

American Institute of Constructors
Constructor Certification Commission

Candidate Handbook for the Associate
Constructor Examination



American Institute of Constructors
Constructor Certification Commission
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INTRODUCTION

The American Institute of Constructors (AIC) Constructor Certification Commission (“Commission”) certification process gives you a formal international recognition of the education and experience that defines you as a professional equal to those of other professionals in the construction industry such as architects and engineers. The Commission knows you are committed to serving the construction industry in a professional and ethical manner, and can help you develop and improve your skills and knowledge to meet increasing challenges in our discipline through an internationally recognized certification process. Unlike licensing, certification is a voluntary, non-governmental process acknowledging the acquisition of education and experience-based proficiencies of a practicing construction professional – the Constructor.

The certification process is based on meeting designated educational and/or experiential qualifications to sit for one or both comprehensive examinations – Level I Associate Constructor (AC) examination and Level II Certified Professional Constructor (CPC) examination. The AC Examination is administered twice a year, in the spring and fall, at over 60 sites throughout the United States.

The Constructor Certification Commission understands the importance of impartiality and potential conflicts of interests in carrying out its certification activities. The Commission guards against impartiality by closely following its Operating Procedures (Commission Document No. 1) and its Policies and Procedures. Furthermore, the Commission effectively manages conflicts of interest and objectivity by training systems put in place and detailed within Commission Policy 5.9. These systems ensure that the Commission operates in an independent and impartial manner.

GUIDE TO FILLING OUT THE APPLICATION

All sections of the application are required, except for the section specifically marked as optional. The Commission will not process incomplete applications. Applications are accepted online at www.professionalconstructor.org. Payment is required at the time of application. Candidates who fail to qualify for the examination will have their registration fee refunded.

Part 1 – Candidate Information

Please provide your current mailing address and contact information. This address will be used to mail your examination scores. The email provided will be the AIC’s main method of contact; please provide one that will be current and active between now and the time scores are released approximately 1 month after the examination.

Part 2 – Examination Information

Please select your preferred examination location. We will make every effort to accommodate your preferred examination location. Please note that in some cases you may be moved to another examination site. If you require special testing accommodations, please indicate so on the application. Please provide a brief statement on the accommodations you require and email a copy of documentation from a medical professional describing your needs. The AIC will make efforts to accommodate special accommodations pursuant to ADA Policies and Procedures.

Part 3 – Work History Information

If you are qualifying for the examination using Qualifying Experience, please complete this section of the application. This section may be completed instead of the Construction Verification Form. Each section of this page should be for one block of Qualifying Experience. You may need multiple blocks of experience per company if your role changed within the company that included a different type of experience. The AIC reserves the right to audit your submission by contacting listed supervisors to verify your information.

Part 4 – Experience and Education Information

Please indicate the number of work years for each section of Qualifying Experience. One year of work should be considered 2,000 hours worked in a single year. Indicate the education you have received as well. AIC may ask for documentation to substantiate your education as well.

Part 5 – Optional Information

This section is optional. This information is only reviewed in aggregate to comply with equal opportunity reporting requirements.

APPLY ONLINE

Go to <http://www.professionalconstructor.org> and click Get Certified on the top right of the page. You can download a Handbook and click on the application to fill it in online or print out an application and mail it in.

APPLICATIONS AND QUESTIONS

To request additional Handbooks and applications or for any questions, please contact the Constructor Certification office at:

AIC Constructor Certification Commission
19 Mantua Road
Mt. Royal, NJ 08061
703.683.4999
info@ProfessionalConstructor.org

BENEFITS OF CERTIFICATION

Certification benefits all parties involved in the construction industry, since it raises the standards of professional practice.

Benefits to the Constructor

- Internationally recognized certification of construction management skills and knowledge.
- Analysis of individual strengths and weaknesses.
- Enhances the Constructor image as a professional to your employer, clients, and the public.
- Provides a marketable credential that sets you apart.

Benefits to the Employer

- Independent assessment of an employee's skills and knowledge.
- Improves marketability to clients.
- Assurance that employees will continue to hone their skills, through the required Continuing Professional Development program.

Benefits to the Owner

- Assurance that their projects will be managed more effectively.
- Qualification as a means to pre-qualify contractors.
- Knowledge that their contractor management team will maintain the highest degree of professionalism.

