Designing for Designers

Lessons Learned from Schools of Architecture

Jack L. Nasar,
Wolfgang F. E. Preiser and
Thomas Fisher

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First published in 2007, this book examines the designs of seventeen architecture and design schools and answers questions such as: How has architectural education evolved and what is its future? Are architectural schools discernible types of designs and what are their effects on those who experience them? What lessons can be learned from evaluations of recently completed school buildings and what guidance do they provide for the design of future ones?

Included in the multiple approaches to evaluation are examinations of the history of architectural education and building form; typologies of schools for architecture; and the systematic user evaluations of the aesthetics, function, and technology which reveal the strengths to encourage and weaknesses to avoid in future designs.

While offering specific guidelines for schools of design, it also includes findings that extend beyond the walls of design schools and can be applied to everything from the interiors of educational and campus buildings to planning offices and gathering places to build communities. This book will make readers more aware of problems in architectural interiors and suggest ways to make interiors work better for the building occupants.

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DESIGNING
FOR
DESIGNERS

LESSONS LEARNED
FROM SCHOOLS OF
ARCHITECTURE

JACK L. NASAR
WOLFGANG F. E. PREISER
AND
THOMAS FISHER

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PREFACE

The idea and inspiration for this book have concerned the editors for some time. We all share a commitment to building knowledge for design, whether through evaluative studies, competitions, or design juries.

Jack Nasar developed his interest in design evaluation in the 1960s and 1970s, having visited Pruitt Igoe in its disastrous heyday as an undergraduate, and later as a graduate studying with Oscar Newman. He focused his research on visual quality, wrote a dissertation on the perceived appearance of residential streetscapes (Nasar, 1979), and continued to refine measurement methods and knowledge about environmental meanings in different contexts (Nasar 1994, 1998, 1999). A Critic at Large for *Landscape Architecture Magazine,* and former architectural critic for *The Columbus Dispatch,* Nasar brings knowledge gleaned from environmental design research to the evaluation of proposed projects. Using shared meanings, one can make places more legible, meaningful, and functional to users.

Wolfgang Preiser wrote his Master's thesis on dormitory quality profiling (Preiser 1969) and has carried on development of evaluation techniques over the past 30 years (Preiser, Rabinowitz, and White 1988; Preiser and Vischer 2005). The National Council of Architectural Registration Boards (NCARB) contracted with Preiser to write "Improving Building Performance" as part of their Professional Development Monograph Series (NCARB Professional Development Program, 2003). Now, to earn recertification or continuing education credits, every architect can study and be tested on the topic of building performance assessment.

Thomas Fisher, former editor of *Progressive Architecture (P/A),* has been committed to a critical, evaluative stance in publishing. For years, he moderated the research awards as part of the *P/A* Awards program, and instituted and edited the Practice section of the magazine, providing a critical look at the nature of architectural practice. As editorial director of the magazine, he also encouraged publication of articles about projects after they had been inhabited for at least a year, with input from users and janitors, as well as the architects and clients of buildings. Since then, Fisher has emphasized the importance of research, co-editing the British journal *Architectural Research Quarterly* and co-chairing a research committee as part of the American Institute of Architects' (AIA) Large Firm Roundtable's Dean's Forum. A recent essay by him in *Harvard Design Magazine,* entitled "Architects Behaving Badly," looks at the missed opportunities that come from not integrating the

wealth of available environment-behavior research into mainstream architectural practice.

Our collaboration goes back more than 30 years. During Fisher's tenure as editor of *Progressive Architecture,* Preiser served on the Progressive Architecture Design Awards Jury in 1979, and later received the Applied Research Award and Citation in 1985 and 1989, respectively. In the early 1980s, Preiser joined a series of Environmental Design Research Association (EDRA) conference symposia run by Nasar on environmental aesthetics. Those symposia served as the basis for Nasar's (1988) edited book *Environmental Aesthetics: Theory, Research and Applications* (Cambridge University Press), which included a chapter by Preiser. For years, Preiser and Nasar, who taught in universities less than 100 miles apart, exchanged class lectures, followed by discussion over coffee or lunch. These discussions led to the Nasar and Preiser co-edited book *Directions in Person-Environment Research and Practice.*

One discussion, when Preiser's school was undergoing a renovation and Nasar's was planning a new building, turned to the architecture of schools of architecture. They saw a need for a knowledge base to guide such designs; and they decided to collaborate on a project toward that end. They planned to conduct systematic evaluations of contemporary facilities serving schools of architecture to learn what to do and what to avoid.

