

# The Education Standard

The *NCARB Education Standard* is an approximation of the requirements of a professional degree from a program accredited by the National Architectural Accrediting Board (NAAB). It includes general studies, professional studies, and optional studies, which together comprise a professional education in architecture.

Following are detailed descriptions of the subject areas and categories and the number of semester credit hours required.

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## Please Note

A new *Education Standard* will go into effect on January 6, 2021. You can view the *Standard* in the [Education Guidelines](#).

If you are using this *NCARB Education Standard* to complete the education alternative through the certificate portfolio path, you must submit your initial portfolio by November 9, 2020.

## About the NCARB Standard

The *NCARB Education Standard* is the approximation of the requirements of a professional degree from a NAAB-accredited degree program. It includes general studies, professional studies, and electives, which together comprise a professional liberal education in architecture.

The *NCARB Education Standard* is the criteria for the EESA-NCARB Education Evaluation (described on [page 27](#) of the Education Guidelines). An EESA-NCARB Education Evaluation is an option for NCARB certification for applicants who do not have a degree in architecture from a program accredited by the NAAB.

The EESA-NCARB Education Evaluation process is described on [page 27](#) and the Education Alternative is described on [page 14](#) of the *Education Guidelines*. The education requirement for NCARB certification is described in the [Certification Guidelines](#).

Subject Area and Category	Semester Credit Hour Requirement
<b>General Education</b>	<b>45 Hours</b>
A. Communication Skills	3 Hours Min. in English Composition
B. Humanities and Arts	N/A
C. Quantitative Reasoning	N/A
D. Natural Sciences	N/A
E. Social Sciences	N/A
<b>History, Theory, and Human Behavior</b>	<b>12 Hours</b>
A. History and Theory	6 Hours Min.
B. Human Behavior	3 Hours Min.
<b>Building Practices</b>	<b>27 Hours</b>
A. Structural Systems	6 Hours Min.
B. Environmental Control Systems	6 Hours Min.
C. Construction Materials and Assemblies	6 Hours Min.
D. Building Service and Building Enclosure Systems	3 Hours Min.
E. Technical Documentation	3 Hours Min.
F. Financial Considerations	3 Hours. Min.
<b>Design</b>	<b>42 Hours</b>
A. Fundamental Design	8 Hours Min.
B. Programming and Site Design	8 Hours Min.
C. Research and Investigative Board Design	8 Hours Min.
D. Integrated Design	8 Hours Min.
<b>Professional Practice</b>	<b>12 Hours</b>
A. Stakeholder Roles in Architecture	3 Hours Min.
B. Project Management	3 Hours Min.
C. Business Management	3 Hours Max.
D. Laws and Regulations	3 Hours Min.
E. Ethics and Professional Conduct	3 Hours Min.
<b>Optional Studies</b>	<b>12 Hours</b>
<b>Total</b>	<b>150 Hours</b>

### Note

An EESA-NCARB Education Evaluation is required for candidates seeking **initial licensure** who have a recognized education credential in architecture from a country other than the United States or Canada.

The *NCARB Education Standard*, the individual subject areas and categories of the *NCARB Education Standard*, and means to satisfy any identified deficiencies are described on the following pages. The following definitions have been developed to approximate the requirements of a NAAB-accredited degree program in architecture.

A minimum of 150 semester credit hours<sup>1</sup> (225 quarter credit hours) of academic credit is required and is grouped into six subject areas: General Education; History and Theory and Human Behavior; Building Practices; Design; Professional Practice; and Optional Studies.

## 1. General Education

A total of 45 semester credit hours are required. At least three (3) hours in the Communication Skills category must be in English Composition. The remaining 42 hours may be in any one or more categories of the General Education subject area.

### A. Communication Skills

Communication Skills are defined as effective written and oral communication using the conventions of Standard English as taught in English-speaking countries.

Acceptable courses include English composition, English grammar, public speaking, media communication, community consensus building, research methods, speech communication, business communication, and introductions to research.

Courses in English literature are NOT acceptable in this category, but they are acceptable in Humanities and Arts. Courses in English as a foreign language are NOT acceptable in Communication Skills; however, they may be acceptable in Humanities and Arts.

### B. Humanities and Arts

Humanities and Arts are defined as the academic study of the expressions and artifacts of human experience in word, image, music, and gesture using methods that are primarily analytic, critical, or speculative and that apply rational thought to construct and assess opinions, ideas, and arguments.

Acceptable courses include philosophy, ancient and modern languages, literature, history, philosophy, religion, visual, performing and applied arts, and language courses other than English.