ELIGIBILITY REQUIREMENTS

To apply for the examination, all applicants must:

1. Agree to abide by the AIC Constructor Code of Conduct.
(Review the Constructor Code of Conduct in this Handbook before you proceed. By applying for the examination, you agree to uphold these principles.)
2. Meet the minimum requirements to sit for the examination.
(Review the eligibility requirements later in this Handbook for more details.)
3. Complete and file an application.
(Apply online at <http://www.professionalconstructor.org>. Fill out all required sections and include all educational and/or experiential documentation.)
4. Pay all required fees.
(Review the fee schedule later in this Handbook, and include full payment with your online application.)

LEVEL I – ASSOCIATE CONSTRUCTOR (AC) ELIGIBILITY

To take the AC (Level I) examination, you must have met at least one of the following requirements by the time you apply:

4 years of Qualifying Experience, Qualifying Education, or some combination of the two. Please see below for definitions of qualifying experience and education.

- Or -

Be within 12 months of graduating from a 4-year construction management bachelor's degree program. Please note that you may sit for the examination before you graduate, but you will not be certified until you receive your degree.

QUALIFYING EDUCATION – DEFINITION

"Qualifying Education" is formal education (such as at an accredited University or other full-time learning) that counts toward your qualification requirements to sit for the examinations.

The AC does not have a minimum educational requirement, so you may take the examinations even if you have no academic degrees. But, if you do not have any Qualifying Education then you must make up the difference with Qualifying Experience.

Years of Qualifying Education are counted as follows:

- 2 Years – Graduate degree in a construction or management program, such as MS, MBA, PhD, etc. (Note that the Bachelor’s Degree that preceded the graduate degree counts for additional years of qualifying education)
- 4 Years – Bachelor of Science degree from an accredited construction program, such as Construction Management
- 3 Years - Bachelor of Science degree from an accredited construction-related program, such as Architecture or Civil Engineering
- 2 Years – Any other 4-year degree
- 2 Years - Associate degree from an accredited program with a concentration in construction
- 1 Year – Associate degree not related to construction
- No Credit – High School and Vocational Schools

Graduating seniors: Level I (AC) applicants who are within 12 months of graduating from an accredited 4-year construction management bachelor’s degree program may apply as if they had 4 years of Qualifying Education.

Such applicants may take and pass the examination, but will not be certified until the 4-year degree is complete, or until they earn at least 1 year of Qualifying Experience.

QUALIFYING EXPERIENCE – DEFINITION

“Qualifying Experience” is work experience in construction management and related fields that counts toward your qualification requirements to sit for the examination. Generally speaking, one year of work in construction management counts for one year of Qualifying Experience.

If you are applying for the AC examination with less than 4 years of Qualifying Education, then you must make up the difference with Qualifying Experience.

How Years of Work Are Counted

One year of work is defined as at least 2,000 hours of work in a single 12-month span. If you worked more than 2,000 hours in a single year, this still counts as only one year.

However, if you worked less than 2,000 hours in a single year, you may combine hours from two or more years to meet the definition of “a year of work.”

Amount of Qualifying Experience per Year of Work

All work related to construction counts toward qualifying for the examination. However, work other than construction management may count for less Qualifying Experience than construction management work.

Executive, Supervisory, and Project Management Work

Full Credit: 1 qualifying year per 1 year of work

Direct and/or executive level supervision of any of the following areas: estimating, quality control, project engineering, scheduling, project management, operations management, operations executive, and/or project management (excluding accounting, marketing, and other support areas not in the direct line of the construction process).

Technical Work

Partial Credit: 3/4 qualifying year per 1 year of work

Construction related work such as estimating, quality control, scheduling, architecture and/or project engineering.

Administrative

Partial Credit: 3/4 qualifying year per 1 year of work

Management level work in areas supporting the construction process, including purchasing, finance, safety, and/or marketing.

Teaching/Research

Partial Credit: 3/4 qualifying year per 1 year of work

Teaching construction coursework at a post-secondary institution or conducting construction research within a governmental agency or university setting. Conducting peer-reviewed academic research related to construction.

