



BUILDING TYPES STUDY: RECORD INTERIORS OF 1979

FERRY TERMINAL FOR SAN FRANCISCO TRANSPORTATION SYSTEM

A ROMAN CATHOLIC CATHEDRAL, BY EDWARD LARRABEE BARNES

ARCHITECTURAL ENGINEERING: ATTITUDES TOWARD THE OPEN OFFICE

FULL CONTENTS ON PAGES 10 AND 11

ARCHITECTURAL RECORD

JANUARY 1979

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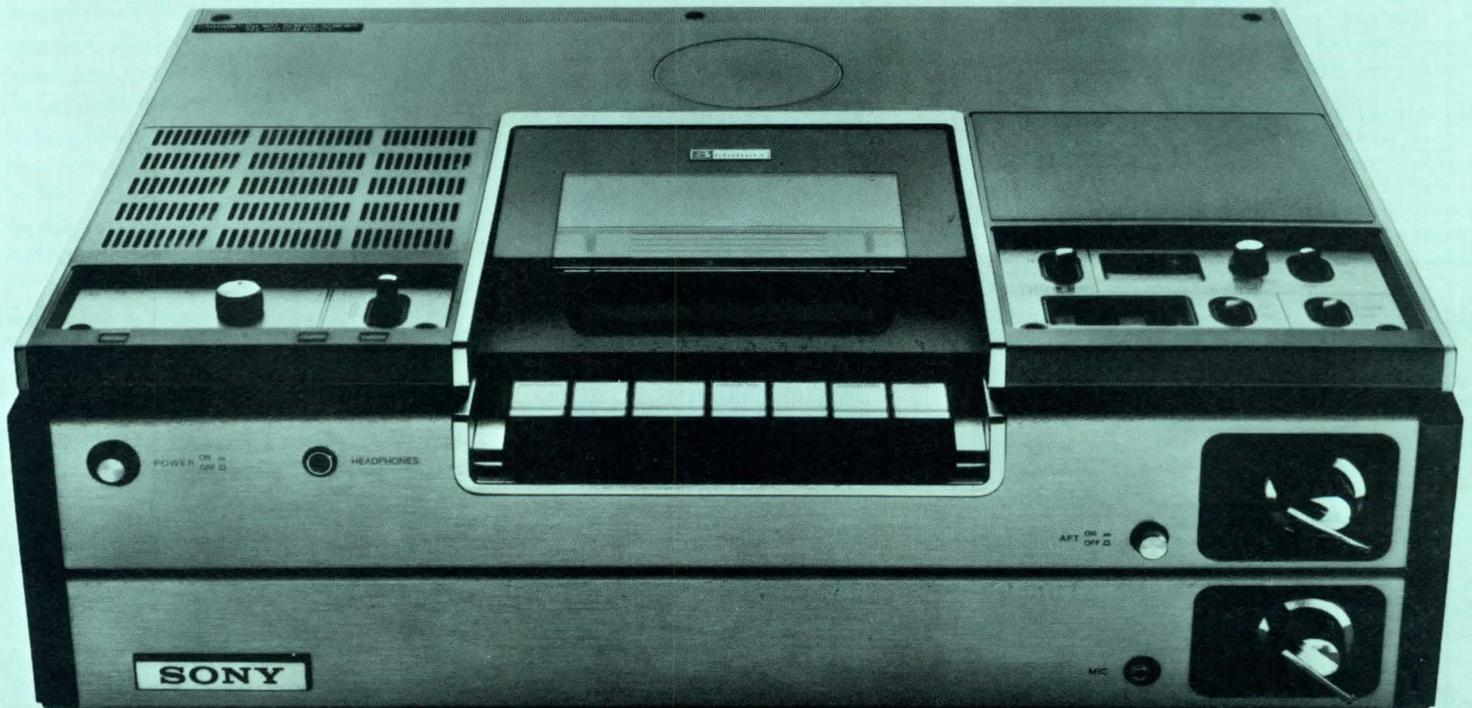
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“Bringing all people in closer touch with architecture ...”

