

ARCHITECTURAL
RECORD

A detailed watercolor painting of a stone building, likely a church or temple, featuring a central arched entrance. Above the arch, a plaque displays the letters "PAZ". The building is constructed from large, irregular stones in shades of brown, grey, and reddish-brown. To the left of the entrance, there is a smaller arched opening. The building is set against a background of dense green foliage and trees, with sunlight filtering through the leaves.

Business Design Engineering
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March 1984

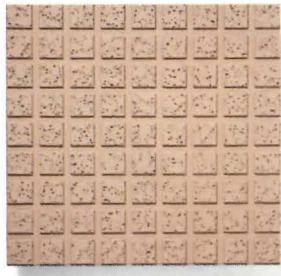
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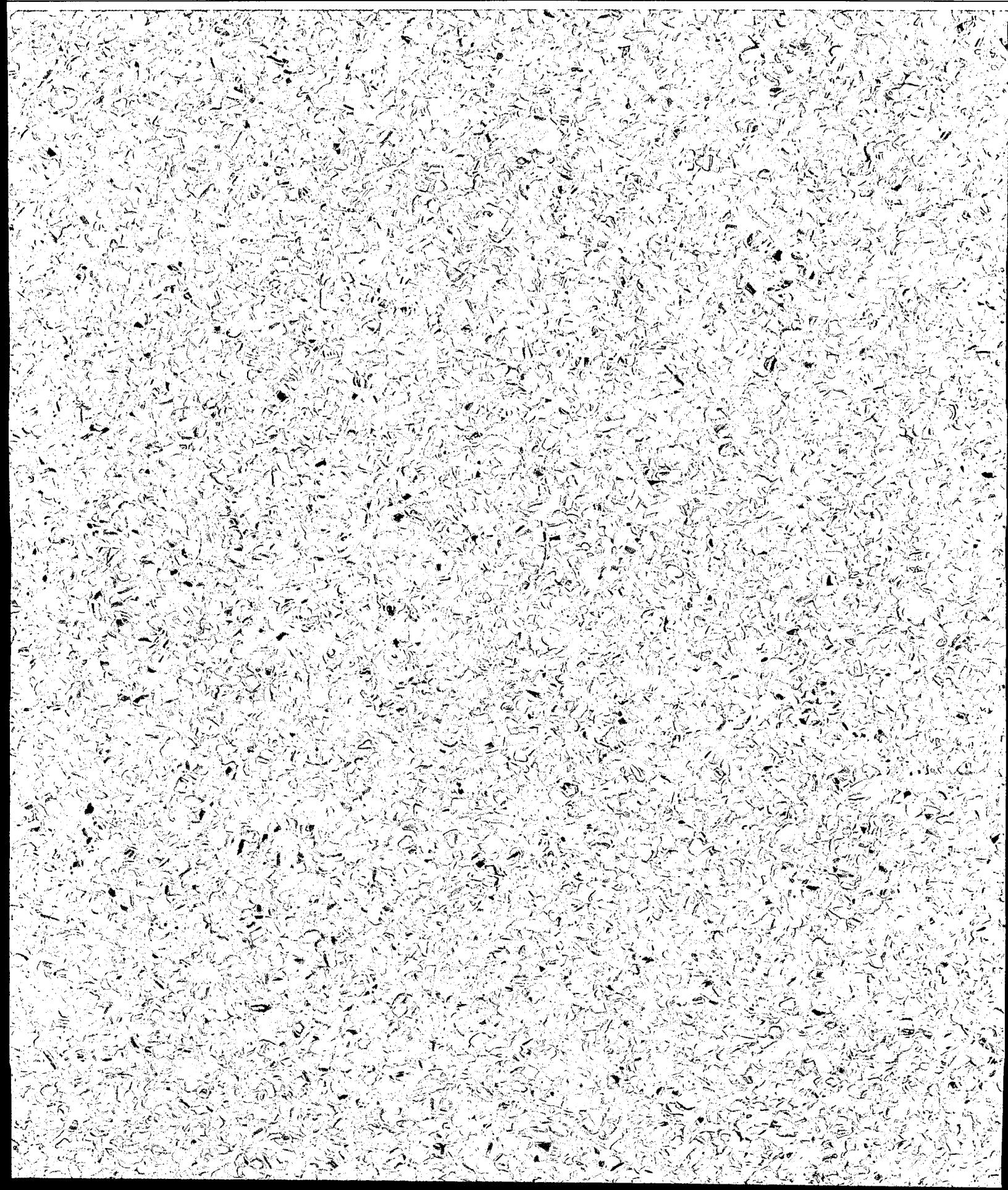
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purity.



I can no longer remain silent regarding the so-called postmodern movement in architecture and what I perceive to be its largely destructive results to date.

The basic premises of this movement are correct within limits (never made clear), i.e., Modern architecture has failed, it is boring, sterile, does not respond to history and local views, etc. I partly concur; but which Modern architecture has failed: all of it? Surely not! Mies van der Rohe in 1919 and 1921 designed some interesting skyscrapers. Mies said at that time that glass and steel "boxes" would be boring and then later proceeded to build exactly that (many of them, however, were very beautiful, e.g., the Seagram Building). Ten thousand bad copies of Mies van der Rohe buildings represent, of course, a failure. Many boring steel and glass boxes were built in postwar Europe, and for good reason: the need to house hundreds of thousands of people in simple, repetitive, and inexpensive buildings. As a practical necessity, were they a mistake? I think not!

But let us move beyond the postwar era. There is no reason Modern architecture need be sterile, colorless, redundant. Corbusier's early buildings were also copied ad nauseam; but who copied the later Corbusier? No one; because he was impossible to copy, especially his chapel at Ronchamp. Was Wright's architecture "sterile?" Is Aalto's "boring?" Can even Venturi, Graves, Stern, or Johnson claim so? Venturi is intellectually brilliant and may be a great designer, but are we really supposed to see (for all his verbal virtuosity) his Philadelphia Guild House as a beautiful success? Does the Portland Building of Michael Graves fit into its surroundings? His colors are beautiful, I think, though! Philip Johnson's AT&T Building is a success, maybe, as a dresser! How can a dishonest use of materials be a success and an honest use a failure?

Shall we go backwards? Postmodern architecture is symbolic and esoteric. Symbolic? Yes, when the base of a skyscraper is supposed to represent the past, the middle floors the present, and the upper floors the future? See Chicago's newest Wacker Drive skyscraper. If we need ornament, let us invent some new and natural ornament. Gaudi and Wright invented their own. Some of it to my taste was overdone, but not

all of it. The eye does not tire of the intricacies and the spontaneous lines of slate, wood grain, or stone. We need not mix up 5,000 years of architectural detail to not be boring, repetitive, colorless, etc., etc.

I have asked many architects and architectural editors whether they truly do like most of postmodern architecture. When slightly pressed, 99 per cent say, "No, of course not!" Everyone is afraid to say that the emperor has no clothes. Venturi's dazzling scholastic dialectic seems to have convinced us that Las Vegas is beautiful. As a Platonist, I declare it isn't, wasn't, and won't be! The architecture magazines are filled with this "architecture." I believe something good will come out of all this, and I do respect those postmodernists who really have conviction regarding their works (but I find it hard to believe there are many).

Let us open up a debate here before it's too late! I realize this is not a clear argument, but I would be willing to debate this even with Venturi himself. For now I can only try to break through our recent indoctrination, and, like a Zen master, demand, "Choose! Wright or Venturi? Aalto or Graves? Quickly, before Venturi can explain it all to us again!"

*Charles G. Woods
Natural Architecture
Honesdale, Pa.*

I recently received your August 1983 issue, and note that you have published a photograph of a performance by this company in your article on the Brooklyn Bridge at 100 years old. While pleased to be in your publication, it is not our policy to allow uncredited photographs of the company to be published. I hope you may be able to rectify this in your next issue.

*Julian Maynard Smith
Station House Opera
London, England*

Correction

In the project team listing for Richard Meier's High Museum of Art (RECORD, January 1984), Susan Berman was inadvertently listed as Susan Bermand.

Through March 22

A Center For the Visual Arts: The Ohio State University Competition, exhibit of drawings, plans and models on loan from Ohio Foundation on the Arts, Inc.; at Gallery At The Old Post Office, 120 W. Third St., Dayton, Ohio 45402.

March 11

Architects' Sunday, tour of Clayton Mercantile Centre, designed by Wilson-Jones Architects, Inc.; sponsored by AIA, St. Louis Chapter. Centre located 800 Maryland Ave., Clayton, Mo.

March 13

Financing and Banking Techniques, course sponsored by AIA, Chicago Chapter; at Archi Center, 330 S. Dearborn, Chicago, Ill. (312/663-4111).

March 20-25

"Banff '84" includes 1984 Annual Assembly and Sixth Annual Banff Session; events sponsored by Royal Architectural Institute of Canada and Alberta Association of Architects. Contact Alberta Association of Architects, 10515 Saskatchewan Dr., Edmonton, Alberta, Canada (403/432-0224).

March 28-30

AISC National Engineering Conference, sponsored by American Institute of Steel Construction; at Hyatt Regency, Tampa, Fla. Contact AISC, 400 N. Michigan Ave., Chicago, Ill. 60611 (312/670-2400).

March 31

Architects as Designer/Builder/Developer, conference sponsored by AIA, Chicago Chapter; at M&M Club, Merchandise Mart, Chicago, Ill. Contact Chicago Chapter, AIA (312/663-4111).

April 6 to June 10

Exhibit, Chinese Traditional Architecture, sponsored by China Institute in America, Inc.; at the China House Gallery, 125 E. 65th St., New York, N.Y. 10021.

April 9-12

Introductory Power System Analysis and Coordination, seminar sponsored by Electro-Test, Inc. For information: ETI, Learning Center, P.O. Box 159, San Ramon, Calif. 94583 (415/820-5666).

April 12-14

National Contract Design Industry Show, coordinated by southern California Chapter of the Institute of Business Designers; at the Cashman Center, Las Vegas. For information: Ed Postal, National Contract Show, 31921 Camino Capistrano, Suite 9-208, San Juan Capistrano, Calif. 92675 (714/240-8232).

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George Notter on excellence and public education

George Notter is a third of the way through what I think is going to be a very important year as president of the AIA. Important not just because he spent the time and energy on numerous AIA committees and boards to earn his President's Medal, but important because he brings to the AIA presidency some very important credits: He was, of course, a pioneer in preservation and adaptive reuse, in the years before that work became fashionable and well understood. His firm, Anderson Notter Finegold, has three National Honor Awards and a long list of regional design awards as a testament to his design skill. And important because he is devoting his time and energy as president to a very important idea: "American Architecture and Its Public." He spoke about it at a recent meeting of editors from RECORD, ENR, and *Business Week*, and McGraw-Hill executives. Here, in part, is what George Notter had to say:

"To understand the value of good design as it affects the lives of our people and our quality of life is not enough; we have to share that understanding with the public.... When all skills of a good architect are harmonized into one solution—when a building is *really* designed well—the work of the architect stimulates the entire building team. And the result can be a structure that adds joy and purpose to the lives of those who use it and those who view it.... Of course this doesn't always happen. Some buildings are pedestrian. Some are wasteful. Some are cheap. But it could happen more than it does. And if we want it to happen, at enough times and in enough places to have a meaningful impact on the built environment and the quality of our life, there must be a closer relationship between architects and the public, based on a better mutual understanding of what architects do, and what the public wants and needs.

"In preservation, we try to revitalize the structure and spaces that will draw people back into parts of the city that had been abandoned. We try to bring life to buildings that, while solid pieces of architecture, have fallen into disuse and disrepair. It's really very easy: you create spaces and environments where people feel comfortable because they speak to an earlier age....

"I have said before that every architect should work with the feeling that the public is looking over his or her shoulder. Its presence should heighten our sense in any project of the scale of the building, its texture, the context into which it will fit, the kind of face it presents to the people who pass it by. The architect should be an advocate not just of community needs today, but of the future—of those who will be using the structure generations from now.

"For all these reasons, the AIA, this year, is going to make a major effort to show the public what is meant by excellence in design, and to explain what it can mean in their lives.... The surest way for this to happen is for architects themselves to engage in this dialogue with the public, to work with other citizens on significant public projects. The architect and the public, working together, can resolve local planning and zoning issues, site community facilities, take part in community forums and design centers. They can help preserve energy, preserve landmarks and rehabilitate neighborhoods. They can design buildings that will live in harmony with their neighbors.

"With those goals in mind," said Mr. Notter, reaffirming a commitment he made in his inaugural speech in Washington last December, "beginning this fall, the American Institute of Architects, for the first time in its history, will offer public membership through the AIA Foundation. We will be offering this membership to people who appreciate good design and have an active interest in improving the built environment in which they live. We in AIA look forward to developing a relationship which will add to their knowledge and awareness of the design process, and which can help architects respond better to their needs.

"There can be a collaborative relationship—closer than there has ever been before—between architecture and the public. All it needs is a willingness on our part to bring the public into the process, and enough interest and pride in the community for the public to learn what we do and tell us what they need. Architecture is not, it never has been, a mystery. It is the most practical and contemporary of the professions...."

And isn't that a grand goal for the AIA? Three cheers, AIA president! W. W.

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Systems '84 is on the East Coast this year

A/E Systems '84, the fifth annual exhibition and conference on automation in design firms, is scheduled for the Baltimore Convention Center on June 4-7, 1984. The conference is intended to give design professionals an opportunity to explore how automation, reprographics, and management techniques can work together for them.

This year's conference is the first of these events sponsored by *A/E Systems Report* to be held in the eastern United States. Participants will include prominent experts in computers, real estate development, and business management. There will also be displays and representatives from more than 200 suppliers from all over the world. More than 12,000 attendees are expected.

Since first held in 1980, the event has grown by over 1,000 per cent in both the numbers of exhibitors and attendees.

"Our new effort reflects the increasing sophistication of architects, engineers, interior designers, and corporate facilities managers in making use of recent technological advances," states Michael R. Hough, publisher of the sponsoring publication. "Our first show was planned as a guide to help designers comparison-shop for the equipment they needed. Now, designers also need to know how to get the most out of—and how to expand on—the hardware and software they have."

"We've also changed the way we organized our seminar series," says George Borkovich, conference director. "As a convenience to attendees, seminars will be scheduled each day to address the specialized needs of each profession." The calendar is:

- June 5. An all-day conference on "Computers in Interior Design/Facilities Management," sponsored by the International Facility Management Association.
- June 6. Engineers' Day featuring an all-day program, "Computers in the Engineering Office," co-sponsored by the American Consulting Engineers Council, NSPE/PEPP, APEC, and CEPA.
- June 7. Architects' Day, with a program sponsored by the Maryland Society, American Institute of Architects.

For information, contact: Ed Mickens, Capelin & Landreth (212/421-1900). To register, contact A/E Systems '84, P.O. Box 11318, Newington, Conn. 06111 (203/666-1326).

New legislation brings open competition for defense work

During the last year or so, some larger architectural and architectural/engineering firms have felt squeezed out of the Department of Defense's consultant commissions by the department's rule that automatically set aside all design work for small firms. Given the fact that the DOD had to farm out huge weapons-systems contracts to large companies, it held that the rule was understandable in solving legal obligations to set aside a portion of procurement for small business, which it defines (for design firms) as those with annual billings of less than \$7.5 million.

Larger design firms didn't see it that way, according to William A. Rose, Jr., an architect from White Plains, New York, who chairs the Committee on Federal Procurement of Architectural/Engineering Services (COFPAES), a group of six professional organizations.

Partly as a result of pressure from COFPAES, the department has revised its acquisition rules. Under the new policy, projects budgeted under \$85,000 may be set aside for small firms, and contracts on projects larger than that will be open to all comers. This is all according to a January

18 memorandum by James T. Brannan, director of the department's Defense Acquisitions Regulator Council. Design contracts in support of civil functions performed by the Corps of Engineers are not affected by this legislation.

"This new policy," says Rose, "will assure that designers classified as small businesses will continue to compete for about two thirds of contracts, while the remaining contracts over \$85,000 will be open to all firms, large and small. We are pleased that the department acted promptly."

Earlier Rose, along with two other COFPAES representatives, R. Randall Vosbeck, and William Rirkhofer, of the American Consulting Engineers Council, told a DOD hearing held on the impact of small business set asides, that essentially a "spread-the-work" policy is good as long as the quality of work is not jeopardized.

They also noted, however, that there is good reason to believe that a fair proportion of contracts for small business, as prescribed by the Small Business Act, would be met for the design profession even without size standards or set asides.

Peter Hoffmann, World News, Washington, D.C.

Housing affordability: better but still not good

The National Association of Realtors' Housing Affordability Index for resale houses rose late last year to its highest level in nearly four years due to interest-rate and family-income improvements, but it still left the family with an average income of \$24,594 with only 84.9 per cent of what it would require to qualify for the purchase of a median-priced house.

The Association of Student Chapters of the AIA has announced a student competition sponsored by it and the DuPont Company. Entrants will design a fictitious office center for DuPont using the company's single-ply roofing in a meaningful and memorable way. Prizes ranging from \$5,000 to \$500 will be awarded. Applications must be received by March 31 and submissions by April 30. The association's new officers for the 1984-1985 term are: Thomas Fowler IV of New York City, president, and Christine Reinke of Washington Crossing, Pennsylvania, vice president. Their term begins on July 1. For more information contact Robert Fox at the AIA (202/626-7472).

A pair of office buildings for Prudential. **ELEVATORS BY DOVER**



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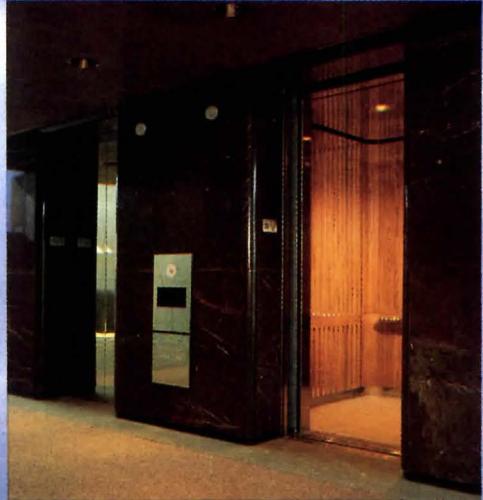
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Construction management: What's happened to it? Is it still valid?

3D/I president Chuck Thomsen reviews a long experience with substantial impact to bring us up to date and point us onward

By Charles B. Thomsen

Tradition is essential to the construction industry. It provides order for a fragmented, complex giant. There are hundreds of companies and thousands of people who must work together to produce one building. While that building is usually a nonrepetitive product, for that many people to perform successfully the process must be familiar and therefore, to some degree, repetitive.

But tradition can be a problem. Faced with a new situation, people must inevitably set invention against tradition. To cause change they have to change an industry that is the world's largest and most inert.

Although our challenges are in the future and should be faced with reason and creativity, it's sensible to look back—not to find the safe path of tradition, nor only to learn from past mistakes, but to understand that economic, political and social change relate to design and construction. That way, if we are smart enough to recognize new forces, we may be wise enough to find new solutions.

New demands have forced even the government to be creative

A good place to start a history of construction management is New York, in the late '60s, at the World Trade Center. It was the first major government project that used a company for project management services. I doubt if the owner, the Port Authority of New York, thought, "Let's be creative about the management process," and promptly conceived the PM services.

They were forced to be creative. Those two towers, 8.8 million square feet, were simply too big to be bid in one piece. Few organizations had the financial strength to bid or to bond the entire job. The traditional processes simply wouldn't work. Even the contract for the steel structure was so large it had to be bid in pieces.

Tishman Construction, a subsidiary of a large New York developer, was asked to help. Since public money was involved, the Port Authority couldn't hire Tishman to be the GC without competitive bidding.

But they could hire the company for personal services. They could get the wisdom and hard-nosed management skill that came from all of Tishman's office-building expertise, and get it on the Port Authority's side of the table.

Tishman Construction couldn't do any construction—that had to

be competitively bid. But they could manage. And that's what was needed. It was a great idea, and it was subsequently used on thousands of public projects.

Although project management had been around a long time with the large engineering and construction companies like Fluor, Bechtel, Lummus, Brown and Root, and Parsons, it was used for complicated private sector projects like refineries and manufacturing plants, not for projects in the public sector.

In go-go times, especially with inflation, everyone wants instant results
But what worked in the private sector was needed for the public good. In the late 1960s, a number of public institutions began looking for better ways to deliver design and construction. New economic conditions demanded new ideas. For the first time since World War II, there was a high rate of inflation. In 1969 and 1970, construction inflation was 18 per cent a year; previously, six per cent had been considered high.

The economy was strong. It was a go-go time: the Dow Jones average hit 995 early in 1969; price/earnings ratios of 50 were commonplace on the stock market. Everyone wanted and expected instant results.

The impact of the World War II baby boom was hitting the colleges and universities. Federal, state and municipal institutions were growing. Urban renewal was well under way. The interstate freeway system was under construction. It was great to be a design professional or a contractor; we were loaded up. But there was too much work and there were too few qualified to do it. And the traditional process was too inefficient.

So there were problems for all kinds of clients who wanted new buildings. In government work, bureaucratic approval processes set a snail's pace. In 1971, *The New York Times* published a critical-path-management network of 71 steps that were required for the city to buy an ashtray. Even private clients were slowed by slow approvals for a substantial array of permits in major cities.

Projects got bigger and took longer to build. The postwar sophistication of building systems had turned the general contractor into a manager of subcontractors.

Many clung to the traditions of construction, took pride in the skills of formwork and concrete, but didn't realize the importance

of management. And, with already overextended organizations, they managed the bigger jobs poorly. Those companies that concentrated on management and subcontracted most of their work were scornfully referred to as "brokers" and excluded from bidding on some jobs.

But inflation, a new economic force, demanded change. Many projects came in over budget. In some cases, public clients and their architects would pull the drawings back in, cut back on the design and resubmit it for bids—only to find that inflation had beaten them again: the new bids were higher. It was like trying to jump on a train leaving the station. If you didn't make it the first time, the second try was a lot harder.

CM, PM, fast track, etc.
may not mean instant results
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Better management was
required. New, faster processes
had to be developed. And so they
were. The New York State
University Construction Fund did
a study on ways to improve
control and accelerate the
delivery of their projects. The
study was titled "Fast Track"
and coined the term in the
industry. The Government
Services Administration study
resulted in the famous "Peach
Book." The Department of
Health Education and Welfare
entered construction
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"Those who don't study the past will repeat its errors; those who do, will find other ways to err."

Charles Wolf Jr.

traditional mode. Gilbane made their name in construction management with their superb performance with HOK on the Air and Space Museum. It opened with a bang on the Fourth of July, 1976, for the bicentennial celebration.

But a construction manager required no license as did architects and engineers. Nor did he require a successful business organization with a strong financial statement that a general contractor must have. Too many lightweights entered the business.

Also, the market was expanding, and the good companies turned elsewhere and left the low-fee business to the newcomers who didn't perform.

GSA finally decided that construction management didn't work for them. HEW had similar disappointing experiences and put the process behind them.

Construction managers, working for a developer, infringe on a traditional role

Nowhere was the need for management greater than in the tough marketplace of office buildings, hotels and shopping centers in both downtown and suburban America. So some developers hired project managers.

But the developer is often an expert project manager himself, a person who manages architects and contractors skillfully. Most of these developers have said, "Nobody is going to manage my money but me, and project management, or whatever you call it, is the business of controlling time, cost and quality. That is my business as a developer. So I've got to do it myself."

Inevitably, developers did decide to do it themselves. Trammell Crow, Gerald Hines, Kenneth Schnitzer and other well-known developers put together specialized groups, not of consultants, but full-time employees, to manage their projects, just as Tishman had.

Previously, architects had provided clients with two services: what many clients thought of as "the technical work," the design, and the representation of their client's interest in the construction industry. But the savvy developers didn't want anyone but themselves representing their interest and arranged the architectural/engineering services to include only the technical service. The classic six-per-cent fee fell to three or four per cent.

The Army, Navy and the Air Force didn't buy the management services either. The Army had the United States Corps of Engineers, the Navy had NAVFACC—well-established organizations that had been providing project management services for generations.

Construction management can work for institutions—if it isn't mired in bureaucracy

But while construction management or project management was rejected by some kinds of clients, for many it was embraced with enthusiasm, and became the standard of the industry.

For institutions such as schools, hospitals, universities, prisons and some of the bigger corporations, some versions of CM became the common project-delivery method. These clients were characterized by a bureaucratic process, a board or staff inexperienced in the field of design and construction, or in the need to manage a design and construction process that would be well documented for public or shareholder scrutiny.

Typically, in projects like these, there was no one person really in charge—especially not one with construction experience. A school superintendent, a hospital superintendent, or a regional vice president might be given the part-time responsibility to manage a building project. But with no experience, and a continuing job to contend with, the results were often poor.

There was a need to turn over the risk and the responsibility to an expert. Organizations without continuing building programs recognized that they needed help to manage the process. But for them it was impractical to form their own staff as the developers had. They needed to rent a staff. In some cases, CMs or PMs were hired to take the heat if things went wrong. And in the construction business, they usually do.

In some cases developers sold their project management capability to other clients, as Tishman had done for the World Trade Center. If the client was one who had the same values, the result was probably good. But there is nothing more pitiful than watching a project management group—conditioned by the profit motive, lean management style and quick-decision environment in the development business—frustrated by an institutional client with strong traditions of deliberation, a rigidly structured

decision process, political objectives and several layers of bureaucracy.

Who should perform CM: button-down-collar or mud-on-the-boots?

During the 1970s there was a lot of philosophical discussion between design professionals and contractors over who was best at CM services.

At first the contractors weren't sure whether the Associated General Contractors should even support the idea. The issue was debated at the AGC national convention in Houston in 1971, and most of the blue-chip contractors entered the field.

Both the AGC and the AIA drafted standard contracts for construction management work. The AGC contract assumed that trade contracts would be with the CM, and there was provision for a guaranteed maximum price. The AIA contract envisioned a professional service with prime trade contractors under direct contract to the owner.

Typically, the GCs were best during construction, but they were weak during the design phase. Although the uninitiated client thought contractors knew what things cost, the truth was that most GCs had little knowledge of the cost of the work they subcontracted (which was most of the project) and were inexperienced with conceptual estimating during design. The design professionals were good during design. They developed good conceptual estimating and other computer-based management systems but were short on good field people.

It was the button-down-collar versus mud-on-the-boots; computer systems versus practical experience; fiduciary versus financial responsibility. Since both sides had merit, both sides produced convincing rhetoric, successful projects and prosperous CM companies.

From the design-professional side there were companies like Heery, Smith, Hinchman & Grylls and CM Inc. From the contractor side there were companies like McBroom, Gilbane, Kitchell and Turner. But by the end of the '70s the truth finally was out. You must have it all: the system and the experience, the field staff and the office staff, the whiz kids and the mud-on-the-boots construction stiffs.

Fast track, systems building and construction management become synergistic

Frank Whitcomb and I formed CM Inc. in 1971 as a subsidiary of

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"Those who cannot remember the past are condemned to repeat it."

George Santayana.

the CRS Group. Our first project was a school. Using the traditional process, a high school had typically taken about three years to design and construct. Just by getting everybody to hurry a little, a year could be saved. But with fast track, easily constructable building systems, and construction management, we thought we could do it in a year. We did.

The systems solved a problem. With fast track, clients were uneasy about starting construction with only a little bit of the cost bid. The standard nervous cry was, "What if the rest of the bids come in over the budget?" But with standard systems, the price could be nailed down with performance specs very early in the design phase.

By 1972 inflation had subsided to 10 per cent, but that was still a lot. We would walk into an interview and show a school board convincing proof that we could deliver in a year. Saving two years meant over 20 per cent savings—or 20 per cent more school. And good cost control in what had been a poorly managed process saved another 10 to 15 per cent. We had the figures and the case histories to prove it. The truth sold. We did over 100 schools. We grew at a compound rate of about 100 per cent. We truly made CM work for us.

Hospital clients also bought and liked the CM/PM idea. They were a likely client. It is a complicated building type: lots of special functions, equipment and buildings systems. Hospitals also have a lay board and little experience with building programs, and the construction process requires highly specialized expertise.

But the toughest thing about managing a hospital project is the decision-making process. There are a lot of smart people involved: doctors, scientists, administrators and board members. All of them are opinionated, have justified confidence in their judgment and seldom agree. Managing that decision-making process requires both technical knowledge and the diplomacy of Talleyrand.

We did a lot of hospitals—probably a-billion-dollars worth. But McBro specialized and took the lion's share of the market. We were distracted by the booming market for construction in the Mideast.

Working in a management void can produce whole new processes

This "distraction," Saudi Arabia, became one of the most

fascinating chapters in the history of the world's construction industry. The experience changed our perspective. One day I was impressed with a \$30-million hospital. Then we started working in Saudi. Our first job there was \$3 billion. The second was \$6 billion.

It was the little things that brought home the size. Bob Katona, the project manager on the University of Riyadh, got a telex from HOK: "*Bid documents academic area arrive on Saudia FLT #60. Meet with forklift. They are shipped on nine pallets.*"

But we discovered that the CM service that had developed in the sophisticated, fragmented, United States construction industry was not exportable. CM was conceived to take advantage of a well-developed structure of subcontractors. Saudi didn't have subs. The work was done by large international contractors who would import a work force. The same labor that dug the foundations might swab on the roofing.

The jobs were huge; the Saudis needed management help and knew it. There was usually a need for a manager to direct a series of designers and general contractors for a multiple-building project in the billions, instead of a group of subcontractors for a project in the millions.

That manager was usually called a project manager, but there were plenty of times when he was called a construction manager. And that management service, adapted for the Saudi market, became the most exportable product of the United States construction industry.

The incredible Saudi marketplace sucked construction expertise from the entire world. By the end of the 1970s, what had shaken out was a clear demonstration of who could provide what services best—and most competitively. Construction labor was provided by developing countries such as Taiwan. Design services came out of the industrialized nations of Europe, the United States and Japan.

But management services in Saudi Arabia were provided, almost exclusively, by American companies like Bechtel, Parsons, CM Inc., DMJM, Fluor and 3D/L.

New towns, universities, major industrial and infrastructure projects, medical centers, airports, harbors—all became a test bed for American management concepts.

The experience was invaluable

for the companies that worked there. As in the World Trade Center, we were forced to be creative about the process. Our new process had to be rethought for these titan projects. They were a new challenge, in their sheer size, in the overwhelming logistical problems of a country with a nonexistent infrastructure and in the incredible pressure to deliver the projects overnight.

And, as could be expected, good ideas designed for export to Saudi were re-imported for domestic use. The companies that worked there were able to find many domestic clients who recognized the value of having someone who knows the business take over the management of their construction program. Often such a client doesn't want the insecurity or the hassle of a multiple-trade-contract project, but does want someone who knows cost, who knows how to put together the pieces, and who can help get the job done.

For those who may be confused about where we are today, we have management cousins
If you get any three construction experts together, you will have people talking about the business in very different ways, using different nomenclature and providing a different description of their services. Let me categorize some of them.

There is the *construction manager* who has been hired to advise the owner and the architect during the design phase and coordinate the multiple prime-trade contractors during the construction phase. This CM may be a design company, a company created to do only construction-management work or a general contractor who has added construction management to his scope of services. If the CM is a contractor, at some point in the project delivery process he may change his role from CM to contractor by establishing a guaranteed price and taking the trade contracts himself. The concepts of a construction-management contract and a negotiated general contract blur together.

There is the *project or program manager* who is employed on large multibuilding projects. The skills are similar to those of a CM, but there are several buildings, design firms, and there are several general contractors, to coordinate. The project or program manager is hired by a client who does not have a technical staff of his own, or whose staff is so burdened with current loads that it needs

augmentation.

Often the terms PM or CM are used to describe the same service, but—if there is a difference—construction management is used more often when the service includes the management of trade contractors, or when the service includes guarantees of price or schedule. Project or program management is used more often when multiple buildings, multiple general contractors, and multiple designers are involved.

In some cases, a client in need of a single building may hire someone to sit at his side and advise him on how to contract and manage architects and contractors. This, too, is often called project management.

A PM is a surrogate owner. It's not an easy job. It's hard for one to act in another's interest. And it's impossible if he doesn't know what the interest is—with all the subtleties and nuances.

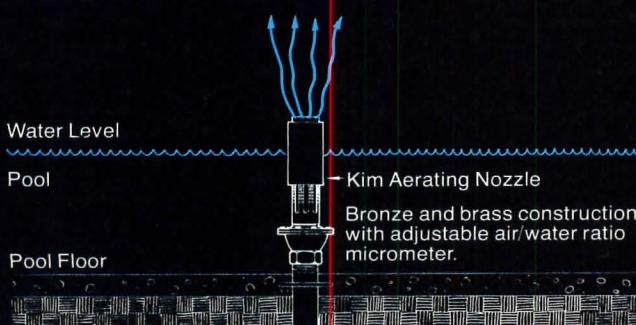
Recently we have seen a new form of management emerge: *real estate development management*. Many major tenants have recognized that their tenancy can be capitalized into equity, and they do not want to give that equity away to a developer. So they have turned to those who are good at the process of acquiring financing, acquiring land, hiring architects and contractors, and perhaps also hiring a leasing agent. So we have another kind of construction manager: the surrogate developer. These real estate development managers are providing services sometimes to a major tenant, sometimes to a major land owner or sometimes to an investor.

So we have seen this business of managing project delivery develop a lot of different forms that were not there a decade ago.

CM and PM have become legitimate, but there's still a challenge

As we become established, we may also calcify and fail to respond to current conditions. As we noted before, the construction industry is the largest, and it must be the oldest industry in the world. There is enormous inertia. It's hard to be creative. We are hemmed in by inflexible law and by fixed attitudes.

There will be more change in economic, political and social conditions. There will be more projects with different needs and more clients demanding professionals who can be creative about the process. That's the challenge.



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Computers: Need information? You can get a lot with on-line retrieval services

The librarian of SOM New York
tells where and how

By Frances C. Gretes

Through a small terminal equipped with an acoustic coupler or modem and appropriate communications software, the architect has access to more collected knowledge than exists in any library in the world. With a few keystrokes, the user can retrieve within seconds, at low cost, precise information on almost limitless topics.

Relevant databases fall under three categories: business, technical and design/planning
The information that is retrieved can be in the form of citations, abstracts, full text, or numeric or directory listings, depending on the database. Worldwide coverage of books, journals and proceedings is offered. Full documents can be ordered on-line and received in a few days. Through the Membership Computer Conference Network, available through a system called the *Source*, architects can also participate in a conferencing network where they can share technical information.

Some of the general uses of on-line information retrieval are to:

- Gather information for reports, presentations, memos, proposals.
- Track important issues and topics concerning a project.
- Look up consumer information on products and services.
- Keep up with developments.
- Prepare bibliographies for intensive research.
- Verify bibliographic sources.

Business databases have several uses, particularly in marketing

Profiles of potential clients or analyses of the business climate in certain regions can be developed from the results of a search. In looking for leads, the user can request that a search be run automatically every time a file is updated. By entering search terms such as "corporate relocations" or "hospital modernization," the user might retrieve several listings. Business databases also can be used to prepare market forecasts by indicating trends in construction of certain building types or growth in certain industries or demographic areas.

Business information is available through several sources, such as *NewsNet*, *Dow Jones* and the many databases on *DIALOG*. For company information, a search could begin in *Dun's Market Identifiers 10+* (*DIALOG*). For about \$10, the searcher can retrieve a company's current address, lines of business, name of chief executive, and financial and

marketing information from a file containing more than one million public and private companies in the United States. A search in *Management Contents, ABI/INFORM, Biography Master Index* can produce a list of citations or abstracts of major articles about a company or individual. If full text is needed, the articles can be ordered at the terminal.

Full-text services include *NewsNet*, which offers text of over 150 business newsletters, and *Mead Data Central*, which offers *The New York Times* back to 1980.

Commerce Business Daily, the government publication that announces new projects requiring the services of architects and engineers, is currently on-line on *DIALOG*.

In addition to uses in marketing, the business databases provide information on such topics as office and project management, office automation, business abroad and joint-venture partnership.

Databases with technical information are particularly valuable for firms of all sizes

Some are as comprehensive as *Compendex*, or as specialized as *Surface Coatings Abstracts*, *Textile Technology Digest* and *Energyline*.

Compendex, 13 years of *Engineering Index* on-line, provides worldwide coverage of 3,500 journals, publications of engineering societies and organizations, papers from proceedings of conferences and selected government reports.

One of the most important technical databases for the specifications writer is *Standards and Specifications*, available through *DIALOG*. This file, produced by the National Standards Association, provides access to government and industry standards, specifications and related documents that specify terminology, performance, testing, safety, materials and products.

This file can be used to search for standards that define conditions of design and construction of a specified product, to locate test methods, to check compliance of a product to market standards, to retrieve technical information and to identify acceptable suppliers. Since it is updated frequently, it reflects the latest revisions, deletions and additions.

A typical search in *Standards and Specifications* might be to get a list of current standards on the flammability of fabrics. By

combining the terms "flammability" and "fabrics" or "textiles," a long list could be produced. Narrowing the search to "upholstery fabrics" or "government standards," for example, produces results more specific to the user's needs.

Design/planning information can be found by searching RLIN's on-line file

The records in this file, which date from 1979, contain citations to 500 international periodicals received and indexed by Avery Architectural Library at Columbia. Emphasis is in the fields of architectural design and history, with articles of interest on landscape architecture, historic preservation, city planning and environment.

Artbibliographies Modern (*DIALOG*) is primarily a modern art and design database but contains some references to architecture. It is useful in locating photographs of the work of an artist who is being considered for a project. *CECILE*, a French database available through *QUESTEL*, contains citations to European architectural and planning periodicals.

Other special subject databases should be mentioned. For the planning and design of health care facilities, *Health Planning and Administration* (*DIALOG*) contains references on such topics as the design of operating room suites and the use of color in hospital nurseries. There are two large databases through *DIALOG* that contain records on correctional facilities.

The range of topics that can be found in databases is limited only by imagination

The number and size of commercial databases is increasing rapidly. Some of their advantages:

- *Keeping current*. An on-line search can provide information that is available only in electronic form or has not yet appeared in print. This is a major advantage when a firm is aggressively seeking new work or is trying to produce work that is consistently state-of-the-art.

- *Comprehensiveness*. A firm can have access to millions of publications without the task of housing them. Database indexing is more exhaustive than printed.

- *Precision*. Any topic can be researched with as much precision as is needed. Terms can be combined in ways that are impossible in printed indexes. Example: "Lighting" and "Classrooms."

- *Speed*. An on-line search can be done in a fraction of the time necessary for manual search.

- *Cost-effectiveness*. Less personnel time is required for research. Connect costs vary for each database, but most searches average 10 minutes at the cost of \$1 per minute.

- *Current awareness service*. The searcher can create a search profile on-line and receive relevant citations or announcements automatically as they are added to databases.

- *Easy access*. Systems can be accessed from a branch office, in some cases, almost anywhere in the world.

To begin utilizing on-line retrieval systems, a firm should contact the suppliers that offer databases of interest. A few are listed below. The firm will then need to apply for a password and in some cases pay a one-time subscription fee. After that, the user will be charged only for connect time.

Some of these popular databases are also among the best:

- *BRS*
1200 Route 7
Latham, N.Y. 12110
800/833-4707

- *Dialog Information Retrieval Service*
3460 Hillview Avenue
Palo Alto, Calif. 94304
800/227-1927

- *Dow Jones & Co., Inc.*
Information Services Division
P.O. Box 300
Princeton, N.J. 08540
800/257-5114

- *Mead Data Central*
9333 Springboro Pike
Miamisburg, Ohio 45342
513/859-1611

- *NewsNet, Inc.*
945 Haverford Road
Bryn Mawr, Pa. 19010
800/345-1301

- *Questel, Inc.*
1625 Eye St., N.W.
Suite 818
Washington, D.C. 20006
800/424-9600

- *RLIN*
Library Operations Division
Research Libraries Group, Inc.
Oak-Jordan Quadrangle
Stanford, Calif. 94305
415/328-0920

- *SDC Information Services*
2500 Colorado Ave.
Santa Monica, Calif. 90406
800/421-7229

- *Source*
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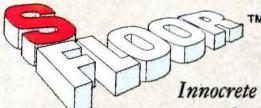
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Practice: Design quality is a central architectural management issue

In this first section of a two-part article, the popular author and practicing architect establishes his case for a revolutionary concept

By Bradford Perkins

Mr. Perkins is a frequent contributor to ARCHITECTURAL RECORD who has written authoritative articles with well-put insight on a number of hard-line topics dealing with construction and the design process. (His most recent for ARCHITECTURAL RECORD, "Construction Management: A useful service—if you know how to work with it," appeared in the March 1983 issue on pages 35 and 37.) Perhaps none of these articles, however, will raise eyebrows as quickly as this one, which squarely faces the interdependency of quality design and its management, a concept the author himself describes as being, "on its face, a muddling of traditional separations." Still, following the logic he develops here, what he prescribes—a stronger hand by management in guiding design—seems to become an obvious necessity. C.K.H.

According to most of what is written, great architectural design is created by individual artists. While it is true that most significant works of architecture are usually developed under the guidance of a single strong design leader, there must be some credit given to the role played by the many other participants in the design.

Few significant projects have less than 10 people (architects, engineers, interior designers, specialist-consultants, construction managers and, of course, clients) involved in the design decision-making, and many have 50 or more. Even when my grandfather was starting his practice and sharing office space with Frank Lloyd Wright in the 1890s, this was the case.

Thus, the truth is—as any experienced architect with a reasonably controlled ego will admit—that design excellence is, in part, a result of management of a complex team, all of whose members contribute to the quality of the final result.

Effective management can help achieve the goal of consistent design excellence
I do not, however, try to contend that design excellence can be achieved by management alone, or even that it is the most important factor.

Management skill cannot substitute for design worth

Mr. Perkins is currently the principal of Bradford Perkins & Associates in New York and describes himself as "an architect trying very hard to practice what he preaches."

managing—but it can make design ability more effective. Thus, design quality—and the ways to help achieve it—must be a central management issue in any firm concerned with design excellence.

To say that design quality should be a central management concern appears, at first, to be a muddling of the traditional separation of design and management in architectural firms. In fact, most architects make a careful distinction between management and design. One has to do with finance, administration and other related matters, while the other is the core of an architectural practice. This may be the way some approach these two interrelated subjects but, as this article argues, management and design cannot be separated in offices that aspire to consistent quality.

Typical design/management situations emphasize the need to face the issue
Some examples of these situations might be:

- The established firm with a solid—but dull—reputation, that is losing an increasing number of the best jobs and staff members to other firms with "hotter" design reputations. How does the firm meet this challenge?
 - A firm that—due to the design skills and reputations of the founding principals—has grown rapidly to 50 people. The principals no longer can find the time to design, the work is assigned to a changing group of associates, and the consistent quality of design is lost. How do the principals regain control over quality?
 - The firm that finds itself expected to compete on a design basis for an increasing number of jobs, but never seems to win. The losses are expensive and demoralizing. Can the firm be structured to compete effectively? Should it make all the effort to compete at all?
 - The firm that has done a great deal of good, small work but cannot break into larger, more professionally challenging projects. How does the firm obtain the design opportunities it wants and needs?
 - The firm that is organized into departments (design, production, construction) where the project is run by a project manager. The designs produced by the design departments are often unrecognizable by the time they are built. How can design control be combined with management efficiency?
 - The firm that always seems to encounter some project problem—budget, schedule, client dictates—that prevents it from achieving the quality of design it seeks. How does one control the process of designing and building a building?
- All of these firms must address the interaction of design and management, because not addressing it has created the situations they now face. Thus, wherever design is carried out by a team (as in almost all major projects today), wherever design depends upon having and guiding a receptive client (as almost all good architecture does), or wherever the process of doing a project has an impact on the result (as almost all processes do), management is a factor in producing quality design.
- If effectively planned and controlled, this interaction—I hope we have just agreed—can significantly help achieve what should be a central objective of all firms: the highest possible design quality within the inherent constraints of each project.
- Let's explore how this interaction of management and design should take place**
Consistent design quality depends most of all on the skill and force of the firm's design leadership, remembering that leadership is a quality of a person and cannot be conferred. It is also dependent on at least the following other items:
- How the firm defines its goals for design alongside other aspects of its practice.
 - What type of projects the firm secures.
 - How the firm defines the design process, allocates resources to each phase of this process, and monitors this process as the project is executed.
 - How the firm is organized.
 - How the firm relates to its clients.
 - How, in this media-influenced period, the firm builds its design reputation so that it attracts the clients and staff to perpetuate both the image and substance of design excellence.
 - And, of course, the talent, experience, energy and will of the entire project team.
- As the way these factors can affect design quality will vary with the firm, its composition and temperament, etc., I do not claim to have the answer in any area—and I am struggling with the same issues in my own practice—but it seems clear to me that the search for the right framework in each of the above areas is an essential step toward



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"To say that design quality should be a central management concern appears, at first, to be a muddling of the traditional separation of design and management in architectural firms."

each firm's approaching and eventually achieving consistent design quality. This article merely tries to outline the issues that must be addressed within the framework.

Setting goals means recognizing what you want to achieve

The principals' values and objectives—no matter how loosely they have been expressed—set a framework. To state that the overriding goal of most architectural practices is to provide the client top-quality service resulting in building solutions that are esthetically, technically and functionally advanced, as well as of consistently high quality, is not enough. Every goal set by a firm and its principals has some impact on the firm's response to the design quality factors just listed.

Firm targets for size, profitability, growth, type of projects, ownership, control and other areas all have a direct or indirect impact on design quality.

For example, a firm that wishes to grow into a 100-person office with a practice based on hospitals and laboratories will have to pursue design excellence within a different set of constraints than a firm that pursues housing and office projects and does not want to expand beyond the number of projects that can be personally directed by the firm's founding principals. The former will have to develop more than one principal designer as well as a core of senior technical specialists who share project leadership, while the latter can maintain centralized control in the hands of a single design principal.

How the principals define design quality and set goals for its achievement, however, can have the most direct impact. In this area it is particularly important to add another dimension to the tendency to use only quantitative values as the basis for a firm's goals. Without some kind of tangible policy to the contrary, those who are primarily involved in design will find the going rough in a time that measures success mainly in terms of optimized revenues and minimized expenses.

Creativity, taste and problem-solving skill—terms that defy quantitative measure—must be given equal weight in the final structure of a firm's objectives.

Today, the diversity of design-quality definitions has multiplied, as more firms

question traditional modernist dogma. For example, whether explicitly stated or not, some firm's objectives include one or more of the following:

- To do something innovative or newsworthy on each project—a common goal of firms trying to establish a reputation.
- To define the traditional design response to a particular building type—a goal for many firms with specialized institutional (schools, hospitals, etc.) practice.
- To design buildings that emphasize the functional, maintenance, cost and other performance objectives of the owner rather than esthetic criteria—perhaps the objective of several of the office, hospital and housing specialists.
- To consistently impose on each project a single design theory—a goal of some firms dominated by a single, strong design personality.

No matter how the design goals are defined, if they are defined, they will influence how a firm approaches its work, allocates its resources to a project, guides and judges its own design efforts as the projects develop, selects and develops its staff and many other central design quality actions.

Practice mix is a strong determinant of design goals

Design goals are, of course, directly affected by a firm's projects. The type of projects a firm has is usually a function of what the firm seeks. If a firm wants to establish a strong design reputation, it must find a way to obtain work from clients with the desire, budget and program to generate public interest and make design excellence possible.

It is obviously far harder to build an image with small additions to proprietary nursing homes, small industrial buildings or low-income housing than it is with a corporate headquarters or a college's performing arts building. How a firm selects the type of work it wants and then secures it has already been covered in many other articles and books. The point here is that the realism, and even the definition, of the firm's design goals are in large part dependent upon the direction and success of the firm's marketing efforts.

Moreover, the design goals must address the needs of the building and client type. Different building types generate very different design constraints. These differences must be reflected in the continual

regeneration of a firm's design philosophy and process. High technology, code-constrained and programmatic buildings such as hospitals and laboratories, often present more difficult esthetic challenges than a development office building or luxury condominium where a different combination of a client's decision-making, program, budget and technical priorities govern.

More than one solid old-line firm has been hurt by turning away from its own practice's roots to design philosophies and processes incompatible with its traditional projects' needs. This is usually done in a misguided attempt to rapidly upgrade design quality and image. A typical sequence is:

1. The firm loses several projects, in part because of a reputation for dull design.
2. The principals decide they must upgrade their image and skills.
3. They hire a designer from a "design firm" and try to import a new process as well.
4. The firm turns its back on the skills that still brought in clients.
5. The image does not change and clients and old-time staff are alienated.
6. The design "savior" is fired and the firm reverts to its former ways—often in a weakened condition.

To avoid midlife crisis, it is important to remember that design excellence is not imported but instead requires a long-term effort directed from the top in a way that integrates its pursuit into every aspect of the firm's activities. Not only a firm's real goals, but the work it gets to do help set the context for the development of a design process.

Thus, by examining only two frameworks for the interaction of management and design, we already begin to see a pattern. In next month's RECORD, we will complete the pattern by examining frameworks for the other interactions, namely, design process, firm organization, client management and image.

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Marketing: No need to fear public relations

Here's some advice on what to look for in a public relations person and what to expect from him or her

By Susan Perloff

Many architects fear public relations. They tend to shun the press and cringe behind drafting boards if a TV station seeks an interview.

But a skilled specialist can strengthen your marketing efforts, initiate them, if necessary, and help educate your clients about what you can do.

Public relations provides two-way communication: from management to its various publics and from them back to management. For an architectural firm, a public relations specialist works with the partners to determine the image they want to project, helps project it, and then reports back on the attitudes of clients, prospects, colleagues, the media, and others toward that image. Specialists, such as those who are accredited in public relations (with the designation APR) by the Public Relations Society of America, understand the ethical and customary constraints under which a design firm operates.

A consummate public relations professional is not only a professional, but he or she has a nature matching the requirements of the job, being affable, articulate and enthusiastic—qualities that a design professional may not always feel like showing. That person is a conceptual thinker who is organized, punctual and thorough. He or she may well have writing experience on newspapers and magazines. This professional listens as much as talks and is able to switch gears rapidly as your firm's priorities or client demands change.

What can public relations specialists do for you?

Maybe tell where you're going First, that specialist can write a comprehensive public relations plan for your firm, setting goals and objectives that support your marketing direction. He or she can even set that direction by identifying your target audiences. For a design firm, typical audiences may include some surprising as well as expected entries:

- Existing clients.
- Past clients.
- Prospective clients, with subgroups defined by industry segment, geography, size of company or project, and so on.
- Suppliers and contractors who might refer your firm.
- Politicians and other opinion leaders in your geographic areas who may direct work your way.
- Employees whose enthusiasms can keep existing work and even bring in new work.

Each audience needs to be addressed in a unique manner. The public relations plan, set at the beginning, outlines the strategies for each one. For example, if you have been successful in designing medical facilities and retirement homes in a four-state area and you want to continue serving the medical field, you would need to reach clients and past clients, hospital and nursing home administrators, officials of the various governmental agencies that control the purse strings for hospitals, and builders in your four states.

To do so, your public relations specialist would evaluate their professional and trade associations, determine if they have meetings you might address or publications to which you might submit articles, and possibly recommend your joining their organizations as an affiliate member. That specialist would also pursue daily newspapers, business publications and special interest magazines that might reach that audience. On the other hand, if you have designed numerous schools and see that population trends indicate little future demand, there is no reason to make such efforts in that field.

Depending on the size of your staff, your consultant may also be responsible for, or help work on, your marketing, client relations, ground breakings and dedications, graphics, photography, presentation materials, and so on.

Publication is a sine qua non of public relations for a design firm

Your public relations person should be able to establish a good working relationship with the press: the architectural magazines, national trade magazines in your market's fields, local business and general newspapers, and so on. Your specialist should read these publications regularly, understand their format and style, and the reasons for double-spacing all submissions, the format and rationale for a news release, the needs of photo editors, and so on.

