



## Certification Policies for Adhesive Anchor Installation Inspector

*Last revised by the ACI Certification Programs Committee  
October 1, 2017*

The statements contained herein are a consolidation of approved policies and procedures. This policy statement supersedes all previous action of the ACI Certification Programs Committee with respect to Adhesive Anchor Installation Inspector 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 Criteria               |
| Section 7.0 | ACI Duties and Responsibilities |
| Section 8.0 | Recertification                 |

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**SECTION 1.0 CERTIFICATION CRITERIA**

- 1.1 The American Concrete Institute (ACI) certification program for Adhesive Anchor Installation Inspector shall require successful completion of a two-part written examination and attendance at an Adhesive Anchor Installer hands-on practice session as conducted by an ACI Sponsoring Group.
- 1.2 ACI requires applicants for the Adhesive Anchor Installation Inspector certification examination to meet the following eligibility criteria:
1. Be of age adequate for legal employment as a special inspector.
  2. Be able to read and communicate in English.\*
  3. Be familiar with 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.

*\* This eligibility requirement reflects the language availability of the inspection-related resource materials referenced by this program at the time these Policies were adopted. Additional languages may be added as resource and exam materials in those languages become available.*

- 1.3 Candidates who possess current ACI-CRSI Adhesive Anchor Installer certification are exempt from attending the hands-on practice session; however, those examinees must still take the Part I—Installation as well as Part II—Inspection written exams.
- 1.4 ACI certification for Adhesive Anchor Installation Inspector 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 examinations for certification as an ACI Adhesive Anchor Installation Inspector is derived from the information listed in *the Job-Task Analysis (JTA) for Adhesive Anchor Installation Inspector Certification* (Annex 681.1-1).
- 2.2 The written examinations are closed-book (Part I—Installation) and open-book (Part II—Inspection); only the referenced materials listed in the Inspection Section of Annex 681.1-1 will be permitted in the exam room during the Part II—Inspection exam.
- 2.3 The examinations shall be conducted by the examiner, and/or proctors, as applicable (See Section 6).
- 2.4 The examiners, proctors, and/or sponsoring groups have no jurisdiction over the content of examination materials, or over the grading of the written examination.

- 2.5 Both examinations and attendance/participation at an Adhesive Anchor Installer hands-on practice session are to be passed and completed, respectively, within a one-year period.

### **WRITTEN EXAMINATIONS**

#### **Part I—Installation**

- 2.6 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 material; Adhesive Anchor Installer (CP-80). This exam will consist of approximately 45 questions for which the examinee will be allowed 45 minutes to complete.

#### **Part II—Inspection**

- 2.7 The examinee will be required to pass an open-book written examination covering knowledge and procedural issues related to **inspection** of and installation of adhesive concrete anchors as addressed in the reference materials listed in the Inspection Section of Annex 681.1-1. This exam will consist of approximately 55 questions for which the examinee will be allowed 75 minutes to complete.
- 2.8 The entire written examination will consist of approximately 100 questions. The questions will be multiple-choice.
- 2.9 Verbal administration of the written exam may be permitted in special cases when conducted in accordance with ACI guidelines.
- 2.10 Passing scores for each exam are based on the combined difficulty of all scored questions determined through statistical analysis. The Part I—Installation exam requires a minimum score of 74% and the Part II—Inspection exam requires a minimum score of 70%.

### **INSTALLATION PRACTICE SESSION**

- 2.11 While this program policy does not require the examinee to demonstrate proficiency as an adhesive anchor installer, it is **required** that the examinee attend an Adhesive Anchor Installer hands-on practice session at which both Piston Plug and Retaining Cap systems are used and demonstrated. These sessions are offered by ACI sponsoring groups that currently offer the Adhesive Anchor Installer (AAI) certification program. Attendance at one of these sessions shall be documented by an ACI Sponsoring Group representative.

### **SECTION 3.0 REEXAMINATION CRITERIA**

- 3.1 Failure of either Part I—Installation or Part II—Inspection of the written examination by the criteria cited in Section 2.10 shall require reexamination on that part failed.
- 3.2 Both parts of the written examination must be passed within one year of each other; otherwise, 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 C681)
  4. Committee C681, Adhesive Anchor Installation Inspector 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 681.1-2).

