Design Career Education
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ARCHITECTURE new jersey (USPS 305-670) is the official publication of New Jersey Society of Architects, a Region of The American Institute of Architects, and is the only architectural publication in the state. The purpose of the quarterly publication is to advance an increased public awareness of our visual environment. It carries news, articles and representations of buildings of current interest.

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Architecture New Jersey 1
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Architects in The News

Selected Paintings and Watercolors by Cody A. Eckert, a member of the Central Chapter, NJSA, will be on exhibit at the Conference Center of the Educational Testing Service in Princeton from June 13 to July 29th. Cody received her license to practice architecture in March of this year.

APID/Ronald T. Ryan, AIA, Architect & Planner has changed his corporate name to The Ryan Group, P.A., Architects, Planners and Interior Designers with headquarters at 172 Monmouth Street, Red Bank. In addition, there are three new associates to the firm: Steven C. Felton, AIA; Dale C. Harkness, AIA; James J. Ramentol, AIA.

George C. Waters, AIA, has been promoted to Director of Engineering, Department of Defense, State of NJ.

Gregory Arner's design for the addition to Matawan Regional High School has been selected for the 1983 Exhibition of School Architecture sponsored jointly by the American Association of School Administrators and The American Institute of Architects. The exhibit features selected school buildings which have uniquely adapted to the educational program of the user, and the challenge presented. Specifically, the jury gave consideration to the adequacy for the educational program, aesthetics, grouping of instructional areas and energy conscious design considerations.

Newark Symphony Hall and The Grad Partnership of Newark have received a 1983 Tucker Architectural Award for Architectural Excellence from the Building Stone Institute. The building took the award for its original designer, Frank Grad, as Outstanding Project in the category of stone structures completed at least 25 years ago and still in use today.

R.J. Reynolds, AIA and wife, Valerie Reynolds, an interior architect have recently formed The Reynolds Design Group with offices in Haddonfield, providing full architectural, interior, graphic design and planning services. R.J. Reynolds is formerly from Woodbury, N.J. and a former partner in the firm of Bartley, Long, Miranda and Reynolds of Philadelphia. Mr. Reynolds has also been appointed to a four year term on the Gloucester Co. Construction Board of Appeals.

The Brendan Byrne Arena, designed by The Grad Partnership in Newark, with Robertson, Fowler & Associates as structural consultants continues to collect awards: The American Consulting Engineers Council 1983 Grand Award for Engineering; the N.Y. Assn. of Consulting Engineers — first prize in the category of Structural Design; the N.J. Ready-Mixed Concrete Assn. and the N.J. Chapter of the American Concrete Institute singled out the Arena as one of the State's outstanding concrete structures of 1982.

The Gruzen Partnership announced the appointment of Jeffrey G. Parsons, AIA, Director of Administration of their Newark office, to Senior Associate. Parsons joined the firm in 1974 and is currently project manager for the new Medium Security Prison at Camden and for an innovative 224-unit condominium apartment house for the elderly in Teaneck.

Doug Kelbaugh, AIA, lectured at SUNY/Buffalo on April 14 during a teacher's seminar held in conjunction with the Aesthetics for the Cold Exhibit sponsored by the Association of Collegiate Schools of Architecture Northeast Region.

Charles M. Decker, AIA, a member of the Board of Directors of BOCA Int., has been appointed chairman of their Building Code Change Committee. He is also a member of the Executive Committee of the National Institute of Building Sciences. Locally, Mr. Decker is Chief of the Bureau of Construction Code Enforcement of the Department of Community Affairs.

Louis and Suzanne DiGeronimo, principals of Architects DiGeronimo of Paramus have been retained to design the new offices, examining rooms, conference room and waiting area for the Newark Beth Israel Medical Center Division of Cardiovascular Surgery.

Restaurant Survey for ANJ

The next issue of "Architecture New Jersey" will examine restaurants as its theme. As part of our discussion, we would like to see what ANJ's readers consider to be their favorite restaurants. This is to be a completely subjective survey, and we ask that you answer a single question: "What are your three favorite New Jersey restaurants?" You may use any criteria for your selections, such as excellent food, excellent service, beautiful people, great value, fine architecture, etc. In addition, if you have any affiliation with the restaurant(s) please acknowledge it. The results of our survey will be published in the next issue of ANJ, with illustrations and commentary. For your convenience, you don't even have to write, just call our Restaurant Survey Hotline (201) 636-5680 with your vote.
Four New Jersey Architects Honored By AIA

Four New Jersey architects have received special awards from The American Institute of Architects for significant contributions in the field of architecture.

Jules Gregory, FAIA, of Princeton, whose leadership in the revitalization of urban American cities and service to the AIA, has spanned three decades, received the Institute's highest service honor, the Edward C. Kemper Award.

Gregory was cited for his tireless promotion of the concept that architecture's responsibility goes beyond the design of fine buildings and must also involve a leadership role in enhancing the quality of life in our cities.

Post-modernist Michael Graves, FAIA, also of Princeton, was the recipient of an Honor Award for his excellence in the design of the Portland Building in Oregon.

Graves is internationally known, has lectured on his work in the U.S. and Europe and is a Schirmer Professor of Architecture at Princeton University.