One of the specialist's principal abilities must be knowing what makes a story. No less important is the sense of what is *not* news, *not* an idea with which to approach an editor. If your specialist says that your idea you want published would appear self-serving, that no good editor would be interested in a particular project, you should

accept that judgment. The editor who was *not* approached with a marginal or foolish story idea will be receptive when a decent idea comes up.

Wherever an article concerning your firm is published, prospective clients will not necessarily read the article—or remember it if they do. Thus your public relations person must not be a publicist alone, but a specialist in press relations who can help you develop a comprehensive direct mail program that reaches all your target publics or markets with timely reprints.

You need to determine whether you want a salaried person or a consultant

There are benefits to both. A staff specialist is an integral part of your team, on site for marketing or management meetings, able to peer over drafting boards and make assessments of publishable works in progress. That person is fully involved in the daily workings of your firm—which is simultaneously an asset and a liability. While she or he may be privy to confidential information and always available, she or he may also get so immersed in minutiae that she or he has no time to implement programs.

A freelance consultant has objectivity and a clear mandate but knows less about the intricacies of the firm. The bottom line is that a consultant is available when you need one, but is not an expenditure when you don't.

If you still question the appropriateness of public relations for your firm, you are not alone. But the judicious budgeting of some marketing dollars for a modest campaign—as small as three published articles and three direct mail pieces annually—can improve the image of your firm and the way prospective clients regard you. Certainly nothing to be afraid of.

Ms. Perloff, APR, is an accredited public relations consultant in Philadelphia, with experience in both freelance and in-house services.

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Architectural education: NAAB sets new accrediting rules for the schools

By William G. McMinn



At the present time, accreditation of the schools of architecture in the United States is undergoing significant changes. These changes have been evolving for several years in response to the requirements of a changing profession, a legalistic age of accountability, and a concern for the viability of professional education. Under scrutiny are a completely revised and reoriented set of criteria for evaluating an educational program in architecture; a reconstituted accreditation board membership; and a self-evaluation of the roles and responsibilities of accreditation itself. The entire process of accreditation must be an evolving one to remain dynamic and respond to change, and yet it must also be stable enough to encourage growth and improvement.

It is a voluntary act on the part of a school to submit itself for evaluation; however, an accredited degree is now required for certification by NCARB and for professional registration in a growing number of states. Accreditation in architecture has responsibility to several constituencies: first, to the profession, to foster quality for continuance of the profession itself; second, to the academic institutions offering the program, to provide external peer-review to measure its quality; third, to the state registration boards, to ensure adequate preparation for the graduate to take the registration examination; and lastly, but perhaps most important, to the students and the public at large, to promote the highest possible standards of performance in a program that forms the foundation of a professional career. It has been said that accreditation carries professional, academic, legal and perhaps moral implications.

How did the process of accreditation evolve?

Accreditation recognizes a level of academic achievement for a professional program in architecture. It results from periodic peer-review measured by established adopted criteria. The agency responsible for the accreditation of the programs in architecture is the National Architectural Accrediting Board

Now that NCARB and several states require an accredited degree for licensing, the new NAAB criteria for school accreditation gain added importance. Dean McMinn, as current NAAB president, gives the details and explains the significance of the new process

(NAAB). Established in 1940, NAAB was founded by agreement between the American Institute of Architects (AIA), the National Council of Architectural Registration Boards (NCARB), the Association of Collegiate Schools of Architecture (ACSA), and later also the Association of Student Chapters (ASC/AIA). Since that time, NAAB has been continually refining its procedures and criteria in response to the increased complexity of architectural education—and to the many forms of teaching that have been developed within the separate schools.

In the early 1970s, NAAB formulated its "achievement-oriented performance criteria" to help evaluate architectural programs; seven basic criteria were hammered out between representatives of the supporting organizations. Last year it became clear to NAAB that these criteria had outlived their usefulness and that, despite later clarification, a major review of the criteria and procedures of accreditation was necessary.

In 1982, NAAB appointed a "special" committee of members from the five organizations to review and develop appropriate new criteria and to recommend changes and improvements for the Board's consideration. This committee was composed of two former AIA national presidents, Scott Ferebee and Randall Vosbeck; two deans of schools of architecture, William Porter (MIT) and Robert Harris (USC); two NCARB presidents, Dwight Bonham and Ballard Kirk; a student appointee, Martha Lampkin; and two representatives from NAAB, William Carlisle and me. I also served as chairman.

The report of this committee was reviewed and adopted by NAAB for purposes of testing during the spring of 1983, and several schools were invited to utilize the new criteria for preparing the documentation required prior to the actual site visit by an accrediting team. These several schools were chosen for their diversity of program, size and institutional context. The visits to these schools are scheduled for this spring, with members of the special committee serving on the team assigned to review each of the seven programs.

After collecting "feedback" from these members, NAAB expects modifications and refinement during the summer of 1984 to improve the new criteria. The criteria are performance-

based, and form a clear expression of the NAAB's expectations of accomplishment by a student who has completed a program. The language is specific, which many will find welcome and others may find limiting and overly prescriptive.

What are the new performance criteria?

There are three levels of expected performance, and the criteria are stated in terms of awareness, understanding and abilities.

"Awareness" is the most basic level, concerned with familiarity and broad general knowledge of a subject or an issue.

"Understanding" suggests a deeper comprehension of the subject and a more detailed and specific knowledge of an area. "Abilities" requires that the graduating students have achieved a technical proficiency and be able to accomplish the specified task.

The criteria do not state how a school should organize its program to provide its graduating student with the levels of accomplishment, nor does it suggest methodologies or course structures. It is clearly the responsibility of the school to arrange its program of educational experiences in the manner it believes to be most appropriate.

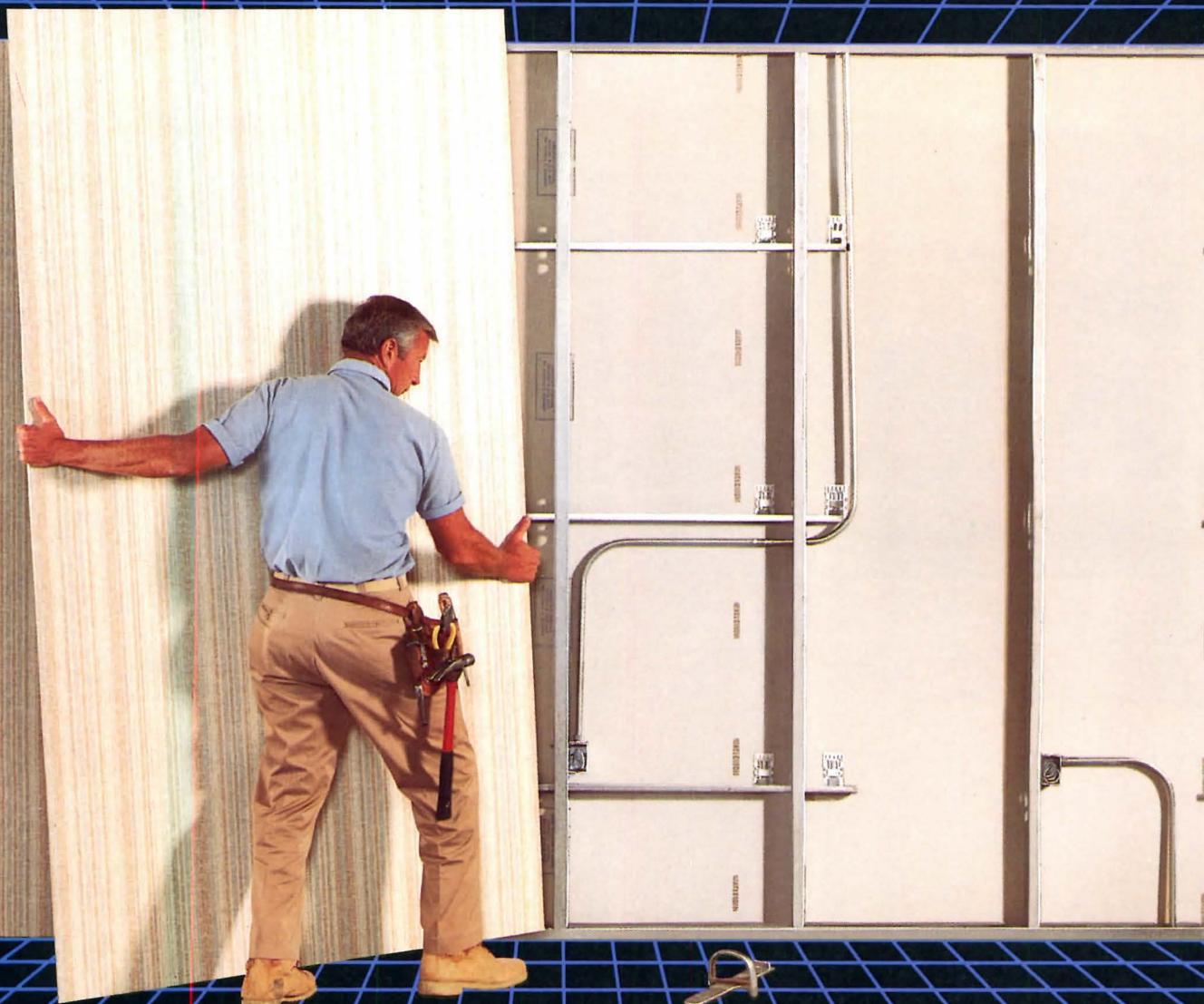
In order that NAAB can evaluate its program, each school is expected to demonstrate to the visiting team how its program goes about satisfying the criteria at the stated level of accomplishment. Each of the first several schools submitted written documentation in response to the criteria, and the visiting teams will evaluate the appropriateness and adequacy of these educational experiences. The testing of the criteria this spring is particularly critical to development of a new attitude and direction of accreditation in our schools of architecture.

The new criteria are divided into four major sections: history, human behavior and environment; design; technical systems; and practice. Most, if not all, programs in architecture presently have courses in each of these four areas, and the language is the common language of education and practice in architecture. Most architects who have a formal education, and who have received a professional degree in architecture, have had courses in these four areas with varying degrees of intensity and success.

The four sections are further divided into 16 sub-areas, and it

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is within the sub-areas that the stated expectations of NAAB are focused. The first section is divided into the three named areas: history, human behavior and environmental context. The second, on "design," is divided into analysis, synthesis, judgment and communication. The third section, on "technical systems," is divided into structural systems, environmental control systems, construction materials and assemblies, life-safety systems and barrier-free design for the handicapped. The section on "practice" is divided into sub-areas of process, project finance, business, practice management and laws and regulations.

It should be pointed out that the criteria only speak to entry-level to the profession, and many programs provide greater depth than minimum expectations. There will also be differences of intensity and depth in the various schools, depending on focus, expertise and resources.

The clear language of the criteria can help schools that are developing programs in architecture and provide existing schools with a measuring device for their own self-evaluation. It is expected that the language will also assist team members, drawn from both education and practice, in their review of a school's program. The new criteria may even change the agenda arrangements for site visits in order to address the specific requirements of the criteria. They will be a specific guide students can use to measure their individual accomplishments as they go through an academic program, and they will certainly provide NAAB with a means of more precise evaluation of the separate programs throughout the country.

The Accrediting Board has a reorganized membership

A second major change recommended by the special committee is in the composition of the Accrediting Board itself. It is now composed of 11 people: three members nominated by each of the three supporting organizations (AIA, NCARB and ACSA); a public member as a generalist; and a student member nominated by ASC/AIA. The total number of Board members remains the same as before, but the previous composition was based on two appointees from each supporting organization, a student representative, a public member, an intern (post graduation but prior to

registration) and two members of allied professions—planning, landscape architecture, architectural historians, etc.

With the increase in the number of school programs subject to review each year, and the number of requested special visits and advisory visits, the load on Board members has been demanding and time-consuming. The reorganization of the Board membership provides a greater number of architectural professionals to accomplish the necessary tasks of accreditation. At another level, the change creates a subtle change in the discussions of the Board in its deliberations. The increase in the number of active professionals brings an intensity of concern for professional performance within the schools. The Board seems to be moving from a caretaker role to a more activist role in its efforts to encourage the improvement of architectural education. As with other changes, this has not developed overnight but has evolved.

Who's on the visiting team for evaluation?

Regardless of how completely a school has documented its self-study, and regardless of the specific nature of the new criteria, NAAB remains dependent upon the quality of the visiting teams selected for the on-site evaluation of the programs. Each year the participating organizations (ACSA, AIA, NCARB, ASC/AIA) provide slates of names from which NAAB selects its individual teams for each visit, with an attempt to balance experience, backgrounds and geographical locations of the team members. A team is generally composed of one educator, one or two practicing architects, and a student. On each visit the team chairman is a director or former director of NAAB who must report to the Board and lead the discussion of the team's observations and recommendations.

Team members cannot be graduates of the specific program nor located too close geographically, in order to avoid any prejudicial involvement. And the school may challenge any team member if a conflict of interest can be demonstrated. The school has the opportunity, also, to add additional members to the team as observers, subject to the approval of NAAB and the team chairman. These observers are often presidents of local AIA chapters, state licensing boards, or distinguished alumni. They

participate fully in the visit, and their insights are often helpful to the team members; however, they do not participate in the final recommendations.

Each visit is normally scheduled for three days, and begins with discussions with members of the institutional administration concerning their observations of the program. The agenda includes reviews of course content, examinations, presentations of student projects, tours of the physical facilities, examination of budget processes, financial support and faculty qualifications and expertise. Each visit always includes a no-holds-barred, freewheeling discussion with the students, which often proves to be the most interesting, candid and sometimes exciting part of a visit. Students are generally aware of both the strengths and weaknesses of their school, though they may not agree on which are strengths and weaknesses.

The meetings are often lively and rewarding. Discussions with alumni and members of other disciplines who have a part in the program provide important perspectives to the team in the review and give a sense of the involvement of the school of architecture in the intellectual life of the institution.

At the conclusion of the visit, the team gives a verbal report of its observations to the president or academic vice president of the institution. It may also give a brief report to the faculty and students of the school.

Generally, the team will review the main points of its report, and express its observations concerning both the areas of strength in the program and its concerns, which may fall into areas of curriculum, facilities, financial support, administration, faculty or student recruitment. Ideally, a school should have a method of self-evaluation, and the site visit by NAAB should only ensure that the process is in place and working. A school should have the ability, through its faculty, students and administration, to be aware of its weaknesses and develop strategies for improvement.

The length of accreditation can vary for each school

The final report of the team is submitted to NAAB for action. After discussion, the Board accepts the report and votes on a stated period of accreditation, from one to five years. The term is recommended by the team but

not included in its verbal report to the school, for it is the responsibility of the Board. The report, including length of the term of accreditation and any qualifications of NAAB, are forwarded to the president of the institution for his information. NAAB recommends wide dissemination of the report, but requires that if the report is made public, the entire report be included, and not excerpts like a Broadway review.

Three major issues now under discussion by NAAB are, first, concern over the number of new programs under way within various institutions; second, the continual problem of marginal programs of limited terms of accreditation; and third, concern over the proliferation of professional degree programs within the existing schools, and the questions of responsibility toward the emerging postprofessional programs that are now being overlaid on the accredited first-professional-degree programs. Other discussions have centered on the contextual responsibilities of a school as it responds to its academic and physical location, to its society and to its profession through research and service.

More schools are waiting for new accreditation

Notwithstanding the existing 91 accredited programs, there are over 20 universities and colleges that have indicated more than passing interest in beginning a new program. Half of those schools have programs established and are proceeding towards initial accreditation with the required advisory visits by NAAB. During their years of development, many of these programs have been reviewed by educational consultants and encouraged by local architects. Not only is the number surprising, in view of the current marketplace for graduates, the confused economic climate of the present and the decreasing pool of college applications expected because of demographics, but equally surprising is that most of these programs are emerging from liberal arts colleges with limited enrollments.

While many prefer to think of an architectural education as a great foundation in liberal thinking and personal growth, the NAAB has questions concerning the ability of these liberal arts colleges to maintain the necessary level of support for a professional program. With declining enrollments due to the decreasing pool of college-age



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people and the increased costs of tuition, many colleges are seeking to diversify their offerings and provide more professionally oriented career opportunities. Thus, NAAB is not only concerned with the quality of existing programs, but it must raise questions about new and emerging programs.

In order for a program to receive accreditation, it must be (1) in an institution that has received regional accreditation; (2) have a general education requirement; (3) show evidence that it can satisfy the new criteria; (4) offer one or more of the four recognized types of degree programs in architecture; and (5) demonstrate sufficient resources and stability to insure its continuance. Under NAAB's current policy, a program can only be reviewed for initial accreditation after the graduation of the first class, with an advisory visit by NAAB the preceding year. The school must be fully developed in its academic composition and be in place before an initial review.

Many other accrediting agencies review programs prior to the admission of students in order to provide some evaluation of expectations and to set some benchmarks for measurement. Some of these new programs are conversions or upgradings of a technical program; and university administrations are often deluded into believing that, by the addition of some courses and additional part-time instruction, a professional program can be achieved. NAAB is anxious that new programs be firmly grounded, academically and financially, and that there be an administrative commitment to them. The current direction of NAAB is toward more specific requirements for initial accreditation and for greater clarity in the advisory process as a program moves towards accreditation status.

What happens after accreditation?

Coupled with the concern for the number of new programs is the equal concern for accreditation maintenance. NAAB has long been concerned with the number of programs with marginal status and, despite repeated short terms of accreditation, there are schools that have yet to adequately develop a program that could receive a full term of accreditation. The maximum term is for five years, although, after receiving the recommendations of a visiting team, NAAB may decide on a

short term if it believes it appropriate. Consideration has been given to the possibility of increasing the maximum term, provided that the program has developed a successful record and that NAAB can develop adequate documentation methods to monitor continuance over a longer period of time.

NAAB's current attention, however, is more focused on the marginal programs and addressing their need either to improve their status or to terminate the accreditation status. This is a severe action and is not taken lightly. At present there is no probation or provisional status to architectural accreditation, for if a program is accredited, it is fully accredited. The only variable is the number of years before the next review by NAAB. Currently, NAAB is reviewing the possibility of re-establishing conditional status to emphasize its concern about the quality of a marginal program prior to discontinuance of accreditation.

There is confusion about types of degrees

The problem of "degree proliferation" within the accredited programs is a major point of confusion within both academic and professional areas. Approximately 40 per cent of the schools have five-year undergraduate programs; 40 per cent have four-year undergraduate plus two-year graduate programs; and the remaining 20 per cent have three-year graduate programs. The first group offers the bachelor of architecture; the second, an undergraduate nonprofessional bachelor degree followed by a professional degree of master of architecture; the third offers only a master of architecture. Much confusion comes from multiple offerings by a single institution without adequate clarification as to their differences, roles and requirements. For example, there are some schools that offer both a five-year master of architecture and a six-year master of architecture first professional degree. Added to this complexity are the nonprofessional graduate programs in architecture, and the various emerging postprofessional concentrations, usually within an area of research or specialization. At the present there are a number of schools re-establishing their five-year bachelor of architecture, while a few are in the process of converting to a four-plus-two

graduate program.

NAAB does not expect suddenly to resolve all this confusion, but it does expect the separate schools to give clarity to their programs. Many of these programs and options result from the potentials, as well as the pressures, of the professional marketplace; and others result from certain available personal interests and expertise. While other disciplines offer diversity within a common framework, architectural education often seems to create diverse trappings in its arrangements for a basically similar activity. NAAB does not intend to prescribe program structure to meet its criteria, but it is concerned about the proliferation, duplication and complication of degree offerings within the schools of architecture.

Even with norms, diversity is needed

The great strength of architectural education in America lies in its diversity, and it is important to celebrate this richness of education available to the student. It is equally important to define those paths with clarity. The new criteria speak with clarity to the commonality of the educational experiences in the architectural programs; but the diversity of our programs comes from the search for the distinctiveness that gives quality and greatness. The uniqueness that flavors each architectural program comes from how it develops its individual response to its "place." The special chemistry that mixes the academic context, the geographical location, the backgrounds of the students, the personality of the faculty and the character of the leadership is what creates the particular quality of a program.

NAAB seeks to discover how a program is strengthened by its context and, in turn, how the context is enriched by the program. The special courses offered by the school to the university, the joint seminars and symposia, the combined research activities, the off-campus experiences, all point to integral activities within the campus community.

A program should especially respond to its location, either in urban or rural environments, and provide special connections to both public and professional arenas. In spite of impressive activities in many sections, the programs in architecture often seem isolated from professional components or the public.

NAAB also seeks more research and service

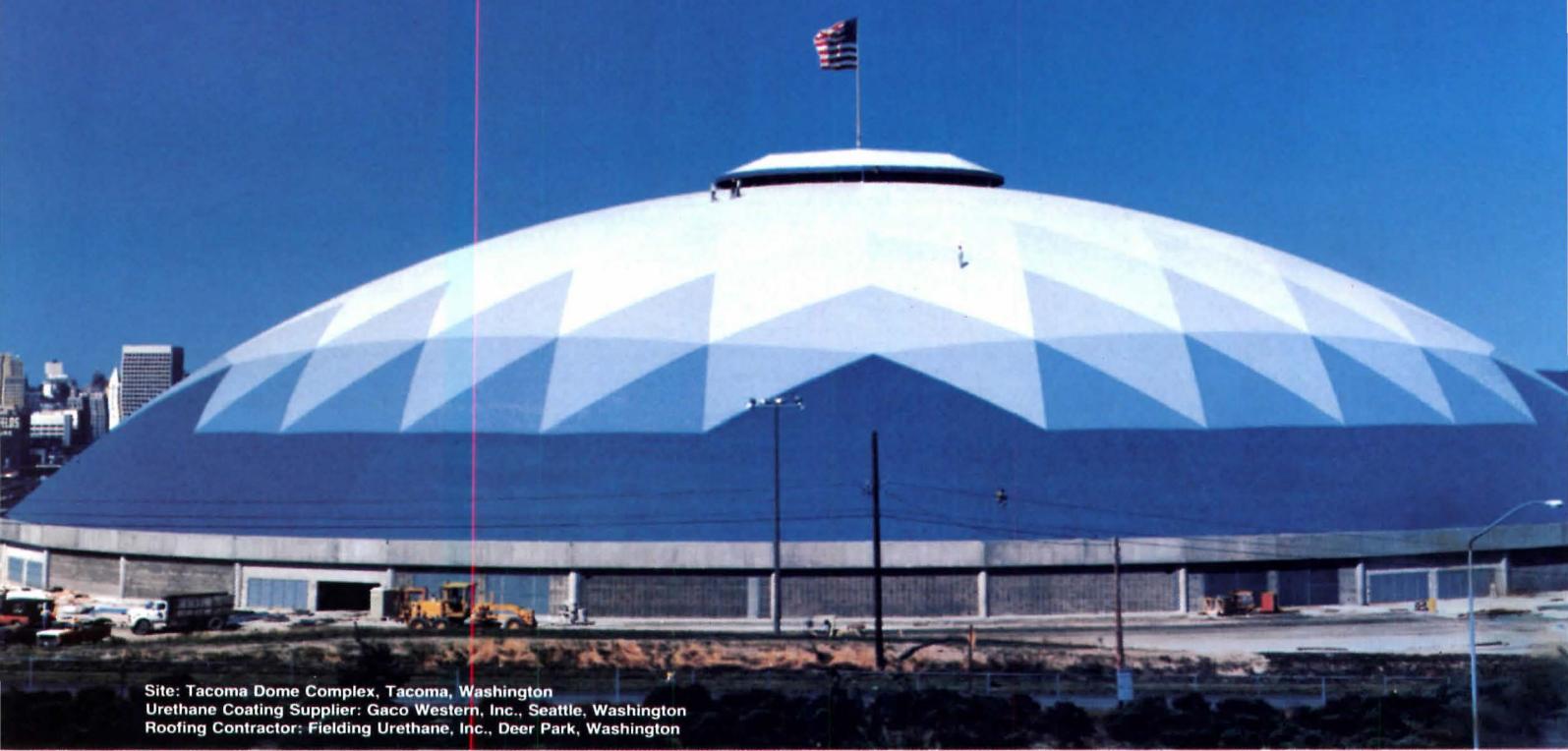
Present discussions in NAAB are also focusing on the responsibility of a program for research and service. The ability of a program to maintain its currency is often dependent on its ability to develop a viable research program that both advances the profession and brings it into dialogue with the profession. The service component is necessary to provide for extension of ideas and awareness of new thinking. NAAB is hopeful that a climate of exchange can be fostered between the schools and the profession.

During recent years, three major developments have provided the schools and the profession with special opportunities for a closer relationship: namely, historic preservation, energy and now, computers. The search for expertise and the development of new knowledge has created a special time for the profession in both its education and its practice components. Despite decreasing budgets in the schools and increased overheads in the offices, the necessity of the computer provides an unusual opportunity for close development in both education and practice. It may change the structure of education in architecture and may become the first significant revision of teaching methodology in recent times.

Perhaps there needs to be more experimentation in our educational methods, and the computer may bring that opportunity, for before it entered the university there had been little change to the basic format of architectural education. That lack of experimentation may be a reflection of the lack of clear direction within the profession, or it may be a response to the marketplace. Or perhaps it is due to the conservative nature of our times. For, whatever the reason, there seemed to be a greater search for appropriate educational forms 20 years ago than now.

NAAB looks to that continual search for the improvement of programs by each school in its own way. The responsibility of NAAB is to the promotion of quality in architectural education, because the future of the profession is within our schools today.

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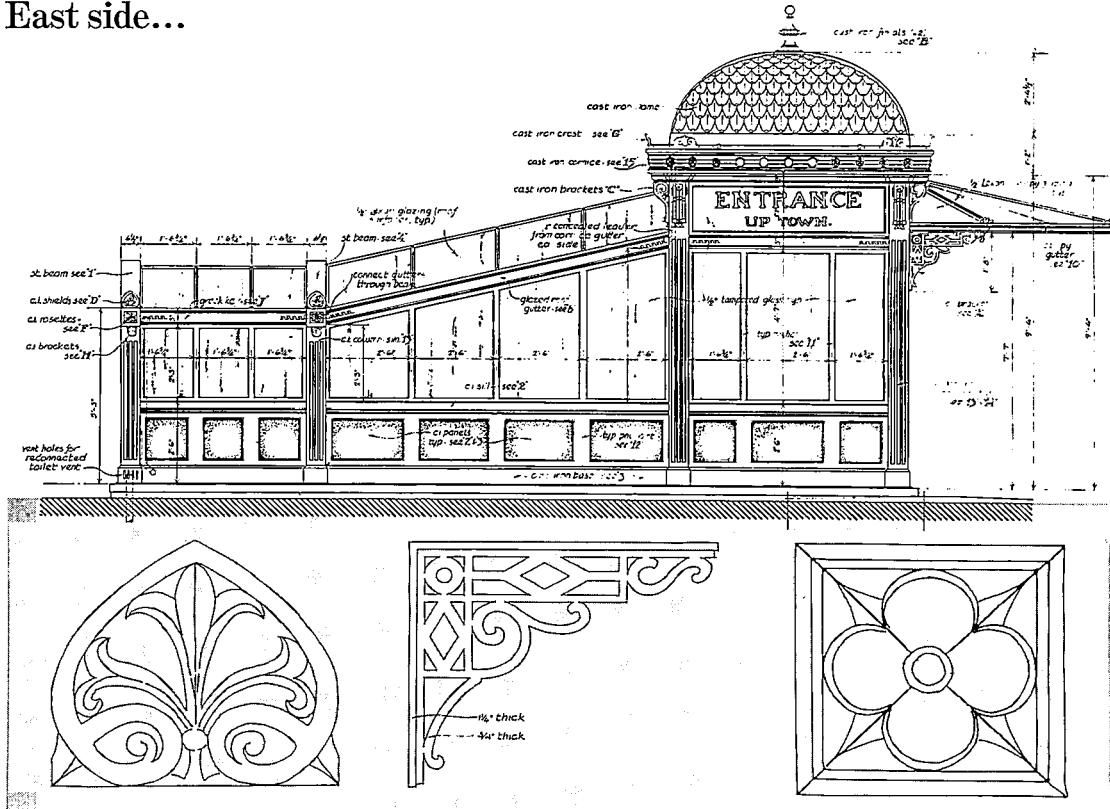
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On the sidewalks of New York: East side...

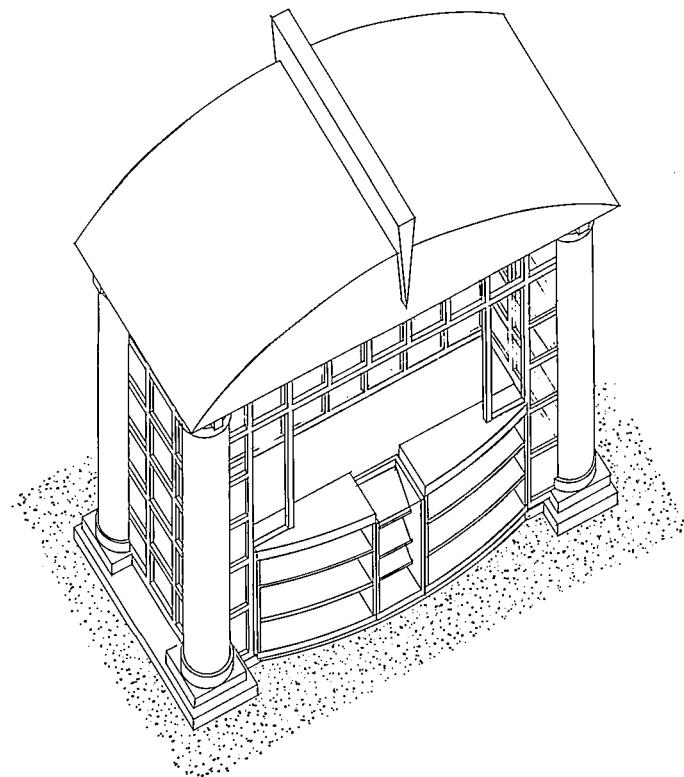


Although reliance upon styles of the past for inspiration has recently become standard operating procedure for many architects, exact replication of an historic structure is still a relatively new, and sometimes problematic, phenomenon. After all, it's tough for an architect to admit that the best solution for a current design issue was devised, say, 80 years ago. That, however,

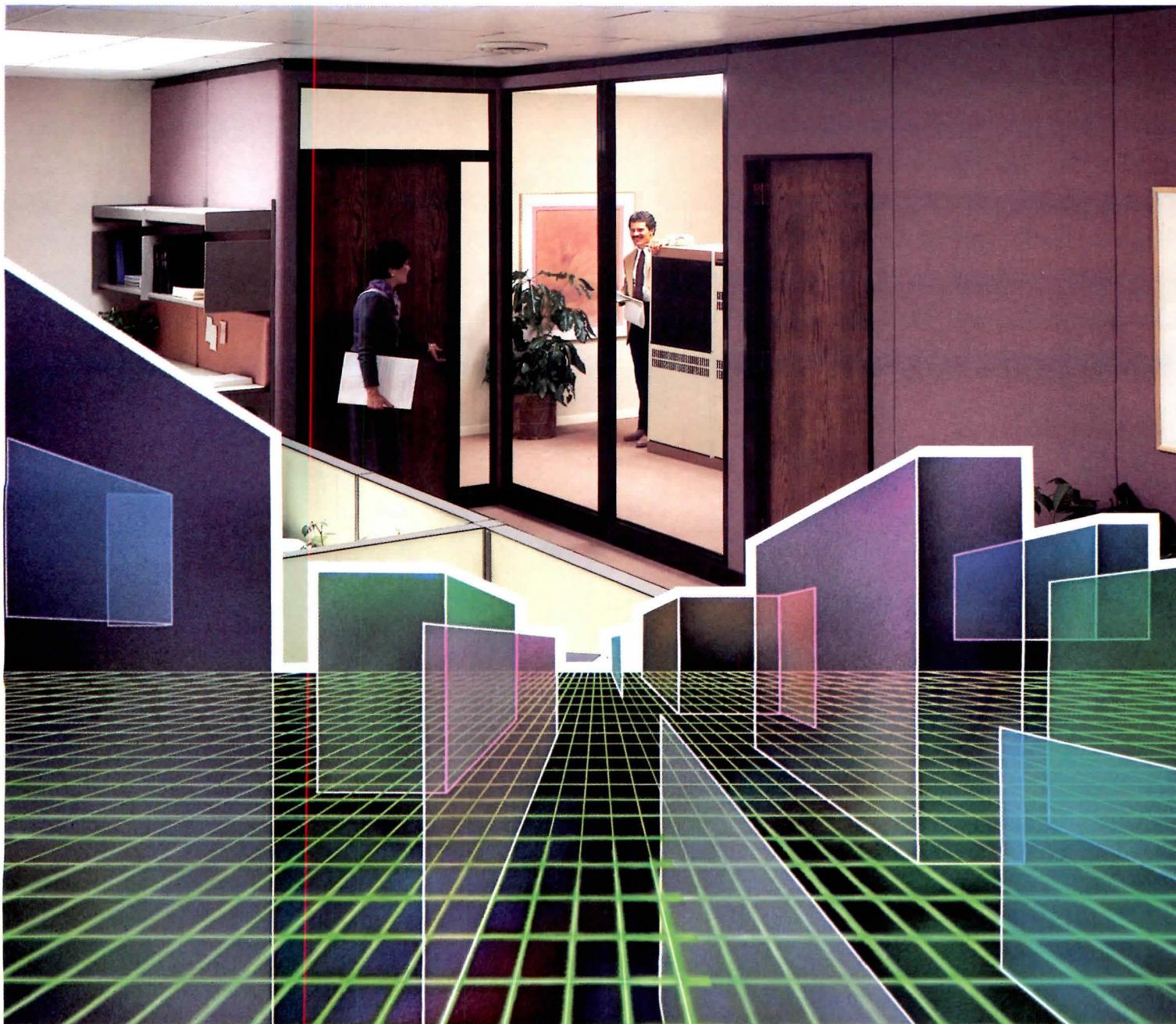
was the conclusion reached by Prentice & Chan, Ohlhausen when the firm contracted with the New York Transit Authority for the restoration of the subway system's Astor Place station. Designed in 1904 by Heins & LaFarge, the station, like many others in the system, once had elaborate cast-iron kiosks which the Authority removed and sold for scrap during the 1960s. After

locating several original drawings, the architects decided that a faithful reproduction of the kiosk illustrated above—complete with the ornate shields, brackets, and rosettes shown—would be superior to anything they could design today. The kiosk will be manufactured by Robinson Iron of Alexander City, Alabama and installed by mid-1985.

...West side



The formal design of street furniture has never gone over very well in New York, where the sidewalks are characterized by a visual cacophony of signs, trash baskets, and parking meters strewn along ill-maintained pavement. That situation should soon change, at least on the corner of Columbus Avenue and 81st Street in Manhattan, with the completion of an unusual newsstand that will be a striking contrast to the wood or metal shanties that usually typify this urban genre. Architect Wayne Turett of the Turett Freyer Collaborative has come up with a serene design that incorporates red stucco columns, an arching blue-gray fiberglass roof, and a glass magazine display grid framed by two-by-four anodized aluminum tubing. Turett, who "likes newsstands" and views them as "information distribution hubs for a community," has succeeded in gaining a rare okay for the 72-square-foot structure from the various New York agencies that must sign off on such projects. The city's art commission, in fact, liked the newsstand so much that it has given the architect one of its annual awards for excellence in urban design.



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Freeport gets a break



A storm of controversy surrounding the location of a McDonald's restaurant in a residential area of Freeport, Maine has ended with a decision by the local zoning board of appeals that will permit the fast-food chain to place a facility in the historic Gore House, a mid-19th-century Greek Revival/Italianate dwelling located on the edge of the village's central

Architecture on canvas

In July 1981, New York artist Anna Goth Werner began a series of 44 oil paintings that document interiors created by several leading American architects. Some, like the canvas illustrated below of Roche & Dinkeloo's Egyptian wing at the Metropolitan Museum of Art, depict grand spaces; others reveal such modest projects as a squash court facility by Robert Stern or a shipping office by Charles Boxenbaum. All the paintings, according to the artist, are vehicles by which she expresses a fascination with light, color, and surface interaction. An exhibition of Werner's most recent interior portraits will be on view from March 23 through April 11 at the First Street Gallery, 386 West Broadway, New York City.



business district. Architects Moore/Weinrich & Woodward of nearby Brunswick have designed a sympathetic clapboard-sheathed addition to the structure that will house most of the restaurant's operation. In order to appease nearby residents, the architects have toned down the corporation's logo and have tucked the famous golden arches discreetly into a

lunette over the main entrance. According to company spokesman Steve Leroy, the Maine project represents "an ongoing effort by McDonald's to make its restaurants reflect the local environment's history." For another striking, if very different, example of a McDonald's that veers from the chain's usual format, please see page 135.

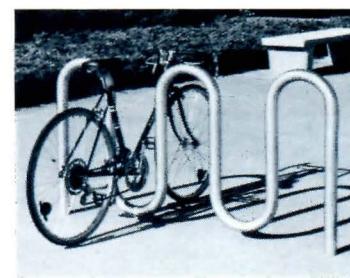
Suburban splendor à la Stern



Located just outside Boston in Framingham, Point West Place is a 110,000-square-foot office facility that "celebrates the suburb with a building that is at once grand and human-scaled," according to architect Robert A.M. Stern. Sheathed in rose granite with alternating bands of salmon and gray glass, the five-story structure under construction by Hines Industrial exhibits "the classical design references [that] remind people of older building styles—temples, palaces, and grand chateaux—with which they are already familiar," notes Stern. "These styles are reinterpreted through the use of glass and color into an unmistakably modern context." Entry via a formal *allée* and stone courtyard will no doubt contribute to the project's old-world character.

Traveling exhibit acknowledges American industrial designers

"The Product of Design" is an exhibition of 70 mass-produced objects on view through May 27 at the Katonah Gallery in Katonah, New York. An audio-visual production, brochure, and symposium accompany the show, which examines the design process of such items as the Ribbon bicycle rack (shown), the IBM Selectric typewriter, and Nike athletic shoes.



Charles Correa is RIBA laureate

The Royal Institute of British Architects has named Charles Correa the recipient of its Gold Medal for 1984. A native of India, Correa received his professional training in the United States at the University of Michigan and MIT. His most highly regarded building is the Mahatma Gandhi Memorial Museum in Ahmedabad, India; he is perhaps best known, however, for the design of low-cost housing in Third World countries, particularly his plan for New Bombay, a settlement of two million across the harbor from the existing city. Considered one of the most prestigious architectural awards in the world, the RIBA Gold Medal has been awarded to such well-known architects as Edwin Lutyens, Frank Lloyd Wright, Mies van der Rohe, and Le Corbusier.

Competition calendar

- A call for entries has been issued for the design of the New York Vietnam Veterans Memorial, planned for Jeannette Park in lower Manhattan. The jury will award prizes of \$10,000 for the winning design, \$5,000 for second place, \$2,500 for third place, and \$1,000 for up to five honorable mentions. Deadline for submission is April 14. For further information write the New York Vietnam Veterans Memorial Commission, 110 Church Street, Suite 1700A, New York, N.Y. 10007, or call 212/608-5800.

- Wilsonart and the American Society of Interior Designers have announced the second annual competition for new concepts and existing applications that utilize Wilsonart decorative laminate. Open to all members of the ASID, the competition will award a total of \$36,000 in prizes. Deadline for entry is April 15. Write ASID/Wilsonart Design Competition, c/o McKone & Company, 2700 Stemmons Freeway, Suite 800, Dallas, Tex. 75207, or call toll-free 800/433-3222 (in Texas 800/797-6000).

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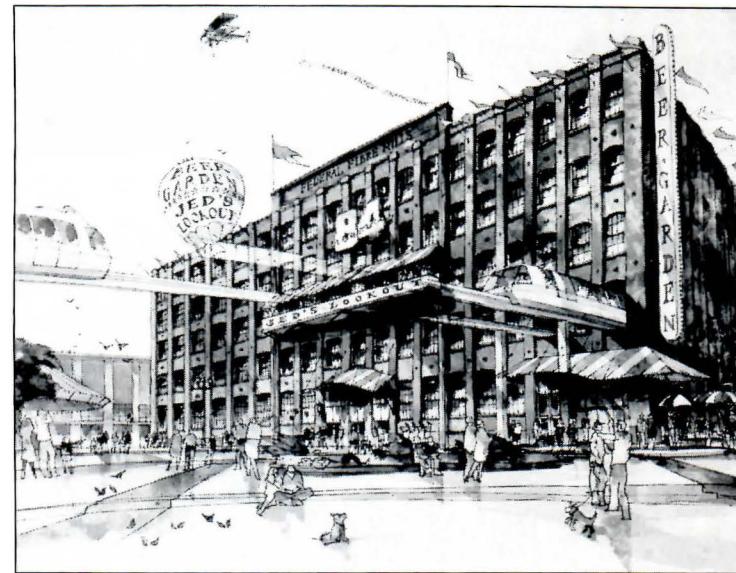
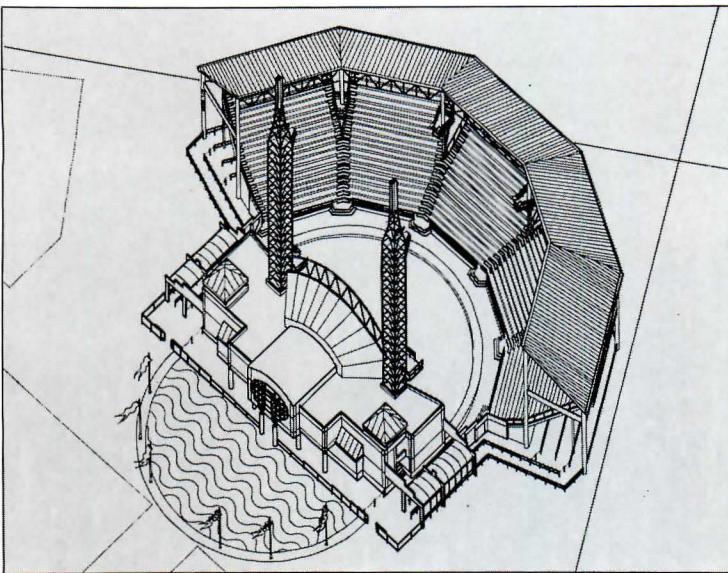
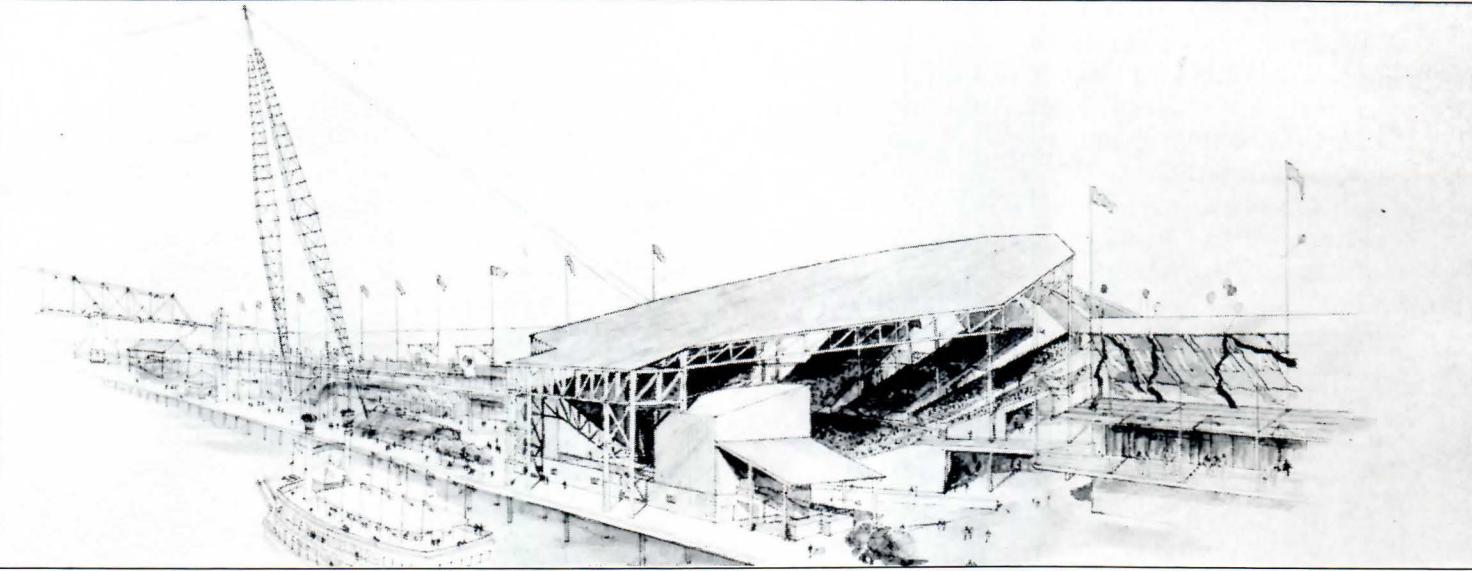
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Revitalized riverfront is legacy of New Orleans fair



After eight years of planning, the \$350 million Louisiana World Exposition is nearing completion on an 84-acre site along the Mississippi River near downtown New Orleans. Scheduled to run from May 12 through November 11, "The World of Rivers: Fresh Water as a Source of Life" is expected to attract some 11 million visitors who will no doubt be dazzled by what over-all project architect R. Allen Eskew of Perez Associates calls "the architecture of show." Clearly, the star of this extravaganza will be the 2,300-foot-long, Piranesian construction by Charles Moore and William Turnbull known as the Wonderwall—an eclectic ornamental fantasy that sets the tone for a variety of decorative fountains, gates, and watercourses which exhibit a Mardi Gras technology. On a

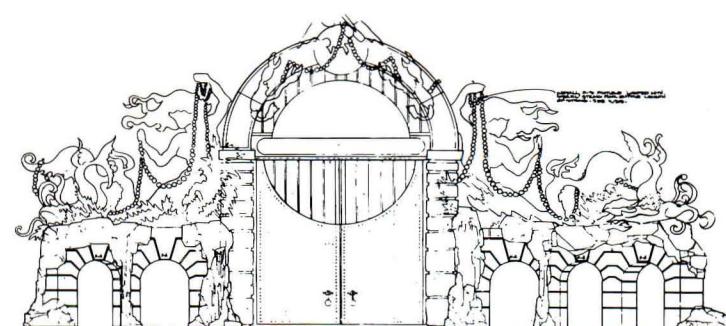
more serious architectural note, there will be a 5,500-seat steel-roofed amphitheater by Frank Gehry (1) and a 3,500-seat Aquacade by Perez Associates (2). An unusual aspect of the fair's master plan, moreover, is the frequent reuse of existing buildings, a philosophy exemplified by the renovation of the Federal Fibre Mills Building (3) into a beer garden, art gallery, and monorail maintenance facility (later to be converted into apartments). The fair's permanent legacy to New Orleans will be a rejuvenated waterfront featuring a shopping center to be developed by The Rouse Company that will exist over a functioning cargo-loading dock area. The Wonderwall, alas, will come tumbling down after the exposition closes its doors in November.

1. Frank Gehry, Amphitheater, with gondola tower in background.

2. Perez Associates, Aquacade.

3. Perez Associates, Renovated Federal Fibre Mills Building.

4. Perez Associates, Main entrance gate to fair.



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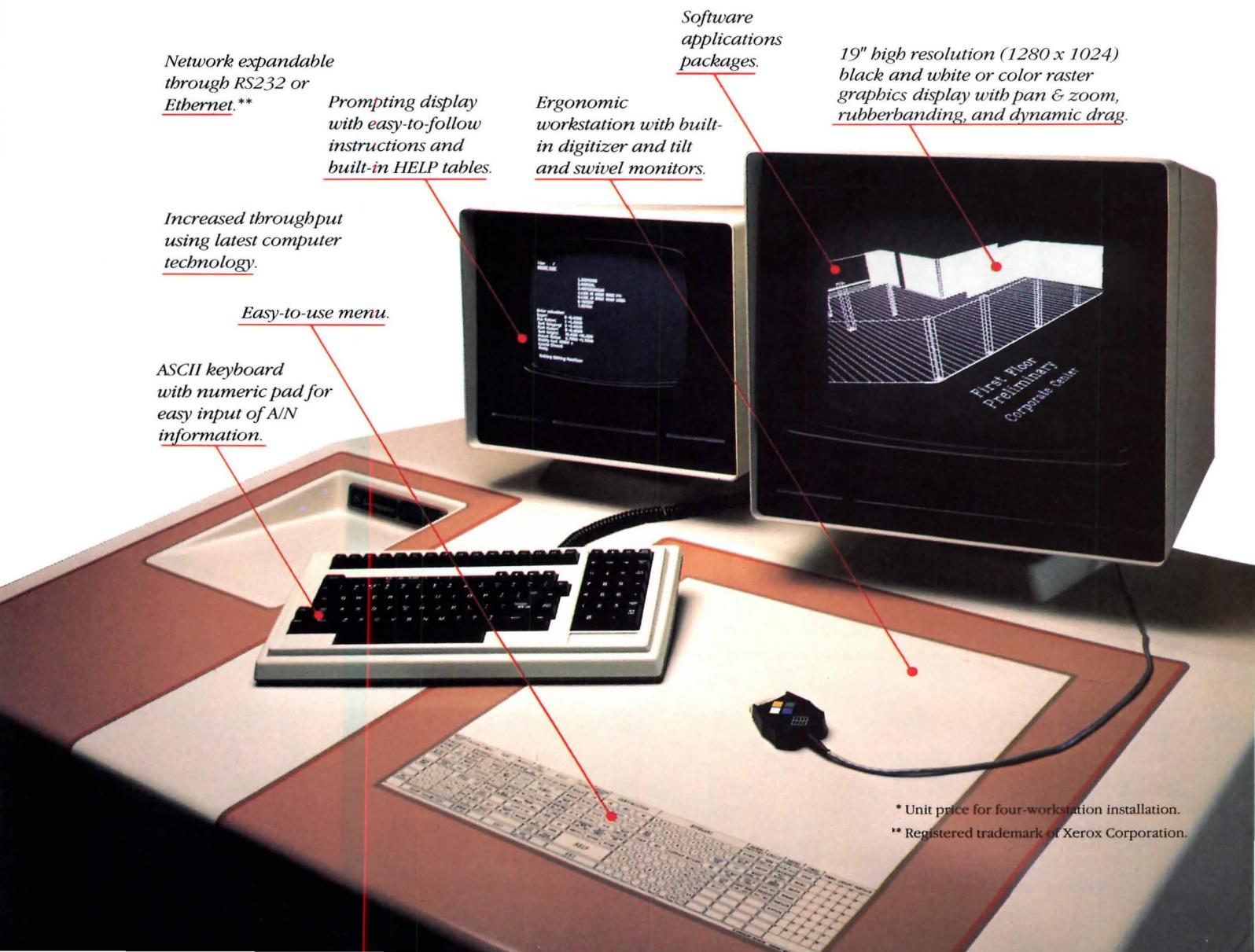
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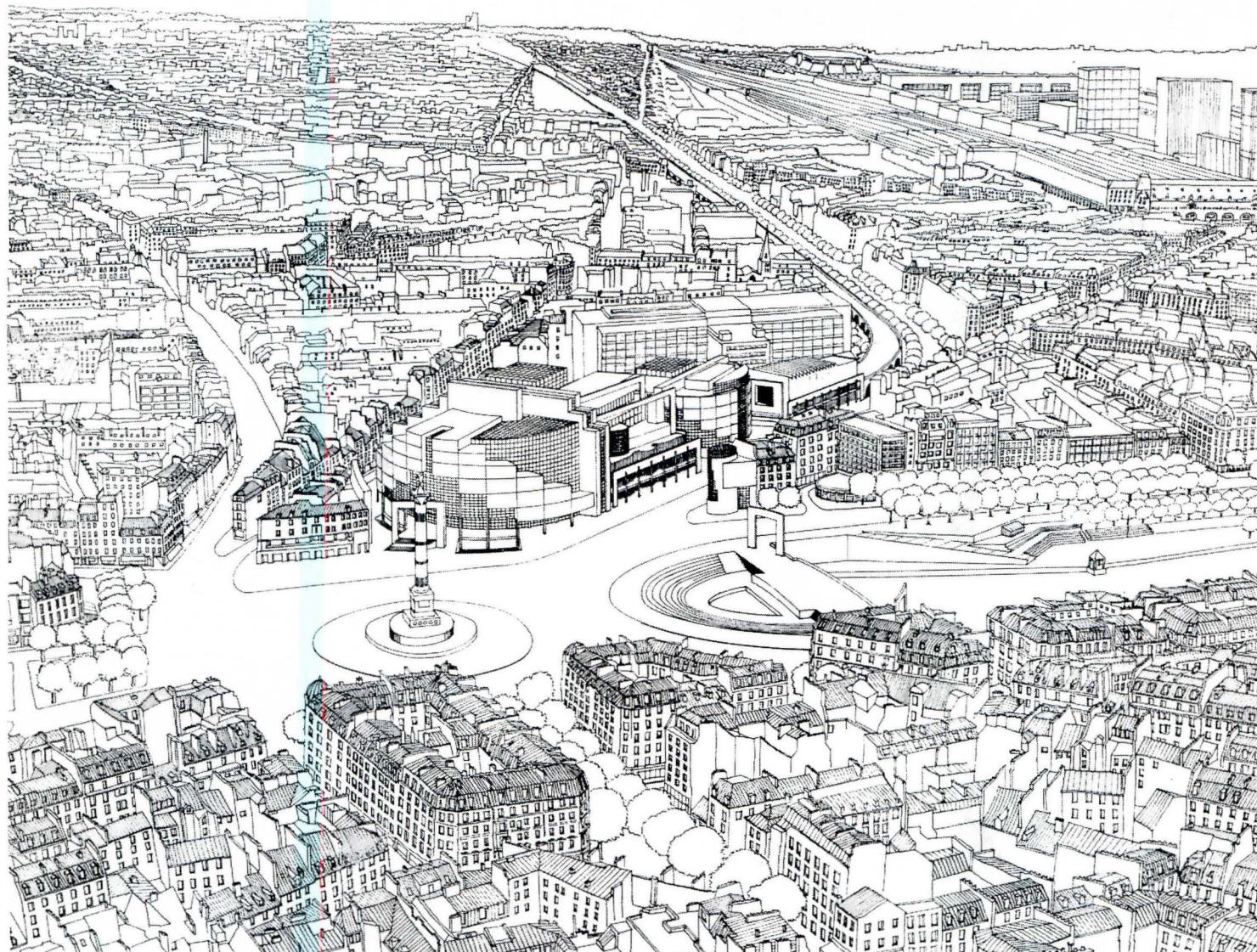
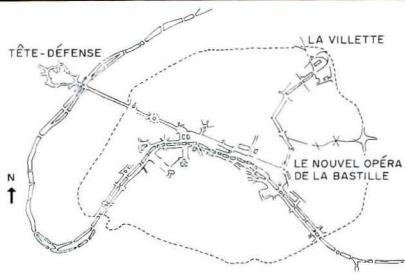
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Design awards/competitions: Three competitions for Paris Opera at the Place de la Bastille

By Hélène Lipstadt



The Opera House competition, the last of three international contests for Paris but clearly the first in prestige and importance, attracted the greatest number of entrants, 787 in all. A 20-member jury premiated 42 anonymous projects and sent six team finalists to President Mitterrand for final selection. They included the designs of J.P. Viguier and J.F. Jodry; Christian de Portzamparc and his team; Nicholas Hare and his associates; Carlos Ott; Rocco S.K. Yim and his associates; and Dan Munteanu, Hélène Perreau-Hamburger and Teodor Georgesco. The President had the latter three teams compete in a final round, from which the

Canadian Ott emerged the winner. Each of the six teams received awards of 250,000 francs, the next 11 100,000 francs each, and 25 honorable mentions 56,000 francs each.

