



# Certification

## American Concrete Institute

### **Certification Policies for Adhesive Anchor Installer**

*Adopted by the Certification Programs Committee  
May 13, 2011*

*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. Certification Criteria
- Section 2. Examination Criteria
- Section 3. Re-examination Criteria
- Section 4. Appeals
- Section 5. Sponsoring Group Criteria
- Section 6. Examiner/Supplemental Examiner Criteria
- Section 7. ACI Responsibilities
- Section 8. Recertification Criteria

#### Revisions

No. 1 – May 2015

No. 2 – January 2016

No. 3 – July 2017

## 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/CRSI recognize 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 following documents related to adhesive concrete anchors qualified under ICC-ES Acceptance Criteria AC308 or ACI Standard 355.4-10.

- **Manufacturer Printed Installation Instructions**
- **Material Safety Data Sheets**
- **Manufacturer Technical Data**

In addition, excerpts from ACI 355.4-10 are referenced.

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- 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.

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- 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 (**Annex I** contains a description 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.*

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- C. Following cure<sup>†</sup>, 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 each sponsoring group that offers the AAI program (**Annex II**).
- 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.

*Note: <sup>†</sup> 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.*

- 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/CRSI 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
- 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 this ACI Certification program shall adhere to the current policy on Sponsoring Groups for ACI Certification.

#### **SECTION 6.0 EXAMINER/SUPPLEMENTAL EXAMINER CRITERIA**

- 6.1 The examiner shall be approved by ACI. Applicants must submit their qualifications on an ACI/CRSI 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

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- 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.

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- 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 Annex I.
- 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 ACI 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.



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- 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.

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