

CONGRUENCY AND RECIPROCITY: ACHIEVING
ARCHITECTURAL LICENSURE

by

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A THESIS

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LIST OF ABBREVIATIONS

ACSA	Association of Collegiate Schools of Architecture
AIA	American Institute of Architects
AIAS	American Institute of Architecture Students
ARE	Architect Registration Examination
CACE	Council of Architectural Component Executives
COPA	Council on Postsecondary Accreditation
ECE	Educational Credentials Evaluators
EESA	Educational Evaluation Services for Architects
ETS	Educational Testing Service
IDP	Intern-architect Development Program
NAAB	National Architecture Accrediting Board
NCARB	National Council of Architecture Registration Boards
VU	value units

PREFACE

A Personal Statement

I have been through an NAAB-accredited architecture program, completed my internship, and taken the ARE, and although I have never doubted my capabilities, there were times that I felt inadequately prepared for pursuing a career in architecture.

While pursuing my undergraduate degree, practical correlations were seldom made between the classroom and the office. For example, at times the instructors would explain that subjects taught would be used in an office but did not explain the nature of that use. In retrospect, while working as an intern, I was able to make the correlation between what I had studied and practical application.

Yet, there seemed to be no guidance, no path set before me that highlighted the objectives of internship and informed me as to the next step in the process of obtaining licensure. The pieces eventually fell into place over a number of years as I gained experience and was able to gather information from colleagues in the architectural field. It was at that time that I felt I was ready to register for the Architect Registration Examination.

Upon returning to school in pursuit of a Master of Architecture degree, I wanted the opportunity to discover how it is that architectural education, training, and the registration examination interrelate. In doing so, I hoped to be able to not only answer my own remaining questions, but to prepare an outline of information relating education and training to the examination for students and interns to follow that would answer their questions as well.

CHAPTER 1
INTRODUCTION

The Role of the Architect

The architect should be equipped with knowledge of many branches of study and varied kinds of learning, for it is by his judgement that all work done by the other arts is put to test. This knowledge is the child of practice and theory.

Vitruvius

Architecture cannot exist without architects.

Architects in this thesis refers to those individuals who design built environments. This thesis will concentrate on the architects who are educated professionals, who have studied the intricacies of architecture and have mastered the usage of the various building systems. These architects have been trained in structural, mechanical, and electrical technology; building and environmental systems; landscaping; the psychology of space, color, and temperature; proportion; and materials and methods. They have to be artisans and philosophers, understand psychology and sociology, and possess an intuitive understanding of the clients' wants and needs. They also are familiar with the national and regional laws that regulate the practice of architecture.

To become a licensed architect, a person must attain not only a formal education, but also training through an internship. The National Council of Architecture Registration Boards requires that a formal education be a degree from an NAAB-accredited architecture program or their equivalent. Internship is the attainment of experience by actually working in an architectural office or the construction field. This phase of one's education is also known as apprenticeship. It is here that the formal education is put to practice, and the intricacies of the profession are learned. These topics will be covered in more detail in later chapters.

Architects must be sensitive to the needs and wants of the client, but at the same time be responsive to the health, safety and welfare of the public. To ensure such responsiveness, the National Council of Architectural Registration Boards requires that students graduate from an NAAB-accredited school of architecture or take an equivalency examination after many years of study and work, thus ensuring equivalency in education or knowledge. Intern-architects must complete the Intern Development Program (IDP), which proves that they have office training, or experience, in the varied aspects of architecture and its practice. Upon completion of their education requirements and the IDP, interns may take the

Architectural Registration Examination (ARE). This examination, developed by the NCARB and administered by the individual state licensing boards, tests for minimum competency of candidates before they can be licensed.

Architectural Licensure

Rules and regulations have been established to ensure the protection of the public's health, safety and welfare with regard to architecture and the practice of architecture. According to Article 249a of Vernon's Texas Civil Statutes, the:

"Practice of Architecture" shall mean any service or creative work, either public or private, applying the art and science of developing design concepts, planning for functional relationships and intended uses, and establishing the form, appearance, aesthetics, and construction details, for any building or buildings, or environs, to be constructed, enlarged or altered, the proper application of which requires architectural education, training and experience. "Practice architecture" or "practicing architecture" shall mean performing or doing, or offering or attempting to do or perform any service, work, act or thing within the scope of the practice of architecture.

Again, according to Article 249a of Vernon's Texas Civil Statutes, the use of the words architect or architecture is restricted as follows:

No firm, partnership, association, or corporation may engage in the practice of architecture, or hold itself out to the public as being engaged in the practice of architecture or use the work "architect" or "architecture" in its name in any manner unless all architectural services are rendered by and through persons to whom registration certificates have been duly issued, and which certificates are in full force and effect.

These similar laws exist in all 50 states to ensure that architects are prepared to protect the public's health, safety and welfare. To facilitate this end, national and state guidelines have been developed to evaluate those individuals who want to pursue a career as an architect. The national guidelines are established by the NCARB, and the state guidelines are established by the individual state registration boards. To become a licensed architect, individuals must complete the educational and IDP training requirements for that state and then pass the ARE. Every state uses the NCARB requirements to develop its own requirements; therefore, this thesis will deal principally with the requirements of the NCARB.

Organizations have been established to ensure equivalency in the education, training, and examination phases of the licensure process. If the university that the student attends has an accredited architecture program, then that program is accredited by the National Architectural Accrediting Board (NAAB). The Intern-architect Development Program is the responsibility of the National Council of Architectural Registration Boards (NCARB) and the American Institute of Architects (AIA). The ARE is developed and written by the NCARB, with the Educational Testing Service (ETS) acting in a consultant role. All of these entities have a common objective: to ready those individuals for a career in architecture.

This common objective may be met if congruency and reciprocity play significant roles in the licensure process. Congruency, being the agreement or harmony between two or more entities (Webster's, 1983), facilitates the acquisition of knowledge. It is important that new information be combined with the existing knowledge and skills of these different entities to create an end result in which the students and interns have a broad understanding of the whole. This makes for a more effective preparation of individuals for licensure. Reciprocity, being a mutual action or exchange (Webster's, 1983), and interchange which

facilitates a means to an end, is important because when organizations or entities work together in order to achieve a common goal, then there is more cohesion and clarity of the process, which benefits the people involved.

In the pursuit of architectural careers, many individuals will seek licenses as architects. In order to better facilitate this process, these questions need to be answered: Are all of these entities preparing the candidates for licensure and a career as an architect? What is the congruency and reciprocity that exists between the NAAB, NCARB, and IDP, and the ARE? And finally, is there any way that those individuals who want to become licensed architects can better prepare themselves for licensure?

CHAPTER 2
NATIONAL COUNCIL OF ARCHITECTURAL
REGISTRATION BOARDS

Introduction

As mentioned in the previous chapter, the protection of the public's life, safety and welfare is a major concern of the architectural licensure process. In the architectural community, the National Council of Architectural Registration Boards, NCARB, plays a vital role in helping individuals prepare for a career in architecture and in governing the registration process. The NCARB is a major participant in guiding and directing the activities of the National Architecture Accrediting Board, Intern-Architect Development Program, and the Architect Registration Examination. The NCARB, referred to as the Council, views its mission as follows:

The mission of the Council is to work together as a council of member boards to safeguard the health, safety, and welfare of the public and to assist member boards in carrying out their duties. Pursuant thereto, the Council develops and recommends standards to be required of an applicant for architectural registration, develops and recommends standards regulating the practice of architecture, provides a process for certifying to member boards the qualifications of an architect for registration, and represents the interests of member boards before public and private agencies.

NCARB, Circular #1, 1989, p. 2

History

In 1919, architects from 14 states discussed the feasibility of creating an organization composed of the examining committees in states that had architect licensing or registering laws. A tentative organization was established to initiate the process, bringing all of the various examining officials into a national organization. The purposes of the national organization were to consider development and implementation of a system of information exchange, higher educational standards, uniform examination procedures, reciprocal registration, and other matters of common interest. One important function of the organization would be to provide certification for architects that indicated that the holder had met all of the requirements for certification and, therefore, could be recommended to other registration authorities for registration as an architect under their jurisdiction (NCARB, Circular #1, 1989).

In May 1920, a meeting was held in Washington, D.C. to formally organize the council that would later be named National Council of Architectural Registration Boards, NCARB. The first annual meeting of the NCARB was held in 1921.

The NCARB is incorporated under the provisions of the Iowa Nonprofit Corporation Act and, therefore, is a nonprofit corporation. The NCARB is composed of all the legally constituted architectural registration boards. They elect its officers and directors who serve without pay and formulate the policies, rules and regulations of the NCARB (Wilkes, 1988). Refer to Chart 1, NCARB Organization, and Chart 2, NCARB Board of Directors, for additional information. All NCARB member boards are required to be members of one of the six regional conferences. Map 1, Regional Conference Areas, contains additional information.

The NCARB devoted, and still does devote, its energies to assisting its member boards in carrying out their duties, establishing standards for certification requirements in education and training, perfecting its procedures for verifying the qualifications of applicants and determining their eligibility for certification, and developing examinations (NCARB, Circular #1, 1989). Along with the aforementioned responsibilities of the NCARB, lately, it has been active in developing a structured internship program and standards of professional conduct.

Being vitally concerned with the content and quality of architectural education, the NCARB appoints members to serve on the National Architectural Accrediting Board and accreditation teams. The NCARB officers and staff members maintain communication with the American Institute of Architects (AIA), the National Architectural Accrediting Board (NAAB), the Association of Collegiate Schools of Architecture (ACSA), the American Institute of Architecture Students (AIAS), as well as other segments of the architectural community (NCARB, Circular #1, 1989).

NCARB Activities

For convenience the main activities of the NCARB can be divided into two general categories. The first category incorporates those services rendered by the NCARB to its member boards. They include:

- The development of the Architect Registration Examination, which is administered annually by the member boards.
- The development of education and internship standards which may be, and increasingly are, adopted by member boards as the standards to be required of candidates for registration.
- The development of recommended standards of professional conduct for registered architects; these, too, are widely adopted by member boards pursuant to the rule-making power generally found in registration statutes.

- The development of legislative guidelines for use by member boards in revising their statutes to strengthen the protection of the public interest through more appropriate and effective laws. (NCARB, 1986, p. 2)

The second category incorporates services to registered architects. Foremost among these is the upkeep and administration of a nationwide system for reciprocal registration based upon the NCARB certificate. Having evolved over the years, this system is unique to the profession of architecture and represents the primary path by which registered architects can practice beyond the borders of their home states (NCARB, 1986). In other words, once architects are licensed and have obtained NCARB Certification, reciprocity exists between the states to allow those individuals to apply for licensure in other states without having to fulfill further education or training requirements.

Education

One of the NCARB's original purposes was to improve the general education standards of the architectural profession in the United States. The NCARB has committed much of its energy to architectural education, especially as it relates to the competency of an architect to provide services to the public. The NCARB is concerned with the advancement of the level of professionalism as

it was with the standards of competency. The NCARB and the profession as a whole noticed a need to improve the quality of architectural education as more states enacted registration laws and the conditions of practice changed. Greater reliance was focused on the schools of architecture to prepare their students to meet the growing demands of architecture. This action was done to facilitate the increasing complexity of the practice of architecture. The schools of architecture were asked to broaden their scope to encompass more architectural content and more liberal art studies (Wilkes, 1988).

In 1980, the NCARB offered a proposal once again to raise the formal education standard for the NCARB certificate from a high school or equivalent requirement to a four-year baccalaureate degree in any field of study. The language was amended from a four year bachelor's degree to an accredited first professional degree in architecture when the proposal was placed before the delegates. The amended resolution passed and took effect on July 1, 1984. There was a request for the NCARB to develop a process whereby those who were unable to obtain formal architectural studies leading to an accredited degree could have an alternative method to satisfy the requirement. A process has since been implemented and is called the Equivalency Examination.

A process has also been developed for those architects without an accredited degree in architecture, but whose education and extensive professional practice may meet the education standard for NCARB certification purposes. Such applicants must have been registered as architects for a minimum of twelve years, eight of which must be as a principal. Architects who intend to satisfy the education standard through this process must file applications, be recommended by their state registration board and others, and stand for an interview (Wilkes, 1988).

The NCARB retains the firm of Educational Credentials Evaluators (ECE) in Milwaukee, Wisconsin to administer this program known as the Education Evaluation Services for Architects (EESA). The ECE, with NCARB approval, engages architectural educators whose expertise is in evaluating the educational performance of individuals for academic credits and to advise them on the acceptability of courses they have taken. The ECE also provides information regarding where courses can be taken that meet the requirements of the education standards (NCARB, Circular #3, 1990).

Internship

It is the responsibility of the NCARB to maintain the records of interns who participate in the IDP program and at the same time applied to NCARB for the compilation of a "Council" record. Upon completion of the IDP requirements, NCARB sends a complete copy of the intern's records to the state board where the intern will take the ARE. Once a candidate has passes all portion of the ARE and obtained licensure from their state, that record serves to substantiate the individual's qualifications for NCARB certification.

Examination

The most intense, time-consuming, and costly activity of the NCARB and the state boards, is examining applicants for licensure as architects. Determining the content of the examination, form of administration, consistency, scoring, and retake criteria has taken hundreds of people immeasurable hours to determine (Wilkes, 1988).

The NCARB analyzed the education, training, and examination standards, criteria, and directions in 1968. The result was a fundamental change in the examination philosophy. This analysis recommended a revised examination format that emphasized the judgmental aspects

of the practice of architecture and not just the knowledge normally acquired in school. It was believed that if individuals graduated from accredited educational programs in architecture, then they had already demonstrated competence in certain technical aspects of architecture, and they had sufficiently acquired and understood the theory and principles of structure; therefore, they needed to be tested on their ability to apply this knowledge to situations that were in close approximation of the events that occur in day-to-day architectural practice. If individuals did not have an accredited architectural education, they would be required to demonstrate their knowledge, skill, and ability at a level that normally would be acquired in accredited education programs. To do so, they would have to pass a series of tests covering architectural history, technology, and design. After successfully completing the academic, or Equivalency Examination, these examinees would then take the Professional Examination (Wilkes, 1988).

In June 1972, the two-test format was adopted and in June 1973 the first Equivalency Examination was administered. The first Professional Examination was administered in December 1973. To reflect more

accurately how member boards were using the Equivalency Examination, it was renamed the Qualifying Test in 1976 (NCARB, Circular #1, 1989).

A special committee was appointed by NCARB in 1979 to assess the knowledge, skill, and ability professionals used in their day-to-day tasks. These aspects were then related to the testing of examinees for minimum competency in the areas of architectural service that were identified as being most critical in the safeguarding of public health, safety, and welfare. Upon completion of the study in 1981, it was determined that the NCARB examination could be improved. In 1982, another NCARB committee studied the recommendations of the earlier group and arrived at the same conclusion: the examination needed to be reorganized. The 1982 committee also recommended that all applicants take the same written examinations for licensure, regardless of their academic backgrounds (Wilkes, 1988).

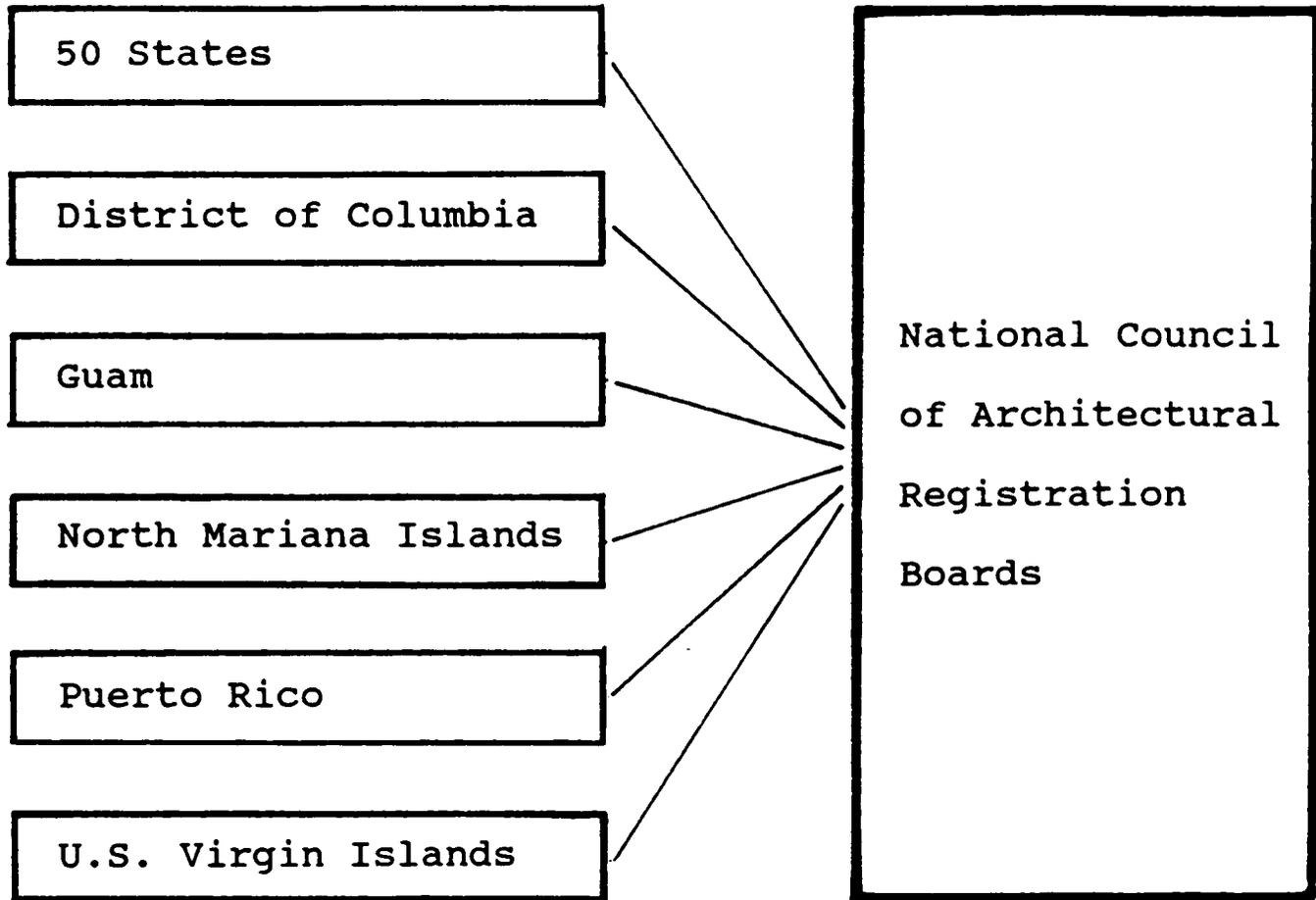
Along with the adoption of these recommendations was the adoption of an outline for a nine-division examination. This new examination would be administered on four consecutive days each June and would be 32-1/2 hours long. The recommendations were accepted and the new examination, titled the Architect Registration Examinations (ARE), was first administered to candidates

in June 1983. The ARE, and the recommended transition procedures for candidates who were taking portions of either the Qualifying Test or the Professional Examination, were adopted by all of the state boards and transition was accomplished in one year. Since that time, the ARE has been the only test administered to establish licensure in the 50 states (Wilkes, 1988). Refer to Chapter 5 for more information.