#### SECTION 6.0 EXAMINER CRITERIA

The examiner shall be approved by ACI. Applicants must submit their qualifications on an ACI application form via their sponsoring group.

- 6.2 To be approved as an examiner, the applicant must be an approved Examiner for the ACI Adhesive Anchor Installer certification program, or:
- A) Be a registered professional engineer,
- AND**
- B) Have at least two years of experience in inspection and or testing of anchors,
- AND**
- C) Assist in the administration of at least one (1) ACI Adhesive Anchor Installer examination session (including evaluation of tube cross-sections), performing to the satisfaction of the examiner of record.

- 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 the Examiner to assist in administration of the written exam, if offered. There are no experience requirements for proctors; examiners must select individuals whom they believe are trustworthy and conscientious.
- 6.5 Examiners and proctors shall not be professionally or personally related to the examinees.
- 6.6 The examiner shall be directly responsible for the following activities:
- A) Selection of the proctors, when needed.
  - B) Verify the qualifications of the proctors per the criteria outlined in Section 6.4 and 6.5.
  - C) Order and receive examinations, or coordinate these activities with a Sponsoring Group<sup>®</sup> representative.
  - 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 examinations prior to testing.
  - F) Verify that materials and equipment are suitable for the program.
  - G) Collect and summarize all forms (complete and sign the practice session verification form for each examinee) and collate with written examinations.
  - H) Forward all certification materials to ACI Certification.
  - I) Evaluate examiner applicants assisting in administering sessions, assessing their abilities in administering examinations, and forwarding the results of their evaluation to ACI Certification.

## **SECTION 7.0 DUTIES AND RESPONSIBILITIES**

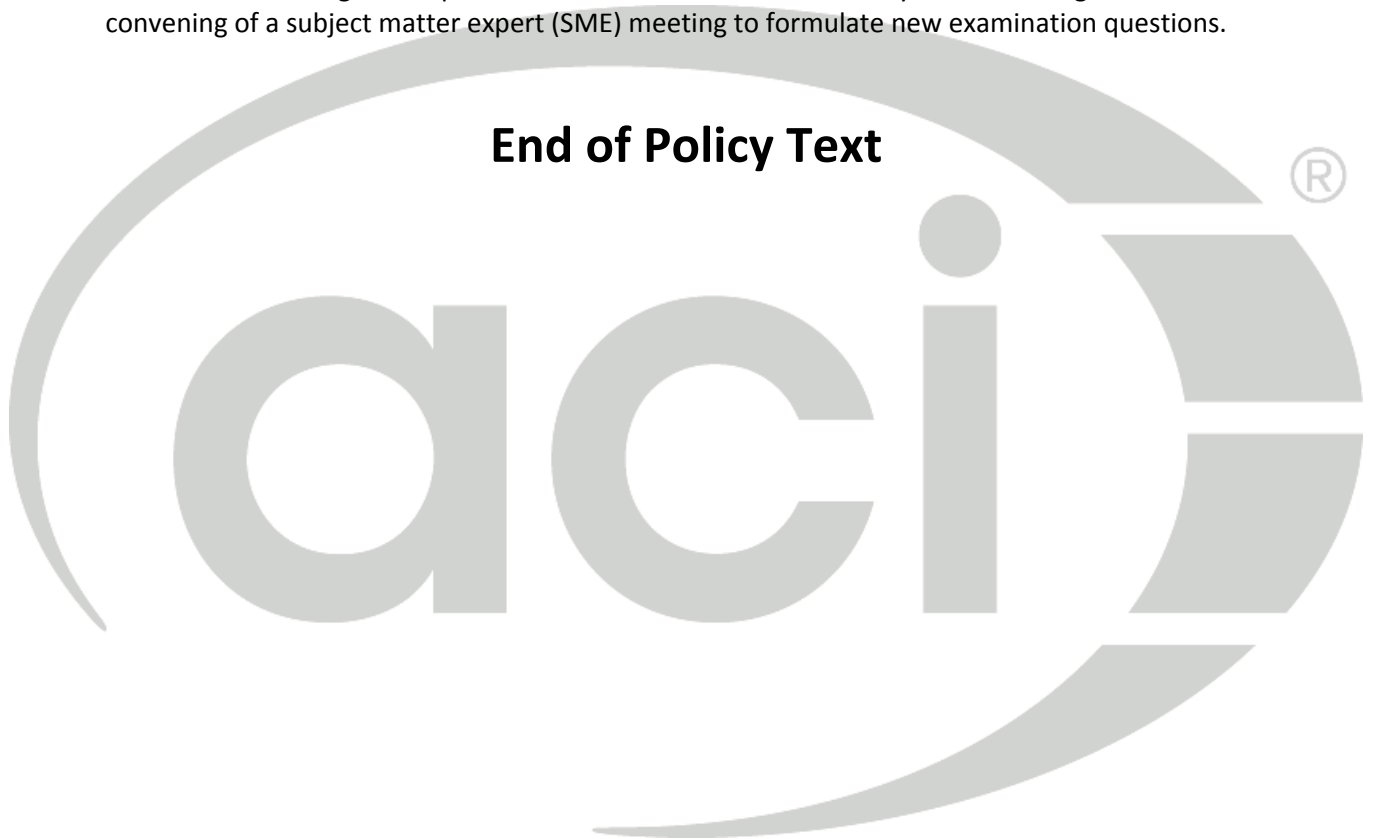
- 7.1 ACI shall approve the Sponsoring Group.
- 7.2 ACI shall approve the Examiner.
- 7.3 ACI may suspend or revoke Examiner approval at any time.
- 7.4 ACI shall authorize the sponsoring group to conduct examination sessions for Adhesive Anchor Installation Inspector Certification.
- 7.5 ACI shall grade the written examinations and review the documentation of participation in an AAI hands-on practice session, and notify the examinee and examiner of the final results.