Despite national subsidies, the performances at the present opera house, Charles Garnier's masterpiece, are too infrequent and expensive for the egalitarian cultural policies of the current government. The new house will remedy this by streamlining all technical aspects of production to allow six different presentations a week. Yet the six-acre site, occupied by an unused railroad station, was thought cumbersome, if not ill-suited for this ambitious program. It was, however, politically and urbanistically propitious. The Place de la Bastille is the birthplace of the French

Republic, its July Column is a monument to yet another Revolution—that of 1830—and it continues to play a political role, for it was here that thousands gathered spontaneously at the announcement of the Socialist victory in 1981.

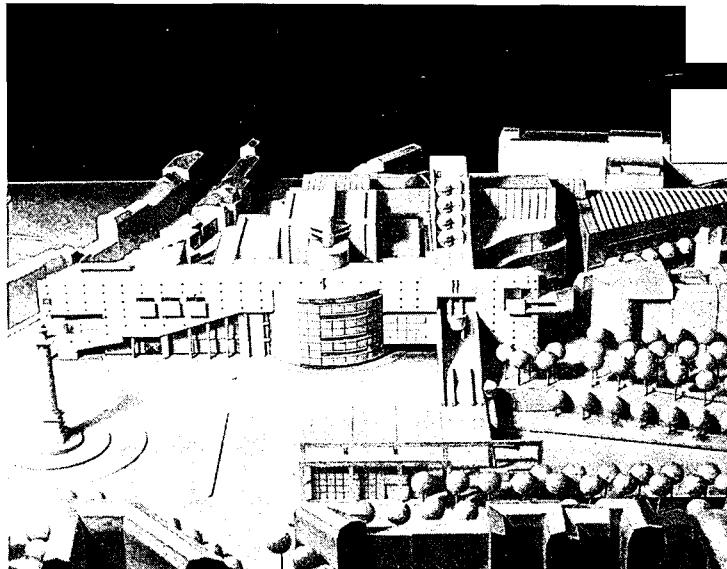
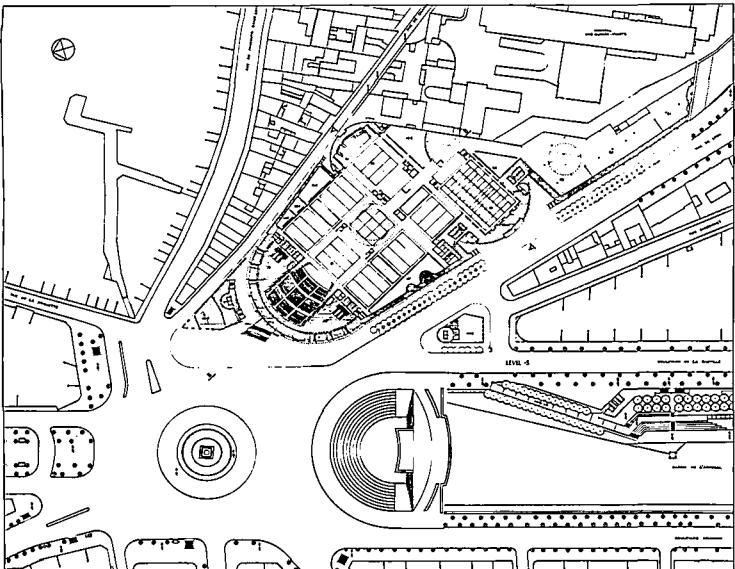
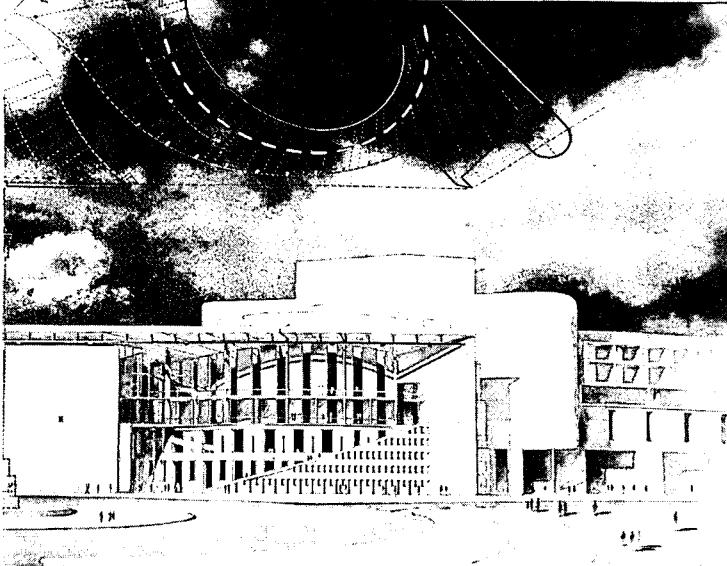
Recognizing the difficulty and irregularity of the site, with its long tail and sharp prow, the client provided a basic scheme for the main elements of the program: a 3,200-seat main hall, an auditorium with 600 to 1,500 seats for smaller productions, a contiguous rehearsal stage, storage areas, and an opera initiation center. The scheme, the use of which was optional, also provided for the crucial juncture with scenery workshops that were to be placed in the trailing strip alongside the rue de Lyon. Facility in changing scenery

stored at the house was held to be the key to the frequency of presentation which will make opera less expensive and thus more democratic. Many employed the scheme, but none, the Opera administration maintains with evident pleasure, as well as winner Carlos Ott.

The preoccupations of the architect members of the jury—Carlo Aymonino, Bernard Huet, Alain Sarfati, Mario Botta, Horst Birr, Hermann Hertzberger, Jean Nouvel, Gustav Peichel, Dennis Sharp, and Clorindo Testa—were, in all probability, mainly urban, for a single project could not reconcile their different, if not opposed, views on architecture. Music professionals on the jury, including composer Pierre Boulez, apparently influenced the choice of finalists, although the final selection was made by

In 1982-83 the Socialist government of French President François Mitterrand sponsored three open international competitions for cultural institutions that are intended to serve as catalysts for profound social and urban transformations of Paris. The three projects located on the map to the left include the International Communication Center at La Défense just west of the city, the urban park of La Villette on the northwestern border, and an opera house on the eastern edge of central Paris at Place de la Bastille. The La Villette and La Défense

competitions replaced commissions that had emerged from earlier invitational contests whose procedures and results had been strongly criticized. The Opera project alone originated with the Mitterrand government. All three competitions covered on these and the following pages were recently unveiled to American audiences at a series of symposiums co-sponsored by The Architectural League of New York and the French Embassy.



President Mitterrand.

Ott wrapped his building around the scheme and expressed the three stages as half-cylinders that pull in urban spaces around them (aerial perspective opposite). Opaque and transparent surfaces represent the work and circulation areas, respectively, which give the impression of a building perfectly emerging from its plan. The architect cleverly resolved the problem of the prow by letting it float free of the facade, thus preserving the familiar elements of the La Bastille landscape. Similarly, he left the Place as it is, merely suggesting a reorganization through the disposition of three large portals. Mindful of the program's social objectives, he opened his building facade to the public who will be able to promenade along the rue

de Lyon and join up with the park planned for the adjacent railroad viaduct. His respectful attitude toward the urban character of that street, which many treated as a banal backstage wall, and his attention to the vis-à-vis between the July Column and the Gare de Lyon clock tower at the end of the street helped him win the commission (top left).

Remaining strictly within the proposed envelope, Ott placed the opera initiation center on a small triangular plot opposite the House (site plan, bottom left). His imaginative addition to the program of an underground amphitheater adjacent to the great entry portal earned him praise. It is destined for street musicians, whose gritty but quintessentially urban activities are the main sideshow at the

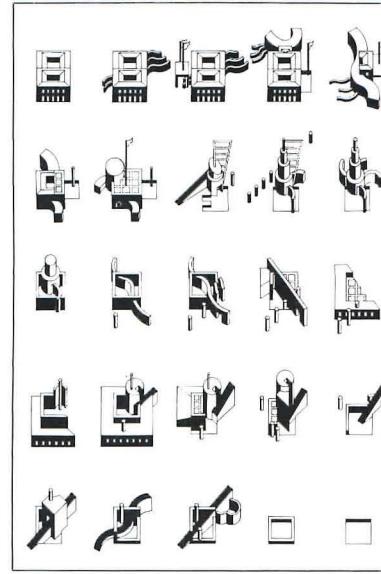
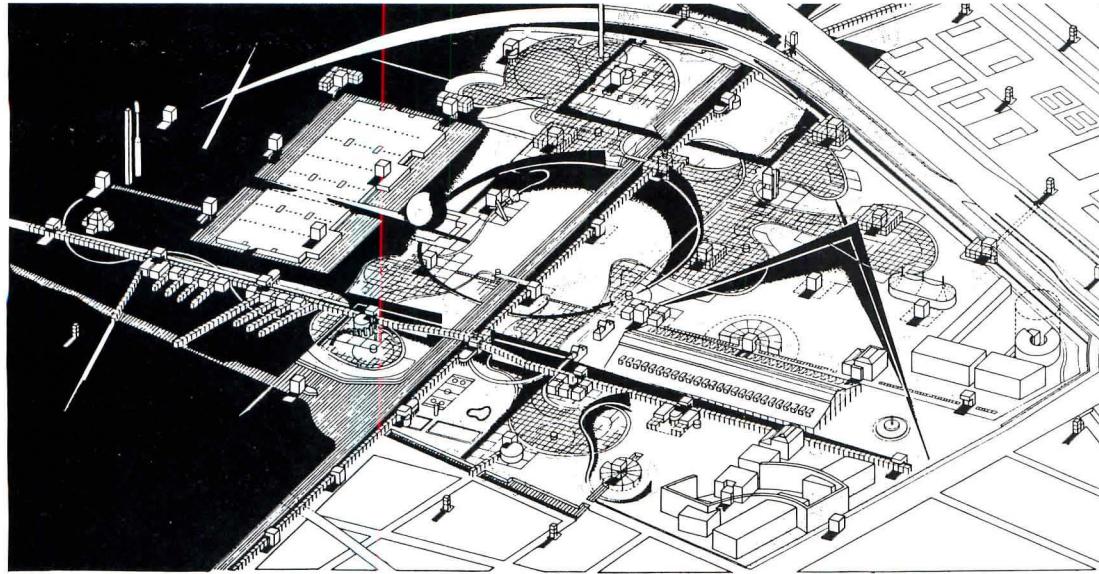
Pompidou Center. The integration of two of Pompidou's most successful elements—the walkway and the public space—should guarantee that the Opera House will enjoy the same popularity as that museum.

Two other final projects were well-received. Christian de Portzamparc proposed a strongly mastered facade with controlled volumes that willfully redesign the Place around the July Monument. Two moving panels can transform the facade into a backdrop and screen for forthcoming national celebrations of the bicentennial of the Revolution. These emerge from behind the opera initiation center, which he placed on the prow (top right). Jean-Paul Viguier, Jean-François Jodry & Associates squared the Place with a strong urban design and

placed a hall of their own axially on the new square. The jury voted most frequently for this project, whose postmodern references were the cause of much speculation as to the identity of the author. Finally, however, the great stair was considered too strong for the rue de Lyon (bottom right).

Despite a well-designed exhibition held in November, there has been little attention given to runner-up projects, including submissions by Americans Charles Moore, Richard Meier, James Polshek, Werner Seligman, Mitchell/Giurgola, Raimond Abraham, Michael Dennis and Jeffery Clark, and Michael Sorkin. It is unfortunate that the competition, potentially the contest of the decade if not the half-century, has inspired so little debate.

Parc de La Villette



The Parc de La Villette will take root in a dismal and difficult site. Encumbered by the remains of the slaughterhouses of Paris (including the enormous carcass of an unfinished meat sales hall and the five-acre bulk of a 19th-century iron market), it is belted by a ring road, buffeted by elevated highway traffic on its northern edge, and practically sliced in half by two working canals (aerial photograph top). The 75 infertile acres will bloom as the first "urban park for the 21st century" under the direction of New York-based architect Bernard Tschumi.

Although their early deliberations had earned them accusations of favoritism, the jury's clear majority vote for Tschumi inspires conviction and confidence in the results of this open, anonymous competition.

The Technical Commission called his design "among those which best respond to the spirit and character of the brief...It is indeed a new space, a garden space of urban character."

The program demanded that architects deliberate on the relationship of the park to the city (and a particularly unappetizing part of it), on plants and buildings, on leisure activity and pluralistic societies, and on the synthesis of science and music. They were not only to accommodate the great hulking structures of the sales hall (rehabilitated as the Museum of Science, Technology and Industry by Adrien Fainsilber) and the market (restoration under way by Reichen and Robert as a performance center) but also to foresee the inclusion of a "Music City" on a generally specified site

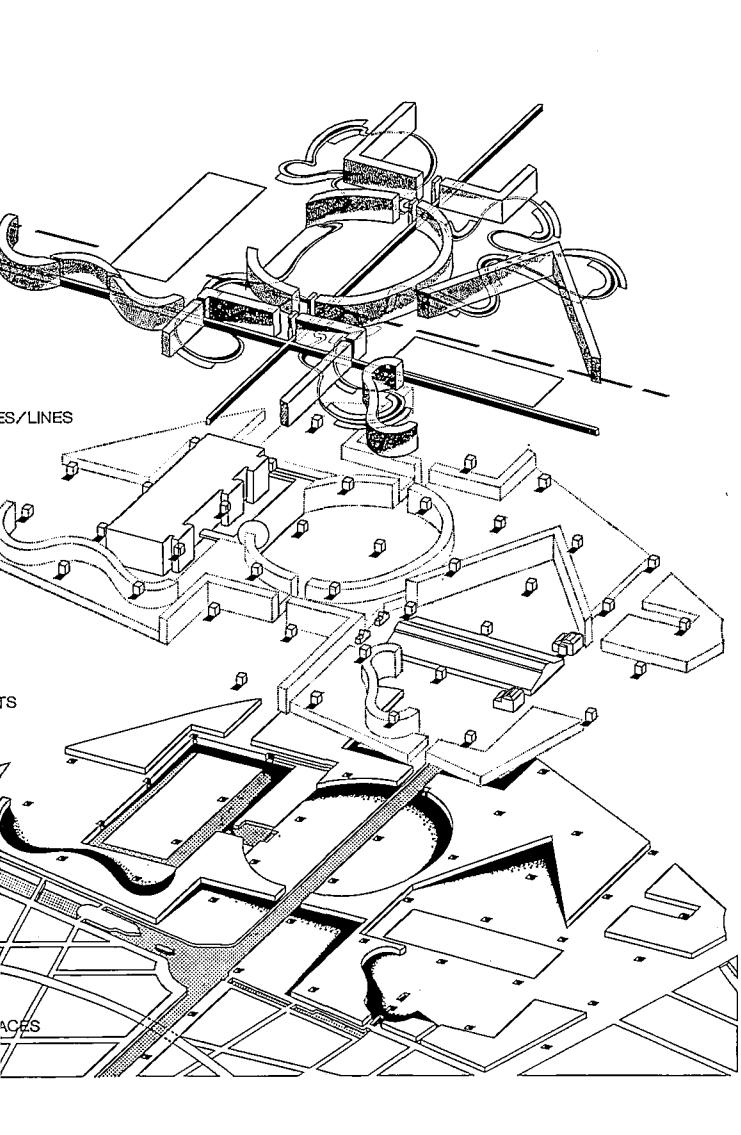
by another, unspecified architect. They were to consider the following uses: open and closed performance areas, open and closed exhibition spaces, a setting for the museum and its objects, including a missile launcher, thematic gardens, children's discovery gardens, workshops and meeting rooms for community groups, and day-care centers, as well as the more usual sports areas, swimming pools, play spaces, and restaurants to satisfy the tastes of both sophisticated Parisians and Villette neighbors, many of whom are Third-World immigrant workers. These ingredients were to be composed in a park that would have a systematic structure and specific identity, that could re-equilibrate the cultural imbalance of Paris by attracting bourgeois Parisians

to this northwestern corner of the city while still enchanting the working-class community. Eager to remedy the underuse of parks in the city, the program imagined it to be a park not only for all the people, but also for all of the time—a 24-hour-a-day pleasure ground where serious cultural pursuits could nevertheless be followed.

Tschumi entitled his design, shown in the axonometric view (above left), the Park of Follies. Taking his inspiration more from the small 18th-century pleasure villas of that name than from the eponymous English garden structure, Tschumi disposed the follies, some 40 of them, on a meshed grid along 120-meter intervals established more by site conditions than by any orthogonal feature of the supremely antigridded city of Paris.

The Parc de la Villette jury alone was free to select without the approval of President Mitterand the future architect of the first urban park to be built in Paris since the 19th century. The decision of the 21-member jury—which included, among others, architects François Barré, Vittorio Gregotti, Arata Isozaki, Renzo Piano, and Joseph Rykwert; critic François Choay; and landscape architects Roberto Burle Marx, Paul Friedberg, Jacques Simon, Hans-Friedrich Werkmeister, and Pierre Dauvergne—to invite nine equal first-prize winners (150,000

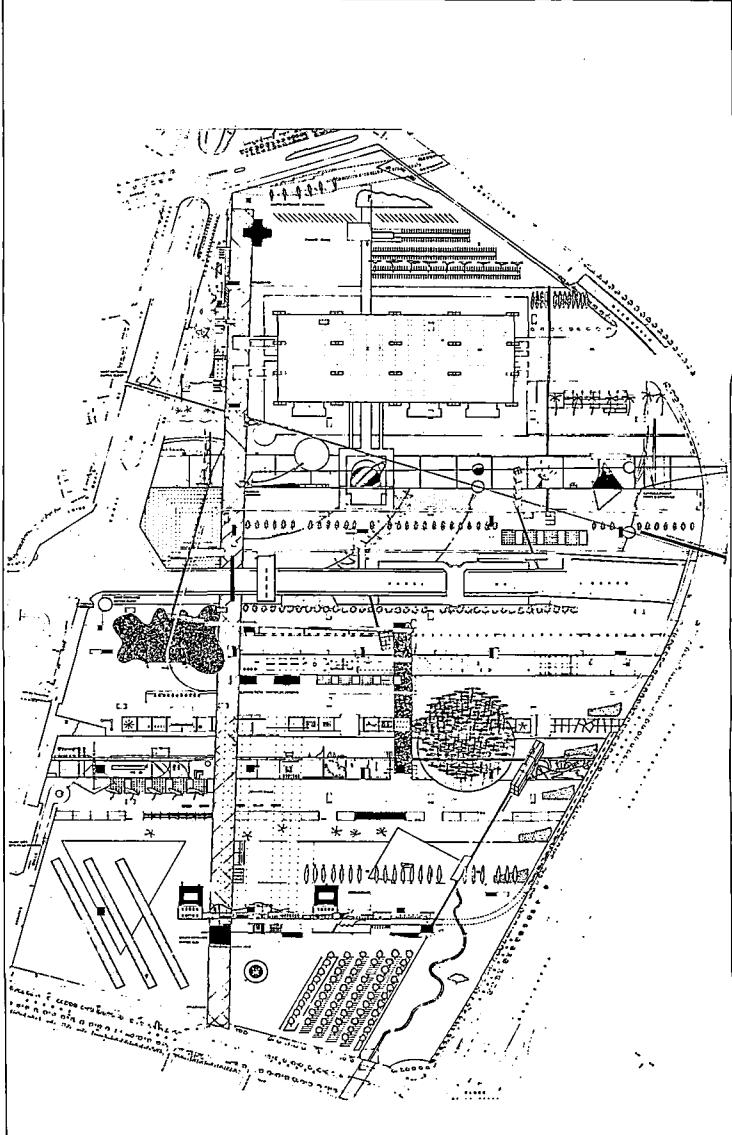
francs each) to compete in a second round provoked protests from the 463 other contestants and the press. Entrants provided either landscape or architectural solutions to the complex program for a 75-acre park on the industrial site in northwestern Paris. The jury's indecision reflected splits along these professional lines, a division healed by the design of Franco-Swiss architect, Bernard Tschumi, whose project triumphed over that of his only serious rival, Rem Koolhaas. The 4.4 billion-franc project is under way, and parts of the park are due to open in 1988.



The follies constitute the Points of one of three superimposed systems: Points (objects/events), Lines (movement), and Surfaces (spaces) shown on the exploding axonometric (above left). Points on a grid, the follies march relentlessly across the site and can be extended into the city. They are basic 33-foot cubes that can be adapted for both programmatic and symbolic purposes without losing their fundamental identity. They are thus both fixed and flexible. The swimming pools, skating rinks, greenhouses, and thermal baths will be housed in follies that have been modified; other park functions will go directly into the simple bright red cubes (opposite bottom right).

The Lines intersect the follies following a more random order.

The major Lines are formed by two continuous open structures on the north-south and east-west axes. The north-south axis connects the two Portes de Paris and their Metro stations, and it is one of the rare features that the Tschumi design shared with other competitors' projects, especially that of the leading landscape contender, Giles Vexlard. Other Lines are created by double allées of trees which delineate the major shapes (seen in shadow on the axonometric): the Circle of Oak, the Triangle of Ash, the West Square of Sorbus and the East Square of Evergreen, the South Curve of Hornbeams and the North Curve of Maples. Twenty-four-hour activities will be concentrated in and around the two coordinate axes which Tschumi imagines could extend out into Paris.



Tschumi allots the rest of the program to the Surfaces, defined by the allées and by the interstices of building and water. The great circle, for example, is a "play prairie," both an open recreational space and a handsome lawn that allows views of the water-enclosed museum.

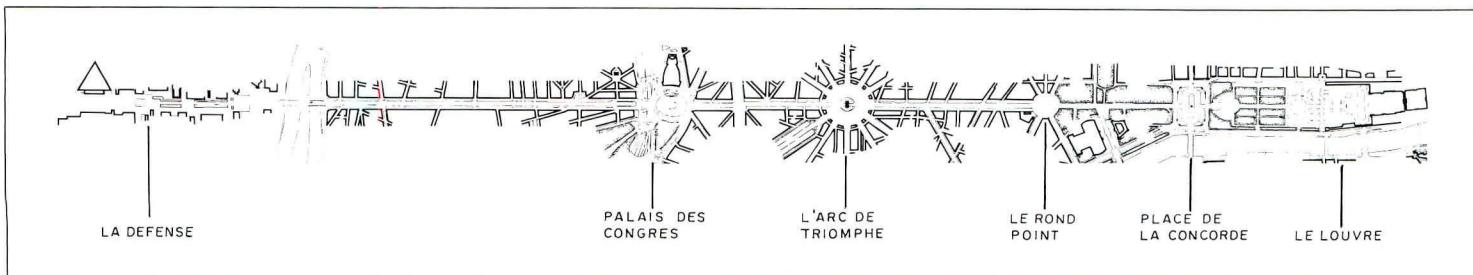
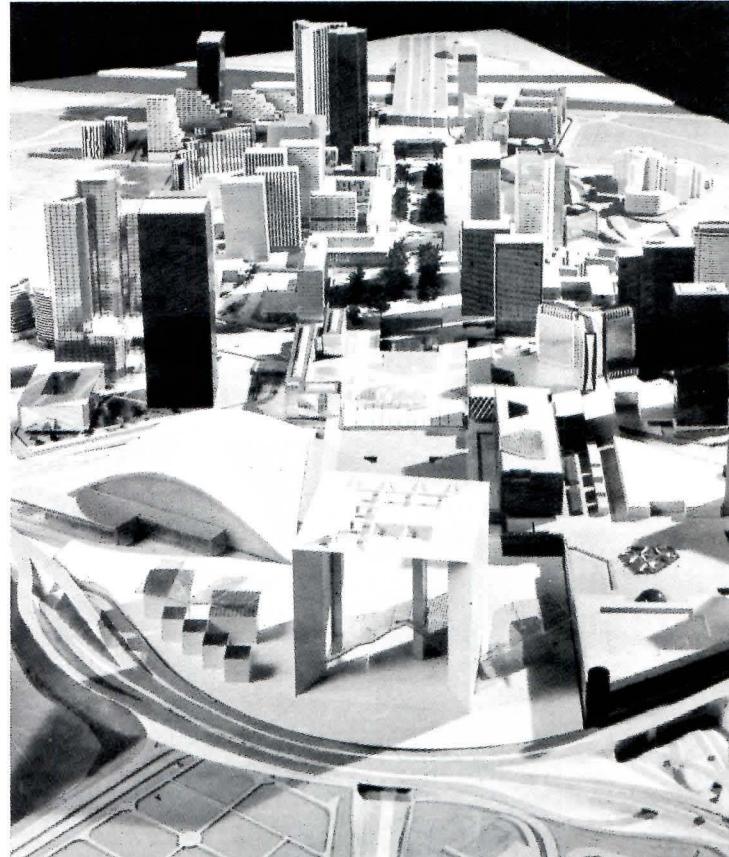
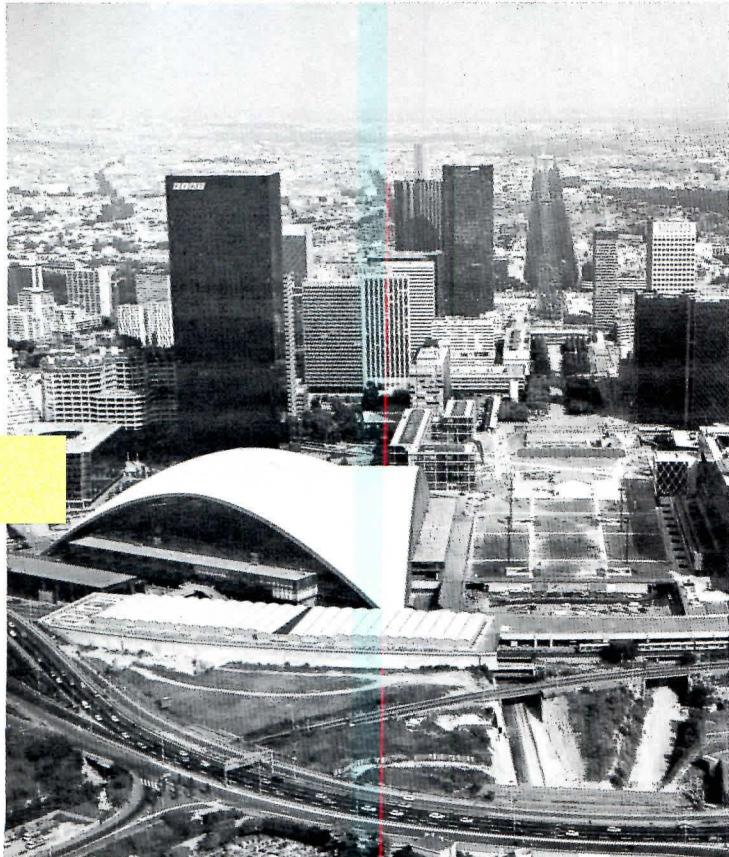
Rem Koolhaas also proposed a programmatic solution clearly unrelated to any existing park prototype (above right). Like Tschumi, he added no built forms to the heavily burdened site, provided a cross-axis, and included a richly complex secondary system. The concatenation of events and point structures, called confetti, proved too hectic for the jury. A crucial omission, perhaps fatal to this project, was that of any large open space.

Speaking at The Architectural

League symposium in New York, Tschumi described the genesis of his project from the mode of analysis contained in *Manhattan Transcript*, his theoretical work. Critic Michael Sorkin responded by declaring the jury's award to such a project a "staggering and unprecedented" event, for the design is "a virtual ideogram" of a park. The "brilliance of scheme" is to transpose the "baroque artifact" of the competition program into something "dazzling to behold": abstract, formal, but "at a level removed from conventional ideas of formalism." In this formalism the jury and administrators of the Park have found the freedom to transport Paris into the 21st century with a design that is contemporary, dynamic, urban, and evolutionary.

International Center of Communication at La Défense

The competition for new structures at *La Défense* was judged in May of 1983. A 130-member jury that included architects Richard Rogers, Richard Meier, Oriol Bohigas, Bernard Zehrfuss, Kisho Kurokawa and Antoine Grumbach; architectural critic Ada Louise Huxtable; and several high-ranking civil servants selected 16 projects from among the 424 designs for an international communication center and two ministry buildings to be situated at *La Défense*, the late-modernist satellite business district of Paris that terminates the Champs-Elysées axis. President



In March of 1982, French President Mitterand exhorted architects competing at *La Défense* to "show proof of great imagination" in their designs, for the western tip of this challenging site at the end of the Champs-Elysées axis would be visible through the Arch of Triumph (map above). At this 1960s-planned "downtown" situated well out of town, business towers were strung along a pedestrian esplanade that had kept the axis open (aerial view top left). The President's decision to abrogate the results of an earlier competition for an office building—visible from the Arch—was motivated by the conviction that a historic perspective and great boulevard in Paris should terminate in a monumental, public building. Yet

the program and jury selection made it clear that the project was to be chosen not only for its symbolic relation to the Louvre, Place de la Concorde and the Arch, but also as a modernist monument, an accompaniment and even a crescendo to the unfinished composition of *La Défense*.

The detailed program for a 405,000-square-foot International Center (or Crossroads) of Communication provided for a museum, a marketplace, a congress center for both general and specialized publics, and offices for 3,000 bureaucrats of the Environment and of Planning and Housing. Johan Otto Spreckelsen solved the problem of the project's relationship to Paris poetically by making his cubic portal the very material of

the Arch of Triumph. Although the architect termed it a "triumphal arch of humanity," the 325-foot-square door is more a city portal than any celebration of imperial military triumph (model top right). Indeed, the size of the void and the slight turn off-axis replicate the square court of the Louvre—the Cour Carrée—where the axis begins. The ministries and administration of the Communication Center are housed in the lateral walls, while the crossing floor creates a 325-foot surface with viewing platforms and top-lit interior conference rooms. The biased edge of the cube forms a gently rising plateau 2.47 acres large and 24 feet higher than the esplanade. Small structures with cable-hung glass roofs huddle at the foot on the great cube. The

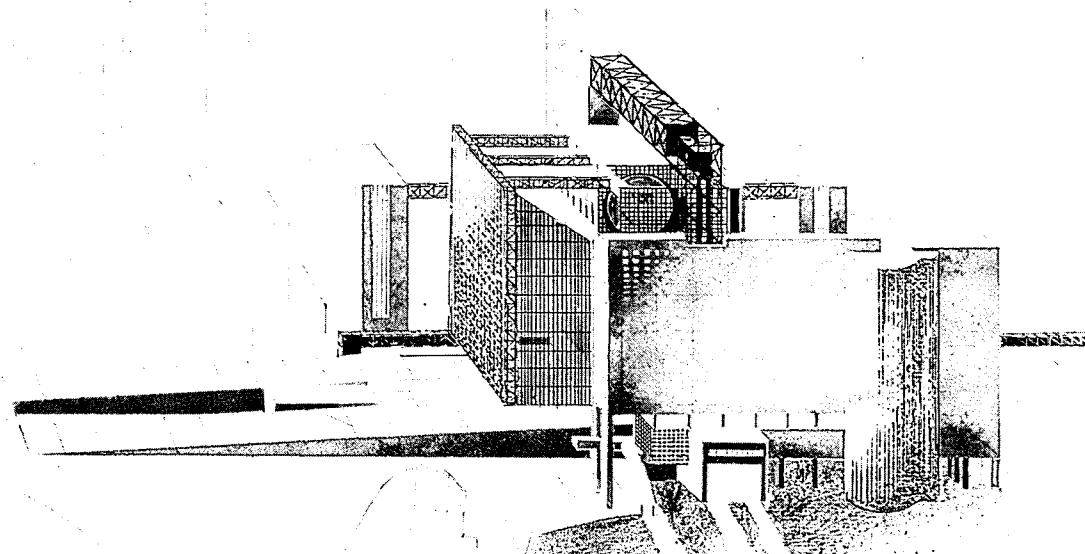
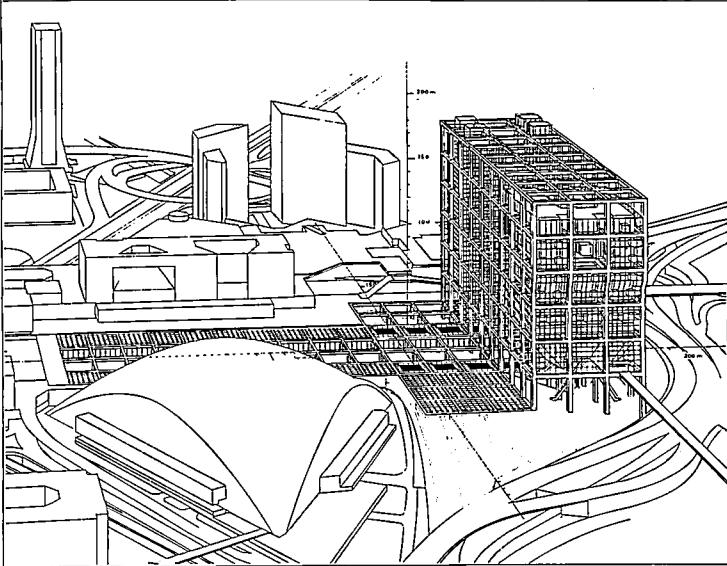
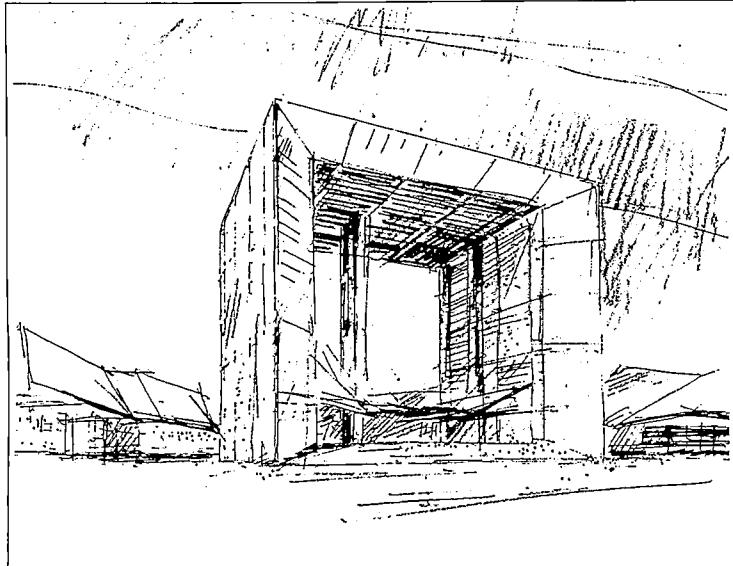
public activities of the Center will be housed there and in the base of the cube itself.

The project resolved the problems of the differential scales of the axis and *La Défense*. The quintessential monument when seen from afar, the new complex echoes rather than parodies the Arch of Triumph. The lower buildings not only soften the great mass and void, they infiltrate it, like a native bazaar camped among the ruins of the Imperial Roman forum.

Difficult problems remain, however, which the simplicity of conception and the poetic expressivity of the drawings did not disguise (facing page, left). An act of courage in an age of overkill competition presentations, these sketches only hint at the final detailing and materials. The architect

Mitterand chose from their recommendations, which the jury ranked as two equal first-prize winners (200,000 francs each), two equal second-prize winners (150,000 francs each) and 14 mentions (100,000 francs each), a cubic portal building only then identified as the work of Johan Otto Speckelsen, a Danish architect. The La Défense competition is considered a triumph for France and French architecture, despite its foreign winner. It was a model contest with a coherent selection of finalists of merit—and the majority, it emerged, were such promising young

French architects as Jean-Paul Viguier and Jean-François Jodry; Jean Nouvel, Pierre Soria, Architecture Studio, Jean-Marc Ibos and Didier Laroque; and G.E. Boake and J.C. Crank.



intends the grid created by the intersection of the floors with the post-tensioned concrete walls to reveal itself on the surface and exhibit a computer-chip-like pattern. Despite this reference to communication, required by the program, these 325-foot surfaces will join the other translucent skyscraper skins at La Défense in expressing faceless domination of the surrounding residential areas. There is an apparent—and some way flagrant—disparity between the prescribed spaces and those provided. Furthermore, the ministry office spaces threaten to be restricting and repetitive. Yet the jury deemed it a project of "both promise and risk." It was a risk that the President, the final judge, was willing to take.

This solution to the axis problem was not unique. Others,

among them equal second-prize winner Jean Nouvel, let it pierce a building implanted solidly across the esplanade. His gridded structure was designed to fuse with the horizon, leaving a framework slightly visible from under the Arch (top right).

Second equal first-prize winner Jean-Paul Viguier, Jean-François Jodry, SOPRA, and Regis Masson took a very different approach. Their building was the only premiated design to block the view from the Arch completely (above). An illuminated 275-foot-square screen covers the Center and is separated from it by a shed-roofed entry hall. The ministries are placed in five blade-thin buildings to the south with visible circulation elements joining them. Similarly, a metal-framed bridge, anchored by its own elevator, holds the

ministers' offices. Plan and organization are precise to the extreme: indeed, the competence of the organization and the laser artwork (designed by Otto Peine of MIT) that the building would project had the jurors convinced that the team was American.

Speaking at The Architectural League, jury vice president Richard Meier revealed that President Mitterand reached his unanimously acclaimed decision only after long consultation with the jury and several site visits. Still, it was very much his decision, and he has provided the *dénouement* to the 40-year-old mystery of how to finish La Défense.

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Books

Macmillan Encyclopedia of Architects. Adolf K. Placzek, editor-in-chief. New York: The Free Press, division of Macmillan, and London: Collier Macmillan, \$275.00 for the four-volume set.

Reviewed by William Hubbard

If an encyclopedia merely had to be a compendium of facts, the *Macmillan Encyclopedia of Architects* would be exemplary, for the facts are there in accessible abundance. The books themselves are well made with a serviceable design that does not tire the eye. The illustrations are clearly reproduced and of a size that makes them useful. Cross-referencing is at once copious and unobtrusive, and the index is comprehensive. Best of all are the full bibliographies that follow each article. As for completeness, although much will probably be made of the editors' decision to cover only architects born before 1930, that cut-off date does seem to strike the divide between generations, with Venturi and Moore on one side and Graves and Meier on the other. The only really glaring omission is that of Lewis Mumford, a non-architect but a critic who really should have been included, just as John Ruskin was. But even with that, the *Macmillan Encyclopedia* will be an absolutely indispensable aid to scholarship as a dictionary-like compilation of facts.

However, this work calls itself an encyclopedia, and for myself and I suspect for many others, the word "encyclopedia" has a special resonance. My personal memories involve Sunday afternoons when, to postpone the inevitable start of homework, I would be watching *Victory at Sea* or *You Are There*. Invariably, something in the program would catch my imagination—the Battle of Midway or the discovery of radium—and I would sit cross-legged in front of the bookcase and pull down volumes of our *World Book*, eagerly devouring article after cross-referenced article. All of us have recollections like this of times when an encyclopedia fueled and satisfied a random curiosity. This is not just nostalgia; it is the ideal toward which encyclopedias, and especially American encyclopedias, are written.

There is something here of the Jeffersonian ideal that a mind free to carve its own path will discover truth. There is a further assumption that after repeated

browsings in an area of knowledge, a reader will come away with a true picture of that area of learning, a picture something like the scholars in that field have. This learning-by-browsing is the hallmark that distinguishes an encyclopedia from a standard history. In histories the author sits you down and leads you through a long, carefully sequenced meal; in encyclopedias you return repeatedly to nibble at chosen parts of a buffet. At the end of either, you will have had your well-rounded nourishment.

An encyclopedia accomplishes this in much the same way a buffet does. Each part—each article of the encyclopedia—is planned for the same level of sophistication. Each is given an elaboration appropriate to its role in the total scheme. And each contains some partial (and therefore tantalizing) glimpse of an overarching idea—in this case, the movements of architectural history within which the individual architects worked.

How would such an encyclopedia be written? First of all, it would be geared toward a presumed reader with a presumed level of acquaintance. Although striking that level is

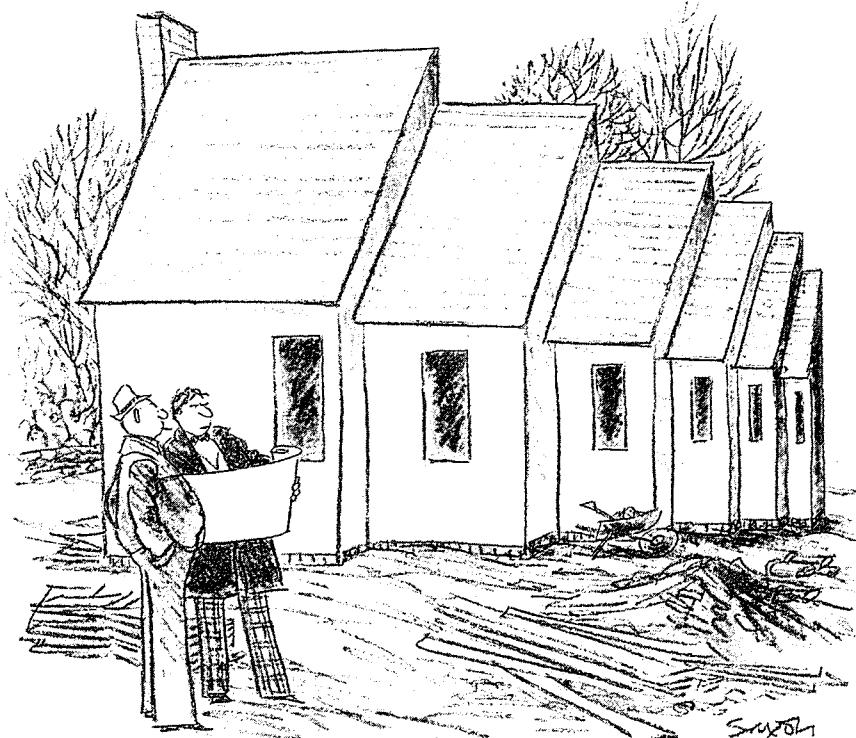
always difficult, several articles in the *Macmillan Encyclopedia* suggest that in the hands of a skilled writer, information can be made available to a sophisticated general reader without a loss in scholarly completeness. Brendan Gill's delightful article on Stanford White, for instance, tells the whole story, yet would sit easily on the pages of *The New Yorker*.

Furthermore, each of the articles would be written as a freestanding essay: the writers would make their points using only those examples that could be included as text illustrations. Again, a difficult writing assignment, but one that can be done with no real loss in completeness, as the article on Mies van der Rohe by Ludwig Glaeser comes close to demonstrating. Finally, the essays as a body would be commensurate with scholarly opinion, their length and depth of coverage in some way consistent with the accepted importance of the architects they covered. By the simple test of length, some of the articles in the *Macmillan* volume seem incomensurate. If you devote 19 pages to Le Corbusier, then it seems about right to give 18 to Richardson and 17 to Palladio.

But by giving 15 each to Johann Hildebrandt and Raphael, and 14 to Guarino Guarini (the same as for Wren and Wright), the editors seem to be promulgating an inappropriate impression of the architects' relative significance.

What is in fact happening is that importance is being conferred upon certain architects not by a balanced consideration of their contributions or influence but by the relative vigor of various research programs. From the large number of long articles on 17th-century German and Italian architects, one senses the unseen presence of an army of well-funded graduate students churning out dissertation synopses.

Treatment of individual architects is a matter not just of length but also of content. In the Palladio article by Douglas Lewis, for example, we are given detailed coverage of his ancestors, his teachers, and his colleagues—data interesting in its own right, but not strictly necessary to our understanding of the man and his work, and not included in articles on other architects of equal importance. Commensurate coverage might have been achieved by assigning



"I should have quit when I had it."

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the authors a range of fixed "lenses" through which to view their subjects: training, patronage, relation to received tradition, and subsequent influence of the work, to name a few possibilities.

While one sympathizes with the editors' desire to allow individual authors to reveal the important facts their research has brought to light, the proper vehicle for that activity is surely the journals and not an encyclopedia. We all know how reputations of architects rise and fall, and that subtle realignments are often preceded by great pendulum swings (the recent flood of publications on Schinkel and Hoffmann, for example). To freeze-frame such swings in the pages of an encyclopedia leaves the reader with a false impression. We know, moreover, that the character of our environment is influenced by whichever architects happen to have been critically "hot" at the moment of their design. Covering only the facts of an architect's life will not impart to the reader an awareness of that phenomenon. He must be told how subsequent generations viewed and used that architect's work and his ideas. That coverage of an architect's later influence occurs in only a few places in the *Encyclopedia*, two notable examples being the articles on Gottfried Semper by Rosemarie Haag Bleiter and Peter Behrens by Stanford Anderson.

Unless a person has a firm conception of the pattern of these critical swings, he or she will not understand the course of architectural history. More importantly, one will not comprehend the forces that visually shape the environment. Observers could never understand the environment that modernism gave us unless they realized that architecture's whole conception of "what matters" underwent an upheaval. Without that sense, a viewer would be left wondering what on earth happened to architects' minds in the time between the construction of the Racquet Club and the Seagram Building across the street from each other—and the AT&T Building a few blocks away. Unless you had some idea that the process of change had both serious intent and an internal logic, you might be tempted to write off the whole thing as mere caprice.

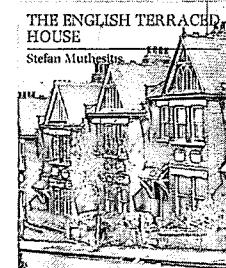
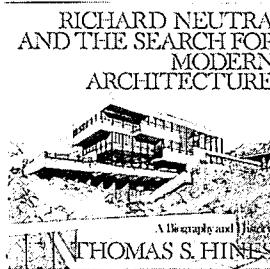
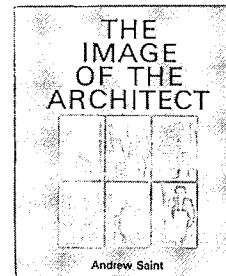
As practitioners we often encounter that conception of the work we do, and many of us search for vehicles by which the

public might come to understand the nature of the serious, searching (and compromised) idealism by which architects work. The *Macmillan Encyclopedia* might have been such a vehicle. There are many homes where this four-volume work will sit on the shelf next to the *World Book*, ready to be pulled down and perused on Sunday afternoons. The imprint of a major publisher, Macmillan, will persuade many that this encyclopedia, though expensive, is a necessary investment in their self-education.

But there is another imprint on these volumes, that of The Free Press, and this imprint reminds us that another Jeffersonian ideal was that the truth will emerge from a free marketplace of ideas. And more than that, the public, when properly informed, is fully capable of participating in that marketplace. The ideal of public participation has never been intelligently confronted in architectural discussion. A picture seems always to emerge in which Levittown is contrasted with Saint Peter's, as if the only alternative to high aspiration was accession to the lowest common denominator. Lost in this false choice is the possibility of an architecture whose ideals are worked out in intelligent and heartfelt dialogue between practitioners and a public informed and concerned about the direction of its building culture.

This opportunity is lost with the publication of the *Macmillan Encyclopedia of Architects*—a loss all the more unfortunate because such massive compendiums rarely appear more than once in a generation. Had this work given the general reader a real understanding of the processes of architectural history, there might have been the chance to have a truly informed and demanding architectural public participate in charting the course of architecture.

William Hubbard is director of architecture of the Urban Innovations Group at the University of California at Los Angeles. He is the author of Complicity and Conviction: Steps toward an Architecture of Convention (MIT Press, 1981).



The Image of the Architect, by Andrew Saint. New Haven: Yale University Press, \$19.95.

Richard Neutra and the Search for Modern Architecture, by Thomas S. Hines. New York: Oxford University Press, \$49.95 cloth, \$29.95 paper.

The English Terraced House, by Stefan Muthesius. New Haven: Yale University Press, \$30.00.

Reviewed by Mary N. Woods

Taking their cue from art historians, writers on architecture have traditionally seen the built environment's development as a succession of great men's achievements. To invoke the holy trinity of Richardson, Sullivan, and Wright, for example, sufficiently explained modern American architecture. Yet this infatuation with creativity and individualism denies the design process's very essence—compromise. If architecture is to have a life beyond the drawing board, it must submit to the real and practical. Thus architectural historians' obsession with the uncompromising genius insults the practitioner's intelligence, fills the architectural student

with false expectations, and misleads the public. Too many architectural writers have served as cheerleaders and groupies rather than historians and critics.