That led to grant applications to the National Endowment for the Arts and the Graham Foundation for a book on the architecture of schools of architecture, which eventually evolved into the present book. The lessons learned from those discussions and applications helped refine the book you are now reading.

FOREWORD

THE CURIOUS PROBLEM
OF THE ARCHITECTURE OF
SCHOOLS OF ARCHITECTURE

PHILIP LANGDON

In the 1980s, after I quit my job at a newspaper and started writing books, magazine articles, and newsletters on design and planning, I noticed how strangely, how radically, the quality of architecture schools varied. It wasn't the differences among professors, students, or curricula that caught my attention. It was the buildings in which the schools were housed; they were so disparate in character and not infrequently disappointing.

At the University of Michigan, where I'd once spent a glorious sabbatical from the newspaper business, courtesy of the National Endowment for the Arts, I was puzzled by the architecture school. It stood, almost mute, on Ann Arbor's automobile-scale North Campus, prompting hardly any response. In nine months of attending classes and getting to know professors and students at Michigan, I don't think I heard more than two conversations about the building. The Art and Architecture building was just *there*. Its exterior was clad mostly in glass and brownish brick, except for one portion covered in Cor-Ten steel that left rusty stains on the concrete at its base.

The building had been designed by Robert S. Swanson, nephew of Eero Saarinen, who master-planned the campus—a lifeless, low-slung expanse that contrasted poorly with the old central campus near downtown Ann Arbor. Swanson described the building as "not precious...easily modified, essentially loft space," a verdict that has proven accurate in the years since it opened in 1974. "It's a fairly simple set of boxes with an exposed steel frame —vaguely Miesian—that has lent itself easily to reworking," says Douglas Kelbaugh, the current dean. "We've had some fun making many interventions, modifications, and changes, and hope to add another 12,000 square feet on the roof in the future. Faculty and students have done much of the design and construction work." The structure's 90-by-360-foot open studio space bears the distinction, Kelbaugh believes, of being the largest in the nation; it has been reconfigured more than once. The building also features "a large high-bay space for hands-on building and environmental research, full-scale fabrication and construction, for which the college has always been known," Kelbaugh points out.

It's fair to say that in most respects, Michigan's architecture building

functions well. The trouble is, it just doesn't make much impression. I've never heard people express *delight* about it or declare that it influenced their outlook. This seems an odd omission—a serious flaw—in a school whose purpose is to educate architects and, one might think, to be a source of inspiration.

A different kind of decision, in some ways better, in some ways worse, was made at the first architecture school I became familiar with: the State University of New York at Buffalo. In the late 1960s, when SUNY started its architecture school, rather than erecting brand new facilities, the university assigned the architectural school to Hayes Hall, a large structure already a century old. The building, with its rough-textured walls of gray limestone, had served successively as an insane asylum, a county almshouse, and a county hospital before it was converted to educational purposes in the 1920s. I got to know the building in the late 1970s, when on many a Monday afternoon I would rush from the downtown office of *The Buffalo News* to the Hayes Hall auditorium to hear architecture lectures that were open to the public.

Hayes Hall rose from a generous slope of lawn in the city's green northeastern corner, and I always enjoyed approaching it. The building had a dignified yet not imperious presence, its central roof topped by an elaborate tower that had been added in the 1920s, closely patterned after James Gibbs's St. Martin-in-the-Fields Church in 1720s London. The tower provided Hayes Hall with what one architect calls a "late Wrenaissance" touch. The building stretched for quite a distance, with well modulated projections and recesses, and the interior was easy to figure out, but the spaces themselves were mundane. The auditorium was a problem unsolved; its seating was steeply raked, with the entrance at its base. As a result, anyone leaving before the end of a lecture would walk behind or next to the speaker and make a decidedly conspicuous exit. I recall George Anselevicius, the chairman of the architecture department, chastising students about cutting out early because it was rude and disruptive. SUNY-Buffalo's building was in some respects the reverse of Michigan's: It made a favorable impression from outdoors but was less successful once you penetrated the interior.