- 7.6 ACI shall certify the examinees who have satisfied the certification requirements.
- 7.7 ACI shall issue appropriate credentials to successful examinees.
- 7.8 ACI shall facilitate processing of appeals.

**SECTION 8.0 RECERTIFICATION**

- 8.1 Recertification shall require successful completion of both parts of the written examination.
- 8.2 ACI reserves the right to update the written examination at any time. This right shall extend to the convening of a subject matter expert (SME) meeting to formulate new examination questions.

**End of Policy Text**



## ANNEX 681.1-1

### Job-Task Analysis (JTA) for Adhesive Anchor Installation Inspector Certification 6/2/17

#### **Assessment Methods:**

Written examinations—general (understand concepts) or working (know specific facts) knowledge

#### **RESOURCES:**

ACI Adhesive Anchor Installer Workbook CP-80

ACI 318-14 Building Code Requirements for Structural Concrete, *Chapter 17 Anchoring to Concrete and Chapter 26 Construction Documents and Inspection*

ACI 355.4 Qualification of Post-Installed Adhesive Anchors in Concrete, *Chapters 1–3 and 10–13*

CAMA Special Inspection Guidelines for Post-Installed Anchors

Concrete International Adhesive Anchor Installation and Inspection

Concrete International Inspecting Adhesive Anchors

ICC 2015 International Building Code, *Chapter 17 Special Inspections and Tests*

ICC-ES Evaluation Report – Powers 1000+

## **INSTALLATION**

### ACI Adhesive Anchor Installer Workbook, CP-80

**Items listed in this INSTALLATION section reflect the responsibilities of Installers—it is the Inspector's duty to know the Installer's responsibilities so that the Inspector may accurately and completely perform inspection duties as assigned.**

#### **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**

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

#### **Cleaning Anchor Holes – Chapter 4**

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

## ANNEX 681.1-1

### Job-Task Analysis (JTA) for ACI Certification of Adhesive Anchor Installation Inspector (Continued)

#### Injecting Adhesive Using Cartridge Systems – Chapter 5

- Verify adhesive expiration date
- Identify cartridge storage temperature requirements
- Verify that proper nozzle is selected with complete mixing element
- Assemble adhesive cartridge and nozzle per MPII
- Confirm that hole is clean prior to injecting adhesive
- Insert adhesive assembly into dispenser
- Select equipment suitable for installation location (horizontal to overhead)
- Discard initial adhesive and confirm proper mixing
- Inject adhesive per MPII (rate, application, method, avoid air entrapment)
- Determine minimum depth of adhesive fill
- Determine appropriate adhesive working (gel) time

#### Installing Anchors – Chapter 6

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

#### 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 MPII

## INSPECTION

#### **CAMA Special Inspection Guidelines; CI Adhesive Anchor Installation and Inspection; CI Inspecting Adhesive Anchors**