The appearance of Andrew Saint's *The Image of the Architect*, Thomas Hines's *Richard Neutra and the Search for Modern Architecture*, and Stefan Muthesius's *The English Terraced House* are encouraging signs. While not neglecting design and esthetics, these three authors also consider the social, economic, and professional implications of their respective subjects.

Saint's book examines the architect's persona and its relationship, or lack of, to the realities of professional practice. His premise is that one idea has consistently dominated professional and lay discussions: the architect as hero and genius whose powers derive from a total dedication to art and the creation of style. Saint traces the development of this theme through such works as Goethe's essay on the medieval builder as an inspired romantic and Ayn Rand's *The Fountainhead*, whose hero, Howard Roark, would rather blow up his building than let it stand in altered form. The greatest praise, Saint contends, is reserved for those architects who approximate Roark's extreme individualism.

Yet all this flies in the face of architectural reality. The ability to manage and cooperate with a number of different building specialists is as vital for the designer of today's high-rises as it was for the medieval master mason.

Saint believes that two groups currently dominate architectural discussion in Great Britain and the United States: the prima donna architects and the developer/entrepreneurs. The former refuse to recognize that practitioners do not spend most of their time on artistic pursuits while the latter are all too eager to abandon the idea of the architect as an impartial professional in the building marketplace.

Somehow a balance must be struck between these two views. Saint argues that historians and critics can help reconcile the profession's myths with its realities by adopting the criterion of sound building. By this, Saint means that a design's simplicity, economy, respect for the client/user, and application of technological innovation, as well as its artistic merit, should be judged. The standard of sound



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building is especially welcome in light of postmodernism's fixation on architecture as pure style.

Although Richard Neutra believed that an impersonal architecture of prefabricated parts was necessary, he too felt the need to play the heroic architect in the manner of a Sullivan or a Wright. Neutra's ties to the Fountainhead fantasy are tantalizingly close. Ayn Rand lived in the aluminum-sheathed house Neutra originally designed for the director Josef von Sternberg, and the architect liked to boast that he was the model for Howard Roark's sexuality.

When he was 18, Neutra wrote that he intended to devote himself to "the art, craft, business, and 'calling' of architecture." Hines considers all these aspects when he evaluates Neutra's career. He views his subject with critical detachment but never succumbs to the temptation to bring down the old god of modernism. His is a balanced view.

Hines makes it clear that modernism, at least as Neutra practiced it, was not a stylistic monolith. Although Neutra employed the International Style vocabulary of steel, glass, and concrete to create sleek, light-filled houses in the 1920s and 1930s, his work eventually began to mellow. Responding to complaints that his "machines in the garden" were too cold and austere, he began to build with brick, stone, wood, and, beginning in the 1940s, even slanted roofs.

Hines also provides a sobering view of the realities of architectural practice. We see how much time Neutra had to spend on nonartistic matters in order to build a career. He wrote his wife in 1930: "I travel long distances to get an address, speak extensively to a vast assortment of people who usually have no time for me, do not understand what I am driving at, who tell me a lot of irrelevant matters, are occasionally willing to listen in a friendly way and write down my telephone number.... This procedure is obscure and doubtful, but the experts tell me it would be more questionable to sit down somewhere unshaved and draw or develop ideas if one wants to make a career."

This book is certainly a model for all future architectural biographies. It is also (somewhat amazingly for a paragon) a delight to read. Hines is especially good at coming up with those telling bits of information

that capture the essence of Neutra's personality and work. As a result, we learn that Neutra found it necessary to fall in love with his clients or weave a legend around their lives, which had little to do with reality, in order to devote so much time to their projects. Neutra's aggressive self-promotion becomes apparent when Hines relates how he always tried to position himself to the extreme right of any group being photographed. Thus the caption would read, "from left to right Richard Neutra..."

Neutra emerges all the more real and fascinating because Hines has not papered over the complexities and paradoxes of his career and personality. Credit for this must also go to Dione Neutra, the architect's widow, who unconditionally offered information and observations.

While Hines uses the traditional form of biography, Stefan Muthesius focuses on a single building type, the English terraced house. It developed in the 18th century and became the predominant form of English housing by the 19th century. Although it housed all classes, its developers and designers carefully maintained social distinctions through differences in plan, materials, and stylistic treatment. Even the nomenclature used for terraced houses was significant. The terms *crescent* and *place* were reserved for the most prestigious developments; a road was superior to a street which, in turn, was preferable to a row.

The terraced house survived well into the 20th century because its basic plan provided high densities and could be

adapted to changing ideas about style, sanitation, and family life. It only succumbed when suburban detached and semidetached villas supplanted it as the fashionable building type.

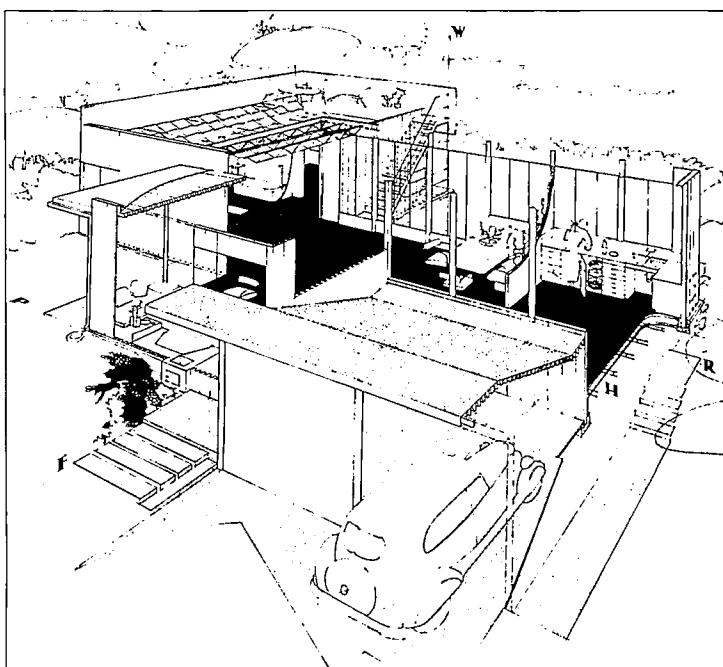
Muthesius's discussion of the terraced house's social implications is particularly insightful. Unlike other European developers who literally piled the various classes on top of one another in the same residence, English designers always carefully separated the classes and never mixed houses of different sizes in one development. It was class homogeneity, Muthesius observes, that was a terraced house development's primary selling point.

He also notes that as terraced houses for the lower classes became larger, more sanitary, and embellished with ornament in the 1850s (and thus comparable to better houses), new esthetic criteria preserved class distinctions. The classical pediments, pilasters, and moldings now adorning these houses were considered vulgar and gauche. The more complicated values of the picturesque, quaint, primitive, and small (associated with the Gothic and Queen Anne revivals) were the artistic desideratum for upper-class terraced houses.

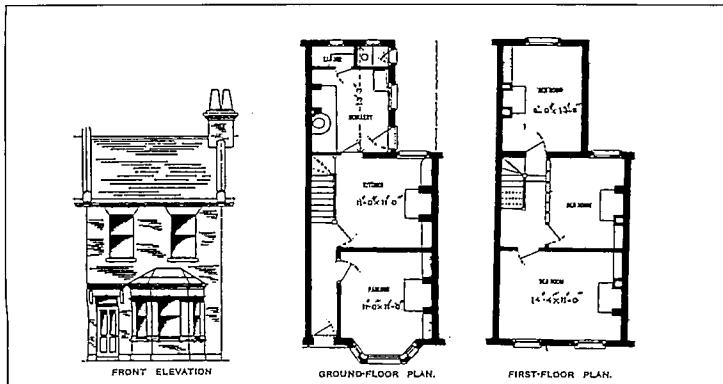
Like Hines, Muthesius surveys his subject from a variety of viewpoints. He meticulously recounts the economics and legalities of its development, construction, layout, sanitation, mechanical services, materials, and style. Each of these topics receives a separate chapter. As a result, however, the book is never quite the sum of its parts. Its impact is scattered and fragmented.

Yale University Press, moreover, has not served Professor Muthesius very well in the design and layout of his book. Far too much of the reader's time is spent aimlessly searching for illustrations discussed but by no means adjacent to the appropriate text. By the time you find the right plate, you no longer remember why you were looking for it. The many street maps and house plans, moreover, are reproduced on such a small scale that they are useful only if a magnifying glass is handy.

Mary N. Woods is assistant professor of Modern and American architecture at Pennsylvania State University.



Richard Neutra, Beard House, Altadena, California, 1934

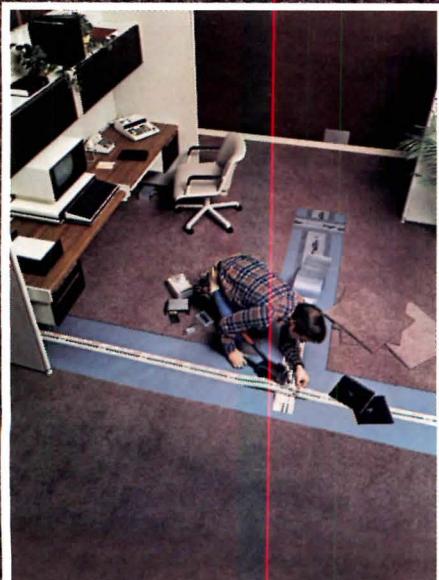


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Office interiors

By Mary N. Woods

Designing an office interior today can be (on a smaller scale) as exacting an architectural task as planning a high-rise building. As the price of prime commercial real estate escalates, the designer must shoehorn more staff and functions into less space and somehow still leave room for future expansion. And while most clients move into anonymous spec buildings, they demand that their surroundings project a distinctive image. Completion schedules are formidable because the client must move in quickly to qualify for lease incentives. Office computerization has meant that such standard-issue items as the 30- by 60-inch desk are becoming obsolete. In sum, creating and executing an office interior is really the structuring of an architectural microcosm.

This approach characterizes the works chosen for this Building Types Study. Collectively, these projects also represent the full spectrum of design practitioners involved with office interiors: architectural partnerships (Powell/Kleinschmidt Inc.); interior teams attached to a practice devoted to commercial work (The Stubbins Associates/Interior Design Group); and an interior design consulting firm (ISD Incorporated, Houston and Chicago).

Whether they are dealing with bland spec buildings, a classic skyscraper or a paean to technology, these designers are attentive to detail and craftsmanship. It is the way, they assert, to bring about a personal relationship between the user and the building. Postmodernism, for these designers, does not mean pink columns or blue moldings, but returning to the traditional elements of detail associated with quality and determining how to execute them today. By and large most clients want interiors that recall the substance and stability of the turn-of-the-century law firm or private club. As this image often clashes with the architectural shell and office technology, the designers must reconcile traditional values with contemporary materials and budgets.

Robert Kleinschmidt articulates the concerns that motivate all of this survey's interior designers: "There is a critical need to create environments that are human and humane, that are pleasing to be in for the total working day, that are neither crowded nor claustrophobic, that do not overwhelm people with the presence of the machine, that will be energy efficient, and that in the end will aid in productivity, effectiveness, and quality." Not a bad goal for the outside as well as the inside.

Gridlock

1st Source Bank
South Bend, Indiana
ISD Incorporated, Houston,
Designers

While Helmut Jahn (Murphy/Jahn) prepared the conceptual designs for its new building, 1st Source Bank retained ISD Incorporated, Houston, to create the interiors. ISD vice president Riddick Semple's team faced a formidable task: to design a lobby and three office floors that could stand up to the Brave New World Architecture. Just as Jahn created a striking architectural presence for the bank, ISD conceived an interior that scales the building down and makes it accessible to staff and customers.

Although joined to a 300-room hotel by an atrium, the bank asserts its identity through a parallelogram-shaped mass that breaks sharply from the street alignment. The lobby plays on this tension; its architectonic features (teller stations, striped floor, and core area containing the vault) fall along the building's axis, while furnishings align with the street grid as can be seen in the plan below.

The bank has four entrances. The major public access under the corner overhang is defined by an arc. The plan has an unusually generous customer seating area and an open and accessible banking floor.

Murphy/Jahn's three-foot planning grid was the interior's leitmotif. Appearing first in the lobby's fabric-covered core, ceiling and floor tiles, and Le Corbusier chairs, it resurfaces in the upper floors, as seen in the board room cabinetry, lighting, and interlocking table (opposite).

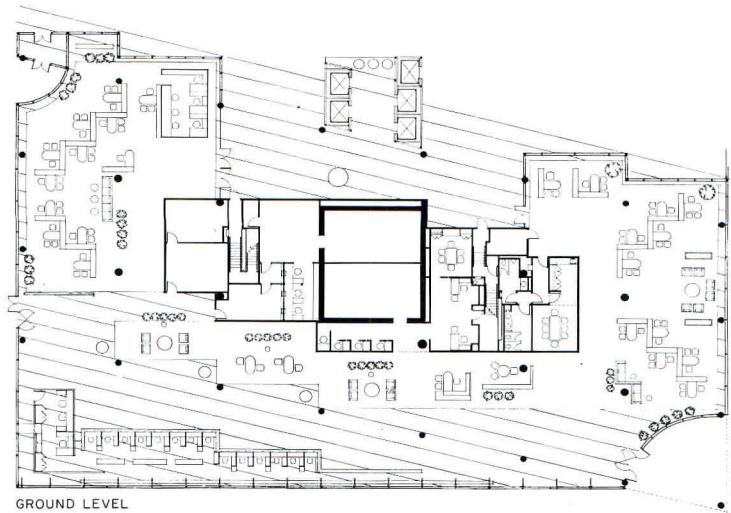
Earth colors and natural fabrics soften the interior. Since the bank's official color is terra cotta, shades of orange appear in the marble, carpets, and upholstery.



Satin-Schnair photography



Abby Sadin



1st Source Center
South Bend, Indiana

Owner:
1st Source Bank
Architects:
ISD Incorporated—A. Riddick Semple, principal-in-charge; Mel Hamilton, project designer; Steve Apking, designer
Engineers:
Murphy/Jahn (mechanical, electrical, plumbing)
Consultant:
Alfred Scholze (lighting)
General contractor:
Sollitt Construction



No ballyhoo

Although Bally expects dazzle and glitter in its Atlantic City casino, it did not want a high tech or pinball setting for its corporate headquarters. A diversified company consisting of theme parks and health clubs as well as a casino, it wanted dignified and even traditional office space.

Presented with two floors (60,000 square feet) in a spec office building near O'Hare Airport, ISD's Mel Hamilton and staff crafted an interior from traditional details filtered through a modernist sensibility.

Since an atrium is the building's chief asset, reception areas, conference rooms, and the staff lounge were arranged around it. Private offices hug the building perimeter with open plan clerical stations placed in the core. By current standards, the offices are a spacious 150 to 300 square feet. To distinguish the executive floor from the operations area one level above, the color value balance and materials were changed. A maroon and beige palette gives the executive space a mellow and glowing quality, like a private club. Bally's operations floor has a more contemporary feel to its reception space and office areas because of the white walls and clerestories (right and opposite page). Modern furnishings were used throughout the space. The etched glass panels pulled back behind the walls facilitate the transfer of light to the interior. Bally's move into its headquarters had to be completed within nine months. Yet the meticulous attention to detail and seamless integration of form make one believe ISD had all the time in the world.



Bally Manufacturing Corporation
Corporate Headquarters
Chicago
ISD Incorporated, Chicago, Designers

Hedrich-Blessing photos



The executive floor moldings and work stations are African cherry while the walls are covered with beige linen. The board room can be seen beyond the reception area. Although furnishings in the work areas are modern, reproductions of antiques were used in the executive office suites (bottom left). Curvilinear doors part to reveal a bar set into an oak-paneled apsidal niche (bottom right).



Merrick/Hedrich-Blessing



Presidents Plaza II
Headquarters for Bally
Manufacturing Corp.
Chicago

Owner:
Arthur Rubloff

Architects:
ISD Incorporated—Mel Hamilton,
principal-in-charge; Janice Wood,
project manager; Sarkis
Aznavaorian, Cindy Coleman, John
Baumann, Cynthia Milota, project

team; Kathy Wasilko, tower
interiors

Associated architects:
Ecodesign International—Laurence
& Sherri Cutler

Engineers:
Midwesco (hvac); Newgard Electric
(electrical); McDaniels (fire safety)

Consultants:
Kathy Wasilko (artwork); Roscor
Corp. (audio-visual); Equipment
Manufacturing Inc. (kitchen

equipment); Sylvan R. Shemitz
(lighting)

General contractor:
Lake Michigan Construction Co.



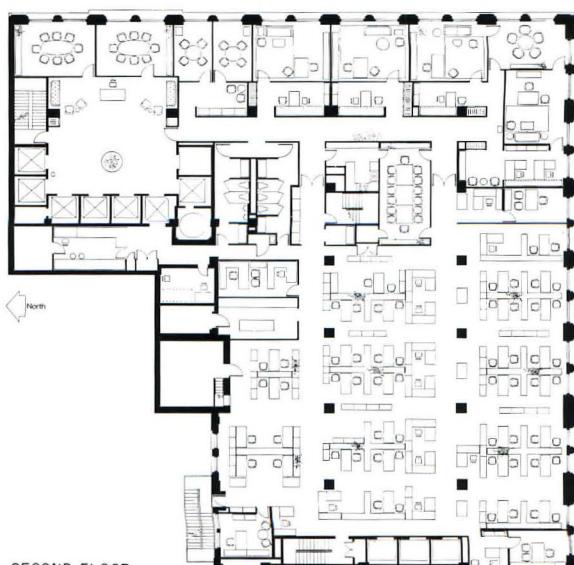
Recreating tradition

As specialists in corporate real estate, LaSalle Partners has developed rather than razed older buildings. It was fitting that the firm locate its own offices in the McCormick Building, a 1912 skyscraper. Distributed over two floors, about 100,000 square feet, the space contains seven partners' offices, adjoining secretarial stations, and conference rooms.

Although the client requested a traditional design, Powell and Kleinschmidt's (both partners are SOM alumni) allegiance is to the Bauhaus. Admitting that the project was a departure, the architects modified details to express the building's classic architecture and worked from the outside in. The building's use of red marble suggested the interior's mahogany paneling and cabinetry. Brass sconces, bronze hardware, crown moldings, plaster soffits, and generous openings were responses to the original fabric, as was the centering of work stations on pre-existing bays.

The reception area's and corridor's mahogany paneling with crown moldings brings the 10-foot, 6-inch ceilings into scale (right and opposite below). Mahogany-colored metal files, wooden desks, and individual lamps create warmth and privacy in both the open office and executive secretarial areas.

For all its traditional detailing and antique furnishings, the interior has the same purity and order that distinguishes the architects' works in the modern vein. It reminds us that craftsmanship and harmony of the interior and exterior were as important to the Bauhaus as the machine and technology.



LaSalle Partners Incorporated
Chicago
Powell/Kleinschmidt Inc.,
Architects

Jim Hedrich, Hedrich-Blessing photos



Set within a raised frame, the wood paneling is both planning module and design motif. It can be seen in a conference room between two executive offices, the filing cabinets, and hallways (left and bottom right and left). The conference room furnishings recall those of a private club and create a gracious setting in which to receive clients. The high-backed chairs and rectangular table with rounded edges lend a

more formal air to a conference room adjacent to the main reception area (right). Fabric panels soften the space and provide a tackable surface. The chairs create a secondary enclosure within the high-ceilinged room. A rendering of the McCormick Building is visible on the back wall. Bronze hardware bearing the McCormick monogram also alludes to the original building (bottom



-Blessing photos



right). With no interior windows, the board room is opened up by plaster walls tinted celery and by red fabric panels. This area can be set up for dining.



*La Salle Partners Incorporated
Chicago*

Owner:
Roanoke Partnership
Architects:
Powell/Kleinschmidt Inc.—Donald D. Powell, partner-in-charge/planning; Robert D. Kleinschmidt, partner-in-charge/design; Cheryl Baughman, senior designer; Gregory E. Patterson, project manager

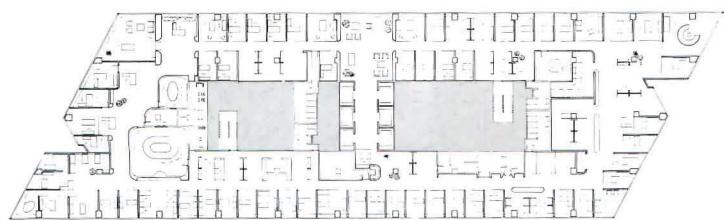
Associated architects:
Hammond, Beeby and Babka
Consultants:
Mitchel Kohn (lighting); Susan Jackson Keig (graphics)
General contractor:
E.A.I. Construction

The image-maker's image

There is perhaps no client more sensitive to its surroundings' image than an advertising agency. With accounts ranging from *The Boston Globe* to Wang Laboratories, this international concern wanted neither a Darth Vader environment nor a Beacon Hill drawing room. The solution devised by The Stubbins Associates/Interior Design Group, headed by Philip T. Seibert, Jr., was crisp modern detailing executed in traditional materials and colors.

Located on one floor of a premier skyscraper, the offices occupy 22,000 square feet and accommodate 130 employees. The floor-through plan (see below) arranges the executive offices along the glazed perimeter while clerical areas, conference rooms, special art department facilities, and a gymnasium cluster around the core. Two entry areas, one for clients, the other for staff and deliveries, are placed at opposite ends of the elevator lobby. The split between the agency's creative and business sides is reflected in the executive offices' placement and furnishings. The art department's domain falls on the plan's left. Here each executive chose his/her own furnishings, ranging from high tech to French Provincial. On the right, account executives' offices present a uniform style of classic modern echoing the public area.

Traditional materials and palette meld with classic modernism's simple forms and clean surfaces. Oak paneling and a British racing green carpet inset into parquet relate the reception area to the executive area to the board room. Curved paneling leads the eye to the offices beyond.



Hill, Holliday, Connors, Cosmopolos, Inc.

Boston

The Stubbins Associates/Interior Design Group, Architects

Edward Jacoby, Architectural Photography Group photos



Designed to transfer light from the perimeter to the interior, the outer offices' front walls are of unframed glass. Dark oak railings, projected off the glass, prevent collisions. The board room features a custom cherry table and facilities for audio-visual presentations.

*Hill, Holiday, Connors,
Cosmopoulos, Inc.
Boston*

Architects:

*The Stubbins Associates, Inc./
Interior Design Group—Philip T.
Seibert, director of interior designs;
Mary Killough, John Kelsey,
William McMullen, design team*

Engineers:

Cosentini Associates, Inc.

Consultants:

*Bolt Beranek and Newman Inc.
(audio-visual and acoustics)*

General contractor:

A.J. Martini, Inc.



The offices' glass fronts appealed to the president who wanted a crystalline honeycomb to showcase his staff's talents and industry to passing clients. Extending beyond their point of juncture with the side walls, the glazed fronts form a constructivist composition of free-floating but tangent planes. Gray panels serving as simple tackboards are inset into the white walls with an attention to proportional

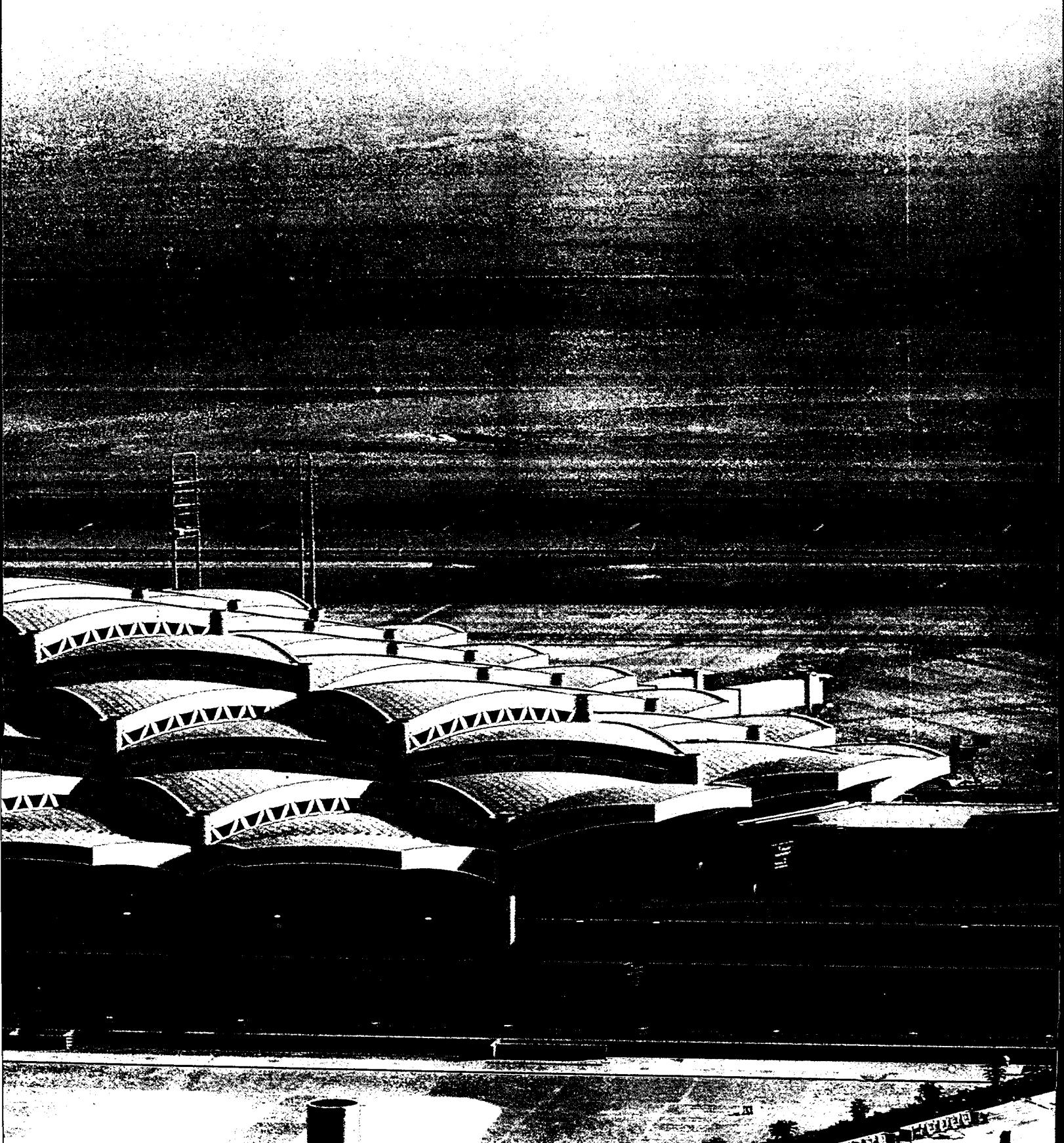
relationships worthy of a Malevich canvas. The open hallways and green carpet are put to special use by golf enthusiasts in the agency who practice putting there.



Affording the best



The King Khaled International Airport
Riyadh, Saudi Arabia
Hellmuth, Obata & Kassabaum, Architects



There will never be another airport like it. Built for \$3.2 billion by Arabian Bechtel Co. Ltd. to serve 15 million passengers annually by the year 2000, the new international airport 22 miles north of Riyadh could happen only in Saudi Arabia. The Saudis' mandate to Bechtel was to give them the most beautiful and technologically advanced airport in the world by 1984. Bechtel delivered. The purchasing power of the Saudis, of course, had a lot to do with their ability to build the airport of the century, but their success was shaped as well by a number of other circumstances favorable to the accomplishment of grand architectural schemes.

In Saudi Arabia the power to make ultimate decisions about everything, including airports, is held by a few, namely the members of the royal family who head and largely comprise the Government of the Kingdom of Saudi Arabia. Two government agencies, the Saudi Ministry of Defense and Aviation and the Presidency of Civil Aviation, help devise and implement royal air transport strategies. Bechtel, involved since 1944 with huge and successful development projects in the Kingdom, enjoys the Saudis' trust. This faith extended to Hellmuth, Obata & Kassabaum, subcontractor to Bechtel for the airport master plan, the design of the passenger terminals, the royal terminal and the mosque. Once HOK and Bechtel were persuaded of the correctness of a decision, the Saudis generally concurred. Go-heads were prompt.

The decision-making process was further streamlined by the fact that the architects and planners had to meet the requirements of just one airline, Saudia, owned by the Kingdom. (Most airport terminal buildings are in large part paid for by the airlines that use them. Budgets are low and over-all functional and esthetic coordination is difficult.) Finally, the site was without constraints. "There weren't any boundaries," reported architect William Valentine, member of HOK's design team for the airport. "We were able to get the terminal buildings and the runway and access road interrelationships dimensionally perfect."

In seeking perfect dimensions for each of the terminal structures, the HOK team studied various triangular forms, choosing equilateral triangles for all five. A principal advantage of this shape is that it allows the walk from curb to gate to be short. The ample area at the triangle's center, furthermore, is available for security controls and also for open space interpenetrating the departure and arrival floors. In most airports with the departure level at the top and the arrival below, whatever architectonic quality the airport may have is perceived only by departing passengers. As soon as they come through the gate, arriving passengers are channeled downstairs and through the baggage and customs maze. In the King Khaled International Airport terminals, arriving passengers are also directed downstairs at once, but find themselves in a vast two-story hall open to the terminal ceiling and filled with plantings around a central fountain. Thus the experience of grand space is available upon arrival, as it should be, in a capital city that considers itself the gateway to the country.

Bechtel and HOK received word early that the Kingdom hoped the airport would be "Islamic." Western architects venturing into the Muslim world are finding this challenge to be hard, complex and elusive. It is uncertain what meanings traditional Islamic forms or decorative patterns have for today's Muslims. Assuming such shapes still have some kind of symbolic power, problems remain. Can the use of selected motifs from any one or combination of the great Muslim architectural and ornamental traditions make a late-20th-century technological phenomenon,

such as an airport, Islamic?

The airport program called for a mosque with a capacity of 5,000 to be located near the terminal buildings. Such a structure as the centerpiece of a major international airport is an architectural problem without precedent. It did, however, offer HOK a way out of the dilemma of making the airport appear Islamic. All they had to do was to make the mosque itself recognizable as such, siting it as dramatically and prominently as possible. This they did, giving the airport the hoped-for Muslim character. It wasn't easy, of course, to design a proper mosque on top of a parking garage in the shadow of a control tower 270 feet high. The HOK team researched and studied Islamic forms and patterns and at the urging of the Saudis visited mosques in Cairo and Córdoba. If the hexagonal airport mosque has a remote ancestor, however, it is the much smaller and octagonal Dome of the Rock in Arab Jerusalem.

The fact that the mosque is a hexagon relates to the over-all geometry of the terminal complex. Once the architects had concluded that the terminal buildings should be triangular, they decided to plan the whole project in multiples of 30-60-degree angles. Said design team member Frank McCurdy: "That angle has it all over the 45-degree, which spread things out too much, taking too much space for the aircraft to get in and out and thereby forcing the terminals too far apart. Furthermore, the 30-60-degree angle is a basic component of traditional Muslim decorative patterns." HOK used this module, therefore, not only to determine plan proportions (a mosque that is hexagonal rather than octagonal in plan fits the module), but as the basis for all the Islamic decorative designs they recreated for the passenger terminals and the royal terminal.

I visited the HOK buildings the day the airport opened last November and found the interiors of the five terminals among the most elegantly shaped and detailed modern spaces I have ever seen. Except for the arched clerestory trusses which I found a bit chunky (they were designed by Bechtel's very conservative engineers who are used to designing bridges, highways and dams), the proportions are controlled and spare. (HOK acknowledges that they might have chosen different design options for the roof shells had they been in charge of the structural engineering.)

The decoration of the mosque interior, unfortunately, was not in HOK's contract. The masterful relationship of ornament to architecture found in the HOK interiors and especially in the royal terminal, is sadly missing in the mosque. Put together by Vesti Corporation, an art consultant in Boston, under separate contract to Bechtel, the individual works, many created by superb craftsmen, are lovely. This ornament, however, is not painstakingly related to structure, proportion and space as it is in the terminals. The architects who embellished the HOK interiors really knew and understood their buildings. Vesti, it would appear, came a bit late to the mosque.

HOK founding partner Gyo Obata is very proud of the King Khaled International Airport. "For once we had enough time and enough budget for a project to take a function that worked well in what is really a very simple geometry and then elaborate the design, detail it, spend hours on it. Some of our refinements, like the way the window walls are framed in stainless steel, are just gorgeous. This is the direction in which I think modern architecture should be going. And the computer is going to give us time to perfect things, because it makes it so easy to study them. Fewer architects will be putting simple elevations over simple plans. We are getting away from the diagrams and enriching our art." *Mildred F. Schmertz*

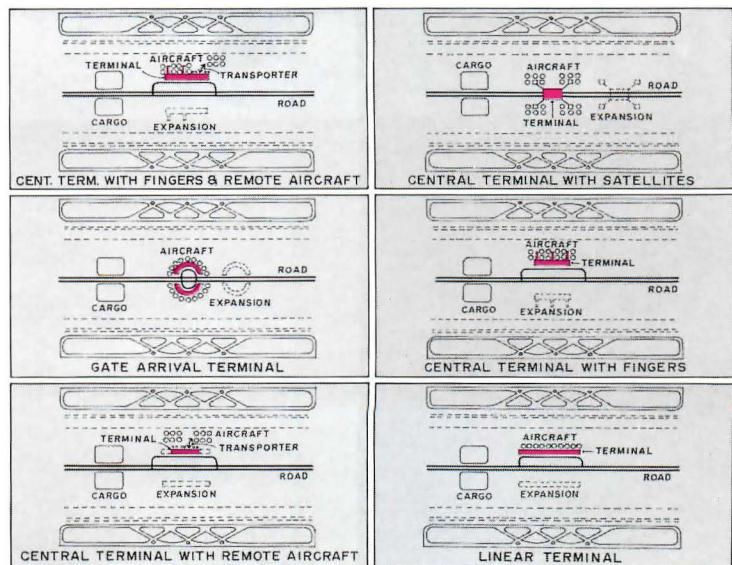
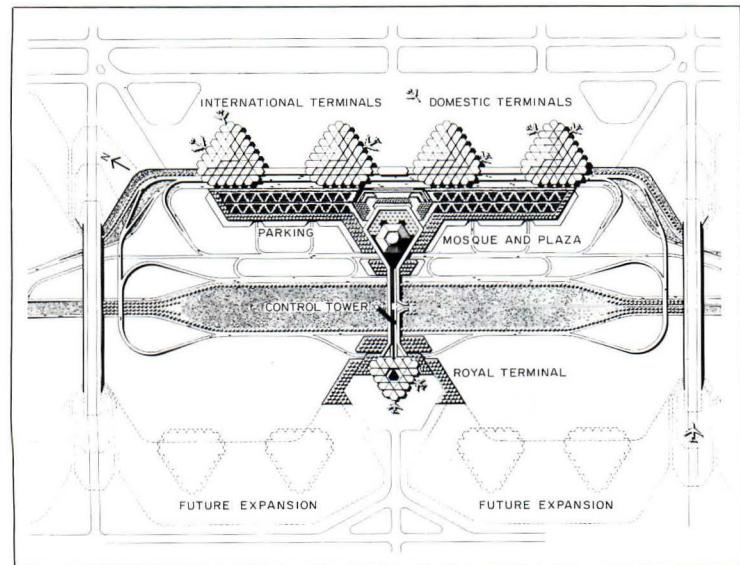
Terminal curbside facades are shown in photo below. Because the desert site is vast—70,000 acres—and flat, the architects were able to devise a system of terminals and runways they consider to be dimensionally perfect. Included in the site plan below are four passenger terminals, the two domestic on the eastern half of the central axis and the two international on the western; a two-

level garage for 11,600 cars on which has been set a mosque for 5,000 worshippers and a courtyard designed for 5,000 more; a control tower centered between parallel access roads; and a royal terminal. Bridges to the east and west link the two runways. Not shown on the site plan are airline support and community facilities designed by other architectural firms and additional taxiways and aprons.

The architects had rejected the familiar airport schemes shown in the diagrams below for such faults as excessive walking distances, dependence upon bus transport, inadequate curb or apron perimeter or a poor ratio between them, insufficient space for security, duplication of facilities, etc.

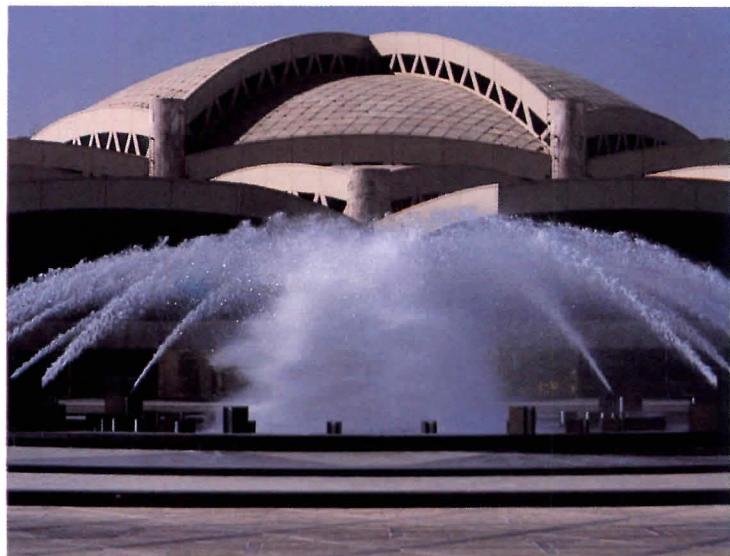


Robert Azzi photos except as noted



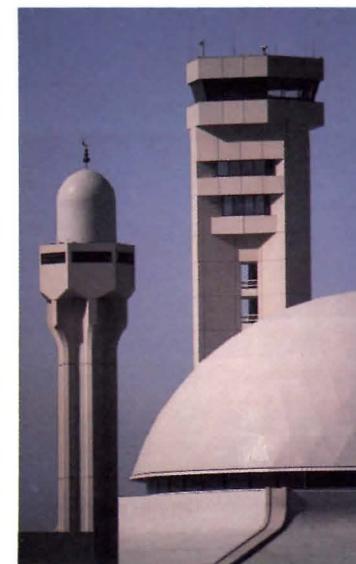
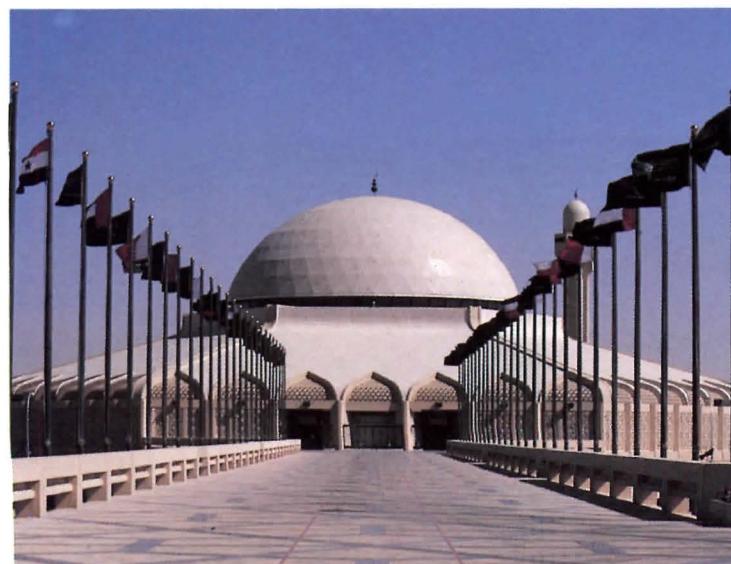
All the buildings in the terminal complex are designed within the 30-60-degree triangular module devised by HOK. The architects enhanced and articulated the structures in ways that take advantage of the extreme contrasts of desert light and shadow. Aware of the importance of pools and fountains in Islamic architectural compositions, HOK was disappointed that their client,

Bechtel, opposed extensive use of water. The reason: few fountains and other waterworks recently installed in Saudi Arabia work. Sand gets in the filters and maintenance becomes too much trouble. Furthermore, at the scale of this airport, pools and fountains in the landscape would have to have been as multiple and vast as those in the gardens of Versailles to make an impact. The architects did,



however, manage to place a fountain within each of the four terminals and another outside the royal terminal (facing page). The photo (far left) was taken from the control tower looking east. A ceremonial mall (below and bottom left) 41 feet wide and 1,600 feet long connects the mosque with the royal terminal. The control tower dwarfs the vestigial minaret (bottom right). The size of the courtyard that

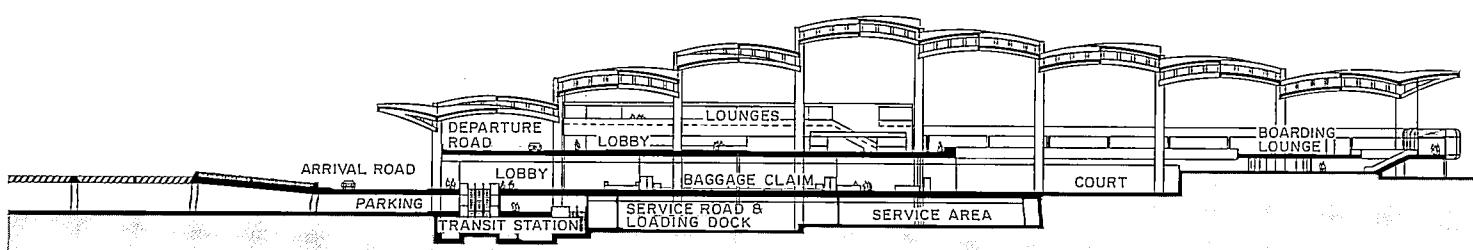
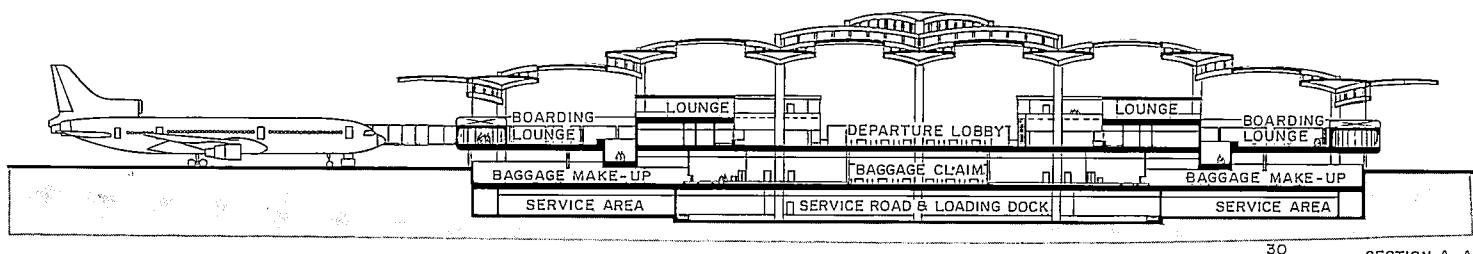
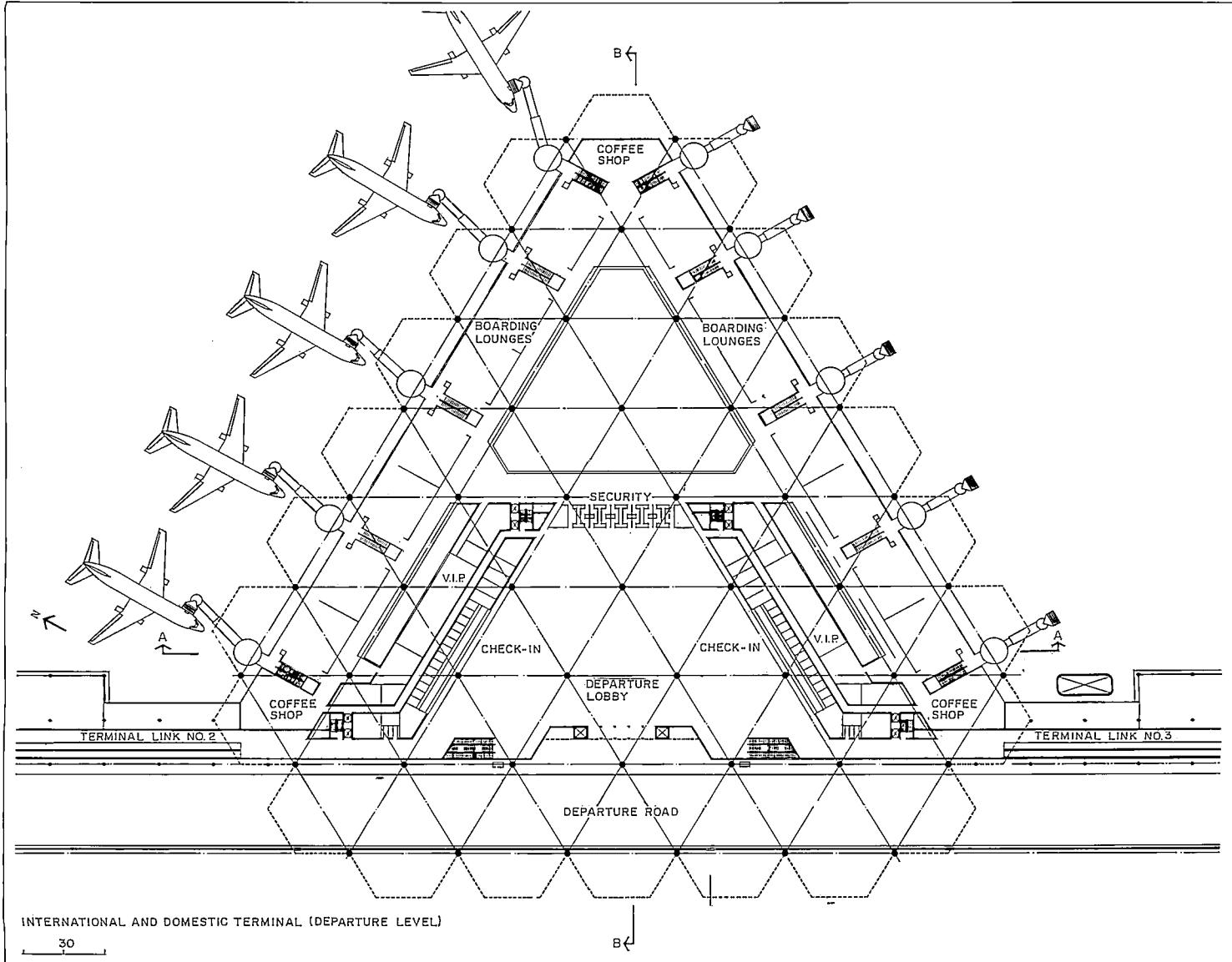
surrounds the mosque seems rather constricted even though it was made large enough to handle the desired number of worshippers. Unfortunately, because the columns that support it interrupt the car parking patterns below, the courtyard could not be made larger than strictly necessary. The tree planting pattern was established by the garage column grid.



Because the Saudi royal family and the Ministry of Defense and Aviation wanted the Riyadh airport to be "the best in the world," the HOK team and Bechtel believed they had a mandate to develop a perfect airport plan. Each terminal accommodates ten planes in three sizes, the two largest at the apex. The departure level is at the top and the arrival directly below. The total curb perimeter (two levels)

equals the apron perimeter, creating an excellent ratio, according to HOK, between the number of passengers that can be generated at the departure/arrival gates and the linear feet of curb from which they enter or leave the terminal. Importantly also, the triangulated scheme minimizes the curb-to-gate walk, and provides ample departure—including waiting lounge—space and

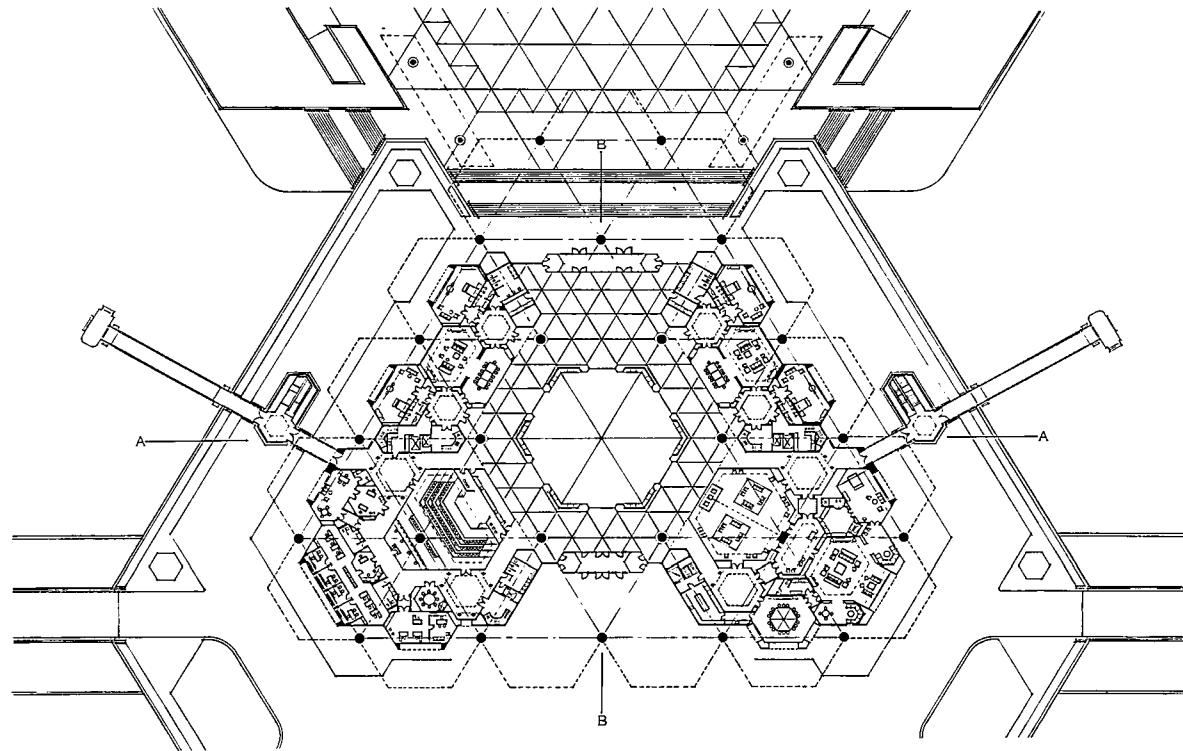
generous arrival space. The huge left-over area at the center has been developed into three two-story interior spaces with extensive planting around a fountain in the center (pages 122-123), which are enjoyed by both departing and arriving passengers. Except for emigration counters in the two international terminals, the departure level plans of all four are identical to the one shown below



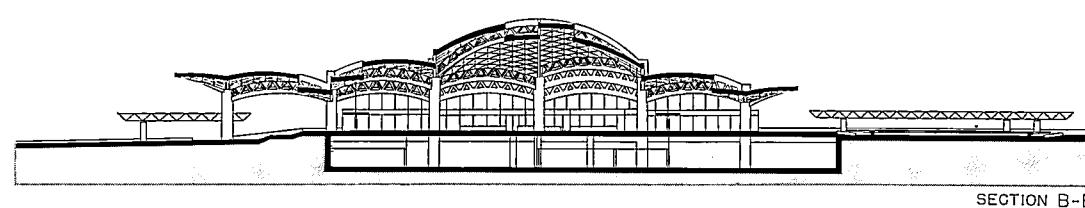
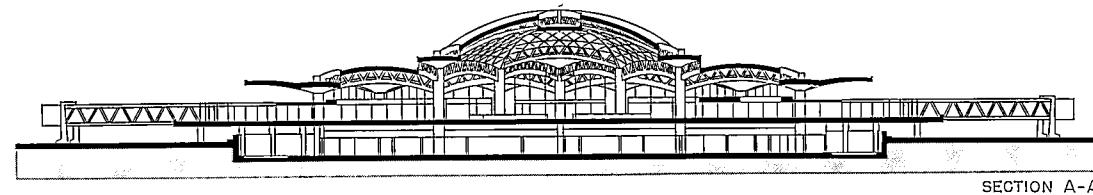
left. Each passenger terminal consists of 72 triangular bays roofed by spherically arched shells 8½ feet thick, supported by a column at each corner. The shells are 80 feet long on each of three sides and are framed by arched trusses preassembled on the ground. The gross floor area of each terminal is 527,778 square feet. The smaller royal terminal (plaza level plan and sections below) is for the

exclusive use of the King, his court and distinguished visitors of state. Dignitaries deplane on a parade ground between the terminal and the apron or at the plaza level. The latter consists of a huge main reception hall surrounded by various facilities, including a royal reception hall, state dining room, royal private lounge and a press auditorium. The plaza level also contains a private apartment for

King Fahd Bin Abdulaziz. On two lower levels (not shown), reached by escalator from the departure/arrival gates, are facilities for the dignitaries' wives and support staffs as well as baggage handling. The royal terminal consists of 33 triangular roof sections, each 73 feet to a side, covering a gross square foot area of 316,667 square feet.



