NCARB

Architect Registration Examination®

Guidelines



NCARB

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This document, effective October 1, 2026, applies to the 5.0 version of the Architect Registration Examination® delivered with PSI.

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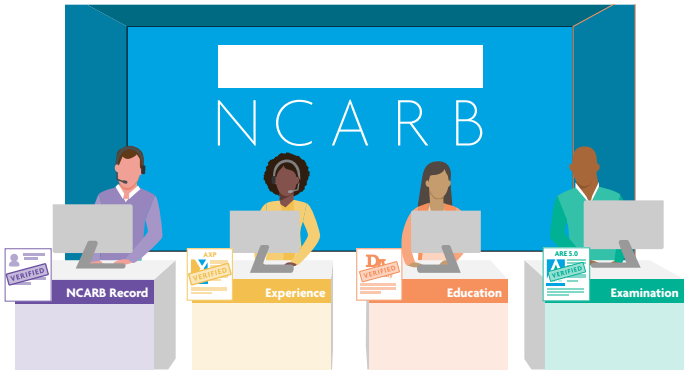
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INTRODUCTION

About NCARB

The National Council of Architectural Registration Boards' (NCARB) membership is made up of the architectural licensing boards of the 50 states, the District of Columbia, Guam, the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands. NCARB, in collaboration with these boards, facilitates the licensure and credentialing of architects to protect the health, safety, and welfare of the public.

While each jurisdiction is responsible for regulating the practice of architecture within its borders, NCARB works with its Member Boards and volunteers to develop and facilitate national standards for licensure, including the national examination and experience program. NCARB also recommends regulatory guidelines for licensing boards and helps architects expand their professional reach through the NCARB Certificate.



NCARB's Role

NCARB's services span the many phases of your career, from student to practicing architect. Whether you're navigating the Architectural Experience Program® (AXP®), completing the Architect Registration Examination® (ARE®), or earning your NCARB Certificate, NCARB is here to help.

Through your NCARB Record, NCARB will securely store all the documentation of your professional history needed to earn a license, so that it is ready to be sent to the jurisdiction of your choice.

In addition to our national programs, NCARB also assists its members and customers with initiatives related to:

- Future-focused research
- Data sharing
- Promoting awareness of the path to licensure
- Advocating for reasonable regulation of the architecture profession
- Developing tools and resources to aid the work of licensing boards

You can learn more about NCARB's goals and objectives by reading our Strategic Plan.

NCARB MISSION

NCARB, in collaboration with licensing boards, facilitates the licensure and credentialing of architects to protect the health, safety, and welfare of the public.

Licensure (Registration)

To practice architecture in the United States, you must earn a license from a U.S. state or territory (called a "jurisdiction") where you intend to practice. Earning a license signals to your firm, clients, and the public that you've developed the essential knowledge and skills to practice architecture safely and competently. And once you're licensed, you can call yourself an architect.

LICENSURE/REGISTRATION

NCARB uses the words "licensure" and "registration" interchangeably when talking about the process of becoming an architect.

Each of the 55 U.S. jurisdictions has its own set of requirements for licensure—you can find them at ncarb.org/requirements. While understanding the specific requirements in your jurisdiction is essential, most jurisdictions require three key components:

EDUCATION

There is no single degree required to become an architect, but the degree you pursue can affect your future licensure options. Many jurisdictions require that applicants for initial licensure earn a professional degree in architecture from a program accredited by the National Architectural Accrediting Board (NAAB) or the Canadian Architectural Certification Board (CACB).

Some jurisdictions offer additional licensure pathways for individuals with some other college degree or no degree. Through these pathways, you'll typically earn additional professional experience to supplement your education. More information about starting your education in architecture can be found in the *Education Guidelines*.

EXPERIENCE

To earn a license in most jurisdictions, you'll also need to complete the AXP by earning and reporting a variety of real-world experience. The AXP outlines six key areas of architectural practice, as well as specific skills and abilities you need to be able to competently perform before you earn a license.

More information about earning experience can be found in the *AXP Guidelines*.

EXAMINATION

Each of the 55 U.S. jurisdictions requires that applicants for an architecture license complete the ARE. The ARE is a multi-part, national exam that focuses on aspects of practice related to health, safety, and welfare.

All you need to know about the exam's policies, procedures, and content is outlined in this document.

NCARB Certification

Once you've earned your initial license, you can apply for an NCARB Certificate! Being NCARB certified helps you get the most out of your career in architecture by providing the mobility to go wherever your work takes you. With an NCARB Certificate in hand, it's simpler to get licensed across jurisdictions—allowing you the freedom and flexibility to pursue your career and connect with clients regardless of location. Plus, being certified signifies that you have met the national standards for licensure. Learn more in the *NCARB Certification Guidelines*.



Benefits of the Certificate

Once you've earned your NCARB Certificate, you can take advantage of all the following benefits:

PROFESSIONAL MOBILITY

Having an NCARB Certificate gives you the flexibility to apply for reciprocal licensure in all 55 U.S. jurisdictions, in addition to some international locations.

FREE CONTINUING EDUCATION

Certificate holders have access to NCARB's free continuing education courses as part of our Continuum Education Program, a collection of in-depth, online self-study materials that help professionals maintain and expand their competence.

COMPETITIVE EDGE

You can use the "NCARB" credential in your title, which demonstrates you've met national standards for licensure. This qualification, and the flexibility it provides, can be an important factor for firms when hiring and promoting.

SECURE RECORDS

As a Certificate holder, you don't have to worry about record keeping. All your professional information is stored on our secure servers—ready whenever you need it.

LEADERSHIP OPPORTUNITIES

Certificate holders are often the first to hear about volunteer opportunities on licensing boards and NCARB committees, which shape the future of our programs and services.

About the ARE

The ARE is developed by NCARB and is used by U.S. jurisdictions as the examination for candidates seeking architectural licensure. It is also accepted by select Canadian provincial and territorial architectural associations for licensure.

The ARE assesses a candidate's knowledge and skills to provide various services required in the practice of architecture. No single examination can test for competency in all aspects of architectural practice; the ARE is not intended for that purpose. The ARE concentrates on the professional services that affect the public's health, safety, and welfare.

LANGUAGES

The ARE is only available in English.

UNITS OF MEASUREMENT

The ARE includes measurements in inch-pound units only.

In addition to testing for competence in specific subject areas, NCARB is aware of the responsibilities an architect may have for coordinating the activities of others involved in the design/construction process. The ARE assesses a candidate's qualifications in exercising the skills and judgment of a generalist working with numerous specialists.

Definition of Competence as Related to the ARE

To protect the health, safety, and welfare of the public, a newly licensed architect practicing independently must demonstrate the competence to be responsible for a project from its inception through completion. This includes, but is not limited to, the ability to:

- Apply architectural business practices
- Evaluate legal, ethical, and contractual standards
- Establish and coordinate project team activities
- Establish programmatic and regulatory requirements
- Provide design alternatives
- Evaluate and incorporate appropriate materials and building systems
- Provide and coordinate project documentation for a building and site
- Provide construction phase services
- Assess the project during all phases
- Address environmental sustainability, resiliency, and adaptation throughout project design

ARE 5.0 Divisions

ARE 5.0 evaluates your knowledge and skills in six areas of practice that are essential to protecting the public's health, safety, and welfare. The number of questions (also called items) and the time available to complete them depends on the division.

DIVISION	NUMBER OF ITEMS	TEST DURATION	ALLOWED BREAK TIME	TOTAL APPOINTMENT TIME*
Practice Management	65	2 hr 40 min	30 min	3 hr 20 min
Project Management	75	3 hr	30 min	3 hr 40 min
Programming & Analysis	75	3 hr	30 min	3 hr 40 min
Project Planning & Design	100	4 hr 5 min	45 min	5 hr
Project Development & Documentation	100	4 hr 5 min	45 min	5 hr
Construction & Evaluation	75	3 hr	30 min	3 hr 40 min
TOTAL TIME:		**19 hr 50 min**		**24 hr 20 min**

** Total appointment time includes 10 minutes for introductory and exit screens.*

Learn more about the format of each exam division, or explore the content covered in each division.

HOW TO TAKE THE ARE

Establishing Exam Eligibility

To take the ARE, you must request exam eligibility through your NCARB Record by following the steps outlined below:

1) Establish an NCARB Record by filling out the online application at https://my.ncarb.org/.

2) Log in to your NCARB Record and click on the "Exams" tab.

3) Click the "Request Eligibility" button and select the jurisdiction where you want to be licensed to practice architecture.

4) You must accept the ARE Candidate Agreement, which will bind you to maintain the confidentiality of ARE content.

5) If you meet the ARE eligibility requirements in the jurisdiction where you want to be licensed to practice architecture, the board will provide your exam eligibility (or NCARB will approve your request if your board participates in NCARB's Exam Eligibility Services).

6) You will receive a confirmation email immediately after submitting your request with instructions on how to continue and a second email after your eligibilities have been established.

7) After your eligibilities have been established, verify that the name indicated in your NCARB Record is accurate and matches the name printed on an acceptable form of identification. If your first and last name are incorrect, immediately notify NCARB. **Do not schedule an appointment to test until you have verified that the first and last name in your NCARB Record match the first and last name on an acceptable form of identification.**

Maintaining Exam Eligibility

TEST ACTIVITY STATUS

Most jurisdictions have a test activity requirement. Your eligibilities to test may expire if you have not attempted to test (pass or fail) within a five-year period. If your jurisdiction-based eligibility period expires before you complete the ARE, you must contact your board of architecture (or NCARB if you were made eligible to take the ARE through a jurisdiction participating in the Exam Eligibilities Services Program) to establish a new eligibility under the current procedures of your board.

WHAT ARE NCARB'S EXAM ELIGIBILITY SERVICES?

NCARB manages eligibilities for candidates in participating jurisdictions whose requirements align with NCARB's current education and experience requirements. If your jurisdiction participates in Exam Eligibility Services but you don't meet the education and experience requirements, contact NCARB to learn about alternative methods of receiving exam eligibilities.

MAINTAINING EXAM ELIGIBILITY WITH YOUR JURISDICTION

You are responsible for maintaining your exam eligibility with your jurisdiction. Because the rules vary from jurisdiction to jurisdiction and are subject to change, it is important for you to stay informed of your jurisdiction's policies and procedures. This includes notifying your board of any address changes so they can contact you about eligibility renewals or any other important licensure information.

Score Validity Policy

To ensure confidence in each exam score used by a jurisdictional licensing board for the purpose of granting an initial license to practice architecture, NCARB has established a score validity policy that defines the period during which any ARE division will remain valid.

Passed ARE divisions are valid throughout the delivery of the version of the exam under which they were taken and are used to establish appropriate credits under the next version of the exam. Once you have passed all divisions of the ARE, you are considered ARE complete, and your division scores are no longer subject to the score validity policy.

EXAMPLES OF THE SCORE VALIDITY POLICY

Below are two examples of how the score validity policy impacts candidates' scores.

- Example 1: A candidate passes an ARE 5.0 division. That divisional score is valid for the duration of ARE 5.0's delivery. If the candidate does not complete the entire ARE before ARE 5.0 ends, their passed ARE 5.0 division(s) will be used to provide credit toward the corresponding divisions in the next version of the exam (e.g., ARE 6.0).
- Example 2: A candidate passed one division of ARE 4.0, which provided credit toward one division of ARE 5.0. The candidate has since passed three additional divisions in ARE 5.0. If the candidate does not complete the ARE before ARE 5.0 ends:
    - The ARE 4.0 divisional score will no longer be valid, and the ARE 5.0 credit earned from this administration will expire.
    - The three ARE 5.0 divisions passed will be used to provide appropriate credit in the next version of the exam (e.g., ARE 6.0).

SCHEDULING, RESCHEDULING, OR CANCELING AN EXAM

Exam Delivery

The ARE is available at both PSI test centers and through the PSI Proctoring Platform. Prior to scheduling an exam appointment, read and understand the requirements for taking an exam at a PSI test center and the requirements for taking an exam via online proctoring. You will be provided a consistent and secure testing experience in both delivery modalities.

Exam Scheduling

After you have been made eligible to test, you can schedule ARE appointments.

- You may take any division of the ARE at any time, and in any sequence you choose.
- You must pay for and schedule a separate appointment for each division of the ARE.
- You can take the ARE at any participating PSI test center or online, regardless of the jurisdiction where you are seeking initial registration.
- You can find the divisions you are eligible to take within the "Exams" tab of your NCARB Record.
- Testing reservations are accepted on a first-come, first-served basis and are restricted by seat and/or proctor availability.
- You must accept the ARE Candidate Agreement, which will bind you to maintain the confidentiality of ARE content.
- You must schedule your appointment a minimum of 48 hours in advance for exams delivered at a test center and 24 hours in advance for exams delivered using online proctoring.

Testing accommodations must be approved prior to the scheduling of an exam appointment and can't be retroactively applied to previously scheduled appointments.



Scheduling an Exam Appointment

The scheduling process requires you to read and acknowledge several ARE policies and procedures, so please be prepared to spend **15-30 minutes** scheduling your exam appointment. You'll be expected to verify your contact information and acknowledge that you have read NCARB's ARE Candidate Agreement, PSI's Test Center Candidate Security Agreement (if testing at a PSI test center), and PSI's Online Proctoring Candidate Privacy Agreement (if testing using online proctoring).

To schedule an exam appointment, follow the steps outlined below:

1) Log into your NCARB Record and click the "Exams" tab.

2) Within the "Exams" tab, you will see a "Schedule Division" button. Use the drop down arrow adjacent to this button to select the ARE division that you would like to schedule.

3) The ARE scheduling system will guide you through the scheduling process. If you have any questions while scheduling your exam, please contact NCARB for assistance.

4) After you have scheduled an exam appointment, you can view your appointment information within the "Exams" tab of your NCARB Record. You will also receive a confirmation email with your appointment details.

If you have an approved testing accommodation and are scheduling an exam at a PSI test center, you will be required to submit a contact phone number during the scheduling process. A PSI representative will reach out to you within 48 hours to provide assistance with scheduling your exam. If PSI is unable to reach you by phone, they will also email you at the address listed in your NCARB Record. Be on the lookout for an email from an @psionline.com domain, and if possible, add them to your safe senders list. You might need to check your junk or spam.

Rescheduling or Canceling an Exam Appointment

You can reschedule or cancel an appointment up to seven days (168 hours) in advance of your appointment date and time, for both in-person and online proctored exams. You can reschedule an appointment for an exam division up to three times.

For both test center and online-proctored delivery, you may reschedule an appointment with one delivery modality to a new appointment with the other delivery modality—for example, you can reschedule an online-proctored appointment to be taken at a test center and vice versa. You may also reschedule a test center appointment to a new appointment at a different test center. You will need to select a new date and time. If you only want to change the delivery modality of your appointment, you still must go through the rescheduling process.

Any changes to scheduled appointments will be subject to exam rescheduling and cancellation fees. If you fail to arrive for your scheduled appointment or attempt to reschedule an appointment without giving the required notice, you will forfeit the entire test fee.

To reschedule or cancel an appointment, follow the steps outlined below:

1) Log into your NCARB Record and click the "Exams" tab.

2) Within the "Exams" tab, you will see a "Reschedule or Cancel" button for each exam division that you currently have scheduled. Click on this button to reschedule or cancel.

3) The ARE scheduling system will guide you through the rescheduling or cancellation process. If you have any questions while rescheduling or canceling your exam, please contact NCARB for assistance.

4) **Reschedule only**—After you have rescheduled your exam appointment, you can view your appointment information within the "Exams" tab of your NCARB Record. You will also receive a confirmation email with your new appointment details.

5) **Cancellation only**—After you have canceled your exam appointment, an exam seat will be applied to your NCARB Record within 24 hours. The seat will expire one year from the date of the transaction. Cancellations are subject to the exam cancellation fee.

Rescheduling When Your Test Center is Closed

In the event your test center is closed during your scheduled appointment time, you will be contacted by NCARB. You will also receive a replacement exam seat within your NCARB Record, which you can use to reschedule your exam for a new date and time. Neither NCARB nor PSI will provide impacted candidates with compensation for lost time or travel expenses due to a test center closure.

If you are unsure whether a test center is closed due to inclement weather or any other reason, please refer to PSI's Test Center Openings page. If the center is open, it is your responsibility to keep the appointment. If the center is closed, you will be given the opportunity to reschedule.

Exam Fees and Payment Options

EXAM SCHEDULING FEES

For the most up-to-date fee information, please reference NCARB's website.

PAYMENT OPTIONS

You may purchase an exam seat (which is valid for a one-year period) prior to scheduling your appointment, or you may submit payment at the end of the scheduling process. Please note, third-party payment is only available when purchasing exam seats prior to scheduling.

All payment must be made in your NCARB Record using VISA, MasterCard, or American Express.

EXAM RESCHEDULING FEES

You may reschedule your appointment up to seven days in advance of your exam appointment date and time. You may reschedule your exam appointment up to three times per exam division seat. Fees for rescheduling exam appointments are based on the exam appointment date and time.

If you need to retake a division after failing or if your appointment is canceled, the rescheduling count will reset for the next scheduled attempt.

EXAM CANCELLATION FEES

You may cancel your appointment for a fee up to seven days before your scheduled appointment date and time. You will receive a replacement exam seat, which will expire one year from the date of the transaction.

REFUNDS

NCARB does not offer refunds of exam, rescheduling, or cancellation fees.

EXAM FORFEITURE

If you fail to arrive at your in-person or online appointment, you will be marked as absent and your entire test fee will be forfeited.

PAYMENT DISCREPANCIES/DEBT

NCARB reserves the right to withhold test scores and suspend test-taking privileges until any outstanding debt or payment discrepancies with NCARB are resolved.

VETERANS AFFAIRS BENEFIT

The ARE has been approved by the Department of Veterans Affairs and qualifies as an education benefit. U.S. military veterans may be eligible for payment assistance to take divisions of the ARE. Please contact your regional Veterans Affairs Office for further details regarding the program, or visit the Veteran's Affairs website.

TESTING ACCOMMODATIONS

Americans With Disabilities Act (ADA) Accommodations

NCARB and PSI are committed to ensuring the availability of reasonable accommodations for qualifying individuals by making feasible modifications to our examination procedures for candidates with documented disabilities or temporary medical conditions. This includes appropriate accommodations for individuals who are pregnant or breastfeeding.

To protect exam security, maintain the validity of the exam, and meet the overall delivery capabilities of the ARE, there are limits to the accommodations that NCARB and PSI are able to provide. NCARB will use the Americans with Disabilities Act (ADA) as a guide when evaluating requests. Common examples of reasonable ADA accommodations include additional break time, extended testing time (up to 50 percent longer), and testing in a separate room within the test center.

Testing accommodations are granted to allow equal access to the ARE and to ensure fairness to all candidates while remaining consistent with ADA principles. NCARB will not grant requests that will alter the measurement of the skills or knowledge that the ARE is intended to test or result in an undue burden on NCARB or PSI.

ACCOMMODATIONS FOR PREGNANCY AND NURSING

NCARB and PSI offer reasonable ADA accommodations for individuals who are pregnant or breastfeeding. Common examples include additional break time, extended testing time (up to 50 percent longer), candidate-supplied food or drink, and testing in a separate room within the test center. If you are planning to test while pregnant or breastfeeding, please contact NCARB for more information on how NCARB and PSI can support you.

English as a Second Language (ESL) Accommodations

NCARB offers two language accommodations for qualified ARE candidates who speak or read English as a second language. The accommodations include:

- **Additional testing time:** Twenty percent (20%) of the original testing time for each division added as an extension to the original testing time.
- **Word-to-word translation dictionary:** For candidates testing at a PSI test center, use of a personally supplied, printed word-to-word translation dictionary of the candidate's choosing that has no additional notes or markings added to the text. The dictionary will be inspected by test center staff. This accommodation is not available for online proctored exams.

ELIGIBILITY

You are eligible for an ESL accommodation if English is not your native language. You will be required to attest to this as part of the application process.

Applying for ADA Accommodations

Accommodations must be approved prior to the scheduling of an exam appointment and can't be retroactively applied to previously scheduled appointments.

To apply for an ADA testing accommodation, follow the steps outlined below:

1) **Complete the ADA Accommodations Request Form Through My NCARB**
   Log in to My NCARB and navigate to the Exams tab to review and complete the ADA Accommodations Request Form. If applicable, you may provide:
   a) Documentation of any past accommodations to support your request, and/or
   b) A specific diagnosis by an appropriately licensed professional that includes a description of the appropriate accommodations for your condition.

2) **Submit the ADA Accommodations Request Form**
   Submit the completed form, including any documentation, to NCARB via My NCARB. Staff will review completed requests in compliance with ADA policies. NCARB will notify you when the request has been processed and any approved accommodations have been assigned to your NCARB Record. Some jurisdictions may require accommodation requests to be reviewed by the licensing board.

3) **Receive Accommodations Approval**
   Accommodations must be approved prior to the scheduling of an exam appointment. Do not attempt to schedule an appointment before receiving written approval. Please allow 7-10 business days for NCARB to process your request. If your request must be submitted to your licensing board, the process may take longer.

4) **Schedule Your Appointment**
   Once you have been approved for testing accommodations, you will receive instructions on how to schedule an appointment. While some appointments may self-scheduled through your NCARB Record, depending on the accommodation, it may be necessary to schedule by phone. **Do not attempt to schedule any exam appointments until you receive written notification that accommodations have been approved.**
   - Self-Scheduling: For eligible accommodations, you can self-schedule exams through your NCARB Record after accommodations are approved.
   - PSI Scheduling Coordination: The PSI Accommodation Support Team manages the scheduling of certain accommodations requiring test center attendance. PSI will contact you using the phone number and email address provided when you initiated the scheduling request, so be sure to provide up-to-date contact information.

Further details about testing accommodations can be found on NCARB's website.

Applying for ESL Accommodations

Accommodations must be approved prior to the scheduling of an exam appointment and can't be retroactively applied to previously scheduled appointments.

To apply for ESL testing accommodations, follow the steps outlined below:

1) **Complete the ESL Accommodations Request Form Through My NCARB**
   Log in to My NCARB and navigate to the Exams tab to review and complete the ESL Accommodations Request Form. As part of the process, you will be required to provide documentation that verifies the validity of your ESL testing accommodation request. You can learn more about the documentation required on our website. If you need guidance determining acceptable documentation, please contact us.

2) **Submit the Application**
   After you have completed the application, submit it via My NCARB. Staff will review completed requests in compliance with ESL policies. NCARB will notify you when the request has been processed and any approved accommodations have been assigned to your NCARB Record.

3) **Receive Accommodations Approval**
   Accommodations must be approved prior to the scheduling of an exam appointment. Do not attempt to schedule an appointment before receiving written approval. Please allow 7-10 business days for NCARB to process your request.

4) **Schedule Your Appointment**
   Once you have been approved for testing accommodations, you will receive instructions on how to schedule an appointment. While some appointments may be self-scheduled through your NCARB Record, depending on the accommodation, it may be necessary to schedule by phone. **Do not attempt to schedule any exam appointments until you receive written notification that accommodations have been approved.**

   - Self-Scheduling: For eligible accommodations, you can self-schedule exams through your NCARB Record after accommodations are approved.
   - PSI Scheduling Coordination: The PSI Accommodation Support Team manages the scheduling of certain accommodations requiring test center attendance. PSI will contact you using the phone number and email address provided when you initiated the scheduling request, so be sure to provide up-to-date contact information.

Further details about testing accommodations can be found on NCARB's website.

Accommodations Not Supported for Online Appointments

Some available accommodations (e.g. word-to-word translation dictionary, reader, sign language interpreter, physical scratch paper, etc.) are not supported for online-proctored appointments. Candidates requiring these accommodations must test in a test center. If your testing accommodation request is only available via onsite testing, NCARB will inform you during the evaluation process.

Pre-Approved Personal Items

You **DO NOT** need to request testing accommodations for specific items indicated on NCARB's website. However, if any other accommodations are needed that are not included in the list, the formal testing accommodation request process indicated previously must be followed.

For example, if you wear a hearing aid (which by itself does not require approval) and require a separate room and/or additional break time, etc.; the formal testing accommodation request process indicated previously must be followed.

All pre-approved personal items are subject to inspection by the test center administrator or online proctor. If an approved medical device makes any alert noises, it must be able to be silenced. If you are unable to silence your medical device, you will need to request a formal testing accommodation.

IDENTIFICATION REQUIREMENTS

When you arrive at the test center or online-proctored exam check-in, you will be required to present an acceptable form of identification as outlined below. **You will not be admitted to the examination without acceptable identification, and there will be no refund of your test fee.**

Your identification must be valid (not expired) and include your full name, photo, and signature. The first and last name on the identification must be the same as the first and last name that appears in your NCARB Record. If you need to change the name shown in your NCARB Record, you must send a request and official documentation to NCARB. **Name discrepancies must be resolved at least seven (7) business days prior to your scheduled exam appointment.**

Acceptable Forms of Identification

- Driver's license
- State issued ID
- Passport
- National ID card
- Residency card
- Green card

Unacceptable Forms of Identification

- Expired ID
- ID with no photo or signature
- Military ID
- Draft classification card
- Letter of identity from a notary
- Social Security card
- Credit card or bank card of any kind
- Employee ID
- Student ID

A temporary driver's license may be accepted only if it is presented along with the original driver's license it replaces, provided that the expired license is not more than 60 days past its expiration date. If you are testing using online proctoring, your mobile phone camera must be capable of clearly capturing and uploading your ID during the check-in process.



TAKING AN EXAM AT A PSI TEST CENTER

Before scheduling an exam at a test center, review the test center policies and procedures outlined in this document and on NCARB's website.

Arriving at the Test Center

You should arrive at the test center **at least 30 minutes before your scheduled appointment**. If you arrive later than 30 minutes after your scheduled appointment time, you may be required to forfeit your appointment and your test fee will not be refunded.

Your test session should begin within 30 minutes of your scheduled appointment. If circumstances arise that delay your test session more than 30 minutes after your scheduled appointment time, you will be given the choice of continuing to wait or rescheduling your appointment.

Upon arrival at the PSI test center, you must review and sign the PSI Test Center Candidate Security Agreement. If you do not sign the agreement, your exam will be canceled, and all exam fees will be forfeited. After signing in with the proctor, you must remain in the test center throughout your exam appointment. Leaving the test center for any reason during your exam, including while on a break, may result in your exam being canceled, and there will be no refund of your test fee.



Personal Belongings at the Test Center

Before beginning the security screening, you will be asked to present a proper form of identification, as outlined in the Identification Requirements section of this document, and place all personal belongings into a secure storage locker or bag provided by PSI.

The following items, including but not limited to those listed below, are not permitted in the testing room:

- **Electronic devices of any type (must be turned off)**, including cell phones, smart watches, computers, calculators, tablets, headphones, earbuds, etc.
- **Bulky or loose clothing or coats** that could be used to conceal recording devices or notes, including all outerwear
- **Hats or headgear not worn for religious reasons**
- **Reference materials, notebooks, paper, and pens**
- **Other personal items**, including purses, wallets, keys, backpacks, large jewelry, food, drinks, etc.

Review the PSI Test Center Candidate Security Agreement for additional information on items not allowed in the testing room. Small lockers or storage bags are provided at test centers for candidates' use to secure small personal items only. Lockers or storage bags **WILL NOT** accommodate large items like briefcases, backpacks, laptops, purses, or other large personal items. Do not bring large items to the testing center. Any personal belonging that does not fit into a secure locker or locker bag may not remain in the test center, with no exceptions. **Failure to comply may result in your exam being canceled, and there will be no refund of your test fee**.

You will not have access to your personal belongings that are placed in secure storage while in the testing room. You may access your personal belongings in secure storage after first completing the check-out procedure with the proctor, either by going on break during your test or by completing your test administration.