- Understand special inspector's role on the jobsite
- Understand items of importance when inspecting adhesive anchors prior to, during, and following installation
- Know warning signs of potential deviation from construction documents and MPII

#### **ACI 318-14 Building Code Requirements for Structural Concrete, Chapter 17 Anchoring to Concrete**

- Understand inspection requirements for adhesive anchors as derived from ACI 318
- Know minimum age requirement of concrete relative to using adhesive anchors
- Know adhesive anchor systems installed horizontally or upwardly inclined must meet requirements of 355.4
- Know qualification requirements for installers



## ANNEX 681.1-1

### Job-Task Analysis (JTA) for ACI Certification of Adhesive Anchor Installation Inspector (Continued)

- Know specifics related to proof loading of adhesive anchors: triggers for proof loading requirement, objective of proof loading, how proof loading of adhesive anchors is conducted, minimum requirements for definition of a proof loading program
- Know minimum installer certification and inspection intensity requirement for adhesive anchors installed horizontally or upwardly inclined and resisting sustained tension loads
- Understand location and manner in which the requirements of ACI 355.4 are referenced in ACI 318

#### ACI 318-14 Building Code Requirements for Structural Concrete, Chapter 26 Construction Documents and Inspection & 2015 IBC, Chapter 17 Special Inspections and Test

- Understand basis for special inspection in the IBC
- Know when periodic or continuous special inspection is required
- Understand when anchors require continuous special inspection
- Know the three sources for adhesive anchor inspection requirements
- Know special inspector qualifications
- Know who retains the services of the special inspector
- Understand employment of approved agencies for special inspection
- Know about access to work for purposes of special inspection
- Statement of special inspections – preparation, content
- Understand potential conflict of interest situations for special inspectors
- Know and understand minimum reporting requirements
- Understand the relevant references to ACI 318 in the IBC

#### ACI 355.4 Qualification of Post-Installed Adhesive Anchors in Concrete, Chapters 1–3 and 13

- Understand the significance of the standard
- Understand the scope of the standard
- Know notations and definitions – *the following 8 specific notations selected:*

$c_{ac}$ Critical edge	$d_o$ Diameter of drilled hole	$S_{min}$ Min. anchor spacing
$c_{min}$ Minimum edge	$h_{ef}$ Effective embedment depth	$T_{inst}$ Specified tightening torque
$d_a$ Outside dia. of post-installed anchor	$h_{min}$ Min. member thickness	
- Know definitions of terms specific to AAI – *the following 13 specific definitions selected:*

Adhesive anchor system	Capsule anchor system	MPII
Anchor	Cartridge systems	Saturated concrete
Anchor category	Cure time	Shelf life
Anchor installation	Dry concrete	
Bulk adhesives	Gel time	
- Know and understand the variables and options for qualification
- Understand definition of special inspection
- Know who specifies inspection procedures for each type of anchor system and where to find this information
- Understand definition of continuous special inspection
- Know the seven minimum items to verify
- Understand definition of periodic special inspection
- Understand what proof loading is
- Understand the contents of a proof loading program
- Know the minimum and maximum load levels
- Know the minimum amount of time the proof load is applied

## ANNEX 681.1-1

### Job-Task Analysis (JTA) for ACI Certification of Adhesive Anchor Installation Inspector (Continued)

#### ICC-ES Evaluation Report

- Verification of the applicability of the evaluation report to the adhesive anchor system being installed
- Verification the evaluation report has not expired or been replaced
- Know how to identify the product and equipment necessary for the installation
- Understand the scope, significance, and information in the report
- Understand general information about the product
- Understand parameters of installation of product
- Know when periodic and continuous inspection are required
- Understand conditions of use
- Know installation procedures per MPII
- Know limitations related to concrete, temperature, and product
- Understand handling and storage of the product
- Know types of anchors allowed
- Know information related to spacing, edge distance, and member thickness
- Understand embedment requirements
- Understand limitations on anchor types
- Know product requirements for periodic and special inspection
- Understand product specific allowable installation directions
- Understand content and importance of manufacturers printed installation instructions

## ANNEX 681.1-2

# 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 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.

## ANNEX 681.1-2

### 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.

## ANNEX 681.1-2

### 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.

## ANNEX 681.1-2

### 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.