### C. Quantitative Reasoning

Quantitative Reasoning is defined as the study of quantitative methods and rational, systematic steps based on sound mathematical procedures to arrive at a conclusion.

Acceptable courses include algebra, analytic and descriptive geometry, trigonometry, calculus, logical reasoning, pre-calculus, linear algebra, and statistics.

### D. Natural Sciences

Natural Sciences is defined as the study of the universe using a naturalistic approach, which is understood as obeying rules or laws of natural origin. The term Natural Science is also used to distinguish study in those fields that use the scientific method to study science and nature.

Acceptable courses include astronomy, astrophysics, bacteriology, biology, chemistry, earth science, physics, geology, zoology, microbiology, biochemistry, and botany.

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<sup>1</sup> A "credit hour" is the unit of measuring educational credit, usually based on the number of classroom hours per week throughout a term. Students are awarded credit for classes on the basis of the Carnegie unit. This defines a semester unit of credit as equal to a minimum of three hours of work per week for a semester (Definition of a Carnegie Unit). Generally, in the U.S., a semester credit hour is measured as 15-16 contact hours per semester.

**E. Social Sciences**

Social Science is defined as the study of the fields of academic scholarship that explore human society.

Acceptable courses include: anthropology, archaeology, economics, geography, history, law, linguistics, human geography, political science, gender studies, racial/ethnic studies, geography, international studies, psychology, and sociology.

**Satisfying Deficiencies in General Education**

Relevant courses may be taken at any university, college, or community college that is accredited by one of the six regional accrediting associations in the United States: Middle States Association of Colleges and Schools, North Central Association of Colleges and Schools, New England Association of Schools and Colleges, Northwest Commission on Colleges and Universities, Southern Association of Colleges and Schools, and Western Association of Schools and Colleges. Information concerning regional accreditation is usually found on each academic institution's website. It can also be obtained from the admissions office or the registrar.

If a U.S. regionally accredited academic institution grants credit in relevant subjects on the basis of equivalency examinations administered by the institution or by the College Entrance Examination Board's Advance Placement Program, and if that credit is listed on an official transcript issued by that institution, then that credit can be used to satisfy the general education requirement.

[The College Level Examination Program \(CLEP\)](#) can be used to satisfy the general education requirement. The score required varies from subject to subject. Further information can be obtained from [NAAB](#).

## 2. History, Theory, and Human Behavior

A total of at least 12 semester credit hours, with minimum requirements for each category as indicated:

- A. History and Theory (6)
- B. Human Behavior (3)

The remaining three (3) semester credit hours may be in any one or more categories of the History and Theory, and Human Behavior subject area.

### A. History and Theory

History and Theory are defined as the study of the traditions of architecture and the built environment, landscape architecture, urban form, and construction by which diverse human needs, values, and aspirations have been addressed in response to cultural, climatic, ecological, technological, socioeconomic, and public health constraints.

Acceptable topics include historical movements in architecture; history of architecture, landscape architecture, and urbanism, history of building technology, and theory of architecture.

Courses in art history, cultural history, economic history, and political history are NOT acceptable in this category, but they are acceptable in General Education.

### B. Human Behavior

Human Behavior is defined as the study of the characteristics, nature, and behavioral norms of diverse individuals and groups that relate to the economic, physical and spatial environments in which they function, and to the processes of environmental modification and change.

Acceptable topics include the study of environmental psychology, ergonomics, human behavior, post-occupancy studies, cultural diversity, social diversity, and social response to the environment.

### Satisfying Deficiencies in History, Theory, and Human Behavior

Relevant courses may be taken at any university, college, or community college that is accredited by one of the six regional accrediting associations in the United States: Middle States Association of Colleges and Schools, North Central Association of Colleges and Schools, New England Association of Schools and Colleges, Northwest Commission on Colleges and Universities, Southern Association of Colleges and Schools, and Western Association of Schools and Colleges.

Courses taken at community or junior colleges are acceptable for satisfying deficiencies in the History and Theory and Human Behavior requirement.

All courses must be approved by NAAB in advance.

## 3. Building Practices

A total of at least 27 semester credit hours, with minimum requirements for each category as indicated.

- A. Structural Systems (6)
- B. Environmental Control Systems (6)
- C. Construction Materials and Assemblies (6)
- D. Building Service and Building Enclosure Systems (3)
- E. Technical Documentation (3)
- F. Financial Considerations (3)

### A. Structural Systems

Structural Systems are defined as the study of the basic structural elements of buildings, their interaction as a support system, the forces that act on and in buildings, and the principles, theory, and appropriate applications of these systems.