Security Screening

To ensure the integrity of the ARE, specific security measures are enforced prior to and during your exam administration. You will be subject to a security screening prior to entering the testing room, including returns from breaks.

During the screening, you will be asked to complete the following:

- Roll up/roll down sleeves
- Roll up pant legs (to the knee)
- Empty all pockets, including back pockets
- Remove glasses, tie tacks, buttons, and other apparel for inspection
- Show ears to ensure electronic devices are not in use
- Be scanned with a handheld metal detector wand

Candidates refusing to be scanned may not be permitted to test.

Following the security screening, you will be escorted to a workstation by the proctor. You must remain in your seat during your examination, except when authorized to leave by the test center staff.

Taking a Break During Your Exam

Each division of the ARE includes break time, which may be used all at once or split into multiple breaks throughout your test until you have used up the allotted time. If you need additional breaks beyond your allotted time, you may take a break, but the exam timer will continue to count down. During a break, you must remain within the PSI test center. Leaving the test center during a break may result in your exam being canceled, and there will be no refund of your test fee.

For every break you wish to take during your exam, you will be required to navigate to the "On Break" screen and notify the proctor that you intend to take a break. Your proctor must confirm you have navigated to the "On Break" screen before you leave for your break. **Failure to do so may result in your exam being terminated.**

Please make sure to use the following process when taking a break:

1) Navigate to the "Exam Summary" page.

2) Click the "Break" button in the upper-right corner.

3) A pop-up window will appear that asks, "Do you wish to start a break?" Click "Yes" in the lower left corner if you are sure you want to use your break time.

4) The "On Break" screen will appear.

5) Notify the proctor that you are starting a break and show them the "On Break" screen.

6) You must comply with all PSI re-admittance security procedures each time you return from a break.

Following a break, all items that you have already viewed will be locked, including those marked for later review, and you will not be able to view or edit them again.

Completing Your Exam

When you are finished answering all items within your exam, click the "End Exam" button and confirm through the pop-up that you would like to submit your exam for scoring.

After ending your exam, you will be provided with provisional feedback on your exam performance. You can read more about ARE scoring in the Receiving Your Score section of this document.

When you are finished with your examination, quietly leave the testing room. The test center administrator will dismiss you after completing all necessary PSI check-out procedures.

Technical Issues During Your Exam

If a software or hardware problem occurs before or during your exam administration, please follow the steps outlined below:

1) **Notifying the Proctor**
   Immediately raise your hand and notify the proctor that you are experiencing a technical issue. If there is an error message on the screen, do not clear the message.

2) **Troubleshooting the Issue**
   Allow the proctor and technical support team sufficient time to troubleshoot and resolve the issue. In the event your computer must be restarted, the exam delivery platform has been designed to suspend testing time until the computer is operating again. Most candidates who experience an exam restart are able to complete their exam administration without further interruption.

   If the proctor and technical support team are able to resolve the issue within 30 minutes, you are expected to complete your exam administration. If the technical issue delays your test session more than 30 minutes, you will be given the choice of continuing to wait or rescheduling your appointment.

3) **Reporting the Technical Issue**
   If your exam administration cannot be administered because of technical issues, please file an incident report with the proctor and contact NCARB in writing. **DO NOT** wait until you've received your test results to contact NCARB. All concerns must be received within 15 days of your appointment date.

   Filing an incident report with the proctor does not satisfy the requirements of notifying NCARB directly.

4) **NCARB Investigation**
   Upon receiving your communication regarding your exam technical issue, NCARB will investigate the technical issue, including reviewing any logs, documentation, or reports provided by PSI. Following the investigation, which may take up to five business days, NCARB will reach out to you directly.

5) **Resolution**
   If it is determined that the technical issue was due to an exam platform malfunction or other issue outside of your control, NCARB will provide you with a replacement exam seat and new exam eligibility. NCARB will not provide candidates who experience a technical issue with compensation for lost time.

   - If you viewed 75 percent or more of the items on your exam prior to the technical issue occurring and/or you were able to complete your exam, you will be subject to the 60-day retest policy, and your exam will count as a valid, scored exam within your NCARB Record.
   - If you viewed fewer than 75 percent of the items on your exam prior to the technical issue occurring and you were unable to complete your exam due to the technical issue, you will be provided immediate eligibility to reschedule your exam, you are exempt from the 60-day retest policy, and your exam score will be invalidated within your NCARB Record.

Candidate Conduct at the Test Center

A candidate who engages in misconduct, unprofessional behavior, and/or does not heed the administrator or proctor's warning to discontinue inappropriate behavior may be dismissed from the test center, have examination results canceled, have examination eligibilities suspended, and/or be referred to NCARB's Professional Conduct Committee for disciplinary review. No refunds will be provided for exams impacted or canceled due to candidate misconduct.

Examples of misconduct in the test center include:

- Failing to follow the instructions of the test center administrator.
- Violating the test center regulations.
- Creating a disturbance of any kind.
- Removing or attempting to remove examination questions and/or responses (in any format).
- Attempting to take the examination for someone else.
- Tampering with the operation of the computer or attempting to use it for any function other than taking the examination.
- Leaving the testing room without permission.
- Using any unauthorized references or devices.
- Accessing, or attempting to access, inappropriate materials during the exam.

Candidates who engage in any form of misconduct are subject to NCARB's Policy for the ARE: Exam Candidate Conduct, which establishes procedures in the case of candidate misconduct.

For more information on candidate misconduct, please reference the Exam Security and Candidate Misconduct section of this document.

TAKING AN ONLINE-PROCTORED EXAM WITH PSI

Prior to scheduling an online-proctored exam with PSI, please read and understand policies, procedures, and requirements surrounding online testing in this document and on NCARB's website. **By scheduling a division of the ARE in this delivery setting, you are acknowledging that your system and testing environment meet all requirements established by both PSI and NCARB.**

If you can't meet the requirements for online proctoring outlined within this section, you will have to test in person at a physical test center. If you schedule an online-proctored appointment but do not meet the requirements and are unable to test because you do not meet the requirements, **you accept responsibility for any fees lost as a result.**

NCARB has specific policies and technical requirements for the ARE that may extend beyond PSI's policies and requirements. You are responsible for complying with all ARE-specific requirements outlined in this document and on NCARB's website. In instances where PSI and NCARB requirements do not align, please adhere to the most stringent requirements.

Technical Requirements

NCARB and PSI have established the following technical requirements to support the online delivery of the ARE. Additional system specifications are available on NCARB's website. Review this page regularly for the most up-to-date information.

COMPUTER SETUP

- Use a laptop or desktop computer with a single monitor configuration. Tablets and touchscreen monitors are not permitted, and tablet/laptop hybrids must operate in laptop mode with tablet mode disabled. Keep your laptop plugged directly into a power source throughout the exam. If you connect an external monitor, the laptop lid must remain closed, and you will need to use an external keyboard and mouse.
- All cables connected to your computer and peripherals must remain visible and accessible for inspection prior to testing. Docking stations, multiport adapters, HDMI splitters, and similar devices that provide additional video, network, or power connections are not allowed. USB splitters, extenders, and hubs that only add USB ports for peripherals are acceptable. Disable Bluetooth and plan to use wired or non-Bluetooth wireless peripherals. **You will need administrative permissions on the computer**, as the PSI Proctoring Platform may prompt you to modify settings or close certain programs.

OPERATING SYSTEM

- A device running a native Original Equipment Manufacturer (OEM) Windows operating system is required. MacOS, Linux, ChromeOS, and other operating systems are not permitted. Devices running Windows through virtualization software, emulators, compatibility layers, or other non-native configurations are not permitted. Find the most up-to-date information on supported Windows versions on NCARB's website.

CAMERAS

- You must use a webcam as your primary camera, providing a front-facing view. The camera must remain functional, enabled, and connected for the duration of the exam. You may use an integrated webcam. If your computer or monitor does not have an integrated webcam, you must use an external webcam as your primary camera. If your computer has multiple webcams, disable or disconnect any cameras not being used for testing prior to launching the exam.
- Use a smartphone with working front and rear cameras as a secondary camera. Tablets and other mobile devices are not permitted. The device should be fully charged when launching the exam and remain connected throughout testing to an external power source other than the computer being used for testing. The phone must be capable of scanning a QR code and connecting to PSI's second camera platform during the check-in process. Find the most up-to-date information on smartphone operating system requirements on NCARB's website.

KEYBOARD AND MOUSE

- You may use your laptop's built-in keyboard and trackpad or external devices during testing. If your laptop is connected to an external monitor, the laptop lid must remain closed, and both an external keyboard and an external mouse are required. Wired or non-Bluetooth wireless peripherals are permitted. If you choose to use wireless devices, make sure their batteries are fully charged and can last for the entire duration of the exam.

AUDIO

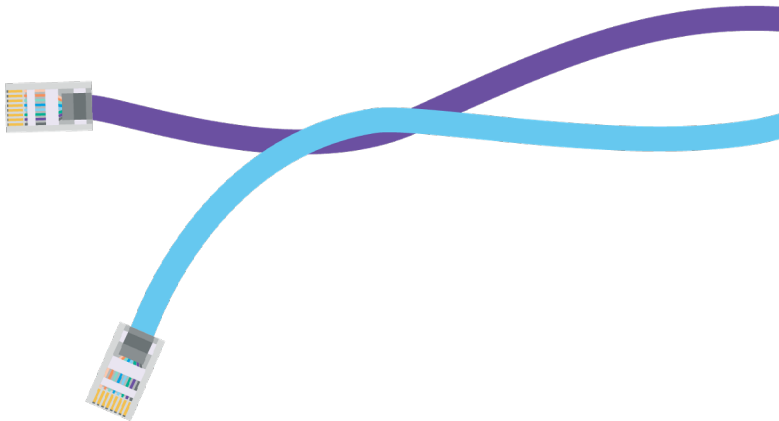
- Speakers and a microphone must remain enabled and functional at all times. **Headphones, headsets, or earbuds are NOT allowed.** Adjust the speaker volume to a comfortable setting before launching the PSI Proctoring Platform. If you have multiple microphones, disable or unplug any microphones that will not be used for testing prior to launching your exam.

MONITOR

- A single 19-inch or larger monitor displaying at 1920 x 1080 resolution is recommended. Smaller monitors or lower resolutions reduce image clarity and may require additional scrolling.

CONNECTIVITY

- You will need a minimum of three (3) mbps of dedicated bandwidth connected for your online-proctored exam. Your computer must be connected through an ethernet cable, not through a WiFi connection. Your secondary camera device must remain connected to WiFi throughout testing. Maintaining an active cellular network connection is strongly recommended in case the WiFi connection is interrupted. Make sure there is no additional load (video streaming, gaming, music, etc.) on your internet connection during your exam administration. Consider scheduling your exam at a time when other individuals in your household/secure testing location will not be online. **You are responsible for ensuring a stable internet connection throughout the duration of your exam.**



NETWORK AND COMPUTER SECURITY SETTINGS

- The PSI Proctoring Platform accesses your computer, including your camera and microphone, which may be identified as a security threat by your system. **Remember, you must have administrative permission on your computer to make changes to security settings.** Temporarily disable corporate or network firewalls and adjust security settings on your computer, router, and those managed by your internet service provider (ISP) to ensure the PSI Proctoring Platform is not blocked throughout your appointment. If you're unsure how to check your ISP security settings, reach out to your ISP provider directly.

VIRTUAL PRIVATE NETWORK (VPN)

- Connecting your computer through a VPN can impact the performance of the exam delivery platform. You must disable any VPN connections prior to your exam. If using a company computer, reach out to your company's IT support team for assistance in identifying your VPN and disabling it.

COMPUTER APPLICATIONS

- To limit technical disruptions, you must close all applications and unnecessary background processes prior to launching the PSI Proctoring Platform. The latest version of Google Chrome is recommended to help ensure compatibility with the PSI Proctoring Platform.

As an online tester, you take full responsibility for ensuring your setup meets the requirements for online proctoring. This includes the integrity of equipment, internet connectivity, system performance or other issues related to but not limited to the above that are outside of the control of NCARB, PSI, or NCARB's other test delivery vendors.

NCARB is not able to provide technical support regarding individual setup for online-proctored delivery. Prior to your testing day, review this information and NCARB's website.

Setting Up Your Testing Space

Whether you test at your home, office, school, or other location, your testing environment must meet the following requirements:

- **Privacy:** You must test indoors in a walled environment. The space should be private, preferably with a single closing door in view of the camera. If the space does not have a door, use a bed sheet, curtain, or other opaque material to block the entrance. No other people or animals can be present or enter the room during your exam.
- **Lighting:** Your testing environment must be well-lit.
- **Quiet:** Your room must be free of background noise.
- **Setup:** The testing space must be cleared of items or materials not required for testing. Refer to NCARB's website for additional information on prohibited items. Remove or fully cover personal belongings and household items, except for furniture. You can use bed sheets or other opaque materials to cover items. If needed, you may define a smaller testing area using bedsheets, curtains, or room dividers, as long as the proctor can see the entire space during check-in and throughout the exam.
    - Workspace and immediate surroundings: Place your computer on a hard surface, such as a table or desk. You cannot test with your computer in your lap. The workspace should only contain the computer equipment needed to complete the exam, such as a computer, monitor, webcam, keyboard, mouse, and the secondary camera support item. Remove any picture frames, pencil holders, decorations, office supplies, or similar items from the workspace and nearby surfaces.
    - Entire testing space: Countertops, shelving, bookcases, and all other surfaces should be either cleared or covered. Turn off and cover televisions or other screens in the room. Remove or cover anything that could obstruct the proctor's view or conceal materials, such as laundry piles, beds, open storage bins, and stacks of papers.

Pre-approved personal items are permitted within the testing space. Only one cell phone may be present in the room.

If you are viewed by the proctor with any prohibited items during your exam administration, your exam will be terminated, and your exam fees will be forfeited.

Setting Up Your Cameras

Online-proctored exams require two cameras throughout testing: a webcam connected to your testing computer for a primary camera and a smartphone configured as a secondary camera.

PRIMARY CAMERA

Your primary camera provides a front-facing view of you and your testing environment during the check-in process and throughout testing. If using an external webcam, position the camera to provide a clear and stable view at all times. Do not disconnect or unplug your camera while the PSI Proctoring Platform is open, as disconnecting the camera may terminate your testing session and require you to relaunch the exam.

SECONDARY CAMERA

Your secondary camera provides an additional view of your testing environment during the exam. During the security screening, a smartphone phone will be used to verify your identity and complete a room scan. It will then be positioned to act as a second camera for the remainder of the test. This extra camera will be used in addition to the webcam on the computer you use to test.

Before your test, prepare your device for use as the required second camera by completing the following steps:

1) Ensure your device is fully charged
2) Check that your camera is working properly and clean your camera lens
3) Enable "Do Not Disturb" mode
4) Enable "Auto Rotate" or turn "Portrait Orientation Lock" off to allow for recording in landscape layout
5) Close all apps and clear notifications
6) Connect the device to a power outlet or adaptor (note that it cannot be connected to the computer being used for testing)

Review the technical requirements in this document and visit NCARB's website for information on supported smartphone operating systems. Your phone must remain connected to WiFi and an external power source throughout testing. Maintaining an active cellular network connection is strongly recommended in case the WiFi connection is interrupted. Tablets are not allowed.

You will need a support item to hold the phone in landscape orientation. The device must be positioned using a sturdy, adjustable phone stand or other stable support item. The support item cannot contain or conceal materials and must be easy to examine during the security screening. Support items may not contain writing or labels, inside or out. Your online proctor will review and validate the support item during the security screening. Additional information about acceptable support items is available on NCARB's website.

During the check-in process, you will see a QR code as part of the instructions for beginning your exam. Open your device's camera, scan the QR code, and select the link that appears on your phone. Allow access to your camera and microphone when prompted.

Position the phone in landscape orientation to the side of your workstation to provide a clear view of your monitor, your full keyboard and mouse or trackpad, both hands while typing, and your side profile throughout testing. Place the phone on the support item directly to your right or left, approximately two to four feet from your workstation, using the front-facing camera. Your proctor will review and confirm the camera placement before launching the exam.

Once testing begins, the phone must remain stable and in the same position for the duration of the exam. Do not touch, move, reposition, or adjust the device unless instructed to do so by the proctor. During scheduled breaks, your phone should remain in its original position on its support item. If you move, reposition, disconnect, or use your smartphone during breaks, a QR code prompting you to repeat the smartphone connection and camera placement process will cover the break screen, including the break timer. You must repeat the smartphone connection and camera placement process to display the break timer and resume testing.

Ensure the phone remains powered on, connected, and unobstructed throughout testing. Do not block the camera's view or move outside the camera frame during the exam.

If your phone disconnects or the second camera feed is interrupted during testing, your exam will be paused and you will be prompted to reconnect the device by rescanning the QR Code. If you are unable to reconnect your phone, your exam will be terminated.

Scheduling a Test Run

Before taking each online-proctored exam division—and any time your technical or environmental setup changes, even minimally—you must complete a free PSI test run to confirm with a proctor that your setup meets the requirements for online testing. This includes your equipment, primary and secondary cameras, internet connection, operating system, applications, and testing environment. The test run is designed to help you identify and resolve potential issues before your exam appointment. You can schedule this appointment through the "Exams" tab within your NCARB Record.

Before you schedule a test run, be aware of the following:

- Schedule your test run far enough in advance of your actual ARE appointment that you are able to implement a solution or reschedule if necessary.
- You should verify your setup under the exact same conditions planned for your actual ARE appointment—using the same computer and secondary camera device, at the same time of day, in the same room, and maintaining the same configuration.
- The test run will operate on with PSI Proctoring Platform, just like the actual exam.
- During your test run appointment, you'll go through the same check-in process that you can expect during your ARE appointment.

You'll also see a short, unscored "quiz" covering the requirements for online proctoring. If you run into a technical issue during your test run, work with PSI's proctor and technical support team to identify and resolve the issue.

If your technical or environmental setup does not meet the requirements for online proctoring, you may make the necessary adjustments and complete another PSI test run to confirm compliance before your exam appointment. However, if you already have an appointment scheduled for online proctoring and remain unable to meet these requirements, you must reschedule your exam to take place at a PSI test center.

Candidates who do not complete a PSI test run prior their online-proctored exam and are unable to launch or finish their appointment due to technical issues or an ineligible testing environment will forfeit their exam fee.

Launching Your Online Exam

Before launching your online exam, ensure that your testing environment and system are setup to meet all requirements outlined in this document and on NCARB's website. Failure to appropriately meet the online proctoring requirements may prevent you from testing, and any fees will be lost as a result.

To launch your online-proctored exam, follow the steps outlined below:

1) **Be Ready 30 Minutes Prior to your Exam**
   You should be prepared to log into your online exam 30 minutes before your scheduled appointment. If you log in later than 30 minutes after your scheduled appointment time, you may be required to forfeit your appointment and your test fee will not be refunded.

2) **Log into your NCARB Record**
   Navigate to NCARB.org and log into your NCARB Record. Click on the "Exams" tab to view all scheduled exams.

3) **Locate Your Scheduled Exam**
   Next, you'll need to locate your scheduled exam and confirm the exam division, date, and time. Next, click the "Launch Exam" button.

4) **Download and Install the PSI Proctoring Platform**
   After clicking the "Launch Exam" button, a PSI page will display and automatically download the platform. You'll need to install it on your computer and launch the application.

5) **Confirm Your Primary Camera and Microphone**
   You will be asked to select a webcam and microphone prior to moving to the security screening check-in process. Remember, you will need to have a computer with a webcam for your primary camera and use a smartphone as your secondary camera to successfully take your exam online. This prompt may not appear if you have only one camera or one microphone.

At this point, you have successfully launched PSI's secure browser and are prepared to begin the check-in and security screening process. During the check-in, the proctor will guide you through setting up your secondary camera. PSI requires all online-proctored candidates to complete the check-in process each time they access their test, including returns from breaks. During the check-in process, the proctor will guide you through setting up your secondary camera.

Candidates refusing to complete the check-in process will not be permitted to test.

Security Screening

To ensure the integrity of the ARE, specific security measures are enforced prior to and during your exam administration. You will be subject to a security screening prior to beginning your exam, and returns from breaks. You may also be required to complete a security screening after encountering and resolving a connection problem or a technical issue.

During the check-in process and security screening, you will be asked to:

- Close any prohibited programs or processes you have running on your computer as identified by the PSI Proctoring Platform
- Accept PSI's Online Proctoring Candidate Privacy Agreement
- Open your phone's camera and scan the QR code provided. Select the link that appears and allow access to your camera and microphone
- Authenticate your identity by uploading an ID that meets the requirements outlined in the Identification Requirements for Check-In taking a selfie section of this document and taking a selfie
- Complete a 360-degree scan of your testing environment, including the entire work surface
- Roll up/roll down your sleeves and show your arms to the camera
- Show your neck and ears to ensure electronic devices are not in use
- Remove and show glasses
- Confirm that any cables and cords in your immediate testing area are permitted and necessary for your computer and camera setup
- Connect your phone to an external power source and position it in landscape orientation using a stable support item

As part of the 360-degree room scan, you will use your smartphone to pan around the room, including all walls from floor to ceiling, the space under your desk or table, and the area under your laptop or keyboard and mouse.

Throughout this process, the proctor will confirm that:

- All cords attached to the testing computer are required for testing
- All items not needed for testing have been removed from the spaced or covered
- All bookcases, shelves, and televisions/monitors have been covered
- You are not using a docking station
- Your laptop or desktop is plugged in directly into the wall

Make sure your testing space is private so no one interrupts you during your exam. Interruptions may be flagged as suspicious activity and your exam may be terminated.

Candidates refusing to complete the check-in process or security screening may not be permitted to test.

Taking a Break During Your Online Exam

Each division of the ARE includes break time, which may be used all at once or split into multiple breaks throughout your test until you have used up the allotted time. If you need additional breaks beyond your allotted time, you may take a break, but the exam timer will continue to count down.

For every break you wish to take during your exam, you will be required to navigate to the "On Break" screen and notify the proctor via chat that you intend to take a break. Your proctor must confirm you have navigated to the "On Break" screen before you leave for your break. **Failure to do so may result in your exam being terminated.**

Please make sure to use the following process when taking a break:

1) Navigate to the "Exam Summary" page.

2) Click the "Break" button in the upper-right corner.

3) A pop-up window will appear that asks, "Do you wish to start a break?" Click "Yes" in the lower left corner if you are sure you want to use your break time.

4) The "On Break" screen will appear.

5) Notify the proctor that you are starting a break and show them the "On Break" screen.

6) After you have completed your break, please inform the proctor via chat before resuming your exam. You must comply with all PSI re-admittance security procedures each time you return from a break.

Following a break, all items that you have already viewed will be locked, including those marked for later review, and you will not be able to view or edit them again.

Completing Your Online Exam

When you are finished answering all items within your exam, click the "End Exam" button and confirm through the pop-up that you would like to submit your exam for scoring.

After ending your exam, you will be provided with provisional feedback on your exam performance. You can read more about ARE scoring in the Receiving your Score section of this document.

When you are finished with your examination, click the "End Proctoring Session" button inside the PSI Proctoring Platform software and confirm you want to permanently end your exam session.

Technical Issues During Your Online Exam

In the event that a software or hardware problem occurs before or during your exam administration, please follow the steps outlined below:

TECHNICAL ISSUES PRIOR TO LAUNCHING YOUR ONLINE EXAM

1) **Review the Online Proctoring Technical Requirements**
   Failure to meet the online proctoring technical and system requirements outlined by NCARB and PSI will prevent the PSI Proctoring Platform and your exam from successfully launching.

   Prior to contacting PSI Technical Support, ensure your system setup, including internet speed, security settings, and VPN meet all online proctoring requirements. **NCARB is not able to provide technical support regarding individual system setup for online-proctored delivery**.

2) **Contact PSI Technical Support**
   After verifying that your system setup meets all requirements, please reach out to PSI Technical Support at 855-560-3716. Allow the PSI Technical Support team sufficient time to troubleshoot and resolve the issue.

3) **Reporting the Technical Issue**
   If your exam cannot be administered because of technical or platform issues, please contact NCARB in writing within 15 days of your appointment date.

4) **NCARB Investigation**
   Upon receiving your communication regarding your exam technical issue, NCARB will investigate the technical issue, including reviewing any logs, documentation, or reports provided by PSI. Following the investigation, which may take up to five business days, NCARB will reach out to you directly.

5) **Resolution**
   If it is determined that the technical issue was due to an exam platform malfunction or other issue, outside of your control, NCARB will provide you with a replacement exam seat and new exam eligibility. The 60-day retest policy does not apply to exams that failed to launch. NCARB will not provide candidates who experience a technical issue with compensation for lost time.

If the investigation determines that your examination could not be administered due to your online proctoring setup, outside of the control of NCARB and its vendors, all exam fees will be lost, and NCARB will not provide you with a replacement exam seat. You will be provided with a new exam eligibility only. The 60-day retest policy does not apply to exams that failed to launch.

TECHNICAL ISSUES DURING YOUR ONLINE EXAM

1) **Notifying the Proctor**
   Immediately inform the proctor via the chat feature that you are experiencing a technical issue. If there is an error message on the screen, do not clear the message.

   If you lose internet connection during your exam and are disconnected, you can restart the PSI Proctoring Platform when your connection stabilizes, and you will be assigned to the first available proctor. The exam delivery platform has been designed to suspend testing time until the computer is operating again.

2) **Contact PSI Technical Support**
   After informing the proctor of the technical issue, please reach out to PSI Technical Support at 855-560-3716. Allow the PSI technical support team sufficient time to troubleshoot and resolve the issue.

   If the technical support team is able to resolve the issue within 30 minutes, you are expected to complete your exam administration. If the technical issue delays your test session more than 30 minutes, you will be given the choice of continuing to wait or rescheduling your appointment.

3) **Reporting the Technical Issue**
   If your exam administration cannot be administered because of technical issues, please file an incident report with the proctor and contact NCARB in writing. **DO NOT** wait until you've received your test results to contact NCARB. All concerns must be received within 15 days of your appointment date.

   Filing an incident report with the proctor does not satisfy the requirements of notifying NCARB directly.

4) **NCARB Investigation**
   Upon receiving your communication regarding your exam technical issue, NCARB will investigate the technical issue, including reviewing any logs, documentation, or reports provided by PSI. Following the investigation, which may take up to five business days, NCARB will reach out to you directly.

5) **Resolution**
   If it is determined that the technical issue was due to an exam platform malfunction or other issue, outside of your control, NCARB will provide you with a replacement exam seat and new exam eligibility. NCARB will not provide candidates who experience a technical issue with compensation for lost time.

   - If you viewed 75 percent or more of the items on your exam prior to the technical issue occurring and/or you were able to complete your exam, you will be subject to the 60-day retest policy, and your exam will count as a valid, scored exam within your NCARB Record.
   - If you viewed fewer than 75 percent of the items on your exam prior to the technical issue occurring and you were unable to complete your exam due to the technical issue, you will be provided immediate eligibility to reschedule your exam, you are exempt from the 60-day retest policy, and your exam score will be invalidated within your NCARB Record.

   If the investigation determines that your examination could not be administered due to your online proctoring setup, outside of the control of NCARB and its vendors, all exam fees will be lost and NCARB will not provide you with a replacement exam seat. You will be provided with a new exam eligibility only. If you viewed 75 percent or more of the items on your exam prior to the technical issue occurring, you will be subject to the 60-day retest policy, and your exam score will remain valid within your NCARB Record.

Candidate Conduct During Your Online Exam

A candidate who engages in misconduct, unprofessional behavior, and/or does not heed the administrator's or proctor's warning to discontinue inappropriate behavior may be dismissed from their online administration, have examination results canceled, have examination eligibilities suspended, and/or be referred to NCARB's Professional Conduct Committee for disciplinary review. No refunds will be provided for exams impacted or canceled due to candidate misconduct.

