

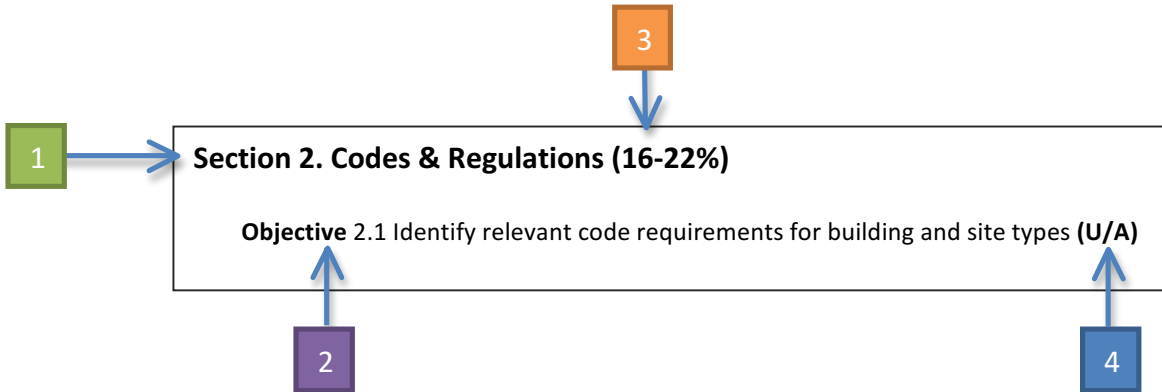


# Test Specification

The test specification identifies the division structure of the exam and additionally defines: the major content areas, called Sections; the measurement Objectives; and the percentage of content coverage, called Weightings.

## KEY TERMINOLOGY AND TEST SPECIFICATION STRUCTURE

The following is a list of key terminology and an example of the structure of the ARE 5.0 Test Specification.



1

**Section:** A major content area within a Division representing the domain of knowledge/skills & tasks a newly licensed architect practicing independently, *must demonstrate* within that Division.

2

**Objective:** Measurement targets that define the breadth and depth within a Section.

- Each exam item (question) on the exam will be written to a specific objective
- Each item will be written to the appropriate Cognitive Complexity (*see item 4 below*) of the Objective
- The number of Objectives within a Section is a factor of the Section Weighting (*see item 3 below*)

3

**Section Weightings:** The percentage of content from that Section that will be represented on each form of the exam for that Division. Section Weightings are presented as a range, allowing for flexibility when producing multiple forms per year.

4

**Cognitive Complexity:** This is the term used to describe the mental processing needed to perform a task. Cognitive complexity ranges from a low level of *Remember*, to higher levels of *Understanding & Application*, up to levels of *Analyze & Evaluate*. For the purpose of this examination, it is not appropriate for a candidate to simply remember a piece of information, such as: *a typical interior ADA ramp has a slope of 1:12*. However, it is appropriate for a candidate to analyze information in a given situation and apply it correctly. An example would be to perform a code analysis and then select an appropriate ramp configuration—the question is not necessarily harder, it is targeted to the knowledge/skills & tasks necessary to practice independently.

- **Remember (R)** – signifies an Objective requires only rote retrieval of information.
- **Understand/Apply (U/A)** – signifies an Objective requires the performance of a concept(s) using standard mental processing.
- **Analyze/Evaluate (A/E)** – signifies an Objective requires the performance of a concept(s) using non-standard or non-predictive mental processing.

## 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:

- 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; and
- Assess the project during all phases.

## Division: Practice Management

### Division Description:

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, as well as asset development and protection.

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

### Division Specification:

#### Section 1. Business Operations (20-26%)

Objective 1.1. Assess resources within the practice **(A/E)**

Objective 1.2. Apply the regulations and requirements governing the work environment **(U/A)**

Objective 1.3. Apply ethical standards to comply with accepted principles within a given situation **(U/A)**

Objective 1.4. Apply appropriate Standard of Care within a given situation **(U/A)**

#### Section 2. Finances, Risk, & Development of Practice (29-35%)

Objective 2.1. Evaluate the financial well-being of the practice **(A/E)**

Objective 2.2. Identify practice policies and methodologies for risk, legal exposures, and resolutions **(U/A)**

Objective 2.3. Select and apply practice strategies for a given business situation and policy **(U/A)**

Division: **Practice Management** *(continued)*

**Section 3. Practice-Wide Delivery of Services (22-28%)**

Objective 3.1. Analyze and determine response for client services requests **(A/E)**

Objective 3.2. Analyze applicability of contract types and delivery methods **(A/E)**

Objective 3.3. Determine potential risk and/or reward of a project and its impact on the practice **(A/E)**

**Section 4. Practice Methodologies (17-23%)**

Objective 4.1. Analyze the impact of practice methodologies relative to structure and organization of the practice **(A/E)**

Objective 4.2. Evaluate design, coordination, and documentation methodologies for the practice **(A/E)**

## Division: **Project Management**

### **Division Description:**

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.