Supervision of Specialty Trades

Partial Credit: 3/4 qualifying year per 1 year of work

Direct, first-line management of craft persons, including foremen, general foremen, and craft superintendents.

TESTING LOCATIONS

The examination will be given in the locations listed on www.ProfessionalConstructor.org. Indicate your choice of center on your Application in the space provided.

Please visit <http://www.ProfessionalConstructor.org> for the most up-to- date listing of test sites.

SPECIAL NEEDS AND REQUESTS

The Commission will make special testing arrangements for candidates who qualify for and request them.

If you have a special need (such as a documented disability, mandatory military service, or religious restrictions related to Saturday testing, etc.), you must do the following.

1. Check the appropriate box under the Qualifying Examination Information on page 1 of the application.
2. Include written assessment by a qualified professional that describes your limitations and how they restrict your access to the examination. Qualified professionals include disability services departments at universities, clergy that are qualified to determine religious restrictions, or other professions as appropriate to the circumstances.
3. Include a letter with your application that describes the nature of your need, and the specific accommodations that you are requesting. You can send the letter to info@ProfessionalConstructor.org.

Applications that include special needs must be submitted at least 30 days prior to the application deadline. The Commission unfortunately cannot accommodate special needs that are submitted after the deadline.

EXAMINATION FEES

1st Time Examinations

The following fees apply only to the first time you sit for a particular examination. All first-time applicants receive a study guide for the LI examination.

Level I (AC) Application Fee: \$165.00

Late Applications

Applications received after the specified Late Fee Effective Date for the respective examination will be subject to a **\$25** late fee.

Re-Examination and Rescheduling Fees

If you need to reschedule your examination, please contact the Commission at least 30 days before the examination. A rescheduling fee will apply to any rescheduling requests received less than 30 days before the examination. Certain types of reschedule requests are never charged a fee. Please see the Rescheduling and Refunds section of this Handbook for details

Rescheduling Fee (less than 30 days from examination): \$110.00

You may retake the examination as many times as you need until you pass. Only your final, passing score will be counted for certification. The fees for retesting are different from the fees for 1st-time applicants.

Re-Examination Fee: \$110.00

Payment Methods

All examinations must be paid in full by the examination date. Payment can be made by check, money order, or credit card. Credit cards accepted include Visa, MasterCard, and American Express. If you are applying as part of a university class, please check with your professor regarding discounts your university may have obtained for students. University students receiving a partial discount from the university will be responsible for the remaining fee at the time of registration.

Please make checks payable to: **AIC CONSTRUCTOR CERTIFICATION COMMISSION**

RESCHEDULING AND REFUNDS

If you are not able to sit for the examination on the date and location that you chose, you must notify the Commission in writing as soon as possible.

You may reschedule or cancel your examination for any reason, provided you let the Commission know at least 30 days prior to the application.

All cancellation and rescheduling requests must be in writing. Written requests may be emailed to info@ProfessionalConstructor.org or mailed to:

AIC Constructor Certification Commission
19 Mantua Road
Mt. Royal, NJ 08061

Cancellations

If you would like to cancel the examination and receive a refund, you may do so. A refund of your application fee (less administrative costs: \$45) will be issued if requested in writing at least 30 days before your examination.

Candidates who do not notify the Commission at least 30 days prior to the examination will NOT be given a refund under any circumstances.

Rescheduling

If you are unable to take the examination on your scheduled examination date, but would like to take the examination again in the future, you may do so. Your application will be transferred to the examination date of your choice at no cost, provided you make a request in writing at least 30 days before your examination.

Candidates who do not notify the Commission at least 30 days prior to the examination must pay a rescheduling fee to change their examination date.

Emergencies and Exceptions

In certain circumstances, you may reschedule or cancel your examination at no charge. In most cases, only medical emergencies and national service (such as military deployment) qualify for no-fee rescheduling.

REEXAMINATION

You may retake the examination as many times as you need until you pass. Only your final, passing score will be counted for certification. The fees for retesting are different from the fees for 1st-time applicants.

To retake the examination, check the appropriate box under the Qualifying Examinations Information on part 1 of the application.

If it has been less than two years since you last took the examination, you only need to include pages 1 and 2 of the application along with your examination fee. You do not need to include information about Qualifying Experience and Qualifying Education when you retake the examination.