Acceptable topics include analysis of structural systems, construction, construction assemblies, determinate and indeterminate systems, equilibrium, forces and force systems, free body diagrams, gravity, lateral and seismic forces, loads, mechanics of materials, resolution of external forces, shear and bending moments, sizing of structural members, stability, statics, strength of materials, stress and strain, structural elements, structural systems in wood, steel and concrete, and theory of structures.

### B. Environmental Control Systems

Environmental Control Systems are defined as the study of building elements that pertain to the modification of the microclimate for purposes of human use and comfort.

Acceptable topics include acoustics, air conditioning, building core systems, energy, energy efficiency, energy transmission, environmental systems, active and passive heating and cooling systems, lighting (natural and artificial), solar geometry, natural ventilation, indoor air quality, solar energy utilization, and sustainability.

### C. Construction Materials and Assemblies

Construction Materials and Assemblies are defined as the study of the basic principles and appropriate selection and application of interior and exterior construction materials, finishes, products, components, and the assemblies based on their inherent performance, including environmental impact and reuse

Acceptable topics include physical properties of building materials, fenestration, sustainable material selection, installation characteristics of material assemblies, associated assembly cost for labor and materials, and material use and detailing.

### D. Building Service and Building Enclosure Systems

Building Service and Building Enclosure Systems are defined as the study of the appropriate selection and application of building service systems including lighting mechanical, plumbing, electrical, communication, vertical transportation, security, fire protection, non-thermal mechanical, control, circulation, and signal systems and application of building enclosure systems relative to fundamental performance, aesthetics, moisture transfer, durability, and energy.

Acceptable topics include curtain wall systems, sustainability, construction methods, facades, plumbing, electrical, vertical transportation, security, control, communication, and fire protection and life safety systems.

### E. Technical Documentation

Technical documentation is defined as the study of preparing technically clear and accurate drawings, preparing outline specifications, and models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design.

**F. Financial Considerations**

Financial considerations are defined as the study of building economics and the fundamentals of building costs, project financing, methods, and feasibility.

Acceptable topics include building costs, cost and benefit analysis, cost control, development costs, estimating, finance, life-cycle costing, site acquisition and development, and value engineering.

**Satisfying Deficiencies in Building Practices**

Courses to satisfy deficiencies in this category may be taken at either:

- Four-year institutions that offer a professional degree program accredited by NAAB or CACB/CCCA. A list of institutions with NAAB- and CACB/CCCA-accredited programs can be found [here](#); or
- Four-year institutions that offer a pre-professional degree in architecture but do not also offer a NAAB- or CACB/CCCA-accredited program. Courses taken at community or junior colleges are NOT acceptable for satisfying deficiencies in building practices.

All courses must be approved by NAAB in advance.

If a U.S. regionally-accredited academic institution grants credit in relevant subjects on the basis of equivalency examinations administered by the institution, and if that credit is listed on an official transcript issued by that institution, then that credit can be used to satisfy these subject area requirements.

## 4. Design

A total of at least 42 semester credit hours with a minimum of eight (8) hours in each area. The remaining 10 hours may be in one or more areas of Design:

- A. Fundamental Design (8)
- B. Programming and Site Design (8)
- C. Research and Investigative-Based Design (8)
- D. Integrated Design (8)

Design is defined as collection of data or information, the analysis, synthesis, use of judgment, and development and communication tools and methods that architects use to understand, assess, bring together, and express the ideas that lead to a built project.

### A. Fundamental Design

Learning experiences that require students to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well-reasoned conclusions, and test alternative outcomes against relevant criteria and standards; use basic formal, organizational and environmental principles and the capacity of each to inform two-dimensional and three-dimensional design; application of the fundamentals of both natural and formal ordering systems and the capacity of each; and articulating effectively and using representational media appropriate for the assignment.

### B. Programming and Site Design

Learning experiences in which students are required to prepare a comprehensive program for an architectural project that includes an assessment of client and user needs; an inventory of spaces and their requirements; an analysis of site conditions (including existing buildings); a review of the relevant building codes and standards, including relevant sustainability requirements, and an assessment of their implications for the project; and a definition of site selection and design assessment criteria; to respond to site characteristics, including urban context and developmental patterning, historical fabric, soil, topography, ecology, climate, and building orientation, in the development of a project design.

### C. Research and Investigative-Based Design

Learning experiences that require students to utilize methods for gathering, assessing, recording, and comparatively evaluating relevant information and performance in order to support conclusions related to a specific project or assignment; to use theoretical and applied research methodologies and practices necessary in the design process; to examine and comprehend the fundamental principles present in relevant precedents and make informed choices about the incorporation of such principles into architecture projects.