Romeo Aybar, FAIA, and Howard Horii, FAIA, were elected to the College of Fellows of The American Institute of Architects. Advancement to the College of Fellows is the highest honor the AIA can bestow on any member (with the exception of the Gold Medal.) It is conferred on members who have gained significant achievements in such areas as architectural practice, construction, design, education, government or industry, historic preservation, literature, public service, research, service to the profession or urban design.

Aybar, a principal in the Aybar Partnership with offices in Ridgefield, is currently Director of the New Jersey Region of The American Institute of Architects and serves on the Executive Committee of its Service Corporation. In 1982 he received the AIA Presidential Citation in recognition of his outstanding service to the profession, the public and students of architecture.

Horii's advancement to Fellowship is the crowning achievement in his 24-year career as a practicing architect. Horii is the partner-in-charge of Interior Design for The Grad Partnership in Newark and had major responsibility for more than 50 design awards — among them 18 of the 22 consecutive Grad-designed winners of New Jersey Business Good Neighbor Awards.

N.J. Delegates to AIA Convention

President Edmund H. Gaunt, Jr., AIA led a delegation of architects representing the N.J. Society of Architects to the National Convention of the American Institute of Architects in May in New Orleans. Those present for the photo include: Thomas E. Torricelli, AIA; Dennis A. Mylan, AIA; Eleanore K. Petterson, AIA; Herman H. Bouman, AIA; Edmund H. Gaunt, Jr., AIA, President; Kenneth D. Wheeler, FAIA; Robert H. Lee, AIA; Harry B. Mahler, FAIA; Helen T. Schneider, Hon. AIA, Executive Director.
introduction

This issue of Architecture New Jersey, titled Design Career Education, is devoted to a concern that is common to virtually every profession and occupation. The following pages outline varied aspects in the education of architects, both before and after registration as professionals. As in other professions, the forms this education takes are not always the same. The motivations, the methods, and the results are as varied as the individuals seeking greater knowledge. But in each case the outcome is essentially the same, that is, an improved professional, and it is the congregation of these more knowledgeable people which forms an architectural community better able to serve the public.

One particular aspect of design career education which is illustrated throughout this issue is the idea of "education as process." The entire education experience is a series of events on a continuum. Although certain types of education, such as formal architectural schooling, are common to almost every architect, the point in life when that schooling occurs varies widely. In addition, there is a constant reappraisal of individual abilities which spur architects to enhance old skills or acquire new ones.

And while individuals improve themselves, it is clear that the public at large is the beneficiary of this new knowledge. One need only look at such areas as computer usage, energy analysis, and interior design to recognize how rapidly new information is incorporated into good design.

overview

Career exploration is an activity in which New Jersey design practitioners have assumed a leadership role in four specific areas: 1) public education and awareness about issues affecting the built environment, (i.e. creating a public environment for the acceptance of good design); 2) using the design process as a tool for increasing public awareness, (i.e., understanding projects which result in good design and assist public awareness — Competitions, Regional/Urban Design Assistance Teams); 3) increased use of research in professional practice, (i.e., conducting projects which others must draw upon); and 4) public policy and education (i.e., creating an economic and political environment which enables the initiation and execution of good design.)

Interestingly enough, career exploration is not new to professionals in New Jersey. In fact, New Jersey practitioners have for some time actively supported, initiated, shepherded, as well as participated in opportunities addressing this concept. Career exploration as presented in this issue is two-fold. On one hand, it is shown to be a focused activity pursued by a number of New Jersey practitioners via changes in their personal career paths. On the other hand, it is described as an activity that is associated with a number of specific public service issues.

At the heart of these two categories are several questions. Among them: 1) to what degree are architects in New Jersey actively redefining their roles in a changing/expanding profession? 2) To what extent are New Jersey architects contributing to the public education and awareness of issues affecting the built environment? 3) To what extent are New Jersey architects engaged in active research in their private practice? And 4) to what extent are New Jersey design professionals actively involved in public policy and in educational settings?

This issue of "Architecture New Jersey" will describe specific examples of the concerns outlined above in an effort to clarify how actively involved New Jersey design professionals are regarding career exploration and to what degree their efforts are exemplary.

We have also found it appropriate to devote some attention to several cursory predictions by architects regarding expanding career opportunities and how these career areas will stabilize, continue to expand and/or shrink in the next 5 to 10 years. Among these areas are: energy, development, preservation, computer-aided design, research and architects in government. We hope that the predictions will be helpful to many of you who are either contemplating a change in career path or are entering the profession as a recent graduate.
changes in career paths

Over the past quarter century professional architectural services have increased significantly in response to changing societal needs and the professional need to match the business of architecture with the new opportunities presented in the marketplace. Thus, more and more practitioners find themselves confronted with the desire to explore new paths or to seriously evaluate current directions.

The extent of professionals choosing to make career changes has not been evident since little attention has been paid to the fundamental concept that professional education is a lifetime concern. Professional education begins with science and art in elementary and secondary education, continues through professional school and early practice and reaches fruition in professional maturation resulting from perpetual self examination and evaluation.

In New Jersey, several examples exist where professionals are responding to a “new calling” within the profession. Among them are: Fred Travisano, AIA, Cass Carroll, AIA, and Harrison Fraker, AIA.