SCHEDULE FOR THE DAY OF THE EXAMINATION

Testing centers generally follow the same schedule:

| | | |
|------------|---|--|
| 7:00 A.M. | - | Report to testing center for check-in |
| 7:45 A.M. | - | Morning Session Examination Instructions |
| 8:00 A.M. | - | Morning Session Examination begins |
| 12:00 P.M. | - | Morning Session Examination ends |
| 12:45 P.M. | - | Afternoon Session Examination Instructions |
| 1:00 P.M. | - | Afternoon Session Examination begins |
| 5:00 P.M. | - | Afternoon Session Examination ends |

All candidates should report to their assigned centers by the time indicated on the admission notice mailed to them.

If you arrive late, you may be admitted to the examination at the discretion of the examiner. But, even if the examiner allows you to begin the Examination late you will NOT be permitted to write beyond the time scheduled for completion of the examination. Please be sure to arrive on time for the examination.

RULES FOR THE EXAMINATION

You may not ask questions about the content of the Examination during the testing period.

Be sure to listen carefully to the instructions given by the examiner at the beginning of each section, and carefully read the directions in the test booklet.

If you have questions about the structure or examination procedures, you must ask them before the section begins.

You must bring all of the following items with you to the examination:

- You must bring several sharpened Number 2 pencils with erasers.
- You must bring your photo ID.
- You must bring your admission notice. You will receive your admission notice about 2-3 weeks before the examination. If you need a replacement admission notice, please contact the Commission at info@ProfessionalConstructor.org or 703.683.4999 for a replacement.
- You must bring any type of trigonometric calculator. Any handheld battery or solar operated calculators are permitted, provided they do not have alpha keyboards, printing capabilities, or programming functions.

The following items are permitted, but optional:

- You may bring communications devices such as cellular phones and pagers, but they must be turned off for the entire examination. You may not use your cell phone or other communications device as a calculator, even if it has calculator functions.

The following items are prohibited. You may not bring any of these materials into the examination:

- You may not bring books, notes, formula sheets, or other reference materials.
- You may not bring test materials, documents, or memoranda of any sort.

ADMISSION PROCESS

When you submit your application, the Commission will send you an email confirming that your application has been processed. This email does not confirm that you are eligible for the examination, only that your application was received and was complete.

Within one month of the examination, you will receive another notice letting you know whether or not you are eligible to sit for the examination.

If ineligible: Your application and payment will be returned to you with an explanation of why you are not eligible. If you applied for the examination early enough, you may be able to correct any problems in time to take the examination.

If eligible: You will receive communication from the Commission congratulating you on your acceptance. You will receive final confirmation of your examination site and an admission notice within two weeks of the examination. Your admission notice will show the location of the examination room.

Changes in assignments to testing centers **cannot** be made later than 30 days before the examination date.

WHO ADMINISTERS THE EXAMINATION PROCESS?

The Examination Process is administered for the Constructor Certification Commission by the American Institute of Constructors.

WHEN YOU WILL GET YOUR RESULTS

You will receive an email to the address you provided when you registered with your examination results within 4 - 6 weeks of taking the examination. The Commission does not give test scores by email. Your score reports will detail your performance on the major areas of the examination, and whether you passed the examination.

If you pass the examination, you will also receive details on how to complete the certification process. If you do not pass the examination, you will receive details on how to retake the examination in the future, and a summary of the appeals process if you disagree with the score.

APEALS

You may appeal any adverse decision made by the Commission, such as being denied permission to take the examination, or being denied a passing score on the examination. All appeals are reviewed by an independent appeals panel.

A small appeal fee applies to all appeal requests, but this fee is refunded if the appeal is decided in your favor.

Please visit www.professionalconstructor.org or contact the Commission at 703.683.4999 for forms and details on the appeal process.

CONFIDENTIALITY

The Commission will never release your test scores or pass/fail status without your written permission.

If you are taking the examination as part of a university program that requires your score, you must fill out the "Score Release" form on your answer sheet on the day of the examination. The Commission will not release your score to your school if you do not sign this form.

CONTENT OVERVIEW – LEVEL I (AC) EXAMINATION

The Level I - Associate Constructor Certification Examination is a two-part written examination with a total testing time of 8 hours. All questions are multiple-choice, objective questions.