Summary

This chapter discussed the role of the NCARB in regard to education, the NAAB; the internship program, IDP; and the Architect Registration Examination, ARE. The following chapters will explain in more detail the role of each of these three areas of architectural development.

* Architectural Registration
Member Boards:



* Irregardless of members board size, each board had only 1 vote in NCARB.

CHART 1:
NCARB ORGANIZATION

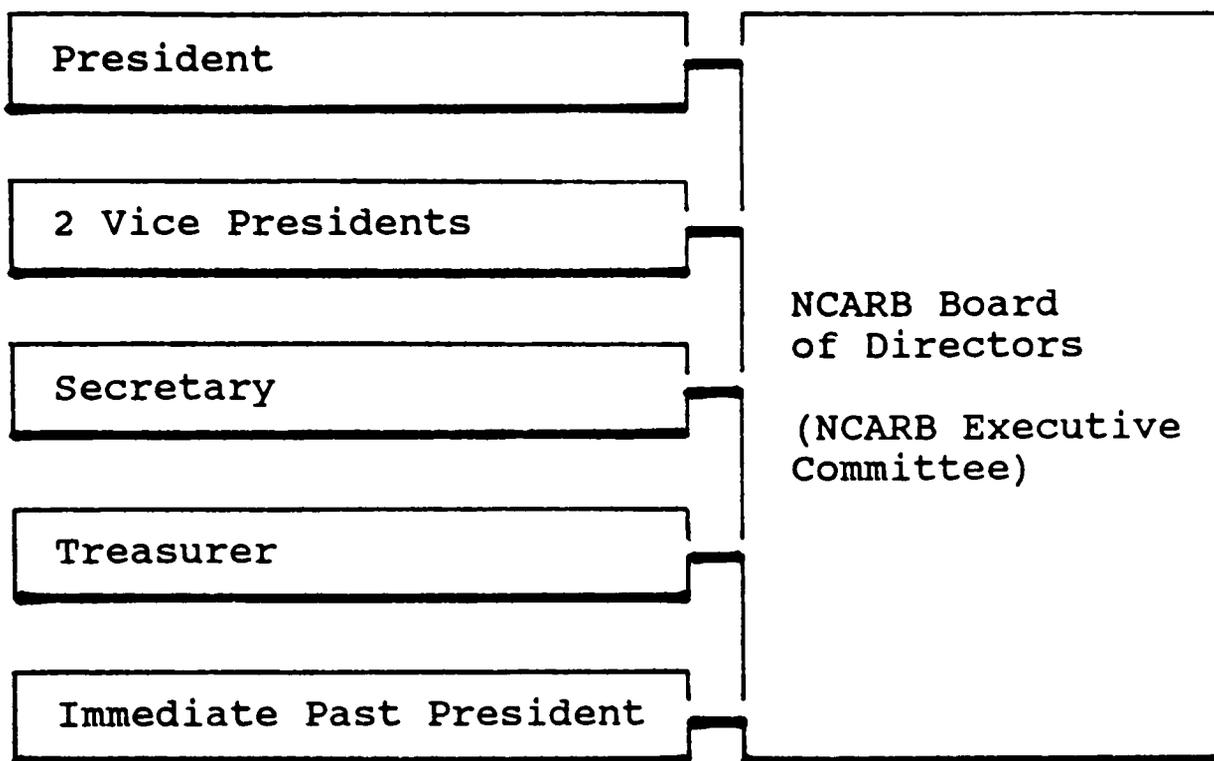
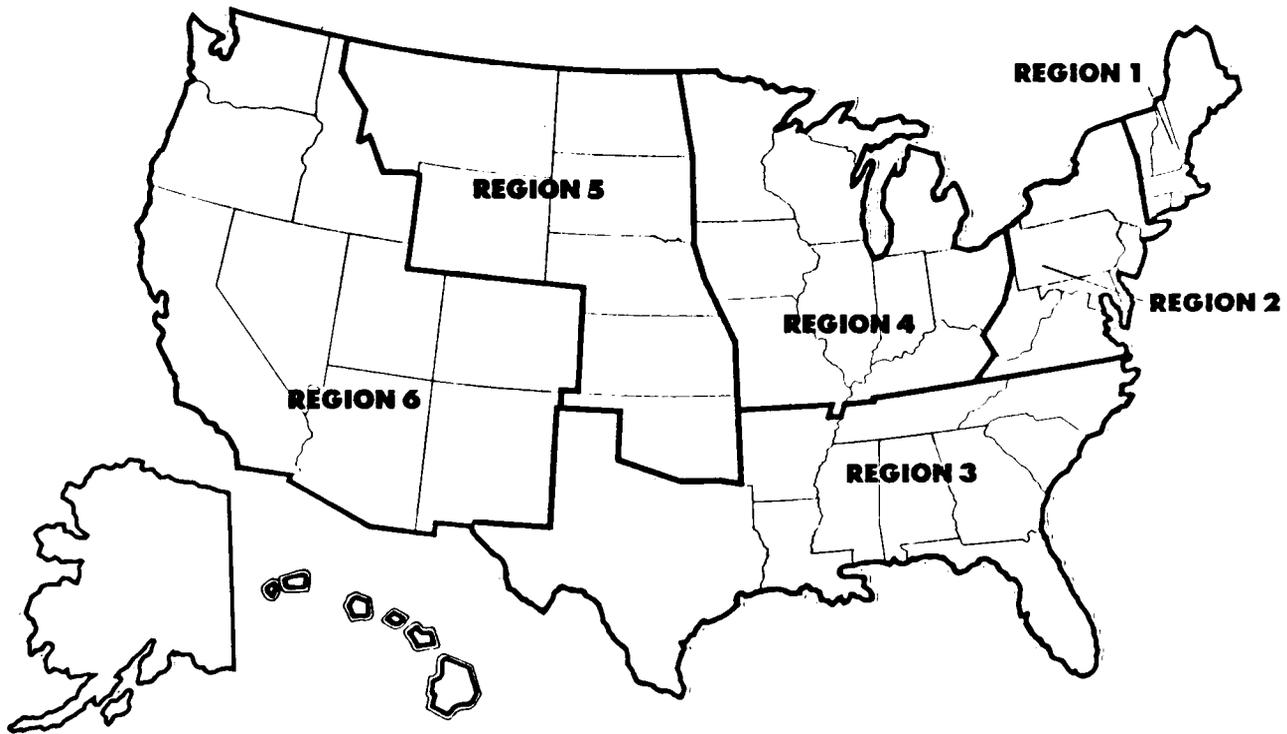


CHART 2:
NCARB BOARD OF DIRECTORS



Region 1
 Connecticut
 Maine
 Massachusetts
 New Hampshire
 Rhode Island
 Vermont

Region 2
 Delaware
 District of Columbia
 Maryland
 New Jersey
 New York
 Pennsylvania
 Puerto Rico
 Virginia
 West Virginia

Region 3
 Alabama
 Arkansas
 Florida
 Georgia
 Louisiana
 Mississippi
 North Carolina
 Puerto Rico
 South Carolina
 Tennessee
 Texas
 Virgin Islands

Region 4
 Illinois
 Indiana
 Iowa
 Kentucky
 Michigan
 Minnesota
 Missouri
 Ohio
 Wisconsin

Region 5
 Kansas
 Montana
 Nebraska
 North Dakota
 Oklahoma
 South Dakota
 Wyoming

Region 6
 Alaska
 Arizona
 California
 Colorado
 Guam
 Hawaii
 Idaho
 Nevada
 New Mexico
 Northern Mariana Islands
 Oregon
 Utah
 Washington

(AIA, 1989, p. 36)

**MAP 1:
 REGIONAL CONFERENCE AREAS**

CHAPTER 3

NATIONAL ARCHITECTURAL ACCREDITING BOARD

Introduction

The previous chapter discussed the role of the NCARB in the NAAB, IDP and ARE. This chapter will concentrate on the role of the NAAB in architectural education and accreditation of first professional architectural degree programs. Its history, organization, validation, view regarding education, and program context will be discussed in the following sections.

History

The need for and mission of architectural accreditation can be traced to the initial establishment in 1897 of an architectural registration act in Illinois. Dankmar Adler, of Adler and Sullivan, and Nathan Ricker, head of the architectural program at the University of Illinois, modeled a registration law after the state's existing regulatory system in medicine and law, and moved it through the Illinois State Legislature, and in 1898 the Illinois Board gave its first examination. By 1902, Ricker had convinced the Board to adopt a rule that provided that any graduate of an approved four-year curriculum in architecture was qualified to take the

registration exam. In 1903, the Illinois Board took action to recognize diplomas from Massachusetts Institute of Technology, Cornell, Columbia, Pennsylvania, and Harvard, thus firmly establishing the need for some national system to determine equivalency among architectural programs for the purpose of licensure (NCARB, 1988).

The Association of Collegiate Schools of Architecture (ACSA) was founded in 1912, and in 1914 it attempted to establish national standards of performance for schools of architecture by adopting "standard minima" for admission. Membership in the ACSA was the equivalent of accreditation until 1932 when the "standard minima" were abandoned. In 1940, the American Institute of Architects (AIA), the National Council of Architectural Registration Boards (NCARB), and the ACSA established the National Architectural Accreditation Board thereby filling the void left by ACSA's action (NCARB, 1988).

The NAAB pursued a Restructuring Study in the early 1970's to develop accreditation criteria and procedures. The founding organizations, regional accrediting agencies, allied professions, and students participated in the study. One major result of the study was that "the Bylaws were changed to provide the NAAB with greater autonomy" (NCARB, 1988).

After 1975, the NAAB accrediting process required the application of "achievement-oriented performance criteria . . . in the evaluation process" and that "procedures for the process of evaluation and accreditation" be developed (NCARB, 1988, p. 2).

The NAAB criteria and procedures were reviewed in 1982 by a special committee represented by the AIA, ACSA, NCARB, NAAB and the American Institute of Architecture Students (AIAS). The resulting action of the committee was the adoption of the achievement-oriented performance criteria in four major areas: context, design, technology, and practice. In order for a first-professional degree program to be accredited, it is the school's responsibility to see that each graduate complete the liberal arts requirement and the necessary levels of attainment for each of the subareas of the four major areas (NCARB, 1988).

Organization

The NAAB has 11 members who serve as the Board of Directors: three nominated by the ACSA, three nominated by the AIA, and three nominated by the NCARB, each for three-year terms; one director nominated by the AIAS for a one-year term; and one public member/academic generalist director nominated at-large for a three-year

term. The directors make decisions and generate policy, review and accredit architecture programs, and improves the accrediting process through continuous study of its criteria and procedures (NCARB, 1988). (Chart 3, NAAB Organization, provides more information.)

The directors meet a minimum of twice a year and installation of the new directors occurs at the fall annual meetings. Two of the standing committees established in the Bylaws are the Executive Committee and the Evaluation and Training Committee. The Executive Committee handles matters delegated to it by the Board between full Board meetings, and the Evaluation and Training Committee works to propose improvements in criteria and procedures to assure quality in the accreditation process (NCARB, 1988). Chart 4, NAAB Committees and Teams, contains more information.

The NAAB's main office is in Washington, D.C., and it is incorporated as an independent, nonprofit organization. The ACSA, AIA, and NCARB share equally in the funding of the NAAB. Board Directors and team members are not paid for the time that they contribute; however, expenses are reimbursed (NCARB, 1988).

NAAB Validation

The Council on Postsecondary Accreditation (COPA) and the U.S. Department of Education recognize the NAAB for its accreditation of first-professional programs in architecture. NAAB accredits only first-professional programs, but it also may review other programs that the school of architecture itself defines within the realm of architectural education (NCARB, 1988).

Committed to the development and use of criteria and procedures that are reliable and valid for the assessment of professional programs in architecture, the NAAB also provides for, and encourages, the enrichment of professional programs. To ensure that NAAB maintains its standards of education, it is reviewed for continued recognition by the U.S. Department of Education and the Council on Postsecondary Accreditation at four- and five-year intervals. This process includes a self-study documentation phase and presentation, and question and answer phase before select Committees for Recognition (NCARB, 1988).

The NAAB and its sponsoring organization's formal process of continuous validation of the NAAB and its practices include a two-day validation conference held every three years, the first to be in 1990. Participants in this conference will include the NAAB Directors,

representatives from the sponsoring organizations, at least one additional member of the public, and other parties deemed appropriate. Each sponsoring organization will provide the NAAB with input prior to the conference. The NCARB will provide a three-year update of changes to the Architectural Registration Examination (ARE) specification; the AIA will provide the results of a current AIA Grass Roots and Board expectation survey; the ACSA will provide the results of a survey of member schools on NAAB practices and issues in architectural education; and the AIAS will provide the survey results of students' assessments of architectural education (NCARB, 1988).

Conditions for Accreditation

The NAAB must be provided with evidence through documentation and review that the following conditions have been met for accreditation:

1. The program must be in an institution which is accredited by the recognized institutional accreditation body of that region.
2. The institution provides for a general education requirement either for admission to the program or for the completion of the program.
3. The institution provides evidence that the objectives of the NAAB perspectives on architectural education are being met.

4. The institution provides evidence that all students who receive a first-professional degree in architecture have satisfied the achievement-oriented performance criteria in Section 3.3. Documentation must include evidence that the program, firstly, provides the opportunity for students to satisfy each criterion, and secondly, identifies the types of student work that provide evidence that students have satisfied each criterion.
5. The institution offers one or more of the four recognized types of programs. The program types are descriptive and do not preclude variations approved by the NAAB.
6. The institution must guarantee the program has sufficient quality and quantity resources to ensure the continued accreditability of the program. (NCARB, 1988, pp. 6-7)

NAAB Perspectives on Architectural Education

The broad and inclusive view of architecture and the role of the architect in society is incorporated into the NAAB due to its membership. The NAAB is able to bring different perspectives to bear on the accreditation process because of its members and their organizations. The perspectives are drawn in relation to the interests of the four groups that comprise the NAAB: architectural educators, the ACSA; practitioners, the AIA; registration board officials, the NCARB; and architecture students, the AIAS. The NAAB solicits evidence that the first-professional degree program in architecture satisfies the objectives of these perspectives (NCARB, 1988).

Entry Into Professional Practice

It is the quest of first-professional degree programs accredited by the NAAB to assure that graduates are competent in architectural design, that they have a grasp of technical systems and requirements, that they are able to incorporate considerations of health and safety into design, that they understand the historical, human, and environmental contexts of architecture, and that they comprehend architects' role and responsibilities in society (NCARB, 1988).

An important step toward professional practice is the attainment of a first-professional degree education in architecture. Candidates seeking status as an architect have typically graduated from a professional program in architectural education, acquired a specified number of years of documented architectural experience, provided extensive personal data and letters of recommendation, and taken one or more formal examinations. Although the lack of NAAB accreditation does not preclude excellence in education, it may make the preparation of a professional more difficult to detect and ensure. The basic quality of education attained by students in an NAAB accredited program can aid entry into the profession (NCARB, 1988).

Education and Society

The NAAB pursues confirmation that architecture programs reflect the ever-changing and dynamic role of the architect in society. Graduates from an accredited program should acquire ideas and ways of thinking from which to begin contributing to the future of architecture. This contribution can be facilitated through practice in the private and the public sectors, research, education, and the many organizations representing and overseeing the profession. There should be an emphasis in the school's educational programs on issues of emerging importance in contemporary society because of their far-reaching implications for the future of architecture. The future of architecture relies on excellence and experimentation regarding these issues in schools as well as practice (NCARB, 1988).

Individual practitioners are feeling the demands being placed on them by developments in construction technologies, materials, and hardware. There is a need for increased specialization and for working cooperatively with other architects and other professions because of the complexity of projects, tight time schedules, and increasingly sophisticated building technologies. An increased competition for business in

the architectural field creates demands for greater productivity and flexibility in the performance of architectural services (NCARB, 1988).

Education and Individual Development

The NAAB pursues confirmation that programs leading to the first-professional degree in architecture provide a basis for lasting personal and professional growth. Professional education creates the base for a lifetime of learning by opening up avenues for personal growth and development in architecture, and by assisting students in matching their interests and skills to a particular career. It not only provides opportunities for learning, but also for learning how to learn (NCARB, 1988).

Program Context and Student Performance

Achievement-oriented criteria for the evaluation of program content and of student performance in programs leading to a first-professional degree in architecture are presented in this section. The following criteria are the latest expression of part of the fundamental mission of the NAAB which is, as stated in its bylaws, to "establish, maintain and publish . . . achievement-oriented performance criteria to be applied to the evaluation process" (NCARB, 1988, p. 10).

Awareness, understanding, and ability are the terms used in the criteria to describe student achievements prior to graduation. Awareness is the student's familiarity with specific information, including facts, definitions, concepts, rules, examples, and procedures. Understanding is the student's assimilation and comprehension of knowledge. Ability is the student's skill in interpreting knowledge, abstracting principles, and relating specific knowledge to other material. These three levels of learning are paraphrased from the first three levels of Benjamin S. Bloom's taxonomy of cognitive domain educational objectives (NCARB, 1988).

The NAAB states criteria for program content and student performance that must be satisfied, yet it specifies neither the educational program that provides that content nor the types of student work to serve as evidence that students have satisfied the criteria. As stated in the NAAB bylaws, it wishes to:

. . . create and maintain conditions that will encourage the development of practices suited to the conditions which are special to the individual program, and will assist in developing programs fulfilling the broad requirements of the profession of architecture. (NCARB, 1988, p. 10)

For the purposes of stating the criteria, the content of architectural education is grouped into four major areas: context, design, technology, and practice

(NCARB, 1988). The performance criteria listed are for NAAB accreditation only. (Refer to Appendix A for the NAAB students' performance criteria.)