Examples of misconduct during an online exam include:

- Leaving the testing room or your desk/work surface without clicking the break button and informing the proctor.
- Accessing, or attempting to access, prohibited items.
- Using any unauthorized references or devices.
- Obstructing the proctor's view.
- Creating noise, unrelated to keyboard typing, including speaking aloud.
- Using your computer for any function other than taking the examination.
- Failing to maintain a private testing environment.
- Eating or drinking.
- Failing to follow the instructions of the proctor.
- Attempting to take the examination for someone else or allowing someone else to take the examination for you.
- Copying or attempting to copy examination questions and/or responses (in any format).

Candidates who engage in any form of misconduct are subject to NCARB's Policy for the ARE: Exam Candidate Conduct, which establishes procedures in the case of candidate misconduct. For more information on candidate misconduct, please reference the Exam Security and Candidate Misconduct section of this document.

RECEIVING YOUR SCORE

Score Reporting

All divisions of the ARE are administered and graded by computer on a pass/fail basis. Keep in mind that:

- Validated and official test results are not released at the test center or during online-proctored delivery.
- Provisional feedback is provided following an exam. For more information on this feedback and what it means, see the Provisional Feedback section below.
- All exam results are analyzed using data forensics to detect exam performance abnormalities, anomalous candidate behavior, unusual testing circumstances, candidate misconduct, and other information that might raise questions about the validity of exam results. For more information on this process, review the Anomalous Exam Performance section of this document.

PROVISIONAL FEEDBACK

At the end of each exam, you will be provided with provisional feedback on your exam performance. **The feedback provided is preliminary, unofficial, and based on unvalidated test results.** A printout of the feedback will not be provided following your exam. To view provisional feedback following your exam administration, follow the steps outlined below:

1) When you have answered all questions within your exam, click the "Exam Summary" button and then the "End Exam" button.
2) Next, you'll need to confirm you are ready to submit your results for scoring by clicking the "Yes. End Exam and Submit." button within the pop-up message.
3) After clicking the "Yes. End Exam and Submit." button, provisional feedback will immediately display on your screen.
4) Review the provisional feedback and navigate through the final testing reminders before ending your exam administration.

OFFICIAL SCORE REPORT

Your official score report will be available in the "Exams" tab in your NCARB Record within **7-10 calendar days of your test date**. After forensic data analysis has been completed and your score has been processed, you will be notified via email when your results are available for viewing in your NCARB Record. The official score report contains complete information about the appointment and your performance on the exam, as well as rolling clock information if you are seeking licensure from a jurisdiction that has a rolling clock-type requirement. For information on how to read your official score report, review the Reading Your Official Score Report section of this document. To find out if your jurisdiction has a rolling clock requirement, view the list of jurisdictions on NCARB's website.

Reading Your Official Score Report

All official score reports are clearly labeled pass or fail along the top of the first page. On passing score reports, the division's expiration date—five years after the date of your exam—is also noted. Reports include a verification link should anyone need to confirm the authenticity of your score. If you are seeking licensure from a jurisdiction that does not have a rolling clock-type requirement, the bottom half of your first page is blank. If you are seeking licensure from a jurisdiction that does have a rolling clock-type requirement, all your rolling clock information and testing history is provided on the lower half of the first page.

All score reports include the division name and score (pass or fail). Passing score reports also include the division's expiration date.

Reports include a link should anyone need to verify the authenticity of your score.

You will need your Record Number when contacting NCARB Customer Service.

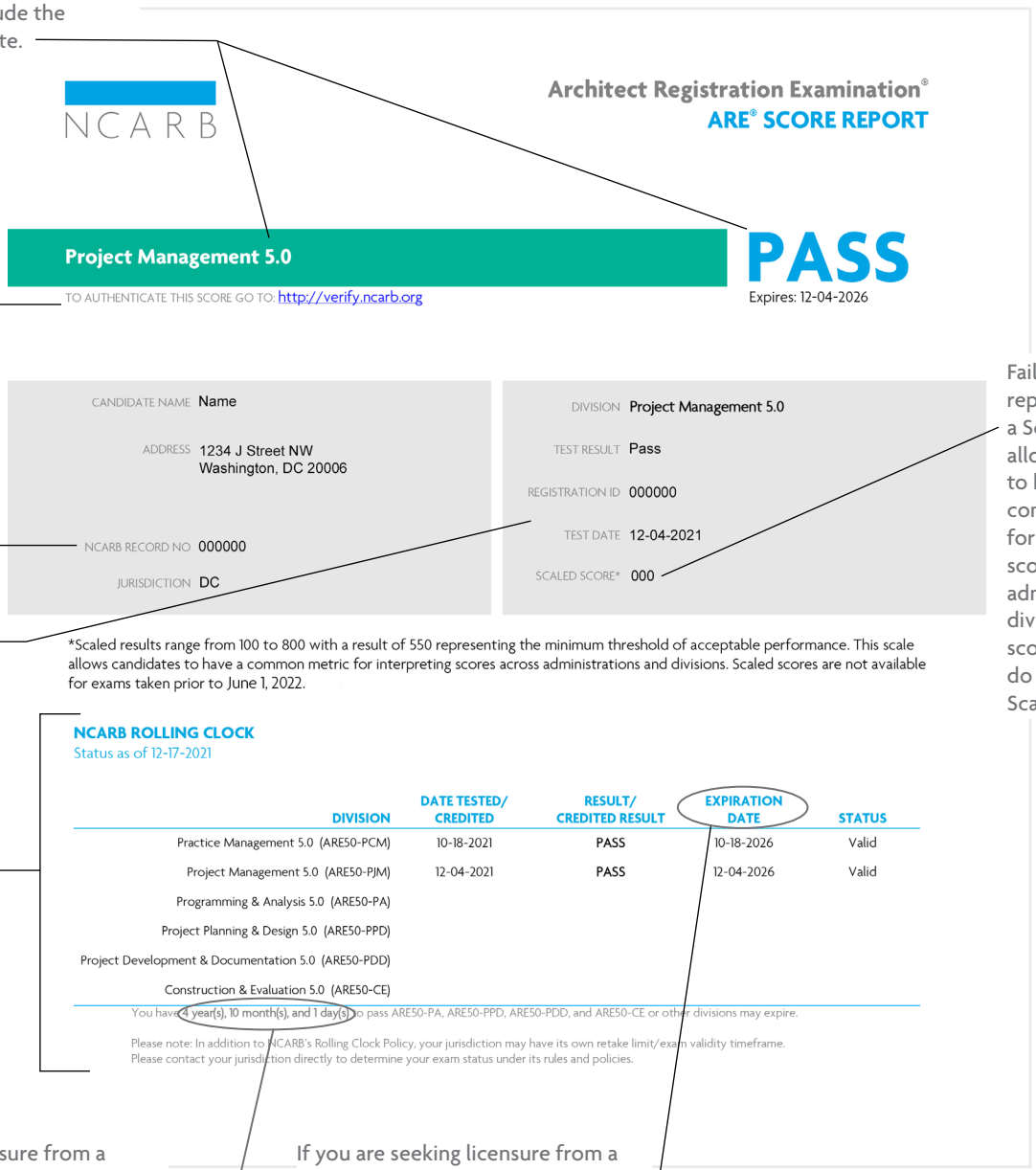
This box contains a summary of your score report.

If you are seeking licensure from a jurisdiction that has a rolling clock-type requirement, all of your rolling clock information is in this section. **Otherwise, this section is blank.**

If you are seeking licensure from a jurisdiction that has a rolling clock-type requirement, this is how long you have left to complete remaining divisions before your oldest passing score expires.

If you are seeking licensure from a jurisdiction that has a rolling clock-type requirement, these are the expiration dates for each division you've passed.

Failing score reports include a Scaled Score, allowing candidates to have a common metric for interpreting scores across administrations and divisions. Passing score reports do not include a Scaled Score.



NCARB

Architect Registration Examination®
ARE® SCORE REPORT

Project Management 5.0

PASS

TO AUTHENTICATE THIS SCORE GO TO: http://verify.ncarb.org

Expires: 12-04-2026

CANDIDATE NAME Name

ADDRESS 1234 J Street NW
Washington, DC 20006

NCARB RECORD NO 000000

JURISDICTION DC

DIVISION Project Management 5.0

TEST RESULT Pass

REGISTRATION ID 000000

TEST DATE 12-04-2021

SCALED SCORE* 000

*Scaled results range from 100 to 800 with a result of 550 representing the minimum threshold of acceptable performance. This scale allows candidates to have a common metric for interpreting scores across administrations and divisions. Scaled scores are not available for exams taken prior to June 1, 2022.

NCARB ROLLING CLOCK

Status as of 12-17-2021

DIVISION	DATE TESTED/ CREDITED	RESULT/ CREDITED RESULT	EXPIRATION DATE	STATUS
Practice Management 5.0 (ARE50-PCM)	10-18-2021	PASS	10-18-2026	Valid
Project Management 5.0 (ARE50-PJM)	12-04-2021	PASS	12-04-2026	Valid
Programming & Analysis 5.0 (ARE50-PA)				
Project Planning & Design 5.0 (ARE50-PPD)				
Project Development & Documentation 5.0 (ARE50-PDD)				
Construction & Evaluation 5.0 (ARE50-CE)				

You have 4 year(s), 10 month(s), and 1 day(s) to pass ARE50-PA, ARE50-PPD, ARE50-PDD, and ARE50-CE or other divisions may expire.

Please note: In addition to NCARB's Rolling Clock Policy, your jurisdiction may have its own retake limit/exam validity timeframe. Please contact your jurisdiction directly to determine your exam status under its rules and policies.

The range is the percentage a section is worth toward determing your overall division score.

This information describes the sections tested in this division. These sections are also listed in the chart below.

CANDIDATE NAME: Name REGISTRATION ID: 000000 DATE TESTED: 12-10-21

Construction & Evaluation 5.0

ARE® SCORE REPORT

TO AUTHENTICATE THIS SCORE GO TO: http://verify.ncarb.org

DIVISION STATEMENT

Deliver professional services during project construction; translate construction documents and specifications to communicate and bring clarity to design intent; coordinate construction activities to meet design intent; evaluate completed projects.

SECTION 1:
PRECONSTRUCTION ACTIVITIES
(17-23 percent of scored items)

1.1 Interpret the architect's roles and responsibilities during preconstruction based on delivery method
1.2 Analyze criteria for selecting contractors
1.3 Analyze aspects of the contract or design to adjust project costs

SECTION 2:
CONSTRUCTION OBSERVATION
(32-38 percent of scored items)

2.1 Evaluate the architect's role during construction activities
2.2 Evaluate construction conformance with contract documents, codes, regulations, and sustainability requirements
2.3 Determine construction progress

SECTION 3:
ADMINISTRATIVE PROCEDURES & PROTOCOLS
(32-38 percent of scored items)

3.1 Determine appropriate additional information to supplement contract documents
3.2 Evaluate submittals including shop drawings, samples, mock-ups, product data, and test results
3.3 Evaluate the contractor's application for payment
3.4 Evaluate responses to non-conformance with contract documents

SECTION 4:
PROJECT CLOSEOUT & EVALUATION
(7-13 percent of scored items)

4.1 Apply procedural concepts to complete close-out activities
4.2 Evaluate building design and performance

Passing Candidates % Correct is the average percentage of scored questions answered correctly by candidates who previously passed this division.

This division of the ARE contains four sections as described in the score report. The information in the table below details the composition of this division and your performance within each section at the time of the assessment. On this division, candidates must correctly answer between 58% - 65% of the total number of scored questions to receive a passing score. The passing score may vary between different divisions or administrations based on the relative difficulty of the items on each exam form. This ensures that all candidates are held to the same level of competency.

Your scaled score as reported on page 1 is based on the total points you earned across all sections and is more reliable measure than your section performance. The fail decision for this attempt was based on your total score and is a reliable reflection of your expected performance until you gain further competence. You must earn a pass in a single administration as no partial credit is accumulated from this or previous attempts at this division.

The information in the table details the composition of this division and your performance within each area.

Section	Your % Correct[1]	Passing Candidates % Correct[2]
Content Area 1: Preconstruction Activities	38%	74%
Content Area 2: Construction Observation	58%	74%
Content Area 3: Administrative Procedures & Protocols	54%	75%
Content Area 4: Project Closeout & Evaluation	57%	78%

Your % Correct is the percentage of scored questions you answered correctly in each content area.

1. **Your % Correct** is the percentage of scored questions you answered correctly in each content area.
2. The **Passing Candidates % Correct** is the average percentage of scored questions answered correctly by candidates who previously passed this division.

Information about feedback and scoring is provided here.

Sharing Your Score

NCARB recognizes your right to control any personal information that NCARB (or its third-party service providers) maintain. NCARB policy is designed to safeguard this information from unauthorized disclosure. To protect your right to control score distribution, NCARB will only release your score reports under two circumstances:

1) **NCARB will release your score reports to the board of architecture where you are seeking licensure.** A board of architecture may reserve the right to cancel one or more of your test scores, if, in its sole opinion, there is any reason to question its validity.

2) **NCARB may release test scores for use in research studies or under compulsion of legal processes**. In the case of research studies, NCARB will ensure that your anonymity is preserved.

The Passing Standard

Passing or failing the ARE depends solely on your level of performance in relation to the established point representing entry-level competence. Careful judgment has been exercised in setting the passing standards for all divisions of the ARE. The passing scores are the same for every board of architecture and are not affected by the number of people who pass or fail each division of the examination. There is no fixed percentage of candidates who pass or fail the ARE.

ARE Scoring

ITEM SCORING

Each item, regardless of item type, is worth one point and is scored as either correct or incorrect. There is no partial credit for completing just part of an item correctly. You'll earn a point if you answer correctly, but you won't lose a point if you answer incorrectly. Because of this, you should answer every question presented. If you are not sure of the correct answer, make your best guess and/or mark the question for later review. All unanswered questions will be counted as incorrect responses.

Every division includes some pretest items, which do not count toward your score. The number of pretest items per division ranges from 6-9, and they're randomly scattered throughout each exam division.

EXAM SCORING

Each division of the ARE has a minimum score, or cut score, that must be met in order to pass. Your total score is determined by adding up the points earned for all correctly answered items, excluding pretest items.

If your score is equal to or greater than the cut score established for the division you are taking, you'll receive a passing score. If your score is less than the cut score, you'll receive a failing score. Your score is based on your performance across the entire division, not section by section. If you do poorly in one section, it's still possible to pass by doing well in other sections.

After an Unsuccessful Attempt

In the event you do not pass a division of the ARE, a new eligibility to test on that division will be created based on the rules of your jurisdiction. Failing score reports will contain feedback on your performance on page two of the score report identifying areas of relative strength and weakness.

- **You can retake a failed division of the ARE as soon as 60 days after the previous attempt of that division.**
- **You may only take the same division of the ARE three (3) times within any 12-month time frame.**

SCORE VERIFICATION

Any candidate can request a score verification, which will involve the review of your performance on all questions by NCARB staff. The process will verify that the score and feedback on your score report accurately represent your performance on the division.

You can request a score verification of a failed division up to 60 days from the date your test was administered by contacting NCARB. The fee for a score verification is $100. If NCARB determines that the score or feedback reported to you was not accurate, NCARB will refund your score verification fee.

REVIEW AND CHALLENGE

Unlike a score verification, the exam review process is conducted by your jurisdiction's board of architecture. You will have the opportunity to review the question(s) you missed but won't receive the correct answers or any explanations.

You may only initiate the review process if your board of architecture permits reviews of failed divisions. It is at the sole discretion of each board of architecture whether to administer the review process.

If you wish to pursue the review process, keep in mind the following information:

- **Immediately contact your board of architecture to better understand the procedures and fees involved.** NCARB charges a $300 fee to review a failed exam. Your board may charge additional fees. The application for review and the review fee must be received by NCARB within four months of the administration of your test, and the review process must be completed within six months of your test date.
- Only those questions you answered incorrectly can be reviewed. The correct answer will not be revealed.
- You may only challenge a question answered incorrectly if your board of architecture allows challenges and appeals. Your challenge will be forwarded to NCARB for review and response.
- **NCARB Review:** If there is a successful challenge to a question(s) on your exam that has been determined by NCARB through the NCARB-facilitated review/challenge process to change your score from fail to pass, NCARB will recognize the new score for the purpose of NCARB certification.
- **State Review:** If your board of architecture (or a court with jurisdiction) changes your score from fail to pass outside of the NCARB-facilitated review/challenge process, ONLY that jurisdiction is required to accept the new score, and NCARB will not recognize the new score for purposes of NCARB certification.

REPORTING TEST CONCERNS

If you have concerns about your test, do not wait to receive your test results before expressing your concerns. NCARB can only respond to complaints received within 15 days of your test date. You must send your complaint to NCARB in writing via the contact form. **PLEASE NOTE: The filing of a report by the test center administrator or online proctor does not satisfy the requirements of notifying NCARB directly.**

Inquiries About Specific Exam Questions

NCARB employs extensive quality control procedures throughout the development of the ARE. However, candidates may encounter typographical errors or flawed questions on rare occasions. If you suspect an error in a specific question, write to NCARB after taking the test. In your correspondence, include:

- The name of the division
- The test date
- The specific concern(s) about the question

You are not permitted to copy the question before leaving the test center or completing your online exam and are not expected to recreate the entire question in your correspondence. NCARB will review the question, and you will be notified of the findings. The correct answer will not be revealed.

EXAM SECURITY AND CANDIDATE MISCONDUCT

Why ARE Security Matters

As a high-stakes professional licensure exam, the ARE plays an important role in ensuring the health, safety, and welfare of the public by affirming that ARE candidates have the required knowledge and skills to competently practice architecture. Jurisdictional licensing boards also depend on the validity of the ARE to affirm competence. If exam results are obtained by violating ARE security policies, then a jurisdiction may unwittingly license an individual who is not competent to practice architecture. This puts the health, safety, and welfare of the public at risk.

To ensure the validity of the ARE, NCARB and its testing partners enforce specific security policies before, during, and after the administration of your exam. This includes, but is not limited to, direct observation by test center staff and online proctors, audio and video recording of your examination session, and forensic data analysis of all exam results. **Candidates who do not follow ARE security policies will be subject to disciplinary action, which may be severe.**

ARE Candidate Agreement

To maintain the integrity, validity, and security of the ARE, all candidates will be required to read, understand, and accept the ARE Candidate Agreement before requesting eligibility to test and before scheduling an exam appointment. Additionally, you will be required to reaffirm that you understand and accept the ARE Candidate Agreement at the beginning of all exam administrations.

Accepting the ARE Candidate Agreement means that you agree to be held personally responsible for maintaining the confidentiality of all information relating to the exam. You are also agreeing not to copy, record, or disseminate ARE content through written, verbal, or any other means of communication. And you are agreeing to refrain from discussing what you see on the exam with family, friends, coworkers, supervisors, other examinees, study groups, and test preparation providers. Discussions of exam content on online forums, social media, and websites are also prohibited. **Simply put, the details of what you saw on your exam must remain confidential, and they can't be shared with anyone.**

While you will be required to accept and reaffirm your acceptance of the ARE Candidate Agreement multiple times in order to take the ARE, you are strongly encouraged to familiarize yourself with the agreement before you make arrangements to begin testing.

Violating the terms of the ARE Candidate Agreement may result in severe disciplinary action, including the suspension of testing privileges, restrictions on testing in the online-proctored modality, invalidation of exam scores, public reprimand, ethics education, and inability to obtain NCARB certification or to become licensed as an architect.

How to Appropriately Discuss the ARE

Limitations on what you can discuss following an exam are necessary to ensure the confidentiality of ARE content. This doesn't mean you can't talk about the ARE at all, though. In study groups and online forums, like the ARE 5.0 Community, **you may discuss and ask questions about general exam content**, study strategies, and ARE policies.

To help you understand the types of comments or questions that are acceptable, as well as those that are unacceptable and in violation of the ARE Candidate Agreement, see the following examples:

Acceptable – Not a Violation

- Discussing **general exam content** with your study groups, coworkers, and others:
  - *Make sure you understand daylighting design for the Project Planning & Design division.*
  - *You'll need to understand brick cavity wall assemblies.*
  - *Can someone help clarify Practice Management objective 1.4, the one that relates to how the standard of care is applied in a given situation?*
  - *Which AIA contracts are covered in the Project Management division?*
- Discussing **study and test-taking strategies**:
  - *What's the best strategy for tackling the case study part of a division?*
  - *When should I take a break during my exam?*
  - *Should I start with the case study items or save them until the end of my exam?*
  - *What is your study strategy for the Construction & Evaluation division?*

Unacceptable – Violation

- Discussing **detailed exam content** with your study groups, coworkers, and others:
  - *What was included in the case study scenarios that you saw on your exam?*
  - *I had a question about sizing an egress stair for a 10,000-square-foot community center.*
  - *Can you describe some of the questions you saw on your exam?*
  - *My exam included a question about selecting window types for a multistory office building in an arid climate.*

Whether you're discussing the ARE in person or online, it's important to always keep conversations at a high level and focused on general content. Discussions about ARE content specifics and details are strictly prohibited. **If you believe you have received ARE content or witnessed an unacceptable discussion through any means of communication, including through programs and materials from third-party test preparation providers, it is your responsibility to immediately report this information to NCARB by emailing ARESecurity@ncarb.org.**

Examples of Security Violations

Below are examples of security violations occurring before, during, or after your examination. This is not intended to be an exhaustive list of all ARE security violations.

Before your exam

- Seeking or obtaining ARE questions or other content prior to an exam
- Utilizing shared ARE questions or content to prepare for an exam
- Failing to notify NCARB if you believe you have seen or received exam content through any means of communication, including through third-party study materials, study groups, online forums, social media, coworkers, etc.
- Sharing ARE content that others may have shared with you

During your exam

- Recording or taking screenshots of ARE questions during your exam administration using computer software, cameras, or any other means
- Impersonating another tester
- Authorizing another individual to impersonate you
- Providing or receiving unauthorized assistance during an examination
- Failing to conduct yourself professionally and civilly throughout your test administration
- Failing to follow the directions given by test administrators or online proctors
- Accessing study materials or unauthorized devices like cell phones and smart watches during your examination
- Accessing computer software outside of the exam delivery program
- Taking notes of any kind beyond the use of the digital whiteboard

After your exam

- Attempting to reproduce ARE questions, case studies, or other content through memorization, notes, or any other means for your own later use
- Disclosing or attempting to disclose to anyone, including family, friends, supervisors, coworkers, or other candidates, by any means, including electronic, written, graphic, or verbal, the details of any ARE questions, case studies, or graphics
- Failing to be responsive and truthful with NCARB in any exam-related security or candidate misconduct investigation
- Altering, editing, or misrepresenting the information on an ARE score report

Remember, if you believe you have witnessed a security violation, it is your responsibility to immediately report this information to NCARB by emailing ARESecurity@ncarb.org.

Anomalous Exam Performance

With support from psychometricians, NCARB will analyze all exam administration results through the use of data forensics to detect exam performance abnormalities, anomalous candidate behavior, unusual testing circumstances, and other information that might raise questions about the validity of exam results. NCARB, at its sole discretion, may elect to hold, delay, not validate, or invalidate one or more exam scores if there is a good-faith reason to question the validity of the exam score. This includes scores that have been initially deemed valid and scores that are below, at, or above the passing standard.

Candidates impacted by an exam score hold, delay, validation, or invalidation through this process will be notified by NCARB within 7-10 days of their exam date and will be provided with instructions on how to proceed.

If forensic data analysis leads to concerns about the validity of a candidate's exam score, NCARB will not validate the exam results or will invalidate a previously validated result. Absent additional evidence of misconduct, NCARB will then provide candidates whose scores were above the passing standard with a free retest and immediate exam eligibility to demonstrate competency within the impacted exam division.

Candidates may appeal NCARB's decision to not validate or invalidate an exam score flagged for validity concerns within 30 days of the date of notification from NCARB. The appeal must be emailed to NCARB at ARESecurity@ncarb.org and include supporting evidence and information to clarify or resolve any cited abnormalities or concerns. NCARB, at its sole discretion, may elect to uphold its initial decision or, upon review of the provided evidence and information, validate or revalidate the impacted exam. Candidates will be notified of a final decision within 30 days of the receipt of the appeal.

ARE Candidate Misconduct

Candidates who engage in misconduct by not following the ARE Candidate Agreement or policies outlined in this document are subject to disciplinary action according to the Policy for the ARE: Exam Candidate Conduct and the Professional Conduct Committee: Rules of Procedure. ARE candidate misconduct includes, but is not limited to, the violations described in the Policy for the ARE, any violation of the ARE Candidate Agreement, failure to follow test center or online proctoring regulations, inappropriate or unprofessional behavior, or a breach of examination security.

INVESTIGATION PROCESS

NCARB conducts thorough investigations into all incidents of suspected candidate misconduct. NCARB can identify candidate misconduct through various means, including forensic data analysis of exam scores, video and audio recordings, incident reports from our testing vendors, information shared with the ARE Security Tip Line, and publicly available online research. Upon discovery of suspected candidate misconduct, NCARB, at its sole discretion, has the authority to place a hold on a candidate's Record, which includes pending scores and the ability to schedule, take, and cancel future exams, pending further investigation. If you are involved in a misconduct investigation, NCARB will notify you via email when placing your Record on hold.

Misconduct investigations include discovering and reviewing all available information relevant to the incident, including information obtained through forensic data analysis, a review of a candidate's ARE testing history, videos, audio recordings, log files, online research, and other information from NCARB and third-party sources. **Candidates must be responsive and truthful during any exam-related security or candidate misconduct investigation. Failure to do so is a violation of the ARE Candidate Agreement.**

If NCARB determines in the course of its investigation that a candidate may have committed a misconduct or security violation, the candidate's jurisdictional licensing board will be informed, the case will be referred to NCARB's Professional Conduct Committee (PCC) for review, and, if applicable, NCARB's Board of Directors will determine a final disciplinary action. NCARB will address all misconduct and security violations according to the policies and procedures outlined in the Policy for the ARE: Exam Candidate Conduct and Professional Conduct Committee: Rules of Procedure.

If no action is taken or only a warning letter is issued, NCARB will reopen any closed eligibilities to test and assist the candidate in rescheduling any canceled exam(s) at no additional cost to the candidate.

MISCONDUCT SANCTIONS

Candidates found to have committed misconduct will be subject to the sanctions outlined in the Policy for the ARE: Exam Candidate Conduct and Professional Conduct Committee: Rules of Procedure.

Sanctions include the following:

- Restrictions on testing with online proctoring
- Cancellation of exam scores
- Suspension of test authorization for all divisions
- Prohibit granting of an NCARB Certificate for a period of time
- Suspension of the NCARB Certificate for a period of time
- Revocation of the NCARB Certificate
- Completion of mandatory ethics education
- Public reprimand of candidate

NCARB's Board of Directors also reserves the right to impose any sanction it believes appropriate, of either more or less severity, than those noted above.

In addition, if a candidate subsequently seeks NCARB certification, their disciplinary record will be considered in deciding whether to grant NCARB certification. When warranted, NCARB may pursue all legal remedies available to recover monetary damages in connection with misconduct.

Finally, all disciplinary actions taken by the NCARB Board of Directors will be forwarded to the candidate's jurisdictional licensing board, which may take additional action, including revoking or suspending the individual's license to practice architecture.

APPEALS

Candidates may appeal disciplinary actions taken by NCARB's Board of Directors per the process outlined in the Professional Conduct Committee: Rules of Procedure.