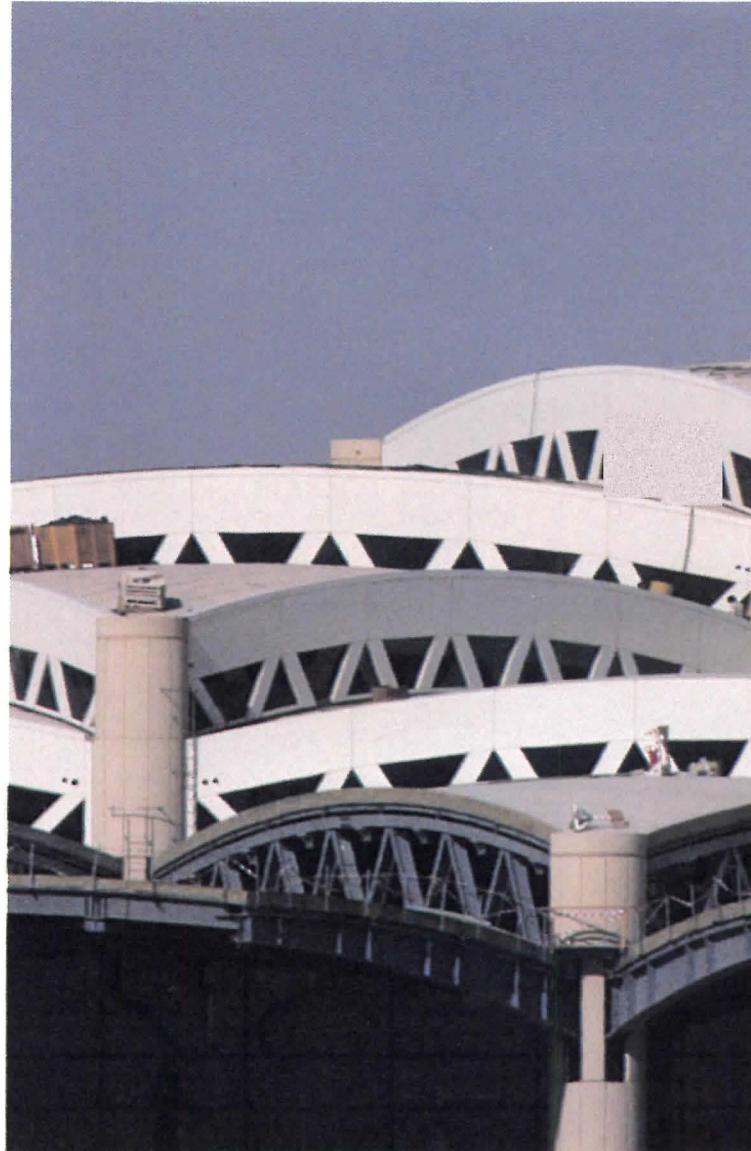
ROYAL TERMINAL 20



SECTION B-B

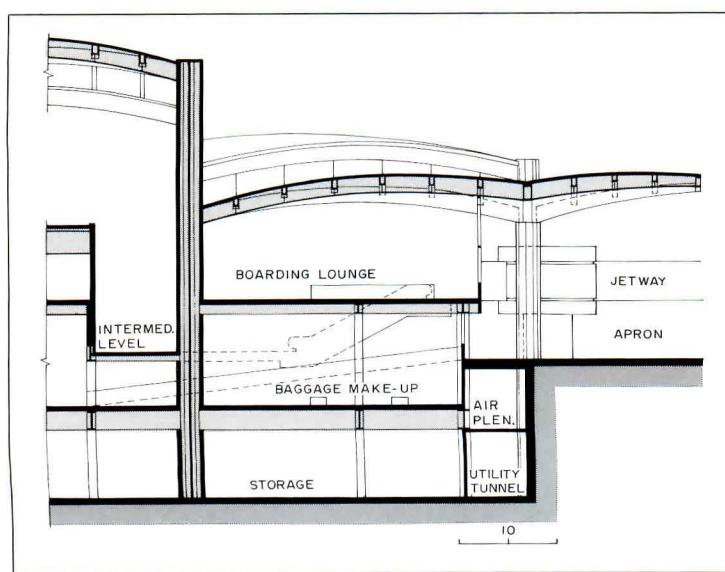
As the longitudinal section on page 118 indicates, on the north-south axis the arched steel trusses that frame the shells tilt alternately upward and downward as they rise toward a 108-foot-high point near the center. The crowning bay spans the security area. On the east-west axis, the arches' spring lines are level, as can be seen in the transverse section and in the construction photo (below right).

The exceptions to this system occur at apron (section opposite page bottom left) and curb-edge overhangs. The interstices of the trusses are filled with clear glass, making each truss function as a clerestory window. The 10-foot rise between each tier of shells is a dimension determined in part by the quantity of clerestory light the architects wished to introduce into the interior. The slight overlapping



of the shells screens the summer sun. The steel superstructure of the passenger terminals is clad with precast lightweight concrete on the columns and metal on the ceiling fascias and truss members. The shells are roofed with lightweight precast concrete tiles. The construction system of the royal terminal is identical except that the finish materials are more luxurious, including the use of

marble facing inside and out. In the royal terminal, six shells tilt upward from a compression ring to form a shallow dome supported by six columns in an hexagonal configuration. Thus six bays at the center are high domed and column free (with a clear span of 144 feet), forming a magnificent ceremonial space (section page 119 and photo page 123).



According to HOK's Roslyn S. Brandt, head of the 40-person team that designed the interiors of the four passenger terminals and the royal terminal, "every bit as much effort went into the interior design as went into the architecture, and you cannot separate one from the other—nor should you." Rather than an interiors group and an architects group, Brandt says that some of the architects were

interiors people and some of the interiors people worked on the architecture side. Interior design began at the same time that the terminals' structure and proportions were being studied and involved three basic areas: interior architecture, custom millwork and furnishings. A number of architects moved over to the interiors team after finishing the design and detailing of the structure. "By this

time," says Brandt, "they thoroughly understood the design esthetic of the airport." One architect who had worked on developing the stainless steel window wall frames helped in the development of the stainless steel kiosks. Another who had worked on the ceiling pan details for the underside of the shells then went to work on the seating for the boarding lounges. "What we didn't

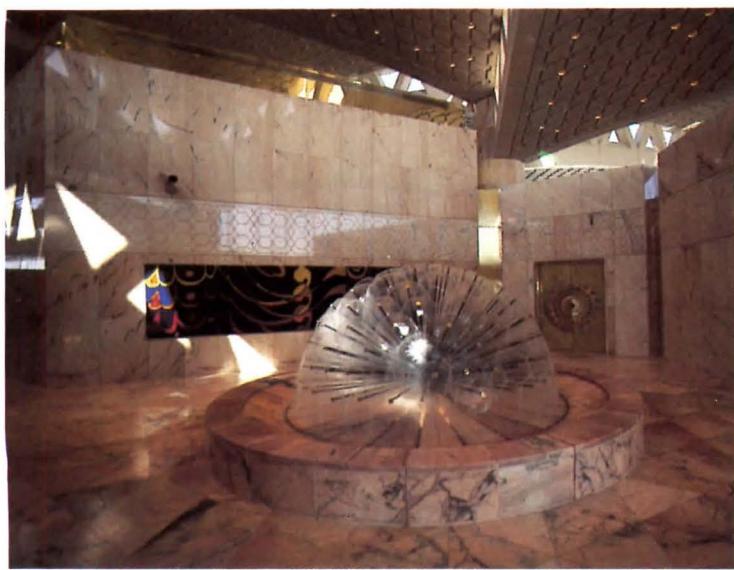


want is what you see in most American terminals—those ditz plastic chairs—because the scale would be incorrect for our terminal," says Brandt. "So we put this architect together with a manufacturer to work on problems of scale, moveability, ease of maintenance, methods of interconnecting and other considerations." That collaboration resulted in a furniture line known

as Metropolitan Series Ten. The HOK team also designed all the friezes and carved screens, the patterns for fabrics and carpet, mosaic tile surfaces and inlaid floors, going directly to marble quarries, lumber mills and carpet factories to select materials. "We even worked with Tiffany's on the place settings for the royal dining room," says Brandt. "There has never been a project like this."

Shown below left is one of the passenger terminal fountains designed by HOK's landscape group. The ceiling pans of the royal terminal (below and bottom right) are smaller in size than those of the passenger terminals (left bottom), a luxurious gesture signifying both the smaller scale of the King's terminal and its greater hierarchical importance. The immense oriental rug that can be

seen in the photograph of the royal terminal interior is, in the view of HOK's architects, a sad mistake. The Saudis put it there. "Underneath that rug," protests Roz Brandt, "is an incredibly beautiful medallion which we designed in 12 different varieties and colors of marble."

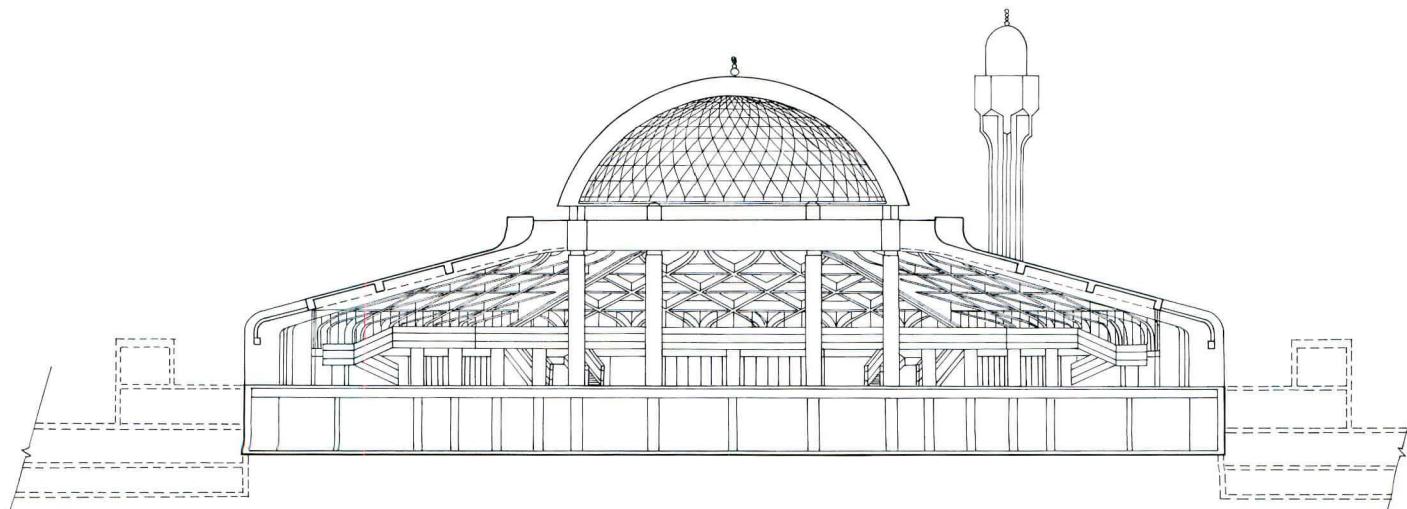


The mosque (section and plans below) is hexagonal and encloses 60,000 square feet. Each segment of its perimeter is 170 feet long. Visitors approaching the mosque from the passenger terminals, the garage beneath or the royal terminal enter the mosque plaza by means of a wide ceremonial stairway in the direction of Mecca. Escalators are also available. The lower roof of the mosque is formed

by a precast concrete grid ending in a compression ring, the latter finished on the interior as a band of mosaic tile inscribed with passages from the Koran. The dome, 133 feet high and spanning approximately 110 feet, is formed by a spherical steel truss supported by steel columns clad in precast concrete. The dome interior is surfaced with bronze panels in two different finishes. A seven-foot-high band of

clerestory glass separates the dome from the lower roof. Vesti Corporation of Boston, headed by Professor Wayne Andersen of M.I.T., acted as art consultant to Bechtel for the mosque. Vesti selected all the artists and craftsmen, many from Europe and the Middle East, and coordinated their work. HOK, therefore, was responsible for the mosque only as form and enclosed space. Vesti did

the stained glass, the carved mahogany doors, the mosaic band, the minbar and the ceramic tiled mihrab. New techniques were invented or old ones revived. Some of the stained glass panels incorporate gold-plated brass and onyx. Over-all, the mosque artwork constitutes one of the largest single art projects in recent history.



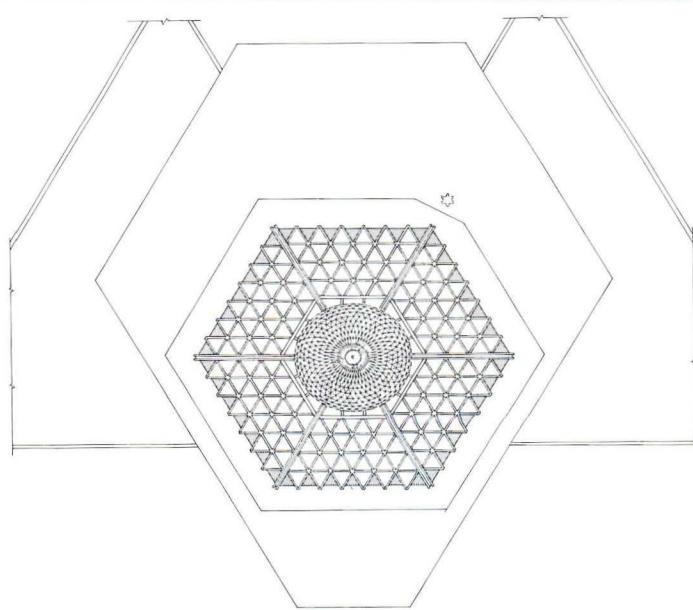
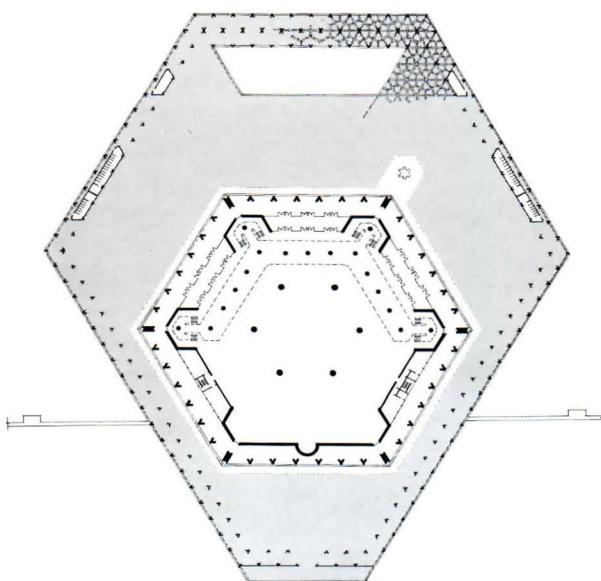
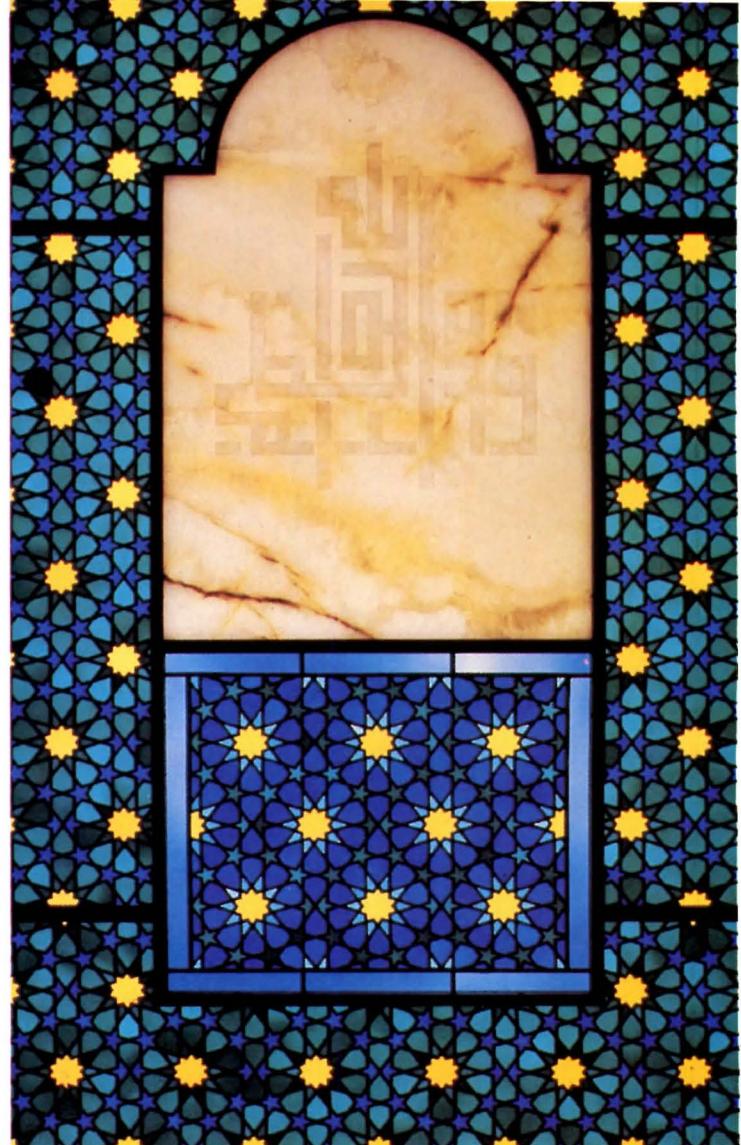
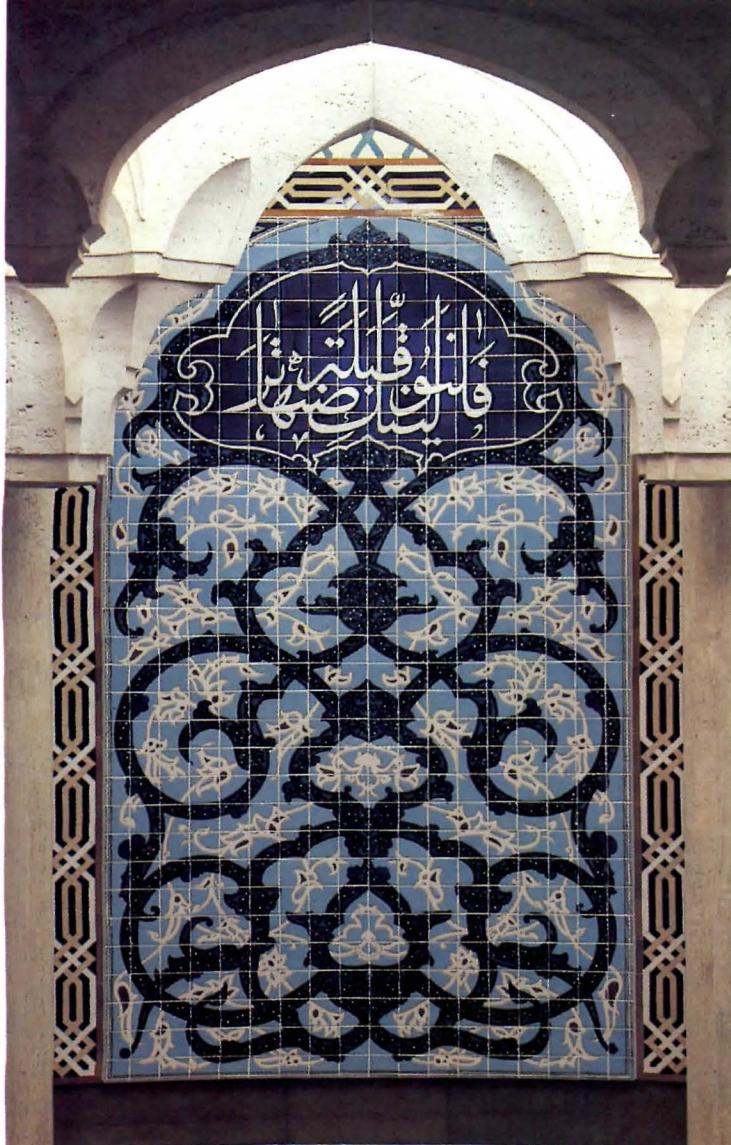
King Khaled International Airport
Riyadh, Saudi Arabia

Owner:
Ministry of Defense and Civil
Aviation

Architects:
Hellmuth, Obata & Kassabaum,
Inc.—HOK team: Gyo Obata,
William E. Valentine, Robert E.
Stauder, Frank G. McCurdy, Janis
Purgalis, Richard E. Quinn,
Charles M. Oraftik, Carl W. Martin,

Jon Worstell, Ron Thompson; HOK
interiors group: Roslyn Brandt,
Bradley James Hill, Rolf E.
Muenter; HOK planning group:
Floyd W. Zimmerman,
Sara Liss Katz
Engineers:
Bechtel Corporation (structural,
mechanical, electrical, civil,
acoustical)

Consultants:
The Engineering Enterprise
(lighting); Flamberg & Flamberg
(food service)
Construction manager:
Bechtel Corporation



Computer Science Department Building
Columbia University
New York City
R. M. Kliment & Frances Halsband Architects



Classical complexity



Nestled among the blunt brick towers clustered in Columbia University's densely built science and engineering complex, the new home of the Department of Computer Science brings to busy Amsterdam Avenue on one side and a heavily trafficked pedestrian terrace on the other a presence almost Attic in the simplicity of its clean articulation and classical proportions.

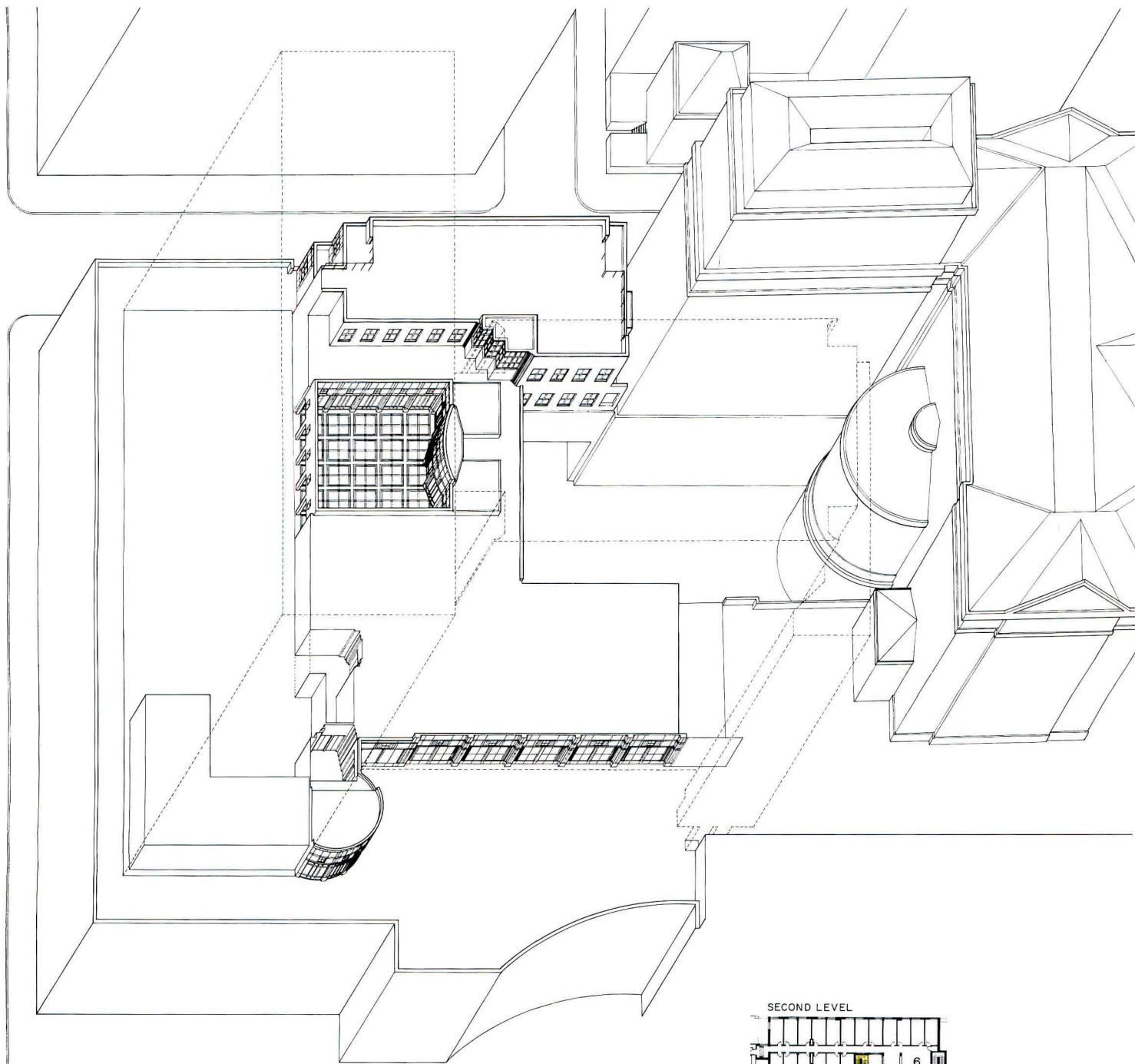
So ordered and reposed a structure would be notable in any context; here it is the more remarkable given the intrinsic uncongeniality of its setting and the convolutions of its program. A combination of new construction and reconstruction (see plan overleaf), the building perches atop a podium formed by the Engineering Terrace building and threads a path among the old and new structures surrounding it: the 1926 extension of McKim Mead and White's stately porticoed Schermerhorn Hall of 1897, the nondescript '50s box of the Mudd School of Engineering, and Mitchell/Giurgola's 1976 Fairchild Life Sciences Center.

Because coverage of the rooftop site was restricted by the bearing capacity of the underlying structure, meeting the space requirements of the fast-expanding computer science department also entailed the preemption of 10,000 square feet of additional space in adjoining buildings. In a series of intertwined moves the already-outgrown facilities vacated by the computer department were converted to use as a student lounge and the existing student lounge at the base of Fairchild commandeered for research laboratories. New construction could then be limited to 20,000 square feet comprising faculty and graduate student offices in a two-story wing to the east overlooking Amsterdam Avenue, a one-story administrative addition to Fairchild, and a connecting link of conference and lounge space enclosing a courtyard that becomes the focal point of the composition. Finally, the entry lobby formerly joining Fairchild and the Mudd building having been subsumed in the conversion, a new upper campus entrance was carved out to give access to both the engineering school and the new computer science department.

Discussions of the highly individual architecture of R.M. Kliment and Frances Halsband typically revolve on pigeonholing their distinctive style—is it pre-postmodern? Aalto-esque? neo-Romantic?—which they themselves have characterized as seeking “a balance, appropriate to circumstances, of elements of classical, vernacular, and modernist origins.” Less often noted is the partnership’s preoccupation with fashioning buildings that, cohesive and focused in themselves, also engage and, where possible, resolve the salient elements of their surround—“making more,” says Kliment, “of what’s there.”

Far from being dismayed by the constrained site for the computer science building and the consequent need to integrate the new space with an existing shell, Kliment/Halsband welcomed the opportunity to attack in extreme form a problem that in the case of their freestanding buildings is to an extent self-imposed: to develop a mutually enhancing relationship between the new and the pre-existing. Here the challenge was to make distinct a structure that of necessity “draws upon the resources of others,” not only spatially but through technical connections: fire stairs for the two-story wing “borrowed” from the Schermerhorn extension and the Mudd building; mechanical services inserted in the truss supporting Fairchild Center.

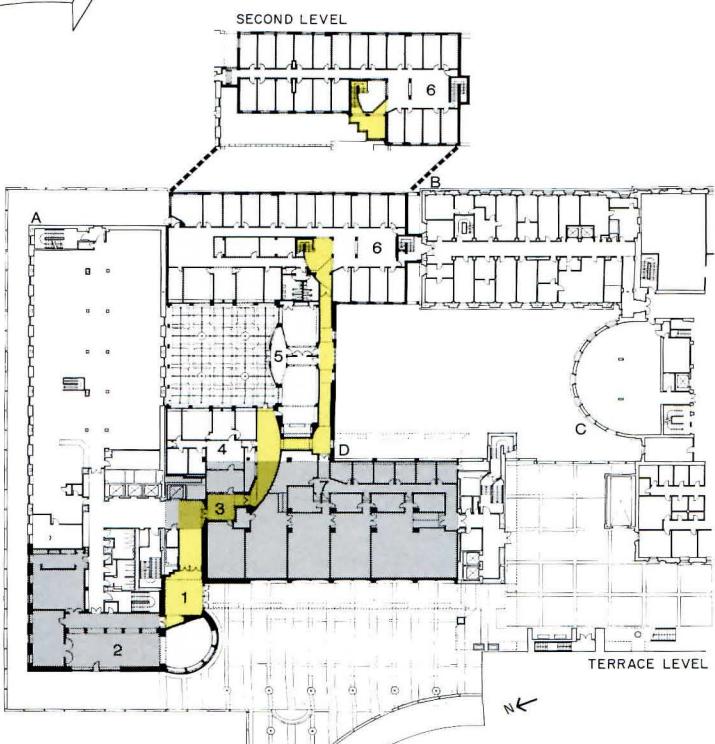
But if, as Kliment says, the building “could not exist without its neighbors,” its appearance implies the contrary. Although the new elements defer but little to their context in the sense of congruity of materials, scale, or proportion, they nonetheless are the keystone that locks the disparate surrounding structures into a coherent whole. It is the new that seems essential, the old peripheral. *Margaret Gaskie*



*A. Mudd School of Engineering
 B. Schermerhorn extension
 C. Schermerhorn Hall
 D. Fairchild Center above*

- 1. Entrance, Mudd School of Engineering*
- 2. Student lounge*
- 3. Entrance, computer science building*
- 4. Administration*
- 5. Conference/lounge space*
- 6. Offices*
- 7. Computer research laboratories*

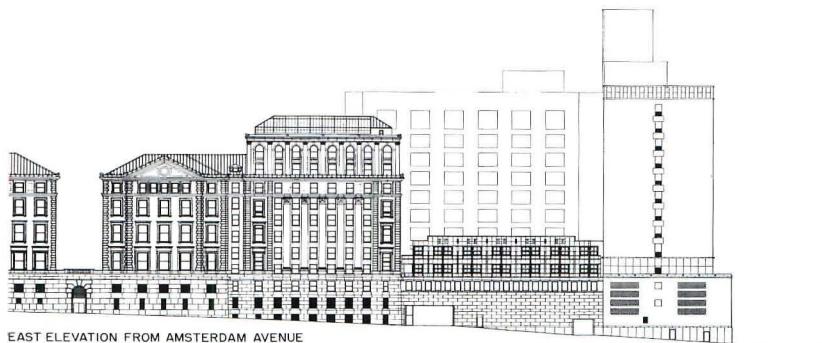
RENOVATION
 NEW CONSTRUCTION
 CIRCULATION





The theme of "making more of what's there" is particularly evident in the new treatment of the facades fronting on the pedestrian terrace. The curving portico added to the space converted to a new student lounge (above and at left in top photo) radiates out to expand the lounge and overlook the terrace, then arcs inward to mark the new upper campus entrance to the engineering school and adjacent

Fairchild Center (right in top photo). Because windowless space was required for the computer research laboratories that occupy the former lounge at the base of Fairchild, the original glass wall was replaced by limestone panels inset with mock "windows" of bluestone. The masonry wall and the overhang of the screen wall above suggest an arcade that lends importance to the modest entry.

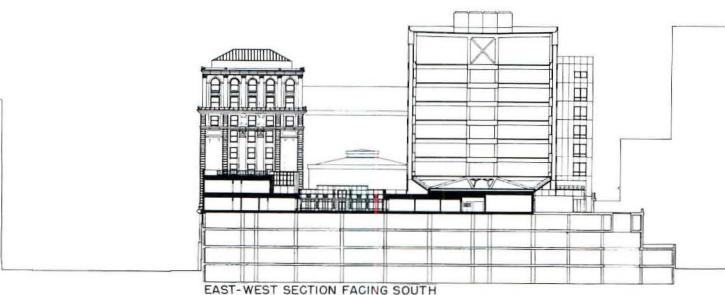


EAST ELEVATION FROM AMSTERDAM AVENUE

The computer science building's most prominent facade, on the office wing overlooking Amsterdam Avenue, exemplifies the flawless detailing and composition that characterize Kliment/Halsband's work. Gaining stature from the granite podium provided by the Engineering Terrace building below, the small building presents a serene and dignified street face of velvety limestone accented by

"pilasters" of polished granite that mark the structural bays and by classically proportioned, subtly recessed windows and spandrels. As on the facade fronting the terrace, bluestone panels set in faceted surrounds suggest "missing" attic windows. Although no attempt was made to develop direct contextual references, the building contrives to act as a visually unifying force among the structures it links.





A key aspect of the partnership's design approach, Kliment has said, "is the knitting together of discrete elements into a coherent organism by means of [an] organizing, orienting, and usually central space, and the engagement of that organism into its context." In the case of the computer science building, the organizing (and engaging) device is the courtyard (photo right) that is its core and focal point. In addition, the court provides the building's primary source of daylight, returns to the complex a measure of the open space consumed by its construction, and, not least, reprises the formal elements introduced elsewhere: the articulated masonry, the proportions of the fenestration, the portico of the student lounge.

Computer Science Department Building
Columbia University
New York City
Owner:
Columbia University
Architects:
R. M. Kliment & Frances Halsband Architects—Jack Esterson, Alejandro Diez, Lynn Hewitt, project architects
Engineers:
Robert Silman Associates (structural); Jack Green Associates (mechanical/electrical)
Consultants:
Howard Brandston Lighting Design (lighting)
General contractor:
Construction Office of Columbia University
Stone contractor:
A. Ottavino Corporation





Between utopia and apocalypse: five projects by SITE

SITE Projects, Inc.—Alison Sky, Michelle Stone, James Wines, principals; John de Vitry, Architect, director of architecture; Joshua Weinstein, Architect, production manager

Anyone who looks at buildings knows there is high drama in the crane hoisting girders onto a new steel skeleton, or the wrecker's ball that smashes old masonry into heaps of rubble. For most of us, these images of structural mortality provoke only transient emotion, but for SITE, the multidisciplinary design firm of artists and architects, the birth and death of buildings are perennial obsessions. In a variety of projects for public spaces, institutional facilities, and retail stores—notably in the famous and still growing series of show rooms for the Best Products Company (see RECORD, March 1977, pages 115-117; this issue, pages 144-145)—SITE has peeled, sliced, crumbled, buried, and otherwise metamorphosed the most rudimentary architectural forms. Rather than serving as means to an end, the processes of building and "unbuilding" (as SITE terms it) have here become the alpha and omega of art. Sometimes, as in the Floating McDonald's Restaurant (opposite) or a project for an art museum in Germany (pages 140-143), SITE accomplishes its esthetic dissection by directly translating conventional modes of graphic representation—the architect's cutaway, the exploded view—into three-dimensional reality. In other examples, such as the Bedford House (pages 136-137) or the Paz Building (cover and pages 138-139), the decomposition and renewal wrought by natural forces or social imperatives assume tangible shape. Far from exploiting the elements of architecture as traditional emblems of physical stability, codified values, functional typology, or historical legitimacy, such buildings proclaim dependence on the mutable contingencies of their environments.

It is arguable whether the muse who presides over this tectonic drama is comic or tragic, since one can readily enough discern either mood in SITE's projects. The designers themselves would assert that both a sense of humor and a clear-eyed acknowledgment of possible doom are essential for creative survival in the world we now inhabit. At the very least, SITE regards the intentional humor in its work—effects that turn on ironic disjunction, calculated absurdity, and surprise—as a temporary deliverance from the gnawing uncertainty of our fate. James Wines, one of SITE's founders (and chairman of the Department of Environmental and Interior Design at the Parsons School of Design), observes that "architecture once provided us with a medium for incorporating humor into our public world, a mechanism for release. In the Gothic cathedral, for example, you could always carve the bishop into Purgatory. But after Modernism, or what we would call academic Modernism, there was no provision for this. Everyone was very serious about everything." How, except with tragicomic irony, Wines asks, can we strike a more workable balance between our own utopian dreams and nightmares of armageddon?

In any artistic medium, the variable meanings such irony implies depend on calculated deviation from the fixed point of a recognizable norm. "Our idea has always been to set up a frame of reference that's a cliché, an absolute prototype for some kind of building," says Wines. The specific models can be as diverse as

the all-American McDonald's stand, the brick box of a Best's show room, or a 19th-century German factory, but "without some tension between the commonplace and the extraordinary, the transformation [we perform] will mean nothing." It is a tenet of SITE's philosophy that the particular identity of the basic model, as well as the character of its thematic interpretation, must emerge from discussion with the client, not develop out of preconceived forms or planning theories. (This concept is hardly unique to SITE, though it is rarely pursued so faithfully as in the genesis of the Bedford House; see page 136.) SITE's steady focus on psychological and social import precludes the glorification of utility or technical virtuosity as the supreme goal of design, but does not deny the place of shelter, practical function, and structural stability as necessary givens in any architectural endeavor. Inventive and meticulous collaboration with engineers grounds even SITE's most adventurous work in the quantifiable here-and-now.

SITE's conceptual process evolves largely through drawings. "We don't do fantasy drawings," says Wines. "We always draw things as though they will be built, and try to get some of the intentions and atmosphere of each project into the *quality* of the drawing. A model tends to be too isolated as it sits on the table, but in a drawing you can pull in pieces of the environment." In order to retain the expressive spontaneity of the drawing, projects such as the Bedford House and the Forest Building (pages 144-145) require a degree of empirical on-site design during construction. The crowning paradox of this fastidiously crafted indeterminacy is the reluctance with which SITE abandons "finished" buildings to chance: "Our buildings are meant to be seen as impermanent," says Wines's partner Alison Sky, "but you don't want to see your idea violated. We want *our* idea of impermanence to last," she adds with a smile.

If SITE's central preoccupations have remained intact over more than a decade, the manner in which the firm explores these issues has grown ever more complex. In part, this development results from more challenging commissions that have overlapping layers of meaning built into their programs. The early Best show rooms are "one-liners" because the client's brief restricted SITE to variations on a single theme, the billboardlike facade. "Those buildings were almost totally iconic," Wines explains. "They grew out of Post-Minimalism: reductivism to the point where one thing could be the essence of all things. If you tore down the buildings, the thought wouldn't disappear." This is not the case with SITE's latest schemes, which, to extend the dramaturgical analogy the designers themselves employ, advance from soliloquy to full dialogue. Defying comprehension in a single image, these new works demand to be encountered in three dimensions, in light and air, and through time. Ultimately, SITE reminds us, it is the promised rewards of direct, particular experience that enable one to transcend all-consuming visions of utopia and apocalypse—and reaffirm the fundamental optimism of architecture as a creative act. *Douglas Brenner*

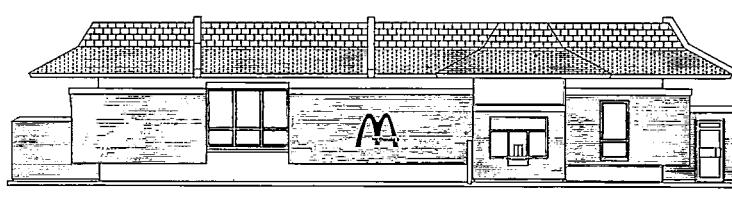
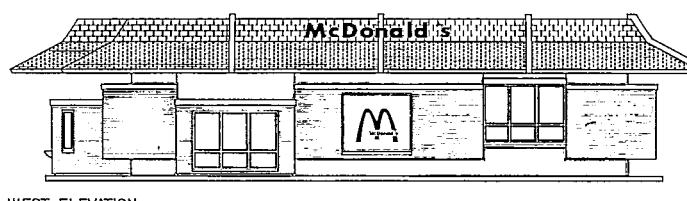
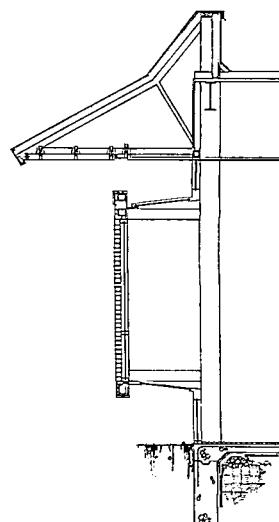
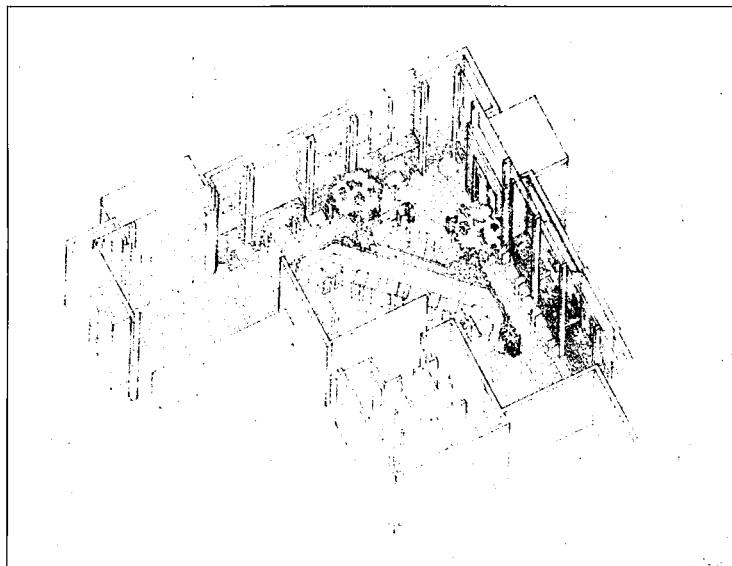
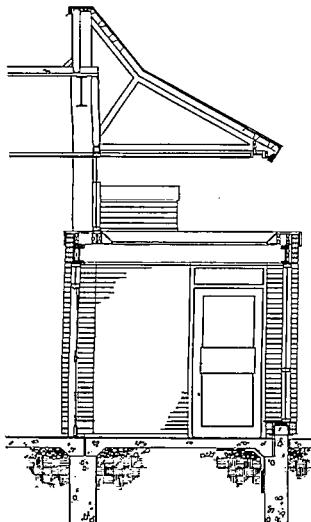
Floating McDonald's
Restaurant
Berwyn, Illinois

Scheduled to open this spring, SITE's McDonald's Restaurant is being built near the home town of the late Ray Kroc, the fast-food chain's founder. SITE elected to use the standard kit of parts for current McDonald's installations—mansard roof, brick facing, the twin-arch logo. "This is the nearest we've come to working with a universal icon," says James Wines. Nevertheless, the very familiarity

of each component intensifies the esthetic and psychological jolt of the assembled whole, which is cantilevered over glass panels to look as though it floats above a garden, indoors and out. Roof and walls seem to hover independently, as in a draftsman's exploded view, while the ambiguously interlocking volumes they define evoke the complex spatial analysis of Cubism. Poised behind this wizardry is the

practical hand of SITE's structural engineers, Weidlinger Associates. Weidlinger hinged the entire steel armature on column bases anchored to the foundation. The "levitating" walls are brick veneer with tubular steel frames.

James Wines drawings except as noted

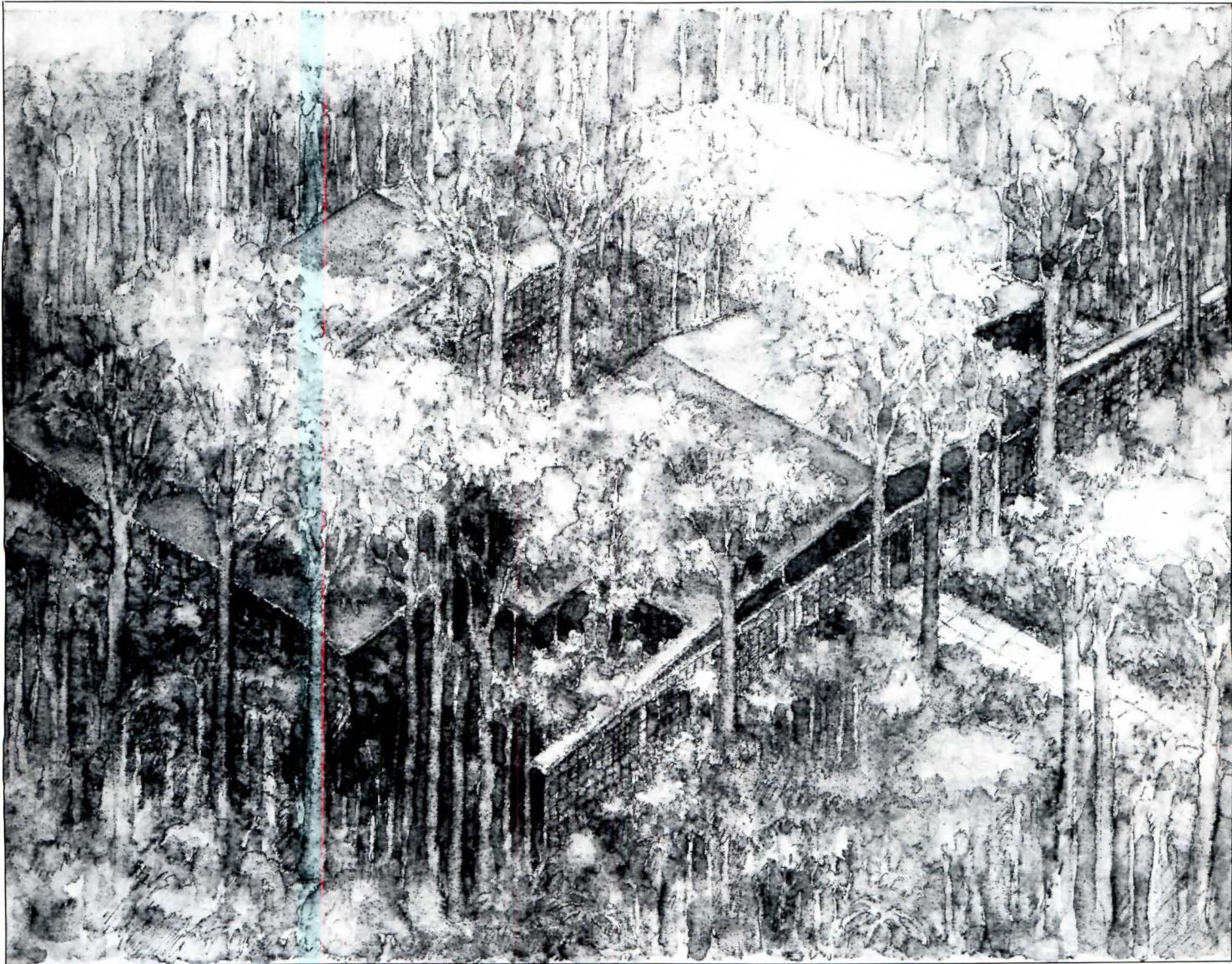


Bedford House
Bedford, New York

The clients for the Bedford House, a professional couple with grown children, were intrigued by the originality of SITE's Best show rooms but anxious to keep the "high profile" of the commercial strip out of their own home. "We're very private people, and we want to be close to the land," said the husband. "I think what we'd really like is an invisible house." SITE took him at his word and designed a 3,000-

square-foot dwelling that, if not literally invisible, may from certain vantage points seem to disappear among the trees and rustic stone walls of the five-and-three-quarter-acre property. The success of this legerdemain relies on effects of layering and transparency that blur the usual boundaries between landscape and architecture, and still satisfy the owners' program requirements: expansive, light-filled

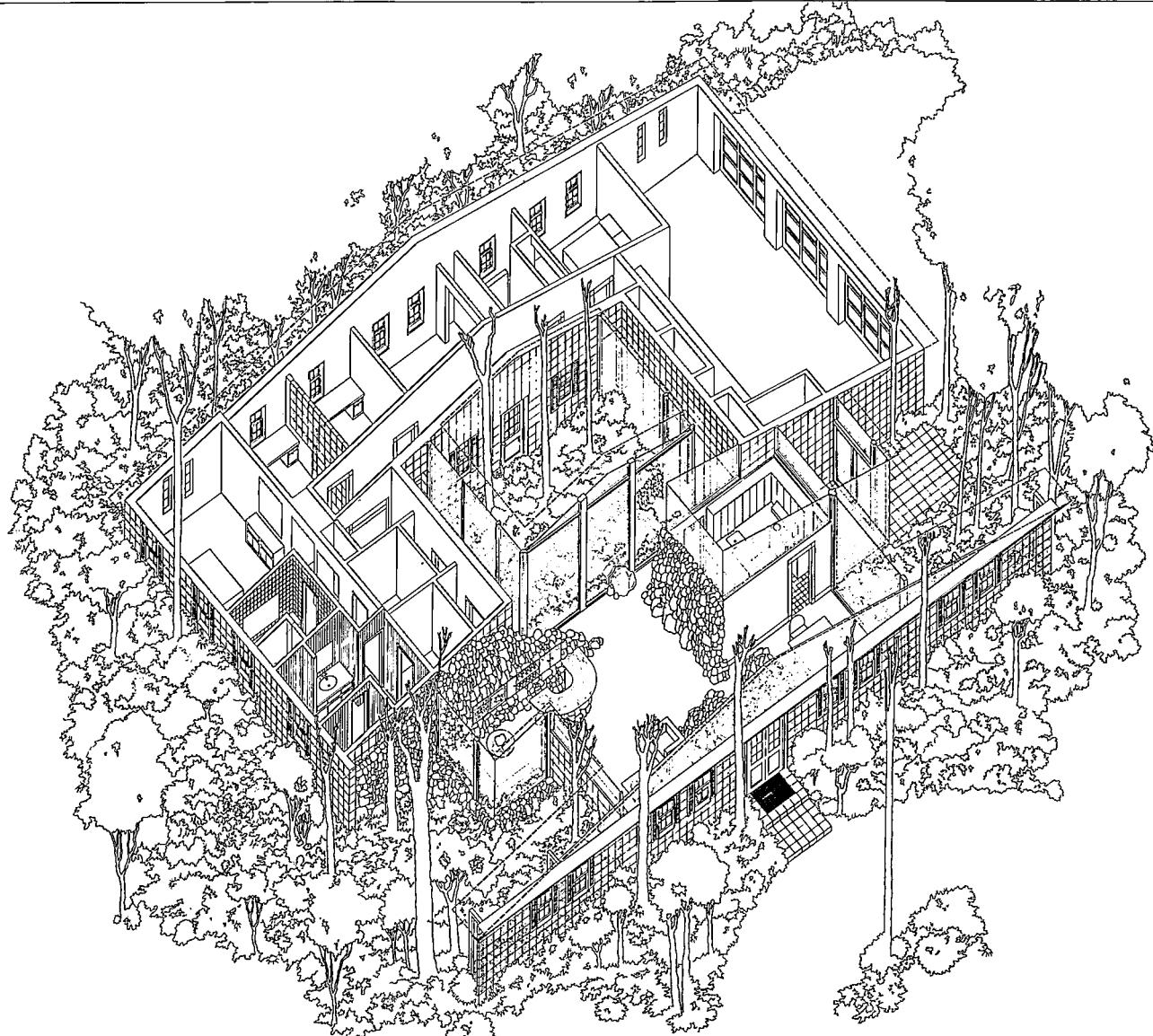
living areas, small bedrooms and studies shielded from the sun, a three-car garage, and a minimum of stairs. Viewed in plan and elevation, SITE's project could be an amalgam of ancient Roman domus and modern subdivision ranch house. Only in renderings that suggest relative density of materials and the play of light can one appreciate the artifice that transforms these prototypes. "In a



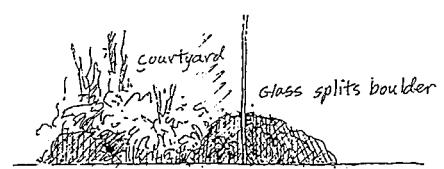
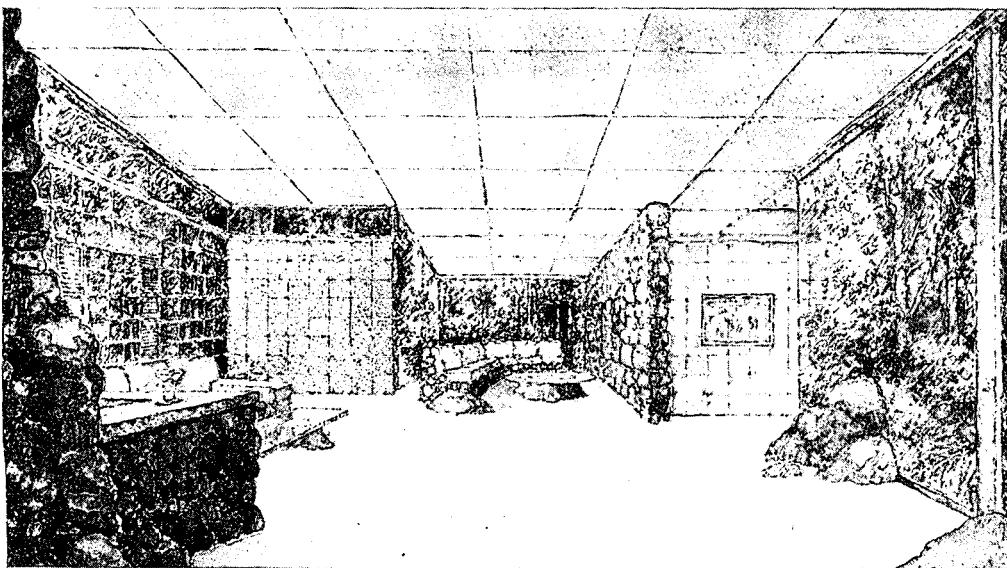
sense, it's like every house you've ever seen and no house," says Alison Sky. In the most striking tableau, almost hidden by a dense stand of trees, an ordinary doorway and double-hung windows punctuate a facade built entirely of clear glass blocks and crowned by a transparent pediment (opposite below). The calculated absurdity of operable shutters adds to the surreal logic of the ensemble.