Context

The cultural and physical contexts for architecture consist of liberal studies, history, human behavior, and the environment. The issues in this category encompass considerations of human nature and the human use of the environment. To practice architecture in the contemporary world, it is essential to understand and act responsibly on these issues (NCARB, 1988).

Liberal Studies

A Liberal Studies program is composed of the core disciplines that constitute modern forms of knowledge that deal with basic concepts rather than applications. At least one-quarter of the credits in Liberal Studies must be above the introductory level (NCARB, 1988).

History

History is defined as the organized knowledge of principles and ideas, and of exemplary buildings and places. This information is available through methods of inquiry into architecture's past, from its early

prehistoric traces to the present time. The basis for architectural responses to the natural and built context, to ideas, values, and technology, and to human existence and experience are revealed (NCARB, 1988).

Human Behavior

The characteristics and behavior of individuals and groups in relation to the physical environments in which they function define human behavior (NCARB, 1988).

Environmental Context

The constructed artifacts, service infrastructure, and the climatic, geographic, and other natural characteristics of sites that form the setting for architecture constitute the environmental context (NCARB, 1988).

Design

Graduating students from an NAAB-accredited program should have the ingenuity and ability to approach an unfamiliar problem and identify and find needed information. Within a time period they should be able to develop a buildable, aesthetically pleasing, and functional schematic solution to a wide variety of projects (NCARB, 1988).

Process

The process of design includes identifying the constituent parts of an architectural project, clarifying those parts by using the appropriate types of information or consulting with specialists, and separating the implications of the parts for their eventual combination in the synthesis process. The process is typically organized around three major foci: the client or societal intent; the social, cultural, and environmental context into which the project is fit; and the architectural, environmental control, and other systems of the building itself (NCARB, 1988).

Form

Form includes physical characteristics of a place, its cultural, sensual, and psychological character. Accommodating diverse and often conflicting requirements in an imaginative way, relating parts to each other, giving sense to the whole, and providing opportunities for experience that are valuable to inhabitants should be a function of form (NCARB, 1988).

Judgment

Judgment is the ability to make choices despite requirements that are often conflicting and ambiguous. This requires that the students have the capacity to reconcile ideas and limitations and to discriminate differences, anticipate consequences, order alternatives, and assume responsibility for decisions (NCARB, 1988).

Representation and Communication

To adequately illustrate and document their work as they communicate with others involved in the design process, it is necessary for architects to possess representation and communication skills (NCARB, 1988).

Technology

The physical performance of buildings consists of the technical systems. An important value of architecture is its capacity to utilize the laws of nature to create a useful environment. Elements that are essential to the building itself, major equipment necessary to the functioning of the building, and various devices incorporated into the building, which are crucial to function, comfort, and human safety are all elements of technical systems (NCARB, 1988).

Students who graduate from an NAAB-accredited program should have a general awareness of the role technology plays in the evolution of an architectural project. They should not only understand the principles which underlie each of the technical systems, they should also have acquired the ability to apply those principles to the design of a variety of simple technical systems. Graduating students should have a sufficient understanding of the principles to assess systems design by others and to understand other applicable rules, regulations, and standards (NCARB, 1988).

Structural Systems

The basic structural elements of a building, their interaction as a support system, and the forces that act on, and in, buildings make up the structural systems. They are also the principles and theories upon which an understanding of these systems is based (NCARB, 1988).

Environmental Control and Communication Systems

The equipment, the distribution for controlling the sensual environment, and their integration into a design which modifies the microclimate for purposes of human use and comfort, all comprise the environmental control

systems. Communications systems incorporate voice, digital, and other communication systems (NCARB, 1988).

Construction Materials and Assemblies

Building materials and how they are used are characteristics of construction materials and assemblies. It also refers to the different types of building assemblies and how they are made and applied in a building project (NCARB, 1988).

Safety and Accessibility

Safety refers to those elements of a building which directly relate to preserving the life and safety of building occupants. These elements include fire and intruder detection, fire suppression, and fire separation within buildings. Accessibility includes internal and external circulation, the exiting of buildings, and design considerations specifically for the accommodation of human disabilities (NCARB, 1988).

Practice

Practice includes the relation of the profession to the society, and the organization, management, and documentation of the process of providing professional services (NCARB, 1988).

Project Process

The activities included in a typical architectural project as it moves from inception through completion of construction are all project processes. These include the activities of the architect and other professionals. Project process also refers to special activities required of the architect, and to the different types of contractual arrangements and to procedures for their administration (NCARB, 1988).

Project Finance and Economics

The financial aspects of building, including the economics of development, are referred to as the project finance and economics. This includes site acquisition and development costs, building costs and the factors that influence them, estimating techniques, cost control procedures, life-cycle costing, value engineering, and cost and benefit analysis (NCARB, 1988).

Business and Practice Management

Business and practice management refers to the concepts, ethical principles, procedures, and techniques related to the different forms of organization for architecture practice (NCARB, 1988).

Laws and Regulations

Laws and regulations that relate to architectural practice form a complex body of common law, legislation, and regulations (NCARB, 1988).

Summary

In this chapter the NAAB's history, organization, views on education, and program context were explained. The NAAB plays a critical role in the education of those individuals who want to pursue a career in the architectural field. But the NAAB basically stops at the school. What the intern does after a formal education is regulated by the Intern-architect Development Program. This program will be discussed in further detail in the next chapter.

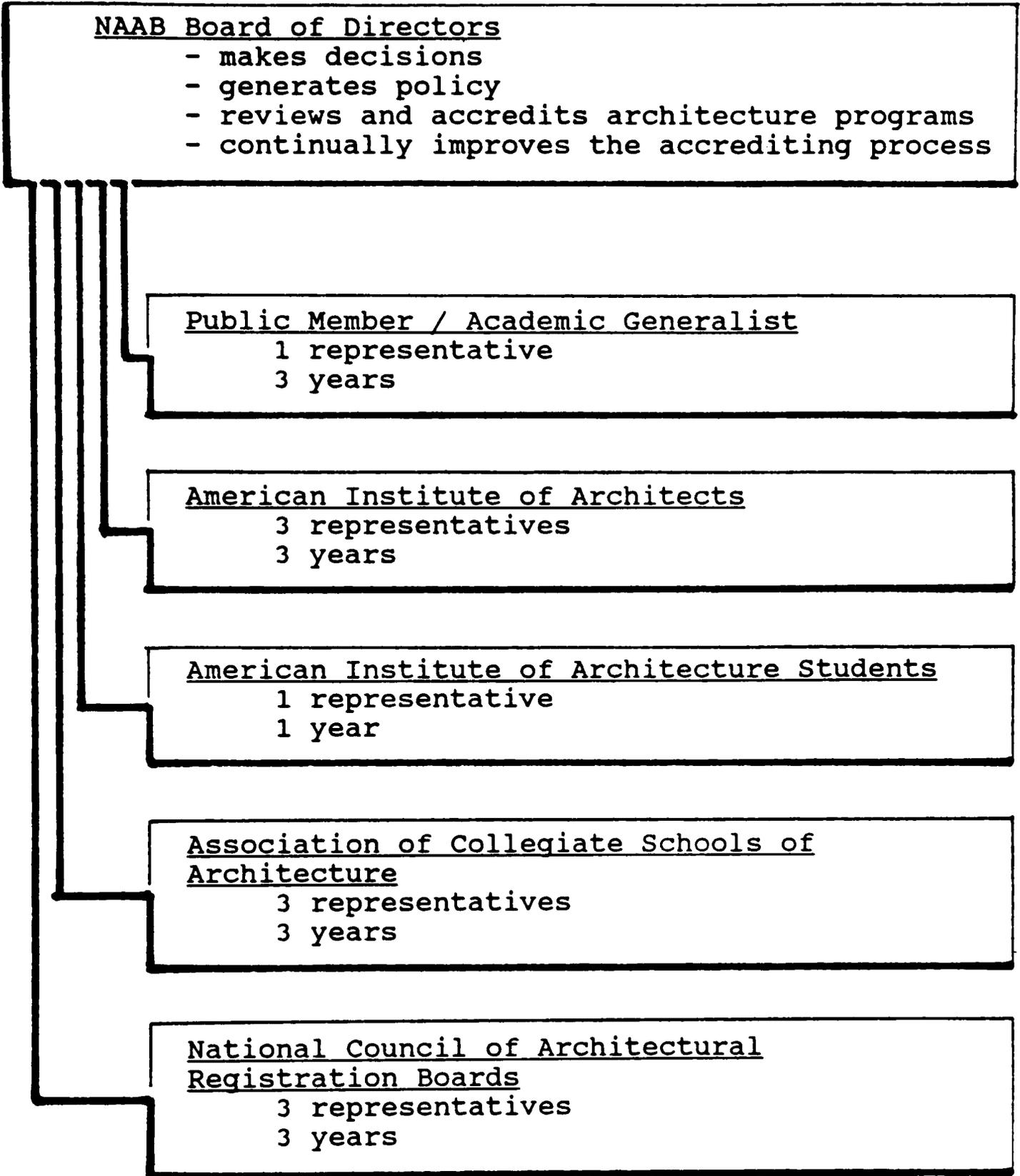


CHART 3:
NAAB BOARD OF DIRECTORS ORGANIZATION

Established in the NAAB By-Laws

Executive Committee:

- handles matters delegated to them by the Board between full Board meetings.

Evaluation and Training Committee:

- works to propose improvements in criteria and procedures to assure quality in the accreditation process.

Accreditation Teams:

- NAAB appointed teams that visit colleges as part of the accreditation process.

CHART 4:
NAAB COMMITTEES AND TEAMS

CHAPTER 4

INTERN-ARCHITECT DEVELOPMENT PROGRAM

Introduction

The Intern-architect Development Program, IDP, was established to help guide and direct interns during their apprenticeship. A need for a standard for educational and internship requirements was recognized and a solution was the development of the IDP. This chapter will discuss the objectives, organization, IDP in education and experience, and certification in more detail.

Internship

Although success on the architect registration examination can be attributed to a number of variable factors, a well-rounded internship plays an important role. The knowledge, skills, and judgmental ability in situations directly related to the IDP training areas constitute a major portion of the examination test (Wilkes, 1988).

An internship program acts as a link between formal education and the practice of architecture. It is during this period that the intern begins to apply the knowledge and skills obtained in school to the daily problems encountered in the practice, and also to understand the

mechanics of professional practice. Many schools of architecture encourage, and some even require, students to acquire internship experience prior to graduation. In addition to the student being exposed to the workings of an architect's office for educational purposes, certain pre-graduation internships are credited by many state registration boards as work experience required to sit for the registration examination (Wilkes, 1988).

The Constitution of the United States of America entrusts the individual states with the power "to guard the health, safety and welfare of the people" (AIA, 1989, p. 9). Therefore, it is the function of the individual states to regulate the profession of architecture, including the registration or licensure of practitioners. Within a state, the administrative process of registration results in granting the privilege to practice architecture (AIA, 1989).

All state boards require that interns satisfy educational, training and examination requirements although the registration laws vary among states. A professional degree in architecture from an NAAB-accredited program is the education requirement for many state boards. A preprofessional degree in architecture is required by some state boards, while others require a bachelor's degree in any subject, and still others

require a high school diploma or equivalent credential (AIA, 1989). Interns can contact their state board or the NCARB office in Washington, D.C., to find out the educational requirements for that state.

The minimum training period for interns is also determined by the individual state boards. Because boards have different educational requirements, the training period varies considerably, depending upon the type and extent of previous education (AIA, 1989). Refer to Appendix B, Typical Training Periods Required for Registration, for further information.

The individual architectural registration boards have the authority to establish their own requirements necessary for admission to the examination and for registration. Several of the registration boards have adopted the IDP training requirements as their training standard, while other boards have endorsed the requirements as acceptable (Wilkes, 1988). Participation in IDP is not mandatory, yet a growing number of jurisdictions are adopting the IDP training criteria as their own standard for evaluating candidate's experience qualifications (Wiese, 1984). See Map 2, IDP and State Registration Requirements, for more information. It is the responsibility of the interns to maintain their own

ongoing records of training and supplemental education that are in fulfillment of the IDP's training requirements.

Objectives

The assurance that all interns pass the architects registration examination is not the principal objective of the IDP (Wilkes, 1988). Yet, a comprehensive internship program is necessary to gain and strengthen the discipline, integrity, judgment, skills, knowledge, and quest for learning that must serve the registered architect for a lifetime (AIA, 1989).

Its objectives are designed to serve the public interest by affording the best start to a life-long professional career in architecture. The IDP's five objectives are:

- to define areas of architectural practice in which intern-architects should acquire basic knowledge and skills;
- to encourage additional training in the broad aspects of architectural practice;
- to provide the highest quality information and advice about educational, internship and professional issues and opportunities;
- to provide a uniform system for documentation and periodic assessment of internship activity;and
- to provide greater access to supplementary educational opportunities designed to enrich training. (AIA, 1989, p. 5)

Organization

Throughout history, internship has meant an experienced mentor teaching a young aspirant, who will gradually acquire greater responsibilities over time. However, today this is not always the case. Many times the schools provide the environment for students to acquire basic knowledge and practical skills, but then interns are often left to expand on their abilities in relatively unstructured office environments. Also, many interns lack a substantial understanding of the kinds of experience they should be acquiring for use in the office. It is often the case that interns must acquire practical knowledge through continued formal education, rather than through a more effective process of experience-based learning in the office. The program developed to provide a smooth transition between formal education and registration is the Intern-architect Development Program, IDP (Wilkes, 1988).

The IDP Coordinating Committee is composed of representatives from the AIA, NCARB, ACSA, AIAS, and the Council of Architectural Component Executives, CACE, and functions in a review and advisory capacity to establish IDP policies. Refer to Chart 5 for additional information. The AIA and NCARB have specific responsibilities relative to the program's five

objectives. The primary responsibilities of the AIA include organizing and maintaining the program's advisory system and providing supplementary education resources for intern-architects. It is the responsibility of the NCARB to establish, interpret, and enforce the IDP training requirements and providing resources for documenting internship activity (AIA, 1989). The primary role of the AIA is to develop and provide supplementary education resources and to organize and maintain an advisory system for intern-architects. It is the responsibility of the NCARB to detail, interpret, and enforce the IDP training requirements. The function of the ACSA and AIAS is to review and act in an advisory role within the IDP Coordinating Committee thus ensuring input from the educational community (Wilkes, 1988).

There are six regions in the United States whose activity is monitored by two regional coordinators--one appointed by AIA and one by NCARB. The regional coordinators also provide advice and assistance with program promotion, implementation and maintenance (AIA, 1989). See Map 1.

IDP is organized by state, local and educator coordinators at the state level. The state AIA component or the state registration board appoints the state coordinator. The state coordinators monitor the intern's

progress through IDP and assists participants in understanding the IDP program through group presentations and state-wide communication efforts. In large states, state coordinators are assisted by local coordinators through local AIA components (AIA, 1989). Refer to Chart 6, IDP Organization, for more information.

Advisory System

The IDP involves two important participants at the state level: the sponsor and the advisor. They function as advisors to the intern-architect providing both daily and long-term guidance.

Typically, the sponsor is a registered architect in the intern's firm who provides opportunities for the intern to acquire experience in various areas of architectural practice (Wilkes, 1988). The sponsor regularly reviews the quality of work performed and periodically certifies the intern's documentation of training activities (AIA, 1989).

The advisor is also a registered architect who is usually outside the intern's firm. The and intern meet periodically to evaluate the intern's progress and to assist the intern in developing long-term career goals. Sometimes the sponsor and advisor may meet to review the

intern's progress (Wilkes, 1988). In many respects, the advisor plays the traditional role of mentor (AIA, 1989).

IDP in Education

Although it may not be immediately apparent, schools of architecture can benefit from IDP. The schools are impacted by the IDP program since it is open to students from NAAB-accredited architecture programs who have completed their third academic year. Responding to the preparatory needs of these combination student-interns, many schools (as of 1984, about 32, or 1/3 of accredited schools) have designated a faculty IDP "educator-advisor" (Wiese, 1984) who serves as an educator coordinator. Information about internship opportunities and registration requirements are provided to the faculty and students through this individual (AIA, 1989).

The final beneficiary of the IDP program is the public. The IDP strives to fill a gap regarding a key element in the life-long learning process of architects. That is, when students in architecture today advance from education, through internship and finally to examination and registration, they are confident that they are "qualified to perform their professional services in a

manner that safeguards the public health, safety, and welfare--which is the basic reason for registration" (Wiese, 1984, p. 61).

Education and Experience

Intern-architects who participate in the IDP are expected to gain specific levels of exposure in 14 areas of architectural practice, which are grouped into four categories. Three major categories are design and construction documents, construction administration, and office management. The fourth category, related special activities, includes areas beyond the traditional scope of architectural practice in the office (Wilkes, 1988). A total of 700 value units (VU's) must be accumulated by the intern to satisfy the program's training standard. Each eight hours of acceptable internship activity equals one value unit (AIA, 1989). Refer to Chart 7, IDP training categories, areas, and required value units. Refer to Appendix C for a more detailed account of the IDP training requirements.

Supplementary Education System

While the IDP recognizes the importance of an abundant and varied exposure to all aspects of professional practice during the internship period, they

realize that not all employers can provide this kind of exposure. Therefore, the experience interns gain in each IDP training category and area will not be the same for everyone; all participants are encouraged to gain meaningful training in all areas through participation and observation (Wilkes, 1988).

Interns acquire knowledge and skills by direct work involvement including: working on the drafting board, attending meetings, visiting construction sites, writing reports, and researching products. When interns do not have the opportunity to do the work themselves, they can gain exposure through observation of other professionals who can do the work (Wiese, 1984). A majority of the IDP training requirements must be gained through either participation or observation, yet some requirements may be fulfilled through supplementary education (Wilkes, 1988). Through supplementary education, more than any other internship activity, the interns sincerity is proven (Wiese, 1984).

Full value unit credit can be earned for work performed under the direct supervision of a registered architect, professional engineer, landscape architect, planner, interior designer, or general contractor. As stated earlier, to satisfy the IDP training standard, the intern must work at least one and a half years in an

architect's office. Only partial credit is awarded by most state boards for work outside an architects office, and some boards require that all experience be acquired in a registered architect's office. IDP value unit credit can also be earned by intern-architects for experience in such nontraditional areas as applied research, teaching, energy conservation, computer applications, and historic preservation. Before credit is granted, these experiences must be reviewed on an individual basis (Wilkes, 1988).

IDP Record-keeping System

It is the responsibility of the intern to maintain a record of their training experience. Interns accomplish this by keeping a written record of their experience on IDP forms which note how much time the intern spent on the different tasks required for IDP fulfillment.