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

### **Division Specification:**

#### **Section 1. Resource Management (7-13%)**

Objective 1.1. Determine criteria required to assemble team **(U/A)**

Objective 1.2. Assess criteria required to allocate and manage project resources **(A/E)**

#### **Section 2. Project Work Planning (17-23%)**

Objective 2.1. Develop and maintain project work plan **(U/A)**

Objective 2.2. Determine criteria required to develop and maintain project schedule **(A/E)**

Objective 2.3. Determine appropriate communication to project team – owner, contractor, consultants, and internal staff **(U/A)**

**Division: Project Management** *(continued)***Section 3. Contracts (25-31%)**

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

**Section 4. Project Execution (17-23%)**

- Objective 4.1. Evaluate compliance with construction budget **(A/E)**
- Objective 4.2. Evaluate and address changes in scope of work and scope creep **(A/E)**
- Objective 4.3. Evaluate project documentation to ensure it supports the specified delivery method **(A/E)**
- Objective 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 (19-25%)**

- Objective 5.1. Apply procedures required for adherence to laws and regulations relating to the project **(U/A)**
- Objective 5.2. Identify steps in maintaining project quality control, and reducing risks and liabilities **(A/E)**
- Objective 5.3. Perform quality control reviews of project documentation throughout life of project **(A/E)**
- Objective 5.4. Evaluate management of the design process to maintain integrity of design objectives **(A/E)**

## Division: **Programming & Analysis**

### **Division Description:**

This division will assess objectives related to the evaluation of project requirements, constraints and opportunities related to the project. The division will focus on issues related to programming, site analysis, and zoning & 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.

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

### **Division Specification:**

#### **Section 1. Environmental & Contextual Conditions (14-21%)**

Objective 1.1. Evaluate site-specific environmental and socio-cultural opportunities **(A/E)**

Objective 1.2. Evaluate site-specific environmental constraints **(A/E)**

Objective 1.3. Determine optimal use of onsite resources by incorporating sustainability principles **(U/A)**

#### **Section 2. Codes & Regulations (16-22%)**

Objective 2.1. Identify relevant code requirements for building and site types **(U/A)**

Objective 2.2. Identify relevant zoning and land use requirements **(U/A)**

Objective 2.3. Identify relevant local and site-specific requirements **(U/A)**



Division: **Programming & Analysis** (*continued*)**Section 3. Site Analysis & Programming (21-27%)**

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

**Section 4. Building Analysis & Programming (37-43%)**

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

## Division: **Project Planning & Design**

### **Division Description:**

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.

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

### **Division Specification:**

#### **Section 1. Environmental Conditions & Context (10-16%)**

Objective 1.1. Determine location of building and site improvements based on site analysis **(A/E)**

Objective 1.2. Determine sustainable principles to apply to design **(A/E)**

Objective 1.3. Determine impact of neighborhood context on the project design **(U/A)**

#### **Section 2. Codes & Regulations (16-22%)**

Objective 2.1. Apply zoning and environmental regulations to site and building design **(U/A)**

Objective 2.2. Apply building codes to building design **(U/A)**

Objective 2.3. Integrate multiple codes to a project design **(A/E)**

**Division: Project Planning & Design** *(continued)***Section 3. Building Systems, Materials, & Assemblies (19-25%)**

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

**Section 4. Project Integration of Program & Systems (32-38%)**

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

**Section 5. Project Costs & Budgeting (8-14%)**

- Objective 5.1. Evaluate design alternatives based on the program **(A/E)**
- Objective 5.2 Perform cost evaluation **(A/E)**
- Objective 5.3. Evaluate cost considerations during the design process **(A/E)**

## Division: **Project Development & Documentation**

### **Division Description:**

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, the 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.

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

### **Division Specification:**

#### **Section 1. Integration of Building Materials & Systems (31-37%)**

Objective 1.1. Analyze the integration of architectural systems and technologies to meet project goals **(A/E)**

Objective 1.2. Determine the size of mechanical, electrical, plumbing systems and components to meet project goals **(U/A)**

Objective 1.3. Determine the size of structural systems to meet project goals **(U/A)**

Objective 1.4. Integrate specialty systems such as acoustics, lighting, fire suppression, conveying, security, and communications to meet project goals **(U/A)**

Objective 1.5. Determine how to detail the integration of multiple building systems and technologies **(U/A)**

Objective 1.6. Coordinate mechanical, electrical, plumbing, structural, and specialty systems and technologies **(U/A)**

**Division: Project Development & Documentation** *(continued)***Section 2. Construction Documentation (32-38%)**

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

**Section 3. Project Manual & Specifications (12-18%)**

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

**Section 4. Codes & Regulations (8-14%)**

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

**Section 5. Construction Cost Estimates (2-8%)**

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

## Division: **Construction & Evaluation**

### **Division Description:**

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.

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

### **Division Specification:**

#### **Section 1. Preconstruction Activities (17-23%)**

Objective 1.1. Interpret the architect's roles and responsibilities during preconstruction, based on delivery method **(U/A)**

Objective 1.2. Analyze criteria for selecting contractors **(A/E)**

Objective 1.3. Analyze aspects of the contract or design to adjust project costs **(A/E)**

#### **Section 2. Construction Observation (32-38%)**

Objective 2.1. Evaluate the architect's role during construction activities **(A/E)**

Objective 2.2. Evaluate construction conformance with contract documents, codes, regulations, and sustainability requirements **(A/E)**

Objective 2.3. Determine construction progress **(U/A)**

Division: **Construction & Evaluation** *(continued)*

**Section 3. Administrative Procedures & Protocols (32-38%)**

Objective 3.1. Determine appropriate additional information to supplement contract documents **(U/A)**

Objective 3.2. Evaluate submittals including shop drawings, samples, mock-ups, product data, and test results **(A/E)**

Objective 3.3. Evaluate the contractor's application for payment **(A/E)**

Objective 3.4. Evaluate responses to non-conformance with contract documents **(A/E)**

**Section 4. Project Closeout & Evaluation (7-13%)**

Objective 4.1. Apply procedural concepts to complete close-out activities **(U/A)**

Objective 4.2. Evaluate building design and performance **(A/E)**