Fred has a small architectural and urban design practice in Princeton. He is a member of the faculty of the School of Architecture at NJIT and served as the 1981 National Endowment for the Arts Mid-Center Fellow in Architecture at the American Academy in Rome. Fred’s first awareness of a need to examine his own perception of his professional activities grew out of the dissatisfaction he experienced in the way he went about conducting his own design work. His concern begins with attempting to understand how the resolution of a basic question of how form and functional need result in a meritorious design solution.

Cass Carroll is currently a manager for design and construction, Real Estate Management Operations at American Bell. Prior to joining American Bell, Cass worked for AT&T for five years in the Design and Construction Department in addition to spending two years with New Jersey Bell in its Design and Construction Department. Cass characterizes her entry into the corporate sector as having been influenced by the diversification that exists for architects in the market place.

Harrison Fraker enjoys the reputation of an architect with research in the area of energy as a focus. Harrison discovered while exploring techniques for producing a “more energy conserving and climate responsive architecture”, that gaps existed in his understanding of how buildings use energy.

Fred Travisano, AIA

During the past fifteen years I have practiced architecture in several different ways. As a young designer I was interested in exploring my concepts of “form” and “space.” It was difficult to explain my concepts to a client because they were personal and at the same time obscure in relation to their needs.

I entered my second phase of architectural practice as Director of Development for the City of Trenton, New Jersey. Although I understood what our clients would accept, there was never an open dialogue about what a project could be, how we as client and architect could get past our positions or preconceptions of “form.” I soon came to realize that it was time to re-examine my limited perspective on “form” and in 1981, I applied for and received a Mid-Career Fellowship in Architecture at the American Academy in Rome.

In Rome, I read about the history of the buildings and discovered why many of them existed, this led me to question why those built environments were developed in the manner that they existed. It was at this point that my limited point of view on “form” began to expand. I realized that “form” was not something to be imposed on a project but emerged out of an open attitude about the process. With this new attitude, I returned and established a practice in Princeton.

Cassandra A. Carroll, AIA

I am involved in the management of architecture as opposed to participating in every single phase of the plan, design and build process. In corporate architecture, there is more of a management approach to design, construction and funding than there is in private practice. Even though one would prefer to be more involved in the design process, a lot of control can be exerted in corporate settings if one takes the initiative to do so.

It is, however, very easy for architects in corporate settings to relegate the responsibility of building to the engineers. This situation raises an interesting issue. It has become exceedingly clear to me that the public's view of the role of an architect needs updating. Only a minute percentage of professionals really understand how important the role of the architect is in shaping our built environments. Unfortunately, architects in corporate settings do not enjoy the visibility that private practitioners are afforded and, because of this, some people feel that engineers design buildings in corporate settings. An expanded view of the profession will come about only when a concerted effort is made to educate architects as well as the general public that diversity exists in the profession. Let's face it, not everyone will be able to practice privately; there are countless opportunities for architects in corporate settings. I was attracted to my area of focus as a result of the marketplace and from my conviction that the profession is indeed capable of affording professionals diversity.

Harrison Fraker, AIA

All buildings use energy to help provide comfort for occupants. The way in which we design buildings to provide comfort expresses our attitudes about the use of limited natural resources, and about our relationship to nature. Buildings which are designed to take advantage of climate assets while limiting climate liabilities are working with nature to conserve energy resources for future generations. The results of trying to make our buildings act as better mediators between comfort and climate has a profound impact on the priorities of architectural form. Our initial interest in energy research originates in this concern to foster a more responsible architectural form.

Most of my work has been to try and fill gaps in my knowledge of how buildings use energy. It encompasses 1) the development of simple “transparent” analysis tools which allow the designer to “see” the causes of energy consumption; 2) the design, construction, detailed instrumentation and monitoring of buildings which employ different strategies of passive solar heating, natural cooling and daylighting; 3) periodic publication, teaching and presentation of research findings. Considerable progress has been made over the past ten years since the oil embargo, however, there is still much to be done before energy conservation is a natural part of our architectural design imagination.
A number of approaches have been utilized by New Jersey Architects as well as educators in an effort to introduce the profession as a viable career choice for youngsters to consider. As early as 1970, the Central Chapter of the N.J. Society of Architects provided “seed monies” to support a well-conceived concept to expose elementary as well as high school students in the Trenton School System to architecture and the allied professions. Later, in 1971, the first annual student design competition among students enrolled in drafting classes in select Mercer County high schools was initiated at the Princeton Day School by Hillier Group of Princeton. This event continues annually with architects from the Princeton area participating as judges and advisors.

The Architecture Transfer Program at Mercer County Community College has also sponsored a series of career exploration events since 1977. High School youngsters are invited from throughout New Jersey and Lower Bucks County in Pennsylvania. It is usually a one day affair with members of the N.J. Society of Architects serving as guest speakers/presenters. Students are briefed about what is involved in pursuing an education in architecture, the variety of programs that do exist and where, how a typical office is managed and the range of specialities that exist, and most importantly what is predicted for the profession in a 5 to 7 year period. Architects also discuss professional registration and its relationship to the education process and why it is important for youngsters to consult available reference materials on the profession. Among the architects who’ve participated at Mercer are: Eleanor Pettersen, AIA; Theodore Hammer, AIA, Jamil Faridy, AIA and Eugene O’Connor, AIA.