The IDP's record-keeping system helps in two ways: interns can monitor their experience and plan future activities, and the sponsor can assess the quality and range of tasks the intern performs and manage staff assignments more effectively. Comprehensive information is also provided to the state registration boards regarding the training received by an intern applying for examination (Wilkes, 1988).

IDP and NCARB Certificates

After an intern has passed the Architect Registration Examination and acquired registration, the IDP record can be considered for NCARB Certification. NCARB Certification can be used as a vehicle for reciprocal registration in other states (Wilkes, 1988).

The NCARB grants a certificate to qualified architects through an administrative process called certification. An applicant for an NCARB Certificate must already have a current registration issued by an NCARB member board and satisfaction of NCARB education, training and examination requirements (AIA, 1989).

Architects may acquire registrations in other states if they comply with those states' education, training, and examination requirements, once an initial registration has been granted. Agreements have been developed that allow registration to be granted without additional qualifications since many boards have uniform requirements (AIA, 1989).

It needs to be remembered that an NCARB Certificate does not allow an individual to practice architecture; one must acquire an architectural registration to practice within a state. After the original registration is granted, the NCARB Certificate facilitates the procurement of registration in other states. While all

state boards will grant registration to qualified architects, many boards will grant registrations only to architects holding an NCARB Certificate (AIA, 1989).

Summary

A significant achievement in one's career is receiving architectural registration. This is accomplished through the processes of education, training and examination; yet, professional development does not end here. Architects must continually build upon their knowledge and skills by augmenting fundamental competencies while keeping abreast of new trends and changes (AIA, 1989).

Preparing intern-architects for productive careers is a responsibility shared by schools of architecture and firms. The profession itself must also continue to provide opportunities for architects to strengthen and develop their competencies. It is through such a sustained dedication to lifelong learning that the architect can meet the public's high expectations for quality services (AIA, 1989).

This chapter has discussed the IDP's objectives and organization, its role in education and experience of students and interns, and the certification process. For some interns, the NAAB and the IDP lead to a common goal:

the attainment of architectural licensure. This is earned when all of the requirements for the registration board have been fulfilled, and the candidate passes the Architect Registration Examination.

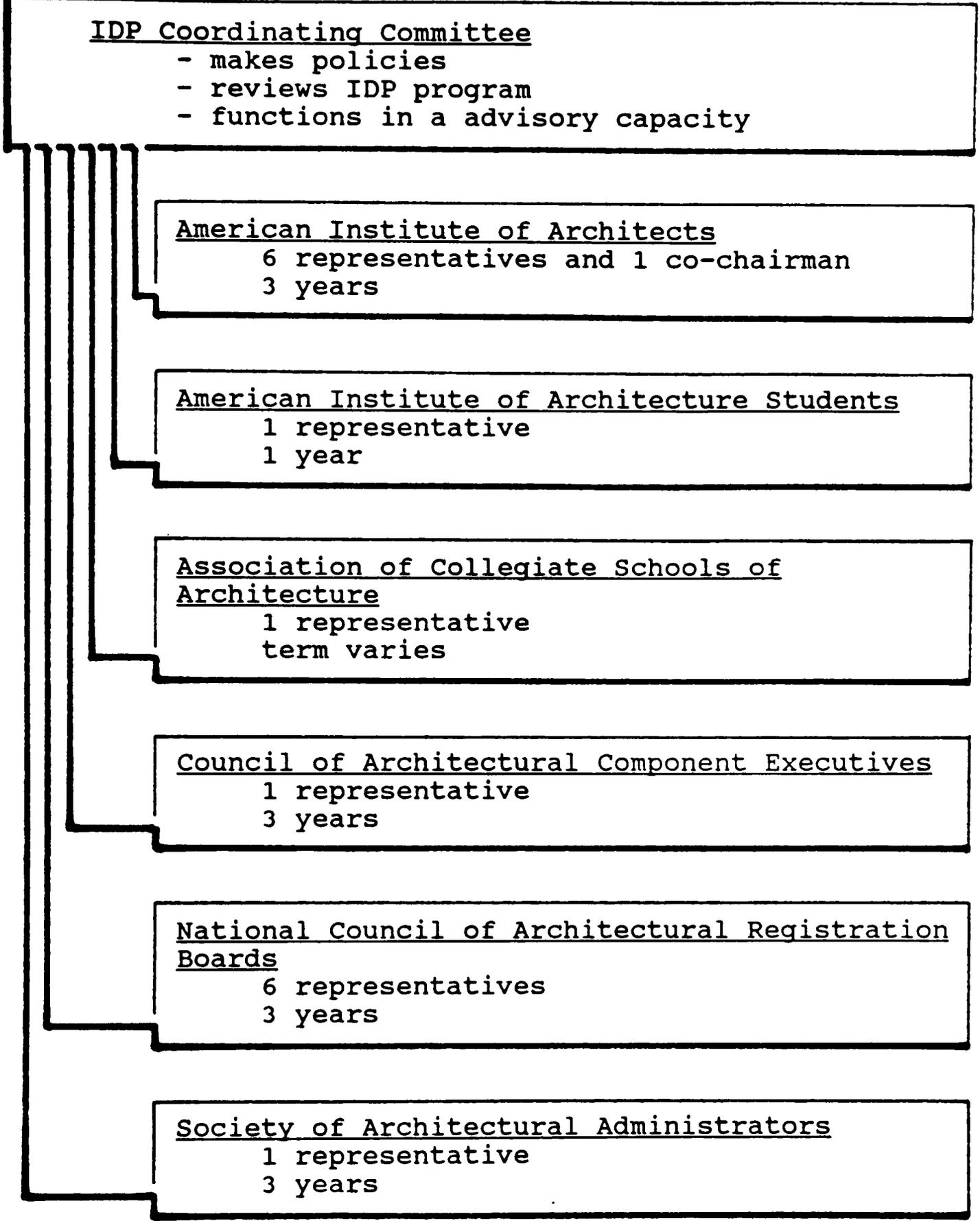


CHART 5:
IDP COORDINATING COMMITTEE

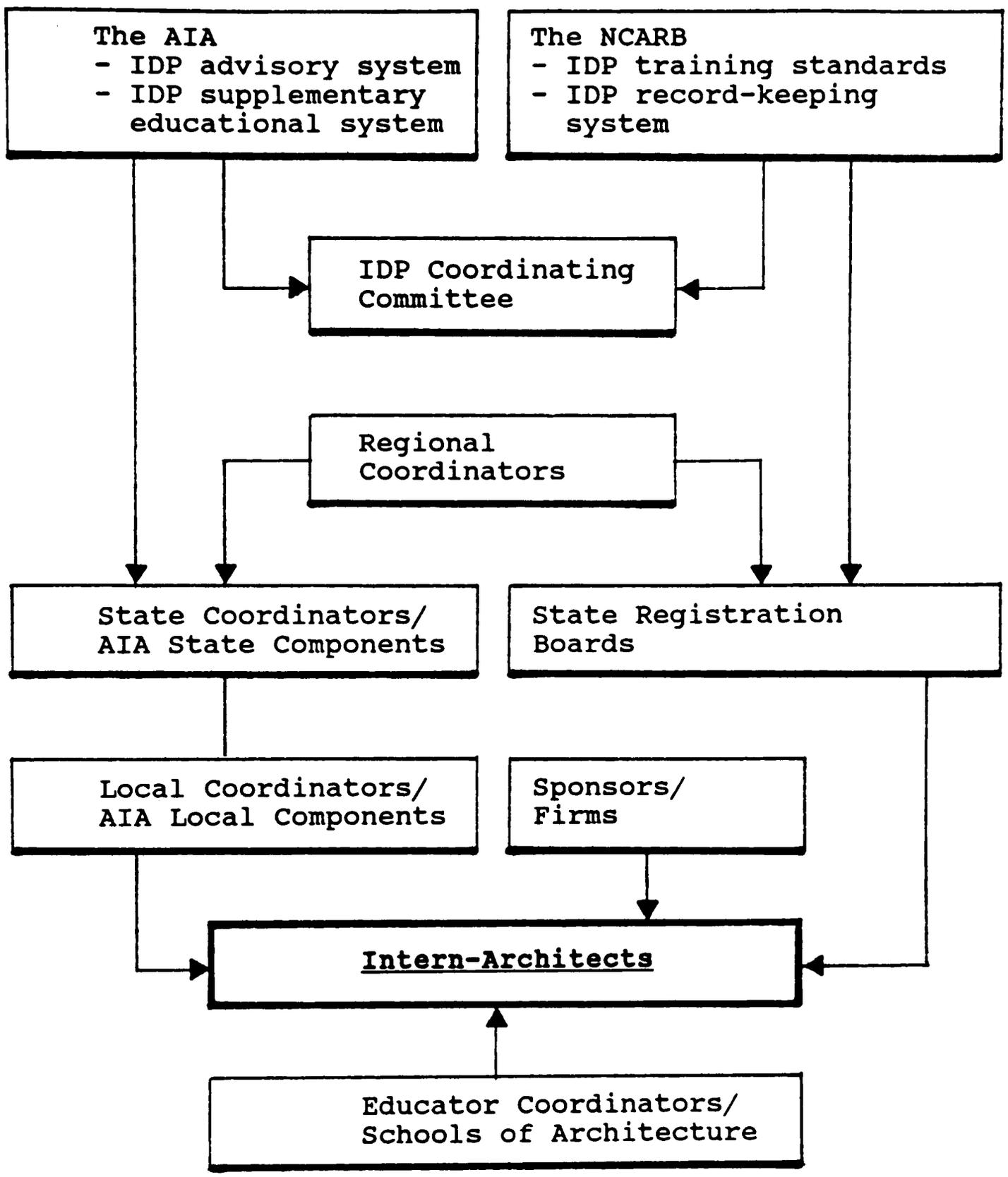


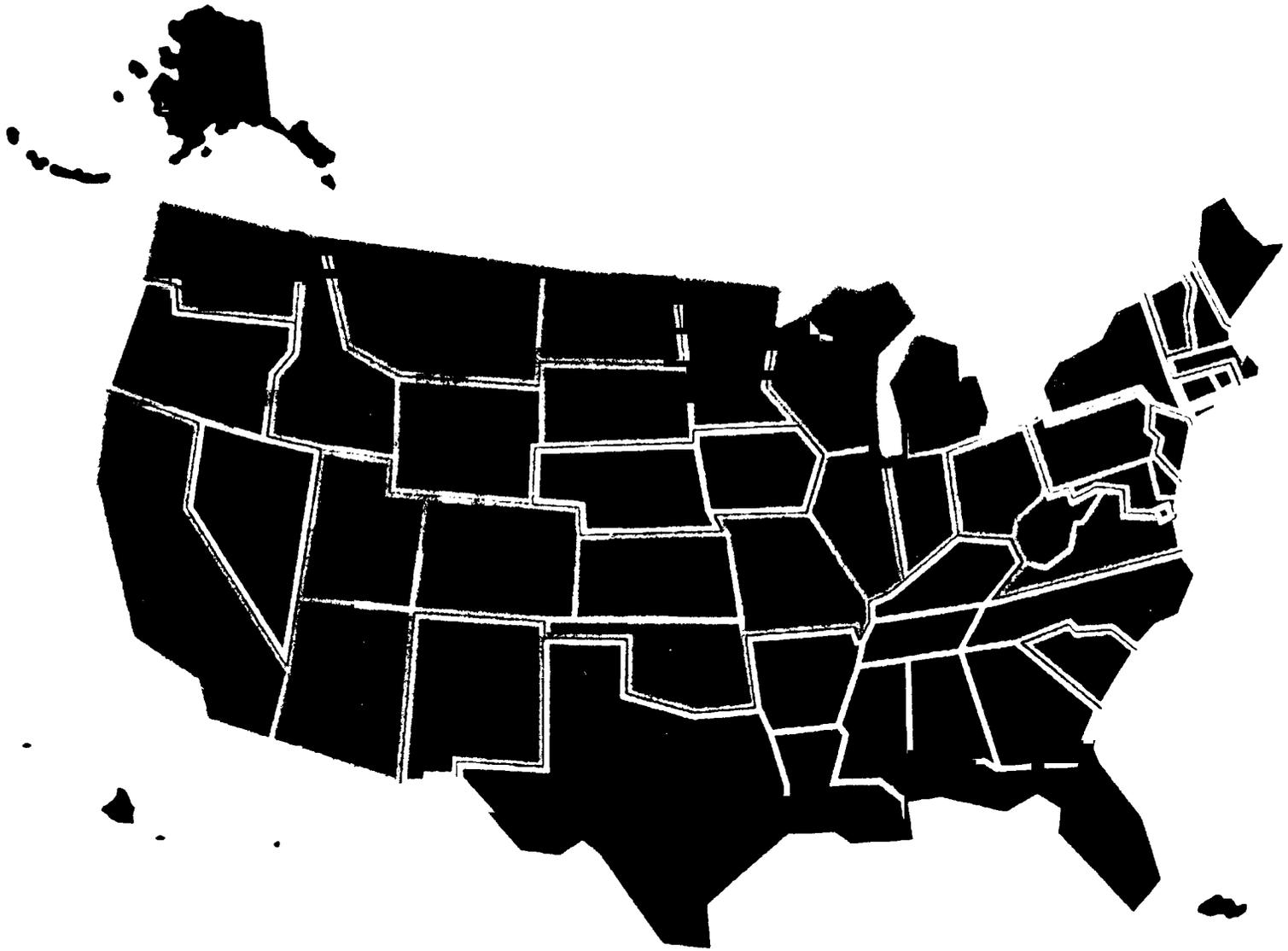
CHART 6:
IDP ORGANIZATION

Category A: Design and Construction Documents	
Minimum value units required	360 VU
1. Programming - Client Contact	(10 VU)
2. Site and Environmental Analysis	(10 VU)
3. Schematic Design	(15 VU)
4. Building Cost Analysis	(10 VU)
5. Code Research	(15 VU)
6. Design Development	(40 VU)
7. Construction Documents	(155 VU)
8. Specifications and Materials Research	(15 VU)
9. Document Checking and Coordination	(15 VU)
Category B: Construction Administration	
Minimum value units required	70 VU
10. Bidding and Contract Negotiation	(10 VU)
11. Construction Phase - Office	(15 VU)
12. Construction Phase - Observation	(15 VU)
Category C: Office Management	
Minimum value units required	35 VU
13. Office Procedures	(15 VU)
14. Professional Activities	(10 VU)
Category D: Related Special Activities	
No minimum required	0 VU

(AIA, 1989, p. 47)

Refer to Appendix C for a more detailed account of the IDP training requirements.

**CHART 7:
IDP TRAINING CATEGORIES, AREAS,
AND REQUIRED VALUE UNITS**



- Boards now requiring IDP training for registration
- Boards that will require IDP training for registration sometime in 1990 or thereafter
- Boards accepting IDP training as equivalent to their training standard for registration
- Boards endorsing IDP training

(AIA, 1990, p.16)

MAP 2:
IDP AND STATE REGISTRATION REQUIREMENTS

CHAPTER 5
ARCHITECT REGISTRATION EXAMINATION

Introduction

The final step in an intern's actualization of becoming a licensed architect is the passing of the Architect Registration Examination, ARE. The ARE was developed to meet a need for a standardized test for architectural licensure that determines the competency of the candidates ability to safeguard the public's health, safety and welfare. This chapter will discuss the ARE's organization, purpose, preparation, and scope.

Purpose of the ARE

Registration as an architect is a privilege reserved for those individuals who meet certain qualifications; although any individual in the United States has the right to apply for registration, only those who meet state board registration requirements may take the examination. As stated earlier, states adopt standards regarding education, training and examination procedures to ensure that individuals who receive registration as architects are qualified to provide architectural services (Wilkes, 1988).

Differences in requirements from state to state and changes in requirements over time are both inherent parts of the process of the architectural registration examination due to the political environment in which registration takes place. It is important to remember that each state is autonomous in the registration of its professionals and that there is no federal government registration authority. Therefore, states can register architects on the basis of statutes adopted by their legislatures, which are fairly general in terms of requirements. These statutes also call for the establishment of a regulatory board to develop and enforce specific rules and regulations for registration (Wilkes, 1988).

The purpose of the Architect Registration Examination, ARE, is to screen out those individuals whose education and training have not sufficiently prepared them for registration. The ARE tests the intern for competency of knowledge, skill, and ability that are necessary to provide the services required in the design and construction of the built environment. The ARE tests a candidate's ability to assess situations and determine a correct solution using their understanding of facts and concepts. The ARE concentrates on practice-related

situations and problems in an attempt to test for such professional judgment (Wilkes, 1988).

Preparing for the ARE

In preparing for the registration examination, an intern is in effect preparing for the practice of architecture. This preparation begins with architectural education and continues throughout internship. Regardless of the extent of pre-examination preparation, an individual who has not had adequate education and training will not be able to pass the registration examination. Therefore, conducting a thorough and accurate self-evaluation of a candidate's education and internship should be the first step every intern should do in preparing for the ARE. It is imperative that they honestly evaluate whether or not they have a complete and well-rounded background to determine whether or not they have learned and experienced the significant, theoretical, and practical aspects of architectural practice. All interns should also remember that the ARE tests for the general practice of architecture and not for practice specialties (Wilkes, 1988).

The type of education and experience needed to pass the ARE cannot be learned in a weekend seminar or in a few months of concentrated study, instead it takes the

years that an individual contributes to the study and practice of architecture. There are no secret clues or rules of thumb that will help a candidate pass the examination if the skills and abilities have not already been acquired (Wilkes, 1988).

Scope of the ARE

Determining whether applicants are sufficiently knowledgeable to practice a profession without endangering the health, safety, or welfare of the public is one of the most difficult tasks associated with regulation and licensure of any profession. The state regulatory agencies or boards charged with licensure try to qualify minimum competency and establish objective standards that applicants must meet prior to licensure. It would be difficult to evaluate individuals fairly and without bias without such standards. The architectural boards have established minimum standards in areas of education and internship. The boards also required a demonstration of knowledge through examination to ensure that individuals have acquired the required knowledge through education and internship (Wilkes, 1988).

Registration boards are charged with the responsibility of protecting the health, safety and welfare of the public by allowing only those individuals

Registration boards are charged with the responsibility of protecting the health, safety and welfare of the public by allowing only those individuals who have the necessary knowledge, skills and abilities to use the title architect or practice architecture (Wilkes, 1988).