I discovered in time that many architects have misgivings about the buildings in which they received their education. "On arriving at Berkeley, my heart sank when I realized that the ugliest building by far was Wurster Hall, the home of the College of Environmental Design," recalls Michael Mehaffy, an Oregon-based architect who has worked in the United States and England. "It was something—brutal concrete exterior, merciless repetitive grid, horrible appearance when wet, aged badly, etc. The interior was barely habitable. Chris Alexander used to point out features of the building that

Fig. F.1.
Vaulted
Ceiling in
the School
of Applied
Design.

were working particularly horribly—very basic stuff, like rectangular semi-
nar rooms with windows on the narrow end, which made speakers utterly
invisible in the glare; bare concrete walls with dreadful acoustics, and so on."
Washington, D.C., architect Dhiru Thadani, recalls attending Catholic Uni-
versity, which was housed in "a banal, modern building that expressed the
vertical and horizontal structure, with brick and glass infill panels. It was the
lowest denominator of 'building,'" Thadani says, "and clearly was not 'Archi-
tecture.'" Such troubling examples of the architecture of schools of architec-
ture are not hard to find.

Standing in sharp contrast are buildings like the College of Fine Arts
(originally School of Applied Design) at Carnegie Mellon University, which
was constructed in 1912 for the departments of architecture, art, design,
drama, and music at what was initially Carnegie Institute of Technology. The
designer was New York architect Henry Hornbostel, who, in the first decade
of the twentieth century planned the campus and who, over a period of
more than 20 years, designed a number of handsome buildings there. The
School of Applied Design, completed in 1912, was, and is, gorgeous both in-
side and out. It has the buff brick, polychrome terracotta ornament, and
overhanging, low-pitched roofs that appear on many of Carnegie Mellon's
early buildings and that do much to make the campus a unified entity. Open
the door to the great entrance hall and you find, Edward Fenton notes in a
Carnegie Mellon centennial history, "a vaulted roof adorned with frescoes
by J. M. Hewlett—'a celestial atlas of art history,' one historian called it."
(See Figure F.1.)

Inset in the gray marble floor is a floor plan of St. Peter's Basilica in green Vermont marble. Plans for the Parthenon, Chartres Cathedral, and the Temple of Edfu in Egypt adorn the floors of a transverse hallway. At the dean's office is a reproduction of a plaster cast of the entrance to the City Hall of Toulon, France. "The entire building, which presents a variety of vistas and points of view, both classical and romantic, is a setting designed to inspire budding young artists," writes Fenton (2000, pp. 62–79).

For all its classicism, the School of Applied Design was, in its time, an innovative building. Charles Rosenblum, who teaches at Carnegie Mellon, describes it as "halfway between a Renaissance villa and a high-rise office tower," as evidenced by such elements as the high degree of fenestration and the vertical emphasis of the windows, which Hornbostel connected with terracotta ornament. "Hornbostel uses terracotta ornament in an experimental and personal kind of way," says Rosenblum. Not every student may recognize the building's ingenuity, but the inventiveness is there, just as surely as its grandeur and its highlighting of the artistic achievements of the West. Whether the building can be modified as easily as Michigan's purposely unprecious school from 1974 is doubtful, but it exudes *ambition* and *love of beauty*.

What should architectural school buildings be? How do we evaluate such buildings? Those are important questions that the editors and writers of *Designing for Designers* have pursued with seriousness and variety of approach. Ways of answering those questions differ, just as reactions to buildings such as Michigan's, SUNY-Buffalo's, and Carnegie Mellon's differ. After all the books and articles that have been written about every other type of building, from houses to museums to office towers, there is a need for more attention to the architecture of schools of architecture. These are buildings in which architects-to-be spend most of their days and a good many of their nights for three years or more. Surely these buildings leave an imprint on those who create our surroundings. Their impact can hardly be neutral or negligible.

Designers of schools of architecture need to pay closer attention to how these buildings serve and affect—and, ideally, bring the best out of—the people who study, teach, and work in them. Some designers seem not to know how serious the problems are. Some designers are pursuing too narrow or too unbalanced a set of goals. As a result, architecture schools often do not perform as well as they should. This book contributes to our knowledge of how such buildings have been designed, the roles they play, and how such buildings can be assessed. The case studies are especially useful for helping designers avoid pitfalls and realize the potential implicit in architectural schools.