According to Edward Levy, AIA, the Architects League of Northern New Jersey has sponsored a series of high school career programs as part of its chapter meetings. Architecturally oriented junior year students with their parents are invited to attend from all 76 public and parochial high schools throughout Bergen, Passaic, Hudson and Sussex counties. Field trips, mini-seminars, and panel discussions are included as part of a very comprehensive approach to expose students to various facets of the profession.

In many instances, architects have encouraged local school districts to include their offices as part of local career activities. Youngsters have visited offices with guidance counselors, teachers and parents and received a tour of the facilities as well as job sites and first hand information from architects about the profession, career opportunities in the profession and have gained some insight about minimum requirements to enter professional schools.
The School of Architecture (SOA) at the New Jersey Institute of Technology (NJIT) has actively been involved in career exploration activities. During the Fall of 1982, the School of Architecture sponsored a Symposium on Careers for Guidance counselors throughout the State. Among the architects participating were Herman Bouman, AIA, immediate Past President of the New Jersey Society of Architects, and Herbert Wettstein, AIA, of the Department of Building Construction, State of New Jersey. SOA is also a part of a major Institute-sponsored career activity each year: the Pre-College programs. The Pre-College Programs at NJIT are designed to provide motivation and guidance toward careers in architecture, engineering and science for secondary schoolers with special emphasis on minorities and women. One major component of the Programs focuses on urban problems and how architects and engineers collaborate to resolve those problems. Students are introduced to the fields of architecture, urban planning, transportation, energy and environmental systems. SOA's participation in the Pre-College Program during the Summer of 1982 was highlighted with a field trip by several students to the Grad Partnership of Newark. Harry Mahler, FAIA, and Chairman of SOA's Professional Advisory Board, served as host and received a great review by students. According to one youngster in attendance: "Gee, I didn't realize that architects could draw on a computer, too!"

The School of Architecture is also involved in assisting NJIT in its efforts to involve architects in helping to increase the number of minority and disadvantaged students pursuing the professional degree in architecture. During the summer of 1982, Fred Travisano, AIA, as a member of SOA faculty, served as guest critic for the Educational Opportunity Architectural Component, while E. Harvey Myers, AIA, as a member of SOA's Professional Advisory Board, provided students with an afternoon in his Princeton office.
The profession of architecture encompasses a wide variety of activities today that extend well beyond the traditional task of designing buildings. Some of these specialties require particular training, some just an interest and the right temperament. All have their own rewards and demands.

An attempt has been made to identify as many career directions as possible. Practitioners in various specialties have been asked for their views on the prospects for opportunities in their areas over the next five to ten years.

**Government**

Herbert Wettstein, AIA
Division of Building and Construction

"As a result of general reductions in budgets I would expect a decline in the number of architects participating in government in the next five years at least. The much talked about rebuilding of the national infra-structure will benefit engineers more than architects. A possible exception to this general down turn may be in the code enforcement area where there is pressure to improve the qualifications of officials."

**Large Firm Private Practice**

Michael J. Savoia, AIA
The Grad Partnership

"I see an increase in the number of large multi-service firms and a corresponding decrease in middle size offices. Small firms, especially those with a special expertise, will continue to be viable but the large scale and multi-faceted needs of society will have to be met by the large architectural firm."

**Private Corporations**

Yatin Ghosh, AIA
Mercedes Benz of N.A., Inc.

"Architects' prospects are tied to corporate capital investment programs. These programs should expand within the next year or two with the slow but gradual growth of the economy. During the recession period, however, construction activities in the industries that tend to be immune from economic recession such as banks, insurance, and luxury items have been considerable."

**Public Utilities**

Ronald Marts, AIA
N.J. Bell Telephone Co.

"Large corporations are finding more and more need for staff architects. Even though relatively little work is designed in house, architects' expertise is necessary to assist management in evaluating facility plans and requirements."

**Computers**

J. Robert Gilchrist, AIA
The Gilchrist Partnership

"Opportunities for architects in the computer assisted design and drafting area will increase rapidly in the next two to three years instead of the originally anticipated five to ten."

**Small Firm Private Practice**

Stephen W. Schwartz, AIA

"I am definitely optimistic, there is enough activity at the present time to support private architectural practices although the limitations of client budgets is most frustrating."
“Competition in the development field is very keen. Contractors and real estate developers have far greater financial resources than architects so I see little prospect for an expanding role for architects. Related activities such as facilities management utilizing computers do present opportunities for added activity.”

“Increasing public awareness and consciousness of issues, including energy conservation, land and construction costs, respect of existing neighborhood fabric and appreciation of earlier architectural design styles will definitely limit the amount of new building projects in coming years. Correspondingly, I see the focus shifting towards increased architectural activity in the specialties of adaptive reuse, interior alteration and upgrading work and “gut” renovations: All very promising trends to those practicing interior architecture.”

“Energy is now expensive enough to have an impact on architecture in New Jersey. Despite the recent softening of fuel prices the price of fossil fuels will go up in the next five to ten years. (We simply have to search harder and dig deeper for hydrocarbons in places more remote from where we burn them.) Renewable energies are now competitive in our state, particularly for buildings — which are so good at utilizing their low temperatures and intermittent flows. Our job as architects is to integrate natural energy systems into our designs — perhaps self-consciously and awkwardly at first, but convincingly and gracefully in the end.”

“Because of legislation allowing faster depreciation and tax write offs there is a substantial increase in the number of adaptive reuse projects planned or underway. Pure restoration work is less certain because of drastic reductions in Federal Government Support.”