That's the goal—and what a splendid goal—of the AIA's new president, Ehrman Mitchell. As he pointed out in speeches to Grass Roots meetings all through 1978, 1976 president Lou de Moll placed emphasis on public influence, professional development, and Institute effectiveness; Jack McGinty in 1977 explored the profession's willingness to change its ethical standards, with particular emphasis on design-build as an option; and last year Elmer Botsai stressed in his programs competence and professional development. As Bud Mitchell puts it: “In the chain we have forged over the past few years our goals have been directed internally, to ourselves, to prepare us better for change and new public demands. The link that's yet to be added, the one that links it all together, is architecture. Our goals should now be external, toward society, to put it all together . . .”

So his emphasis for 1979 will be a year-long “Celebration of Architecture.” And I, for one, think that is a splendid emphasis for an AIA president's term of office. Splendid—and needed, and timely.

Bud has told the Grass Roots meetings that “Our greatest failing is that we don't talk enough about architecture to the public. . . . We must begin a major thrust in building a greater public understanding of what architecture is, what the built environment is. We must build a greater understanding of the public's role in shaping the physical environment, an understanding of how it comes to be, the discernment of its quality, and the architects who design it.

“We should begin at all levels of society, in the secondary schools, colleges and universities, the non-professional degree curriculum, in adult education and, of course, through the public media, with programs focusing on architecture.”

While the new AIA president has not yet outlined his specific program for accomplishing this, it's clear that he understands that much more than a public-relations effort is needed. Public relations is part of it, of course—but the fundamental is high quality work, a high quality of design and a high quality of performance. Bud Mitchell has put it this way: “We must build a consciousness within our ranks of the importance of design excellence and the importance of accountability. We have a responsibility to the public to create a better life through our design. We must be ever conscious of how we affect the people, the land, the cities through our

design efforts. And this comes through doing—not talking.”

A brochure produced by the AIA and intended for distribution to non-professionals by the AIA chapters and individual architects states the call: “Celebrations and ceremonies demonstrate society's appreciation of life. They allow us to commemorate those things which we believe are important and worthy of significant recognition. They provide opportunities to escape our daily routines, to think about the past, and to speculate about the future. Perhaps most importantly, celebrations are a time to have fun, to enjoy those things which hold special value in our lives. . . . No other art form so completely pervades our daily lives. We live, work, study and play in and around our buildings. Our surroundings affect our moods and temperaments. Certain buildings, parks, plazas, and streets lift our spirits, while others diminish them. Some buildings beckon us to them, while others seem formidable and uninviting. We must share in influencing our architecture for it will have a lasting effect on us all.

“Throughout the coming year, architects will plan events honoring those individuals and associations who are concerned with good design, design which adds joy and meaning to people's lives. They'll host celebration events in special public spaces which inspire us, and they'll work with communities to improve those spaces which do not. They'll urge you to join them at AIA chapter meetings to express your own ideas about architecture. . . .”

I for one hope this idea catches on like wildfire; that individual architects really commit themselves to this effort to celebrate architecture with the same fervor that they committed themselves to worrying about their code of ethics or professional development (getting more work). For we need to remind ourselves—not just the general public—that what architecture is all about is not professional development or codes of ethics but design—and design that really improves the quality of our lives. While inviting the public to observe what we have done, each architect might ponder how well he or she has done—whether the firm's work is really worthy of celebration, or is just plain ordinary (or even just plain bad). Each of us might learn even more than we hope the public learns from Bud Mitchell's celebration. And wouldn't that be a very good thing. . . .

—W.W.



leoh Ming Pei, FAIA, will receive the Gold Medal of the American Institute of Architects "in recognition of most distinguished service to the architectural profession and to the Institute." The AIA will present the medal at its national convention, to be held at Kansas City in June. Earlier this year, Mr. Pei received the annual Elsie de Wolfe Award from the American Society of Interior Designers.

The Federal Reserve's monetary policy has somewhat dimmed optimism for the construction outlook in 1979, says Phillip E. Kidd, director of economic research for McGraw-Hill Information Systems Company. Retail building may be especially hard hit, though offices and factories are expected to continue strong. Details on page 67.

DOE's regulations for new building take shape as a performance standard based on a set of energy budgets, themselves modeled on a matrix of building types, climatic zones and the cost of energy delivery. Both DOE and HUD are conducting hearings to elicit comment from the construction industry and to get help in refining the standards for the final proposal, due next month. Details on page 34.