Michael Mehaffy, citing the deficiencies of Berkeley's Wurster Hall, ob-
serves: "I suppose it was an, ahem, instructive building for us in that sense.
But its internal disorder seemed to feed a kind of disordered professional
approach to the built environment: here and there a piece of interesting art
amid a general mess." He says Joseph Esherick, one of that building's design-
ers, once explained to students, a bit apologetically, that Wurster was some-
thing of a committee design: "It would have a tower element of some kind;
it would have a courtyard of some kind, and most important, the Regents
would need to hate it!" Mehaffy acknowledges that Esherick's statement
"was obviously a bit of tongue in cheek, but we sensed there was a level of
seriousness behind it," a reflection of friction that went back to the days of
the Free Speech Movement.

The aims, motives, processes, and performance of architectural school
buildings need a candid and systematic airing. Frank exploration, of the kind
in this book, might do the architectural profession and the public a world of
good.

PHILIP LANGDON
New Haven, CT
September 1, 2006

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INTRODUCTION

THE CONTEXT OF ARCHITECTURAL
EDUCATION TODAY

JACK L. NASAR, WOLFGANG F. E.
PREISER, AND THOMAS FISHER

This book is about the architecture of schools of architecture, or, how designers design educational environments to suit themselves. Dealing with a building type that has received little analytic attention, the book explores several questions: How has architectural education evolved, and what is its future? Are architectural schools discernable types of designs, and what are their effects on those who experience them? What lessons can be learned from evaluations of recently completed school buildings, and what guidance do they provide for the design of future ones?

CONTEXT

A significant shift of patronage and building sponsorship from the private sector to the public sector occurred in the 1980s. Government at the local, state, and federal levels became the sponsor of significant buildings, ranging from courthouses to public libraries to university facilities. As part of this wave, a number of schools of architecture and design were either renovated or newly constructed, both of which this book examines.

Architecture schools have often sought new buildings by "signature architects" as a way to build a reputation. Although some of these buildings won design awards and praise from the critics, sometimes prior to construction and occupancy, the same buildings often did not work well for the occupants. Students at Yale tried to burn their new architecture building down, and Harvard students suffered from excessive heat gain in their glass-covered studio structure. At Florida A&M, an automated heating and cooling system led to the building leaking on the students' drawings. Some new architecture buildings have features that work well: At the University of Cincinnati, the atrium/cafeteria attracts customers from all corners and levels of the college complex; and in Harvard's Gund Hall, when the cafeteria opened in the ground floor open space, it worked well as a social gathering place for students from all years and design disciplines. At the University of Minnesota, the extensive public space, while suffering from poor acoustics, provided ample space for students to see each other's work.

DESIGNING AS IF
PEOPLE MATTER

When people buy a product they expect it look good *and* work well, such as the universally designed line of kitchen utensils by OXO, called Mr. Goodgrips (Preiser and Ostroff 2001). The same philosophy should be applied in architecture. While good architecture ought to look good, appearance alone is not enough; architecture must support the needs of its occupants. Unlike works of art or sculpture, buildings must protect people from the elements and be safe, they must be functional and efficient, and they must support the psychological, social, and cultural requirements of their occupants.

If one or two people complain about a problem in a building, such as excessive noise, poor temperature control, or inadequate lighting, the complaint may reflect an idiosyncratic one. But if many people encounter a problem related to a building, it probably arises from design flaws. For example, the complexity of the University of Cincinnati's Aronoff Center for Design and Art by Peter Eisenman makes it almost impossible for most first-time visitors to find their way around, suggesting that intrinsic design problems interfere with wayfinding. The situation is even worse for people with disabilities. Often, a problem found in one building recurs in others. Feedback from occupants can build a knowledge base to prevent such problems in the future by improving the programming and design decision-making process.