ARE Security Tip Line

As an ARE candidate, remember: Confidence in the validity of your exam scores is essential to affirming your competence to practice architecture. If frequent occurrences of examinee misconduct lead to doubts about the validity of the ARE, including exam scores, then the validity of ARE results earned by candidates who have abided by the terms of the ARE Candidate Agreement might also be called into question.

Help NCARB protect the integrity of the exam and the validity of exam scores by reporting any and all security concerns or suspected misconduct you might observe on the part of other examinees. Not only is it in your best interest to report security concerns, but it is an obligation you are bound to uphold after accepting the ARE Candidate Agreement.

By reporting any suspicions or information you might have that another ARE examinee has reproduced, shared, or is in possession of ARE content, you will be protecting the credibility of all candidates who have appropriately demonstrated their abilities on the ARE.

Help protect the public, the ARE, and yourself by reporting even minor concerns to NCARB. Contact our ARE Security Tip Line at ARESecurity@ncarb.org.

If you share information with the ARE Security Tip Line, NCARB will make every effort to treat your identity with an appropriate regard for confidentiality, with the understanding that the details of complaints may need to be shared with others in order to investigate such complaints properly.

EXAM DEVELOPMENT AND MAINTENANCE

How ARE 5.0 Was Created

To ensure the exam measures candidates' knowledge and skills in areas that are relevant to current architectural practice, NCARB bases the ARE on the results of a profession-wide study called an analysis of practice. NCARB last completed an analysis of practice in 2012, and the results were used to create ARE 5.0. Subject-matter experts used the *NCARB 2012 Practice Analysis of Architecture* to determine the divisions, sections, and objectives needed to evaluate licensure candidates' ability to competently and independently practice architecture.

Development of ARE 5.0

The six ARE divisions are broken down into four to five sections, with each section focusing on a content area. The sections are further divided into objectives, which address the skills and knowledge (also called competencies) identified in the *NCARB 2012 Practice Analysis of Architecture*. Each objective describes one of those competencies. Every item you will see on an ARE 5.0 division is authored to assess competence in the skill or knowledge area described in an objective.

Exam items are authored by volunteer architects. These volunteers are professionals who have been through the licensure process but who are not employed by NCARB. Over 100 volunteer architects gather every year to write and review new items for ARE 5.0 in NCARB's examination development committees. The authoring of each item follows the same multi-step process:

1) First, a volunteer architect item writer will use the *ARE 5.0 Guidelines*, which outlines the structure and content of the exam, to make sure that items being authored assess a competency that has an impact on the health, safety, and welfare of the public. The items often draw directly from the author's experience in practice. In many of the items, you'll find terms like "southeastern United States" and "XYZ Architecture." That's because the original place and firm names have been scrubbed from the real-life situations experienced by the author. Item authors are also required to make sure that the information needed to correctly answer the item can be found in a recognized architectural reference, such as *The Architect's Handbook of Professional Practice; Sun, Wind, and Light;* or *Mechanical and Electrical Equipment for Buildings*.

2) Once the item has been written, a volunteer architect (called a coordinator) who has experience authoring exam items will provide feedback on whether the item is ready to move forward in the development process. If it isn't, the item will be sent back to the author, and they will be required to incorporate the feedback given by the coordinator.

3) If the coordinator decides that the item is well-crafted and successfully assesses an objective, the item will be edited by a professional NCARB editor for all non-content-related aspects of the item, including grammar, spelling, form, style, and conformance to ARE item writing standards.

4) Next, the items are assessed for validity, relevance, and inarguable correctness by a workgroup of 5-10 architects in a workshop setting called item review. The workgroup will do one of the following for each item up for review:

    a) Move the item forward to be placed on the exam as a pretest item.

    b) Recommend minor suggestions for improvement that can be made during the item review process and then move the item forward to be placed on the exam as a pretest item.

    c) Recommend major suggestions for improvement to be completed prior to the next item review.

    d) Determine that the item is confusing, flawed, difficult, or irrelevant and has no place on the exam.

5) If the item is ready for placement, a professional NCARB editor will give the item a final review before it is ready for pretesting.

6) After the ARE 5.0 Item Development Subcommittee finishes writing, reviewing, and editing items, NCARB's third-party psychometricians (or testing experts) assemble an appropriate combination of items for each division of the exam. The psychometricians use an NCARB Board-approved set of guidelines to make sure that the proper balance of content is tested on each exam. These guidelines make it so that each section and objective aren't under- or over-represented. The psychometricians also use statistical analyses of items to make sure that an exam isn't made of too many difficult or easy items.

7) After the psychometricians assemble the forms, another group of volunteer architects on the ARE 5.0 Forms Assembly Subcommittee review the items grouped together on a given exam to make sure that they don't test the exact same content or provide clues as to how to answer other items.

ARE 5.0 CASE STUDY DEVELOPMENT

Between volunteer architects and NCARB staff, 15-20 people are involved in the development of each case study item. NCARB's Case Study Subcommittee creates the case studies, where five volunteer architects and two NCARB staff members are involved in developing and editing each case study. NCARB's ARE 5.0 Item Development Subcommittee then uses the case studies to write items, where another five to ten architects and three NCARB staff members are involved in the writing, development, and editing of the items.

You will notice that case studies seem to feature generic place names and firm names. This is intentional. Volunteer architects develop these case studies using the specifics and resources from real-life projects that they've designed. Unique names and places are substituted with generic ones to protect the privacy of firms and clients. What you should know, though, is that the projects and scenarios presented in case studies are far from generic—they actually happened in the world of architectural practice.

Maintenance of ARE 5.0

Items that are ready for placement on the exam spend roughly one year as an unscored, or pretest, item. Between six and nine of the items on each exam division are unscored—whether you get the items wrong or right, they won't count for or against your score. However, you won't know which items are unscored. The reason for all these measures is to make sure that the items on ARE 5.0 exams are statistically and psychometrically valid. NCARB only wants items on the exam that are effective in determining whether a candidate is competent in a particular skill or knowledge area. Items must prove they are effective before they become scored items on the exam.

Psychometricians evaluate the performance of exam items every year, and some of the unscored items are statistically flagged as being poor indicators of competence. These items are then reviewed by another 5-10 volunteer architects, who will make a final determination as to whether the statistical flag is warranted. They will once again assess the content and construction of the item and decide if it should be retired, modified, or allowed to return to the exam as a scored item.

Psychometricians also monitor scored items every year. If their performance dips below an acceptable standard, they are also flagged and reviewed.

EXAM STRUCTURE

Delivery Format

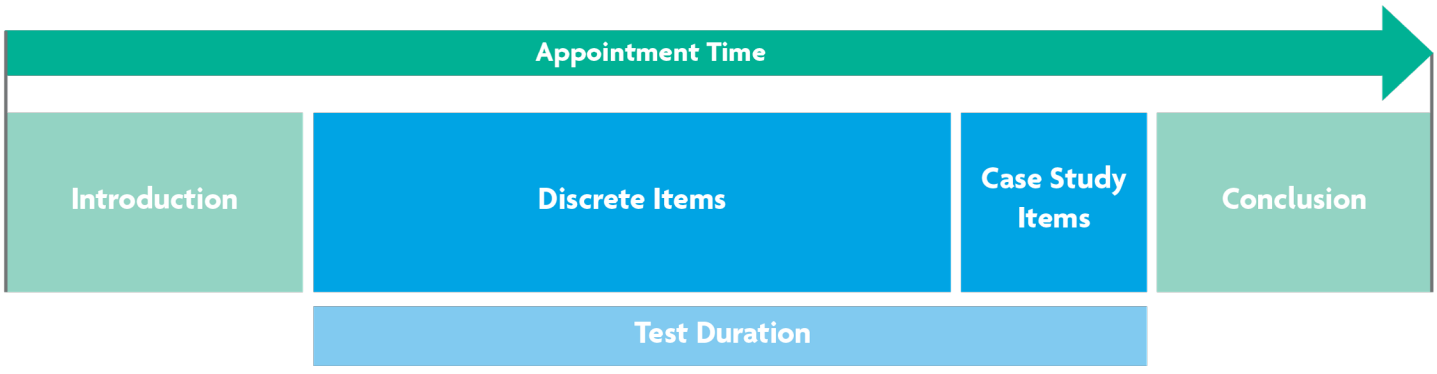
All six divisions of ARE 5.0 are organized the same way. Each exam appointment will begin with a few introductory screens, including a set of final testing reminders. Once you complete the introduction, the content portion of your exam will begin.

The content portion of each division includes standalone questions and case study questions. Standalone questions—also called "discrete items"—are located at the beginning of the content portion, and case studies are located at the end. You don't need to answer questions in a specific order, so you may navigate directly to a case study whenever you feel most comfortable by using the "Exam Summary" tool.

Your exam appointment will conclude with final testing reminders and provisional feedback on your overall exam performance.

Optional break time is offered during each exam administration. This time can be used for a few short breaks or one long break. You can begin a break at any time. **However, after returning from a break, you will not be allowed to go back to any of the items you have already viewed, regardless of whether you have answered them or not. They will be locked.**

Prior to scheduling your exam, please take the ARE 5.0 Practice Exams, which can be accessed through the Practice Exam Dashboard in your NCARB Record, to familiarize yourself with the structure and delivery of the ARE.



ARE 5.0 Division Structure

Each division's content is broken down into 4-5 topic-based sections. The sections are further divided into objectives. Each objective addresses a specific knowledge area or skill. Learn how NCARB determines what should be included on the exam.

DIVISION	SECTIONS	OBJECTIVES
Practice Management	4	12
Project Management	5	17
Programming & Analysis	4	16
Project Planning & Design	5	17
Project Development & Documentation	5	17
Construction & Evaluation	4	12

Cognitive Levels

Every ARE objective is tied to a certain type of mental operation or thinking skill, which is called the cognitive level. ARE 5.0 uses two cognitive levels, and every ARE item is authored to address both the objective and one of the following cognitive levels paired with that objective:

1) **Understand/Apply (U/A):** These items will require you to understand a concept and apply it to a scenario.

2) **Analyze/Evaluate (A/E):** These items will ask you to analyze a set of concepts or factors and make an evaluative judgment.



Understand/Apply: deduction of meaning from information, demonstration of comprehension of concepts or processes, application of processes or procedures in familiar or unfamiliar situations.

- Requires conceptual understanding to answer
- Focuses on standard, straight-forward application of knowledge
- May require the employment of a mathematical formula



Analyze/Evaluate: reduction of overall concept into component parts, determination of how parts relate to one another and to the overall structure, arrival at judgments based on given criteria.

- Requires integration of new information with existing information
- May require the prioritization of information
- Often focuses on non-standard situations

COGNITIVE LEVELS NOT USED ON THE ARE

While ARE 5.0 uses only the U/A and A/E cognitive levels, there are two other types of cognitive levels: the "Remember" level and the "Create" level. The "Remember" level only requires rote memorization or simple recall, and questions written at this level only ask for definitions and facts. ***You will not find "Remember" level items on the ARE****. Nor will you find items that ask you to use the highest cognitive level, "Create." Items that require the use of these cognitive levels are not appropriate for the ARE's purpose of assessing competence in a newly licensed architect.*

Example of a U/A-Level Item

Below you will find an example of a U/A-level item and a rationale explaining why it is at the U/A level.

U/A SAMPLE ITEM

A residential development is composed of large building lots. On-site sewage disposal for each lot is permitted subject to the suitability of the soil.

Which type of soil investigation should the architect request?

- ● Percolation test
- ❍ Evaporation test
- ❍ Test for soil alkalinity
- ❍ Test for soil density

U/A LEVEL

RATIONALE

This is a U/A-level item because you are required to **understand** *the purpose of a percolation test. After reading the item, you should recognize that the scenario being described is a standard-use situation for a percolation test. In short, you will need to* **apply** *your understanding of a percolation test to the scenario.*

Example of a A/E-Level Item

Below you will find an example of a A/E-level item and a rationale explaining why it is at the A/E level.

A/E SAMPLE ITEM

A 100% design development cost estimate for a two-story, construction type V-B, three-unit townhouse is completed and comes back higher than expected. The client asks an architect to value engineer the structural design.

What changes should the architect consider as they move forward with construction documentation?

- ● Change from a balloon-framed to a platform-framed structural system.
- ❍ Replace wood stud shear walls with glue-laminated columns.
- ❍ Use prefabricated floor elements instead of a site-assembled floor system.



RATIONALE

This is an A/E-level item because you are required to **analyze** the elements of the project, including construction type, number of stories, and the purpose of the structure, along with the various changes proposed to construction elements in the response options. After your analysis, you will then need to **evaluate** which one of the construction elements would be appropriate to exchange considering the given project information, and of the appropriate exchanges, which one will realize the most cost savings.

ARE 5.0 Item Types

Each division of ARE 5.0 uses the following three item types for both the exam's standalone and case study items: multiple choice, check-all-that-apply, and hotspot. All items are worth one point and there is no partial credit.

MULTIPLE CHOICE

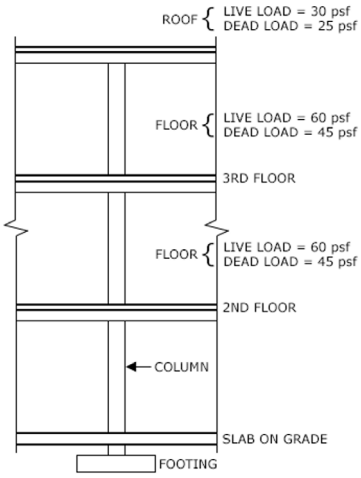
A multiple choice item contains a question followed by either three or four response options. This item type is used when only one correct answer is needed. To respond to this item type, you'll need to select a single response out of the possible response options.

Refer to the exhibit.

The cross section shown indicates an interior column. The tributary area for loading on the column equals 20 feet by 24 feet.

Assuming no live load reductions, which one of the following is the design live load for the footing?

- ❍ 43,200 lb
- ❍ 57,600 lb
- ● 72,000 lb
- ❍ 96,000 lb



TIP

Use the strikethrough tool to cross out incorrect options. You can also use the highlight tool to identify key elements in the question or response options. These tools not only work for multiple choice items, but all item types and even case study scenarios.

CHECK-ALL-THAT-APPLY

A check-all-that-apply item, sometimes called a CATA, is similar to a multiple choice item. The main difference is that this item type allows you to select multiple answers. This item type contains a question followed by a prompt to select between two and four responses out of six possible response options. All correct response options must be selected in order to answer the item correctly. There is no partial credit for selecting only some of the correct response options.

Seven months after substantial completion for a new office building, a building owner contacts an architect to report that mold has been found in a basement utility room. It appears a mechanical exhaust fan has malfunctioned.

In which of the following ways should the architect address this issue? **Check the two that apply.**

- ❑ Submit an additional service request to the owner.
- ■ Meet with the owner to review the building operations.
- ❑ Advise the owner to file a claim for damages.
- ■ Advise the owner to notify the original contractor about the issue.
- ❑ Advise the owner to hire a new contractor to fix the fan.
- ❑ Specify a new fan for the owner to purchase as a replacement.

TIP

All correct response options must be selected to correctly answer the item. Pay close attention to the number of correct responses you'll need to check. CATA items will always tell you the number of correct responses to check in bold type, like this: ***"Check the two that apply."***

HOTSPOT

A hotspot item contains a question followed by an architectural drawing, photograph, diagram, map, or other image. This item type is used to assess competence graphically. To respond to this item type, you'll need to click on an area or object within the provided image. If your answer is located within the acceptable scoring area, it will be scored as correct. Also, be aware of the following features of hotspot items:

- You will never be required to click on a small, extremely precise area on the image.
- Hotspot items are designed in such a way as to require you to click in an *acceptable scoring area.*

During a construction observation visit to a new townhouse development, an architect reviews the contractor's installation of the roof sheathing.

Click on the material in the photo that contributes to the required fire separation between adjacent townhouses.



TIP

You can change your response by clicking on a different area on the image as many times as you would like. The last area on which you click will be recorded as the answer. A crosshair will appear on whatever area you clicked last. This is the response that will be recorded and scored.

ARE 5.0 Case Studies

ARE 5.0 uses case studies to assess your ability to synthesize multiple pieces of information and apply that information or make an evaluative judgment based on that information to select a correct solution. Case studies represent real-world architectural projects. They are intended to be more similar to day-to-day architectural practice than standalone items, as case study items require consideration of many factors.

A case study is a snapshot of a project at a particular point in time. This information is found in the case study scenario, which provides a description of the case study and other key information. Case studies also include one to two resources. These resources might take the form of code excerpts, AIA contracts, architectural drawings, budgets and schedules, or program requirements. A list of common case study resources currently used on the ARE is provided in this document.

The scenario and resources within a case study will not change from question to question. Questions do not build on each other based on previous responses, so answering one question incorrectly will not impact your ability to answer the remaining case study questions correctly. You will be able to access all the resources associated with a case study while reviewing any of that case study's items.

TIPS FOR ANSWERING CASE STUDY ITEMS

To correctly answer a case study item, you'll need to be familiar with the scenario and the resources provided. It's a good idea to familiarize yourself with the scenario and resources the first time you encounter a case study. After getting a good sense of the project, you can more quickly assess what information might be needed to correctly answer the items. You can then dig into the details as required by each item.

Case study items are not designed to assess whether you can simply find information in a resource. They will require you to find information and then apply or analyze it. For this reason, it will usually take longer to answer case study items than standalone items. This is accounted for in the duration assigned to each division. Though case study items are located at the end of the exam, you don't have to wait until the end to answer them. By using the "Exam Summary" tool, you can begin answering case study items whenever you wish.

Check out sample case studies within the ARE 5.0 Practice Exams, which can be accessed in the Practice Exam Dashboard within your NCARB Record. Use the exams to practice navigating through the resources, using the search function and bookmarks, and answering the sample case study items.

HOW TO ANSWER A CASE STUDY ITEM

Here is an example of how a case study item relies on the case study's scenario and resource.

EXAMPLE CASE STUDY

Case Study 1: Question 1 of 4

Scenario | Program Elements

An architecture firm has been selected by a university to design a new Event Center. The purpose of the new Event Center is to provide the university with a flexible space to host a variety of campus events including basketball and volleyball games, commencement, concerts, featured speakers, and banquets.

The university has developed a program for the Event Center and selected a site near its main suburban campus for the building to be located. The site is bounded by University Drive to the west, a stream to the south, a sidewalk and parking lot to the north, and a service road to the east.

Key project information:

- Programmed building area - 72,350 NSF / 108,525 GSF
- Visitors to the Event Center must be served by the customary amenities typically found in assembly facilities including a main concourse, public restrooms, concessions, and retail.
- Local zoning requires one off-street parking space per four seats.
- All off-street parking for the Event Center will be located on a neighboring site.

The following resource is available for your reference:

- **Program Elements,** listing the required spaces, space characteristics, and adjacencies

EXAMPLE CASE STUDY ITEM

What is the minimum number of off-street parking spaces required for the new Event Center?

- ○ 359 parking spaces
- ○ 367 parking spaces
- ● 1,250 parking spaces
- ○ 1,273 parking spaces

The correct answer to this item is 1,250 parking spaces. To arrive at this answer, you should familiarize yourself with the case study scenario. The scenario tells you that the project involves the design of a new Event Center for a university that is 108,525 GSF. Being familiar with this context, you can now approach the item with the minimum necessary understanding to answer it correctly.

The item asks you for the minimum number of off-street parking spaces required for the new Event Center. To answer this item correctly, you'll first need to identify the parking requirements. Per the scenario, local zoning requires one off-street parking space per four seats.

Next, you'll need to determine the number of seats proposed for the new Events Center. The Program Elements resource states the building will include 5,000 fixed spectator seats.

The final step is to divide the number of seats defined in the Program Elements by four since the local zoning requires one off-street parking space per four seats. The result of this calculation will tell you that the Event Center requires 1,250 off-street parking spaces.

COMMON CASE STUDY RESOURCES

ARE 5.0 case studies feature many of the same types of resources, regardless of the individual scenario. Below you will find a list of the common types of resources used for each division. You will find some resource types in multiple divisions.

Practice Management	Project Management	Programming & Analysis
AIA Contracts	AIA Contracts	ADA Excerpts
Firm Financial Statements	Design & Construction Schedules	ICC Excerpts
Requests For Proposals	Program Requirements	Program Requirements
Staff Labor And Utilization Rates	Project Budgets And Cost Estimates	Site Plans
Staff Resumes	Staff Labor Rates	Zoning Ordinances

Project Planning & Design	Project Development & Documentation	Construction & Evaluation
ADA Excerpts	ADA Excerpts	AIA Contracts
Architectural Drawings	Architectural Drawings	Architectural Drawings
ICC Excerpts	Consultant Drawings	Design & Construction Schedules
Program Requirements	ICC Experts	Field Reports
Zoning Ordinances	Specifications Excerpts	Specifications Excerpts

EXAM NAVIGATION AND TOOLS

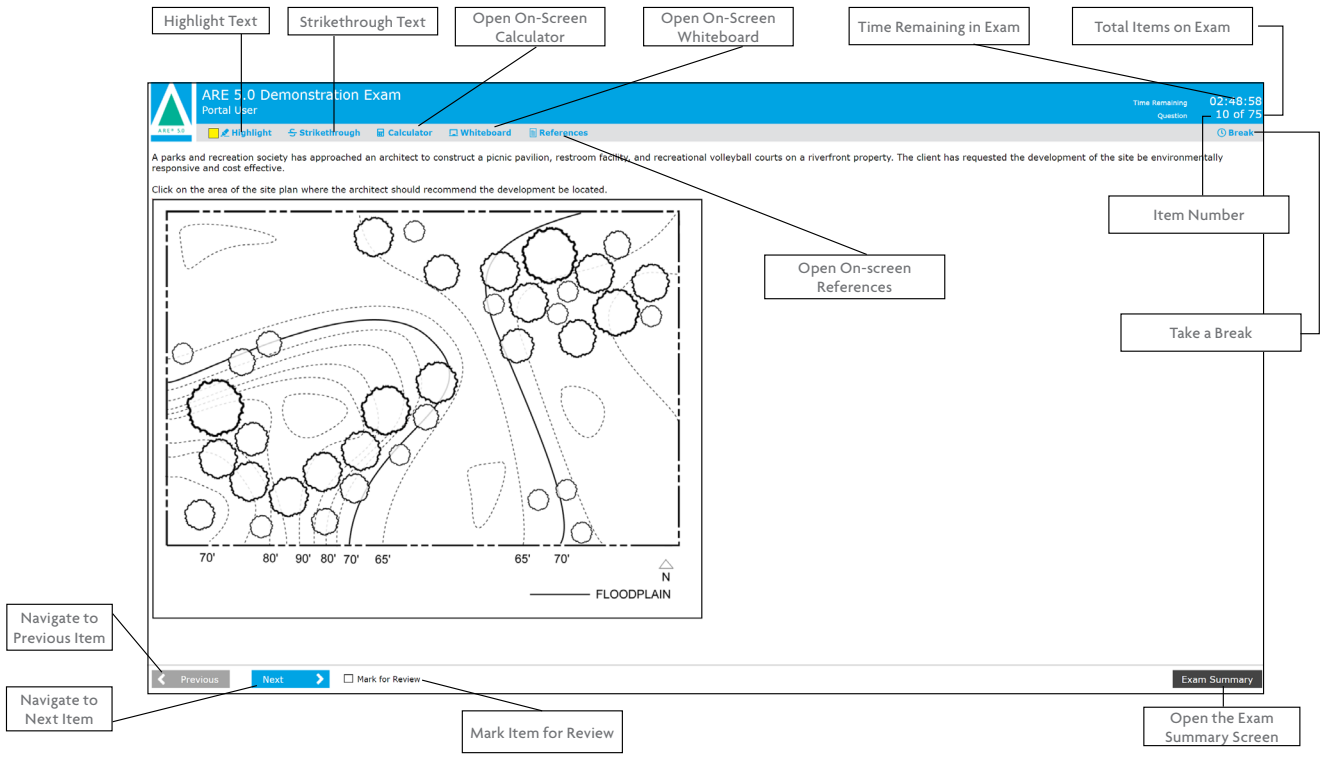
Testing Interface

Within the ARE testing interface, you can navigate between items by clicking the "Next" or "Previous" buttons. If you encounter an item you'd like to answer later or if you want to check your work later, select the "Mark for Review" checkbox at the bottom of your screen. Be sure to return to any marked items before you take a break.

To see the items you have marked for review, click on the "Exam Summary" button in the lower right corner. This will take you to a screen that displays all items, including those marked for review, and allows you to navigate directly to them.

On the top menu bar, there are several tools to assist you throughout your exam. The "Highlight" button allows you to identify useful information within a question or response option. You can also strikethrough text to eliminate information you find distracting by clicking the "Strikethrough" button. You will also have access to an on-screen calculator, whiteboard, and reference formulas throughout your exam.

Optional break time is offered during each exam appointment. You can begin a break at any time by clicking the "Break" button in the upper right corner. A popup message will confirm that you would like to take a break. Once you confirm, your exam time will pause, and a new clock will begin for your break period. When you have completed your break, click "Return to Test" to resume your exam. **When you return from a break, all items that you have already viewed will be locked, including those marked for later review, and you will not be able to view or edit them again. Only items identified as unseen prior to a break will be viewable following a break.**



Exam Summary

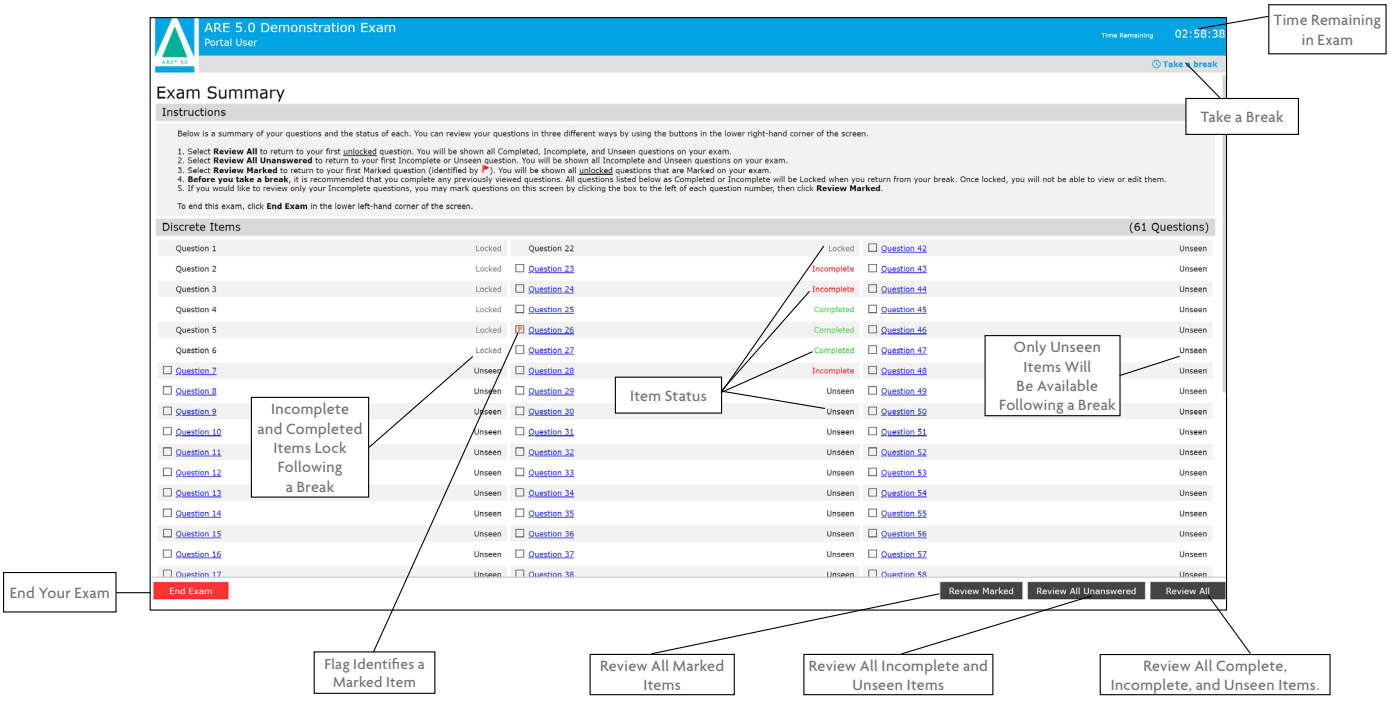
The Exam Summary screen can be accessed at any point during your exam administration by clicking on the "Exam Summary" button located in the lower right corner of the screen. This screen provides a summary of all the items on your exam as well as their status. Items will be assigned one of the four following statuses:

- Locked: Items that you can no longer access because you've taken a break.
- Completed: Items you have seen and answered but that are not yet locked. You can go back and change the responses of these items as long as they remain unlocked.
- Incomplete: Items that you have seen but have not answered and are not yet locked. If you wish to answer these items, do so before taking a break.
- Unseen: Items that you have not yet seen and are not yet locked. You can take a break and still see and answer these items afterward. They will not lock after taking a break.