Peering through this spectral frontispiece, which extends as screen walls on either side of the entrance, one glimpses more trees and thickets in open courtyards. The glass-enclosed living room (below left) has been outfitted like the den of some suburban dryad: banquettes, bar, stereo, and television are set into native stone walls; window panes slice through boulders; carpets simulate the forest

floor. (Indirect exterior lighting concealed in the eaves and in ground-level coves will bring the outdoors inside at night.) A second, smaller, "entry facade" across the atrium from the living room demarcates another, more introverted domain. Constructed of masonry formed on the same module as the glass blocks, this part of the house sinks into a gentle rise in the land.



Robert Werhane

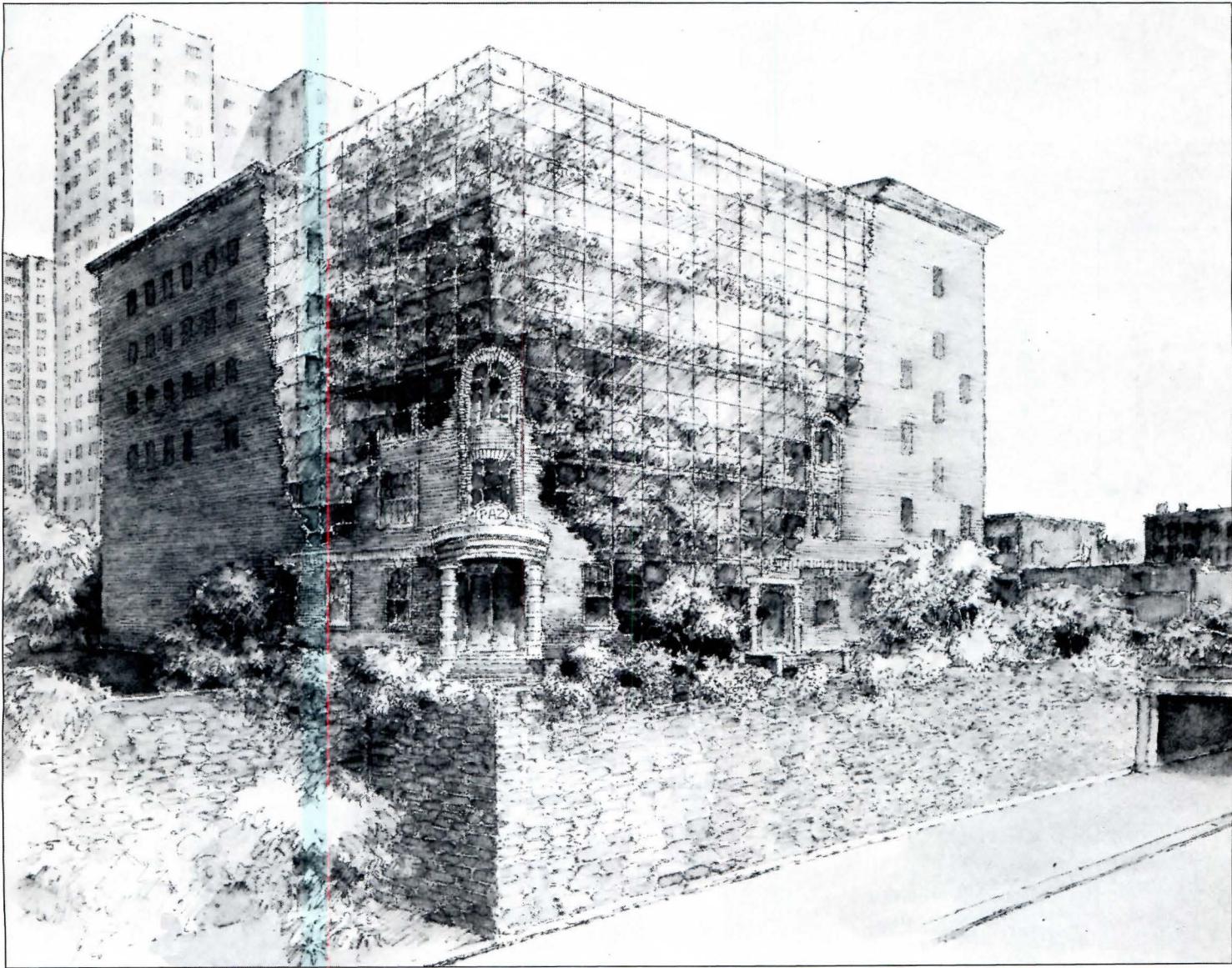


Paz Building
Brooklyn, New York

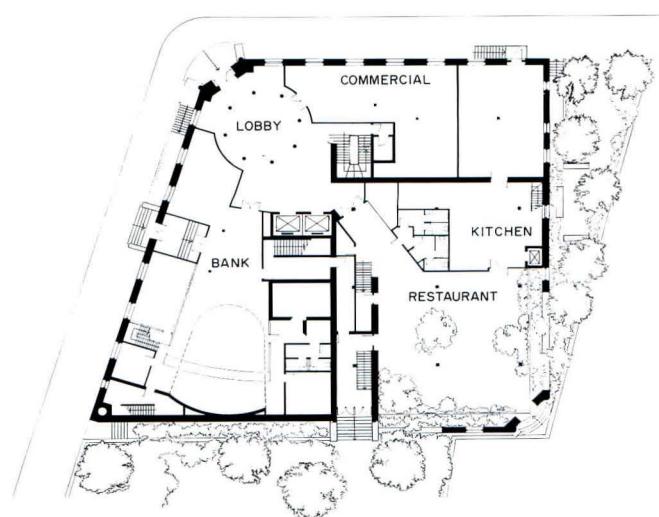
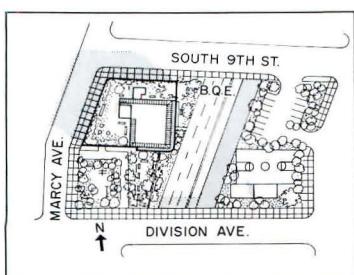
"Paz" is an acronym for the developers who hired SITE to remodel and expand a former YMCA building in Brooklyn into an 85,000-square-foot mixed-use commercial center. "Paz" is also the Spanish word for "peace," a coincidence that both parties cherish as a happy omen, since their project is meant to symbolize the united aspirations of a multi-ethnic neighborhood where

harmony has not always prevailed. Though intent on converting the 80-year-old brick structure into a first-rate speculative office block, capable of competing with Manhattan real estate for corporate tenants, Paz also envisions the building as a symbolic gateway. This concept derives in part from the location of the site overlooking the major artery of the Brooklyn-Queens Expressway; the gateway

theme also signifies progress toward a cooperative renewal carried out by the Hassidic, Hispanic, and Italian communities of Williamsburg. Owing to unforeseen accidents of urban planning, the YMCA turns its back on the expressway (photo below left), but presents classically articulated facades to Marcy Avenue (photo below right). SITE proposes to rectify this inequality



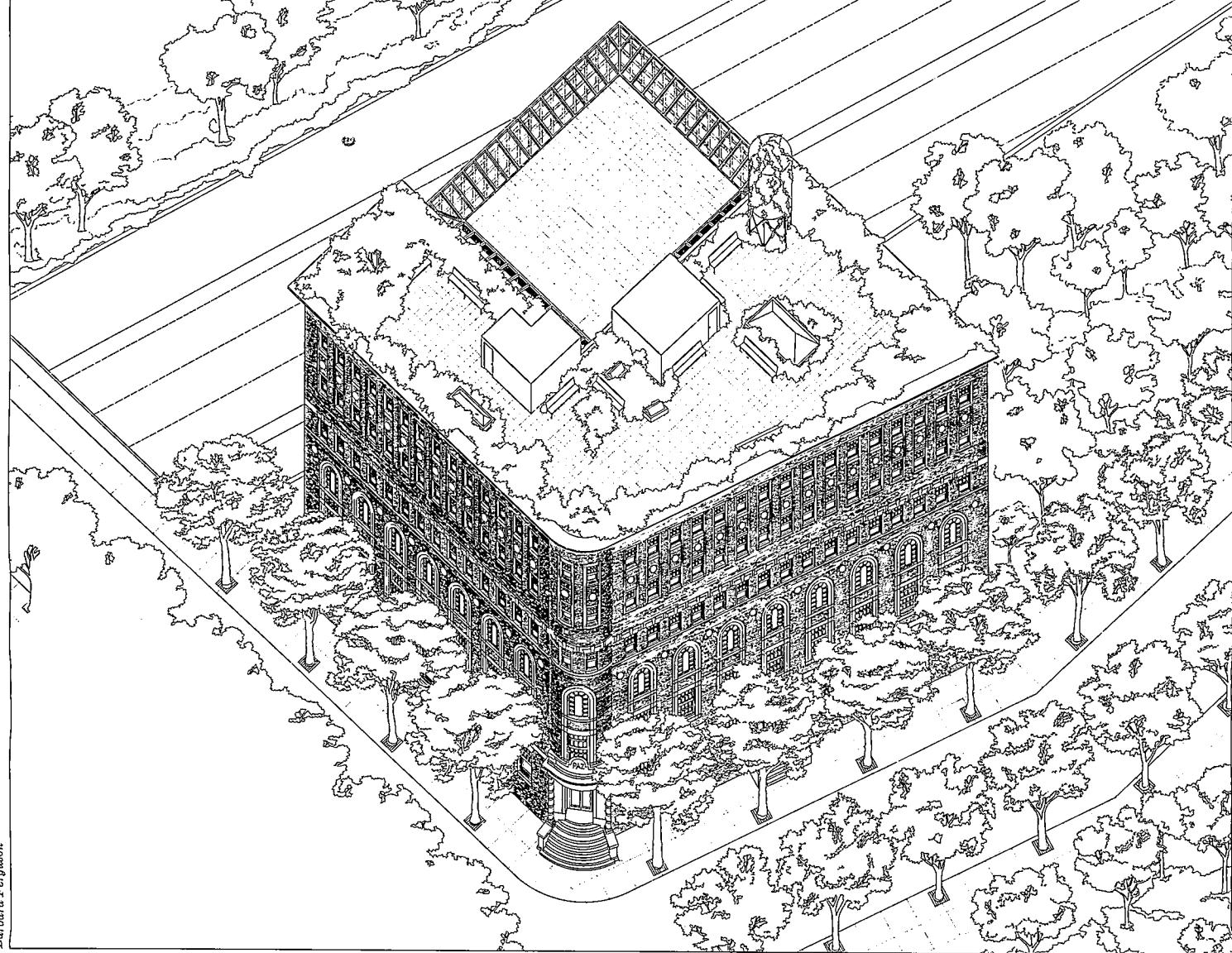
Photos courtesy SITE



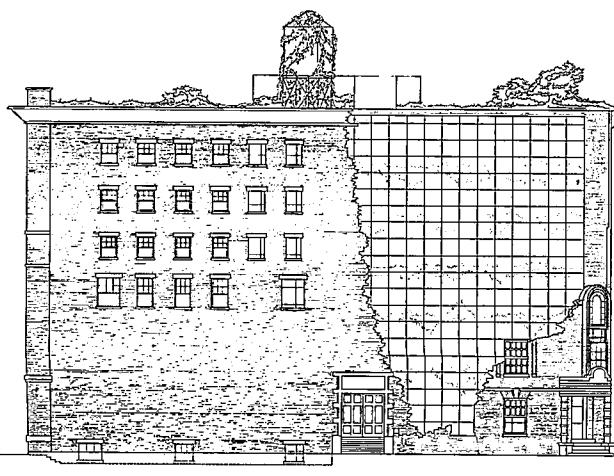
by creating a new facade on the rear of the building using casts of the Marcy Avenue portals and replicating original window frames and belt courses. Portions of the low gymnasium block would be cut away, and the upper walls extended, to form a jagged-edged frame for a new glass-and-steel tower (perspective opposite). The contrast of a seemingly ruinous shell and a sleek terrarium within

the Janus-like exterior is a vivid emblem for the reconciliation of dualities that shape Williamsburg's cultural identity: old and new, decay and rebirth, worldly and religious, parochial and ecumenical. More pragmatically, the glass tower will add 20,000 square feet of office space and gardens. The first-floor level may include a bank, shops, and a kosher restaurant, in deference to Hassidic

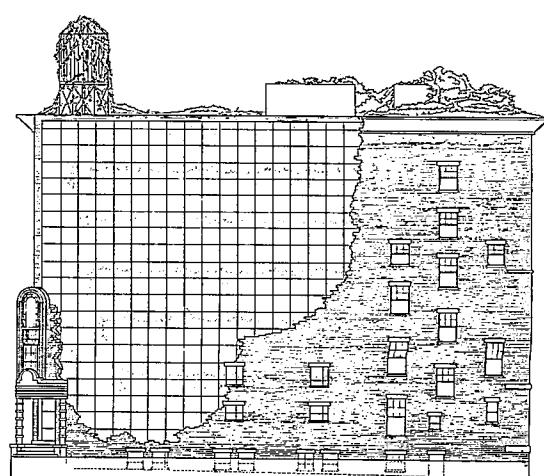
neighbors. Other amenities include an extant swimming pool in the basement and a roof garden whose vine-clad water tank becomes ad hoc topiary. Construction will begin this summer.



Barbara Ferguson



Marcy Feuerstein

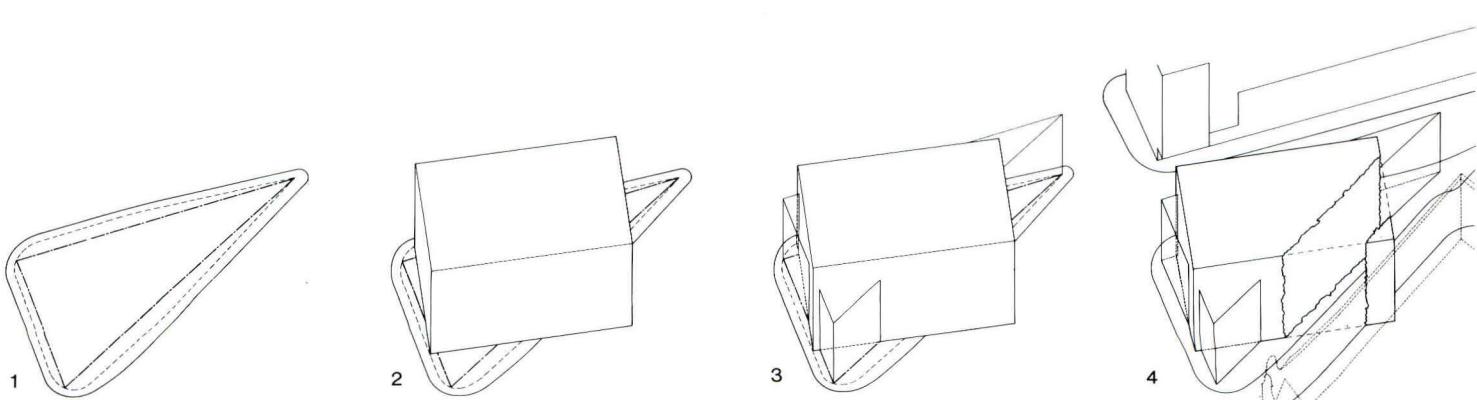
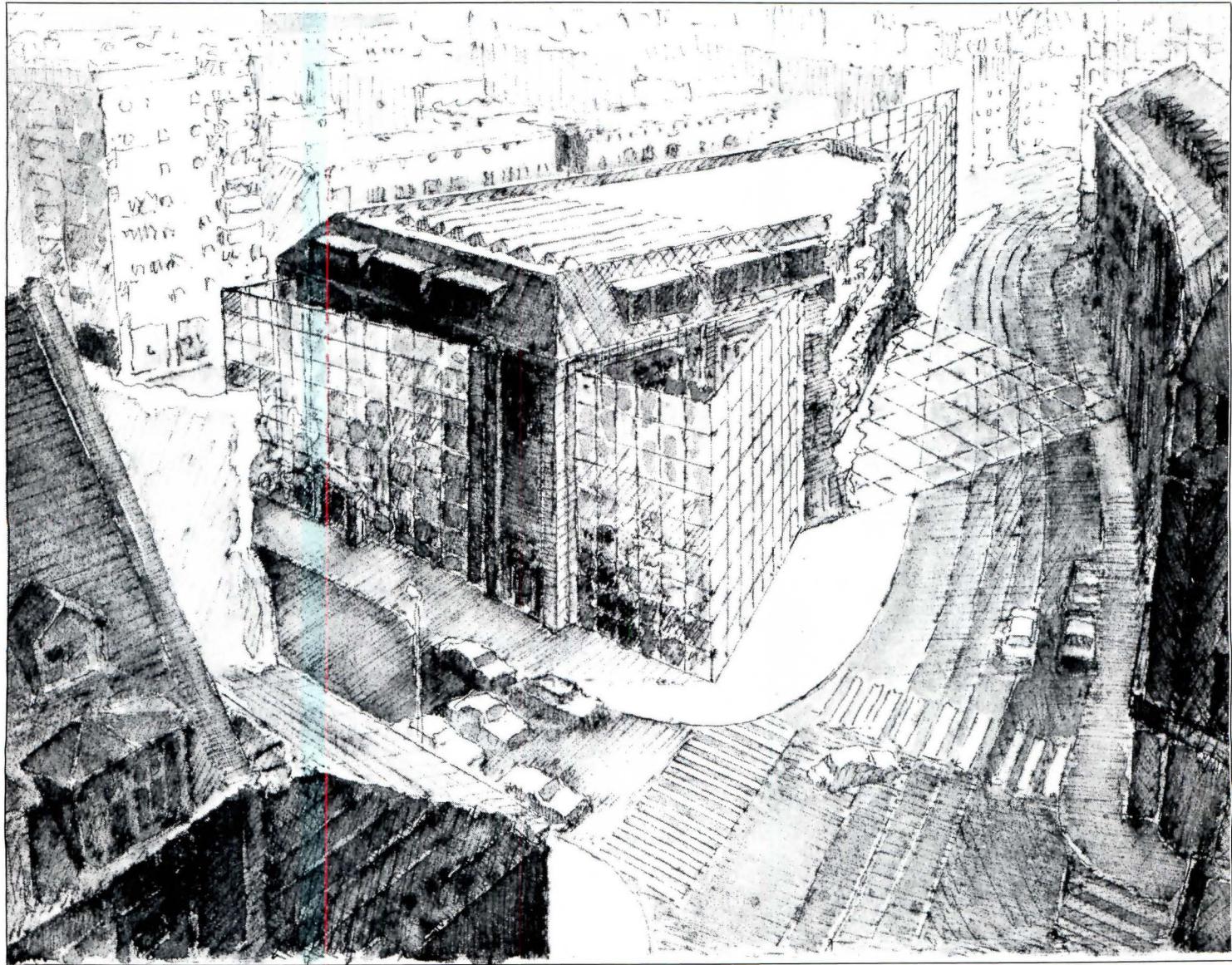


Frankfurt Museum
of Modern Art
Frankfurt am Main, Germany

SITE developed the project for a museum of modern art as its entry in a competition sponsored by the municipal government of Frankfurt (the competition was won by Hans Hollein, of Vienna; the SITE team, which included mechanical engineers Lehr Associates and structural engineers Weidlinger Associates, received a special citation for "artistic and conceptual distinction"). The city required that

the building conform to a triangular site bounded by three major streets, that no elevation exceed 59 feet in height, and that the massing include a 60-degree setback—a configuration modeled on the typical 1950s masonry-faced apartment houses that surround the museum property. This rudimentary contextualism was not meant to suggest that the museum merely blend into its surroundings,

however; the project was to be a dramatic focus for its environs and a "gateway" for all of Frankfurt. Interior spaces were to have the character of an industrial facility for the display and storage of art. Although the core of the permanent collection is American art of the 1960s and '70s, especially Pop Art, the museum directors hoped their new quarters would encourage continued experimentation in

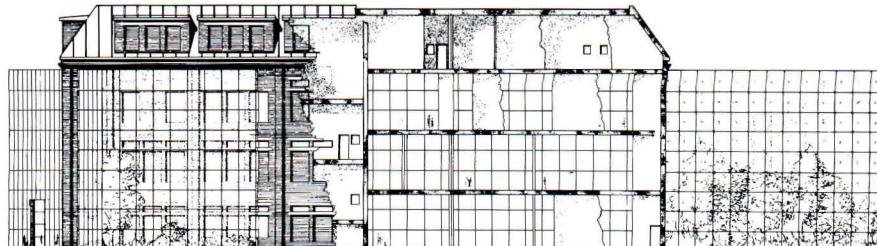
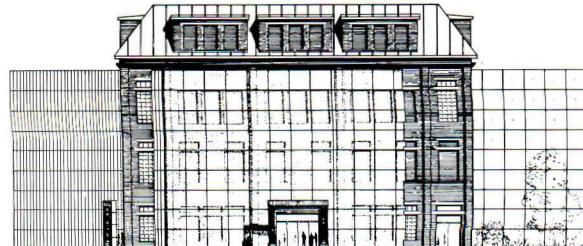
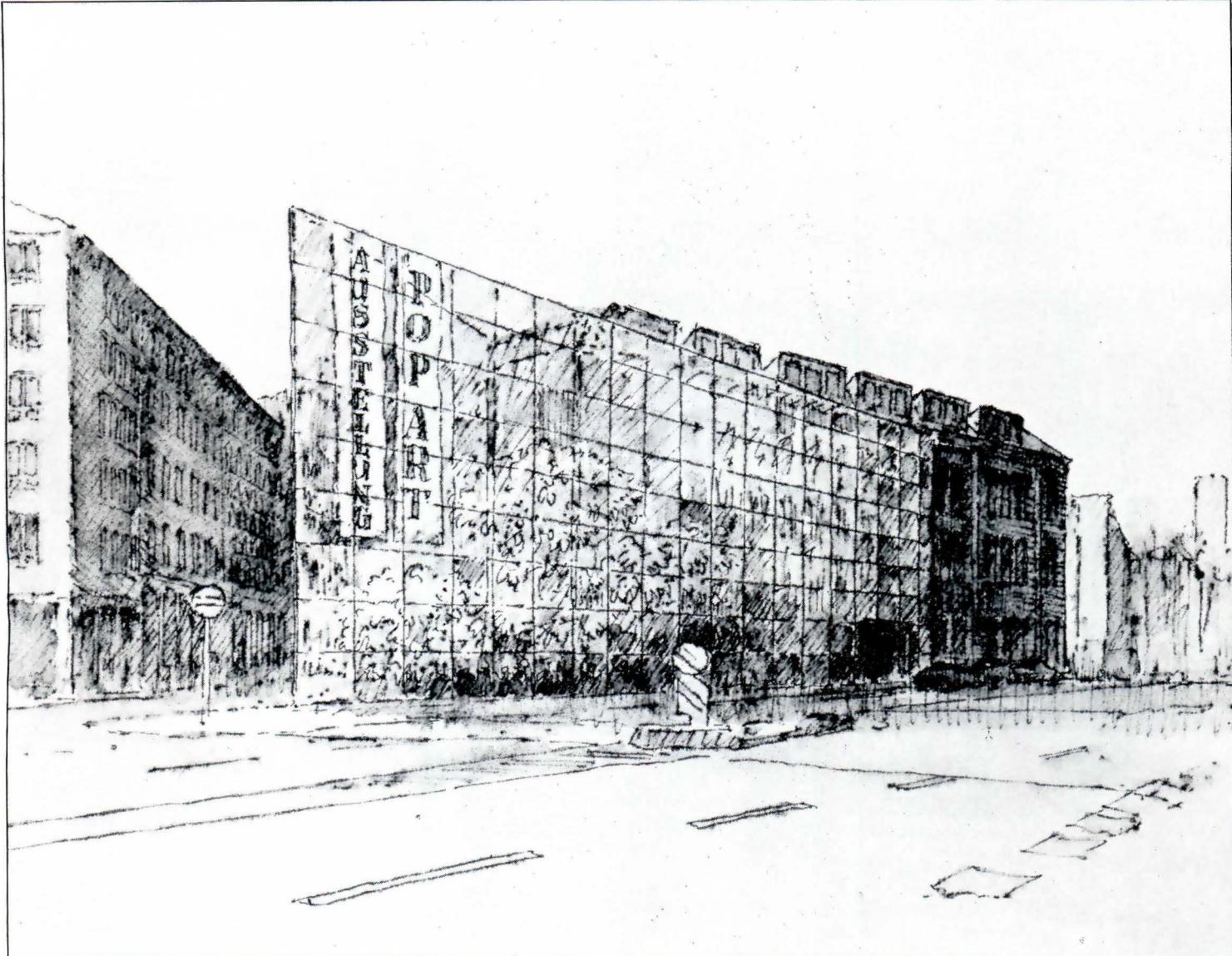


various media, including video and performance art. To that end, it was specified that interior circulation should accommodate flexible programming, and that the entire facility should manifest a democratic approach to community participation. Acknowledging that the site is too constricted to encompass a public park, the program nevertheless stated the desirability of some sort of garden

within the museum precinct. As illustrated in the diagrams opposite below, SITE's scheme evolved from the initial concept of a triangular plot (Figure 1) overlaid with a rectangular block (Figure 2) on the same grid as many of Frankfurt's public buildings. SITE advances two motives for this anomalous parti: 1) a practical concern with avoiding the awkward interior spaces of a wedge-shaped enclosure,

and 2) a rejection on esthetic principle of the formulaic match of triangular building to triangular site: "By violating the site, it is redefined as a new site." To heighten the onlooker's awareness of the geometric quality of its design, SITE projects the plot plan vertically into a glassed-in triangular space frame that intersects the masonry-clad orthogonal block (Figure 3; the

projecting tips of the wedge would house a cafe and a sculpture garden). Where the diagonal path of the Braubachstrasse figuratively rips off one corner of the rectangular element, SITE simulates the torn edges commonly depicted in architectural cutaways (Figure 4; see drawing overleaf for a detail of this facade). This patent reference to World War II bombing, which destroyed 90 per cent of

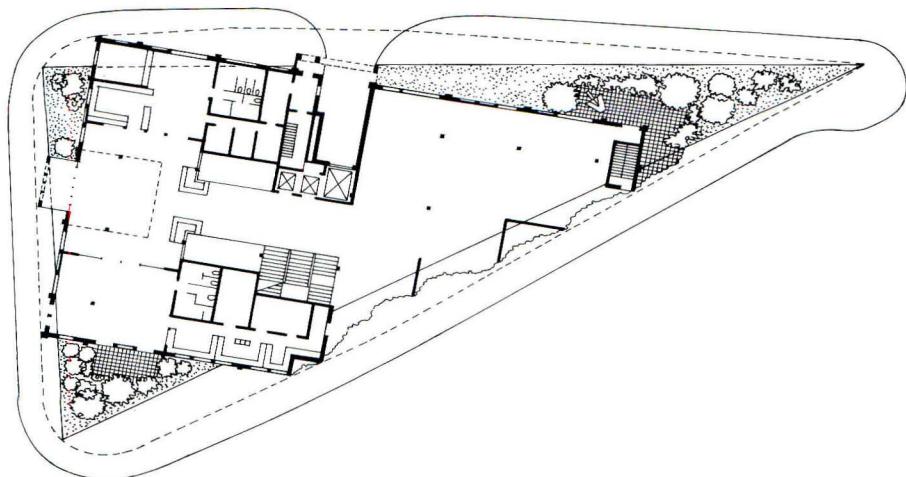
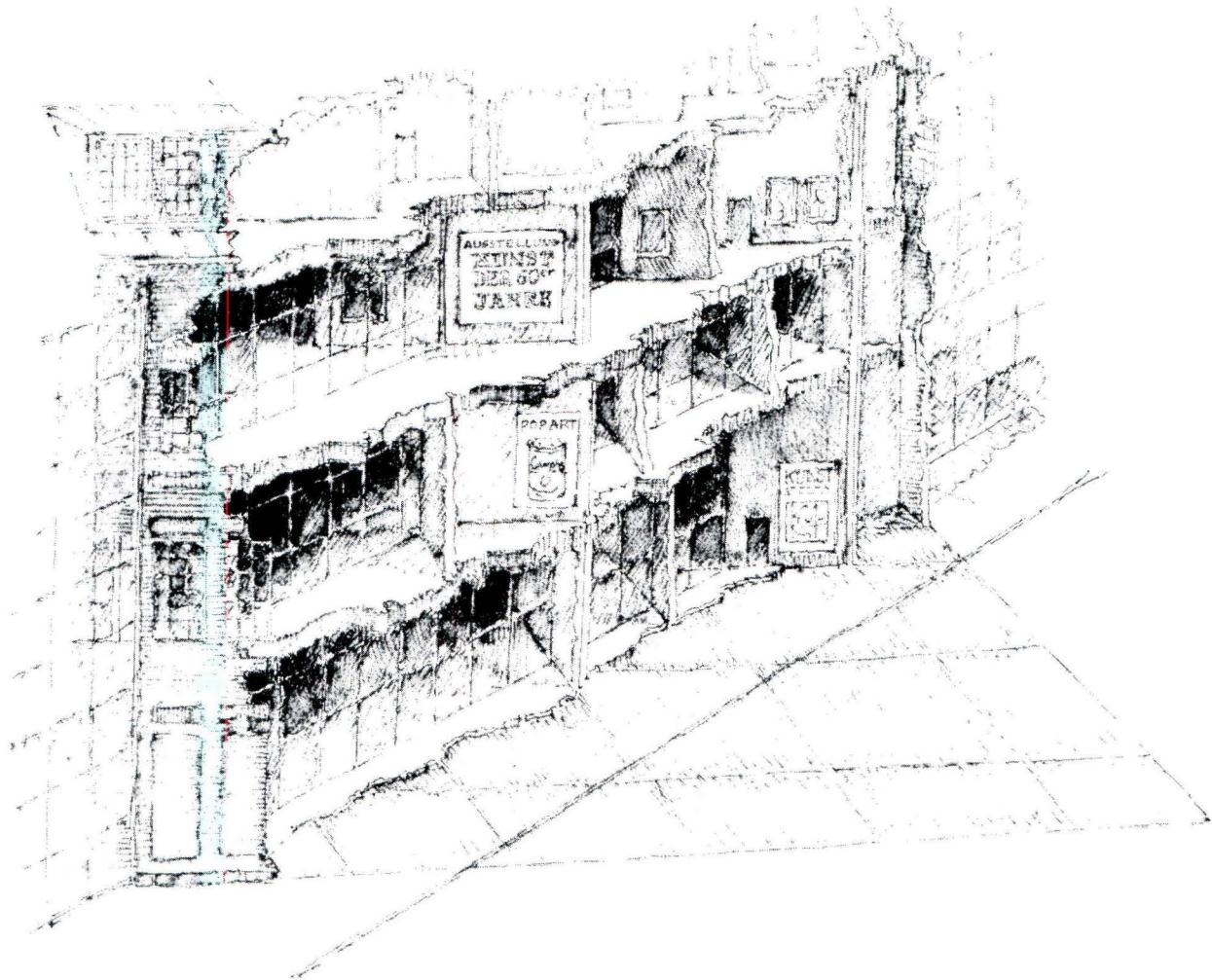


Frankfurt, was inevitably the most controversial aspect of the project during the competition, overshadowing less obvious historical facets of SITE's design. For example, the dormered, mansard-roofed, masonry block is intended to recall a standard 19th-century factory type common in both Germany and the United States—not only a direct response to the industrial ambience specified

in the client's program, but an allusion to the New York City lofts where much of the art in the museum's collection was made. The steel-and-glass wedge is a homage to the legacy of Mies van der Rohe and other Bauhaus designers. Even the rift exposed along the Braubachstrasse serves a celebratory function, since the jutting partitions provide a multitiered kiosk for mounting

posters and other publicity of museum events (below). This see-through section epitomizes the interplay between exterior and interior, the city and the institution, that pervades the entire design. Inside, dotted lines (either inland in solid flooring or woven into carpets) indicate segments of the triangular volume (opposite). Outside, the severed corner of the rectangular mass is traced in the

street as a ghostly extension of the ground-floor gallery paving grid. The main entrance to the museum appears to be a brick doorway roughly extracted from the masonry structure and pushed askew to the lot line, where it stands alone as a monumental portal. The actual entrance is through the irregular void of the "removed" door frame. In a series of "philosophical notes" explicating

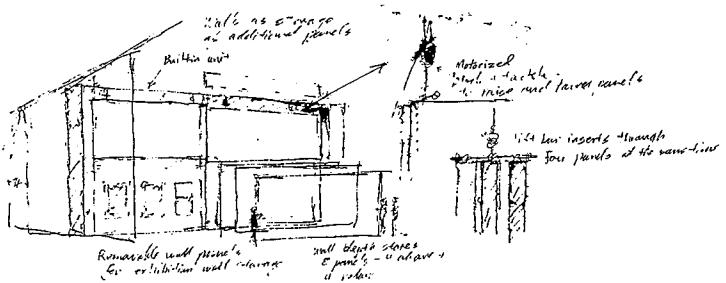
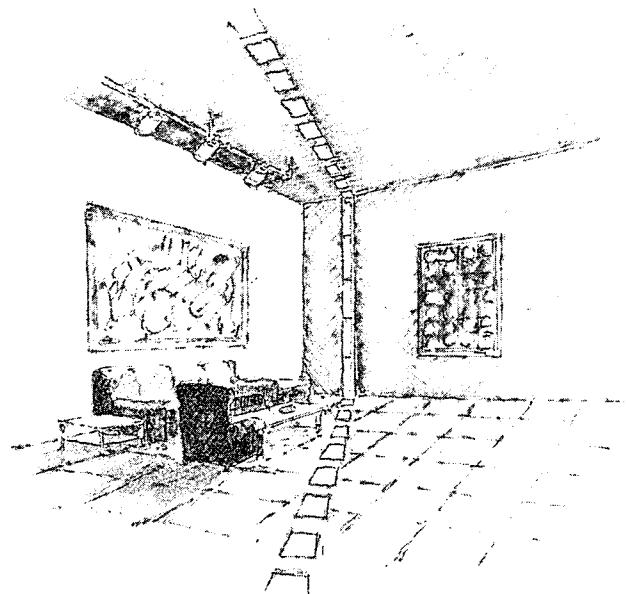
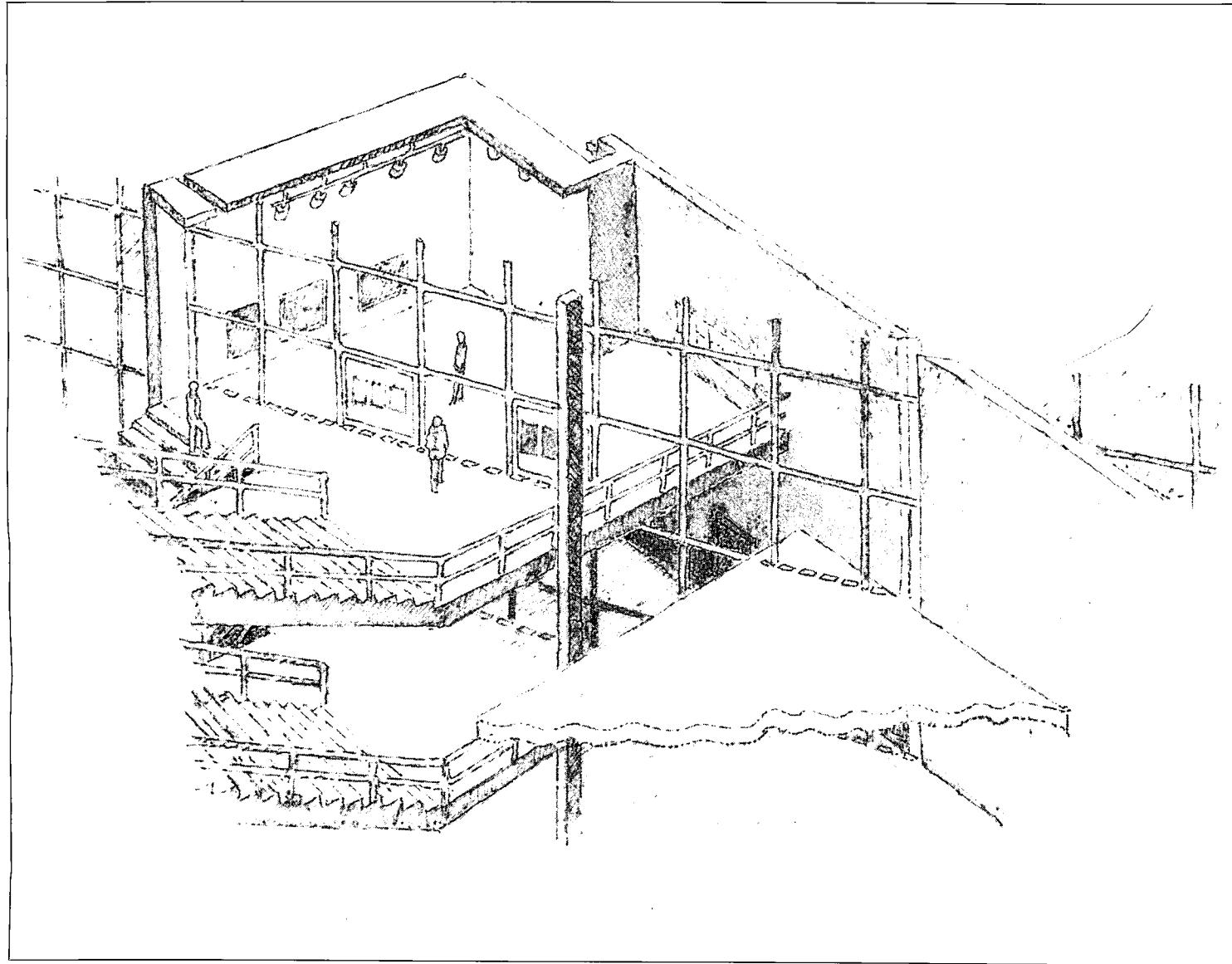


the museum project, SITE comments: "This conceptual layering of ideas about architecture... becomes the entire source of the museum's meaning and its integration with the surrounding community.... [The] surface complexities of [the] Frankfurt Museum derive from these stratified ideas rather than from applied decoration." SITE asserts that the imposition of a

rectangular mass on a triangular lot enabled more rigidly utilitarian program spaces, such as bookstore, offices, and elevators to be suitably right-angled, with diagonals affecting only more flexible gallery areas. (The competition jury found the office layout arbitrary, and the acute angles in the space frame of doubtful use. The contrast between the "traditional" masonry-walled block and the "modern" steel-and-

glass wedge would have made more sense, the panel argued, had the two elements indeed been of different ages.) In keeping with the leitmotif of a "factory" for the production and exhibition of art, the interiors are to be open, loftlike spaces. Pocket walls serve as storage cabinets for temporary display partitions (sketch below right) and ceiling panels rise or descend mechanically. In theory, these

adjustable enclosures could adapt gallery spaces to a broad range of exhibition requirements. "It's like a stage set," James Wines observes, "and in fact, it could literally be used for that."

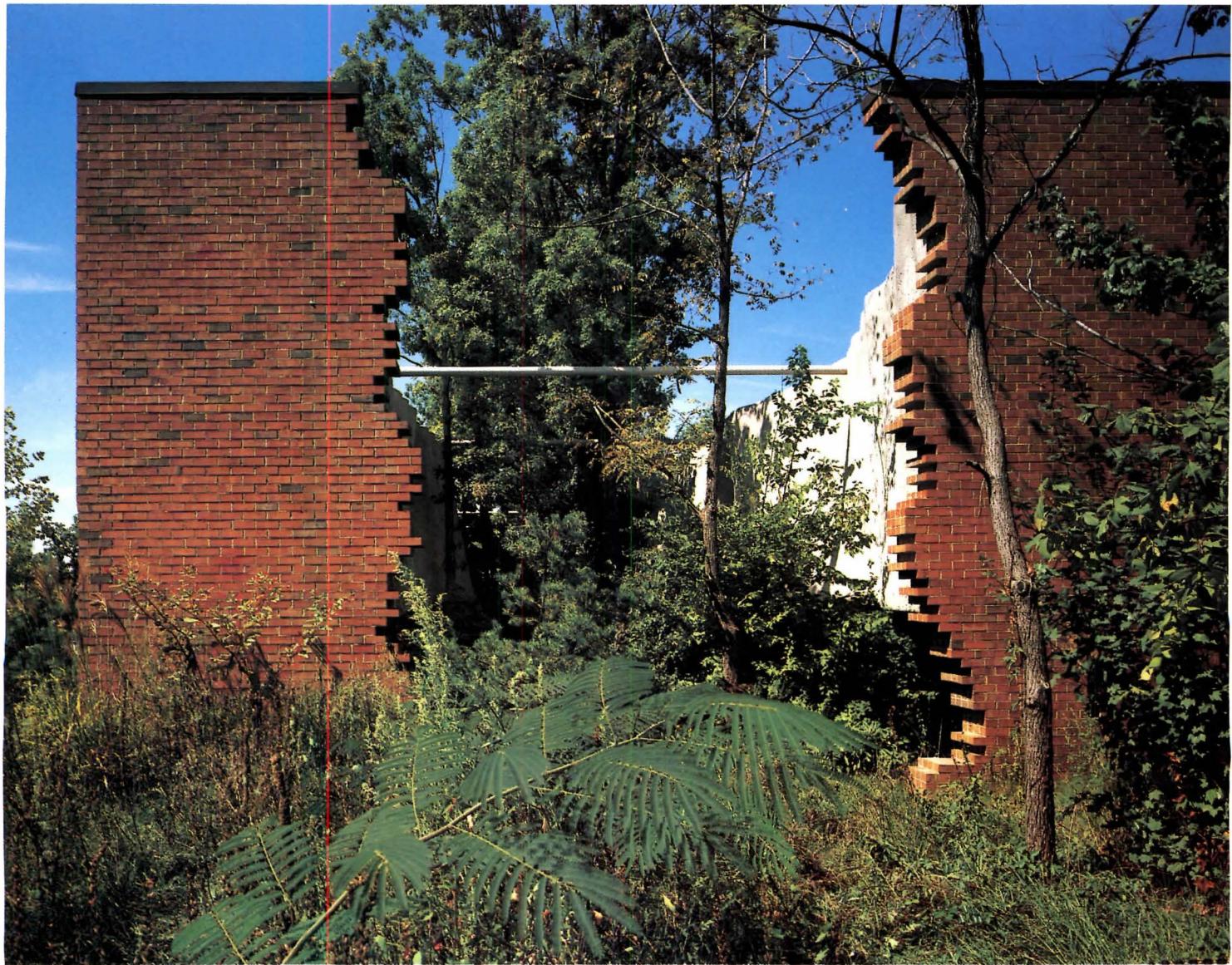


Forest Building
Richmond, Virginia

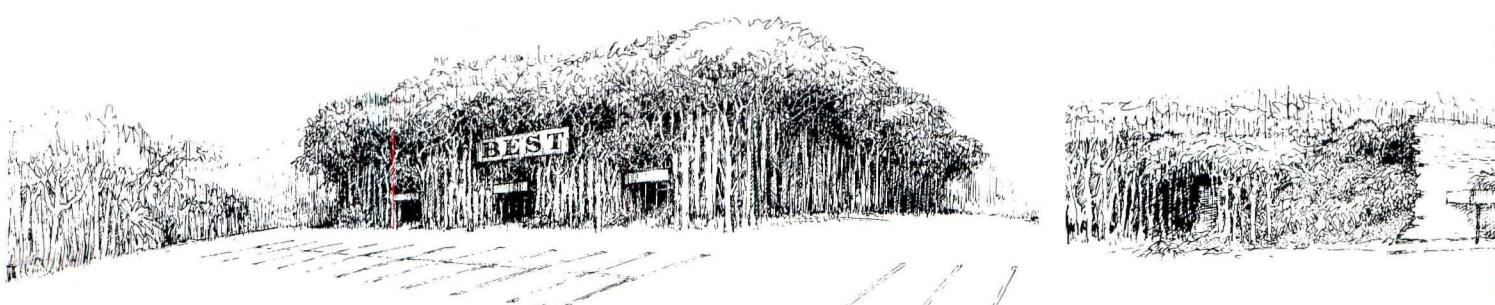
The most recently completed in the series of show rooms for Best Products, the Forest Building was planned for construction in a dense wood alongside a highway (the parking lot occupies a nearby clearing). SITE's design grew from an initial concept of "architecture invaded and consumed by nature—or affected by the revenge of natural forces" (experimental variants on the same theme appear

below). A 35-foot gap between the facade and the actual front wall of the store and an irregular cleft at either end of the building imply that Best's regulation brick box has been rent asunder by giant oak trees. The treatment of the split walls relates the Forest Building to SITE's other "jigsaw puzzle" projects (notably the earlier Notch and Cutler Ridge show rooms for Best), which invite the spectator to

mentally reassemble the fractured parts. Customers make the connection on foot by passing through the glass storefront of the outer facade (opposite) and crossing a bridge to enter the show room. The contrast between the taut brick skin of the exterior and the softly rounded Gunite lining of the open fissures makes the wrench of "unbuilding" almost palpable.



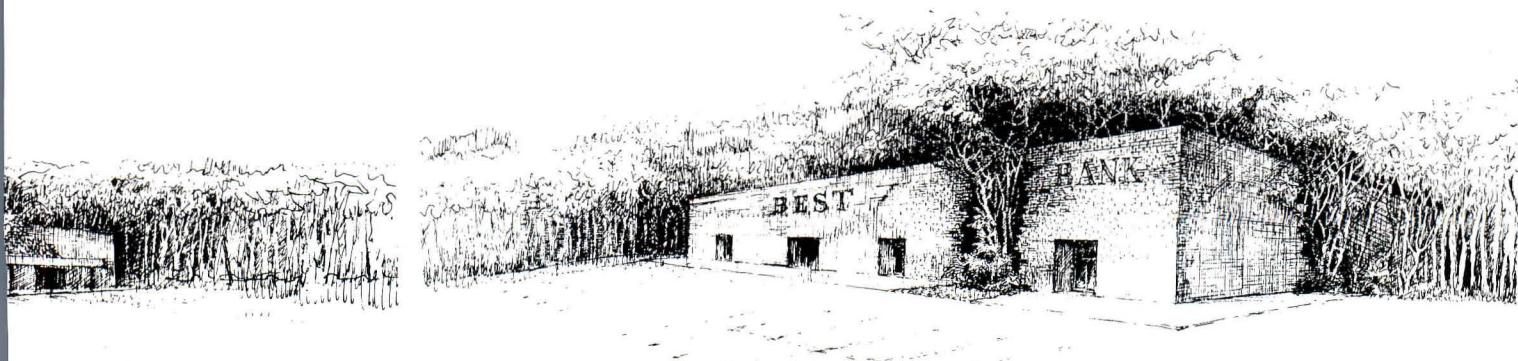
©Peter Aaron/ESTO photos



Forest Building
Richmond, Virginia

Owner:
Best Products Company, Inc.
Designers:
SITE Projects, Inc.
Engineers:
Weidlinger Associates (structural);
La Prade Brothers (civil)

Landscape:
Watkins Nurseries, Inc.
General contractor:
The Whiting-Turner Contracting
Company





Eine kleine castle

Shop for
Ludwig Beck of Munich
New York City
Hans Hollein, Architect

With this most recent shop, Hans Hollein has come about as far as you can come from his taut-aluminum candle shop in Vienna, which won for the Austrian architect the 1966 Reynolds Prize and the start of a worldwide reputation.

This is the first branch in the United States for Ludwig Beck of Munich, a department store that sells a rich and broad range of hand-crafted clothes and specialities—from Teddy bears and cross-stitched kitchen towels to Nymphenburg china and porcelain, from *lederhosen* and Loden coats to hand-finished suede and knitwear, from dirndl skirts and antique leather belts to the latest offerings of the very-in-vogue German clothes designer Jill Sander.

The images here are as rich and varied as the shop's offerings—romantic, fanciful, baroque; a suitable setting for a store that was prospering during the reign (starting in 1864) of Ludwig II—the last of the Bavarian royalty, known as “The Dream King,” who reveled in fanciful art and architecture, was famed for mounting lavish productions of Wagnerian operas, and designed for himself Castle Neuschwanstein, as soaring a pile of spires and turrets as ever graced a Bavarian travel poster. Appropriately, Hollein's little castle is reached by scaling (via escalator) the marble heights of the five-story atrium at Trump Tower on New York's Fifth Avenue. From the escalator, a long corridor leads past show windows to the shop entrance (below), flanked by six gold-leaved columns. The doors open to a rotunda with *faux* marble columns but a Carrara marble floor inset with a blue-and-white ceramic-tile star, a traditional emblem of Munich. Overhead, a plaster dome is painted and lighted as a winter sky.