In 1979, the NCARB undertook a project to analyze and define the knowledge, skills, abilities and functions necessary for minimum competence for architectural practice in the United States. The result of that project was a new, nine-division examination, titled the Architect Registration Examination, ARE (Wilkes, 1988). This new examination was based on the following 4 skills and 29 knowledges.

Skills

Candidates must demonstrate conceptual and creative skills, management and coordination skills, analytical and perceptual skills, and communication skills (Wilkes, 1988).

Knowledge

Candidates must demonstrate social and cultural knowledge of the humanities, and the history and theory of architecture. Regarding natural and physical forces,

candidates must demonstrate a knowledge of natural forces, environmental theory, acoustics, moisture and thermal forces, soil protection and treatment, and topographical factors. Regarding the design process, candidates must demonstrate knowledge of aesthetics, proximity relationships, spatial relations, circulation, site planning, landscape design, interiors, and documentation methods. Regarding building systems, and methods and materials, candidates must demonstrate knowledge of energy utilization and conservation, structures, security, fire protection, plumbing, environmental control, utility and civil systems, electrical systems and illumination, construction materials and assemblies, and construction industry operations. Regarding legal constraints, candidates must demonstrate knowledge of laws and regulations, and contract law. And, finally, regarding management, candidates must demonstrate knowledge of business principles (Wilkes, 1988).

The current form of the ARE was administered for the first time in 1983. All registration boards now require candidates to pass the complete examination, and each board participates in the regional grading process. Candidates do not have to retake portions of the ARE that they passed. They take only the failed portions until

all of the test has been successfully completed. One of the goals of the ARE, being a nationally accepted registration examination, is to serve as the basis for reciprocity (Wilkes, 1988).

The ARE was developed specifically concerned with its allegiance to the practice of architecture. An objective in the design of the ARE is that its content relate as closely as possible to the actual practice of architecture. To meet this objective the examination is arranged into nine divisions that relate directly to the various phases of the practice of architecture (Wilkes, 1988). Refer to Chart 8: ARE Divisions for more information. Refer to Appendix D: ARE Division Objectives for a complete listing of each of the division objectives.

Organization

The NCARB developed the ARE and continually upgrades and revises the examination. The Educational Testing Service, ETS, assists NCARB in formatting and scoring the examinations. They are used in a consultant role only, assisting in the wording and presentation of the examination questions, but not the content. The NCARB supplies the member boards with copies of the ARE. The member boards administer the examination to the

candidates and then return the examinations to the NCARB for grading. The NCARB coordinates the grading of the graphic portion of the ARE and sends the written portion, contained on ScanTron sheets, to ETS for scoring. Once evaluated, the results are returned to NCARB for distribution to the member boards. The member boards then notify the candidates of their results. See Chart 9, ARE Organization for additional information.

Summary

The final step in the process of becoming a licensed architect was presented in this chapter. This included the ARE's organization, purpose, preparation, and scope.

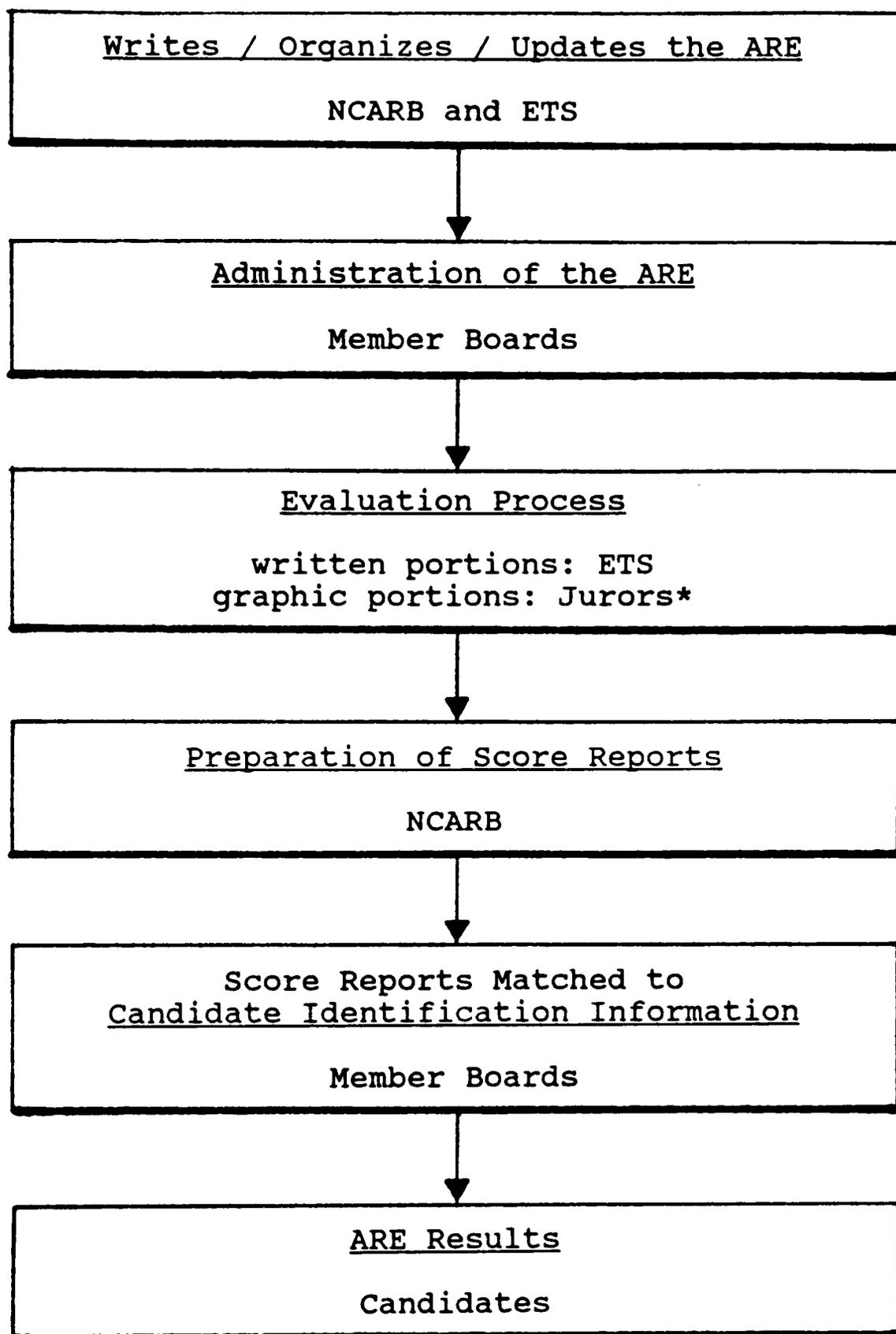
The relationship between the ARE and licensure needs to be clarified. Passing the ARE is not the same as an architectural license; the ARE is a part of the process by which a license is earned. In architecture the licensure process includes education, completing an internship, and passing the registration examination. Once all three of these have been satisfactorily completed, then a license is awarded.

Now that the three most prominent entities regarding architectural education, training, and licensure have been discussed, the following chapter will address the questions that remain to be answered: What is the

congruency that exists between these organizations? And what, if any, subsequent reciprocity exists? Are these organizations achieving what they set out to do? And finally, is there any way that those individuals who want to become licensed architects can better prepare themselves for licensure?

- Division A: Pre-Design:
Contains 160 multiple choice items;
3-1/2 hours duration.
- Division B: Site Design - Written
Contains 85 items: 73 multiple choice, 5 written
simulation, and 7 written-identification;
1-3/4 hours duration.
- Division B: Site Design - Graphic
Contains 6 graphic vignettes;
2-3/4 hours duration.
- Division C: Building Design
Contains one graphic problem;
12 hours duration.
- Division D/F: Structural Technology - General and Long
Span
Contains 135 multiple choice items;
3-1/2 hours duration.
- Division E: Structural Technology - Lateral Forces
Contains 70 multiple choice items;
1-3/4 hours duration.
- Division G: Mechanical, Plumbing and Electrical
Contains 135 items: 121 multiple choice and 14
written-identification;
2-1/2 hours duration.
- Division H: Materials and Methods
Contains 160 multiple choice items;
2-3/4 hours duration.
- Division I: Construction Documents and Services
Contains 135 multiple choice items;
3 hours duration.

CHART 8:
ARE DIVISIONS



*Registered architects are trained as jurors by NCARB.

CHART 9:
ARE ORGANIZATION

CHAPTER 6

ANALYSIS

The previous chapters have focused on the individual issues with which the NCARB, NAAB, IDP, and ARE are concerned. This chapter will discuss the questions regarding congruency and reciprocity, an outline of information relating education and training to the examination for students and interns, curriculum recommendations, and implications for architectural registration in the future.

Licensure Process

The licensure process consists of basically three phases: education, training, and examination. During the education phase, students acquire knowledge in architecture in terms of awareness, ability and understanding. The education phase of architecture is influenced by the NAAB's accreditation of the school. During the training phase interns gain experience in architecture and thereby develop skills in the practice of architecture. The training phase in architecture is guided by the IDP. During the final phase, examination, candidates whose education and training are screened for minimum competency (Wilkes, 1988). Minimum competency is

determined during the examination phase which is the ARE. Refer to Chart 10 for a graphic representation of this process.

NCARB Link

Aside from the NAAB, IDP, and ARE influencing the licensure process, the roles of each in this process are also linked by the NCARB. (See Chart 11.)

The NCARB has its strongest link with the ARE. The NCARB is responsible for determining the examination's content, the form of its administration, its scoring, and for revising the ARE. It is also the responsibility of the NCARB to supply this examination to its member boards for administration. The NCARB has complete control of the ARE.

NCARB's second strongest link is with the IDP. IDP policies are reviewed and recommended by the IDP Coordinating Committee. This committee is composed of representatives from the AIA, NCARB, ACSA, and AIAS. It is the primary responsibility of the AIA and NCARB to run the IDP with the advice of the AIAS and ACSA. The AIA is responsible for organizing and maintaining the IDP's advisory system and providing the interns with supplementary education materials, but it is the responsibility of the NCARB to establish, interpret, and

enforce IDP's training requirements and also to provide resources for documenting internship activity. The NCARB, therefore, has approximately one half of the control of the IDP.

NCARB has its weakest link with the NAAB. The NAAB's three founding bodies are the NCARB, AIA, and ACSA, and each nominates three representatives to serve on the NAAB Board of Directors. There is also a representative from the AIAS and a public member/academic generalist on the board of directors. Therefore, the NCARB has approximately one third of the control of the NAAB. However, the NCARB is the "profession's acknowledged arbiter of accreditation procedures and criteria" (Wilkes, 1988, p. 551).

The NCARB, as a common link between the NAAB, IDP, and ARE, is important because it creates congruency and reciprocity through continuity across the licensure process. This occurs because the NCARB is the one common member between the NAAB, IDP, and ARE; thus, there is an opportunity for interchange and exchange between the NAAB, IDP, and ARE to develop agreement.

Congruency

As stated in Chapter 1, congruency is defined as the agreement or harmony between two or more entities. If so, what congruency exists between the NAAB, IDP, and ARE? Is this congruency an advantage or a disadvantage for the student, intern, and professional?

The levels of congruency need to be established prior to comparing the NAAB, IDP, and ARE for congruency. There are two scales of analysis used in this thesis: general and specific. The scale of analysis is determined by how general or specific a topic is. If the subjects being analyzed are expressed in broad terms, then the scale is referred to as general. If the subjects being analyzed are expressed in narrow terms, then the scale is referred to as specific. For example, mission statements could be evaluated on a general scale and objectives could be evaluated on a specific scale.

There are three levels of congruency used in this thesis: equivalent, comparable and unrelated. When two or more items being compared are worded the same or very similarly, then there exists a level of congruency referred to as equivalent. If the items being compared have the same or very similar meaning (although the wording may differ), then there exists a level of congruency referred to comparable. And finally, if the

items being compared have no similarity in meaning or wording, then there exists no congruency referred to as unrelated.

The first scale of comparison used to determine the congruency between the NAAB, IDP, and ARE is the general scale. This comparison was conducted by first comparing the mission statements, since the mission statements represent the broad goals of the organizations. (See Appendix F, Mission Statements.)

Both the NCARB and the ARE directly state that protecting the public's "health, safety, and welfare" is part of their mission. Because the mission statements are similarly worded, an equivalent level of congruency exists between the NCARB and ARE missions.

The IDP states, in part, that their mission is the "development of competent architects." Because the NCARB establishes the training standards and policy for the IDP program, it is the body that defines the IDP mission statement. Therefore, Robert A. Rosenfeld, NCARB Director of Intern Programs, defines a competent architect as an individual "who has the skill, ability, and knowledge relative to architectural practice that can be repeatedly demonstrated throughout a career as a registered architect." The practice of architecture cannot be facilitated without considering the health,

safety, and welfare of the public. Therefore, it can logically be deduced that there is a comparable level of congruency between the IDP, NCARB, and ARE.

The NAAB's mission makes no direct reference to protecting the public's health, safety, and welfare, or to contributing to the development of competent architects. However, it does state that "NAAB's mission is to accredit schools of architecture on a national basis" (NCARB, 1988, p. 2), and the major purpose of accreditation is licensure. Therefore, the NAAB has a comparable level of congruency with the NCARB although the relationship appears ambiguous at times on the general scale.

Congruency can also be determined by comparing the relationships of the objectives of the NAAB, IDP, and ARE. To get a better understanding of their relationships, it is beneficial to iterate the purposes of each entity. The primary purpose of the NAAB is to accredit first professional architectural degree programs. This is done through the use of achievement-oriented performance criteria. These criteria are listed in four major areas: context, design, technology, and practice (NCARB, 1988). The IDP furthers architectural education in the profession through training. The knowledge that is gained through education is used and

built upon during the training phase to gain skills in architecture. In order to facilitate this, the IDP lists four major areas of concentration for intern development: design and construction documents, construction administration, office management, and related special activities (AIA, 1989). And finally, the knowledge and skills that are acquired during the education and training phases are tested for competent levels of understanding during the examination phase. The purpose of the ARE is to test for minimum competency in the following areas: predesign; site design; building design; structural technology; mechanical, plumbing, and electrical systems; materials and methods; and construction documents and services (NCARB, Circular #2, 1990).

In checking for congruency on a specific scale the NAAB, IDP, and ARE are not singularly-linear. In other words, one of the NAAB performance criteria does not lead into only one area of IDP training, which in turn is not tested in just one division of the ARE. (See Chart 12).

For example, listed under NAAB's Environmental Context: Performance Criteria is the statement that graduating students should:

16. be aware of the theories and traditions of the related disciplines that deal with the environmental context, i.e., urban design, planning, and landscape architecture; and

17. understand how the selection and development of a specific site is influenced by its physical characteristics and its cultural and ecological context. (NCARB, 1988, p. 13)

The IDP addresses the same issue in the training area of Site and Environmental Analysis. Its criterion states:

Site analysis includes land planning, urban design and environmental evaluation. Land planning and urban design are concerned with relationships to surrounding areas and involve consideration of the physical, economic and social impact of proposed land use on the environment, ecology, traffic and population patterns. (NCARB, 1989, p. 49)

The ARE tests for competency over the same issue in Division B: Site Design. The objective of Division B is stated as follows:

The determination of the interrelationship of intended site use with the environment; consideration of topography, vegetation, climate, geological aspects, and legal aspects of site development; synthesis of programmatic and environmental requirements into a coherent concept for the placement of buildings and/or other improvements on a site. (NCARB, Circular #2, 1990, pp. 8-9)

The awareness and understanding of site use issues are gained in school, and used and built upon during the internship. Interns develop skills pertaining to the issue of site use through IDP activities which include: helping to analyze the feasibility of using a specific site for the project, assisting in the analysis of the impact of specific land use and location for a project, and assisting in the formulation of the most appropriate

land use strategy to achieve a desired environmental impact (NCARB, 1989).

Then Division B: Site Design of the ARE tests candidates for competency in the knowledge and skills acquired in this area through education and training. Candidates must demonstrate knowledge of and skills in handling land utilization, structures placement, form relationships, and topography/relations to surroundings (NCARB, Circular #2, 1990).

This example illustrates only one application of the knowledge-skills-competency process. That is, students of an NAAB-accredited architectural program acquire knowledge of architecture, referred to as ability, awareness, and understanding. In the IDP program the interns then use their acquired ability, awareness, and understanding to develop skills based on experience. The ARE then tests the candidate for competency based on these knowledges and skills. This process does not just occur once, it occurs many times. To illustrate this point the levels of congruency between the NAAB and the IDP are shown in Chart 13, and the levels of congruency between the IDP and the ARE are shown in Chart 14.

ARE Preparation

A comparative study was conducted in order to determine if congruency exists between the NAAB and the IDP, the NAAB and the ARE, and the IDP and the ARE. The NAAB's student performance criteria listed under the program content areas were compared to the ARE's division objectives in order to determine whether equivalent, comparable or unrelated congruency exists. The NAAB's student performance criteria listed under the program content areas were compared to the IDP's training requirement objectives in order to determine whether equivalent, comparable or unrelated congruency exists. There are 224 possible areas of congruency between the 16 NAAB program content areas and the 14 IDP training objectives. Of these 224 areas, 94 areas, or 41.96%, are congruent: there are 36, or 16.07%, equivalent areas of congruency, and 58, or 25.89%, comparable areas of congruency. The areas of congruency are illustrated on Chart 13, which can be used in conjunction with Appendix A, NAAB Student Performance Outline and Appendix D, IDP Training Area Descriptions for further information.

There are 128 possible areas of congruency between the 16 NAAB program content areas and the 8 ARE division objectives. Of these 128 areas, 61 areas, or 47.66%, are congruent: there are 21, or 16.41%, equivalent areas of

congruency, and 40, or 31.25%, comparable areas of congruency. The areas of congruency are illustrated on Chart 15, which can be used in conjunction with Appendix A, NAAB Student Performance Outline for more information.

The IDP's training requirement objectives were compared to the ARE's division objectives in order to determine whether equivalent, comparable or unrelated congruency exists. There are 112 possible areas of congruency between the 14 IDP training objectives and the 8 ARE division objectives. Of these 112 areas, 48 areas, or 42.85%, are congruent: there are 15, or 13.39%, equivalent areas of congruency, and 33, or 29.46%, comparable areas of congruency. The areas of congruency are illustrated on Chart 14, which can be used in conjunction with Appendix D, IDP Training Area Descriptions for further information.