“I think significant numbers of graduates are going into teaching. More schools are adding younger teacher/practitioners to their faculties. There are many excellent architectural schools outside this region.”
Interest in architecture usually develops while attending high school with a gravitation toward courses in drafting, art, geometry and trigonometry and the investigation of architectural schools.

Here in New Jersey there are two schools that offer professional degrees, Princeton University and the School of Architecture at the New Jersey Institute of Technology. Throughout the remainder of the country there are over a hundred schools granting professional degrees. Entrance requirements vary and should be investigated as early as possible.* Five years of full time study are normally required to complete the requirements for a Bachelor of Architecture Degree.

The course of study is rigorous; design and drawing courses demand a great deal of time. Burning the midnight oil is de requieur especially when en charrette (the French word for cart, a reference to the habit of students of the Ecole de Beaux Arts to continue working on their projects while they were being transported from studio to school for grading). While attending Architectural school, summer work in Architectural offices is desirable.

Following graduation an “intern” period of working under the direction of a registered Architect is required. The purpose of this time is to permit the aspiring Architect to develop professional skills in actual practice before sitting for a licensing examination (see box). The AIA in cooperation with the National Council of Architectural Registration Boards has created an Intern Development Program that is designed to not only qualify the candidate for the registration examination but more importantly to enter the profession at the highest level of competence and with the best possible head start.

The program includes the Architect-Employer, referred to as the Professional Sponsor, who provides the Intern-Architect with exposure to the various areas of practice. A Professional Advisor, recruited by the New Jersey Society of Architects, provides guidance and counsel. An Educator-Advisor offers information to students to insure a smooth transition from the educational to the internship phase of their professional lives. A State Coordinator sees to the organization and implementation of the program.

The IDP is an important element in the effort to satisfy the increasing demands society is placing on the Architectural profession. It helps bridge the gap between formal education and examination with a structured program that insures that the Intern has received the broadest possible training.

After being licensed by a State, and obtaining certification by the National Council of Architectural Registration Boards (a process that simplifies registration in other States) the Architect’s education continues. Whether working in a firm or as a principal in one’s own firm an ongoing learning process is a must. Much of the learning results from day-to-day experience, of course, but more formal means are available as well.

Graduate studies leading to advanced degrees are offered by most colleges and universities that offer Architectural undergraduate degrees.

Programs in continuing professional education are regularly sponsored and organized by the New Jersey Society of Architects and its six local chapters; the American Institute of Architects at both National and Local levels; the Construction Products Manufacturers’ Council; the Construction Specifications Institute and many trade groups such as the American Woodworking Institute and the National Roofing Contractors Association. These programs bring to the practicing professional current information on many subjects ranging from design, management, construction administration, construction techniques and materials.

Study and research frequently lead to some specialization such as described in the previous articles but, however pursued, Architects are committed to a life-time of education.

* A Directory of Schools of Architecture in the U.S. and Canada is published by the N.J. Society of Architects. It contains qualifications for admission, courses, degrees, costs, and special thrusts of each school.

Under laws designed to protect the health, safety and welfare of the populace, the practice of the profession of architecture is regulated by a Board of Architects appointed by the Governor of the state. To assure that the public will be served by Architects whose competence has been tested, requirements have been established covering admission to the profession. These include the nature and extent of education, of practical experience, and the successful completion of an examination which seeks to demonstrate not only competent application of acquired knowledge and skills, but also the adequacy of a generalist working with numerous specialists related to the work of the profession.

Currently admission to examination requires evidence of completion of an accredited or approved program of education resulting in the degree of Bachelor or Master of Architecture, and three years of truly diversified experience in the offices of Architects in private or public enterprise, one year of which must be subsequent to the completion of one’s education. Education in areas other than architecture, may be accepted for limited credit toward the established requirements. Under present law, additional periods of experience may be considered for credits in lieu of deficiencies in education; but the Board is seeking retirement of such exceptions. Acceptance of alternate experience in related fields such as engineering, space planning, interior design, landscaping, etc., is quite limited.

The licensing examination offered in New Jersey is the ARCHITECT REGISTRATION EXAMINATION (ARE), created and developed by the National Council of Architectural Registration Boards (NCARB), and administered by every state and territorial jurisdiction on the same dates in June of each year. This examination consists of nine parts, generally interrelated to a basic theme-subject, and extends over a four day period. Every candidate for the title of “Architect” is required to accomplish all divisions of the examination with a grade of at least 75% in each division. “Averaging” of higher and lower grades to achieve a combined general average of 75% is not permitted. To avoid any semblance of discrimination or partiality, no candidate, wherever tested, may be excused from attempting and successfully completing any division or part of the examination for any reason. In the initial introduction to examination, candidates must attempt all divisions. Thereafter, candidates may repeat failed divisions without limitation in time.
Schools of Architecture in New Jersey

School of Architecture at NJIT

Qualifications for Admission: 16 units of high school work required, including 4 units English, 3½ units college preparatory math, including trigonometry, 2 units science, art, creative writing, freehand drawing or humanities courses are recommended in lieu of high school mechanical drawing or drafting. SAT test required. There is a formal application process required for admittance into the program. Transfer students can be considered for admission to the program at any level.

Degrees Awarded: 5 years, B.Arch. The B.Arch. program is accredited by the National Architecture Accrediting Board (NAAB).