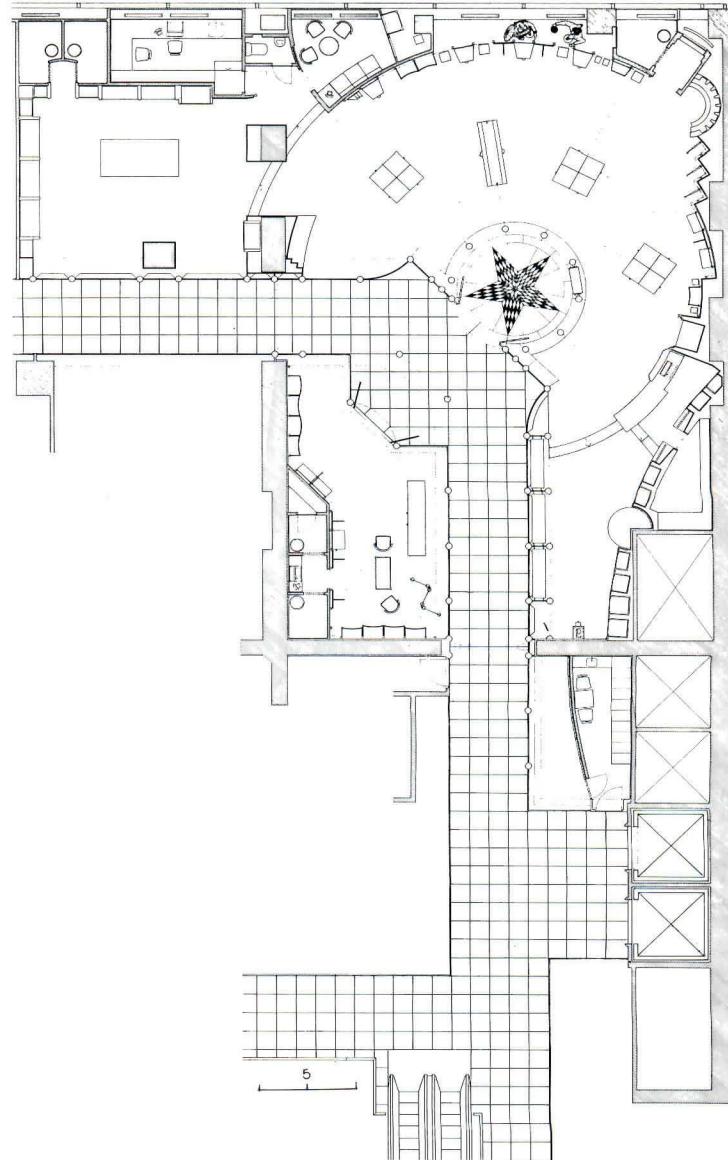
Radiating outwards beyond the rotunda is one of three major selling spaces in the shop—a three-quarter circle (see plan) established by a series of expanded-metal screens curved in plan and curved at the top in a shape meant to suggest a dragon's tail—a reference most might miss unless it were explained, but nonetheless eye-catching and handsome. The expanded metal, like many other surfaces in the shop, is coated with a sprayed-on finish suggesting suede, apropos of many of the clothes on display along the wall, and highly flexible in use, as coats and dresses can simply be hung from the screens and shelves can easily be mounted (as in the photo left) for display of glassware, hand-blown decorative glass, and other giftware. Backlighting washes the wall with fascinating patterns.

Up a step from this circular space are the two other selling areas—a room (see small photo next spread), lighted coldly with tiny neon bulbs, lined by a cornice of deer antlers, with rubbed wood cabinetry and hardwood floor—all meant to be appropriate to the Alpine clothing and home-crafted *heimatwerk* sold here.

The third major space, on the opposite side of the rotunda, is in sharp contrast (see photos page 150). Vitrines, set in a faceted curve of cabinetwork wall, display the Nymphenburg china and porcelain in a setting that is almost museum-like.

In its baroque character, this little shop is very different from most of Hollein's work. But characteristic is the careful and elegant detailing; the mix of simple finishes—as in the suede-finish coatings of the screens and cases—with luxurious finishes—the gold-leaved columns at the entrance and gold-plated hardware and trim that sparkles throughout the shop, and the liveliness of the design, leading your eyes and feet throughout the space—as the design of a shop should.

Says Erika Shank, interior designer who managed the project in New York: “We sometimes waited a long time for Hollein's sketches and details. But when they came, they were always something special...” W.W.



The 3,000-square-foot shop wraps around a corner, centered on the entrance rotunda. The corridor columns (below) are a deep maroon, in contrast to the gold-leaved

entrance and the bronze building standard. The shop at left in the plan is a separate boutique for the sale of Jill Sander clothes.

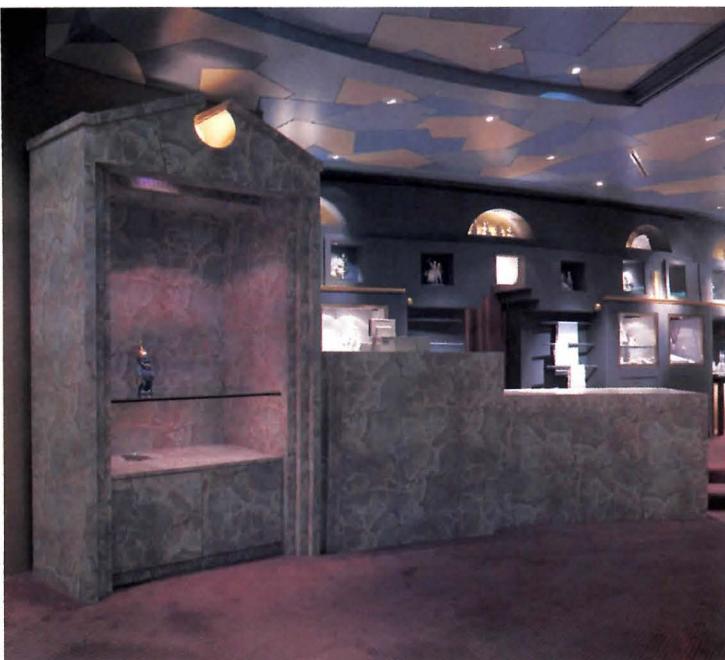


Roberto Schezen photos

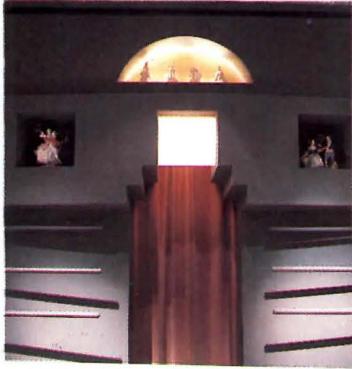


Beyond the glistening rotunda at the entrance, the character of the shop (photos right) changes sharply. Here in the three-quarter-circle main space, the finishes are soft and subdued and the forms and shapes fanciful. The walls, the "dragon-tail" expanded-metal screens, and most of the casework in this part of the shop are finished in the suedelike coating; though the register desk and what is inevitably known as the Philip Johnson cabinet (bottom photo) are in marbleized plastic laminate. In use, the curving wall of screens is covered with clothes on display, and the cabinets and shelves create totally flexible spaces for giftware. The arched opening to the dressing room (top photo) presents a *trompe l'oeil* of the Plaza Hotel on (just about) the axis of the actual Plaza a few blocks up Fifth Avenue. The ceiling in this space (best seen in the photo left) is an ancient Chinese crushed-ice pattern in white and two shades of blue. The "crystals" are hardboard routed to shape over a gypsum-board subceiling, with low-voltage lighting let in to suggest stars. This random pattern meets the curved walls of the shop in an easy way, gives invisible access to the mechanical space above, is fascinating to look at but does not distract from the merchandise.

Photo below: Another change of character—the bright, wintry Alpine shop.



Another change of character: For the display of hand-blown glass and the Nymphenburg china, Hollein designed this faceted and beautifully crafted wall. The wall is finished in "suede," but the glistening gold-trimmed vitrines and lighted recesses present the things on display as works of art (which some of them, of course, are). This photo is taken (note step in foreground), from the central, circular shop and this convex shape serves to focus the shopper's attention while the concave main room serves to invite "looking around." At right in photo: the columns of the show window overlooking the entry corridor. Mounted on a tall pylon, reflected in a mirrored wall at the end of the shop, and putting a fanciful coda to Hollein's fanciful shapes, is a gold model of the Dream King's Castle Neuschwanstein.



*Shop for Ludwig Beck of Munich
New York City*

Owners:

Ludwig Beck of Munich

Architect:

Hans Hollein—collaborators of Mr. Hollein on this project: Hans Streigner and Fritz Madl

Collaborating interior designer: Shank Design Associates—Erika Shank, project manager

Collaborating architect:

Swanke Hayden Connell Architects (working drawings)

Lighting consultant:

Douglas Baker

Mechanical engineer:

W. A. DiGiacomo Associates

*The trompe l'oeil mural,
marbleizing of rotunda columns,
and gold-leaf work by
Tromploy, Inc.*





The telling detail, II: institutional buildings by Hugh Newell Jacobsen

The major difference between houses and other buildings is, obviously, size, a fact that carries with it some major implications for detailing. When detailing any building, Hugh Newell Jacobsen, like all architects, must concern himself at the outset with either repelling or draining water, which has a pesky tendency to work its way through the tiniest aperture. In both houses and larger buildings, Jacobsen prefers to conceal gutters behind parapets (see also "The telling detail, I" in last month's RECORD). In larger buildings, however, where the eaves lie well beyond the range of sight, gutters and flashing can be of more modest material than the stainless steel he specifies for houses—though equally invulnerable to water, of course. Furthermore, the consequences of thermal expansion and contraction increase as the size of the building increases. Thus the inclusion of expansion joints is more evident in the drawings shown this month than in those last month.

These drawings also include one example of the kind of structural detailing architects must resort to in the 20th century. Jacobsen, who notwithstanding his jests is a deeply serious designer, winces at the steel framing behind the apparently solid masonry buttress at the University of Michigan's Alumni Center, though worthy predecessors do exist. But he is also an honest man and "that's the way it got built."

Where materials and finishes invite perception, on the other hand, Jacobsen applies his wonted attention to their appearance. Nothing is more visible, architects have been heard to complain, than exit signs; at the University of Michigan, Jacobsen confronted the required safety measure with typical wit, floating the lighted sign high on a glass panel to become a highly visible but airy compositional element. At the Gettysburg College Library and Learning Center, needing air exhaust for a large reading room, he took a lead from a similarly camouflaged wooden vertical plenum he designed for a house (see page 142 in the February RECORD); here, working on a larger scale, he concealed a plenum within a brick wall.

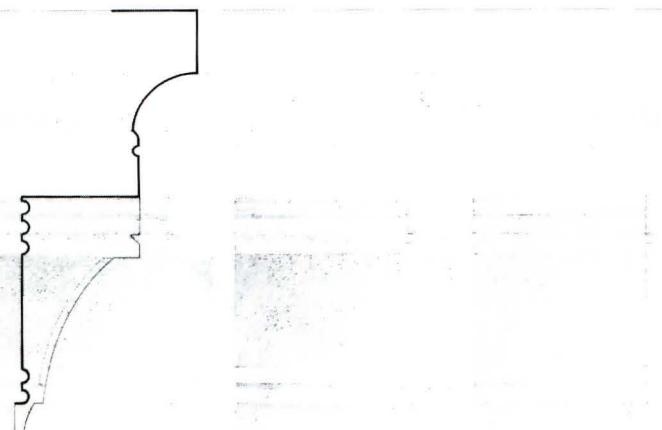
And even in larger buildings, Jacobsen can indulge his joie de vivre. The excuse for a sprightly pedimented oriel and bracketed cornice, concocted for student housing at Georgetown University in Washington, D. C., was a surrounding Victorian neighborhood with kindred ornament. But the only excuse for a triangular spiral grand staircase is three-dimensional, volumetric, geometrical—in short, architectural—fun. *Grace Anderson*

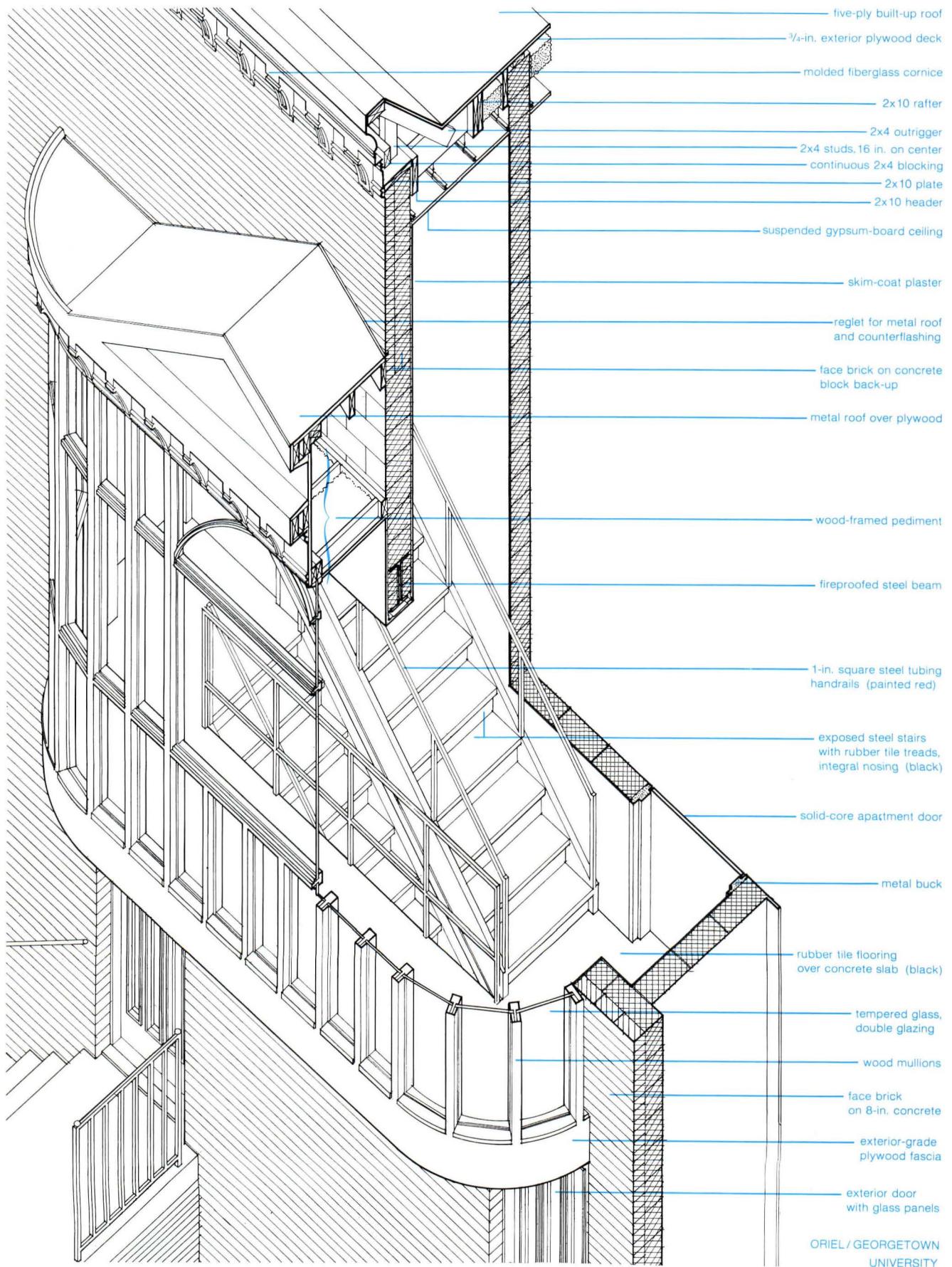
MOLDED FIBERGLASS CORNICE/GEORGETOWN UNIVERSITY

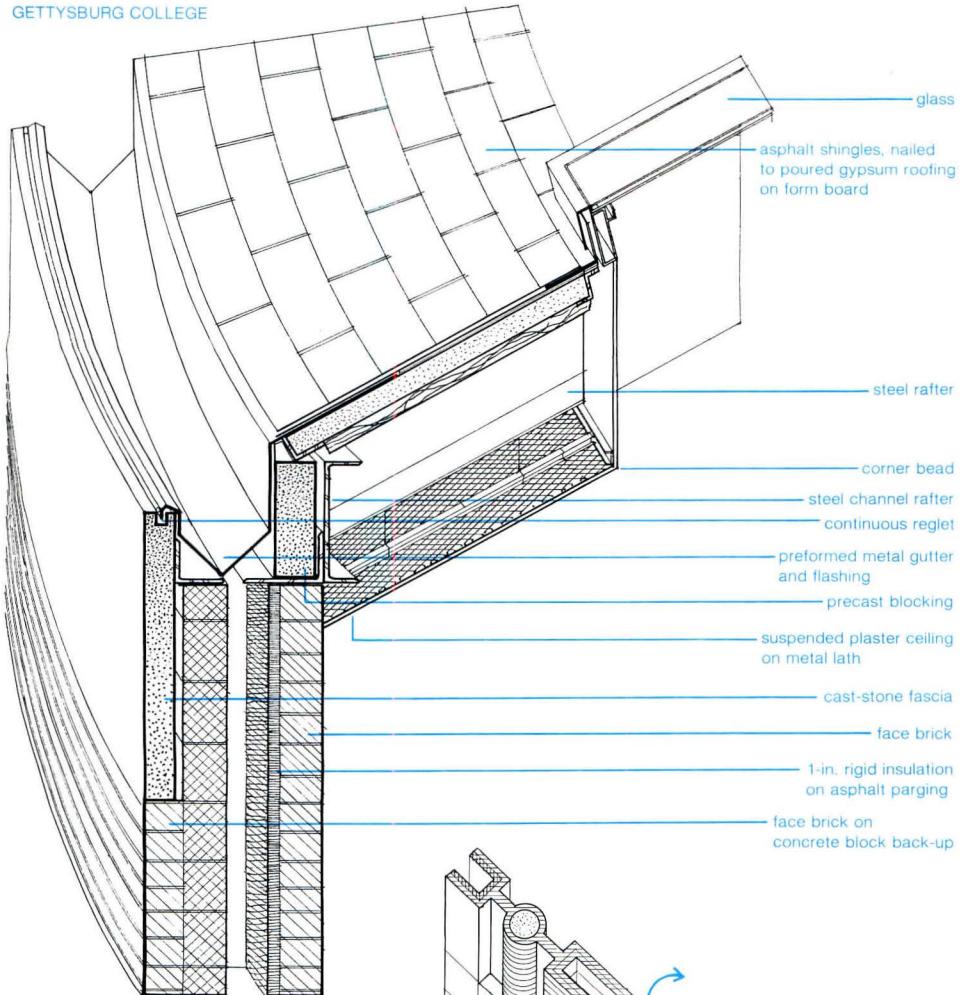
Robert Lautman photos except as noted



Wood oriel and fiberglass cornice,
Georgetown University,
Washington, D. C.



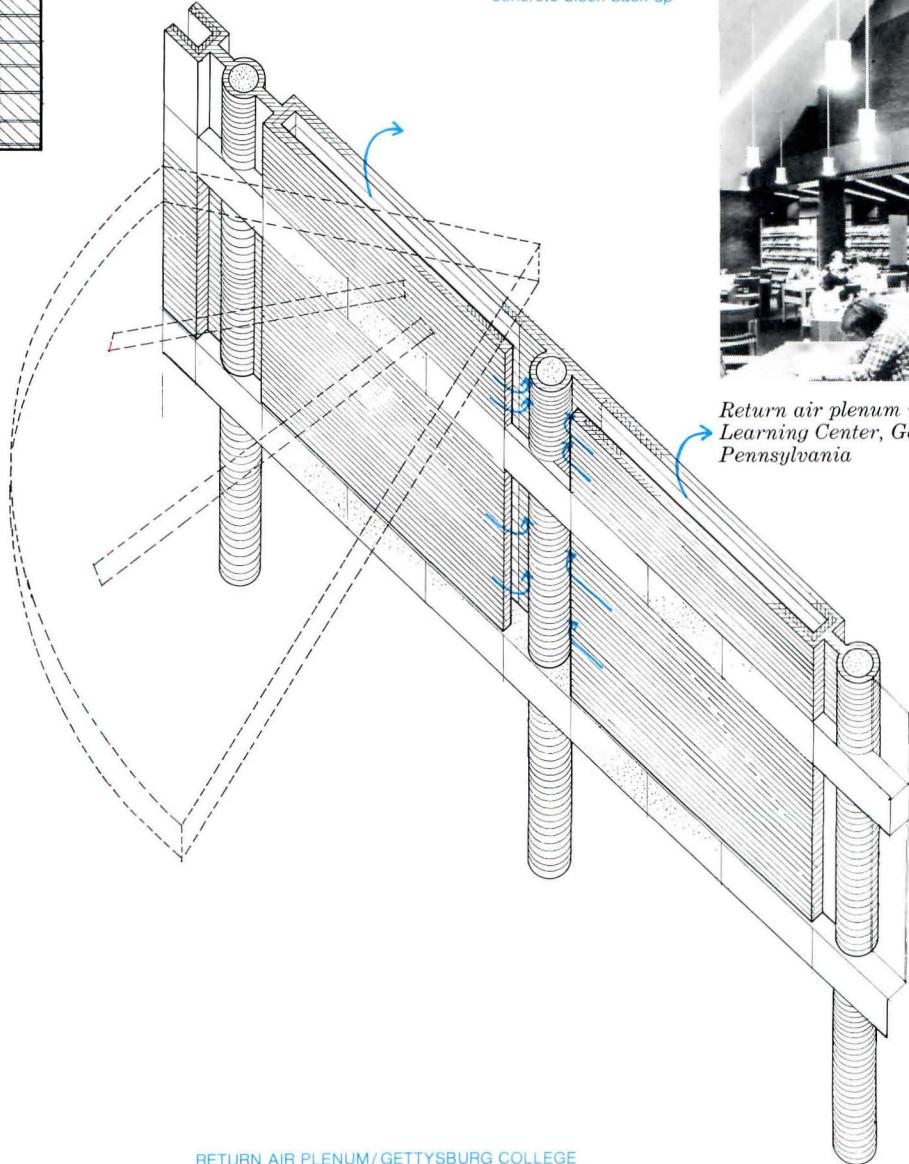




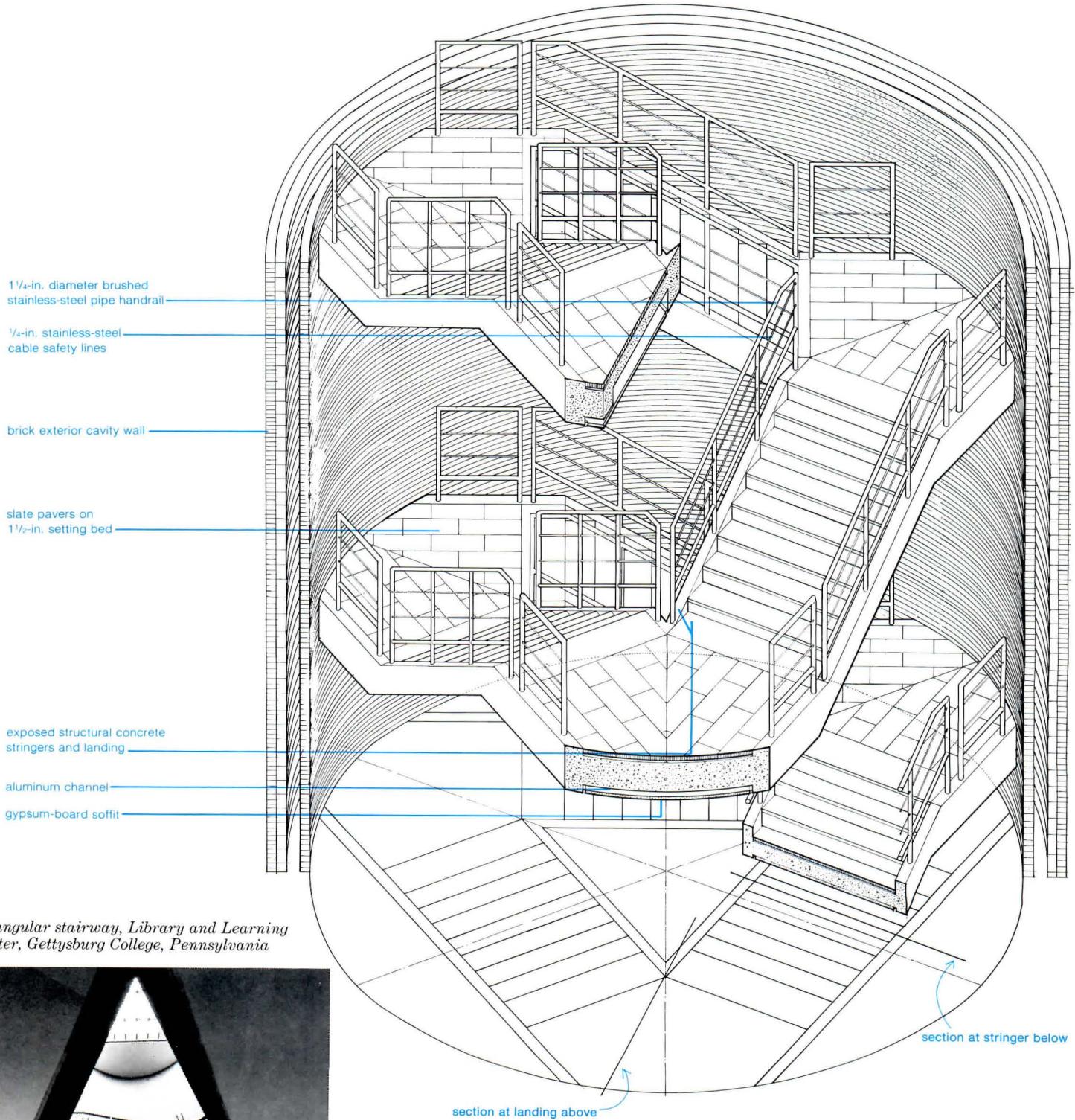
Finger skylights on apsidal roof, Library and Learning Center, Gettysburg College, Pennsylvania
Balthazar Korab



Return air plenum in reading room, Library and Learning Center, Gettysburg College, Pennsylvania
Balthazar Korab



RETURN AIR PLENUM/ GETTYSBURG COLLEGE

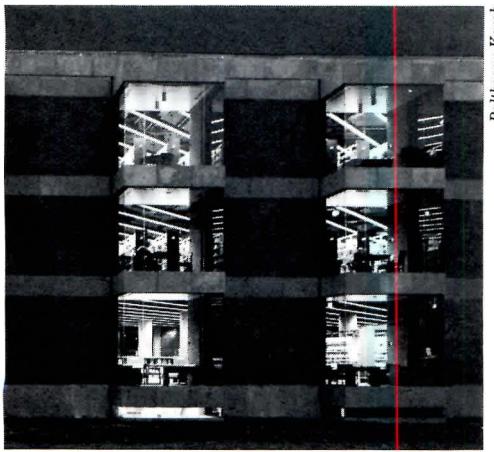


Triangular stairway, Library and Learning Center, Gettysburg College, Pennsylvania



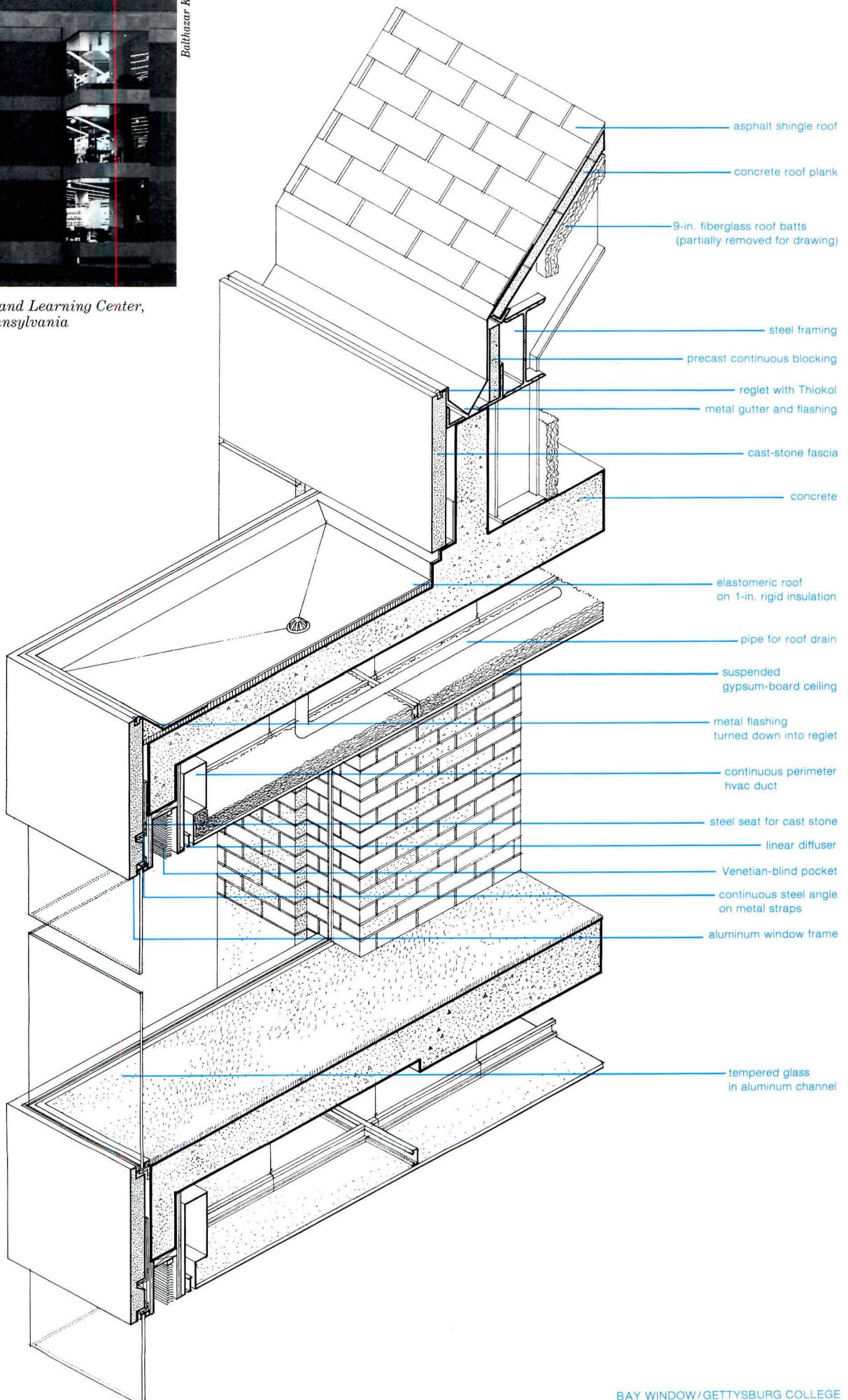
Balthazar Korab

SPIRAL STAIRCASE/GETTYSBURG COLLEGE



Balthazar Korab

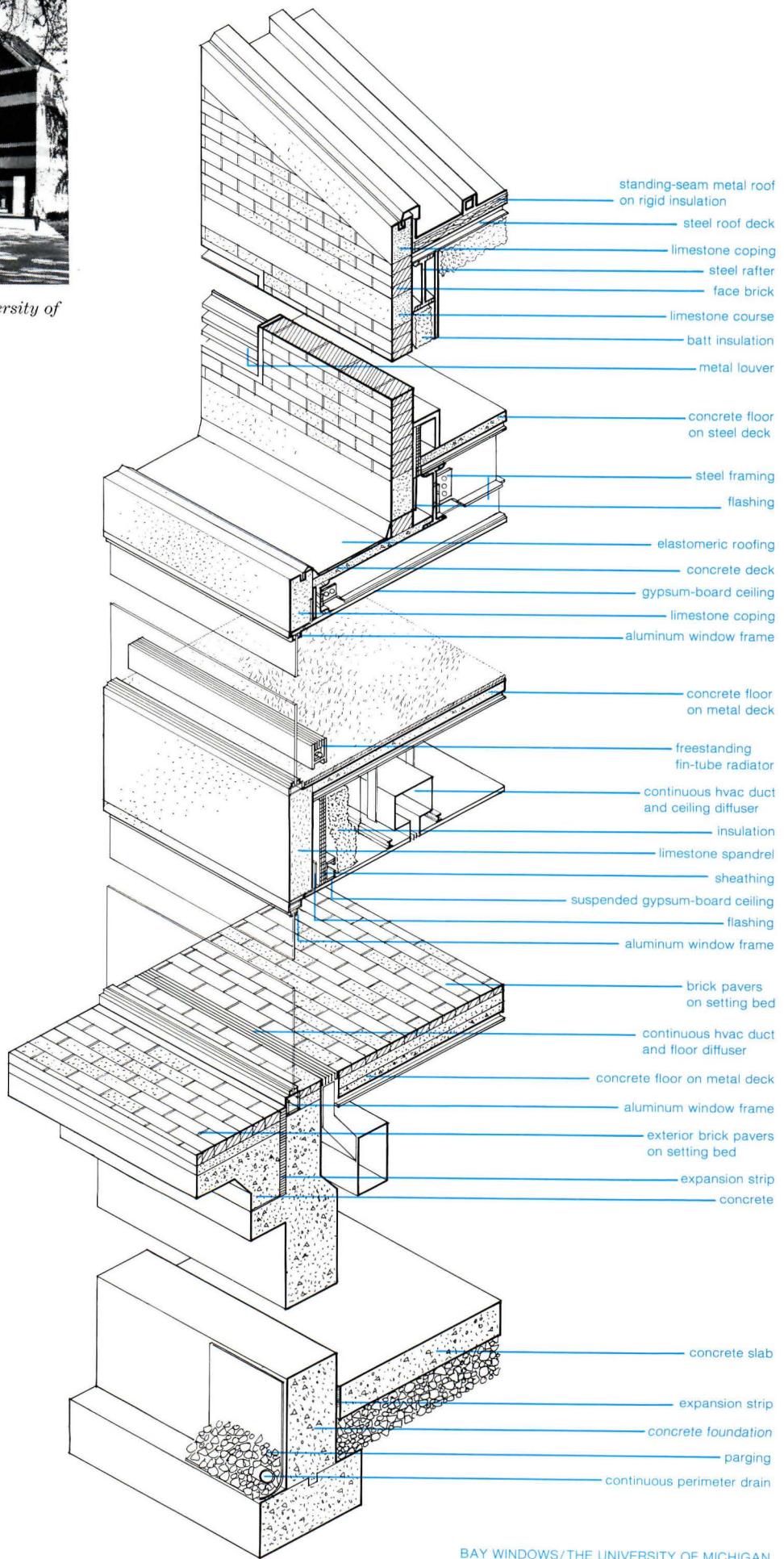
Bay windows, Library and Learning Center,
Gettysburg College, Pennsylvania

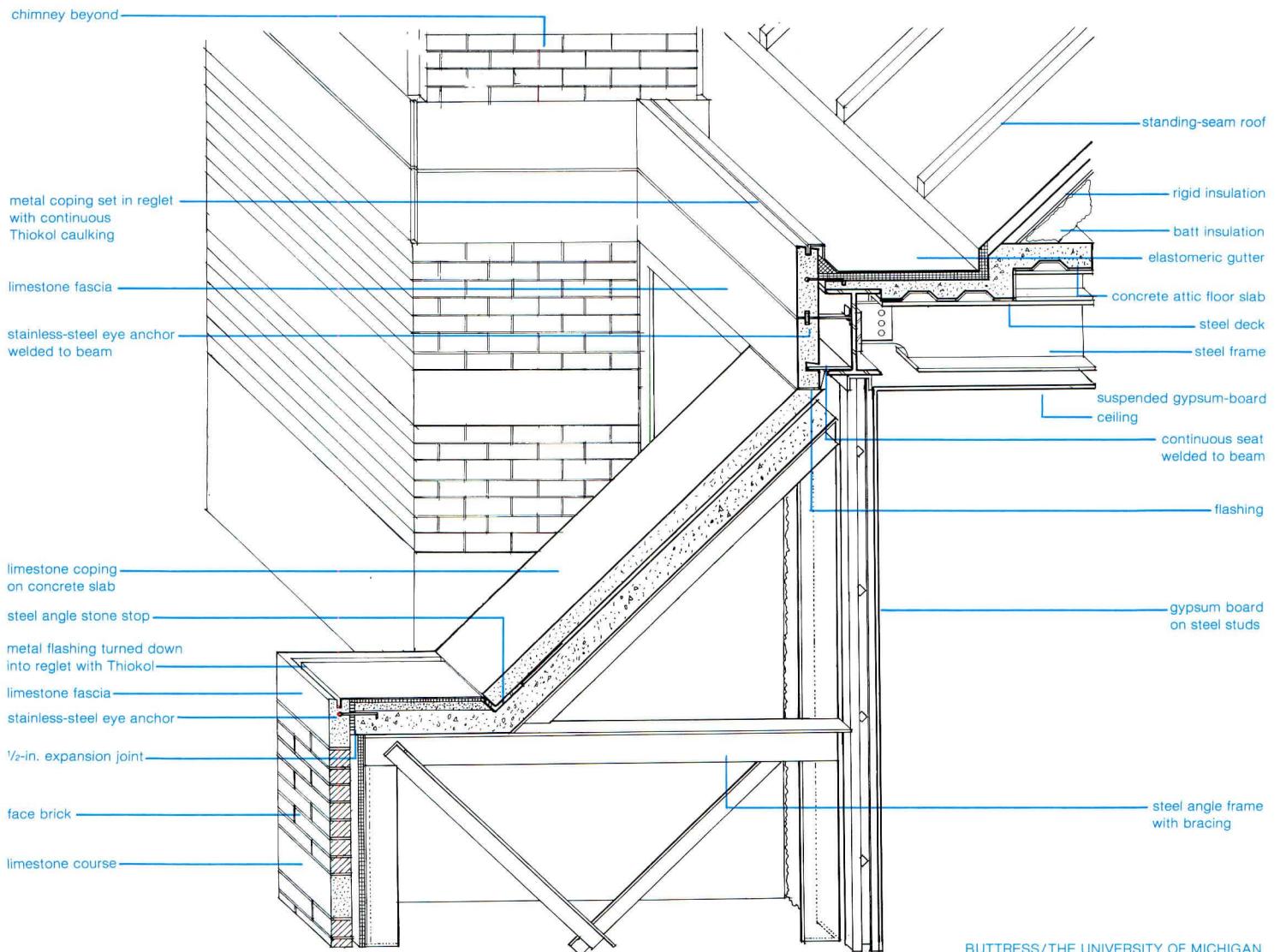


BAY WINDOW/GETTYSBURG COLLEGE



Glass and stone bays, Alumni Center, The University of Michigan, Ann Arbor





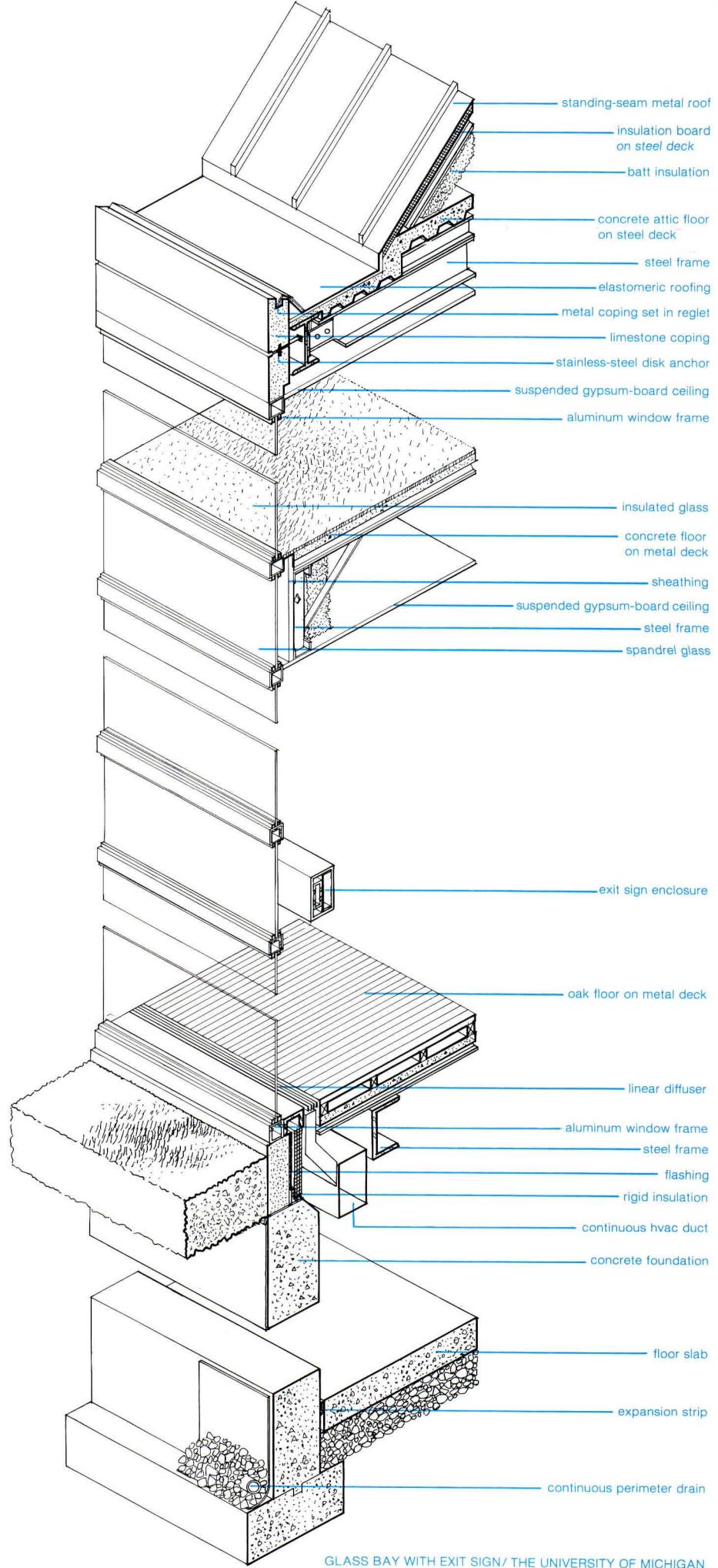
BUTTRESS/THE UNIVERSITY OF MICHIGAN

*Buttresses and chimneys, Alumni Center, The University of Michigan,
Ann Arbor*





*Exit sign in conference room, Alumni Center,
The University of Michigan, Ann Arbor*



GLASS BAY WITH EXIT SIGN / THE UNIVERSITY OF MICHIGAN

New products

For more information, circle item numbers on Reader Service Card, pages 239-240



Italian primitive

Equally prolific as both an architectural practitioner and a theoretician, Aldo Rossi is one of the most influential voices on the contemporary international scene. In numerous writings and through such well-known commissions as the Municipal Cemetery in Modena and the Teatro del Mundo in Venice, the Milanese architect has revealed a

concern for regional building traditions and an intimate knowledge of history. Rossi now has turned his attention to furniture design, and the collection that was recently introduced at the Milan Furniture Fair is, like many of the architect's buildings, strongly evocative of the past. Manufactured in Italy by Longoni, the four-piece collection

illustrated above consists of a freestanding cabanalike closet/cupboard called the Elba Cabin, a tall cabinet, a chest of drawers, and a chair. Each piece is made of beech and finished in yellow analine wood stain or pink, sky-blue, or black matte lacquer. The furniture features brass, stainless steel, glass, and marble details and is available through Furniture of the Twentieth

Century, an importer and distributor of historic and contemporary architect-designed furnishings. Furniture of the Twentieth Century, Inc., New York City.

Circle 300 on reader service card
More products on page 167

Product literature

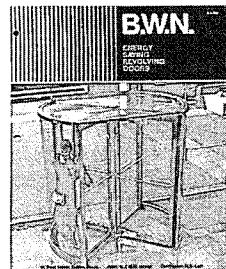
For more information, circle item numbers on Reader Service Card, pages 239-240



Kitchenettes

Metal, laminate and hardwood veneer finishes available in a line of custom-designed compact kitchens are shown in photos in a 12-page color brochure. Data on each cabinet series include appliance capacities and colors, electrical loads, dimensions and options. Cervitor Kitchens, Inc., South El Monte, Calif.

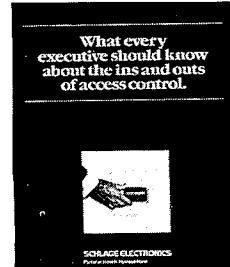
Circle 400 on reader service card



Revolving doors

Photos of installations show a variety of revolving doors while section diagrams show construction details in an 8-page color brochure. Door elevations and sizes as well as drawings of equipment and accessories are included along with specifications. B.W.N. Industries, Duarte, Calif.

Circle 401 on reader service card

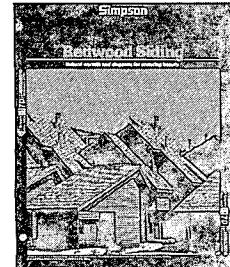


What every executive should know about the ins and outs of access control.

Security systems

An 8-page illustrated booklet explains four common electronic access control technologies. It also includes guidelines to determining a need for an access system as well as selecting one. Topics addressed include traffic flow planning and system task definition. Schlage Electronics, Santa Clara, Calif.

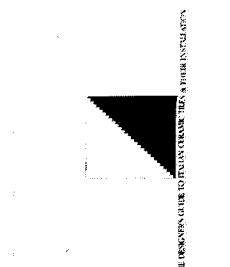
Circle 402 on reader service card



Redwood siding

A 6-page color brochure includes photos of both commercial and residential redwood siding installations. Detail photos show siding patterns and grades. Insulation values, flame spread ratings, sizes, grades and patterns are listed along with application instructions. Simpson Timber Co., Arcata, Calif.

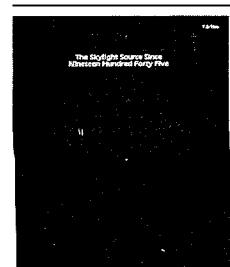
Circle 403 on reader service card



Ceramic tiles

A 64-page color booklet on the selection, specification and application of ceramic tile explains types and qualities as well as methods of installation. Photos illustrate a variety of installations. A glossary of terms is included. The Italian Tile Center, New York City.

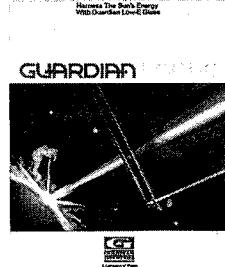
Circle 404 on reader service card



Skylights

Custom skylight installations are detailed in photos, diagrams and specifications in a 36-page color brochure. Models shown include cluster, structural vaulted, lean-to and structural polygon. Standard models are also featured with size selection charts. Naturalite, Inc., Garland, Tex.

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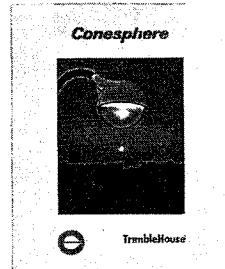


Insulated glass

An 8-page color brochure describes Low-E (low emissivity) glass, which features a thin metallic coating applied to its inside surface for insulation. As described, the glass is designed for both commercial and residential applications.

Guardian Industries Corp., Carleton, Mich.

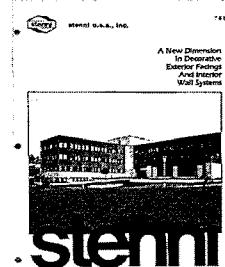
Circle 406 on reader service card



Outdoor lighting

Conesphere luminaire lighting applications and performance are described in an 8-page color brochure. Mounting arrangements and mechanical details are shown while photometric data are listed. Pole heights and finishes are also included. TrimbleHouse Corp., Norcross, Ga.

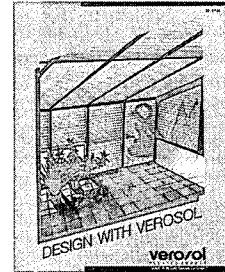
Circle 407 on reader service card



Architectural panels

Prefinished exterior facings and interior panels composed of fiberglass, crushed stone and polyester resin and faced with stone aggregates are featured in an 8-page color brochure. Panels range from 2.25 to 3.75 lb/SF and come in three aggregate sizes and nine colors. Stenni USA, Inc., Plainfield, N.J.

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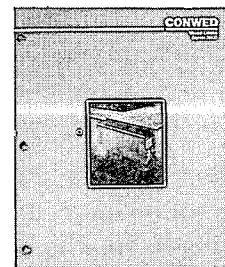


Pleated shades

Design features and energy-saving characteristics of pleated polyester shades are covered in a 6-page color brochure.

Specifications include details of construction and dimensions. A motorized skylight shade and automatic roller mechanism are also described. Verosol USA, Inc., Pittsburgh, Pa.

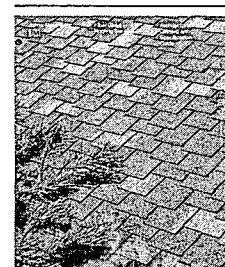
Circle 409 on reader service card



Wood desks and files

Wide surface returns and two-drawer built-in lateral files are highlighted in photos and diagrams in a 6-page color brochure covering Series 3900 wood desks. Furniture dimensions and finishes are listed, while close-up photos show details of construction. Conwed Corp., St. Paul, Minn.

Circle 410 on reader service card



Fiberglass shingles

A 12-page color brochure covers six lines of the manufacturer's fiberglass shingles. Specifications feature data on technical support, the preparation of a roof deck, applications, materials and fasteners. A product selection chart is included. Manville Service Center, Denver, Colo.

Circle 411 on reader service card

More literature on page 165



The Man in the Modernfold Wall

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Your local Modernfold distributor, The Man in the Modernfold Wall, has consistently provided the innovative products and conscientious service that so many architects and end-users have come to rely on. With a network of over 150 of these installing distributors, there's sure to be one near your next project. He can

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Most of our distributors have been with Modernfold for over 20 years. With this application expertise and

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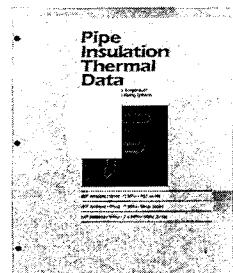
You can count on The Man in the Modernfold Wall to come through for you with every installation. For the name of the one nearest your next project, contact Modernfold, P. O. Box 310, New Castle, Indiana, 47362. In Canada, contact P. O. Box 399-Station E, Toronto, Ontario, M6H9Z9, Telex: 27-2285.

Modernfold

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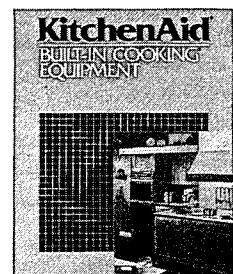
Product literature *continued*

For more information, circle item numbers on Reader Service Card, pages 239-240



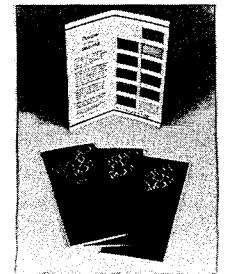
Pipe insulation
A 22-page booklet lists tables of heat loss and surface temperatures for mechanical piping systems operating at from 150 F to 850 F. Tables list data taken in three different wind, temperature and shielding combinations. Knauf Fiber Glass, Shelbyville, Ind.

Circle 412 on reader service card



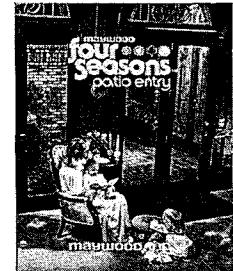
Built-in ovens
Single and double gas, electric and microwave ovens as well as electric and gas cooktops are featured in a 4-page color brochure. Each model is shown accompanied by a list of features, weights and dimensions. Available colors are listed. KitchenAid Div., Hobart Corp., Troy, Ohio.

Circle 413 on reader service card



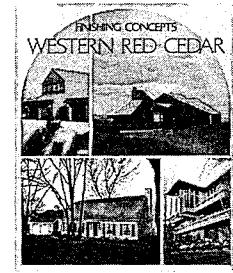
Colored floor grout
A 4-page color brochure highlights the 12 available colors of AR-20 grout. The grout is claimed to resist acid, rust, water, grease and oil. It is designed for use between glazed and unglazed ceramics, split brick slate and quarry tiles. Durabond Div., United States Gypsum Co., Chicago, Ill.