The congruencies between the NAAB, IDP, and ARE are beneficial to the student, intern and professional. The NAAB has established a set of criteria that the schools must fulfill in order to remain accredited. This means that students will be exposed to all of the different aspects of architecture, thus establishing a broad and encompassing base of knowledge for the beginning of a lifetime of learning. Inside this broad set of knowledge of the NAAB is a set of congruent knowledge with the IDP

that is the bases of the internship. This is beneficial to the student because it gives them a point of reference from which they will base their skills acquisition during internship.

This congruency benefits the intern because the IDP expounds on the criteria of the NAAB in regard to training experience. This allows the intern to develop and experience a broad base of architectural activities, thus preparing the intern for practice as a professional. Then the ARE tests the candidate for minimum competency over the broad and encompassing areas of architecture. Refer to Charts 14 and 15 for graphic representations of this information.

There are several ways in which the congruency of the NAAB, IDP and ARE benefit the profession. An NAAB-accredited program benefits the students because it lays out a broad foundation of knowledge from which they can base their internship and preparation for the ARE. Another benefit is that interns have the opportunity to enter the workforce with a broad understanding of professional practice and what is expected of them in the office, which benefits the architects and interns. The IDP benefits the interns by providing the framework to guide their training. With this framework, architects have an opportunity to keep abreast of intern skills and

development by reviewing and helping to maintain the interns records for IDP training. After having successfully completed an NAAB-accredited program and the IDP training requirements, candidates should have acquired a minimum degree of competency in the knowledge and skills that they will be tested in the ARE. Finally, those interns who achieve architectural licensure after having gone through an NAAB-accredited architectural program, fulfilled the IDP requirements, and passed the ARE have been exposed to a broad and encompassing knowledge base of the role of architects and architecture in society.

It is up to the individual to acquire the knowledge and skills necessary for licensure as guided by the NAAB and the IDP. However, there are specific congruent areas of education and training that are covered in the ARE that the candidates can concentrate on in preparing for the examination. The ARE tests for competencies that are based on certain knowledges gained through the NAAB program and certain skills gained through the IDP program.

Reciprocity

As stated in Chapter 1, reciprocity is defined as a mutual action or exchange, and interchange which facilitates a means to an end. Reciprocity can exist on two levels: the reciprocity that occurs between organizations, and the reciprocity that exists as the end result of congruent action. Is this true of the architectural licensure system? What reciprocity exists between the NAAB, IDP and ARE? Is this reciprocity an advantage or a disadvantage for the student, intern and professional?

The fact that the NCARB either controls or participates in establishing the objectives of the NAAB, IDP, and ARE creates an interchange toward the end called licensure. This interchange has led to reciprocity between these organizations. Reciprocity between the NAAB, IDP, and ARE occurs because of congruent objectives in which knowledges and skills are exchanged. Also, the opportunity for this interchange and exchange of objectives occurs because of the common entities that sit on the different boards. The NAAB, IDP and ARE have a common board member, the NCARB, and the NAAB and IDP also have the AIA, ACSA, and AIAS as common board members.

The existence of reciprocity can also be seen in the licensing process which is facilitated through the NCARB.

The NCARB is the only common link between the NAAB, IDP and ARE, having combined architectural education, training, and registration processes. For example, the NCARB has contributing members affiliated with the NAAB, their function being to help establish and regulate the accreditation process of first professional degree programs in architectural schools. The relationship of the NCARB with the IDP is that they maintain the record-keeping system for interns and establish training standards. The NCARB's primary role in regard to the ARE is that they write, update, oversee its administration, and evaluate it.

Reciprocity also exists at the state board level because the NCARB is composed of all of the member state registering boards. That is, the state registering boards are members of a national organization which regulates the examination of candidates for architectural licensure.

Reciprocity that exists as the end result of congruent action is also evident in the process of certification. Once the student has graduated from an accredited program, the intern has successfully completed the IDP, and the candidate has passed all portions of the ARE, then that architect can be considered for NCARB Certification. The reciprocity in this case is the

certification awarded to the architect which allows that architect to apply for and receive licensure from other states without having to fulfill further education, training, and, sometimes, testing requirements.

The architectural profession benefits from this type of reciprocity because architects are freer to engage work outside their home states, once a licence from the other state has been awarded. This form of reciprocity benefits the profession because licensed architects can easily obtain licensure from other states.

Recommendations

There are three recommendations that need to be addressed in regard to the NAAB, IDP, and determining a way in which the NAAB, IDP, and ARE can further assist each other to mutually facilitate the architectural registration process in the quest for congruency and reciprocity.

The first recommendation is in regard to addressing the NAAB and IDP in college curriculum. It would be beneficial for schools of architecture to brief the incoming students on the NAAB's criteria for accreditation, which could be facilitated in an introduction to architecture course. Students should then review these criteria prior to graduation. Simply

stated, the students are told what they will learn, they learn it, and then they are told what it is that they learned. Also, prior to graduation, students should be made aware of the IDP program and its relevance to the architectural licensure process, which could be facilitated in a professional practice course. As a result of this review, students can better correlate their education to the training requirements of the IDP. If the candidates have understood and learned through the processes of the NAAB and IDP, then they will have acquired the knowledge and skills necessary to prepare them for the ARE.

The second recommendation is three-parts and regards viewing the IDP as a tool for experience, using the IDP record-keeping system, and resistance to using the IDP. First, assisting interns in their training process involves greater commitment on behalf of the intern and the architect. The IDP needs to be thought of as a tool for gaining experience and developing skills. Architects need to utilize this tool more effectively in helping interns acquire skills and experience. Interns need to be serious in their approach to using this tool.

Second, it seems that there are individuals, both interns and architects, who view the IDP record-keeping system as just a bunch of paper work. While it may seem

that the record-keeping systems involves tedious paper work, the records can be very beneficial to the architect and the intern to the extent that they show experience gained by the intern. The architects benefit from it because they can keep track of the development and skill levels of their interns; thus architects can better utilize their interns and create work schedules. The interns benefit from the record-keeping system because it allows them the opportunity to see and keep track of their own training and experience; thus they can better understand and direct their growth in the architect's office and be more aware of how prepared they are to take the ARE.

In spite of the obvious benefits of IDP, it is time consuming and, at times, confusing. The IDP might be able to alleviate some of the confusion of the record-keeping system by somehow making the forms easier to use and understand. Refer to Chart 16 and Chart 17 for examples of the IDP record-keeping forms. Making the forms easier to use might cause the interns and architects to be more willing to take the record-keeping system more seriously.

And third, the IDP works at keeping the architects and interns informed regarding IDP issues and changes, yet there still seems to be some resistance using IDP.

To overcome this resistance, the IDP could work more closely with architects at the local level to gain their support. The IDP could also become more active in getting IDP information to students prior to graduation. One possible way to do this would be to have seminar-type sessions at the NAAB-accredited schools of architecture to explain the IDP to the students and answer any of their questions that the school advisors are unable to answer.

The third recommendation is in regard to addressing the issue of a national architectural license. There already exists national educational guidelines, the NAAB; national training guidelines, the IDP; a national test, the ARE; and a national registration organization, the NCARB, all of which were established to facilitate state licensure and NCARB Certification. However, it would behoove the architectural community to enable candidates to acquire a national architectural license.

The NCARB has already established a set national education and training standards that could be used as a national set of guidelines for licensure. These standards consist of an educational requirement of not less than a first professional architectural degree from an NAAB-accredited program, and a minimum training requirement of the IDP. Then the candidates would have

to pass the ARE, thus attaining either a state license or an NCARB National Architectural License. If the candidate applies to the state for licensure, then they receive a state license upon passing the ARE. If the candidate applies to the NCARB for licensure, then they receive a national license upon passing the ARE.

Therefore, the national licensure process would be in addition to the existing state licensure process and the existing NCARB Certification process. This process of national licensure would enable architects to freely seek out projects from all over the United States and her territories without having to acquire a license from each member board. Currently, national law states that every state is autonomous and responsible for the registration and licensure of its own professionals, which includes architects (Wilkes, 1988).

States register architects on the basis of statutes adopted by their state legislatures. Most of these statutes are fairly general in terms of requirements and call for the establishment of a regulatory board to develop and enforce specific rules and regulations for registration. (Wilkes, 1988, p. 178)

Therefore, a national architectural license would not be able to become a reality unless the national law regarding registration of professionals was changed or amended.

Conclusion

The major findings of this thesis include: the determination of a common link between the NAAB, IDP, and ARE, and what that means; the determination of congruency and what its benefits are; the determination of reciprocity and what its benefits are; recommendations to students, interns, and the profession.

The NCARB is the common link between the NAAB, IDP, and ARE. This is important because it creates congruency and reciprocity through continuity across the licensure process. This link occurs because the NCARB is the one common member between the NAAB, IDP, and ARE, thus creating an opportunity for interchange and exchange to develop agreement.

Congruency that exists between the NAAB, IDP, and ARE because the IDP training areas build upon and add to the knowledge learned in an NAAB program. Competency for knowledge and skills acquired during education and training are then tested for in the ARE.

Congruency between the NAAB and IDP then benefits the interns because the knowledge gained during education gives the interns a base point from which they will base their skills acquisition during internship. Candidates benefit because the ARE tests for minimum competency over

the broad and encompassing areas of architecture, which are covered during NAAB and IDP preparation for the ARE.

Reciprocity is another result of the link caused by the NCARB between the NAAB, IDP, and ARE. Reciprocity between the NAAB, IDP, and ARE occurs because of congruent objectives in which knowledges and skills are exchanged.

Reciprocity also exists at the state board level because the NCARB is composed of all of the member state registering boards.

And finally, the skills and knowledges necessary for licensure are guided by the NAAB and IDP and it is up to the individual to acquire them. The ARE tests for competencies that are based on certain knowledges gained through the NAAB program and certain skills gained through the IDP program. And, there are specific congruent areas of education and training that are covered in the ARE that the candidates can concentrate on in preparing for the examination.

Changes in the architectural registration process are inevitable because of the everchanging needs of society. Future changes will address national registration and the issues which are an inherent part of the process. The proposals presented herein may not be the ultimate answer, but they do represent informed

possibilities: Because architecture involves people, and people are dynamic, the needs and roles of architects will continue to change. The ancient words of Vitruvius still hold true today:

The architect should be equipped with knowledge of many branches of study and varied kinds of learning, for it is by his judgement that all work done by the other arts is put to test. This knowledge is the child of practice and theory.

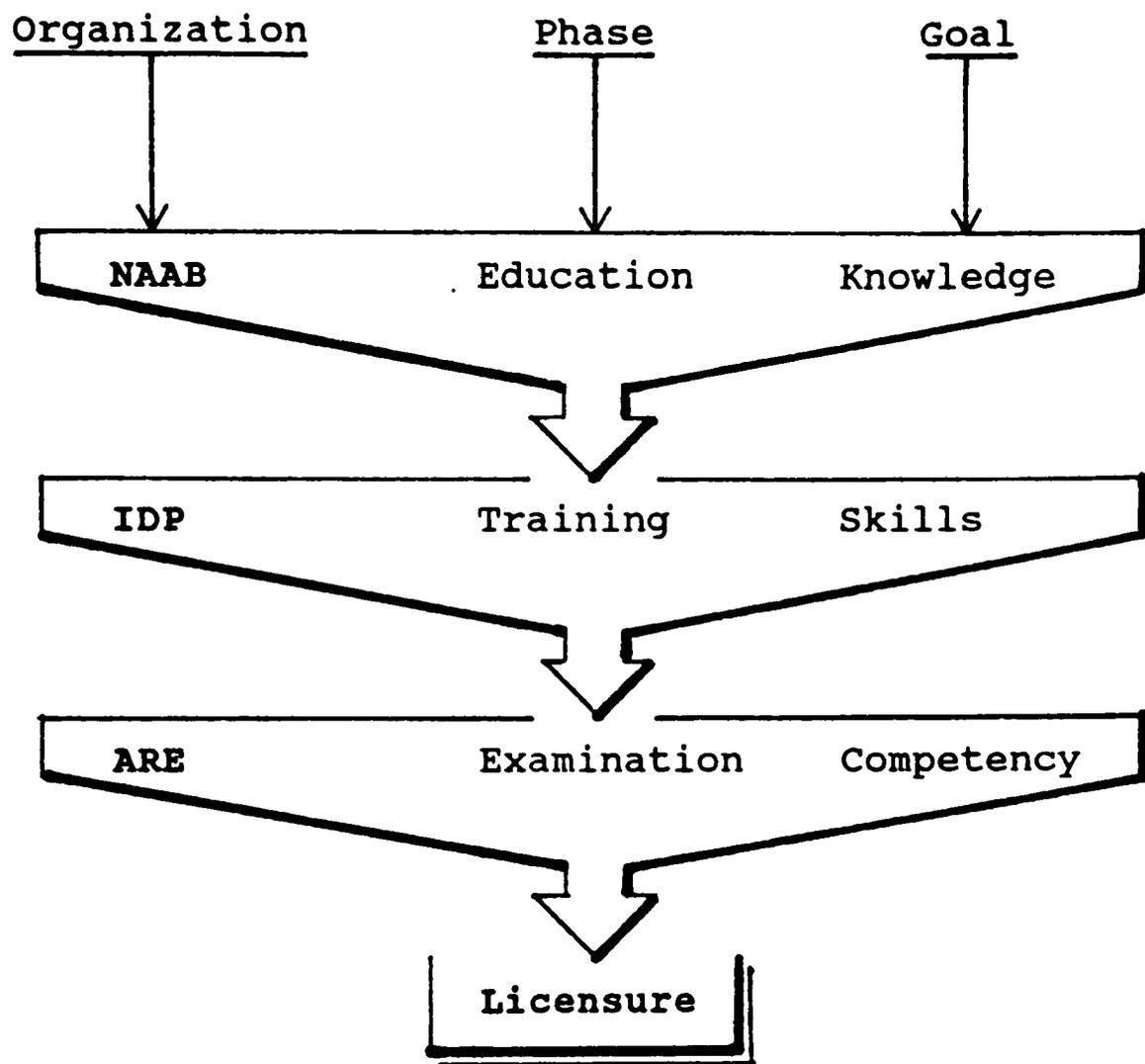


CHART 10:
PHASES OF LICENSURE

NCARB

NAAB	IDP	ARE
Education Committee: 8 members	IDP Coordinating Committee: 7 members; 6 regional coordinators and 1 co-chairman. Refer to Chart 5 for more information.	Examinations Management Committee: 4 members
NAAB Board of Directors: 3 members; refer to Chart 3 for more information.	Procedures and Documents Committee: 6 members	Examinations Planning Committee: 6 members
		C/ARE Committee: 3 members
		Master Jurors Committee: Division B: 12 members Division C: 22 members
		ARE '91 Committee: Division A: 9 members Division B (written): 6 members Division B (graphic): 7 members Division C: 9 members Division D/F: 8 members Division E: 6 members Division G: 7 members Division H: 9 members Division I: 8 members

CHART 11:
NCARB'S LINK TO NAAB, IDP AND ARE

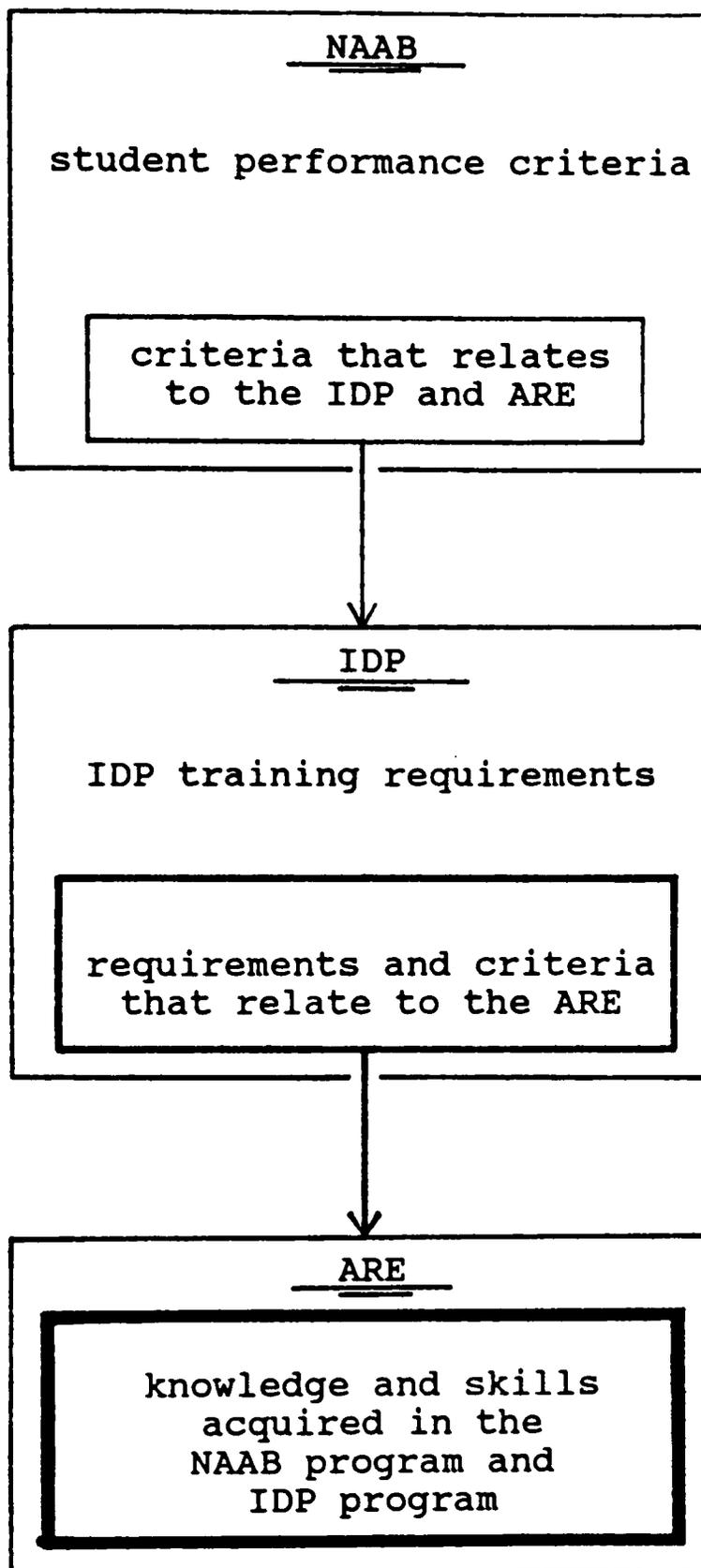


CHART 12:
NAAB-KNOWLEDGE AND IDP-SKILLS
AND THE ARE

IDP Requirements

Design & C.D.									
Programming	●	○	○	○	○	○	○	○	○
Site Analysis	●	●	○	○	○	○	○	○	○
Schematic Design	●	○	●	○	○	○	○	○	○
Cost Analysis	○	○	○	○	○	○	○	○	●
Code Research	○	○	○	○	○	○	○	○	○
Design Develop.	○	○	●	○	○	○	○	●	○
Construct. Document	○	○	○	○	○	○	○	○	●
Specs. & Materials	○	○	○	○	○	○	○	●	○
Check. & Coordin.	○	●	○	○	○	○	○	○	●
Construction Admin.									
Bid. & Negotiation	○	○	○	○	○	○	○	○	●
Construct.: Office	○	○	○	○	○	○	○	○	●
Construct.: Observ.	○	○	○	○	○	○	○	○	○
Office Management									
Office Procedures	○	○	○	○	○	○	○	○	●
Profess. Activities	○	○	○	○	○	○	○	○	○
	Pre-Design	Site Design	Build. Design	Struct. Tech.: Gen. & Long Span	Struct. Tech.: Lateral Forces	Mech., Plumb., Elect. Systems	Materials & Methods	Construct. Docu. & Services	