Costs Per Year: Tuition — Resident, $1,366; Non-Resident, $2,732. Fees — Resident, $340; Non-Resident, $340.

Academic scholarships available.

Sanford Greenfield, Dean of the School of Architecture at New Jersey Institute of Technology is a Fellow of the American Institute of Architects. Greenfield has chaired numerous national professional academic conferences and committees. Prior to joining the faculty at NJIT, he was Chairman of the Department of Architecture at Iowa State University, Director of the School of Architecture, Boston Architectural Center and Senior Research Associate at the American Institute of Architects Research Corporation. A practicing architect in Boston for almost 20 years, he received his B. Architecture and M. Architecture degrees from Massachusetts Institute of Technology and received an Ed. M. at Harvard Graduate School of Education.

School of Architecture at Princeton University

Qualifications for Admission: Admission is offered without regard to sex, race, creed, or national origin. Admission at the undergraduate level is governed by admission to the College, while admission at the graduate level is governed by the Graduate School with the recommendations of the department. Graduate applications are due January 15, Graduate Admissions Office, Nassau Hall.

Degrees Awarded: Ph.D. in Architecture; M.Arch (1½ years with B. Arch., 2 years with A.B. or B.S. Architecture, 3 years with other A.B.); A.B. major in Architecture and Design, History and Theory of Architecture.

Cost per year, excluding room and board: Tuition, undergraduate — $9450; tuition, graduate — $9550.

Special Thrust: Emphasizes design in architecture, building technology, and urban design. Focuses not only on professional tasks of organizing and designing buildings, landscape and cities, but also on emerging tasks of urban society. Seeks to include wide range of social, cultural and technological factors in planning and design.

Robert M. Maxwell, a distinguished educator in the field of architecture and a former professor at the Bartlett School of Architecture and Planning, University College, London, is dean of the School of Architecture at Princeton University.

Maxwell is internationally known for his critical writings linking modern architecture with related themes in contemporary art, literature and music. A partner in the London architectural firm of Douglas Stephen & Partners, he assumed his duties at Princeton in September 1982. The 59-year-old Maxwell was associated with the Bartlett School beginning in 1962 as a senior lecturer and reader and from 1979 until 1982 as a professor, a position in England equivalent to dean. Since 1973 he has also served on the faculty of the British School at Rome.
In our previous issue, we began our discussion of metal finishes by mentioning that all of the finishes commonly used on the architectural metals can be classified as either mechanical finishes, chemical finishes or coatings. We discussed mechanical and chemical coatings and ended with how some metals tend to form their own coatings through their exposure over a period of time to the environment, commonly referred to as oxidation. Rusting of steel was mentioned as a detrimental effect we commonly attempt to inhibit through the use of coatings.

Before we move into the coatings category, we should acknowledge briefly one type of steel that acts in an opposite fashion — the “weathering steels”. The type of oxide or rust that forms on this type of steel is a very tight molecular structure and it acts to inhibit further deterioration or corrosion of the steel surface. Weathering steel is utilized in many areas where continued maintenance would be a problem. The New Jersey Turnpike, for example, utilizes weathering steel in most of its work. One consideration with weathering steel is that runoff will occur and severe staining will result when it rains, and this staining will act to permanently etch adjacent surfaces.

We will now turn our discussion to the coatings category. Coatings, commonly called paint are the most common type of finish utilized for architectural steel. Metallic coatings such as galvanizing and aluminizing are also used to inhibit the corrosive action. Coatings such as porcelain enamel are also widely used, but it is found that porcelain enamel is a very delicate surface which is very difficult to repair.

For some applied finishes, the most important process begins with the cleaning of the base metal. The Steel Structure’s Painting Council commonly referred to as SSPC has developed a variety of cleaning processes — hand cleaning, power tool cleaning, shot and sand blasting, and flame cleaning, and also chemical cleaning processes such pickling, paper degreasing, alkaline cleaning and conversion coatings. In galvanizing sheet steel, one of the most important considerations is the actual thickness of the galvanized applied finish. The standard coating will suffice for most cases but for critical exposure such as industrial or chemical processing plants, a thicker coating is usually desired. In addition, galvanized coatings are now available in colors, which are generally left exposed as the finished metal. However, these coatings will be burned off by welding.

Paints to consider in selecting organic finishes on steel sheet are application, i.e. shop or field, cost, projected life span, color and gloss retention, resistance, flexibility, and if the material is weldable. (The only area that is actually burned off is the area touched by the welding process.) In general, when this occurs, it is usually specified that the weld is touched up after welding with the same type of paint. The cleaning and priming of the steel sheet is very critical and is dependent upon the specific type of finish selected. Cost, performance and uniformity of finish usually require that finishes be applied in the shop. However, in several cases, this is not always possible or practical. One of the reasons is that these materials sometimes are applied after the work is erected in place. Field application requires much more special attention to such variables as the weather, temperature of the paint, and actual application process itself. Paint is usually provided in an infinite variety of colors and glosses, ranging from very flat to highly reflective. The highly reflective ones are generally called enamel. Lacquers are generally clear pigment solutions and there are about 40 varieties of lacquers depending upon what the final requirements are. Lacquers are air dried, chemical dried, or baked. In most cases, the baking process, which basically forces the finish to cure faster, is usually the best and provides the most permanent painted or organic finish. Paints to consider in selecting organic finishes on steel sheet are application, i.e. shop or field, cost, projected life span, color and gloss retention, resistance, flexibility, and if the material is weldable.