### D. Integrated Design

Learning experiences that require the student to evaluate options and reconcile the implications of design decisions across systems and scales; to synthesize variables from diverse and complex systems into an integrated architectural solution, while responding to environmental stewardship goals across multiple systems including building design and detailing, planning, programming with integrated structural, mechanical, environmental, building services systems, accessibility, site conditions, life safety, building enclosure systems and assemblies.

**Satisfying Deficiencies in Design Synthesis**

All deficiencies in design must be satisfied in studio courses offered either within a professional degree program accredited by the NAAB or the CACB/CCCA or in a pre-professional architecture degree program offered at a four-year institution accredited by a U.S. regional accrediting agency.

Studios must be administered or monitored by a member of the design faculty and must be taken for academic credit.

A list of NAAB- and CACB/CCCA-accredited programs can be found [here](#).

Courses in graphic communication, computer-assisted design, and digital design media (e.g. building information modeling programs) may be used to fulfill Levels I-IV when they are clearly integrated with studio courses. If such courses are taken on their own and without integration in a specific studio, they will be allocated as electives. Completion of a comprehensive studio in Level IV or Level V is required.

All design studio courses must be approved by NAAB in advance.

## 5. Professional Practice

A total of at least 12 semester credit hours are required with a minimum of three (3) in Laws and Regulations and three (3) in Ethics and Professional Conduct. The remaining six (6) must be distributed across the other three categories.

- A. Stakeholder Roles in Architecture (3 max)
- B. Project Management (3 max)
- C. Business Management (3 max)
- D. Laws and Regulations (3 min)
- E. Ethics and Professional Conduct (3 min)

### A. Stakeholder Roles in Architecture

Stakeholder Roles in Architecture is defined as the study of the relationships among key stakeholders in design process (client, contractor, architect, user groups, and local community) and the architect's role to reconcile stakeholder needs.

Acceptable topics include: Urban and community center design practice studios, and special topic courses on public good projects and professional practice courses identifying the roles and responsibilities of stakeholders.

### B. Project Management

Project Management is defined as the study of the entire range of activities involved in a typical architectural design project as it moves from inception through completion of construction including methods for selecting consultants and assembling teams; identifying work plans, project schedules, and time requirements; and recommending project delivery methods.

Acceptable topics include bidding and negotiation, client relationships, leadership and collaboration, construction documents, construction management, contracts, design development, problem identification, project management, programming, site analysis, building code and accessibility analysis, and specifications.

### C. Business Management

Business Management is defined as the study of the concepts, standards, and practices related to different forms of organization for architectural practice.

Acceptable topics include business management, financial management, risk management, office management, office organization, customer service, legal agreements, marketing, negotiating legal agreements, legal and licensure responsibilities, professional liability, risk management, and rules of professional conduct.

### D. Laws and Regulations

Laws and Regulations are defined as the study of the body of common law, legislation, codes and standards, and regulation in the United States that affect architectural practice.

Acceptable topics include accessibility standards, barrier-free design, building codes, laws affecting architectural practice, environmental regulation, life-safety systems, professional liability, professional service contracts, professional registration, tax laws, and zoning regulations. Courses in foreign law are NOT acceptable, but may be acceptable in the Electives subject area.

### E. Ethics and Professional Conduct

Ethics and Professional Conduct are defined as the study of ethical issues involved in the exercise of professional judgment in architectural design and practice. This also includes the role of the NCARB Rules of Conduct and the AIA Code of Ethics in defining professional conduct.

**Satisfying Deficiencies in Professional Practice**

Relevant courses may be taken at any university, college, or community college that is accredited by one of the six regional accrediting associations in the United States: Middle States Association of Colleges and Schools, North Central Association of Colleges and Schools, New England Association of Schools and Colleges, Northwest Commission on Colleges and Universities, Southern Association of Colleges and Schools, and Western Association of Schools and Colleges.

All courses must be approved in advance by the NAAB.

If a U.S. regionally-accredited academic institution grants credit in relevant subjects on the basis of equivalency examinations administered by the institution, and if that credit is listed on an official transcript issued by that institution, then that credit can be used to satisfy these subject area requirements.

## 6. Optional Studies

The minimum number of semester credit hours in each subject area listed above total 138 semester credit hours. The additional 12 semester credit hours may be in any one or more of the five subject areas and/or acceptable Optional Studies.

Acceptable topics in this area include architecture, business administration, computer science, engineering, interior design, landscape design, law, public administration, urban design, and other subjects that in the opinion of NAAB are acceptable toward Optional Studies.