You can review items from the Exam Summary screen in three different ways by using the buttons in the lower right corner of the screen.

- Click the "Review All" button to return to your first non-locked item. You will be shown all completed, incomplete, and unseen items on your exam.
- Click the "Review All Unanswered" button to return to your first incomplete or unseen item. You will be shown all incomplete and unseen items on your exam.
- Click the "Review Marked" button to return to your first marked item. You will be shown all unlocked items that you've marked for review on your exam.

Exams can only be ended from the Exam Summary screen. Once you are satisfied with all responses, you can end your exam by clicking the "End Exam" button. You will be asked if you want to end your exam or return and continue testing. Once you confirm by clicking "Yes. End Exam and Submit," your test will be submitted for scoring.



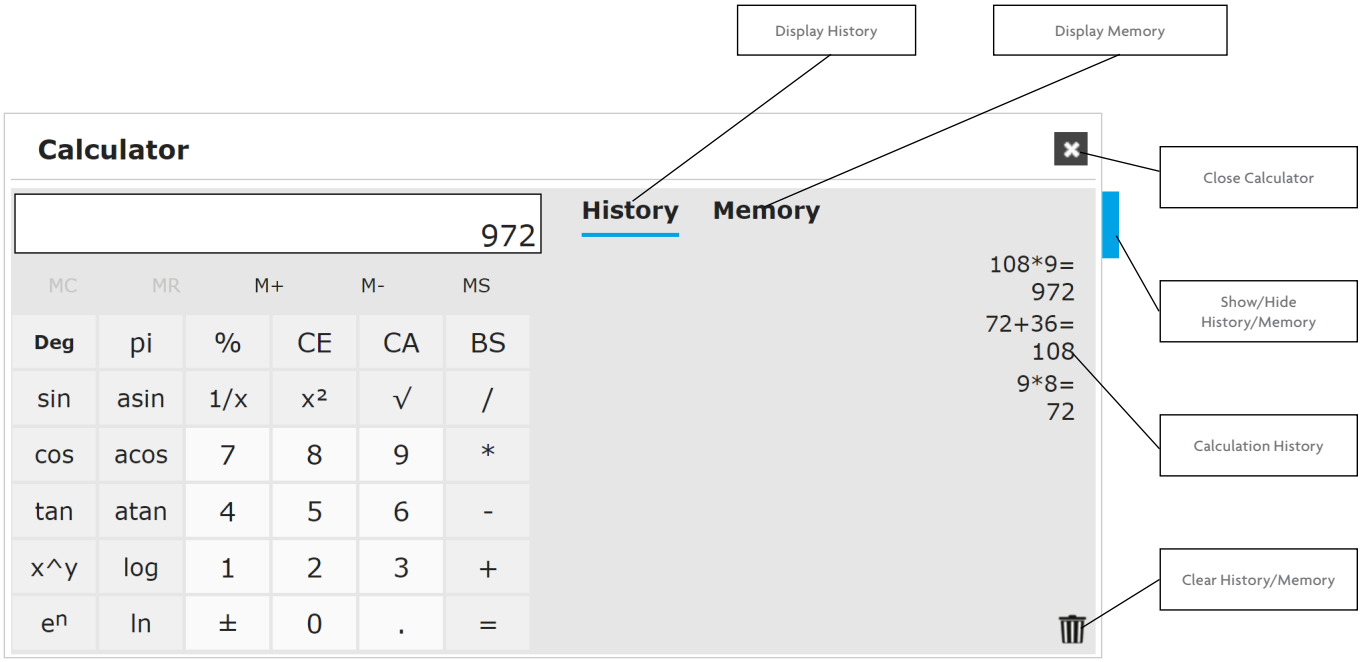
Calculator

ON-SCREEN CALCULATOR

You will be provided with an on-screen calculator throughout your exam administration. The calculator can be opened while viewing an item by clicking the "Calculator" button located on the top menu bar. The calculator provides the functionality required to answer ARE calculation items across all six divisions. When navigating between items, the calculator's history and memory reset each time you view a new item.

PERSONAL CALCULATORS

ARE candidates are **NOT** permitted to use a personal calculator at the test center or during an online-proctored exam administration. Use of a personal calculator during an exam is strictly prohibited and may result in disciplinary action, including the cancellation of exam scores.



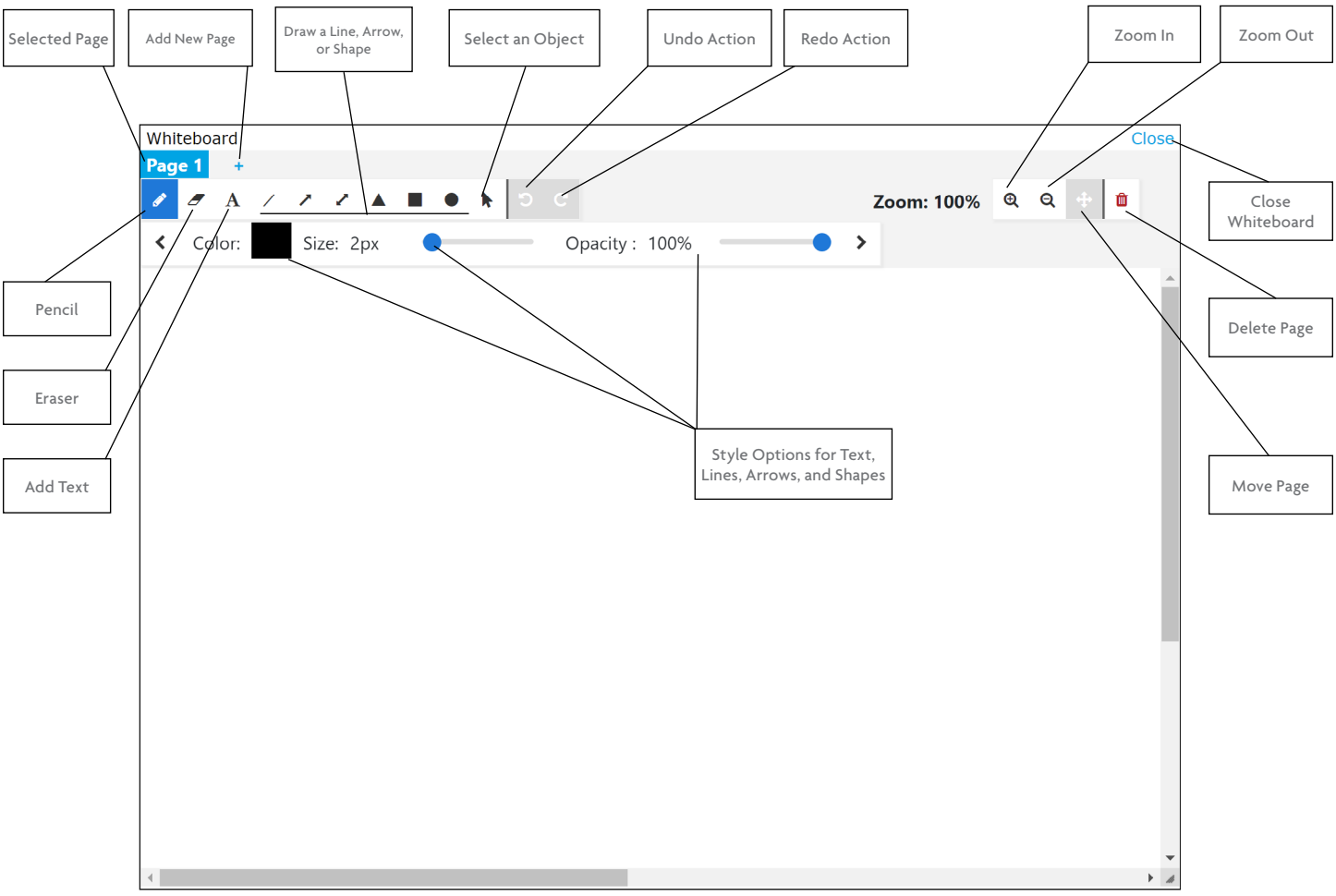
ARE CALCULATOR BUTTONS & DESCRIPTIONS

Button	Description
History	Logs all calculations
Memory	Displays values added to the memory
MC	Clear the memory
MR	Recall the value from the memory
M+	Adds number in input box to value in memory
M-	Subtracts number in input box from value in memory
MS	Store the value in memory
Deg	Calculator mode (degree/radian)
pi	Displays pi
%	Defined percentage of a single number
CE	Erase the last value
CA	Reset the calculator
BS	Erase the last digit
sin	Sine function
asin	Arcsine
1/x	1 divided by current value
X^2	Square of current value
√	Square root
/	Divide
cos	Cosine function
acos	Arccosine
*****	Multiply
tan	Tangent function
atan	Arctangent
-	Subtract
X^Y	Current entry raised to power of next entry
log	Base 10 logarithm
+	Add
e^n	*e* raised to the power of n
ln	Natural log
±	Change sign
=	Equals

Whiteboard

The whiteboard serves as your virtual scratch paper when taking an ARE division. Once you've navigated to an item on your exam, you can open the whiteboard by clicking the "Whiteboard" button on the top menu bar. Information added to the whiteboard is saved and viewable throughout your exam administration, including when returning from a break.

ARE candidates are **NOT** permitted to use physical scratch paper at the test center or during an online-proctored exam administration. Use of physical scratch paper during an exam is strictly prohibited and may result in disciplinary action, including the cancellation of exam scores.



FREEHAND SHAPES

To draw a freehand shape on the whiteboard, simply select the "Pencil" tool, move your mouse to the whiteboard area, and hold down your mouse's single click option. You'll have the option to change the color, size, and opacity of the line. To erase pencil lines on the whiteboard, use the eraser tool.

TEXT

To type, click the "Draw a text" button, place the text box on the whiteboard, and type using your keyboard. With the text selected, you can change the font family, color, size, style, and opacity. To delete text, right click on the text box and select "Remove." Text can also be deleted using the eraser tool.

SHAPES, ARROWS, AND LINES

To draw a shape, arrow, or line, click the associated button, move your mouse to the whiteboard area, and hold down your mouse's single click option. You can activate the ortho functionality by holding down the shift key while placing an object. You'll also have the option to change the color, border, opacity, and width of objects. To delete an object, right click on it and select "Remove." Objects can also be deleted using the eraser tool.

PAGES

The whiteboard allows you to create multiple pages on which to work by clicking the "+" button next to the page designations. You may need to make your whiteboard larger to accommodate the number of tabs if you add several pages. Pages are saved and viewable throughout your exam administration, including when returning from a break. To delete a page, click the trash can symbol in the upper right corner of the whiteboard.

ZOOMING

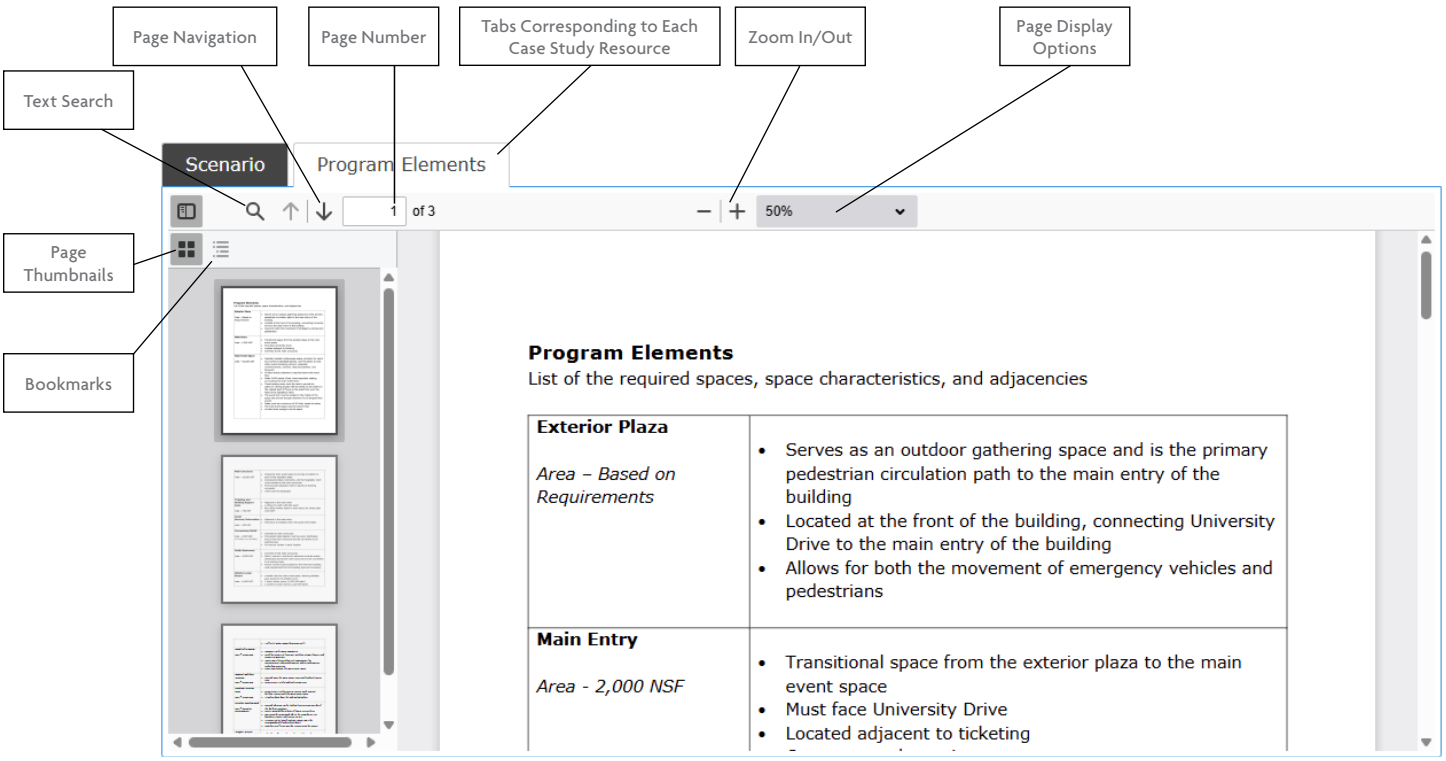
You can zoom in and out of the whiteboard by using the zoom buttons in the upper right corner. If you need to increase the space available on a page or canvas, expand the window size of your whiteboard or create a new page.

UNDO/REDO ACTION

You can undo your last action within the whiteboard by clicking the "Undo" button. If you would like to redo an action within the whiteboard, simply click the "Redo" button.

Case Study Navigation

All ARE 5.0 case studies are formatted the same way. The resources for each case study are displayed as PDFs and include various tools to assist you in navigating the documents. These include a text search function, which allows you to type a word or words and then navigate to the areas of the resource that include it. The bookmarks and page thumbnails will help you navigate through longer resources more efficiently. The zoom and page display functions enable you to see the resources in detail.



EXAM CONTENT

NCARB used the results of the *NCARB 2012 Practice Analysis of Architecture* when developing ARE 5.0 to determine the critical knowledge and skills an architect must perform competently. These knowledge and skills were organized into **six practice-based divisions:**

- **PcM** — **Practice Management**
- **PjM** — **Project Management**
- **PA** — **Programming & Analysis**
- **PPD** — **Project Planning & Design**
- **PDD** — **Project Development & Documentation**
- **CE** — **Construction & Evaluation**

Each division is broken down into multiple sections, and each section has objectives on which candidates will be assessed. All of the questions on an ARE division are authored to assess candidates based on the objectives in that division. Keep in mind that each of the objectives in a division are paired with a cognitive level appropriate for the type of mental functioning that the objective might require in practice. Every question on the ARE is authored to address one objective and one cognitive level.

Practice Management (PcM)

DIVISION OVERVIEW

This division will assess objectives related to the management of architectural practice, including professional ethics, fiduciary responsibilities, and the regulations governing the practice of architecture. The division will focus on issues related to pre-contract tasks including negotiation, human resource management, and consultant development. Candidates must demonstrate an understanding of and abilities in business structure, business development, and asset development and protection.

Section 1: Business Operations

1.1 Assess resources within the practice (A/E)
1.2 Apply the regulations and requirements governing the work environment (U/A)
1.3 Apply ethical standards to comply with accepted principles within a given situation (U/A)
1.4 Apply appropriate Standard of Care within a given situation (U/A)

Section 2: Finances, Risk, & Development of Practice

2.1 Evaluate the financial well-being of the practice (A/E)
2.2 Identify practice policies and methodologies for risk, legal exposures, and resolutions (U/A)
2.3 Select and apply practice strategies for a given business situation and policy (U/A)

Section 3: Practice-Wide Delivery of Services

3.1 Analyze and determine response for client services requests (A/E)
3.2 Analyze applicability of contract types and delivery methods (A/E)
3.3 Understand potential project risks and how a practice can mitigate those risks (A/E)

Section 4: Practice Methodologies

4.1 Identify and compare practice and business structures relevant to an architectural practice (A/E)
4.2 Identify and compare processes, policies, and resources used in the design, coordination, and documentation of different project types (A/E)

Practice Management

DIVISION DETAILS

TOTAL ITEMS	SCORED ITEMS	PRETEST ITEMS	NUMBER OF CASE STUDIES	NUMBER OF CASE STUDY ITEMS	TEST DURATION	OPTIONAL BREAK DURATION	TOTAL APPOINTMENT DURATION*
65	59	6	Up to 6	Up to 14	2 hr 40 min	30 min	3 hr 20 min

**Appointments allow for introductory screens, optional break time, and closing screens. Pretest items don't count against a candidate's final score.*

This division will test a candidate's ability to protect the public's health, safety, and welfare by:

- Applying competent delivery of professional architectural services
- Applying the laws and regulations of architectural practice
- Evaluating legal, ethical, and contractual standards in the performance of architectural tasks

The 65 items will assess you on four sections related to Practice Management. The number of items from each section will vary based on the targeted percentage of items within each section.

SECTION DETAILS

SECTIONS	EXPECTED NUMBER OF ITEMS	TARGET PERCENTAGE*
SECTION 1: Business Operations	13-17	20-26%
SECTION 2: Finances, Risk, & Development of Practice	19-23	29-35%
SECTION 3: Practice-Wide Delivery of Services	14-18	22-28%
SECTION 4: Practice Methodologies	11-15	17-23%

**The percentages shown for each section and objective represent a typical form of this division. The specific form you experience may vary slightly, as adjustments are made from form to form to balance factors such as overall form level of difficulty and average time to answer the assembled items.*

PcM SECTION 1

Business Operations

In this section you will need to understand that running a business requires attention to staffing, regulations, insurance, ethics, and the appropriate Standard of Care.

OBJECTIVE 1.1 (8-12%)

Assess resources within the practice (A/E)

You will need to analyze the staffing needs of a practice and recommend criteria and protocols for hiring, staffing assignments, staff evaluations, staff scheduling, and professional development. You will also need to evaluate capital expenditures, such as hardware, software, or training. These are items that support a firm's current business model or allow a firm to expand into a new practice area, evolve to offer more environmental design, or address other changing needs.

OBJECTIVE 1.2 (4-8%)

Apply the regulations and requirements governing the work environment (U/A)

You will need to demonstrate your understanding of laws, regulations, and insurance that apply to running a practice, including health insurance, worker's compensation, general liability, and labor laws.

OBJECTIVE 1.3 (2-6%)

Apply ethical standards to comply with accepted principles within a given situation (U/A)

You will determine the appropriate responses to given situations which demonstrate your understanding of laws, rules of conduct, and ethics in responding to client requests and business practices. This could include issues such as plagiarism, copyright or intellectual property infringement, exaggeration, and libel or slander.

OBJECTIVE 1.4 (1-5%)

Apply appropriate Standard of Care within a given situation (U/A)

You will need to understand the Standard of Care and its implications on providing professional services, the impact of errors and omissions, the responsibility to appropriately address vulnerabilities and risks associated with climate change, and how to appropriately respond to unknown conditions in order to protect the health, safety, and welfare of the public.

PcM SECTION 2

Finances, Risk, & Development of Practice

This section is about how running and developing a practice requires attention to finances, mitigating risk and liability, and negotiating services and contracts. This is the largest section within the Practice Management division.

OBJECTIVE 2.1 (11-15%)

Evaluate the financial well-being of the practice (A/E)

You will need to be able to analyze financial data, business strategies, and the firm's strategic priorities to identify actions that position the practice appropriately.

OBJECTIVE 2.2 (10-14%)

Identify practice policies and methodologies for risk, legal exposures, and resolutions (U/A)

You will need to understand the implications of various types of projects, client types, and contract terms as they relate to risk, legal exposure, and insurance coverage. The application of conflict resolution and quality management techniques to various situations that arise within a practice is also a necessary component.

OBJECTIVE 2.3 (5-9%)

Select and apply practice strategies for a given business situation and policy (U/A)

You will need to make decisions, and understand the impact of those decisions, related to negotiations of services, contracts, scope creep, and scope adjustments, as well as protecting intellectual property in a given business situation.

PcM SECTION 3

Practice-Wide Delivery of Services

In this section you will need to look at projects in the context of their impact on the overall running of a practice.

OBJECTIVE 3.1 (3-7%)

Analyze and determine response for client services requests (A/E)

One of the most important things you will need to do as an architect is assess the scope of services needed, completeness of requests, public interest conflicts, and fee proposals based on client requests, prior to finalizing a contract with a client.

OBJECTIVE 3.2 (10-14%)

Analyze applicability of contract types and delivery methods (A/E)

You will also need to differentiate between the appropriate types of contracts and agreements, estimate the impact and risk of changes to contracts, and understand the impact of various delivery options for a given project.

OBJECTIVE 3.3 (6-10%)

Understand potential project risks and how a practice can mitigate those risks (A/E)

You must be able to evaluate a potential project to assess the risk it may bring to the practice and how that risk can be mitigated to reduce its impact.

PcM SECTION 4

Practice Methodologies

In this section you will need to analyze how a practice is structured to achieve its goals and how to coordinate various projects and services within a practice. This section is the smallest of the four sections in the Practice Management division.

OBJECTIVE 4.1 (8-12%)

Identify and compare practice and business structures relevant to an architectural practice (A/E)

Architects must be able to examine various ways to structure a practice to achieve the firm goals.

OBJECTIVE 4.2 (8-12%)

Identify and compare processes, policies, and resources used in the design, coordination, and documentation of different project types (A/E)

You must also be able to examine the various ways a firm completes a project. This may include practice-wide policies that guide a firm's design principles, standard processes for project documentation, and resources for coordinating project components.

Project Management (PjM)

DIVISION OVERVIEW

This division will assess objectives related to the management of architectural projects, including organizing principles, contract management, and consultant management. The division will focus on issues related to office standards, development of project teams, and overall project control of client, fee, and risk management. Candidates must demonstrate an understanding of and abilities in quality control, project team configuration, and project scheduling. In addition, candidates must demonstrate the ability to establish and deliver project services per contractual requirements in collaboration with consultants.

Section 1: Resource Management

1.1 Determine criteria required to assemble team (U/A)
1.2 Assess criteria required to allocate and manage project resources (A/E)

Section 2: Project Work Planning

2.1 Develop and maintain project work plan (U/A)
2.2 Determine criteria required to develop and maintain project schedule (A/E)
2.3 Determine appropriate communication to project team – owner, contractor, consultants and internal staff (U/A)

Section 3: Contracts

3.1 Evaluate and verify adherence to owner/architect agreement (A/E)
3.2 Interpret key elements of, and verify adherence to architect/consultant agreement (U/A)
3.3 Interpret key elements of the owner/contractor agreement (U/A)
3.4 Interpret key elements of the owner/architect agreement to integrate an owner's consultant's work into the project (U/A)

Section 4: Project Execution

4.1 Monitor the project throughout its design and documentation for compliance with the construction budget (A/E)
4.2 Evaluate and address changes in scope of work and scope creep (A/E)
4.3 Implement appropriate policies and procedures to document a project for a specified delivery method (A/E)
4.4 Identify and conform with the requirements set forth by authorities having jurisdiction in order to obtain approvals for the project (U/A)

Section 5: Project Quality Control

5.1 Apply procedures required for adherence to laws and regulations relating to the project (U/A)
5.2 Identify processes, policies, and resources for quality control and risk reduction in the project (A/E)
5.3 Implement quality control processes to ensure project coordination and constructability (A/E)
5.4 Implement quality control processes to maintain integrity of design objectives (A/E)

Project Management

DIVISION DETAILS

TOTAL ITEMS	SCORED ITEMS	PRETEST ITEMS	NUMBER OF CASE STUDIES	NUMBER OF CASE STUDY ITEMS	TEST DURATION	OPTIONAL BREAK DURATION	TOTAL APPOINTMENT DURATION*
75	68	7	Up to 7	Up to 16	3 hr	30 min	3 hr 40 min

**Appointments allow for introductory screens, optional break time, and closing screens. Pretest items don't count toward or against your final score.*

This division will test a candidate's ability to protect the public's health, safety, and welfare by:

- Administering contract requirements and competent delivery of project services
- Organizing a team to design and produce contract documents
- Coordinating project team activities and project budget
- Communicating information to all constituents throughout the project delivery process
- Developing a project schedule that defines tasks and meets milestones

The 75 items will assess you on five sections related to Project Management. The number of items from each section will vary based on the targeted percentage of items within each section.

SECTION DETAILS

SECTIONS	EXPECTED NUMBER OF ITEMS	TARGET PERCENTAGE*
SECTION 1: Resource Management	5-10	7-13%
SECTION 2: Project Work Planning	13-17	17-23%
SECTION 3: Contracts	19-23	25-31%
SECTION 4: Project Execution	13-17	17-23%
SECTION 5: Project Quality Control	14-19	19-25%

**The percentages shown for each section and objective represent a typical form of this division. The specific form you may experience may vary slightly as adjustments are made from form to form to balance factors such as overall form level of difficulty and average time to answer the assembled items.*

PjM SECTION 1

Resource Management

Once you have a signed contract, it's time to determine what resources will be needed to execute the project. In this section, you will need to determine the composition of the project team and how each team member's time will be managed and allocated in order to execute the project.

OBJECTIVE 1.1 (3-7%)

Determine criteria required to assemble team (U/A)

You will need to determine what internal staff and outside consultants will be needed to complete the project and fulfill the contract. This will include understanding fees related to the project and consultants. You will need to anticipate the specific responsibilities of the team being assembled.

OBJECTIVE 1.2 (3-7%)

Assess criteria required to allocate and manage project resources (A/E)

As the project proceeds, you will also need to assess appropriate levels of staffing relative to the project needs and fees. This will require tracking the progress of the project based on personnel, hours, fees, and schedule.