At the cutting edge of knowledge, and with a history of world-class academics, American universities have become high-profile patrons of contemporary architecture. Many public and private campuses now have buildings designed by internationally known signature architects: an email survey of university architects at 25 campuses (Nasar 1996) found that most of them had built signature buildings or held design competitions in the five years prior to the survey. Of all of the new buildings on campuses, designs for architecture schools understandably receive special attention. Just as universities try to build and equip world-class science labs to attract top scientists, new buildings for schools of architecture presumably reflect the state-of-the-art in architectural education. These buildings have the potential of drawing great attention, while enhancing a school's ability to attract top students and faculty, and increased financial support from alumni and donors. They can also galvanize the academic community when alumni, faculty, and students help select the architect, and give input on the design process, the building program, and the design itself.

Historical precedents for using "signature" architects in the design of architecture schools include Walter Gropius at the Bauhaus in Dessau, Mies van der Rohe at I.I.T. in Chicago, and Frank Lloyd Wright at Taliesin West in Scottsdale. That tradition remains in place today, with Philip Johnson at the University of Houston, Peter Eisenman at the University of Cincinnati, Scogin / Elam at The Ohio State University, and Steven Holl at the University of Minnesota. Yet, in spite of the special significance of this building type, the architecture of schools of architecture has received little critical discussion (Giovannini 1996). Although some authors have written systematic reviews of architectural education, no book has focused on the architecture buildings themselves.

> **IMPROVING BUILDING PERFORMANCE**
>
> Our years of study revealed many suggestions for improving designs for designers. Some findings connect with a substantial empirical knowledge base, and others raise questions about traditional practice. We believe that clients and designers can improve building performance by following the ideas discussed in this book.

Box I.1

Our examination of designs for designers unveiled some recurring strengths and weaknesses; and it found that some designs, such as the University of Texas, worked well, while others, such as the University of Sydney, did not. Designs by some internationally known designers had significant flaws, while the work of other designers did not.

Looking in depth at many schools, this book tried to answer the question, "What makes a good design for designers?" It also considers which lessons can be applied to other kinds of buildings.

In this book, we want to tell you what we learned. We outline the background to our work, our methods, and our key findings. Throughout the book, we have boxes for the lessons learned that give guidance on how to achieve the desired end.

OUR JOURNEY

In 1960, Kevin Lynch's *The Image of the City* showed the importance of observing and interviewing people in order to gauge their shared mental images of places. His work transformed the way many design professionals and social scientists dealt with urban form. It complemented the "art" approach to architecture with a social science approach that tried to gauge user reactions. In this book, we have used this same approach to evaluate the architecture of schools of architecture. Here's how we did it.

GETTING STARTED

Visits to architecture schools around the world and discussions with faculty showed that their designs often shared the same problems. The designs for newer buildings also seemed not to have learned from their predecessors. We saw the need for a knowledge base to guide designs for schools of design, a knowledge base that would serve practice and education in schools of design, provide guidance for other university and non-university facilities, and stand as a broader model for an evidence-based and forward-looking design process.

Having conducted many post-occupancy evaluations, Nasar and Preiser knew it would take time and resources to do the multiple evaluations needed to build such a knowledge base. Several grant applications to cover the travel and research for such a project came back rejected. Those rejections only increased our resolve. If we could not do it alone, we would do it with others. We valued collaboration and had worked with more than a hundred colleagues from around the world. With the Internet, we saw a way.

In 1999, we sent out queries on listservs saying that we planned "to initiate a project to do post-occupancy evaluations of new buildings (or additions) for schools of architecture. As many of you work and teach in such buildings, we wanted to elicit your help. We're looking for faculty or students . . . who would agree to run the survey in their school. We hope that through evaluating the performance of these new designs, we can come up with some guidelines for the future (things to avoid, things to do, etc.). Please let me know if you or a student would like to participate."

Many people responded. To each, we emailed a draft instrument (drawn from work by Preiser et al., 1988 and Nasar, 1998) for them to review. For purposes of comparisons, we wanted to have the post-occupancy evaluations based on a common survey method and procedures for analysis. After several revisions, the group agreed on shared instruments and coding. The shared method allowed for comparison across the schools to provide what we hoped would become a knowledge base to guide the design of future, new buildings, or the renovation of existing ones. As the project proceeded, and we talked about it with others at conferences, we learned that some faculty had conducted evaluations using different methods. We welcomed those evaluations to the project, believing that if independent measures found similar findings, we could have more confidence in the results.