The number of questions may vary from year to year but will never be more than 300 questions.

The Level I (AC) Examination is weighted by subject category in terms of the percent of the total number of questions as follows:

| | |
|---|-----|
| I. COMMUNICATION SKILLS | 13% |
| II. ENGINEERING CONCEPTS..... | 5% |
| III. MANAGEMENT CONCEPTS | 12% |
| IV. MATERIALS, METHODS, AND PROJECT MODELING AND VISUALIZATION..... | 10% |
| V. BIDDING AND ESTIMATING | 12% |
| VI. BUDGETING, COSTS, AND COST CONTROL..... | 12% |
| VII. PLANNING, SCHEDULING, AND SCHEDULE CONTROL | 12% |
| VIII. CONSTRUCTION SAFETY | 7% |
| IX. CONSTRUCTION GEOMATICS..... | 2% |
| X. PROJECT ADMINISTRATION | 15% |

CONTENT OUTLINE – LEVEL I (AC) EXAMINATION

The following is a breakdown of the major subject categories:

- I. COMMUNICATION
 - A. Technical Reading
 - B. Technical Writing

- II. ENGINEERING CONCEPTS
 - A. Engineering Material Properties
 - 1. Aggregate
 - 2. Concrete
 - 3. Masonry
 - 4. Steel
 - 5. Wood
 - B. Soil Mechanics
 - 1. Soil Composition, Types, and Properties
 - 2. Soil Investigation Testing Methods and Soil Borings
 - 3. Types of Foundations
 - 4. Field Soil Identification Methods
 - 5. Volume Changes and Compaction Methods
 - C. Mechanics and Strength of Materials
 - 1. Formwork Design
 - 2. Beam Loads
 - D. Air and Fluid Mechanics
 - 1. Psychometrics
 - 2. Hydrology
 - E. Electricity

III. MANAGEMENT CONCEPTS

- A. Contract Forms
 - 1. Elements of a Contract
 - 2. Lump Sum
 - 3. Unit Price
 - 4. Design Build
 - 5. Cost Plus
 - 6. Construction Management
- B. Business Entities
 - 1. Sole Proprietors
 - 2. Partnerships and Joint Ventures
 - 3. Corporations and LLC
- C. Accounting and Financial Ratios
 - 1. Accounting Principles
 - 2. Financial Reports and Ratios
- D. Management Systems
 - 1. Project Controls
 - 2. Technology
 - 3. Current Concepts
- E. Business Ethics
 - 1. Constructor Code of Conduct
 - 2. Bidding, Purchasing, and Professional Practice

IV. MATERIALS, METHODS, AND PROJECT MODELING AND VISUALIZATION

- A. Construction Equipment
 - 1. Piling Equipment
 - 2. Sheet Piling, Cofferdams, Tie-Backs
 - 3. Excavation Equipment
 - 4. Compaction Equipment
 - 5. Cranes and Lifting Equipment
- B. Reading Drawings and Schedules
 - 1. Site work
 - 2. Concrete and Forms
 - 3. Rebar
 - 4. Structural Steel
 - 5. Carpentry
 - 6. Exterior Finishes
 - 7. Doors and Windows
 - 8. Interior Finishes
 - 9. Mechanical Systems, Processes, and Equipment
 - 10. Electrical Systems, Controls, and Communications

V. BIDDING AND ESTIMATING

- A. Bidding Process
 - 1. Bid Documents
 - 2. Scales
 - 3. Types of Specifications

4. Laws, Regulations, and Codes
 5. Site Evaluation and Walk-Thru
 6. Insurance and Bonds
 7. Value Engineering and Life Cycle Costing
 8. Temporary Site Layout
- B. Estimates
1. Conceptual
 2. Total Future Costs
 3. Material Components
 4. Equipment Productivity
- C. Quantity Takeoff
1. Excavation
 2. Forms, Rebar, Concrete
 3. Rough Carpentry
 4. Interior Finishes

VI. BUDGETING, COSTS, AND COST CONTROL

- A. Budgeting
1. Work Breakdown Structure
- B. Cost Control
1. Productivity Rates, Earned Work hours
 2. Unit Costs
 3. Forecasts at Completion
- C. Finalize Costs
1. Retain age
 2. Back Charges
 3. Payments