ARE Divisions

CHART 14:
CONGRUENCY BETWEEN THE IDP AND ARE

NAAB Criteria

Context									
Liberal Studies	●	●	●	○	○	○	○	○	○
History	●	○	○	●	○	○	●	●	○
Human Behavior	○	○	○	○	○	○	○	○	○
Environ. Context	●	●	○	○	○	○	○	○	○
Design									
Process	○	○	○	○	○	○	●	○	○
Form	○	○	○	○	○	○	○	○	○
Judgment	○	○	○	○	○	○	○	○	○
Representation	○	●	●	○	○	○	○	○	○
Technology									
Struct. Systems	○	○	○	●	●	○	○	○	○
Environ. Systems	○	○	○	○	○	○	○	○	○
Materials & Assemb.	○	○	○	○	○	○	○	○	○
Safety & Access.	○	●	●	○	○	○	○	○	○
Practice									
Project Process	○	○	○	○	○	○	○	○	○
Finance & Economics	○	○	○	○	○	○	○	○	○
Business Managem't.	○	○	○	○	○	○	○	○	○
Laws & Regulations	○	○	○	○	○	○	○	○	○
	Pre-Design	Site Design	Build. Design	Struct. Tech.: Gen. & Long Span	Struct. Tech.: Lateral Forces	Mech., Plumb., Elect. Systems	Materials & Methods	Construct. Docu. & Services	

ARE Divisions

CHART 15:
CONGRUENCY BETWEEN THE NAAB AND ARE

IDP PERIODIC ASSESSMENT REPORT

Council Record No. _____ Intern

(see reverse side for recording instructions)

PERIOD: From _____ To _____
M · D · Y M · D · Y

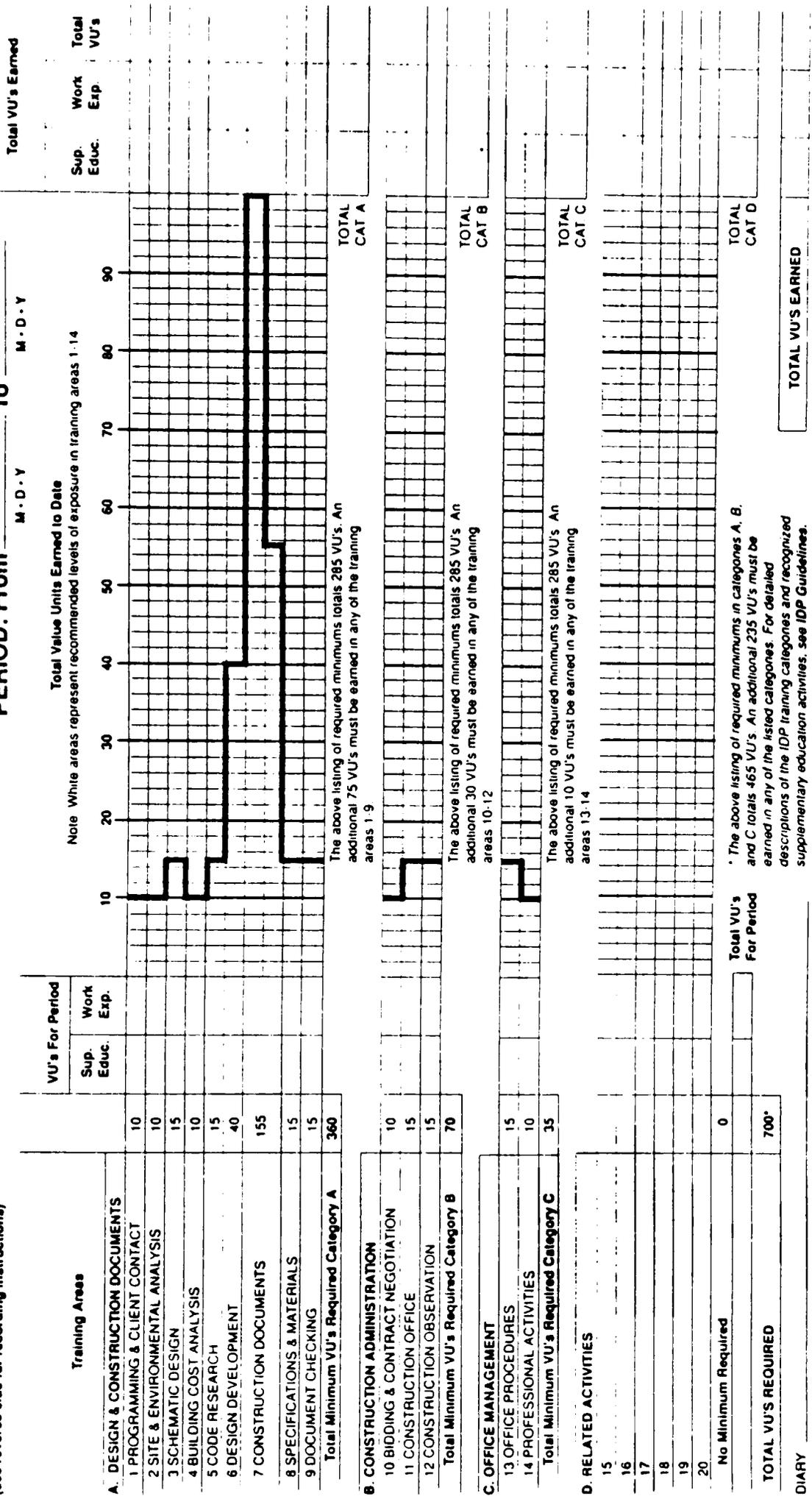


CHART 16:
IDP RECORD-KEEPING FORM

CERTIFICATIONS:
INTERN ARCHITECT _____
Date _____

SPONSOR
Name _____
Signature _____
Date _____

ADVISOR
Name _____
Signature _____
Date _____

For NCARB use only

Jurisdiction(s): Date(s) of Arch Registration(s) _____
Jurisdiction(s): Date(s) of Arch Registration(s) _____

PREPARING AN IDP PERIODIC ASSESSMENT REPORT

- Record all value units earned during the specified recording period. Limit any decimal notation to two decimal places. Projected value units are not acceptable.
- Graphically record total (cumulative) value units earned to date on the bargraph.
- Record specific dates covered by the report. Projected dates are not acceptable. The usual reporting period is four months.
- Record the five-digit NCARB/IDP Council record number (if applicable) and name here.
- Record total (cumulative) value units earned to date. This represents the sum of value units recorded in previous reports and those recorded for the current reporting period. Limit any decimal notation to two decimal places.

IDP PERIODIC ASSESSMENT REPORT Council Record No. 98,440 Intern F. L. RIGHT

PERIOD: From 1-1-89 To 5-1-89
M O Y M O Y

Training Area	Value Units Required	YU's For Period		Total Value Units Earned to Date	Total YU's Earned To Date		
		Sup Educ	Work Exp		Sup Educ	Work Exp	Total YU's
A DESIGN & CONSTRUCTION							
1 PROGRAMMING & CLIENT CONTACT	10	3.0	1.5	3.0	2.5	5.5	
2 SITE & ENVIRONMENTAL ANALYSIS	10	3.0	3.0	7.0	7.0	7.0	
3 ARCHITECTURAL DESIGN	15	5.25	5.25	12.25	12.25	12.25	
4 STRUCTURAL ANALYSIS	10			0	0	0	
5 CODES & LAWS	15		1.5	1.5	1.5	1.5	
6 DESIGN DEVELOPMENT	10		1.5	1.5	1.5	1.5	
7 CONSTRUCTION DOCUMENTS	15		1.5	1.5	1.5	1.5	
8 SPECIFICATIONS & MATERIALS	15		1.5	1.5	1.5	1.5	
9 DOCUMENT CHECKING	15		1.5	1.5	1.5	1.5	
Total Minimum YU's Required Category A	368						
B CONSTRUCTION ADMINISTRATION							
10 BIDDING & CONTRACT NEGOTIATION	10		0.5	0.5	0.5	0.5	
11 CONSTRUCTION OFFICE	15		6.0	6.0	6.0	6.0	
12 CONSTRUCTION OBSERVATION	15		4.5	4.5	4.5	4.5	
Total Minimum YU's Required Category B	40						
C OFFICE MANAGEMENT							
13 OFFICE PROCEDURES	15	3.0	2.0	5.0	1.5	1.5	
14 PROFESSIONAL ACTIVITIES	10		1.0	1.0	0	0	
Total Minimum YU's Required Category C	25						
D RELATED ACTIVITIES							
15 COMPUTER APPLICATIONS	10		7.0	7.0	10.0	10.0	
16							
17							
18							
19							
20							
No Minimum Requirement	0						
TOTAL YU's REQUIRED	708						
TOTAL YU's EARNED					29.0	29.0	

DIARY: Employed at: XYZ Architects
44 Front Street
Amherst, NY
Sponsor: Rebecca Fuller, AIA
Completed AIA Approved C + C2

CERTIFICATIONS: INTERN ARCHITECT F. L. Right
Date 5-2-89

SPONSOR: Name Rebecca Fuller
Signature Rebecca Fuller
Date 2 May 1989
Jurisdiction(s) (Date(s) of Arch. Registration): NY 1960, MA 1965

ACKNOWLEDGEMENT: ADVISOR: Name LOUISA SULLIVAN
Signature Louisa Sullivan
Date 5-4-89
Jurisdiction(s) (Date(s) of Arch. Registration): NY 1964

- Record only value units for activities not listed in categories A, B and C. Do not use this category to record value units earned in excess of the minimums required in categories A, B and C.
- Record total value units earned during the specified recording period.
- Record name and address of firm and name of sponsor. Note any change of address. Outline all supplementary education activity.
- Leave this section blank.
- Sign and date where indicated.
- Sponsor must print name, sign and date where indicated and list the year each architectural registration was granted (if applicable).
- Record total value units earned by adding the totals for categories A-D.
- Advisor must print name, sign and date where indicated and list the year each architectural registration was granted.

(NCARB, 1989, p. 56)

CHART 17:
IDP RECORD-KEEPING FORM
EXPLANATION

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APPENDIX A: NAAB STUDENT PERFORMANCE OUTLINE

All of the student performance criteria listed in this appendix are quoted from NCARB's NAAB Criteria and Procedures, 1988.

I. Context

- A. Liberal Studies, graduating students should:
1. be aware of the values and needs of others;
 2. be aware of the standards that guide human behavior;
 3. understand the principle governing the activities of the natural and social world;
 4. be able to examine issues rationally, logically, and coherently; and
 5. be able to write, speak, and listen effectively and to convey ideas and information accurately and honestly.
- B. History, graduating students should:
6. be aware of methods of historical inquiry, including systematic observation, comparative analysis, and the use of documents and sources;
 7. be aware of the diversity of architectural traditions throughout the world;
 8. understand the impact of various cultural values and societal settings on the status and role of the architect, and on architecture as a profession;
 9. understand theories and principles that have been and are the basis for the critical understanding and the making of architectural and urban form;
 10. be able to draw upon the understanding of history and theory in the critical observation and discussion of architecture; and
 11. be able to bring an understanding of history and historical examples to bear on the design of architectural projects.
- C. Human Behavior, graduating students should:
12. be aware of how individuals and groups respond to their environmental settings both psychologically and physiologically;

13. be aware of theories and methods that clarify the interrelationships of human behavior and the physical environment;
14. be able to gather and analyze information about human needs and aspirations to inform the design process, to organize peoples' contributions to the design process, and to devise criteria for evaluation of designs; and
15. be able to extract implications for design from behavioral information and criteria.

D. Environmental Context, graduating students should:

16. be aware of the theories and traditions of the related disciplines that deal with the environmental context, i.e., urban design, planning, and landscape architecture; and
17. understand how the selection and development of a specific site is influenced by its physical characteristics and its cultural and ecological context.

II. Design

A. Process, graduating students should:

18. be aware of significant theories of design and relevant design methods;
19. be aware of major current building and urban design project types and how they are evolving, including their spacial and geometric components and forms, their programmatic components, and their technical systems;
20. understand techniques of analysis and synthesis, including visual, verbal, mathematical and computational models such as diagrams, charts, models, and drawings;
21. be able to articulate and clarify basic project purposes and goals; and
22. be able to associate appropriate design activities with various project objectives, and plan and implement an effective process to meet those objectives.

B. Form, graduating students should:

23. be aware of aesthetic theories and their relevance to architectural design;

24. understand the significant purposes for building and how those purposes are, and have been, realized through architectural form;
25. understand the variety of ordering principles, strategies, and ideas by which architects bring the disparate elements of building together and infuse them with human significance and enduring values well beyond the requisites of a project;
26. understand buildings as elements in the evolution of their sites and settings; and
27. be able to identify ways in which different forms are successful or unsuccessful in satisfying programmatic, technical, and contextual objectives in a design proposal.

C. Judgement, graduating students should:

28. be aware of how architects and others have exercised judgement on different types of projects;
29. understand the interactions between aesthetic and ethical values in the formation of architectural judgements;
30. be able to discriminate between and evaluate design alternatives on ethical, aesthetic, and technical grounds; and
31. be able to engage others in these judgement processes.

D. Representation and Communication, graduating students should:

32. be aware of the variety of theories and principles of representation and communication and their application to design;
33. be able to select media, techniques of representation (including computer-based techniques), and degree of detail appropriate to the various stages and activities of a design process;
34. be able to convey the essentials of the building or project program and design by a variety of means such as freehand drawing, diagrams, orthographic drawings (plans, sections, and elevations), perspective and other projections, and models;

35. be able to communicate with those who must construct the project through technically precise drawings and written descriptions of the proposed design; and
36. be able to express ideas and proposals clearly and accurately in written and oral presentations.

III. Technology

- A. Structural Systems, graduating students should:
 37. be aware of the significance of appropriate structural systems in guaranteeing human comfort and safety, and of the traditional role of those systems in relation to architectural form;
 38. understand the theories of simple structures and the structural behavior of typical systems;
 39. be able to select, integrate, and coordinate structural systems which may be designed by others, with other building systems;
 40. be able to analyze structural systems in frequent use such as post and beam, rigid frame, and others;
 41. be able to design simple building elements, utilizing a variety of materials, including footings and foundations, building frames, bearing walls, structural floor systems, and roof and ceiling systems; and
 42. be able to organize building systems to withstand lateral forces resulting from wind and earthquake conditions.
- B. Environmental Control and Communication Systems, graduating students should:
 43. be aware of the psychological and physiological principles necessary to understand man's relationship to the environment and how it serves the qualitative aspects of human experience;
 44. be aware of principles of energy economics and their implications for architecture design;
 45. be aware of relevant codes and regulatory standards and their application to these systems;

46. understand the fundamental principles of physics underlying environmental control systems;
47. understand elementary environmental control, communication, lighting, and acoustic systems; and
48. be able to assess the general appropriateness of systems designed by others and how well they meet basic standards of human safety and comfort as well as project design goals.

C. Construction Materials and Assemblies, graduating students should:

49. be aware of the performance of different building materials and assemblies with respect to how they function structurally and technically, how they resist wear, how they age, how they function to separate to internal and external environment, and their relative costs;
50. be aware of the principles, conventions, and standards associated with the formation and manufacture, sizes, applications, and restrictions governing uses of materials common to building and construction;
51. be aware of existing and emerging construction methods, materials, processes, and codes; and
52. be able to select building materials and assemblies, and to satisfy requirements of complex building programs, and to communicate these choices in both graphic and written form.

D. Safety and Accessibility, graduating students should:

53. be aware of the architect's responsibility to provide for safety and accessibility and to incorporate relevant codes and standards in architecture design;
54. be aware of safety requirements and of varying human capabilities in the selection and location of equipment and materials such as video and audio elements, fire alarms, elevators and their call buttons, wall and floor finishes, plumbing fixtures and fittings, and

-
- graphics and signs in site and building design;
55. understand the principles which underlie the design and selection of life safety systems and their relationships to other building systems; and
 56. be able to design for adequate safety and accessibility.

IV. Practice

- A. Project Process, graduating students should:
 57. be aware of the issues and ideas that shape the project process, both for typical and non-typical (nontraditional) practice;
 58. be aware of the various individuals, groups, and resources which contribute to the total body of knowledge necessary to carry out the project process;
 59. be aware of the various professional disciplines that make contributions to the project process, and of methods for their coordination and management;
 60. be aware of current and potential roles or computer methods in the project process, and examples of its application, including design, documentation, financial management, word processing, and information storage and retrieval;
 61. understand the traditional arrangements for project design and construction, especially the architect's role in the administration of the construction contract, and the differences in the relationship with the client between the design and construction phases;
 62. understand some of the more often used nontraditional ways of rendering services, especially as they affect the relationship between the architect and the client as well as other parties involved in the production of the design and construction project; and
 63. understand the types of documentation which are required to render competent and responsible services, including both graphic and written forms, for both traditional and nontraditional services.

-
- B. Project Finance and Economics, graduating students should:
64. be aware of the implication of economic systems and policies, public finance, development, and building economics for architecture and urban design; and
 65. be aware of the roles of value engineering, life cycle cost analysis, and construction cost estimation in the framework of a design project.
- C. Business and Practice Management, graduating students should:
66. be aware of the ethic of the profession and the ethical issues which confront it;
 67. be aware of the architect's responsibility to the public under different contractual and organizational arrangements; and
 68. be aware of contract negotiations, office organization and personnel relationships, financial management, and other activities surrounding the practice of architecture.
- D. Laws and Regulations, graduating students should:
69. be aware of areas of the law which affect architecture as well as the mechanisms and procedures for enforcement, adjudication, and the creation or modification of laws;
 70. be aware of the relevance of the law to professional registration, professional service contracts, and formation of design organizations and teams; and
 71. understand the legal relevance of public health, safety, and welfare, property rights, building codes, zoning and subdivision, and other factors affecting architectural practice.