October contracts for future construction "soared to a near-record rate" in all categories, according to the F. W. Dodge Division of McGraw-Hill Information Systems Company. "The year's flow of new projects through October means that the construction industry will be working at full capacity into 1979," said George A. Christie, chief economist for Dodge. At the same time, he cautioned that "the Federal Reserve's November 1 escalation of monetary restraint greatly increases the probability of a decline in contracting early in 1979." Activity in commercial and industrial building accounted for the 33 per cent increase in nonresidential contracts over last October, while housing continued "remarkably strong," with a 23 per cent rise over last year.

At the UIA Congress, 7,000 architects and planners examined the impact of architecture on national development and questioned whether the technology of the developed countries is having a beneficent effect on building in the developing countries. Delegates and guests convened at Mexico City in October. Details on page 38.

NCARB continued its pursuit of international reciprocity for architectural qualifications as it played host to the Fifth International Conference on Architectural Registration in Washington, D. C., in late October. Delegates from 11 nations and four Canadian provinces attended the conference, which was co-sponsored by the Architects Registration Council of the United Kingdom (ARCUK). They unanimously resolved to exchange registration data, and have already compiled an unofficial table of requirements for registration in each of their jurisdictions.

The National Trust for Historic Preservation has established a revolving Endangered Properties Fund, using a \$1-million grant from the Department of the Interior, to be matched by private funds. Details on page 34.

Developers have acquired and will renovate Louis Sullivan's landmark Prudential Building in Buffalo, New York. Plans announced by the new owners—Stanley Thea of New York City, Rudolf Bersani of Tonawanda, New York, and Jack Shifrin of Cleveland—include filling in the building's U-shaped center and modernizing the hvac system. Improvements will cost an estimated \$5 million. The developers also announced that the renovated building will house a Sullivan museum, of which Jack Randall will be curator.

Japanese architect Kisho Kurokawa will be co-chairman of the International Design Conference in Aspen, along with graphics designer Leo Dorfsman of CBS. The conference, which will meet June 17-22, will take as its theme Japan and the Japanese. For information: IDCA, P. O. Box 664, Aspen, Colorado 81611.

The Department of Architecture at the University of Cincinnati now offers a graduate program leading to the degree M. S. in Architecture. While the program is oriented toward students holding their first degree in architecture, students holding degrees in other disciplines will also be considered. For information: J. William Rudd, Director of Graduate Studies, Department of Architecture, University of Cincinnati, Cincinnati, Ohio 45221.

Lighting designer Abe Feder will conduct a two-day workshop on lighting problems for architects and engineers, under the aegis of *Interior Design* magazine. The seminars, which will be held February 22-23, will meet at the Fashion Institute of Technology Auditorium in New York City. For information: Virginia Evans, *Interior Design*, 850 Third Avenue, New York, New York 10022 (212/593-2100).

The Architectural Acoustics Society will hold its First Annual Acoustics Exposition and Seminar April 2-5 at the Hyatt O'Hare in Chicago, in conjunction with NOISEXPO. The program will include "mini-courses" on special acoustical subjects and a technical session for the presentation of papers. For information: Wayne V. Montone, Executive Director, Architectural Acoustics Society, 464 Armour Circle, N.W., Atlanta, Georgia 30324.

Proposed Federal energy performance standards encompass building types, climatic zones, RIFs and RUFs

The Department of Energy is taking great pains to present the contents of its proposed energy-conservation standards for buildings to the building industry, and to elicit comment and suggestions.

In late November the agency published its preliminary ideas on the standards it will adopt this year under a congressional mandate. Instead of a simple statement of annual energy consumption—which some had expected—setters of Federal standards turned up with an extraordinarily complex set of inter-related standards intended to cover most contingencies.

Imagine a matrix covering 17 building types—ranging from hospitals to fast-food restaurants—adjusted for climatic conditions in seven areas of the country and further modified to account for the off-site delivery cost of various fuel forms and the social cost of their use.

This plan must again be adjusted for single-family housing and mobile homes, where there is less likelihood of design professionals being involved on a specific project basis.