PjM SECTION 2

Project Work Planning

In this section, you will evaluate effective ways to develop and communicate a work plan with the assembled project team in order to complete the project.

OBJECTIVE 2.1 (5-9%)

Develop and maintain project work plan (U/A)

You will need to use resources such as Gantt charts or critical path schedules, to identify key activities and milestones in a project and how they can be achieved. You will also need to be able to modify schedules and work plans to incorporate feedback or changes to the project.

OBJECTIVE 2.2 (5-9%)

Determine criteria required to develop and maintain project schedule (A/E)

Prioritizing tasks and evaluating their impact on a balanced workload is a critical aspect of this section. You will need to assess how outside factors, like client reviews, regulatory submissions, and testing, impact work plans and schedules.

OBJECTIVE 2.3 (4-8%)

Determine appropriate communication to project team – owner, contractor, consultants and internal staff (U/A)

Architects must also determine the type and content of documents needed to communicate during the work planning phase of a project. These include documents such as agendas, meeting minutes, emails, and memos.

PjM SECTION 3

Contracts

In this section, you will analyze the contracts that establish relationships between the architect, owner, contractors, and consultants.

OBJECTIVE 3.1 (10-14%)

Evaluate and verify adherence to owner/architect agreement (A/E)

AIA Document B101 is the primary document in this relationship. With a clear understanding of each article, you should be able to differentiate between basic, supplemental, and additional services; determine requisite billing for each phase; and recognize when a phase is completed. You will need to select the appropriate delivery method based on standard contract requirements.

OBJECTIVE 3.2 (5-9%)

Interpret key elements of, and verify adherence to architect/consultant agreement (U/A)

AIA Document C401 is the primary document in this relationship. You will need to identify contract requirements related to completing a project, additional services, and payment schedules.

OBJECTIVE 3.3 (4-8%)

Interpret key elements of the owner/contractor agreement (U/A)

AIA Documents A101 and A201 are the primary documents for this relationship. You will need to understand the architect's role relative to the owner when working with a contractor across various delivery methods.

OBJECTIVE 3.4 (1-5%)

Interpret key elements of the owner/architect agreement to integrate an owner's consultant's work into the project (U/A)

You will need to understand how an owner's consultant's work affects project deliverables. This requires identifying how to sequence, integrate, and coordinate an owner's consultant's work in the overall project.

PjM SECTION 4

Project Execution

This section assesses management of the project's execution. It is not about the design-related decisions, but rather the necessary administrative procedures throughout the project.

OBJECTIVE 4.1 (3-7%)

Monitor the project throughout its design and documentation for compliance with the construction budget (A/E)

As the project is designed and documented, architects must review and assess each new or revised construction estimate to ensure the project aligns with the construction budget.

OBJECTIVE 4.2 (3-7%)

Evaluate and address changes in scope of work and scope creep (A/E)

You will need to be able to analyze changes in scope to determine the impact on fees, schedules, and owner financing.

OBJECTIVE 4.3 (5-9%)

Implement appropriate policies and procedures to document a project for a specified delivery method (A/E)

In the Practice Management division, you looked at practice-wide policies and procedures that provide guidelines and instructions for project documentation. Now, you must be able to implement the appropriate policy or procedure for a project based on its delivery method so that project information is conveyed in a clear and coordinated manner.

OBJECTIVE 4.4 (1-5%)

Identify and conform with the requirements set forth by authorities having jurisdiction in order to obtain approvals for the project (U/A)

Lastly, you will need to be able to identify which authorities have jurisdiction over projects and determine what submittals are required for project approvals. This includes properly responding to questions or feedback from these authorities. Authorities could include zoning commissions, neighborhood review boards, or plan reviewers.

PjM SECTION 5

Project Quality Control

The last section in this division analyzes quality control methods, procedures, and review processes in order to maintain the proper Standard of Care throughout the entire project. As with the previous sections, this section is not about the design-related decisions, but rather the necessary administrative procedures throughout the project.

OBJECTIVE 5.1 (2-6%)

Apply procedures required for adherence to laws and regulations relating to the project (U/A)

You will need to be able to identify the government agencies who have jurisdiction on the project and determine what permits and procedures will be required throughout the project duration. This also includes establishing protocols to maintain compliance on the project site. In addition, you'll need to know the requirements for performing a code analysis and understand the impact of building, zoning, and other jurisdictional codes on design and construction.

OBJECTIVE 5.2 (4-8%)

Identify processes, policies, and resources for quality control and risk reduction in the project (A/E)

You will need to establish review processes to be utilized throughout the project to evaluate quality control, assess risk and liabilities, and identify level of completion at each phase of the project. Understanding the different types of insurance related to architectural practice and understanding strategies for conflict resolution are also critical ways to manage risks and liabilities.

OBJECTIVE 5.3 (5-9%)

Implement quality control processes to ensure project coordination and constructability (A/E)

You will need to implement and manage the review process and procedures identified in the previous objective. This includes ensuring a sound process is in place for assessing the project documentation in regards to coordination and constructability.

OBJECTIVE 5.4 (3-7%)

Implement quality control processes to maintain integrity of design objectives (A/E)

As an architect, you must ensure design objectives are continually monitored and met across all phases of design. In this division, it is not about the design details, but the process of communicating the design objectives through regular collaboration with project stakeholders.

Programming & Analysis (PA)

DIVISION OVERVIEW

This division will assess objectives related to the evaluation of project requirements, constraints, and opportunities. The division will focus on issues related to programming, site analysis, and zoning and code requirements. Candidates must demonstrate an understanding of and abilities in project type analysis, the establishment of qualitative and quantitative project requirements, evaluation of project site and context, and assessment of economic issues.

Section 1: Environmental & Contextual Conditions

1.1 Evaluate site-specific environmental and socio-cultural opportunities (A/E)
1.2 Evaluate site-specific environmental constraints (A/E)
1.3 Determine optimal use of onsite resources by incorporating sustainability principles (U/A)

Section 2: Codes & Regulations

2.1 Identify relevant code requirements for building and site types (U/A)
2.2 Identify relevant zoning and land use requirements (U/A)
2.3 Identify relevant local and site-specific requirements (U/A)

Section 3: Site Analysis & Programming

3.1 Evaluate relevant qualitative and quantitative attributes of a site as they relate to a program (A/E)
3.2 Synthesize site reports with other documentation and analysis (A/E)
3.3 Analyze graphical representations regarding site analysis and site programming (A/E)

Section 4: Building Analysis & Programming

4.1 Evaluate relevant qualitative and quantitative attributes of a new or existing building as they relate to the program (A/E)
4.2 Evaluate documentation, reports, assessments, and analyses to inform the building program (A/E)
4.3 Identify and prioritize components of the building program (A/E)
4.4 Assess spatial and functional relationships for the building program (A/E)
4.5 Review and assess the feasibility of the project budget and schedule to meet the project scope (U/A)
4.6 Identify alternatives for building and structural systems for given programmatic requirements, preliminary budget, and schedule (U/A)
4.7 Analyze graphical representations regarding building analysis and building programming (A/E)

Programming & Analysis

DIVISION DETAILS

TOTAL ITEMS	SCORED ITEMS	PRETEST ITEMS	NUMBER OF CASE STUDIES	NUMBER OF CASE STUDY ITEMS	TEST DURATION	OPTIONAL BREAK DURATION	TOTAL APPOINTMENT DURATION*
75	68	7	Up to 7	Up to 16	3 hr	30 min	3 hr 40 min

**Appointments allow for introductory screens, optional break time, and closing screens. Pretest items don't count toward or against your final score.*

This division will test a candidate's ability to protect the public's health, safety, and welfare by:

- Evaluating qualitative and quantitative project requirements
- Analyzing environmental, social, and economic requirements of a project
- Synthesizing project requirements based on gathered information

The 75 items will assess you on four sections related to Programming & Analysis. The number of items from each section will vary based on the targeted percentage of items within each section.

SECTION DETAILS

SECTIONS	EXPECTED NUMBER OF ITEMS	TARGET PERCENTAGE*
SECTION 1: Environmental & Contextual Conditions	11-16	14-21%
SECTION 2: Codes & Regulations	12-17	16-22%
SECTION 3: Site Analysis & Programming	16-20	21-27%
SECTION 4: Building Analysis & Programming	28-32	37-43%

**The percentages shown for each section and objective represent a typical form of this division. The specific form you may experience may vary slightly as adjustments are made from form to form to balance factors such as overall form level of difficulty and average time to answer the assembled items.*

PA SECTION 1

Environmental & Contextual Conditions

In this section, you'll evaluate a project site and identify both the opportunities and constraints that may impact future development.

OBJECTIVE 1.1 (2-6%)

Evaluate site-specific environmental and socio-cultural opportunities (A/E)

You will need to analyze a project site and assess opportunities that could be incorporated into future site and building development. These opportunities may include alternative energy resources, natural landscape features, microclimates, and neighborhood context, along with other environmental, social, and cultural conditions.

OBJECTIVE 1.2 (7-11%)

Evaluate site-specific environmental constraints (A/E)

You will need to analyze a project site and assess constraints and hazardous conditions that could limit a building's location and future site development. These constraints may include issues like a floodplain, unstable soil, radon, lead, a brownfield, abandoned structures, environmental policies and regulations, or vulnerabilities and risks associated with climate change. You will also need to identify strategies that could mitigate adverse site conditions.

OBJECTIVE 1.3 (2-6%)

Determine optimal use of onsite resources by incorporating sustainability principles (U/A)

After evaluating a site for both opportunities and constraints, you must be able to identify appropriate design responses for a building's location, orientation, massing, footprint, and passive energy use in order to minimize the project's negative environmental impacts and make use of existing natural features.

PA SECTION 2

Codes & Regulations

In this section, you'll look at the codes and regulations appropriate to the initial analysis and programming phase of a project.

OBJECTIVE 2.1 (5-9%)

Identify relevant code requirements for building and site types (U/A)

As an architect, you need to be able to determine and understand the codes and regulations that govern a specific project type and geographic region. This includes distinguishing relevant accessibility and ADA requirements, applicable building and energy codes, and sustainability-related standards and guidelines. It's important to conduct an initial code analysis to understand how the codes will affect a project's design.

OBJECTIVE 2.2 (5-9%)

Identify relevant zoning and land use requirements (U/A)

You need to be able to determine and understand requirements that limit the extent of site and building development. This includes issues like setbacks, footprint limitations, maximum building heights, FAR, parking requirements, easements, and other zoning and land use regulations. Recognizing situations where a special exception or variance is suitable and understanding the process for approval are also included in this objective.

OBJECTIVE 2.3 (3-7%)

Identify relevant local and site-specific requirements (U/A)

You will need to determine and understand specialty regulations that apply to a particular site. These may include requirements about wetlands, flood plains, design overlay districts, or historic preservation.

PA SECTION 3

Site Analysis & Programming

In this section, you'll need to analyze a project site relative to the program and project requirements.

OBJECTIVE 3.1 (6-10%)

Evaluate relevant qualitative and quantitative attributes of a site as they relate to a program (A/E)

This objective assesses your ability to analyze a project site relative to the requirements in the program to determine if it is appropriate and feasible for development. You will need to consider the climate, topography, drainage, soil, built and natural features, utilities, access points, traffic patterns, easements, and other attributes relevant to the project and program.

OBJECTIVE 3.2 (8-12%)

Synthesize site reports with other documentation and analysis (A/E)

In addition to analyzing the attributes of the site, you will also need to review and interpret site documentation such as geotechnical reports, landscape reports, archaeological studies, utility surveys, topographic maps, demographics, traffic studies, environmental data, historic reports, and other site related reports. This is used to determine the feasibility of a project and verify the selection of site related consultants needed to execute the project.

OBJECTIVE 3.3 (4-8%)

Analyze graphical representations regarding site analysis and site programming (A/E)

You must be able to evaluate and understand diagrammatic graphics and how they are used to represent and communicate site conditions, relationships, and program requirements. These graphics include topographic, programming, circulation, adjacency, environmental, view, and vegetation diagrams, which communicate site information and relationships.

PA SECTION 4

Building Analysis & Programming

In this section, you'll analyze new or existing buildings relative to the program requirements, cost, and schedule. This is the largest section in the Programming & Analysis division.

OBJECTIVE 4.1 (3-7%)

Evaluate relevant qualitative and quantitative attributes of a new or existing building as they relate to the program (A/E)

As an architect, you will need to review an existing or new building to determine if the design addresses views, daylight, spatial organization, and other program requirements. You will also need to analyze an existing building to determine if renovation, adaptive reuse, preservation, or demolition are appropriate and feasible to meet project needs. Relevant factors may include a building's MEP systems, structural stability, hazardous materials, historic features, or eligibility for tax credits.

OBJECTIVE 4.2 (3-7%)

Evaluate documentation, reports, assessments, and analyses to inform the building program (A/E)

In addition to analyzing the attributes of a building, you will need to review and interpret technical documentation such as structural assessments, geotechnical reports, neighborhood and regional context, and condition assessment reports. These are used to consider the feasibility of a project and how the building program may be positively or negatively affected.

OBJECTIVE 4.3 (8-12%)

Identify and prioritize components of the building program (A/E)

As an architect, you must be able to review and understand the building program relative to the client's requirements. This includes the consideration of primary vs. subsidiary, back of house vs. front of house, occupied vs. unoccupied, as well as phasing and major circulation components. Understanding the area requirements of a building type relative to the program, including net square footage and gross square footage, is very important, as are how they relate to each other and the overall program requirements.

OBJECTIVE 4.4 (8-12%)

Assess spatial and functional relationships for the building program (A/E)

Spatial organization is an important aspect of architecture, so reviewing and analyzing the building program relative to both horizontal and vertical spatial and functional relationships is an important assessment. You must consider the vertical relationships of shafts, stairs, conveying systems, atriums, and other multi-level spaces, as well as the horizontal relationships including circulation, entry, loading, assembly, MEP spaces, and other programmed spaces.

OBJECTIVE 4.5 (2-6%)

Review and assess the feasibility of the project budget and schedule to meet the project scope (U/A)

As an architect, you must be able to compare available project information (master plans, existing documentation, program requirements, site information, etc.) to the client's budget and schedule in order to determine the feasibility of the project and provide appropriate recommendations.

OBJECTIVE 4.6 (1-5%)

Identify alternatives for building and structural systems for given programmatic requirements, preliminary budget, and schedule (U/A)

You will need to understand various building materials as well as civil, structural, and MEP systems to determine the appropriateness of each to meet project needs, based on factors such as building type, function, program, availability, cost, and sustainability goals. Even before the selection of each system, you will need to be able to identify alternative systems that could fulfill the project requirements.

OBJECTIVE 4.7 (2-6%)

Analyze graphical representations regarding building analysis and building programming (A/E)

You will need to understand diagrammatic graphics and evaluate how they are used to communicate building relationships and other requirements. These may include diagrams that depict horizontal and vertical circulation, space adjacencies, solar path, or views.

Project Planning & Design (PPD)

DIVISION OVERVIEW

This division will assess objectives related to the preliminary design of sites and buildings. The division will focus on issues related to the generation or evaluation of design alternatives that synthesize environmental, cultural, behavioral, technical, and economic issues. Candidates must demonstrate an understanding of and abilities in design concepts, sustainability/environmental design, universal design, and other forms of governing codes and regulations.

Section 1: Environmental Conditions & Context

1.1 Determine location of building and site improvements based on site analysis (A/E)
1.2 Determine sustainable principles to apply to design (A/E)
1.3 Determine impact of neighborhood context on the project design (U/A)

Section 2: Codes & Regulations

2.1 Apply zoning and environmental regulations to site and building design (U/A)
2.2 Apply building codes to building design (U/A)
2.3 Integrate multiple codes to a project design (A/E)

Section 3: Building Systems, Materials, & Assemblies

3.1 Determine mechanical, electrical, and plumbing systems (A/E)
3.2 Determine structural systems (A/E)
3.3 Determine special systems such as acoustics, communications, lighting, security, conveying, and fire suppression (A/E)
3.4 Determine materials and assemblies to meet programmatic, budgetary, and regulatory requirements (A/E)

Section 4: Project Integration of Program & Systems

4.1 Determine building configuration (A/E)
4.2 Integrate building systems in the project design (A/E)
4.3 Integrate program requirements into a project design (A/E)
4.4 Integrate environmental and contextual conditions in the project design (A/E)

Section 5: Project Costs & Budgeting

5.1 Evaluate design alternatives based on the program (A/E)
5.2 Evaluate cost estimates based on the project design (A/E)
5.3 Evaluate the project design based on cost considerations (A/E)

Project Planning & Design

DIVISION DETAILS

TOTAL ITEMS	SCORED ITEMS	PRETEST ITEMS	NUMBER OF CASE STUDIES	NUMBER OF CASE STUDY ITEMS	TEST DURATION	OPTIONAL BREAK DURATION	TOTAL APPOINTMENT DURATION*
100	91	9	Up to 9	Up to 20	4 hr 5 min	45 min	5 hr

**Appointments allow for introductory screens, optional break time, and closing screens. Pretest items don't count toward or against your final score.*

This division will test a candidate's ability to protect the public's health, safety, and welfare by:

- Evaluating project design alternatives
- Determining if a design meets project parameters, including those defined by the client, the environment, and society
- Selecting the appropriate building systems and material to meet project goals and regulatory requirements
- Integrating technical knowledge and information to develop a design

The 100 items will assess you on five sections related to Project Planning & Design. The number of items from each section will vary based on the targeted percentage of items within each section.

SECTION DETAILS

SECTIONS	EXPECTED NUMBER OF ITEMS	TARGET PERCENTAGE*
SECTION 1: Environmental Conditions & Context	10-16	10-16%
SECTION 2: Codes & Regulations	16-22	16-22%
SECTION 3: Building Systems, Materials, & Assemblies	19-25	19-25%
SECTION 4: Project Integration of Program & Systems	32-38	32-38%
SECTION 5: Project Costs & Budgeting	8-14	8-14%

**The percentages shown for each section and objective represent a typical form of this division. The specific form you may experience may vary slightly as adjustments are made from form to form to balance factors such as overall form level of difficulty and average time to answer the assembled items.*

PPD | SECTION 1

Environmental Conditions & Context

In this section, you'll use the site information gathered in the programming and analysis phase of a project to plan the site and environmental aspects of a project.

OBJECTIVE 1.1 (4-8%)

Determine location of building and site improvements based on site analysis (A/E)

Based on views, wind, solar path, topography, adjacencies, planning concepts, and vulnerabilities and risks associated with climate change, you will need to locate a new built project on its site. This can include the orientation of one building, the arrangement of multiple buildings, the configuration of an addition to an existing building, or the layout of site improvements.

OBJECTIVE 1.2 (2-6%)

Determine sustainable principles to apply to design (A/E)

An architect must use sun, wind, temperature, precipitation, and other climatic data to determine building orientation and shape, building envelope design, site features, and active and/or passive building systems. Sustainable principles also include considering recycled content, identifying opportunities to minimize waste when selecting building materials, and other strategies to increase the project's resilience and reduce its negative impact on the environment.

OBJECTIVE 1.3 (1-5%)

Determine impact of neighborhood context on the project design (U/A)

You will need to consider the character of a site's neighborhood, including proximity to various modes of transit, nearby amenities and public services, utilities, noise pollution, the scale of adjacent buildings, surrounding façade materials, historic precedent, and historic preservation requirements. Understanding how these impact a project is necessary as you determine an appropriate design response for a given architectural context.

PPD SECTION 2

Codes & Regulations

In this section, you'll look at the codes and regulations relevant to the planning phase of a project.

OBJECTIVE 2.1 (3-7%)

Apply zoning and environmental regulations to site and building design (U/A)

It is important to understand the regulations that govern the outside of a building, including standard and accessible parking requirements, allowable building size based on FAR, site coverage, property line setbacks, and requirements for managing stormwater runoff.

OBJECTIVE 2.2 (8-12%)

Apply building codes to building design (U/A)

It is also important to assess the building code requirements that impact a project. This includes building height and area limits, maximum occupant load, fire separation, required egress, accessibility, plumbing fixture counts, and energy usage. Architects must be able to compile this information into a code analysis and incorporate it into the design.

OBJECTIVE 2.3 (2-6%)

Integrate multiple codes to a project design (A/E)

Multiple codes may govern a project, depending on the jurisdiction, funding stream, or other factors. You will need to understand the use of related codes, like energy, mechanical, and universal design; determine how multiple codes are used together; and discern which code governs when a conflict arises.

PPD SECTION 3

Building Systems, Materials, & Assemblies

In this section, you'll focus on other disciplines with which an architect must be familiar, along with the various components that make up the building.

OBJECTIVE 3.1 (5-9%)

Determine mechanical, electrical, and plumbing systems (A/E)

You will need to evaluate mechanical, electrical, and plumbing systems, including their impact on building and site design. Based on function, cost, size, availability, programmatic needs, and energy/water usage, you will need to select the appropriate systems for a building.

OBJECTIVE 3.2 (4-8%)

Determine structural systems (A/E)

You will need to evaluate different structural systems, including their cost, availability, load capacity, and impact on building design and configuration. Based on these factors, as well as building size and function, you will need to select the appropriate structural system and layout for a building.

OBJECTIVE 3.3 (1-5%)

Determine special systems such as acoustics, communications, lighting, security, conveying, and fire suppression (A/E)

You will need to evaluate specialty systems and select the appropriate systems for a building based on the building type, function, and programmatic requirements. You will also need to assess the impact of these specialty systems on the overall design of a building.

OBJECTIVE 3.4 (4-8%)

Determine materials and assemblies to meet programmatic, budgetary, and regulatory requirements (A/E)

You will need to select a building's envelope system, interior materials, and other assemblies based on cost, availability, program requirements, environmental conditions, sustainability requirements, or other factors. You will also need to evaluate the impact of those decisions on building design.

PPD SECTION 4

Project Integration of Program & Systems

In this section, you'll pull together all the decisions from the previous three sections regarding environmental conditions, code, systems, and assemblies. This is the largest section in the Project Planning & Design division.

OBJECTIVE 4.1 (8-12%)

Determine building configuration (A/E)

As an architect, you will need to resolve the building's configuration based on program and code requirements, selected MEP and structural systems, site and environmental conditions, historic precedent, sustainability requirements, and principles of design logic.

OBJECTIVE 4.2 (10-14%)

Integrate building systems in the project design (A/E)

Within this division is the beginning of systems coordination. You must consider how the selected systems fit together, both spatially and functionally, and how they are coordinated into the architectural design. You will also need to evaluate how changes in one building system impact another system as well as the overall project design.

OBJECTIVE 4.3 (6-10%)

Integrate program requirements into a project design (A/E)

Architects must be able to reconcile the relationships between various program requirements, evaluate the program's impact on cost and building systems, and assess how the program is affected by environmental factors. It's important that you are able to create a building layout that incorporates program requirements for a project.

OBJECTIVE 4.4 (3-7%)

Integrate environmental and contextual conditions in the project design (A/E)

You will need to incorporate various design strategies, including those assessed in Section 1, into the project. This may include elements like view corridors, shading elements, building materials, and landscape design.

PPD | SECTION 5

Project Costs & Budgeting

In this last section, you'll consider the bottom line: how much does this project cost.

OBJECTIVE 5.1 (2-6%)

Evaluate design alternatives based on the program (A/E)

The first design is not necessarily the best, so analyzing design alternatives against the program requirements, project goals, and project budget, as well as considering the various factors that affect costs, is critical as you determine the most appropriate design option that fits within the project budget.

OBJECTIVE 5.2 (1-5%)

Evaluate cost estimates based on the project design (A/E)

This division focuses on preliminary design decisions to meet the client's program requirements and goals. As these initial decisions are made, you must be able to evaluate project cost estimates prepared by others. It's important to understand how these estimates vary based on relevant cost estimating methods, as well as how to reconcile the estimates with the construction budget through the consideration of design alternatives.

OBJECTIVE 5.3 (2-6%)

Evaluate the project design based on cost considerations (A/E)

Building on the previous two objectives, architects must be able to evaluate the cost effectiveness of design decisions in meeting the client's priorities, both for upfront costs covered by the construction budget as well as future maintenance and replacement costs after the project is completed.

Project Development & Documentation (PDD)

DIVISION OVERVIEW

This division will assess objectives related to the integration and documentation of building systems, material selection, and material assemblies into a project. The division will focus on issues related to the development of design concepts, evaluation of materials and technologies, selection of appropriate construction techniques, and appropriate construction documentation. Candidates must demonstrate an understanding of and abilities in integration of civil, structural, mechanical, electrical, plumbing, and specialty systems into overall project design and documentation.

Section 1: Integration of Building Materials & Systems

1.1 Analyze the integration of architectural systems and technologies to meet project goals (A/E)
1.2 Determine the size of mechanical, electrical, and plumbing systems and components to meet project goals (U/A)
1.3 Determine the size of structural systems to meet project goals (U/A)
1.4 Integrate specialty systems such as acoustics, lighting, fire suppression, conveying, security, and communications to meet project goals (U/A)
1.5 Determine how to detail the integration of multiple building systems and technologies (U/A)
1.6 Coordinate mechanical, electrical, plumbing, structural, and specialty systems and technologies (U/A)

Section 2: Construction Documentation

2.1 Determine appropriate documentation of building design (A/E)
2.2 Determine appropriate documentation of site features (A/E)
2.3 Determine appropriate documentation of detailed building drawings within individual architectural systems (A/E)
2.4 Apply standards required to assemble a set of clear and coordinated construction documentation (U/A)
2.5 Determine impact of project changes on documentation requirements and methods to communicate those changes to owner and design team (U/A)

Section 3: Project Manual & Specifications

3.1 Identify and prioritize components required to write, maintain, and refine project manual (U/A)
3.2 Identify and prioritize components required to write, maintain, and refine project specifications (U/A)
3.3 Coordinate specifications with construction documentation (U/A)

Section 4: Codes & Regulations

4.1 Determine adherence to building regulatory requirements (IBC) at detail level (U/A)
4.2 Determine adherence with specialty regulatory requirements at the detail level (U/A)

Section 5: Construction Cost Estimates

5.1 Analyze construction cost estimates to confirm alignment with project design (A/E)

Project Development & Documentation

DIVISION DETAILS

TOTAL ITEMS	SCORED ITEMS	PRETEST ITEMS	NUMBER OF CASE STUDIES	NUMBER OF CASE STUDY ITEMS	TEST DURATION	OPTIONAL BREAK DURATION	TOTAL APPOINTMENT DURATION*
100	91	9	Up to 9	Up to 20	4 hr 5 min	45 min	5 hr

**Appointments allow for introductory screens, optional break time, and closing screens. Pretest items don't count toward or against your final score.*

This division will test a candidate's ability to protect the public's health, safety, and welfare by:

- Evaluating project documentation for the constructability of a building and site
- Integrating technical knowledge and information to refine a design
- Integrating materials and building systems to meet the project design requirements
- Translating design decisions into appropriate construction documentation

The 100 items will assess you on five sections related to Project Development & Documentation. The number of items from each section will vary based on the targeted percentage of items within each section.

SECTION DETAILS

SECTIONS	EXPECTED NUMBER OF ITEMS	TARGET PERCENTAGE*
SECTION 1: Integration of Building Materials & Systems	31-37	31-37%
SECTION 2: Construction Documentation	32-38	32-38%
SECTION 3: Project Manual & Specifications	12-18	12-18%
SECTION 4: Codes & Regulations	8-14	8-14%
SECTION 5: Construction Cost Estimates	2-8	2-8%

**The percentages shown for each section and objective represent a typical form of this division. The specific form you may experience may vary slightly as adjustments are made from form to form to balance factors such as overall form level of difficulty and average time to answer the assembled items.*

PDD SECTION 1

Integration of Building Materials & Systems

In this section, you'll focus on resolving and detailing architectural systems and assemblies, building materials, and engineering systems.