MULTIPLE APPROACHES

This book examines architecture schools from multiple directions, including the history of architectural education and building form, typologies of schools for architecture, systematic post-occupancy evaluations (case studies) of schools of architecture, and comparisons across those evaluations.

CASE STUDIES

We eventually gathered post-occupancy evaluations of seventeen schools of architecture (eleven independent evaluations plus a set of evaluations by students of seven schools—one of which overlapped one in the eleven—by students in the eleven). These systematic user evaluations of the function, technology, and aesthetics followed Vitruvius's much quoted dictum for architecture achieving "firmness, commodity, and delight." Although each case study on its own offers a comprehensive and systematic review of the facility, we studied the evaluations for shared strengths and weaknesses, and for lessons about process to guide future designs.

STATISTICAL COMPARISONS

Prior to developing a program or selecting a designer, clients may visit other buildings for comparison. But how do they know the relative merits of what they see?

Ten post-occupancy evaluations used the same instruments and coding procedures. This included three schools not included in the case studies in the book—Guelph, University of Hawaii, and University of Michigan. For this set, we compared the responses to the exterior of the building, the responses to the features of the building, and the ratings of spaces in each building. Those analyses gave us a core set of higher-performance designs; they scored better than the other buildings in all three evaluations. The analyses also gave us a set of low-performance designs that scored lower than the other buildings on the various measures.

HISTORICAL INFORMATION

We supplemented the statistical information with invited chapters on the history and future of architectural education, the history of architecture buildings, the future of architecture buildings, and the typology of architecture buildings. All of this helped us make sense of the findings and arrive at five concepts for better buildings.

FIVE CONCEPTS

We did not approach this project with pre-conceived ideas of what we would find. We sought to uncover concepts from the data. Some concepts apply more directly to clients or users, while others offer guidance for the designer. Although we developed the guidelines in relation to schools of architecture, many of them apply to the design and design process for other kinds of facilities, on-campus and off.

Perhaps most importantly, we found one simple and intuitive finding: *The better designs tended to have a well managed process.* This involves having a good master plan, and a pre-design process that involves people and that comprehensively programs the requirements for the facility for all of the relevant aspects of the design. This does not necessarily mean a completely restrictive program; to the contrary, it may identify areas for flexibility and durability. But good programming can save money, while predicting and preventing design problems. It also involves investing the time and resources to select the right design team for the project and campus, by studying their work, checking references, conducting interviews and office visits, and finding a local architect of record. Good solutions also entail managing the design process and giving the designer feedback from the users and clients, especially early in the process before concepts get developed too far. We found it troubling that while some universities had good processes in place, they chose to

Box I.2

FIVE CONCEPTS

1. **Manage the Process**
   Developing a solid program for the design, selecting the right design team for the project, and having a strong participatory review process by all stakeholders (from users to clients and owners) can help prevent problems, identify innovative ideas, and get people to buy into the solution.

2. **Design Compatible Exteriors and Warm Interiors**
   Designs for designers are often the ugliest buildings on campus. They need not be. Good design can make a statement and still fit into its context in scale and materials, with welcoming interiors that convey warmth.

3. **Design a Gathering Space (Atrium) with Lots of Natural Light**
   Academic buildings need a heart, a well lit central gathering place where informal interaction and learning can take place.

4. **Make It Easy for People to Find Their Way Around**
   Visitors and first-time users must be able to navigate to and through the building with ease. Illegible designs create inefficiencies and stress for first-time visitors and for occupants who get interrupted to give directions.

5. **Back to Basics: Ensure Good Acoustics and HVAC**
   Most of the schools we studied had serious problems with acoustics, temperature, and lighting, hindering activities in studio and crit spaces. Most interior spaces need acoustical privacy, decent lighting, and temperature control.

relax them for the school of architecture, or for a celebrity designer. Finally, clients and architects need to evaluate the project after occupancy to fine-tune it and to learn for future projects.

We hope that in addition to offering some useful guidance for design, this book raises a broader awareness of common problems in design, and how to make architecture work better for building occupants in the future.