DOE, which developed the standards, and the Department of Housing and Urban Development, which will have the central role in their implementation, are both concerned about the complexity of the new regulations, taking care to explain them to all interested parties.

The use of an Advanced Notice of Proposed Rulemaking is unusual, and this approach was taken to allow time for comment before the formal proposal is made in February. Three day-long briefings were held on the Advanced Notice, and a series of additional hearings is scheduled for the spring to describe further what is involved and to seek comment.

The agencies are also candidly acknowledging that they need help in refining the standards and are asking designers for ideas. Some central elements of the plans are set, however, and cannot be changed.

- The standards are aimed specifically at design, and the onus is on the design professional to certify that a structure is in compliance with the standard.
- Virtually all structures—save perhaps parking garages and stadiums—are covered.
- There is almost no chance that the proposals will be dropped or that the schedule for their adoption will be pushed back.

Congress ordered the development and implementation of the performance standards when it approved the Energy Conservation and Production Act of 1976. The standards that have been developed by DOE employ the essence of a performance standard by using an "energy budget" approach.

Designers, who receive no guidance on how to achieve the goals,

will express a structure's energy consumption in Btu/gross square foot/year. They will determine this figure using one of several proprietary computer programs.

Goals for specific building types in specific climatic zones have been set after comparison with a "baseline" that was developed by the AIA/Research Corp. and other contractors. In an initial phase, this involved a statistical survey of representative buildings designed after 1973, when the Arab oil embargo increased the nation's consciousness of energy efficiency.

In the second phase, the original designers were asked to return to some of those building and redesign them, on paper, honoring all reasonable state-of-the-art energy-conservation features, but not changing the basic character of the buildings or dramatically altering their costs.

A parabolic curve was then developed that describes how well the post-1973 buildings performed, and how good they might have been. From this, the standards establish the energy goals.

In most cases, the budgets have been set at a point where 30 per cent of the post-1973 buildings would have been in compliance with the new standard—DOE considered that this percentage of the redesigned buildings represented a reasonably achievable level of energy consumption. The other 70 per cent would not be allowed under the new standard.

DOE officials take this calculation one step further: the use of the standards will mean that buildings designed to DOE specifications will consume 15 per cent less energy. This figure will be further refined when the economic impact analysis of the standards is completed in time for the February release of the final proposal.

The standards will not only control the amount of energy consumed, however. They will also deal with the kind of energy used, and the law directs DOE to make sure that the use of non-replenishable sources of energy is minimized.

To accomplish this, DOE has employed two further measurement factors. One of these is called the Resource Utilization Factor, or RUF, which is intended to account for the energy required to convert and transport raw energy from its source to the building line. The RUF for electricity, for instance, is almost three times higher than that for either oil or gas.

The other new measure is called RIF, for Resource Impact Factor, and it is intended to quantify mathematically the social cost of delivering energy—an embryonic concept that factors in health and environmental considerations as well as government taxation and subsidies. This process is carried out for each step in the energy conversion and delivery process.

DOE acknowledges that certification of compliance with the budget figure—the responsibility of professional designers in most cases—might not be possible in homebuilding. To cover this construction sector, the department decided to incorporate a portion of two other guides: the HUD Minimum Property Standards and the NAHB Thermal Performance Guidelines. Using these factors, as well as others, DOE has developed what it calls a "floating design energy budget methodology" that nonprofessionals should find usable.

DOE officials are adamant in believing that the use of the standard will not necessarily mean higher construction costs. Gerald Leighton, assistant director of the Building and Community Systems Division of the department, even hints that low initial costs could result from the use of the standard.

Mr. Leighton reports that, according to the baseline study, the more expensive buildings designed since 1973 proved to be the least energy efficient.

"Intuitively, we expected to find the most expensive buildings better built and more energy efficient," he says. "But the figures do not bear that out. There is a direct correlation between the higher cost per square foot and higher energy consumption. We still don't know why, but it could have to do with the more 'monumental' character of the more expensive buildings."

Still, many questions remain. Government officials are asking whether the seven climatic zones are sufficient for coverage of the entire country, or whether more zones should be set—perhaps for each of the Standard Metropolitan Statistical Areas.