OBJECTIVE 1.1 (5-9%)

Analyze the integration of architectural systems and technologies to meet project goals (A/E)

As an architect you will first need to resolve and detail roof, curtain wall, cladding, window, floor, and other architectural systems, while also considering the detail requirements and capabilities of individual building materials.

OBJECTIVE 1.2 (5-9%)

Determine the size of mechanical, electrical, and plumbing systems and components to meet project goals (U/A)

You will need to identify and develop mechanical, electrical, and plumbing systems based on system type, system requirements, programmatic requirements, and other factors. This may include tasks such as calculating the size of system components, determining a lighting layout, or incorporating renewable energy systems into a design.

OBJECTIVE 1.3 (5-9%)

Determine the size of structural systems to meet project goals (U/A)

You will need to identify and develop structural systems, including detailing connections between standard horizontal and vertical structural components and calculating the size of some structural components based on the system type, system requirements, programmatic requirements, and other factors.

OBJECTIVE 1.4 (1-5%)

Integrate specialty systems such as acoustics, lighting, fire suppression, conveying, security, and communications to meet project goals (U/A)

You will need to be able to identify, develop, and integrate individual specialty system components based on system type, system requirements, programmatic requirements, and other factors.

OBJECTIVE 1.5 (3-7%)

Determine how to detail the integration of multiple building systems and technologies (U/A)

You must also be able to detail and resolve the intersection of roof, curtain wall, cladding, window, floor, structural, interior, and other architectural systems as they come together within a building project.

OBJECTIVE 1.6 (3-7%)

Coordinate mechanical, electrical, plumbing, structural, and specialty systems and technologies (U/A)

You must identify and resolve conflicts between engineering systems (mechanical, electrical, plumbing, and structural) and other specialty systems as they integrate into the project. This also includes coordinating engineering systems with the architectural design to fulfill programmatic, system, and other project requirements.

PDD SECTION 2

Construction Documentation

In this section, you'll focus on project documentation necessary to assemble a set of drawings and update these drawings over the course of a project.

OBJECTIVE 2.1 (7-11%)

Determine appropriate documentation of building design (A/E)

Architects must identify a drawing and documentation approach based on project complexity, materials and assemblies, delivery method, and other project or construction related requirements. Throughout project documentation, you must know how to refine, update, and make adjustments to the drawings to align with new or changing project requirements. Documentation must also indicate final selections of building materials, assemblies, and finishes.

OBJECTIVE 2.2 (2-6%)

Determine appropriate documentation of site features (A/E)

Architects must also coordinate with civil engineers, landscape architects, and other consultants to verify the documentation of site drainage, utilities, pedestrian and vehicular circulation paths, parking, grading, and other site features and structures, including those related to environmental sustainability and resilience. It is critical to ensure site documentation is coordinated with all project disciplines.

OBJECTIVE 2.3 (8-12%)

Determine appropriate documentation of detailed building drawings within individual architectural systems (A/E)

You will need to resolve, detail, and document individual architectural systems such as partition types, expansion joints, windows, doors, louvers, stairs, and other systems based on constructability, environmental, programmatic, and other building requirements.

OBJECTIVE 2.4 (5-9%)

Apply standards required to assemble a set of clear and coordinated construction documentation (U/A)

As an architect, you will also need to determine the necessary drawings required to communicate an architectural design based on the project delivery method. This requires assembling these drawings into a clear set of construction documents and ensuring the quality of the documentation meets the appropriate standard of care.

OBJECTIVE 2.5 (3-7%)

Determine impact of project changes on documentation requirements and methods to communicate those changes to owner and design team (U/A)

Architects must incorporate value engineering, changes in scope, and owner or project team comments into the drawing set, and determine the impact of these changes on the project delivery method and schedule. You will also need to recognize when changes in scope or owner/project team comments require the architect to perform additional services.

PDD SECTION 3

Project Manual & Specifications

In this section, you'll focus on the development of documentation beyond construction drawings—the project manual and specifications.

OBJECTIVE 3.1 (1-5%)

Identify and prioritize components required to write, maintain, and refine project manual (U/A)

You will need to be able to determine and assemble the content of a project manual, including the general conditions; instructions for procurement, bidding, and contracting; and project specific requirements. This also requires the identification and preparation of any additional exhibits or special conditions required for project execution.

OBJECTIVE 3.2 (6-10%)

Identify and prioritize components required to write, maintain, and refine project specifications (U/A)

You will need to determine the appropriate type of specifications to be used for a project, and you will need to identify which divisions are necessary based on project requirements. You will also need to analyze, select, and specify materials within a project in order to meet project requirements, testing protocols during construction, and common industry standards for materials and methods.

OBJECTIVE 3.3 (2-6%)

Coordinate specifications with construction documentation (U/A)

You must also coordinate the specifications with information found on the architectural construction drawings and consultant documents. This includes all materials, assemblies, hardware, methods, and other identified information.

PDD SECTION 4

Codes & Regulations

Codes and regulations appear in several divisions, but in this division, you'll look at codes and regulations at a detail level and determine how they pertain to project documentation.

OBJECTIVE 4.1 (4-8%)

Determine adherence to building regulatory requirements (IBC) at detail level (U/A)

It is critical to be able to apply the International Building Code to the design and documentation of a project, including means of egress, fire and smoke protection, material and assembly requirements, and the ways in which changes to occupancy, floor size, or other details can impact code requirements.

OBJECTIVE 4.2 (3-7%)

Determine adherence with specialty regulatory requirements at the detail level (U/A)

It is also important to be able to apply specialty regulations to the design and documentation of a project. This includes accessibility requirements, energy codes, standards for historic preservation, Fair Housing, environmental regulations, and other local or site specific regulations.

PDD SECTION 5

Construction Cost Estimates

In this last section, you'll consider the construction cost of a project by analyzing an estimate. This section contains only one objective and is the smallest section in the division.

OBJECTIVE 5.1 (2-8%)

Analyze construction cost estimates to confirm alignment with project design (A/E)

This division focuses on the integration of systems, materials, and assemblies into a coordinated set of project documents. As detailed design decisions are made, you must be able to evaluate construction cost estimates prepared by others. It's important to understand how these estimates vary based on relevant cost estimating methods, and how to reconcile the estimates with the construction budget through the use of value engineering or material substitution.

Construction & Evaluation (CE)

DIVISION OVERVIEW

This division will assess objectives related to construction contract administration and post-occupancy evaluation of projects. The division will focus on issues related to bidding and negotiation processes, support of the construction process, and evaluation of completed projects. Candidates must demonstrate an understanding of and abilities in construction contract execution, construction support services (including construction observation and shop drawing or submittal review), payment request processing, and project closeout. In addition, candidates must also demonstrate an understanding and abilities in project evaluation of integrated building systems and their performance.

Section 1: Preconstruction Activities

1.1 Understand the architect's role and responsibilities in advising the client during the bidding process based on project delivery method (U/A)
1.2 Analyze criteria for selecting contractors (A/E)
1.3 Analyze aspects of the contract or design to adjust project costs (A/E)

Section 2: Construction Observation

2.1 Evaluate the architect's role during construction activities (A/E)
2.2 Evaluate construction conformance with contract documents, codes, regulations, and sustainability requirements (A/E)
2.3 Determine construction progress (U/A)

Section 3: Administrative Procedures & Protocols

3.1 Determine appropriate additional information to supplement contract documents (U/A)
3.2 Evaluate submittals including shop drawings, samples, mock-ups, product data, and test results (A/E)
3.3 Evaluate the contractor's application for payment (A/E)
3.4 Evaluate responses to non-conformance with contract documents (A/E)

Section 4: Project Closeout & Evaluation

4.1 Apply procedural concepts to complete close-out activities (U/A)
4.2 Evaluate building design and performance (A/E)

Construction & Evaluation

DIVISION DETAILS

TOTAL ITEMS	SCORED ITEMS	PRETEST ITEMS	NUMBER OF CASE STUDIES	NUMBER OF CASE STUDY ITEMS	TEST DURATION	OPTIONAL BREAK DURATION	TOTAL APPOINTMENT DURATION*
75	68	7	Up to 7	Up to 16	3 hr	30 min	3 hr 40 min

**Appointments allow for introductory screens, optional break time, and closing screens. Pretest items don't count toward or against your final score.*

This division will test a candidate's ability to protect the public's health, safety, and welfare by:

- Delivering professional services during project construction
- Translating construction documents and specifications to communicate and bring clarity to design intent
- Coordinating construction activities to meet design intent
- Evaluating completed projects

The 75 items will assess you on four sections related to Construction & Evaluation. The number of items from each section will vary based on the targeted percentage of items within each section.

SECTION DETAILS

SECTIONS	EXPECTED NUMBER OF ITEMS	TARGET PERCENTAGE*
SECTION 1: Preconstruction Activities	13-17	17-23%
SECTION 2: Construction Observation	24-29	32-38%
SECTION 3: Administrative Procedures & Protocols	24-29	32-38%
SECTION 4: Project Closeout & Evaluation	5-10	7-13%

**The percentages shown for each section and objective represent a typical form of this division. The specific form you may experience may vary slightly as adjustments are made from form to form to balance factors such as overall form level of difficulty and average time to answer the assembled items.*

CE SECTION 1

Preconstruction Activities

In this section, you'll focus on the construction planning and activities that occur prior to the start of construction.

OBJECTIVE 1.1 (8-12%)

Understand the architect's role and responsibilities in advising the client during the bidding process based on project delivery method (U/A)

Understanding the key elements of bidding is an important aspect of preconstruction activities. This includes the required bidding documents, typical procedures for distributing documents and the pre-bid meeting, prequalification of bidders, selection of the contractor, and applicable standard AIA documents. The architect's responsibilities for each of these may vary depending on the project delivery type.

OBJECTIVE 1.2 (3-7%)

Analyze criteria for selecting contractors (A/E)

You will need to understand the criteria for reviewing contractors' bids, including accuracy and completeness. Based on these criteria, you will then need to evaluate contractors' bids and compare contractors' qualifications to each other.

OBJECTIVE 1.3 (3-7%)

Analyze aspects of the contract or design to adjust project costs (A/E)

You must understand the process through which changes can be made to the project cost, scope, or schedule during the bidding phase. This will include evaluation of the contractual implications of any changes and the impact on project design, timeline, and/or design and construction budgets.

CE SECTION 2

Construction Observation

This section addresses visiting the job site throughout the course of construction and the architect's roles and responsibilities.

OBJECTIVE 2.1 (13-17%)

Evaluate the architect's role during construction activities (A/E)

This objective assesses the architect's responsibilities to the owner during construction site visits and subsequent documentation, including site observations and action items for project team members. You must recognize the contractor's responsibilities to the architect, including change orders, applications for payments, shop drawings and other submittals, and the appropriate level of detail required for the schedule of values, based on project size, scope, phasing requirements, and schedule. You must also know the difference between the architect's design intent and the contractor's means and methods. Finally, you must identify the appropriate limits and extent of the architect's authority and actions during construction.

OBJECTIVE 2.2 (13-17%)

Evaluate construction conformance with contract documents, codes, regulations, and sustainability requirements (A/E)

You will need to be able to analyze the contractor's completed work against the project requirements and identify non-conforming construction on site. This may also require evaluating the impacts of unforeseen conditions and material substitutions against code, quality, and program requirements. You will need to coordinate your evaluations of construction conformance with that of your consultants and the owner's consultants.

OBJECTIVE 2.3 (3-7%)

Determine construction progress (U/A)

Construction observation also requires the review of work in place against the contractor's construction schedule and schedule of values, and understanding the impact of delays along the critical path.

CE SECTION 3

Administrative Procedures & Protocols

The previous section is about the onsite responsibilities of an architect. This section is about the documentation necessary to the construction process. Clear written communication is an essential aspect of the construction process.

OBJECTIVE 3.1 (8-12%)

Determine appropriate additional information to supplement contract documents (U/A)

As an architect, you will need to evaluate contractor requests for additional information and determine if a request, unexpected disruption, or other situation requires a change in the construction contract. You will need to determine the appropriate documents for communicating requested information and design revisions due to a scope change, schedule delay, or unforeseen condition.

OBJECTIVE 3.2 (8-12%)

Evaluate submittals including shop drawings, samples, mock-ups, product data, and test results (A/E)

Architects must assess the contractor's understanding of the project scope by reviewing the contractor's submittals against the contract documents. They also must determine appropriate responses to the contractor and evaluate requests for substitutions.

OBJECTIVE 3.3 (3-7%)

Evaluate the contractor's application for payment (A/E)

Reviewing the contractor's application for payment against the completed work is a critical component of the construction process. This is done based on observations during construction site visits and a concurrent review of the contractor's schedule of values and approved change orders. You will also need to evaluate methods of retainage and their application throughout the project.

OBJECTIVE 3.4 (8-12%)

Evaluate responses to non-conformance with contract documents (A/E)

After non-conforming work is identified during site observations, you must be able to determine the source of the non-conformance; analyze the cost, schedule, and design implications; evaluate possible resolutions of the non-conformance; and communicate the selected solution to the team. These steps will need to be taken in coordination with your consultants and the owner's consultants.

CE SECTION 4

Project Closeout & Evaluation

In this section, you'll focus on post-construction activities. This is the smallest section of the division but covers several important aspects of completing a project.

OBJECTIVE 4.1 (3-7%)

Apply procedural concepts to complete close-out activities (U/A)

As an architect, you will need to be familiar with project close-out documents, which may include warranties, record drawings, a punch list, and a final application for payment, submitted by the contractor. You will also need to review the contractor's completed work and make determinations regarding substantial completion and final completion of a project, understanding the implications of each process.

OBJECTIVE 4.2 (3-7%)

Evaluate building design and performance (A/E)

You will need to assess a building's performance during its first year of use, with tools such as user surveys and building commissioning, which may include sustainability rating systems. It's critical that you then determine a response to identified building performance issues.

STUDY RESOURCES

NCARB offers many resources you can use to prepare for ARE 5.0. In this section, you will find links to some of those resources, as well as common terms, abbreviations, and formulas found on the ARE. You will also find a list of common architectural references that relate to the topics covered in each of the ARE divisions.

ARE 5.0 Reference Guide

The ARE 5.0 Reference Guide lists key study resources for each division. You do not need to memorize facts and figures from these references; ARE 5.0 does not test your ability to recall memorized information. Instead, focus on understanding the concepts and best practices discussed in the references, and consider how you can apply those principles to other situations. Think about the "why" to help further your understanding as you explore the information in these references.

OTHER STUDY RESOURCES

These references cover many aspects of typical architectural practice and are a valuable source of the information on which you will be assessed. However, this is not a comprehensive list. You are strongly encouraged to supplement your use of these references with other NCARB-provided resources, especially the information about sections and objectives in the ARE 5.0 Exam Content section of this document as well as the ARE 5.0 Practice Exams. Finally, you may find it helpful to also look to your related real-world experience as you prepare to test.

READING THE GUIDE

For each division, a list of references is provided along with the relevance of each reference to the content of the division. References with "primary" relevance are the most frequently cited by the volunteer architects who author ARE content. These references contain information that is relevant across most objectives within the division. "Supplemental" references offer more specific or focused content related to some objectives in the division. Some references are also applicable to multiple divisions, and that overlap is noted in the final column.

Note that not all publications include edition numbers. For many of these references, information in older editions is often still relevant to current practice and can still be used as a study reference. NCARB recommends that you consider aspects of architectural practice that may change more frequently and seek out more current resources as needed. All content on the exam is regularly reviewed and updated or retired to ensure the ARE continues to represent current architectural practice.

Building codes, professional standards, and AIA contracts are listed together at the end of this Reference Guide as they are highly relevant across multiple divisions. NCARB proactively updates exam content related to these resources; the editions currently used on the ARE are included in the list below.

ARE 5.0 Reference Guide

PcM Practice Management

REFERENCE	RELEVANCE	OVERLAP WITH OTHER DIVISIONS
The Architect's Handbook of Professional Practice *The American Institute of Architects* *John Wiley & Sons*	PRIMARY	Project Management Construction & Evaluation
Law for Architects: What You Need to Know *Robert F. Herrmann and the Attorneys at Menaker & Herrmann LLP* *W. W. Norton*	SUPPLEMENTAL	None
Professional Practice: A Guide to Turning Designs into Buildings *Paul Segal, FAIA* *W. W. Norton*	SUPPLEMENTAL	Project Management Construction & Evaluation

PjM Project Management

REFERENCE	RELEVANCE	OVERLAP WITH OTHER DIVISIONS
The Architect's Handbook of Professional Practice *The American Institute of Architects* *John Wiley & Sons*	PRIMARY	Practice Management Construction & Evaluation
Professional Practice: A Guide to Turning Designs into Buildings *Paul Segal, FAIA* *W. W. Norton*	SUPPLEMENTAL	Practice Management Construction & Evaluation
CSI Practice Guide: Project Delivery *The Construction Specifications Institute*	SUPPLEMENTAL	None

PA Programming & Analysis

REFERENCE	RELEVANCE	OVERLAP WITH OTHER DIVISIONS
Problem Seeking: An Architectural Programming Primer *William M. Peña and Steven A. Parshall* *John Wiley & Sons*	PRIMARY	None
The Architect's Studio Companion: Rules of Thumb for Preliminary Design *Edward Allen and Joseph Iano* *John Wiley & Sons*	SUPPLEMENTAL	None
Architectural Graphic Standards *The American Institute of Architects* *John Wiley & Sons*	SUPPLEMENTAL	Project Planning & Design Project Development & Documentation
Site Planning and Design Handbook *Thomas H. Russ* *McGraw-Hill*	SUPPLEMENTAL	Project Planning & Design

PPD Project Planning & Design

REFERENCE	RELEVANCE	OVERLAP WITH OTHER DIVISIONS
Architectural Graphic Standards *The American Institute of Architects* *John Wiley & Sons*	PRIMARY	Programming & Analysis Project Development & Documentation
Building Construction Illustrated *The American Institute of Architects* *John Wiley & Sons*	SUPPLEMENTAL	Project Development & Documentation
Heating, Cooling, Lighting: Sustainable Design Strategies Towards Net Zero Architecture *Norbert Lechner and Patricia Andrasik* *John Wiley & Sons*	SUPPLEMENTAL	Project Development & Documentation
Mechanical & Electrical Equipment for Buildings *Walter T. Grondzik and Alison G. Kwok* *John Wiley & Sons*	SUPPLEMENTAL	Project Development & Documentation
Site Planning and Design Handbook *Thomas H. Russ* *McGraw-Hill*	SUPPLEMENTAL	Programming & Analysis

PDD Project Development & Documentation

REFERENCE	RELEVANCE	OVERLAP WITH OTHER DIVISIONS
Architectural Graphic Standards *The American Institute of Architects* *John Wiley & Sons*	PRIMARY	Programming & Analysis Project Planning & Design
Building Construction Illustrated *The American Institute of Architects* *John Wiley & Sons*	SUPPLEMENTAL	Project Planning & Design
Building Structures *James Ambrose and Patrick Tripeny* *John Wiley & Sons*	SUPPLEMENTAL	None
Fundamentals of Building Construction: Materials and Methods *Edward Allen and Joseph Iano* *John Wiley & Sons*	SUPPLEMENTAL	None
Heating, Cooling, Lighting: Sustainable Design Strategies Towards Net Zero Architecture *Norbert Lechner and Patricia Andrasik* *John Wiley & Sons*	SUPPLEMENTAL	Project Planning & Design
Mechanical & Electrical Equipment for Buildings *Walter T. Grondzik and Alison G. Kwok* *John Wiley & Sons*	SUPPLEMENTAL	Project Planning & Design

CE Construction & Evaluation

REFERENCE	RELEVANCE	OVERLAP WITH OTHER DIVISIONS
Professional Practice: A Guide to Turning Designs into Buildings *Paul Segal, FAIA* *W. W. Norton*	PRIMARY	Practice Management Project Management
The Architect's Handbook of Professional Practice *The American Institute of Architects* *John Wiley & Sons*	SUPPLEMENTAL	Practice Management Project Management
CSI Practice Guide: Construction Contract Administration *The Construction Specifications Institute*	SUPPLEMENTAL	None

BUILDING CODES AND PROFESSIONAL STANDARDS

The following are the building codes and professional standards that are referenced on the ARE. These are primarily relevant to the Programming & Analysis, Project Planning & Design, and Project Development & Documentation divisions of the exam. Candidates should be familiar with the concepts and commonly used sections of these resources but are not expected to have specific sections or details memorized.

REFERENCE	TYPE
2010 ADA Standards for Accessible Design *U.S. Department of Justice, 2010*	**Federal Regulation**
ICC A117.1-2017 Accessible and Usable Buildings and Facilities *International Code Council, 2017*	**ICC Building Code**
International Building Code (2021) *International Code Council, 2020*	**ICC Building Code**
International Code Council Family of Codes Including: Mechanical/Electrical/Plumbing/Energy Conservation *International Code Council, 2020*	**ICC Building Code**
NFPA Family of Codes Including: Fire/Life Safety/Electric *National Fire Protection Association* *Latest Versions*	**Construction Code**
CSI Master Format *Construction Specifications Institute, 2023*	**Specification Standard**
2024 Code of Ethics and Professional Conduct *AIA Office of General Counsel* *The American Institute of Architects, 2024*	**Professional Standard**
Model Rules of Conduct *National Council of Architectural Registration Boards* *Latest Version*	**Professional Standard**

AIA CONTRACT DOCUMENTS

The following are the AIA contracts most often referenced in the ARE. These contracts primarily apply to the Practice Management, Project Management, and Construction & Evaluation divisions of the ARE. Candidates are not expected to memorize any portions of these contracts but should be familiar with their format and overall content. While some candidates may not encounter AIA contracts in their professional experience, it's critical for all candidates to use these contracts to understand typical contractual language concerning professional roles and responsibilities and how to apply these concepts in real-world situations.

REFERENCE	DESCRIPTION
A101-2017	Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum
A133-2019	Standard Form of Agreement Between Owner and Construction Manager as Constructor where the basis of payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price
A141-2014	Standard Form of Agreement Between Owner and Design-Builder
A195-2008	Standard Form of Agreement Between Owner and Contractor for Integrated Project Delivery
A201-2017	General Conditions of the Contract for Construction
A701-2018	Instructions to Bidders
B101-2017	Standard Form of Agreement Between Owner and Architect
B143-2014	Standard Form of Agreement Between Design-Builder and Architect
B195-2008	Standard Form of Agreement Between Owner and Architect for Integrated Project Delivery
C401-2017	Standard Form of Agreement Between Architect and Consultant
G701-2017	Change Order
G702-1992	Application and Certificate for Payment
G703-1992	Continuation Sheet
G704-2017	Certificate of Substantial Completion
G709-2018	Proposal Request

ARE 5.0 Practice Exams

NCARB offers simulations of full-length ARE 5.0 divisions through the ARE 5.0 Practice Exams. There are seven exams, all of which are available at no cost to licensure candidates. ARE 5.0 Practice Exams feature the same exam format and tools as an actual ARE division and were developed using the same process and guidelines.

EXAM CONTENT

The seven ARE 5.0 Practice Exams include six divisional practice exams and one multidivisional practice exam. There is one ARE 5.0 Practice Exam for each of the six ARE 5.0 divisions, assembled using the same number of items and tied to the same objectives as the actual versions of each division. You can take one of these exams to help prepare for a particular division. The ARE 5.0 Multidivisional Practice Exam is made of 75 total items across all six divisions. The ARE 5.0 Multidivisional Practice Exam is great for candidates who want to become familiar with the exam's delivery and understand a cross-section of the exam's content.

HOW TO ACCESS

Licensure candidates can access the practice exams in an exam administration format, which allows you to experience the exam just like the real thing. AXP supervisors/mentors and architect licensing advisors can access a PDF version of the practice exams. Please read the information below to access the practice exams.

1) **ARE candidates with active eligibilities:** ARE candidates with active exam eligibilities can access the ARE 5.0 Practice Exams through the Practice Exam Dashboard. For access to the dashboard, log into your NCARB Record, click the "Exams" tab, and navigate to the "Additional Resources" section of the page.

2) **Licensure candidates without active eligibilities:** Licensure candidates without active exam eligibilities can access the ARE 5.0 Practice Exam through their NCARB Record. Navigate to the "Overview" tab and select "Practice the ARE."

3) **AXP Supervisors and Mentors:** Supervisors and mentors can only access the PDF version of the ARE 5.0 Practice Exams. The PDFs are available on NCARB's website.

HOW TO USE

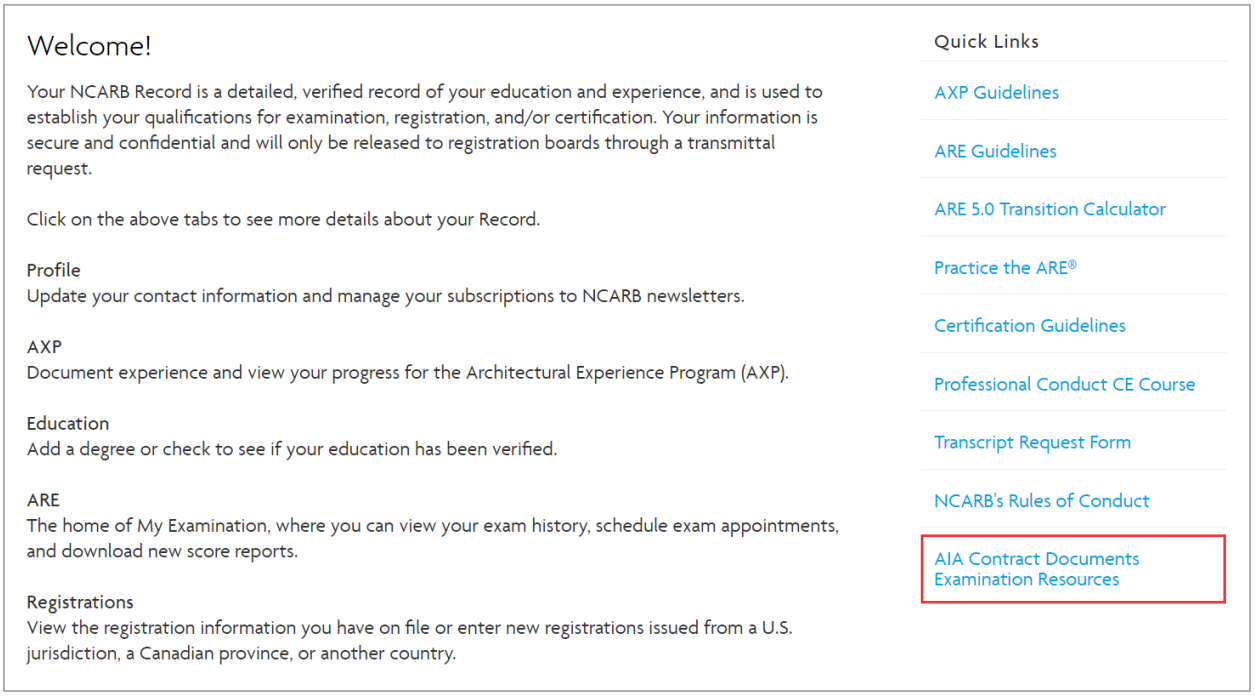
Though the ARE 5.0 Practice Exams are available in two formats—as an exam administration and as a PDF file—they were designed for ARE candidates to replicate the delivery and content of an actual ARE exam administration. **ARE candidates are strongly encouraged to take advantage of the exam administration option.**

There are two modes of administering the ARE 5.0 Practice Exams. If you want to test your grasp of ARE divisional content while replicating many of the conditions of an actual exam appointment, you can take the practice exam in test mode. If you want to linger over the exam tools and navigation and be provided with correct responses and the rationales behind them, you can take each practice exam in practice mode. Both modes provide an examination results page at the end of the exam, where you can find a record of the items you answered correctly or incorrectly, a percentage breakdown of how you fared in each section, and a list of the correct responses and rationales for every item on the exam. You can print these examination results for later study if you choose.