While some of the problems discussed in this book arise from economic and site constraints, many arise from indifference, lack of concern, or a lack of knowledge about how architectural design affects people. Many architects put their personal aesthetic priorities first, and through their involvement in the design, they can lose the perspective of the typical user or the first-time visitor. In one case, the architect told a consultant working on signage that campus parking garages should not have any signs in order "to force visitors to interact with people on campus to find their way around." Luckily, someone took the position of the typical user, and told the architect: "Most people on campus disagree . . . When I first visited the campus I arrived on a Sunday, when there was no one in the garage to give me directions" (Nasar, 2004). In summary, while designers often try to satisfy the client by focusing more on cost or maintenance than usability, usability must not take a back seat to other concerns.

In one famously flawed design, an architect told the client and his guests to move their chairs to avoid a roof leak. Instead of having the client ask users to adapt to a flaw, we would rather arm clients with the information to
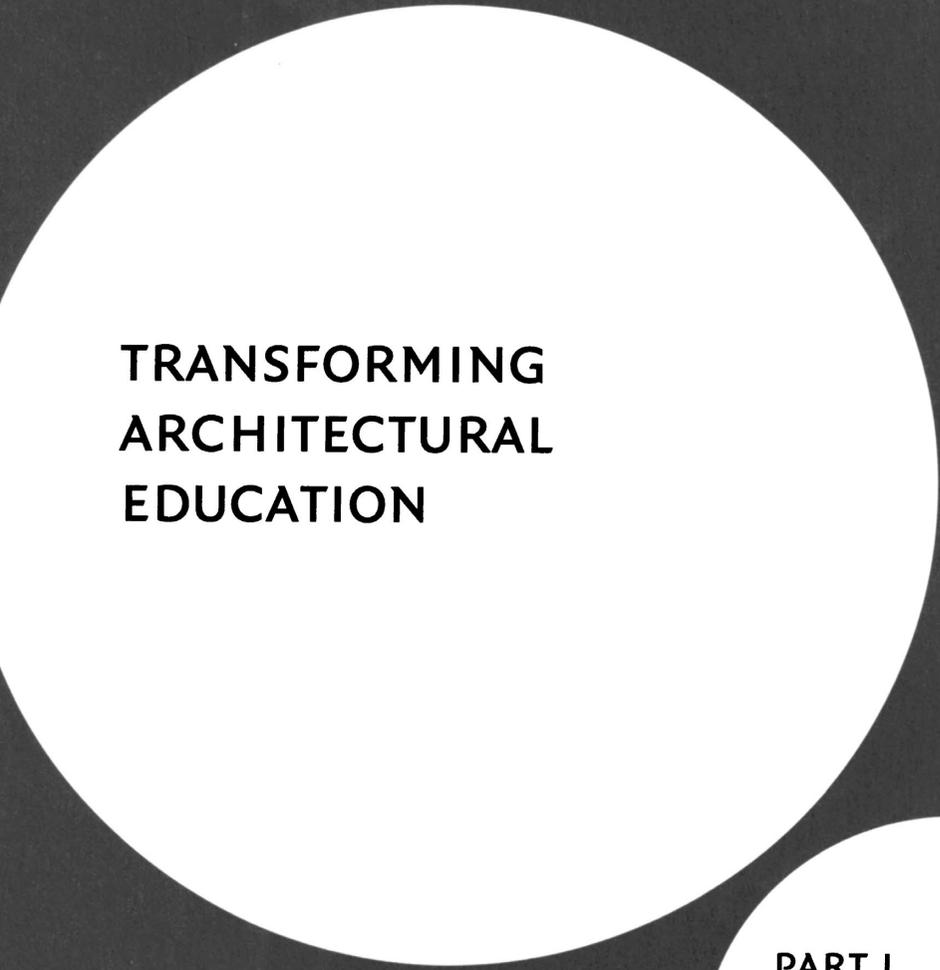