Designers are concerned about the potential for professional liability exposure. If the designer certifies that a building meets the energy budget, but operational experience shows that it does not, can the designer be sued? There is a suspicion that this could happen, and at least one carrier of professional liability coverage indicates that a traditional policy will not provide protection.

A HUD expert points to another possible flaw in the plan. David Rosoff, the department's energy program manager, says that an energy budget based on square feet would make little sense in the design of a fast-food establishment. He quips that it might make more sense to assign a budget based on Btu's per hamburger.

Another point has been raised by Alfred Guntermann, a professional engineer who works for the Austin Company of Cleveland, a design/build company that makes frequent use of fast-tracking. "Who on the building team would be responsible," he asks, "if the budget was

exceeded in fast-tracking—the designer or the contractor?" The government has no immediate answer.

The biggest question is how the standards will be enforced. Many jurisdictions have already adopted the largely prescriptive standards of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., in its ASHRAE Standard 90-75(R).

The law says all jurisdictions must adopt the new performance standards as part of their building codes. Enforcement rests with the states, which must certify to HUD that local governments in their respective jurisdictions have adopted either performance standards or building codes at least as stringent as those suggested by DOE.

A failure to do so technically subjects the entire state to a complete cut-off of all forms of Federal assistance, plus the suspension of all new construction by prohibiting banks and other lending institutions from approving loans. This sanction might never be imposed, however, because doing so would require the concurrence of both Houses of Congress on a case-by-case basis, and it is unlikely that the Federal lawmakers would ever agree to it.—William Hickman, *World News, Washington*.

National Trust establishes endangered buildings fund

Standing in the lobby of the long-abandoned, but historic and soon-to-be-restored, Willard Hotel in Washington, D.C., James Biddle, president of the National Trust for Historic Preservation, announced a new \$1-million Endangered Properties Fund. The fund has been established by the National Trust for Historic Preservation to provide "last ditch" temporary safeguards against the destruction of significant historic properties.

As much as possible, the fund will be operated as a revolving fund, so that money used to preserve one property can be returned to preserve another. Those aided by the fund will be obliged to do everything possible to assure that the property will be preserved.

The fund was established with a \$1-million grant from the Secretary of the Interior's discretionary fund, to be matched by further private funds. The Andrew W. Mellon Foundation has donated \$500,000 of the matching amount, and the National Trust is currently seeking the remaining \$500,000 in private matching money.

Mr. Biddle reported that the fund's first action will be to lend \$18,500 to help preserve the Thorstein Veblen boyhood home and 10-acre farm near Nerstrand, Minnesota. Veblen was the influential and controversial late 19th-century econo-

mist who wrote *The Theory of the Leisure Class*.

Support for preservation of the Veblen home, which was built in 1868 by Veblen's father, a skilled carpenter, and occupied by his family until 1893, comes from a number of sources. Economist John Kenneth Galbraith has been active in the effort and has donated the royalties from the recent republication of one of his books. He, Max Lerner and Walter Heller have indicated they will help raise funds to pay for the \$37,000 purchase and an estimated \$250,000 restoration.

"Despite the best efforts of preservationists," Mr. Biddle said, "scores of America's historic properties are lost each year, many because the public is not aware of the situation until the eleventh hour. Often by that time it is too late. Now we have a way to act when all other practical methods of preservation have failed."

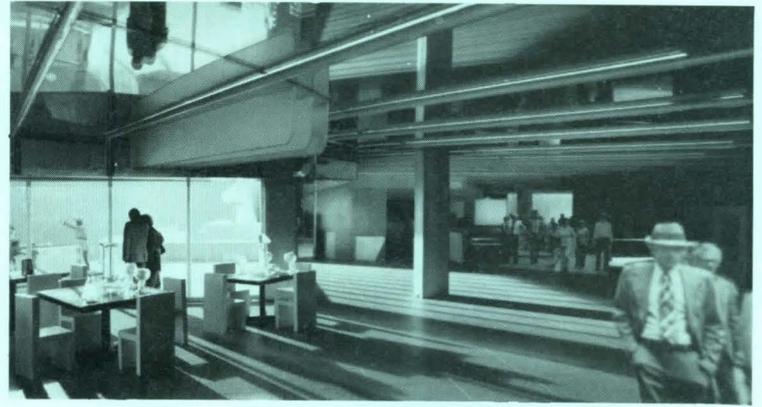
In addition to acting as a revolving fund, Mr. Biddle said, the fund will make loans, purchase options, acquire rights to protect buildings and pay for emergency preservation techniques.—*Mary Cranston, World News, Washington.*

Rockefeller Center shopping concourse will undergo \$2-million revitalization

One of the pleasant innovations included in the original design of Rockefeller Center was the underground concourse that connects all the buildings in the complex. Intended chiefly to protect pedestrians from weather and traffic, the concourse also provided retail space, mostly for small merchants offering such convenience services as shoe repair and stationery.