Commonly used coatings are acrylics, alkyds, epoxys, fluorocarbons, polyesters, polyvinylchloride, gums and urethanes.

wood need further protection with a heavy coat of bituminous paint. With noble metals, this should also be considered, because some of them such as copper will result in corrosion of the galvanic coating. As previously stated, the organic coatings commonly referred to as paint are widely used in finishing steel sheet. Some may be applied in the shop while others may be applied in both the shop or in the field. Some may be burned off by welding and some are considered weldable. (The only area that is actually burned off is the area touched by the welding process.)
The Two Faces of Architecture

Architecture As Product And By-Product

The only responsible answer to the question, "What is Architecture?" is another equally enigmatic question: "What isn't architecture these days?" American cultural diversity is demonstrating that the entire built environment is truly architectural. Where earlier and less urbanized generations may have called only monumental and seminal works, Architecture with a capital A, we tend to see it all as relevant and worthy of concern for preservation and enhancement, adaptive reuse or, in the extreme, replacement.

Over recent decades, the interests of professionals, critics, historians, political and social science analysts and commentators, and citizens alike, have gradually broadened from concentration on the single building alone, to include groups of buildings, streets, neighborhoods, campuses, towns, cities, and regions. The very existence of our zoning and planning boards, environmental protection agencies, conservation groups, park commissions, architectural review boards, fine arts commissions, and historic preservation groups, conveys a political message that architecture is a vast medium of public policy. Slowly but surely, there thus has been a transformation of thinking about architecture as the province of architects alone; the by-products of the work of uncounted numbers of non-architect builders, are also seen as worthy of public and private concern. And our national professional society itself, is moving toward a public service concept, a far cry from the private club image of some years ago.

Looking more closely at individual buildings, there are fifty or more identifiable building types, each satisfying societal needs in such larger categories as housing, religious, office, manufacturing, medical, educational, governmental, and countless subgroups. Each building type has, at various times in our history, been packaged in Colonial, Classic, Rococo, Early and Late Industrial, Modern, and Post-Modern vocabularies, and, more often, in eclectic mixtures. Those vocabularies have often been treated as stand-alone architecture, without regard to context. In contrast, the contextual (social, political, stylistic historicism, urban design, construction materials) is increasingly perceived as the dominant determinant of final building and urban form, substance, arrangement, and, ultimately, architectural vocabulary. Thus, there is a concern for the public message to be given through the medium of architecture.

Creative architectural form-givers of past and recent generations were indeed conscious of, respectful, and responsive to their project sites, but many of their principal works were stand-alone, often monumental conceptions intended to stand-out, even dominate their built surroundings, not conform or blend in with them....Thus, the current concerns of many architects with issues of context, are seen to be in contrast with the 'shock value' and 'media hype' of what have been called 'apocalypptic' isolated forms.

Yet, a recent tiny jewel of a chapel, lovingly designed and constructed on a shoestring budget to blend into the wooded hills of the Arkansas Ozarks, built of simple 2 by wooden members rhythmically spaced in a decorative pattern, with remarkable traceries and dramatic daylighting effects, can be seen, in all of its exciting intensity, as transcending issues of historic styles; in terms of modest grass roots originality, and as an exemplar of the architectural diversity of America, this gem is probably equally as important in the annals of art history and architectural achievement as any handful of new megabuck-budget New York skyscrapers.

Architecture as Process and Profession

It is only now becoming visible to schools of management, that of all academic disciplines, the architectural curriculum consistently and routinely develops integrative and coordinative patterns of thought, ones which can live with uncertainty, resolve space and time conflicts, arrange and display objective and subjective criteria for evaluation, conceive of strategies and tactics for choices and decisions and, in short, manage courses of action to achieve goals. "Design", as the late Louis Kahn said, "is a circumstance of order." The intellectual power of architectural design and coordination of information, is becoming the accepted analog for management techniques in other fields, especially notable in the computer age.

Architecture can't become reality until buildings are designed, financed, and built. As projects have grown larger and more complex, architectural firms have been organized in ways that mirror the information-age corporate and governmental clients they serve, to deal with complexity and scale. Architects have increasingly added into the design process many techniques of the social and behavioral sciences, and industrial management methodology. And as technologies have proliferated, more and more engineering and technical disciplines have been added to the design team which the architect orchestrates: Virtually every building type and size today, possesses issues related to site planning, rainfall runoff, soils and foundations, structure, acoustics, energy conservation and more, acoustics, plumbing, heating, ventilating, and air conditioning, lighting, electrical distribution, communications systems, fire and smoke detection and suppression, vertical transportation, security, and building automation. The architect typically becomes the leader of a veritable army of technicians.

To get a building built, the architect also interfaces with the Building Industry, one of the nation's largest production sectors. Construction and bidding documents are prepared in a uniform and systematic format for bidding and subcontracting and logistical procurement by local, regional, and national networks of subcontractors, suppliers, manufacturers' representatives, and manufacturers. Money, credit, financing, retaining, insurances, and performance bonds, are all-important issues in the construction industry. Because of the long-term effects of inflation, the cost of borrowed money has tended to force a speed-up in all construction and design processes, and these, in turn, have caused the introduction of management methods used by builders and architects to accelerate and coordinate project delivery and completion times. Word processors, computer-aided design, and sophisticated management techniques, are now commonplace in Architectural offices (which are also getting larger despite the trend toward automation).