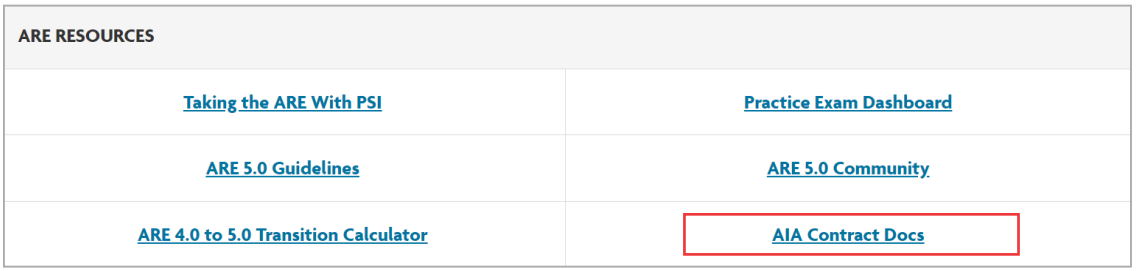
The PDF form of the ARE 5.0 Practice Exams is recommended for AXP supervisors and mentors working with exam candidates. The PDF will help them understand the content in an ARE division. The PDF includes every item, the correct response, and item explanations that appear on each practice exam. Please note, for case study questions in the practice exams, the case study resources are not reproduced for copyright and other reasons. Each case study question identifies which case study resources should be used to properly answer the question. Any licensure candidate can access the practice exam at no cost and show their supervisor or mentor the resources available within each case study.

AIA Contract Documents and Exam Resources

A link to the ARE resources available through AIA is available on the overview page of your NCARB Record under Quick Links.



A link to the free AIA contracts available to ARE candidates is included on the Exams tab of your NCARB Record under Additional Resources.



Common Abbreviations

Below you will find lists of common abbreviations—including professional organizations, contract documents, building codes, commonly used terms, and units of measure—you may encounter while taking the ARE. Familiarize yourself with each abbreviation before testing.

PROFESSIONAL ORGANIZATIONS, SOCIETIES, AND AGENCIES	
American Concrete Institute	**ACI**
American Institute of Architects	**AIA**
American Institute of Steel Construction	**AISC**
American National Standards Institute	**ANSI**
American Society for Testing and Materials	**ASTM**
American Society of Civil Engineers	**ASCE**
American Society of Heating, Refrigerating, and Air-Conditioning Engineers	**ASHRAE**
American Society of Mechanical Engineers	**ASME**
American Society of Plumbing Engineers	**ASPE**
Architectural Woodwork Institute	**AWI**
Construction Specifications Institute	**CSI**
Department of Housing and Urban Development	**HUD**
Environmental Protection Agency	**EPA**
Federal Emergency Management Agency	**FEMA**
National Fire Protection Association	**NFPA**
Occupational Safety and Health Administration	**OSHA**
U.S. Green Building Council	**USGBC**

AIA CONTRACT DOCUMENTS	
A101-2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum	**A101**
A133-2019, Standard Form of Agreement Between Owner and Construction Manager as Constructor where the basis of payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price	**A133**
A141-2014 Standard Form of Agreement Between Owner and Design-Builder	**A141**
A195-2008, Standard Form of Agreement Between Owner and Contractor for Integrated Project Delivery	**A195**
A201-2017, General Conditions of the Contract for Construction	**A201**
A701-2018, Instructions to Bidders	**A701**
B101-2017, Standard Form of Agreement Between Owner and Architect	**B101**
B143-2014, Standard Form of Agreement Between Design-Builder and Architect	**B143**
B195-2008, Standard Form of Agreement Between Owner and Architect for Integrated Project Delivery	**B195**
C401-2017, Standard Form of Agreement Between Architect and Consultant	**C401**
G701-2017, Change Order	**G701**
G702-1992, Application and Certificate for Payment	**G702**
G703-1992, Continuation Sheet	**G703**
G704-2017, Certificate of Substantial Completion	**G704**
G709-2018, Proposal Request	**G709**

CODES AND REGULATIONS	
ADA Standards for Accessible Design	**ADA**
International Code Council	**ICC**
International Building Code	**IBC**
International Energy Conservation Code	**IECC**
International Existing Building Code	**IEBC**
International Mechanical Code	**IMC**
International Plumbing Code	**IPC**
International Residential Code	**IRC**
Leadership in Energy and Environmental Design	**LEED**
National Electrical Code	**NEC**

COMMONLY USED TERMS	
Above Finished Floor	**AFF**
Air Handling Unit	**AHU**
Authority Having Jurisdiction	**AHJ**
Building Information Modeling	**BIM**
Concrete Masonry Unit	**CMU**
Contract Administration	**CA**
Construction Document	**CD**
Dead Load	**DL**
Design Development	**DD**
Exterior Insulation and Finish System	**EIFS**
Furniture, Furnishings & Equipment	**FF&E**
Floor Area Ratio	**FAR**
Guaranteed Maximum Price	**GMP**
Heating, Ventilating, and Air Conditioning	**HVAC**
Insulating Glass Unit	**IGU**
Indoor Air Quality	**IAQ**
Indoor Environmental Quality	**IEQ**
Live Load	**LL**
Material Safety Data Sheets	**MSDS**
Mechanical, Electrical, and Plumbing	**MEP**
Photovoltaic	**PV**
Quality Assurance	**QA**
Quality Control	**QC**
Reflected Ceiling Plan	**RCP**
Request for Information	**RFI**
Request for Proposal	**RFP**
Roof Top Unit	**RTU**
Schematic Design	**SD**
Variable Air Volume	**VAV**
Volatile Organic Compound	**VOC**

UNITS OF MEASURE	
British Thermal Unit	**btu**
Cubic Feet per Minute	**cfm**
Cubic Feet per Second	**cfs**
Cubic Foot	**cu. ft.** **ft^3**
Cubic Inch	**cu. in.** **in^3**
Cubic Yard	**cu. yd.** **yd^3**
Decibel	**dB**
Foot	**ft**
Foot-candle	**fc**
Gross Square Feet	**gsf**
Impact Insulation Class	**IIC**
Inch	**in**
Net Square Feet	**nsf**
Noise Reduction Coefficient	**NRC**
Pound	**lb**
Pounds per Linear Foot	**plf**
Pounds per Square Foot	**psf**
Pounds per Square Inch	**psi**
Sound Transmission Class	**STC**
Square Foot	**sq. ft.** **sf** **ft^2**
Square Inch	**sq. in.** **in^2**
Square Yard	**sq. yd.** **sy** **yd^2**

Formulas Available While Testing

The following is a list of formulas you may encounter while taking the ARE. Familiarize yourself with the use of each formula before testing. If a formula is required to determine the correct response, it will be provided within the item. You will find the necessary formula after the question under the "Reference Formula" subheading. All of the formulas listed below will be provided to you during your exam administration.

STRUCTURAL

Flexural stress at extreme fiber

$$f = \frac{Mc}{I} = \frac{M}{S}$$

Flexural stress at any fiber

$$f = \frac{My}{I}$$

where y = *distance from neutral axis to fiber*

Average vertical shear

$$v = \frac{V}{A} = \frac{V}{dt}$$

for beams and girders

Horizontal shearing stress at any section A-A

$$v = \frac{VQ}{Ib}$$

where Q = *statical moment about the neutral axis of the entire section of that portion of the cross-section lying outside of section A-A*

b = *width at section A-A*

ELECTRICAL

$$\text{Foot-candles} = \frac{\text{lumens}}{\text{area in ft}^2}$$

$$\text{Foot-candles} = \frac{\text{(lamp lumens) x (lamps per fixture) x (number of fixtures) x (CU) x (LLF)}}{\text{area in ft}^2}$$

$$\text{Number of luminaires} = \frac{\text{(foot-candles) x (floor area)}}{\text{(lumens) x (CU) x (LLF)}}$$

where CU = coefficient of utilization
LLF = Light Loss Factor

$$DF_{av} = 0.2 \times \frac{\text{window area}}{\text{floor area}}$$

for spaces with sidelighting or toplighting with vertical monitors

watt = volts x amperes x power factor

for AC circuits only

Demand charge = maximum power demand x demand tariff

PLUMBING

1 ps = 2.31 feet of water

1 cubic foot = 7.5 U.S. gallons

HVAC

$$\text{BTU/year} = \text{peak heat loss} \times \frac{\text{full-load hours}}{\text{year}}$$

$$\text{BTU/h} = (\text{cfm}) \times (1.08) \times (\Delta T)$$

$$1\ \text{kWh} = 3{,}400\ \text{BTU/h}$$

$$1\ \text{ton of air conditioning} = 12{,}000\ \text{BTU/h}$$

$$\text{BTU/h} = (U) \times (A) \times (T_d)$$

where T_d is the difference between indoor and outdoor temperatures

$$U = 1/R_t$$

$$U_o = \frac{(U_W \times A_W) + (U_{op} \times A_{op})}{A_o}$$

where o = total wall, w = window, and op = opaque wall

$$U_o = \frac{(U_R \times A_R) + (U_S \times A_S)}{A_o}$$

where o = total roof, R = roof, and S = skylight

$$R = x/k$$

where x = thickness of material in inches

$$\text{Heat required} = \frac{\text{BTU/h}}{\text{temperature differential}} \times (24\ \text{hours}) \times (\text{DD °F})$$

where DD = degree days

ACOUSTICS

$$\lambda = \frac{c}{f}$$

where λ = *wavelength of sound (ft)*
c = *velocity of sound (fps)*
f = *frequency of sound (Hz)*

$$a = SAC \times S$$

where a = *absorption of a material used in space (sabins)*
SAC = *sound Absorption Coefficient of the material*
S = *exposed surface area of the material (ft^2)*

$$A = \sum a$$

where A = *total sound absorption of a room (sabins)*
$\sum a$ = $(S_1 \times SAC_1) + (S_2 \times SAC_2) + \ldots$

$$T = 0.05 \times \frac{V}{A}$$

where T = *reverberation time (seconds)*
V = *volume of space (ft^3)*

NRC = average SAC for frequency bands 250, 500, 1000, and 2000 Hz

Structural Resources

Below you will find a list of structural resources and beam nomenclature you may encounter while taking the ARE. Familiarize yourself with the resources and nomenclature before testing. If a resource is required to determine a correct response, it will be provided within the item. You will find the necessary formula after the question under the "Reference Formula" subheading. The structural resources and beam nomenclature will also be provided to you during your exam administration.

Beam Diagrams and Formulas	Source	Pages
Simple Beam: Diagrams and Formulas - Conditions 1-3	*A*	*3-213*
Simple Beam: Diagrams and Formulas - Conditions 4-6	*A*	*3-214*
Simple Beam: Diagrams and Formulas - Conditions 7-9	*A*	*3-215*
Beam Fixed at Both Ends: Diagrams and Formulas - Conditions 15-17	*A*	*3-218*
Beam Overhanging One Support: Diagrams and Formulas - Conditions 24-28	*A*	*3-221 & 222*

SOURCES

A	*United States. American Institute of Steel Construction, Inc. Steel Construction Manual; 14th edition. Chicago, Illinois, 2011.*

Dimensions and Properties	Source	Pages
W Shapes 44 thru 27: Dimensions and Properties	*A*	*1-12 thru 17*
W Shapes 24 thru W14x145: Dimensions and Properties	*A*	*1-18 thru 23*
W Shapes 14x132 thru W4: Dimensions and Properties	*A*	*1-24 thru 29*
C Shapes: Dimensions and Properties	*A*	*1-36 & 37*
Angles: Properties	*A*	*1-42 thru 49*
Rectangular HSS: Dimensions and Properties	*A*	*1-74 thru 91*
Square HSS: Dimensions and Properties	*A*	*1-92 thru 95*
Round HSS: Dimensions and Properties	*A*	*1-96 thru 100*
Live Loads	**Source**	**Pages**
Table 1607.1 - Minimum Uniformly Distributed Live Loads and Minimum Concentrated Live Loads	*B*	*16-8 thru 16-10*

SOURCES

A *United States. American Institute of Steel Construction, Inc. Steel Construction Manual; 14th edition. Chicago, Illinois, 2011.*

B *United States. International Code Council, Inc. 2021 International Building Code. Country Club Hills, Illinois, 2020.*

Typical Beam Nomenclature

E	*Modulus of Elasticity of steel at 29,000 ksi*
I	*Moment of Inertia of beam, in^4*
L	*Total length of beam between reaction point, ft*
M_{max}	*Maximum moment, kip-in*
M_1	*Maximum moment in left section of beam, kip-in*
M_2	*Maximum moment in right section of beam, kip-in*
M_3	*Maximum positive moment in beam with combined end moment conditions, kip-in*
M_x	*Maximum at distance x from end of beam, kip-in*
P	*Concentrated load, kips*
P_1	*Concentrated load nearest left reaction, kips*
P_2	*Concentrated load nearest right reaction and of different magnitude than P_1, kips*
R	*End beam reaction for any condition of symmetrical loading, kips*
R_1	*Left end beam reaction, kips*
R_2	*Right end or intermediate beam reaction, kips*
R_3	*Right end beam reaction, kips*
V	*Maximum vertical shear for any condition of symmetrical loading, kips*
V_1	*Maximum vertical shear in left section of beam, kips*
V_2	*Vertical shear at right reaction point, or to left of intermediate reaction of beam, kips*
V_3	*Vertical shear at right reaction point, or to right of intermediate reaction of beam, kips*
V_x	*Vertical shear at distance x from end of beam, kips*
W	*Total load on beam, kips*
a	*Measured distance along beam, in*
b	*Measured distance along beam which may be greater or less than a, in*
l	*Total length of beam between reaction points, in*
w	*Uniformly distributed load per unit of length, kips/in*
w_1	*Uniformly distributed load per unit of length nearest left reaction, kips/in*
w_2	*Uniformly distributed load per unit of length nearest right reaction and of different magnitude than w_1, kips/in*
x	*Any distance measured along beam from left reaction, in*
x_1	*Any distance measured along overhang section of beam from nearest reaction point, in*
Δ_{max}	*Maximum deflection, in*
Δ_a	*Deflection at point of load, in*
Δ_x	*Deflection at point x distance from left reaction, in*
Δ_{x1}	*Deflection of overhang section of beam at any distance from nearest reaction point, in*

EXCERPTED FROM

A United States. American Institute of Steel Construction, Inc. Steel Construction Manual; 14th edition. Chicago, Illinois, 2011.

Additional Helpful Resources

NCARB has many other resources that can help you prepare for the ARE. You'll want to check the NCARB Blog and ncarb.org for the latest testing information in addition to the following resources:

ARE 5.0 COMMUNITY

The ARE 5.0 Community is an online forum where you can post your questions to get help from NCARB and third-party experts, as well as from other candidates. It's also a great place to form study groups, post comments, and engage in dialogue with other candidates who are on the path to licensure.

ARE 5.0 VIDEO SERIES

NCARB offers a collection of videos to help you prepare for ARE 5.0, including the ARE 5.0 Division Video series, which offers exclusive insight into each ARE 5.0 division with information on content, sample questions, and suggested references. Watch each one to learn more about a division.

You can explore several tips and techniques to help you navigate and take a division of ARE 5.0 in the ARE 5.0 Exam Strategies Video. This video includes pointers on item types, scoring, case study navigation, and the use of case study resources.

There's also an ARE 5.0 Exam Navigation Video where an NCARB expert will walk you through the exam's navigation tools and format. Watch to learn more about accepting the Candidate Agreement, using the tools available to you, marking and reviewing items, and exiting the exam when you're finished.

APPENDICES

Appendix A: ARE Candidate Agreement

ARE CANDIDATE AGREEMENT

(Amended June 2026)

I affirm that the information given in my NCARB Record is true, correct, and complete to the best of my knowledge. By clicking 'I Accept', I agree to abide by the following terms and am entering into a binding agreement ("Agreement") between me and the National Council of Architectural Registration Boards (NCARB).

- I have READ, UNDERSTAND, and AGREE to ABIDE BY the Architect Registration Examination® (ARE®) policies and regulations as set forth in the ARE Guidelines, the Policy for the ARE: Exam Candidate Misconduct, and the Professional Conduct Committee: Rules of Procedure ("ARE Policies and Regulations"). Further, I ACKNOWLEDGE and AGREE that NCARB reserves the right to modify or alter at any time any rules, policies, or procedures set forth in the ARE Policies and Regulations, which revisions or modifications shall be binding upon me.
- I UNDERSTAND that disciplinary action for violation of this Agreement and/or the ARE Policies and Regulations may include, without limitation, suspension of my ARE test taking privileges, cancellation of my ARE scores, a public reprimand, ethics education, and/or my potential inability to retain current or obtain future NCARB Certification or to become registered as an architect.
- I UNDERSTAND that NCARB, at its sole discretion, may elect to delay, hold, not validate, or invalidate one or more exam scores if there is a good faith reason to question the validity of the exam score.
- I UNDERSTAND that all content of the ARE is confidential, the property of NCARB, and protected by US copyright laws.
- I AGREE that I will not copy or attempt to reproduce ARE content for my own later use.
- I AGREE that I will not disclose to anyone by any means – electronic, written, graphic, or verbal – the substance or details of any ARE content, including but not limited to questions, exhibits, resources, graphics, and/or alleged answers.
- I AGREE that I have not obtained, nor will I seek to obtain, ARE content disclosed by others.
- I AGREE to notify NCARB if I believe I have received exam content or witness exam content being shared by any means of communication.
- I AGREE that I will not disclose or disseminate ARE content that others may have disclosed to me.
- I AGREE that I will always conduct myself appropriately and civilly throughout my test administration, I will follow instructions given by test administrators and staff, and I will act in an honest and reasonable manner.

- I AGREE that I will not use any technology or method for the purpose of misrepresenting my identity or circumventing exam security protocols, including technology or method that alters, manipulates, disguises, obscures, or misrepresents my identity, appearance, voice, testing environment, or exam activity during any portion of the exam administration.
- I AGREE to be responsive and truthful in providing answers to any NCARB questions and responding to reasonable requests for information relevant to a candidate misconduct investigation or PCC proceeding.
- I AGREE that any action to enforce this Agreement, the ARE Policies and Regulations, and/or any action for infringement of NCARB's copyright of the ARE may be commenced in or transferred to the United States District Court (or other court of competent jurisdiction) where NCARB's principal office is located, which currently is the District of Columbia, and I hereby consent to the personal jurisdiction of such court. Further, I AGREE that the validity, interpretation, and performance of this Agreement shall be governed by and construed in accordance with the laws of the District of Columbia.
- I UNDERSTAND that a violation of this Agreement or the ARE Policies and Regulations may result in my civil liability to NCARB for its costs and monetary damages, which may be substantial, as well as disciplinary actions taken against me by NCARB.
- I UNDERSTAND that a violation of this Agreement or the ARE Policies and Regulations may result in notification to the registration board responsible for my examination eligibilities, which may lead to further disciplinary action by such board.
- I HEREBY RELEASE, DISCHARGE AND HOLD HARMLESS INDIVIDUALLY AND COLLECTIVELY NCARB AND ITS OFFICERS, DIRECTORS, EMPLOYEES, MEMBERS, VOLUNTEERS, SUBSIDIARIES, AGENTS, SUCCESSORS, AND ASSIGNS, INCLUDING MEMBERS, EMPLOYEES, AND AGENTS OF NCARB, FROM ANY AND ALL CLAIMS OR LIABILITY THAT MAY ARISE, DIRECTLY OR INDIRECTLY, NOW OR IN THE FUTURE, BY REASON OF OR IN CONNECTION WITH ANY DECISION, ACTION, OR OMISSION RELATING TO NCARB'S ADMINISTRATION OF THE ARE.

Appendix B: PSI Online Proctoring Candidate Privacy Agreement

PSI ONLINE PROCTORING CANDIDATE PRIVACY AGREEMENT

For a period of time, PSI's online proctoring platform ("Bridge") will access your smartphone's camera and microphone and your computer's camera, microphone, and browser in order to collect video and audio recordings from the start of your exam check-in process until your proctoring session ends. Video recordings may include yourself, your desk, and your workspace. Recording and monitoring is necessary in order to uphold the integrity of the online proctoring process and maintain security of licensure exam content.

The information recorded will not be sold but may be made available, upon request, to NCARB authorized personnel, who may use this information to assess the integrity of the exam, including invalidating exam results or imposing other sanctions when fraud is suspected. Recordings will be retained in secure storage for a period of 90 days or longer as required by law.

To learn more about what information is collected; the purpose of data collection; disclosure, security, and retention procedures; and your legal rights, refer to the full PSI Privacy Policy, which can be found at https://www.psionline.com/legal/privacy-policy/.

In order to schedule your test, you must acknowledge, agree, and consent to all of the following:

- You will be audio and video recorded throughout your examination experience.
- You will be monitored in real-time by PSI's proctoring application and a live proctor throughout your examination experience.
- You will not have a right to privacy or a right to claim a violation of privacy throughout your examination experience.

☐ I affirm that I am at least 18 years of age, and that I am able to consent to the collection of my personal data.

☐ I acknowledge, agree, and consent to all of the foregoing.

Appendix C: Policy for the ARE: Exam Candidate Conduct

POLICY FOR THE ARE: EXAM CANDIDATE CONDUCT

(Amended June 2026)

The following policy has been established by NCARB's Board of Directors to provide procedures in the event of exam candidate misconduct prior to, during, or after taking the Architect Registration Examination® (ARE®). Exam candidate misconduct includes, but is not limited to, the violations described below; any other violation of ARE policies or regulations; and any other misconduct, inappropriate behavior, or breach of examination security. The Board anticipates that these procedures will be applicable to most exam candidate misconduct. Nevertheless, the Board reserves the right to impose any sanction it believes appropriate, either more or less than those noted below. In addition, if the individual subsequently seeks NCARB certification, the matter will be considered in deciding whether to grant NCARB certification. Candidates may appeal a Board-imposed sanction as outlined in the Professional Conduct Committee: Rules of Procedure.

The ARE is copyrighted and each candidate, by requesting eligibility to test, enters into the *ARE Candidate Agreement* and affirms, among other things, not to copy or disclose any ARE questions or other ARE content. Copying or disclosing test questions or any other test content is a violation of NCARB's copyright and the *ARE Candidate Agreement*. In addition to the sanctions described below, where warranted, NCARB may pursue all legal remedies available to recover monetary damages caused by such conduct and to enjoin violations of its rights with respect to the ARE.

Upon discovery of any exam candidate misconduct in any category below, NCARB shall have the authority to place a "hold" on pending scores and all open eligibilities to test and cancel any scheduled exam(s) pending further investigation, review by NCARB's Professional Conduct Committee (PCC), and action by NCARB's Board of Directors if applicable. If no action is taken or only a warning letter is issued, NCARB will reopen any closed eligibilities to test and assist the candidate in rescheduling any canceled exam(s) at no additional cost to the candidate.

Procedures for Exam Candidate Misconduct

Category 1: Seeking or Failing to Report Disclosed ARE Content

Simply put: A candidate may not attempt to gain access to ARE content disclosed by others. If a candidate is unwillingly exposed to exam content by others or witnesses the sharing of exam content, the candidate shall report the incident to NCARB.

A candidate may not willfully obtain or seek to obtain ARE test questions, ARE exhibits, or ARE resources disclosed by others. If a candidate unwillingly receives or discovers exam content disclosed by others or witnesses the sharing of exam content, the candidate must report all information regarding the incident, including available disclosed content, to NCARB.

Category 2: Inappropriate Conduct

Simply put: Candidates are always required to conduct themselves appropriately and civilly throughout the examination process.

Candidates shall not engage in any behavior, written, verbal, or physical, that may be considered inappropriate, disrespectful, abusive, disruptive, threatening, discriminatory, prejudicial, or harassing in nature. Candidates must conduct themselves appropriately and civilly prior to, during, and after a test appointment, while engaging with NCARB, any NCARB member jurisdiction, and/or any vendor working on behalf of NCARB. Candidates are required to follow instructions given by test administration staff and must be responsive and truthful in providing answers to any NCARB questions during a candidate misconduct investigation.

Category 3: Unauthorized Access to Devices or Materials in the Testing Room.

Simply put: Only authorized electronic devices and other approved materials are allowed in the testing room at any time during the administration.

Unapproved electronic devices or any other unapproved materials may not be accessed in the testing room at any time during the exam administration. This includes both vendor-provided and online-proctored testing rooms. Access to approved accommodated testing devices is allowed. Candidates must allow the proctor to inspect accommodated testing devices.

Category 4: Copying, Recording, or Disseminating ARE Content

Simply put: Candidates may not attempt to reproduce, record, or share the content of any ARE question, ARE exhibit, or ARE resource viewed during their exam appointment, whether through electronic or other means. If someone else discloses what they saw on the ARE, candidates may not forward, re-post, or otherwise disclose that information.

It is prohibited to record or transcribe ARE content, either from memory, electronic, or other means, regardless of whether such ARE content is subsequently disclosed. It is further prohibited to forward, re-post, or otherwise disclose any ARE content that others may have disclosed. It is also prohibited for test-takers to attempt to remove ARE content from the testing room using notes in any form, the use of devices (including cameras, audio recorders, software, or scanning or digital storage devices) to record or transmit test content at or from the testing room, or by any other means of data recording or information transmission.

Category 5: Attempting to Disrupt or Gain Unauthorized Access to the ARE

Simply put: Candidates may not attempt to disrupt the delivery of or illegally access an administration of the ARE, ARE content, or ARE results using electronic means of any sort.

It is prohibited to attempt to obtain ARE information from a computer through unauthorized access; trafficking in a computer password that can be used to access a computer; transmitting spam; and/or damaging computer data by any means, including a candidate's own ARE administration or the ARE administration of any other candidate, whether the exam was administered at a test center or through online proctoring. It is prohibited to use any technology or method for the purpose of misrepresenting a candidate's identity or circumventing exam security protocols, including by altering, manipulating, disguising, obscuring, or misrepresenting a candidate's identity, appearance, voice, testing environment, or exam activity during any portion of the exam administration. It is prohibited to attempt to intentionally disrupt any administration of the ARE, the processing of examination scoring, or the delivery of examination results in any way.

The consequences of exam misconduct may be any or all the following:

Test Administrator Action while Testing:

- Immediate dismissal from the test appointment and termination of exam.
- Ban the candidate from using that test center or online proctoring for all future examination appointments.
- Inspect and/or confiscate unauthorized materials and/or devices.

Initial NCARB Action:

- Issue warning letter to candidate and send copy to candidate's board.
- Initiate proceedings with PCC.
    - Send candidate notification of circumstances that appear to be a violation as set forth above.
    - Send copy of candidate notification to candidate's board.

NCARB PCC Action:

- Following PCC Rules of Procedures, issue, require, or recommend any or all the following sanctions:
    - Issue warning letter to candidate and send copy to candidate's board.
    - Require candidate to complete ethics education.
    - Recommend sanctions to NCARB's Board of Directors including any or all the following:
        - Cancellation of score(s) for exam division(s).
        - Suspension of test authorization for all divisions for a period of time.
        - Prohibit granting of an NCARB Certificate for a period of time.
        - Suspension or revocation of the NCARB Certificate for a period of time.
        - Public reprimand of candidate.
        - Any other sanction permitted under the PCC Rules of Procedure.

NCARB Board of Directors Action:

- Review and come to a final decision on action(s) to take.

When one or more sanctions are issued by the PCC and/or Board of Directors, staff will implement such actions and inform the candidate and the candidate's board.

NCARB

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