APPENDIX B: NAAB CONTENT

All of the student performance criteria listed in this appendix are quoted from NCARB's NAAB Criteria and Procedures, 1988.

Context

Liberal studies is a program made up of core disciplines that constitute modern forms of knowledge. It deals with basic concepts rather than applications.

History may be defined as the organized knowledge of principles and ideas, and of exemplary buildings and places, available through methods of inquiry into architecture's past from its early prehistoric traces to the present time.

Human behavior may be defined as the characteristics and behavior of individuals and groups in relation to the physical environments in which they function, and to the processes of environmental modification and change.

Environmental context may be defined as the constructed artifacts, the service infrastructure, and the climatic, geographic, and other natural characteristics of sites which form the setting for architecture.

Design

Process of design includes identifying the constituent parts of an architectural project, clarifying those parts by the use of appropriate types of information or consultation with specialists, and drawing out the implications of the parts for their eventual combination in the synthesis process.

Form includes physical characteristics of a place as well as the cultural, sensual, and psychological character of a place.

Judgment is the ability to make choices in light of often conflicting and ambiguous requirements.

Representation and communication skills are necessary for architects to adequately illustrate and document their work as they communicate with others involved in the design process.

Technology

Structural systems include the basic structural elements of the building, their interaction as a support system, the forces that act on and in buildings, and the principles and theory upon which an understanding of these systems is based.

Environmental control systems include the equipment, the distribution for controlling the sensual environment, and their integration into a design which modifies the microclimate for purposes of human use and comfort. Communication systems include voice, digital, and other communication systems.

Construction materials and assemblies refer to the characteristics of building materials and how they are used, and to the different types of building assemblies and how they are made and applied in a building project.

Safety refers to those elements of a building which are directly related to preserving the life and safety of the building occupants. . . .Accessibility includes internal and external circulation which contribute specifically to the accommodation of human disabilities. . .

Practice

Project process refers to the activities included in a typical architectural project as it moves from inception through completion of construction.

Project finance and economics refers to the financial aspects of building, including the economics of development.

Business and practice management refers to the concepts, ethical principles, procedures and techniques related to the different forms of

organization for architectural practice, including private and corporate offices and also public sector agencies and organizations.

Laws and regulations, as related to architectural practice, form a complex body of common law, legislation, and regulations.

APPENDIX C: TYPICAL TRAINING PERIODS
REQUIRED FOR REGISTRATION

<u>Previous Education</u>	<u>Required Training</u>
*Professional degree in architecture- from an NAAB-accredited program	3 years
*Professional degree in architecture- not from an NAAB-accredited program	5 years
*Four year pre-professional degree in architecture	7 years
*ECPD ¹ or ABET ² accredited bachelor degree in architectural engineering, architectural technology, or in civil, mechanical or electrical engineering	7 years
*FIDER ³ accredited bachelor degree in interior architecture	7 years
*Any other bachelor degree	9 years
*High school diploma	13 years

(IDP Guidelines, 1989-1990)

¹ Engineer's Council for Professional Development

² Accreditation Board for Engineering and
Technology

³ Foundation for Interior Design Education and
Research

APPENDIX D: IDP TRAINING AREA DESCRIPTIONS

All of the following training descriptions are quoted from the IDP Guidelines: Intern Architect Development Program, 1989-1990.

Category A: Design and Construction Documents

1. Programming - Client Contact

Programming is the process of setting forth in writing the owners requirements for a given project. Steps in this process include establishing goals; considering a budget; collecting, organizing and analyzing data; isolating and developing concepts; and determining needs in general. The AIA owner-architect agreements presume that the owner will furnish the program and that any involvement of the architect in writing the program will be an additional service not covered in the basic agreement. However, many owners are employing the architect to assist them in this effort. The project will also be affected by the mortgage lender, public officials involved in health, welfare and safety, future tenants, and, increasingly the people who will work in the built environment. Their input at the programming stage is essential in order to maintain an orderly design process.

2. Site and Environmental Analysis

Site analysis includes land planning, urban design and environmental evaluation. Land planning and urban design are concerned with relationships to surrounding areas and involves consideration of the physical, economic and social impact of proposed land use on the environment, ecology, traffic and population patterns. Governmental agencies frequently require documentation on the results construction will have on its surroundings (i.e., environmental impact studies). Decisions relating to site analysis most involve the selection, organization and evaluation of pertinent data that will lead to a resolution of the owners program while conforming to legal requirements.

3. Schematic Design

From the owner-approved program, the architect develops alternative solutions to satisfy technical and aesthetic requirements. Preferred schemes are presented until owner and architect can agree on one.

4. Building Cost Analysis

An important responsibility of the architect is to evaluate the probable project construction cost. Accurate estimates are crucial to the client. They influence decisions involving basic design, selection of building products and systems and construction scheduling. Long-term maintenance, as well as tax impact of material and system selection (value engineering), are additional factors which bear on development of the project. For their own preliminary analysis, most architects use computations based on area and/or volume. Estimates of cost provided later in the design process are frequently made on the basis of labor and material requirements (quantity surveys), a method which requires a more specialized knowledge of construction costs.

5. Code Research

Building inspectors as well as officials in zoning, environmental and other agencies relating to the health, welfare and safety of the public, oversee the enforcement of federal, state and local regulations related to building construction. The codes promulgated by these various agencies have a direct bearing on the total design process and thorough knowledge of all requirements is essential to the satisfactory completion of any project.

6. Design Development

Based on the owner-approved schematic design, the architects fix sizes and details, for the owners further approval, the size and character of the entire project, including selection of materials and engineering systems.

7. Construction Documents

The working drawings phase of construction documents preparation constitutes the major activity in an architect's office. These drawings describe in graphic form all of the essentials of the work to be done: location, size, arrangement and details of the project. As the successful and timely execution of these documents can be equated closely with an office's financial success, architects constantly search for more efficient ways to produce construction documents. Regardless of the method of preparation, it is extremely important that the documents be accurate, consistent, complete and understandable. This requires thorough quality

control including constant review and cross-checking of all documents. In addition, effective coordination of consultants drawings is essential to avoid conflicts between the various trades during construction.

8. Specifications and Materials Research

Well grounded knowledge of specification writing principles and procedures is essential to the preparation of sound, enforceable specification. Unless these skills are properly developed, expert knowledge of materials, contracts, and construction procedures cannot be communicated successfully. A cardinal principle of specification writing require the architect to understand the relationship between drawings and specifications, and to be able to communicate in a logical, orderly sequence, the requirements of the construction process. Many factors must be considered in the selection and evaluation of material or products to be used in a project: appropriateness, durability, aesthetic quality, initial cost, maintenance, etc. To avoid future problems, it is extremely important that the architect recognize the function of each item to be specified. The architect must carefully assess new materials as well as new or unusual applications of familiar items, regardless of manufacturer representations, to be certain no hidden deficiencies exist that might create problems for the owner and expose the architect to liability.

9. Document Checking and Coordination

Close coordination between drawings and specifications is required when preparing construction documents. The work of each consultant must be reviewed regularly and checked against the architectural drawings as well as the drawings of other consultants to eliminate conflicts. Before final release for construction purposes, the drawings must be checked and cross-checked for accuracy and compatibility.

Category B: Construction Administration

10. Bidding and Contract Negotiation

The architect assists in establishing and administering bidding procedures, issuing addenda, evaluating proposed substitutions, reviewing the qualifications of bidders, analyzing bids or

negotiated proposals and making recommendations for the selection of the contractor(s).

The construction contract and related documents are the formal instruments which bind the major parties together in the construction phase. They detail the desired product and the services to be provided in its construction, as well as the consideration to be paid for the product and the services.

11. Construction Phase - Office

During the construction phase there are many related tasks which do not directly involve field observations: processing contractors applications for payment, change orders, shop drawings and samples, adjudicating disputes, etc. The architects handling of these matters will usually have a direct bearing on the smooth functioning of the work in the field. For example, prompt processing of the contractors application for payment, including review of any substantiating data that may be required by the contract documents, helps the contractor maintain an even flow of funds.

Items such as shop drawings, samples and test reports submitted for the architects review must be acted upon promptly to expedite the construction process. Changes in the work which may affect the time of construction or modify the cost are accomplished by change orders. Interpretations necessary for the proper execution of work must be promptly given in writing even when on change order is required.

12. Construction Phase - Observation

In administering the construction contract, the architects function is to determine if the contractors work generally conforms to the requirements of the contract documents. To evaluate the quality of materials and workmanship, the architect must be thoroughly familiar with all of the provisions of the construction contract. Periodic reports on the stage of completion of scheduled activities are collected and compared to the overall project schedule at job site meetings. These meetings facilitate communication between the contract parties and produce a detailed progress record. The architect must determine through observation the date of substantial completion and receive all data, warranties and releases required by the contract documents prior to final inspection

and final payment. In addition to these construction-related responsibilities, the architect interprets contract documents when disagreements occur and judges the dispute impartially, even when the owner is involved. Dissatisfaction with the architect's decision can lead to arbitration or the courts.

Category C: Office Management

13. Office Procedures

Although architecture is a creative profession, current techniques of practice require that the architect's office operate in almost the same manner as a commercial enterprise. Steady income must be generated and expenses carefully budgeted and monitored so that economic stability can be maintained. Accurate records must be kept for tax purposes and for use in future work. Established office requirements and regulations are essential to maintaining a smooth operation; office practice manuals are a typical tool for dissemination of this information. Profitable use of manpower requires budgeting of time and adhering to schedules. The architect's relationship to the owner is established by contractual agreement. A contract establishes the duties and obligations of the parties. In order for a contract to be enforceable, there must be mutual agreement between competent parties, an acceptable monetary consideration, and it must be for a lawful purpose and accomplishable within an estimated time frame.

Effective public relations plays an essential role in the creation of the architect's image. This is important in bringing new clients and work into the office as well as attracting superior people for the professional staff. The architect must participate in marketing activities if the practice is to succeed. On the other hand, the architect's marketing activities (unlike those of merchants, manufacturers and others in commerce) are subject to certain professional constraints. The architect must learn marketing techniques which are effective while remaining within legitimate rules of professional conduct.

14. Professional Activities

To strengthen the professions image, the architect must participate in public service programs. The architect must also maintain a supportive role with others involved in the construction industry. The various professional societies and other public service opportunities offer viable means of serving the profession and the community. Meaningful involvement requires participation beyond attendance at regular meetings.

Category D: Related Special Activities

The Intern-architect Development Program is not intended to be narrow or restrictive, but to bring into proper perspective the broad aspects of architectural practice. In addition, new areas of concern and involvement which do not fall within more traditional practice are opening to architects. This category of related activities will allow the intern-architect, while developing basic practice skills, to develop expertise in allied areas.

Possible related activities include energy conservation, computer applications, planning, interior design, landscape architecture, construction management, environmental and structural engineering, applied research, teaching, historical restoration and professional delineation.

APPENDIX E: ARE DIVISION OBJECTIVES

All of the ARE division objectives listed in this appendix are paraphrased from NCARB's Circular of Information No.2: Architect Registration Examination, 1990, except as otherwise noted.

Division A: Predesign

This division requires the candidate to apply the applications of the principles of land use planning; to determine the interrelationship of intended land use with the environment in which it exists; to consider goals, analyze data, uncover and test concepts; to establish needs for a program of land development; to apply the principles of architectural programming and building(s) on a specific site; and to establish needs for a building program.

This division is presented mostly in the multiple choice format requiring candidates to apply factual and practical knowledge; understand and prove experience in the subjects of design objectives, space requirements, space relationships, adjacencies, flexibility and expandability, and site considerations. Candidates also have to apply the theories and principles from architectural history relating to the usual services provided by architects in the Pre-Design phase of project development. The content areas of this division are formed by the functional, physical/technical, economic, legal and perceptual issues.

Division B: Site Design

This division requires the candidate to determine the interrelationship of intended site use with the environment. They will have to consider topography, vegetation, climate, geological aspects, and legal aspects of site development. And candidates will also have to synthesize programmatic and environmental requirements into a coherent concept for the placement of buildings and/or other improvements on a site.

This division is presented mostly in a combination of written and graphic problems using multiple choice and written simulation questions, as well as problems that require candidates to produce vignette graphic answers. This division tests the candidates conceptual/creative skills, thus demonstrating a knowledge of and ability to handle land utilization; structures placement; form relationships; movement/circulation/parking; utility systems; surface/subsurface conditions;

deeds/zoning/construction; topography/relation to surroundings; architectural management and coordination; and costs.

Division C: Building Design

This division requires the candidate to synthesize programmatic and environmental requirements into a coherent and aesthetic concept through the processes of schematic design development.

In this division the candidates are expected to be able to graphically communicate building sections, elevations and plans, and to select and lay out building systems. Conceptual/creative and communication skills are concentrated on in this division. To this end, candidates are expected to resolve the issues of function, physical/technical, economic, and legal aspects in developing a satisfactory solution to a building design problem.

Division D/F: Structural Technology -- General and Long Span

This division requires the candidates to identify, resolve and incorporate structural systems and long span design with the technical aspects of the design of buildings and the process of construction.

In this division the problems and questions are mostly presented in the multiple choice format. However, written identification questions are also used. This division is organized around tasks demanding the candidate use factual knowledge combined with analytical ability. Candidates also apply some conceptual and creative skills. The candidate is required to answer questions in the areas of: "analysis and selection of appropriate structural systems and components; complex structural systems; structural connections; loading; code requirements; costs; structural construction methods; materials and safety; the impact of structure on the design of buildings; and the historical aspects of architecture as related to structural theory and design."
(NCARB, Circular #2, 1990)

Division E: Structural Technology -- Lateral Forces

This division requires the candidate to identify and resolve the effects of lateral forces on the technical aspects on the design of buildings, additions/renovations and the processes of construction.

Questions in this division are presented in a multiple choice format requiring the candidates to identify and calculate lateral loads. Candidates must also apply factual knowledge about: designing systems to accommodate lateral loads; materials; methods; finances and costs; and laws and regulations. Testing also covers conceptual/creative aspects as these relate to the impact of lateral forces on architectural design.

Division G: Mechanical, Plumbing and Electrical Systems

This division requires the candidate to evaluate and select mechanical, plumbing and electrical systems, and incorporate their selection into building design.

This division is presented mostly using a multiple choice and written identification questions format. The candidates are tested over their abilities as related to the functional, physical/technical, economic, legal and perceptual aspects of environmental controls, and life safety of the design and construction of buildings. This division incorporates such subjects as: "natural forces; energy use and conservation; environmental controls; acoustics; fire prevention systems; electrical systems; illumination; security systems; sound control, environmental theory; building enclosure systems and their relation to mechanical, plumbing and electrical systems; use of table and charts relating to environmental systems; costs; and mechanical/electrical facilities for handicapped persons; humanities; aesthetics; and the history and theory of architecture as related to design of mechanical, plumbing and electrical systems for buildings." (NCARB, Circular #2, 1990)

Division H: Materials and Methods

This division requires the candidate to evaluate and select materials and methods of installation as they relate to the technical aspects of construction. Their incorporation into the design of buildings is also considered.

This division is presented using a combination of multiple choice, written simulation and written identification forms of questions. Candidates are tested over their ability to use factual knowledge and understand the application of knowledge and conceptual/creative abilities as they relate to the functional, physical/technical, economic, legal and perceptual content areas of this test subject. Test question in this division emphasize such subjects as:

environmental theory, energy use and conservation; construction materials and assemblies; construction industry operation; natural forces; soil properties and treatment; topographic factors; moisture and thermal forces; structural systems; history and theory of architectural materials and methods; business operations; building and life safety codes; handicapped provisions; humanities, aesthetics, utility and civil systems; and regulations." (NCARB, Circular #2, 1990)

Division I: Construction Documents and Services

This division requires the candidate to translate design concepts, building materials and systems into instruments of service for construction. Also required are the related construction administration of a building project.

This division is in the format of multiple choice and written simulation questions requiring the candidate to apply factual knowledge. Candidates are required to work from and with architectural drawings, structural drawings, mechanical, electrical and plumbing drawings, interior drawings, specifications, cost estimates, and bidding documents. Candidates are also required to demonstrate knowledge in the "organization and handling of bids, coordination and management, project administration in the office and in the field, field tests, quotation requests and change orders, construction cost accounting, project close-out and warranty period services." (NCARB, Circular #2, 1990)

APPENDIX F: MISSION STATEMENTS

NCARB

The mission of the Council is to work together as a council of member boards to safeguard the health, safety, and welfare of the public and to assist member boards in carrying out their duties. Pursuant thereto, the Council develops and recommends standards to be required of an applicant for architectural registration, develops and recommends standards regulating the practice of architecture, provides a process for certifying to member boards the qualifications of an architect for registration, and represents the interests of member boards before public and private agencies. ((NCARB, Circular #1, 1989, p. 2)

NAAB

NAAB's mission is to accredit schools of architecture on a national basis. As articulated in the founding agreement:

". . . that a well integrated and coordinated program of architecture education be developed which will be national in scope and afford opportunity for schools with widely varying resources and operating conditions to find places appropriate to their special objectives. . ." (NAAB, 1988, p. 2)

IDP

The mission of the Intern-architect Development Program is to contribute to the development of competent architects through a comprehensive internship program. (IDP, 1989, p. 1)

ARE

The intent of this examination is to evaluate a candidate's competence in the protection of public health, safety, and welfare to provide the architectural services of Pre-Design, Site Design, Building Design, Building Systems and Construction Documents and Services as these relate to the Social/Cultural, Natural and Physical Forces, Design Process, Building Systems/Materials and Methods and other related external constraints.

The subject of life safety is the basic purpose of the registration examination; the subject of energy conservation is an economic and welfare issue and as a subject is considered through the synthetical process of developing architecture.
(NCARB, Circular #2, 1990, p. 1)

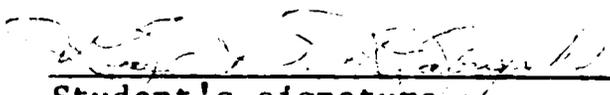
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Student's signature

Date

10 August 1970

Date