At any one point in time in the profession of architecture, there are recent architectural school graduates aged 23 to 24 and up, as well as experienced practitioners still committed to their work in their mid-seventies: This usually means that the architectural profession includes a 50-year span in educational backgrounds, life-styles, cultural imperatives and values, and, ultimately, architectural interests, concerns, and commitments; there are thus serious generational gaps in communication. When this is coupled with constant and accelerating societal changes, it is easy to see why there can be confusion in the public mind when architects speak about architecture, for each generation is coming from a different direction. Every architectural office of more than a few people, is aware of this phenomenon unique to architecture. And what is the central point of such confusion, the center which is always slightly out of focus? Precisely the issue of 'design', or in fact, the title of this article. For, as long as 'beauty resides in the eyes of the beholder', so will most of us argue about "What is Architecture?"
A growing aspect of architectural work is on existing buildings. American society has matured so that most cities and towns possess a large stock of older buildings. More people are moving back to the older areas attracted by the quality of neighborhoods and architectural delight available at reasonable cost. A revised tax structure is making investment in older buildings more attractive. Thus, the architect is confronted more often with the question, “What should I do with this existing building?”

1. Nothing. Occasionally the answer is do nothing. In Cordova, Spain in 1523 the cathedral chapter, unhappily fortified by the authority of Charles V against the enlightened opposition of the city council, began the erection of the cruciform church that now occupies the center of the great ancient Moorish mosque. This structure is, in itself, a beautiful Renaissance building 180 ft. long, but its situation is inappropriate and its construction involved the removal of about 60 ancient columns. When Charles V in 1526 saw the mischief he had unwittingly been induced to permit, he reproved the chapter: “You have built here what you or anyone might have built anywhere else, but you have destroyed what was unique in the world.”

2. Restoration. Where either the structure’s historical importance or architecture is strong enough a “pure” restoration may be most appropriate. Monticello is an example. This requires historical architectural research and the work should be done by experienced contractors. No restoration is entirely pure because it is done in a different time and includes modern mechanical and electrical systems and frequently structural reinforcement.

3. Reconstruction. The Governor’s Palace in Williamsburg, Va. was rebuilt on the original site from pictorial and archaeological evidence. It was justified in the context of an historic area restoration, but this approach is often questionable.

4. Stabilization. Buildings can be decaying to the point where demolition is contemplated. To give time to find a new use and/or the funds to achieve rehabilitation a first step would be stabilization for security and weather protection. This can be done with material as temporary as a tarpaulin for a short period.

5. Rehabilitation. Much work on existing buildings is rehabilitation, which is defined in the Secretary of the Interior’s Standards for Historic Preservation Projects as “the act or process of returning a property to a state of utility through repair or alteration which makes possible an efficient contemporary use while preserving those portions or features of the property which are significant to its historical, architectural and cultural values.”
6. Reuse. The architect can work with the owner in determining a continued or new (adaptive) use. The former is preferable, if feasible, because it is likely to require less change to the existing fabric. Recently some fine eclectic hotels such as the Biltmore in Los Angeles[^] have been restored and renovated in downtown areas. Although the cost was high it was less than that for a comparable new hotel.

Adaptive use — a very popular term now — is the selection of a new use to replace the former one which is obsolete. In 1977 for the Princeton Theological Seminary we adapted a large house[^] of 25 rooms to apartments which was the most feasible way to keep a building which was important to the neighborhood.

In approaching the alteration or addition to an existing building our office takes a conservative approach. We investigate its history (architectural and documentary if information is available) and we look at it carefully. That research can affect program decisions.

A continuing design debate is compatibility vs. contrast. This is an old question as shown in the 13th and early 16th century towers of the west facade of Chartres Cathedral[^]. The later builders chose to express their own ideas about Gothic architecture. In the book Old and New Architecture, Michael Graves and Gary Wolf spoke for contrast:

On a general level, the question of the relationship between old and new is simply the question of the reciprocity between any new structure and its existing surroundings, built or natural. This is a significant issue for all architecture, whether it deals with historic buildings or not...The existing building may...be reinterpreted by new construction, just as the new structure finds its meaning in relation to what exists...

That which superficially relates one building to another may tempt us as an easy type of "compatibility" between old and new. That which relates architecture to people is perhaps more crucial, problematic and enduring.

On the other hand, one of the most interesting projects in the January 1983 Progressive Architecture Design Awards is a literal Gothic chapel addition by Tony Atkin of Philadelphia to a Cathedral in Hamilton, Ontario[^]. The jury discussion included the following comments:

Mark Mack: "I still think there could have been a solution that could have reflected our times a little better."

Alan Chimacoff: "The real issue here is not one of style. You run up against an impasse where some people will claim you must be interpretive and cannot be literal and others will say it's okay to be literal as long as architectural quality is there. For me, the architectural quality is clearly present in this project."

In working on existing buildings there can be different approaches. It is important to obtain a full understanding of what is there and to enhance its character in new work. It may not be a building (or detail) "unique in the world" but something done well in the past deserves respect. I agree with Chimacoff. The key is architectural quality.
The Hillier Group
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