate final embedment depth based on length of protruding anchor element
- W & P** Verify that adhesive fills hole uniformly around the anchor, approximately flush with surface

Installing Adhesive Capsule Systems – Chapter 7

- Verify adhesive expiration date
- Identify capsule storage temperature requirements
- Confirm that material has not solidified inside capsule
- Confirm that hole is clean prior to capsule insertion
- Insert capsule into hole per the MP11

ANNEX 680.1-2

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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Policy on Sponsoring Groups for Certification

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.