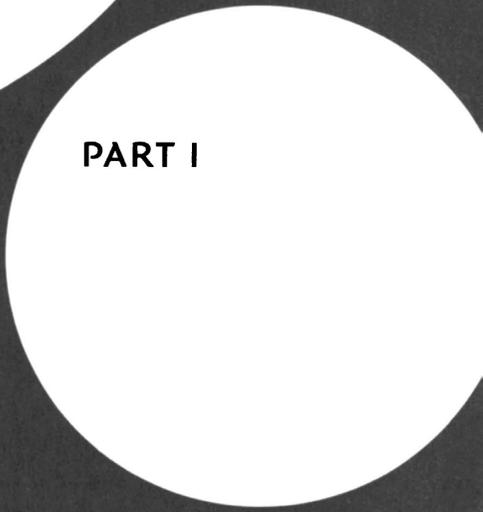
MANAGE THE PROCESS

Guidelines

- **Program Well**
  Good designs had a better pre-design process than flawed designs. Pre-design requires real participation by the stakeholders, and a programming process that gathers relevant information on all aspects of the design. Good programming can save money as well as predict and prevent design problems.
- **Select the Right Design Team**
  Good project management involves doing the research to select the right designer, studying their work, checking references, conducting interviews and office visits, and ensuring a collaborative team.
- **Manage the Design Process**
  A strong review process with participation by users and the client to manage the design will help ensure that it satisfies client and user needs. Many universities do this well. But, to get a celebrity design, they may relax the process and give the celebrity designer more latitude. This will often result in costly and dysfunctional buildings. Good designers can work within constraints to create an innovative solution.
- **Evaluate**
  After occupancy, learn from the occupants through a post-occupancy evaluation. This can identify correctable problems to make the design work better; and it can inform future designs. It also lets users now that their opinions matter.

Box I.3

prevent the flaw. We hope this book both stimulates in you a way of thinking about architecture, and encourages you to become an advocate for an architecture in which users do not have to move their chairs to have a satisfactory experience, an architecture that is aesthetic because it works for, protects, and delights people.

TRANSFORMING ARCHITECTURAL EDUCATION

PART I

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REDESIGNING ARCHITECTURE
EDUCATION

University schools of architecture are an American invention. In Europe, architecture schools were sponsored by architectural clubs, such as the Architectural Association in London, or were located in arts and crafts schools and academies of fine arts. These latter formations were typical of many architecture programs in Germany and France, including the notable *École Des Beaux Arts* in Paris. In this country, formal architecture education began just after the end of the Civil War at the Massachusetts Institute of Technology, the University of Illinois, and Cornell University.

A major purpose behind this American movement was to upgrade the social rank and intellectual competence of architects. It was believed that university schools would advance knowledge of design and building science beyond the capability of architects who came from a background in the building trades. The schools were also intended to democraticize access to the profession for the rising middle classes. It was widely believed that to provide architects with a liberal education would enable architecture to

acquire a status and level of compensation closer to the better organized professions of law and medicine.

BACKGROUND

Broadly speaking, over the last 140 years, the university schools of architecture have accomplished the goals set for them. By 2003, there were 125 accredited schools in the United States and Canada (Association of Collegiate Schools of Architecture, ACSA, 2003, p. 9). In the academic year 2002–2003, approximately 36,000 full-time and part-time students were enrolled in the accredited schools. Architects in this country enjoy a very high prestige with the general public, as is demonstrated in surveys of the status rankings of different occupations. (The National Opinion Research Center, NORC, affiliated with the University of Chicago, has been conducting surveys of occupational prestige since 1949, with the latest published version appearing in 1989. These surveys show architects ranked higher than engineers, lawyers, dentists, physicists, and authors but below Supreme Court Justices, physicians, and state governors. For the 1949 survey, see North and Hatt, and for subsequent survey results see Inter-University Consortium for Political and Social Research, www.icpsr.umich.edu). The architectural profession as a whole obviously exhibits a more comprehensive understanding of the full range of component skills required for building fabrication than any other group in the building industry. The schools also play a central role in generating new design ideas. Since the end of World War II, innovative design ideas in American architecture have been overwhelmingly the product of architects who have university appointments, on a full or part-time basis. But criticism of the schools by practitioners has escalated almost in direct proportion to their achievement. What is responsible for this curious outcome?

Architectural practice remains a troubled and beleaguered endeavor, even though some architects are now celebrities and even though there is more attention by a mass audience to architecture and design than in any previous period of American history. Some critics, and some architects too, argue that architecture focuses too much energy on winning commissions for monumental buildings and on esthetic or stylistic issues, while ignoring many environmental, housing, and urban design questions that are more closely related to the needs of the average user.

A more fundamental source of complaint among practitioners is that the architect's cultural importance does not translate into power in the economic and political realms. Despite their prestige, architects still are poorly