VII. PLANNING, SCHEDULING, AND CONTROL

- A. Logical Sequences of Design, Procurement, and Construction
1. Multi Crew, Phase Durations, Activity Durations, and Effective Durations
- B. Event Times, Calculations, and Scheduling Terminology
1. Lead-time, Forward Pass, Backward Pass
 2. Total Float, Free Float, ES, EF, LS, LF, Critical Path(s), Completion Time
 3. Cost and Resource Loaded
- C. Schedule Analysis
1. Crashing and Impact

VIII. CONSTRUCTION SAFETY

- A. OSHA Administrative
1. EMR
 2. General Duty Clause
 3. Site Procedures, MSDS
 4. Competent Person and Due Diligence
- B. Standard Safety Procedures
1. Handrails
 2. Ladders
 3. Fire Extinguishers

4. Excavation Setbacks, Travel Distances
5. Recordkeeping and Employee Posters
- C. Safety Procedures Interpretation
 1. Sloped and Shored Excavations
 2. Scaffolding
 3. Personal Protection
 4. Electrical Protection

IX. CONSTRUCTION GEOMATICS

- A. Equipment
 1. Tapes, Plumb Bobs, Level Laser, Batter Boards
- B. Topography Map
 1. Contours
- C. Calculations
 1. Horizontal Distances
 2. Vertical Controls and Elevations

X. PROJECT ADMINISTRATION

- A. Procurement of Resources
 1. Subcontractors
 2. Materials
 3. Equipment
- B. Duties/Responsibilities
 1. Construction Management and Engineering Job Descriptions
 2. Organizational Chart
 3. Design, Procurement, and Construction Team
 4. Craft Trade Descriptions
- C. Job Site Mobilization
 1. Site Layout Considerations
 2. Shop Drawings, Product Data Submittal, and Review Process
 3. Contract Clauses, Changes, Claims, Dispute Methods
 4. Quality Control, Inspection, and Government Regulations
- D. Job Site Administration
 1. Human Resources
 2. Project Documentation
- E. Project Closeout
 1. Punch Lists, Substantial Completion, Occupancy
 2. Documentation Turnover
 3. Final Payment/Completion
- F. Environmental Controls
 1. Sustainability
 2. Storm Water
 3. Hazardous Materials

SAMPLE QUESTIONS FOR THE LEVEL I (AC) EXAMINATION

1. Which of the following documents will help the owner or owner's representative in assembling a list of responsible builders for bidding on a project?
 - A. Addenda
 - B. Pre-qualification Data
 - C. Request for Proposals
 - D. Pre-bid Meeting Minutes

2. Which of the following activities should be considered for compressing a project schedule?
 - A. Critical
 - B. Least cost
 - C. Long duration
 - D. Maximum float

3. If the thickness of reinforced concrete slab is 5", what is the MAXIMUM size aggregate to be used?
 - A. $\frac{1}{2}$ "
 - B. $\frac{3}{4}$ "
 - C. 1"
 - D. $1\frac{1}{2}$ "

Answers to sample questions: 1.B, 2.A, 3.C

REFERENCES FOR THE LEVEL I (AC) EXAMINATION

References for the Level I examination can be found on the AICCCC website:

<http://www.professionalconstructor.org/default.asp?page=ExamReferences>

CONSTRUCTOR CODE OF CONDUCT

All examination applicants and certified constructors agree to uphold the following basic principles of professionalism and ethics.

- I. A Constructor shall maintain full regard to the public interest in fulfilling his or her professional responsibilities to the construction industry.
- II. A Constructor shall not engage in any deceptive practice or any practice that creates an unfair advantage for the Constructor or another.
- III. A Constructor shall not maliciously or recklessly injure or attempt to injure the professional reputation of others.
- IV. A Constructor shall insure that when providing a service that includes advice, such advice shall be fair and unbiased.
- V. A Constructor shall not divulge to any person, firm or company, information of a confidential nature acquired during the course of professional activities.
- VI. A Constructor shall carry out responsibilities in accordance with current professional practice.
- VII. A Constructor shall keep informed of new concepts and developments in the construction process relative to his or her responsibilities.