Circle 414 on reader service card



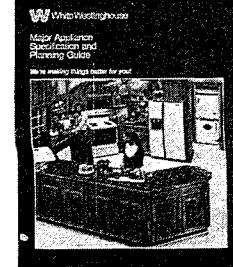
Patio doors
Four Seasons wood framed patio doors with one, two, or three panels are featured in a 12-page color brochure. Shutters, transoms, and leaded and etched glass panels are also shown and described. Close-up photos show construction details. Dimensions and specifications are listed. Maywood, Inc., Amarillo, Tex.

Circle 415 on reader service card



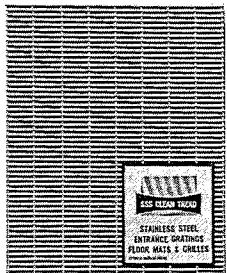
Red cedar finishing
A 6-page color brochure provides information on interior and exterior finishing of Western red cedar paneling and siding. Included are tips on finish types, preparation of materials and required tools. Photos show a number of installations. Western Red Cedar Lumber Association, Portland, Ore.

Circle 416 on reader service card



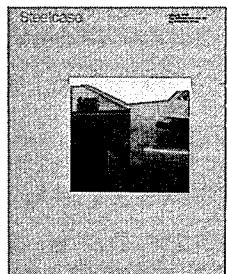
Appliances
Gas and electric ranges, ovens, dishwashers, laundry equipment and air conditioners are featured in a 16-page color brochure. Photos and diagrams with dimensions show each appliance, while available models are listed in specification tables. White-Westinghouse Appliance Co., Pittsburgh, Pa.

Circle 417 on reader service card



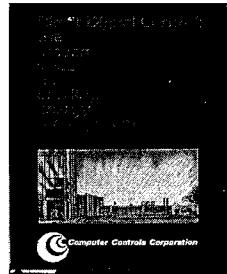
Gratings, mats and grilles
A 4-page brochure describes stainless steel entrance gratings, floor mats and grilles. Drawings show installation details of stainless steel mats and pit gratings, including lockdown devices and trim flanges. Typical applications are also detailed. KADEE Industries, Inc., Solon, Ohio.

Circle 418 on reader service card



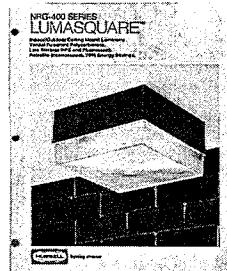
Computer-support furniture
A 28-page color brochure describes the *Utronic 9000* line, which includes desks, mobile pedestals, turntables and VDT stands. Photos show arrangements from executive offices to word processing workstations while diagrams illustrate other sample layouts. Steelcase, Grand Rapids, Mich.

Circle 419 on reader service card



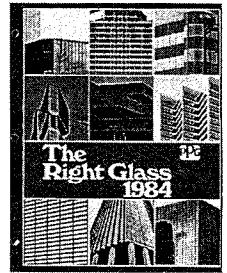
Building energy management
A 4-page color brochure describes direct digital control systems and covers installations in facilities of 20,000 to two million sq ft, including industrial plants, office buildings and hospitals. Photos show a panel, control station and CRT display. Computer Controls Corp., Wilmington, Mass.

Circle 420 on reader service card



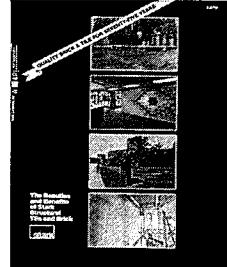
Indoor/outdoor luminaire
The *Lumasquare*, a luminaire that accepts low-wattage HPS and fluorescent lamps, is shown and described in a 6-page color fold-out brochure. The brochure includes dimensions, mounting details, operating characteristics and photometric data as well as specifications. Harvey Hubbell, Inc., Christiansburg, Va.

Circle 421 on reader service card



Architectural glass
A 28-page color booklet includes tables of daylight reflectance and transmittance, U-values, R-values, shading coefficients and relative heat gains for several glass types. Photos depict a variety of commercial installations. PPG Industries, Pittsburgh, Pa.

Circle 422 on reader service card



Structural tile and brick
Structural glazed facing tiles and brick are detailed in a 12-page color catalog. Colors, sizes, shapes and typical wall section details, as well as information on a line of acoustical tiles, are included. Stark Ceramics, Inc., Canton, Ohio.

Circle 423 on reader service card

More literature on page 175

"They promised me service like I've never seen. I never saw it."

Stop the shock...with Exxon office automation.

Today, more and more companies are shocked over the time it takes to service their office automation equipment.

Shockproof your office automation

With Exxon office automation, "service shock" is a thing of the past. Because we provide service for every product we sell — quickly and efficiently.

If you ever need to call the Exxon toll-free service number, a service operator will immediately determine if your problem is opera-

tional or equipment oriented. If it's operational, a service specialist will duplicate your steps on live equipment to determine the best solution. If your trouble is with the equipment itself, a service call will be arranged instantly.

Ready where you are

The Exxon service organization covers virtually every county in America. And that means it's faster and easier for us to repair your equipment right in your office.

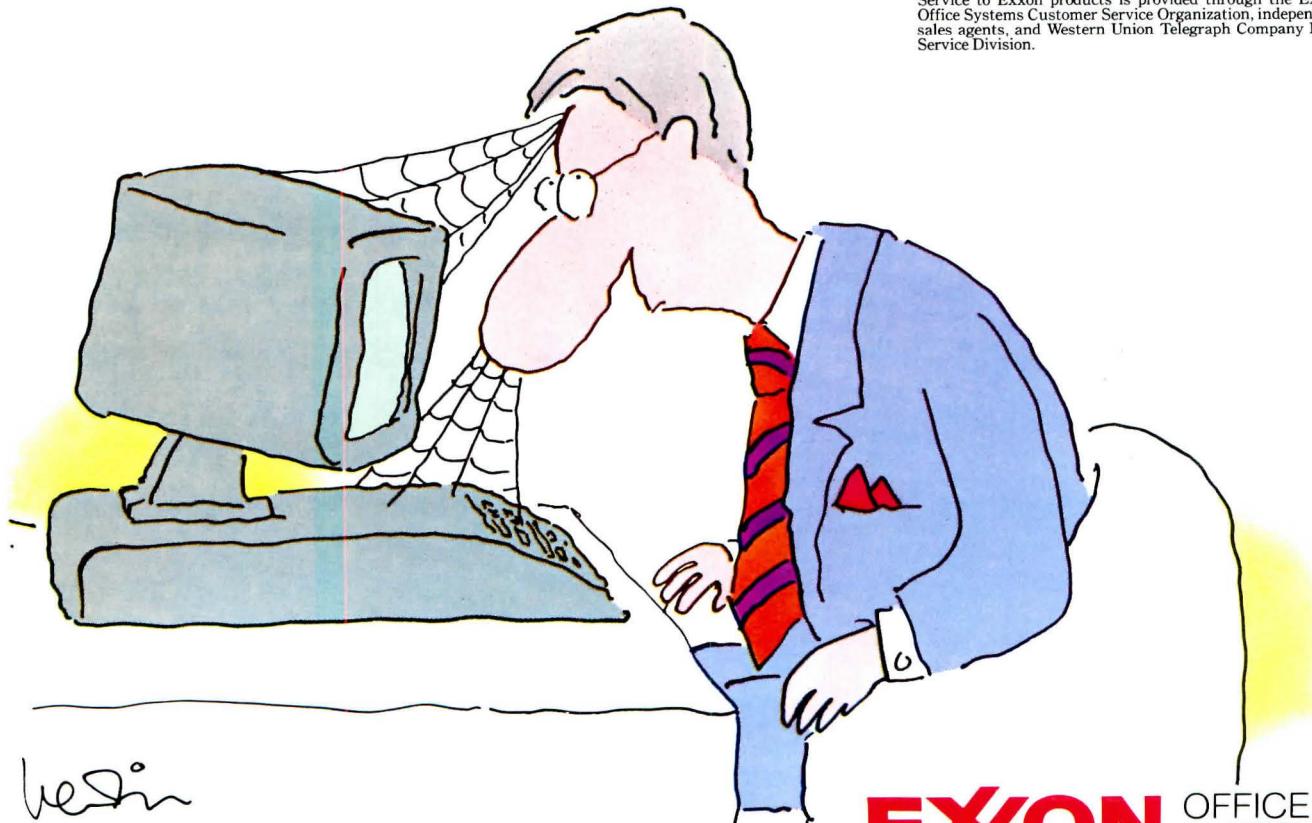
Computerized service system

From the time you purchase your equipment from an Exxon sales branch, our computerized service management system will maintain a complete service record of all your office equipment. So even before our field engineer arrives, we can begin to diagnose your problem.

For more information

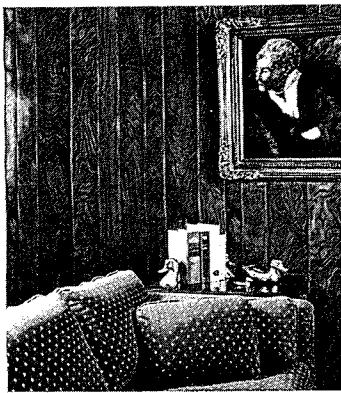
Call 800-327-6666, or write Exxon Office Systems, P.O. Box 10184, Stamford, CT 06904-2184. We'll be happy to tell you about our basic maintenance agreement and customer service system.

Service to Exxon products is provided through the Exxon Office Systems Customer Service Organization, independent sales agents, and Western Union Telegraph Company Field Service Division.



EXXON OFFICE SYSTEMS

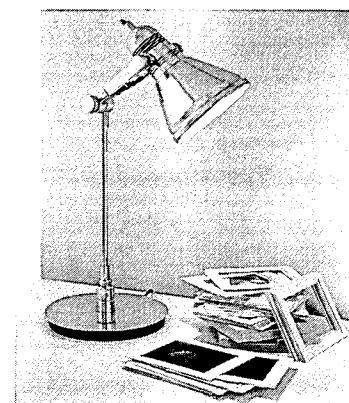
The future...without the shock.



Paneling

The *Highland Collection* of hardboard paneling includes 4-by-8-ft panels designed to look like cherry or birch wood. Panels are $\frac{1}{4}$ in. thick and feature color-coordinated grooves and a low-gloss finish. Masonite Corp., Towanda, Pa.

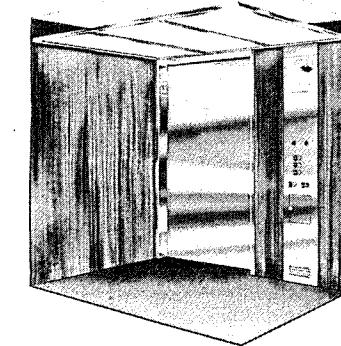
Circle 301 on reader service card



Desk lamp

A solid brass lamp, model NAT 52, stands $16\frac{1}{4}$ in. high and is $6\frac{1}{4}$ in. wide. Its rotating base and reflector direct light to any area desired. Several shade options are available. Nessen Lamps, Inc., Bronx, N.Y.

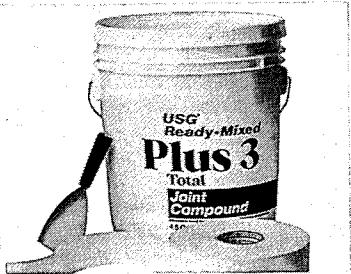
Circle 302 on reader service card



Elevators

Two three-stop models of *Fastrack* low-rise hydraulic elevators feature capacities of 2,000 and 2,500 lb. These additions to the *Fastrack* line meet all ANSI safety and handicap regulations and are equipped to meet local codes. Westinghouse Elevator Co., Short Hills, N.J.

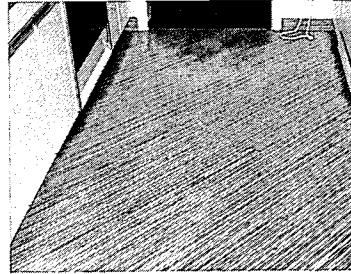
Circle 303 on reader service card



Drywall joint compound

Ready-Mixed Plus 3 is a vinyl-based, non-asbestos total joint compound claimed to be 35 percent lighter and easier to sand and finish than conventional compounds. It is also said to eliminate the need for taping and topping compounds. United States Gypsum Co., Chicago, Ill.

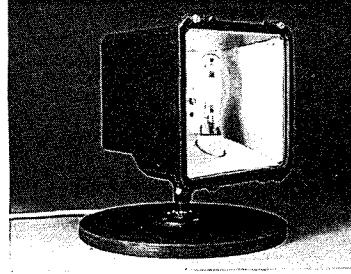
Circle 304 on reader service card



Plywood floors

A custom maker of plywood products cuts laminated blocks of fir into 8-ft-long by 3-in.-wide by $\frac{1}{2}$ -in.-deep strips for fabrication into end-grain plywood floors. The floors are installed using either mastic only or a combination of mastic and blind side nailing. Plyart, Winnetka, Ill.

Circle 305 on reader service card



Floodlight

The *SBF-150* floodlight uses medium-base *Lucalox* HPS lamps of from 35 to 150W. The dark bronze fixture is UL 1572 listed as suitable for wet locations. The *SBF-150* can be ground, pole or building mounted. General Electric Co., Hendersonville, N.C.

Circle 306 on reader service card

More products on page 169

Leave the Drawing to us.

If you're still drawing with a T-square and a pencil, *VersaCAD* is for you. *VersaCAD* is a unique computer-aided-drafting system that lets you spend more time designing and less time drawing.

Productivity Increases of 100-1,000%. Repetitive tasks such as redrawing and multiple form generation become practically effortless. Complex revisions take minutes. Finished plots are always precise and accurate. You'll do better work while realizing substantial cost savings. Your productivity will soar.

Easy to Learn and Use. Designed to run on personal computers, *VersaCAD* can be mastered in only a few days without learning computer technology.

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Proven Hardware. *VersaCAD* is designed to run on the IBM-P.C. and Hewlett Packard Series 200 computers (available for Apple II's as CADAPPLE). Peripherals and options are matched to your needs.

Call us today for a no obligation, hands-on demonstration.

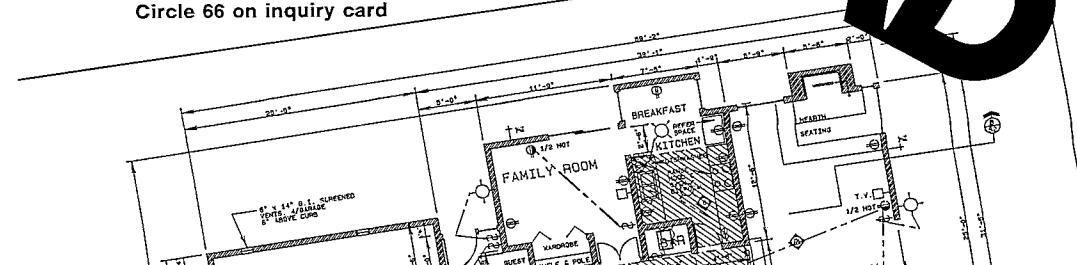


T&W SYSTEMS, INC.
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(714) 847-9960

Circle 66 on inquiry card



VERSACAD





No Other Reflective Coating Outperforms Real Gold

Polarpane® Gold Reflective Insulating Glass Units are made with real, 24-Karat gold. Aside from an obvious aesthetic quality, real gold gives Polarpane the highest solar energy rejection value and the greatest insulating value of any glass on the market . . . outperforming imitation gold, silver, and other reflective coatings.

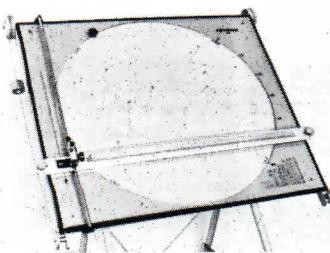
Polarpane Gold combines high reflectance

of infra-red energy with high visible light transmittance. Total relative heat gain can be as low as 31 BTU/Hr.-sq. ft. And, as an added benefit, its heat retention in winter is at least equal to triple glazing and low emissivity coatings.

While Polarpane Gold provides timeless distinction to your design, its excellent environmental control properties will lower initial capital costs and daily operating costs by reducing heating and air conditioning equipment and indoor lighting requirements.

For more information on Polarpane Gold or Polarpane Silver, check your Sweet's Catalog Section 8.26a/Ho, or call or write Product Manager-Reflective Glass, Hordis Brothers, Inc., 825 Hylton Road, Pennsauken, N.J. 08110, (609) 662-0400.

**HORDIS
BROTHERS**



Rotating drawing board

The Rotodraw V rotating drawing board features 30- and 45-deg-angle indices and a vernier degree scale said to allow the accurate setting of any intermediate angle. Built-in vertical and horizontal scales permit scaling with British, metric and pica divisions. The 36½- by 32-in. board accommodates up to C-sized drawings. Zi-Tech Instrument Corp., Palo Alto, Calif.

Circle 307 on reader service card



Coated concrete deck mesh

Epoxy-Cote deck mesh is designed for use in precast concrete beams, tees, double tees and quad tees that will be subject to de-icing salts, sea air or air pollutants. The mesh comes in standard sheets up to 5 ft wide and 20 ft long. Dur-O-Wal, Inc., Northbrook, Ill.

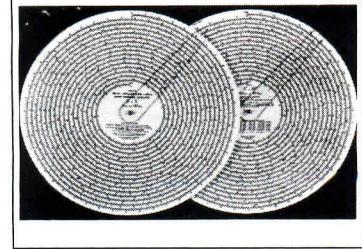
Circle 310 on reader service card



Executive desk

The William and Mary-style Partners Desk is an adaptation of an English antique with crotch mahogany veneer, a hand-tooled leather top (optional) and a convex upper section. Drop-pendant drawer pulls on the top and brass bail pulls on the bottom drawers are standard. Kittinger, Buffalo, N.Y.

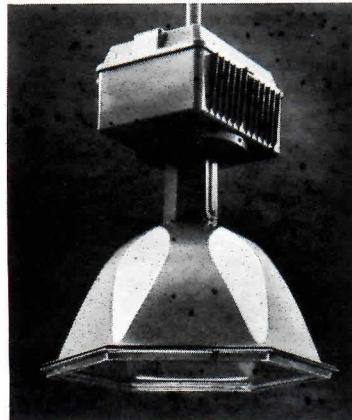
Circle 311 on reader service card



Metric conversion

The M.15 calculator for inch-to-millimeter and millimeter-to-inch conversions is calibrated in .001-in. intervals and, with interpolation, is accurate to .0001 in. The heavy-gauge acrylic instrument features a 60-ft spiral scale compressed into 11 in. Hunter Inc., Bridgewater, N.J.

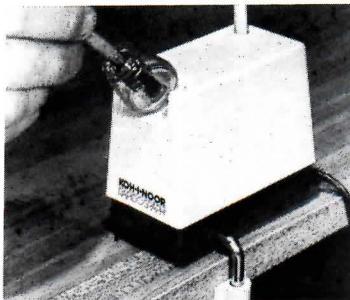
Circle 312 on reader service card
More products on page 171



Industrial luminaires

The IL series of industrial HID luminaires features a die-cast aluminum enclosure with an adjustable socket for a range of distribution patterns and spacing-to-mounting heights. The low profile of the enclosure makes it appropriate for low mounting applications. Wide-Lite Corp., San Marcos, Tex.

Circle 308 on reader service card



Electric lead pointer

A UL-listed electric pointer sharpens all 2-mm graphite and polymer drawing leads in holders. It has a 120V AC motor, which starts when a lead holder is inserted. The replaceable pointer attachment consists of cutting blades and a clear, plastic lead-dust catcher. Koh-I-Noor Rapidograph, Inc., Bloomsbury, N.J.

Circle 309 on reader service card

The advertisement features a yellow border. At the top is a black and white illustration of a man in a striped shirt and trousers, holding a long pole with a cleaning device attached, working on a large, textured acoustical ceiling tile. Below this is a large, bold title:

CLEAN UP YOUR OVERHEAD

Below the title is a paragraph of text:

Before you replace or paint your building's soiled acoustical ceiling tiles, get the Coustic-Glo™ demonstration.

Our spray-on cleaning service will save anywhere from 25% to 50% of the cost of replacing or painting acoustical ceiling tiles.

The Coustic-Glo™ service won't impair, and in many cases will actually improve, acoustic and fire-retardant properties of the tile.

The Coustic-Glo™ service is marketed nationwide by a network of professionally trained application specialists. The service is fast, safe and effective, and won't disrupt normal business schedules.

For the name of the nearest Coustic-Glo™ dealer and an exciting demonstration, call toll free: 1-800-328-6347. In Minnesota call collect (612) 835-1338.

Interested in information on a Coustic-Glo™ franchise? A few select markets are available. Inquire today.

Coustic-Glo, Inc.®
7752 Bush Lake Road
Minneapolis, MN 55435
(612) 835-1338
Member National Acoustical Ceiling Cleaning Association

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Circle 67 on inquiry card

A practical, elegant cover story from Summitville.

Specify Summitville extruded ceramic tiles when considering floor and wall coverings for high-traffic areas. No other type of flooring or wall material offers this same quality and long-lasting beauty. In fact, life cycle cost comparisons show ceramic quarry tile costs less and is easier to maintain than other flooring materials. You can enhance the elegance of any setting through Summitville's extensive collection of sizes, colors and shapes.

For more information,
refer to Sweet's File 9.18 Sum.



Summitville®

Summitville Tiles Inc. • Summitville, Ohio 43962

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FLOOR UNDERLayment

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- Sets in 90 Minutes
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GYP-CRETE CORPORATION

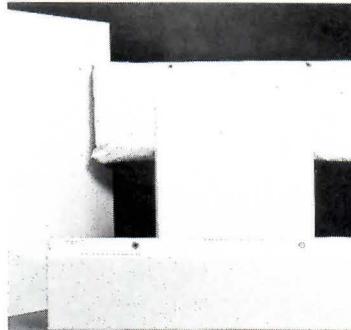
900 HAMEL ROAD • P.O. BOX 253
HAMEL, MINNESOTA 55340
(612) 478-6072

Circle 69 on inquiry card

Seating

The *Octave* collection includes a chair, a two-seat sofa, an ottoman and a table. The chair is designed with eight sides to offer a variety of seating arrangements. Brayton International Collection, High Point, N.C.

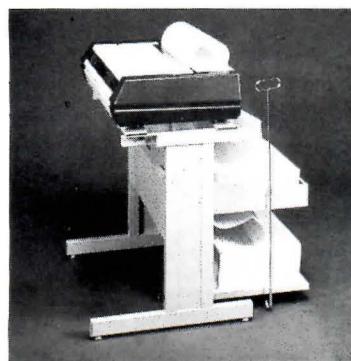
Circle 313 on reader service card



Acoustical ceiling panels

Acousti-san ceiling panels feature a glass fiber composite hermetically sealed in DuPont *Tedlar*, a polyvinyl fluoride film impervious to common solvents, acids and grease. The Class A rated panels carry an NRC of up to .95 and satisfy USDA, FDA and health department standards. Panels come in two sizes—2 ft by 2 ft and 2 ft by 4 ft—and in a variety of thicknesses. Custom sizes are available. Craxton Products, Inc., Minneapolis, Minn.

Circle 314 on reader service card



Printer stand

The *Grand Stand* is an open-top printer stand that adjusts to accommodate most printers. It is made of heavy gauge steel, has 6-in.-wide steel legs and a tie-beam construction. ABS foot retainers with rubber cushions reduce noise. They may be removed to bolt the printer directly to the stand. Marvel Metal Products Co., Chicago, Ill.

Circle 315 on reader service card

More products on page 173

Telephone 617 492-4000
Telex 51650

Plus, the complete collection is available in 10 bright epoxy colors, polished brass or chrome.

Most important, everyone should know that the complete series is built to withstand the rigors of commercial use.

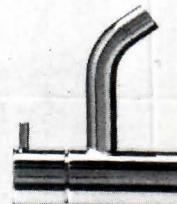
Kroin Sanitary Fittings: for those who know the best.

Circle 7 on information card.

14 Story Street
Cambridge, Massachusetts 02138

Kroin Architectural Complements

A lot of people don't recognize this lavatory faucet designed by Danish architect Arne Jacobsen.



Kroin

AllianceWall. It can work miracles.

What would you call a building wall material that could cover over 225,000 square feet of exterior walls with a virtually maintenance-free surface? Some architects would call it a miracle. We call it AllianceWall's porcelain enameled steel.

And that's just what architect Frank W. Wallace called for to cover the City of Faith Medical and Research Center on the campus of Oral Roberts University in Tulsa.

The exterior wall surface was to be sheltered behind aluminum solar screening. And it had to be durable, because surface maintenance was virtually impossible.

AllianceWall provided the design team with a material that would stand up to decades of wear and tear. With no signs of blistering, peeling, cracking, tarnishing, or discoloration. We guaranteed it. It also gave them an energy efficient outer shell. (Almost 12 times more efficient than a standard brick wall.)

Now that you've seen a small testimony to what AllianceWall did for the City of Faith, wouldn't you like to work some miracles of your own? You can and it's easy. AllianceWall's unlimited number of colors and design capabilities allow you to make a unique statement with any building.

So to find out more, write AllianceWall Corporation, Dept. 1A, P.O. Box 48545, Atlanta, GA 30362. Or, call (404) 447-5043. We'll send you our case studies and spec sheets. To a creative mind like yours—it will be like manna from heaven.



AllianceWall®
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Circle 70 on inquiry card



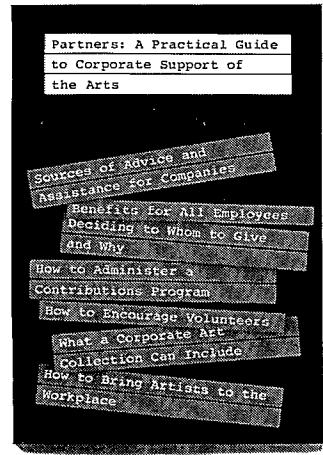
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Do something selfish. Support the arts.

We are speaking here of business support of the arts, and what it can do for your clients, your employees and your company.

In a word, lots.

Because in addition to the rewards that the arts have to offer society, there are rewards that the arts can and will offer business. Very real, very tangible rewards. All very much in your company's self-interest.



To learn how to go about getting them—or, as the case may be, how to go about it better—there's **Partners**.

Partners is the first practical guide to corporate support of the arts. And for anyone who has anything at all to do with the arts—or would like to—it's indispensable.

In it, you'll find dozens of examples of how business and the arts have helped—and continue to help—one another. Detailed information. No-nonsense advice. Sources to turn to for guidance. Specifics.

Partners: A Practical Guide to Corporate Support of the Arts. For more information and prices, write us today at the address below. And see how much your business can get from supporting the arts.

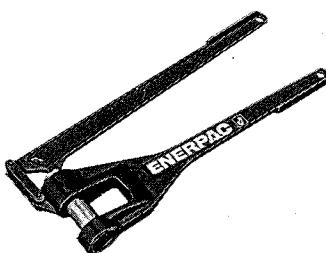
It's one of the few things in this world that's selfish and selfless at the same time.

Partners.

**The first book on
supporting the arts that
doesn't leave everything
to the imagination.**

Partners is published by the Cultural Assistance Center, Inc., a nonprofit service organization established to promote and assist cultural institutions.

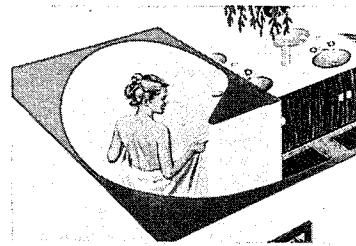
Write the Cultural Assistance Center, Inc.,
330 West 42nd St., New York, N.Y. 10036.



Stud punch

A metal stud punch, made of aluminum, weighs 4½ lb. The punch is designed for a standard 1½-in. hole diameter and ½-, ¾- and 1-in. EMT, IMC and rigid conduit. It punches holes in studs of up to 20-gauge metal. The throat depth of the punch is 3½ in.; handles open to a maximum of 60 deg. The frame handle is offset for work in tight areas. ENERPAC Div., Applied Power, Inc., Butler, Wis.

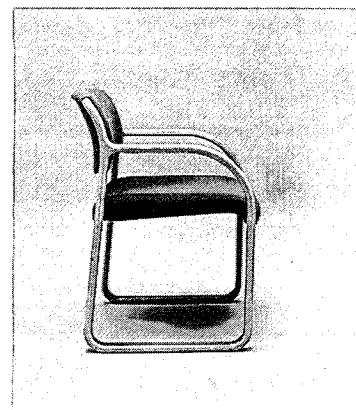
Circle 316 on reader service card



Shower stall

The **Shell Shower** design features an open, private shower stall requiring no doors or curtains. The stall is made of fiberglass reinforced acrylic with press molded fiberglass jambs. The stall kit includes a self-caulked drain and an overhead light. The Swan Corp., St. Louis, Mo.

Circle 317 on reader service card



Chair

An addition to the Snodgrass Collection, this bentwood chair is available in light and dark oak and walnut finishes. It comes with an open or full back with or without arms or a full back with upholstered arm inserts.

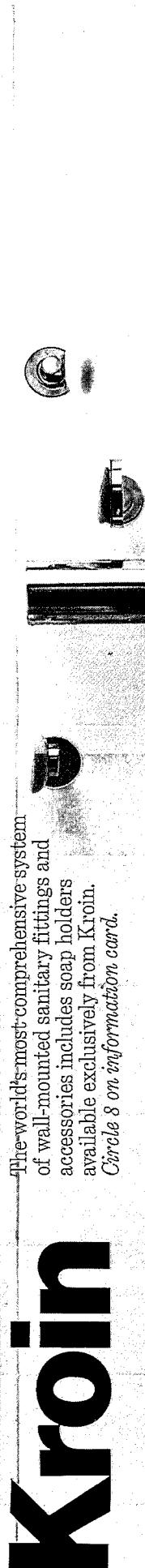
Upholstery may be chosen from 300 different fabrics, vinyls and leathers. Steelcase, Grand Rapids, Mich.

Circle 318 on reader service card

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First introduced in 1980, the super-low brightness P2 features an optical system that maximizes lighting distribution and efficiency while retaining the high visual comfort levels that are the trademark of quality lighting.

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P3 Parabolume® . . . For Maximum Air Handling Performance

P3 Parabolume is high-technology lighting at its best. Combining the classic appearance of Columbia's 1965 original Parabolume with the advanced performance of P2 optics, the P3 is the latest in a long line of successful Columbia designs.

P3 matches aesthetics with optimum performance. For more information on the P2 or P3 Parabolomes, contact your Columbia Lighting representative or write us.

The flexibility of structural steel...

How design freedom increases profitability.

Because a structure's return on investment is basically built-in at the design stage, "design freedom" is much more than an abstract ideal. The fewer constraints and limitations imposed by the structural materials, the more freedom the designer has to combine economics with function and aesthetics. The inherent *flexibility* of steel construction translates directly into design freedom.

Beauty and utility.

The longer spans possible with structural steel, with fewer, smaller columns, provides freedom to produce a more open, more imaginative design from the outset. This is not only visually appealing but results in more efficient, more flexible space utilization...hard, cold cash in terms of occupancy and tenant satisfaction.

Time and money.

Designing with structural steel offers two fundamental economies: lighter weight for simpler, faster foundation design and completion, plus speed of construction regardless of weather...including the *flexibility* of "fast tracking." In one notable example, fast tracking the new 17-story Philadelphia Life Building with steel saved an estimated \$1 million compared to a concrete frame and another \$115,000 in foundation costs.

Designing for the inevitability of change.

The *flexibility* of steel construction protects structures from early obsolescence, by accommodating future design changes which would be prohibitively expensive, if not impossible, with concrete. These can be as minor as rerouting ducts or wiring, or as major as reinforcing for greater loads or adding bays or floors. Thus steel-frame structures remain modern, functional, competitive facilities for a very long, productive time.



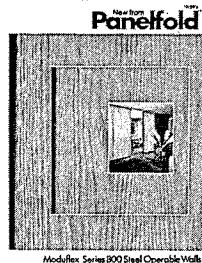
For our FREE brochure on evaluating the flexible strengths of structural steel, write to: R. G. Altmann, President, American Institute of Steel Construction, 400 N. Michigan Avenue, Chicago, IL 60611.



The future is being built with structural steel.

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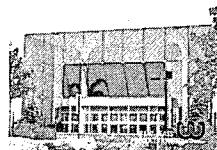


Operable walls

Moduflex Series 800 is a new line of operable steel walls available in panel widths up to 5 ft and heights from 8 to 48 ft. An 8-page brochure outlines acoustical properties, surface options, and construction details. Photographs reveal typical installations.

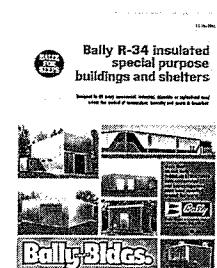
Panelfold, Inc., Miami, Fla.
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GlasWal™



Glass walls

A 4-page color brochure features a floor-loaded, mullionless glazing system that utilizes 1/2-in.-thick vertical plates stabilized by 3/4-in. tempered glass fins. Plates are sealed with structural silicone and fastened together by metal patch fittings. Specifications and installation photographs are included in the literature. W & W Glass Products, Spring Valley, N.Y.
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Insulated buildings

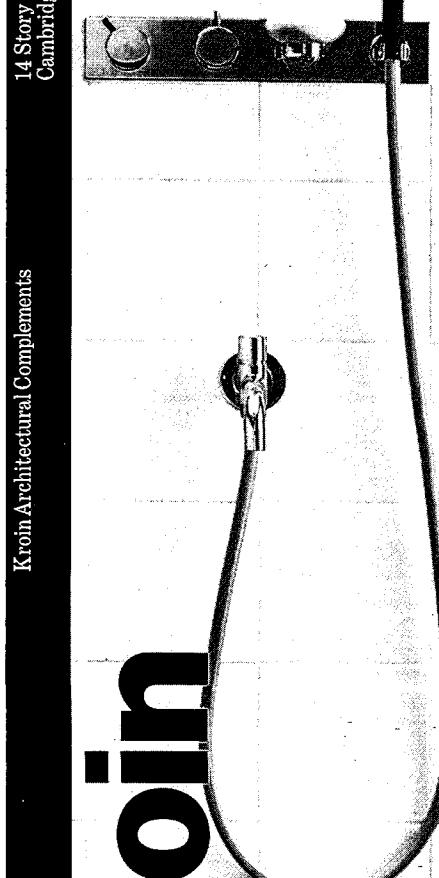
An 8-page color brochure describes a group of special-purpose shelters composed of metal-clad panels that are insulated with 4-in.-thick R-34 poured urethane. The buildings are assembled on-site and are intended for uses where control of temperature, humidity, and noise is required. Bally Case & Cooler, Bally, Pa.
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Telephone 617 492-4000
Telex 951650

14 Story Street
Cambridge, Massachusetts 02138

Kroin Architectural Complements

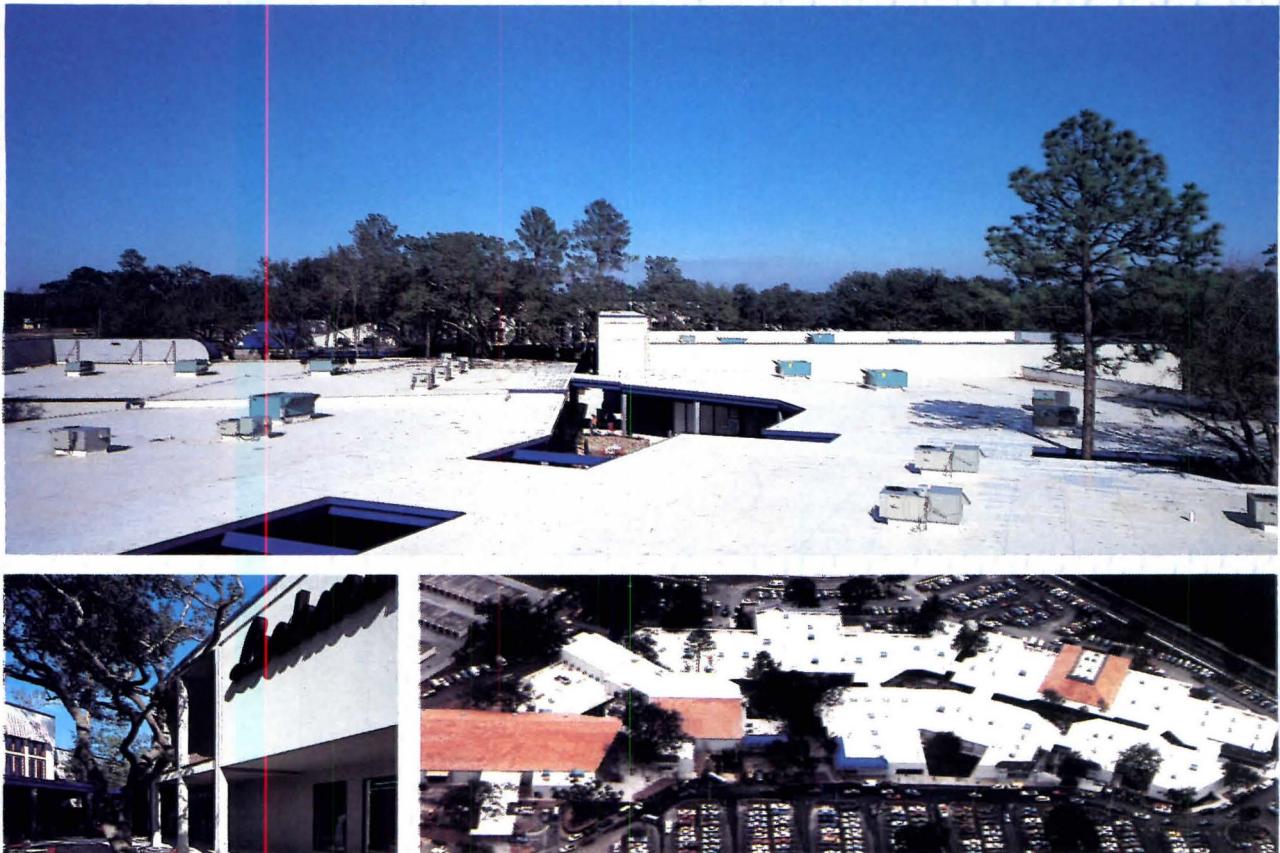
The world's most comprehensive system of wall-mounted sanitary fittings and accessories includes bath and shower fixtures available exclusively from Kroin. Circle 9 on information card.



Kroin

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Nothing tops a Hi-Tuff® roof.



Building owner: The Brandon Company; Architect: Mudano Associates; General contractor: Tom Martin Construction Co.; Roofing contractor: General Roofing & Improvements, Inc.

Here on the roof of the new Loehmann's Plaza, Altamonte Springs, Florida, a watertight Hi-Tuff single-ply roofing system is in service.

For years to come, this durable roofing will easily withstand the intense ultraviolet of the Florida sunshine and the battering of southern storms.

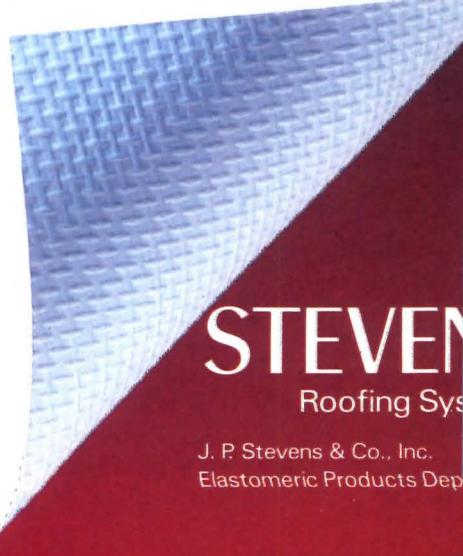
Hi-Tuff is based on Du Pont "Hypalon" synthetic rubber, a material with a 30-year success record in severe weathering exposures.

And Hypalon, unlike other rubbers, can be automatically heat-welded on the roof, creating a fused watertight seam.

Rubber membrane...and heat welding. Only Hypalon has them both.

On roofs everywhere, elastomeric single-ply roofing is replacing less durable materials. And among single-ply systems, nothing tops a Hi-Tuff roof. Scrim-reinforced Hi-Tuff is mechanically attached, eliminating ballast. It's white for energy savings, FM I-90 for wind resistance, UL Class A for fire resistance, and backed in writing directly to the owner by Stevens, one of America's largest corporations.

For information and a seamed sample, write to
J.P. Stevens & Co., Inc., Roofing Systems,
Easthampton, MA 01027. (413) 527-0700.



STEVEN
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J. P. Stevens & Co., Inc.
Elastomeric Products Dep

How to conquer wind, rain and sun in low-rise office buildings.

Make friends.

Instead of keeping the elements out and using expensive energy to create an indoor climate, why not invite them in?

That's what the architects did with this low-rise Florida office building.

For openers, they specified Andersen® Perma-Shield® casement windows.

In warm weather their entire glass area swings open to usher in cooling breezes. And the overhang allows the Andersen windows to remain open during rain. That all helps save on air conditioning.

The architects also used the windows to illuminate work areas. That helps reduce lighting bills.

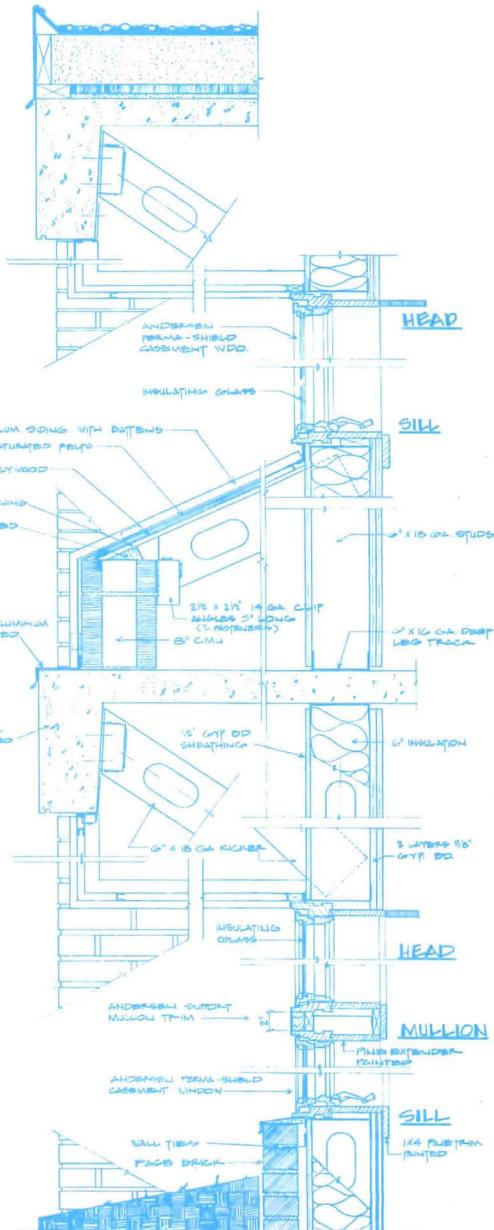
In cold weather the Andersen windows will close five times tighter than industry standard I.S. 2-73. This extreme weathertightness, together with double-pane insulating glass, helps seal in comfort and valuable heat.

And if all that wasn't enough, the windows became lasting friends with the building's management. The long-life, rigid vinyl exteriors of the Perma-Shield windows are virtually maintenance-free.

Next time your design is up against the elements, consider the case for friendship.

Andersen Perma-Shield casement windows.

For details on Andersen windows, roof windows and gliding patio doors see Sweet's File 8.16/An. or talk to your Andersen distributor or dealer. They're in the Yellow Pages under Windows. Or write Andersen Corp., Bayport, Minnesota 55003.



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University of Florida,
Gainesville Campus

Architect: Bill G. Eppes, A.I.A.
Gainesville, Florida

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Manufacturer sources

For your convenience in locating building materials and other products shown in this month's feature articles, RECORD has asked the architects to identify the products specified.

Pages 98-99

1st Source Center
by ISD Incorporated

Page 98—(bottom) All custom millwork: Interior Woodworking Corp. Paints: Pratt & Lambert. Carpeting: Mountain Rug Mills. Lighting: Columbia Lighting. Recessed can lighting: Omega. Ceiling tile: Armstrong. Wallcovering: General Drapery (Jack Lenor Larsen fabric). Chairs: Knoll International. Ashtrays: Brickel.

Page 99—Flooring: Gail International Corp. Metal grid wall, check-writing desks: Custom by architects, fabricated by Louis Hoffman Co. Wallcovering: General Drapery (Henry Calvin Fabrics). Teller counter: White Marble Co. Tables: Brickel. Chairs at tables: Knoll International. Seating: AI. Lighting: Elliptipar Inc. Planters: Finealum.

Pages 100-103

President's Plaza II
by ISD Incorporated

Page 100—(top) Carpeting: Karastan. Paints: Benjamin Moore & Co. Ceilings: Armstrong. Lighting: Custom cove and wall washers. Elliptipar. Downlights: Lightolier, Inc. Furniture panel system: ill (Arc-Com fabric). Files: Storewall. (bottom)—Seating: Herman Miller (Unika Vaev fabric). Planters: Finealum.

Page 101—Desktop table: Midwest Marble. Chairs: Metropolitan Furniture (Edelman fabric). Chairs (background): Brickel (Boris Kroll fabric).

Page 102—(bottom) Workstations: Custom by Imperial Woodworking. Fabric inside workstations: Donghia. Wallcovering fabric: Rancocas. Drapery: Knoll International.

Page 103—(bottom) Carpeting: Edward Fields. Custom grilles, light fixture: Tesko Welding. Custom millwork: Parenti & Raffaelli. Wallcovering fabric: Jack Lenor Larsen. Tables: Equipment Manufacturing. Chairs: Baker (tapestry, Scalamandre; leather Spinneybeck).

Pages 102-103—All custom millwork: Imperial Woodworking. Parquet

flooring: Thailand Teak. Glass and etched glass: LaSalle Glass. Area rug: Edward Fields. Wall fabric: Rancocas. Drapery fabric: Knoll International. Seating: Brickel (Edelman fabric). Table: Midwest Marble. Boardroom chairs: Brayton.

Pages 104-107

Eleven South LaSalle
by Powell/Kleinschmidt Inc.

Page 104—(top) All custom millwork: Woodwork Corp. of America. Paints: Pittsburgh Paints. Carpeting: Harbinger. Files: Sunar. Chair: Stendig. Secretarial chair: Harter. Lamp: LeKlant. (bottom)—Custom wall sconces: Design Galleries, Inc.

Page 105—(top) Workstations, files: Sunar. Ceiling: Donn Corp. (Fineline with Armstrong Minatex Tile). (bottom)—Ceiling: Celotex (Chase tile). Custom ash urns: Architectural Objects.

Page 106—(top, left) Table base: Custom Designs, Inc. Chairs: Brickel (Knoll fabric). Draperies: Baird's Decorating. Lighting: Edison-Price. (top, right)—Chairs: Smith & Watson (Gretchen Bellinger fabric). Wooden blinds: Nanik. (bottom, right)—Glass: LaSalle Glass.

Page 107—Chairs: Jack Lenor Larsen (Brunschwig & Fils fabric).

Pages 108-111

Hill, Holiday, Conners,
Cosmopolis, Inc.

by The Stubbins Associates, Inc.

Page 108—(top) All custom millwork: Atlantic Woodworking. Paints: Pratt & Lambert. Carpet: Mort West Mills. Parquet flooring: Harris. Desk: Dunbar. Chairs: Knoll International. Small table: Intrex. Ash urns: Architectural Supplements. (bottom)—Table: Custom by architects, fabricated by Scott and Duncan. Chairs: Knoll International. Wall fabric panels: Joel Berman Associates.

Page 109—Desk: Hardwood House. Chairs: Knoll International. Glass table: Brickel.

Page 110—Carpeting: Interface. Chairs: Knoll International. Wood bookcases: Scandinavian Designs. Planters: Architectural Supplements.

Pages 126-133

Columbia Computer Center
by Halsband and Kliment

Page 126—Doors: Ellison. Stone: Indiana Limestone, Elk Brook bluestone, Stony Creek Granite.

Page 129—(bottom) Windows: Wausau Milco. Flooring: Lonseal. Ceiling: U.S. Gypsum. Paint: Benjamin Moore & Co.

Page 132—Lighting: Lightolier, Inc.

Page 133—Doors: Kawneer. Courtyard brick pavement: Glen Gery.

Pages 146-151

Ludwig Beck Shops at Trump Tower
by Hans Hollein

Page 146—Carpeting: Karastan Rug Mills. Marble flooring: Porte Morris Carrera. All architectural metals: Abbott Glass. Lighting: Capri Lighting. Custom ceramic tile floor: Amsterdam. Paints: Hudson-Shatz.

Page 149—(middle) Perforated metal and freestanding cabinets: Umdasch Gmb. H. (bottom)—All architectural woodwork: Bauerschmid & Sons. Showcase surface: Wilsonart.

New THIN IS BEAUTIFUL.

Now Roppe raised design floor tile is available in a new low profile design. Attractive enough for residential use, Roppe low profile tile is durable enough for commercial applications and is ideal for wheeled traffic areas. Thinner, lighter than our standard tile, low profile tile is easy to clean. It's quieter and longer wearing than vinyl flooring, yet costs about the same. For your nearest distributor, write Roppe Rubber Corporation, 1602 N. Union Street, Box X, Fostoria, Ohio 44830.

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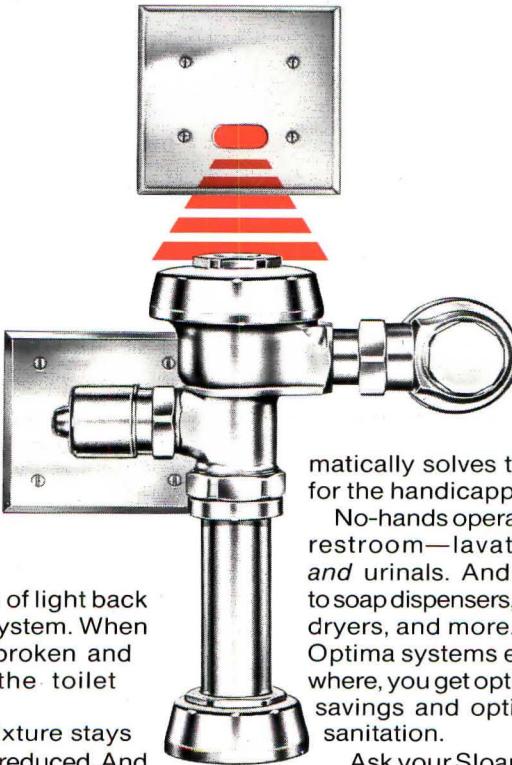
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DOW CORNING





Sloan presents the no-hands toilet.



Take the operation of the toilet *out* of people's hands and it becomes a cleaner, more cost-efficient fixture.

That's the big idea from Sloan—the no-hands toilet, with no levers to flip, no buttons to push, no tank to get in the way. The Sloan Optima™ electronic sensor is in charge.

The user reflects an invisible beam of light back into the Optima sensor arming the system. When the user steps away, the beam is broken and the Sloan flushometer flushes the toilet automatically.

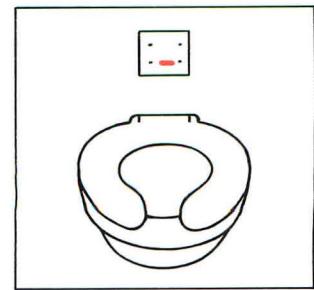
With no "forgotten" flushes, the fixture stays cleaner and bacterial contamination is reduced. And there's less water waste, because the system dispenses a measured amount of water only on demand.

No tank means fewer repair bills and easier cleaning. And there's no waste of costly floor space.

The no-hands toilet also automatically solves the problem of mandated access for the handicapped.

No-hands operation easily adapts to the rest of the restroom—lavatories and urinals. And even to soap dispensers, hand dryers, and more. With Optima systems everywhere, you get optimum savings and optimum sanitation.

Ask your Sloan representative about Optima systems today. Or write us.



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