Over the years, however, both the concourse and the retail services have grown. An estimated 250,000 people—tenants, tourists and subway passengers—now use the concourse daily. Last month Rockefeller Center management announced plans for a \$2-million "revitalization" of the concourse.

The Walker/Group, Inc., architects and retail planners in charge of the project, focused on the concourse's "cross-over" areas, which allow diagonal circulation. The most important of these is the crescent around the sunken skating rink and its famous Prometheus statue. At present, this part of the concourse is enclosed as restaurant space. Walker/Group plans to remove the walls



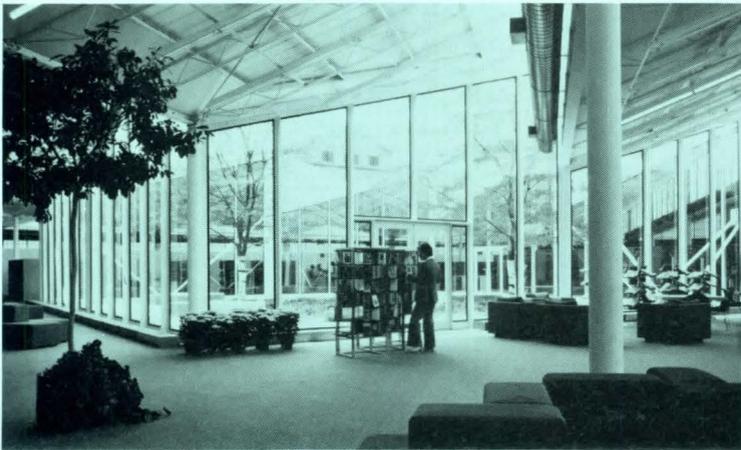
and install full-height glazing to open up a view to the rink and to simplify circulation. Food service would be provided at tables and kiosks within the open area.

At a press conference detailing the renovation, architect Kenneth Walker observed that its bronze ornament is one of Rockefeller Center's chief architectural beauties and that, even below ground, detailing is of a quality that after 40 years' use requires little alteration or replacement. The architect found the ceiling, therefore, the only plane susceptible

to extensive remodeling.

For the skating rink and other cross-over areas, the architect designed bronze ceiling panels with radiating light strips. The reflective material will increase the apparent ceiling height. In the long pedestrian corridors, overhead fixtures, which presently provide rather stark general lighting, will be replaced with a system of metal fins. Edge lights at the outside of the fins will give some downlight, but the chief general illumination will come from the shop windows themselves.

Biennial AIA/ALA Library Building Awards Program honors two public libraries and one university library



Keith H. Palmer, C. F. Murphy Associates

To encourage excellence in the architectural design and planning of libraries, the American Institute of Architects and the American Library Association jointly sponsor the biennial Library Building Awards Program. In the 1978 program, the jury, composed of both architects and librarians, gave these First Honor Awards:

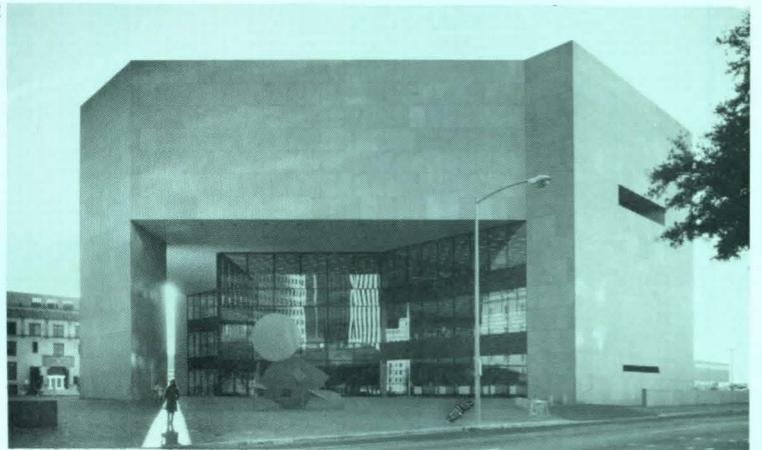
- The Michigan City (Indiana) Public Library (1), designed by C. F. Murphy Associates of Chicago, is part of the city's effort to revitalize its blighted urban core. A central landscaped patio was used "as an effective device for dividing library functions while maintaining control over traffic," said the jury, who also commended "the relaxed atmosphere" created by lounge seating overlooking three sides of the patio.

- The Houston Central Library (2), designed by S. I. Morris Associates of Houston, is a granite and glass build-

ing that joins the old library through a basement under a large plaza. Commented the jury, "The deep multistoried recess marking the entrance is a strong architectural statement which forcefully establishes the location of the entry while shielding the wide facade from direct sun."

- The Sarah Lawrence College Library (3), designed by Warner Burns Toan Lunde Architects of New York City, was given a residential scale in deference to its neighbors in Bronxville. The jury found the library's departmentalization a departure from "the more usual attempt in contemporary library buildings to provide large open spaces."

In addition, Awards of Merit were made to: Chula Vista (California) Public Library, Richard George Wheeler Associates, architect; Southside branch, Des Moines Public Library, Charles Herbert & Associates, Inc.,



Richard Payne



Louis Reens, The Colony, Texas

architect; Tredyffrin Public Library, Stafford, Pennsylvania, Mitchell/Giurgola Architects; Selby Public Library, Sarasota, Florida, Skidmore, Owings & Merrill, architect; Biloxi (Mississippi) Library and Cultural Center, MLTW/Turnbull Associates, architect, and TAG/The Architects Group, associated architect; Troy-

Miami County (Ohio) Public Library, Richard Levin Associates, Inc., architect; Scripps Institution of Oceanography Library, the University of California, San Diego, Liebhart, Weston & Associates, architect; and Long Island University Library/Learning Center, Brooklyn, Davis, Brody & Associates/Horowitz & Chun.

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The XIII UIA World Congress: 7,000 architects, planners and students from 85 countries met in Mexico City

**They sought answers to the following questions:
can architects influence the course of national
development in their own countries?
Can they help redirect it? If so, how?**

At what size is a conference, a congress or a convention too big for a successful interchange of ideas and satisfying meetings among its participants? The 1978 Congress of the *Union Internationale des Architectes* had what seemed to be too many people, but remarkably, they appeared cheerful and to be having a good time.

The planners of the Congress made preparations for 3,500 attendees, began to expect 5,000 and finally had to cope with the 7,000 who actually came. A nationwide airline slowdown limiting takeoffs and landings all over Mexico added confusion and inconvenience. Despite such worries, the architects faithfully and gamely jammed the meetings, seminars and exhibitions held in or near the National Auditorium in Chapultepec Park. Although Mexico City has beautiful buildings to see (and the UIA provided everyone who registered with an excellent paperback guidebook written by Beatrice Trueblood), most of the architects either postponed or never got around to their sightseeing. They appeared to be enthralled by the Congress. There was indeed much to do and hear.

The Congress focused upon five major themes

The men and women who had come so far to meet their fellow professionals were invited to consider four aspects of development and change: economic, socio-cultural, technological, national; and a fifth category: human settlements. At the all-day plenary session major papers were presented on each theme, and on two following days there were separate discussion sessions held on each topic. Formal reports were made.

Architecture and economic development: there were two key messages—first, that development requires long-term territorial and national planning; second, that massive investment in construction and housing is of prime economic importance

Enrique Peñalosa Camargo of Colombia is an economist, a former Assistant Secretary General of the UN and was Secretary General of the UN Conference on Human Settlements held in Vancouver, Canada, in June 1976. "Our developing countries," he said, "are faced with terrible poverty and with the prospect of doubling their population in a single generation. Therefore they cannot afford the luxury, from the economic point of view, and will not be able to survive politically the spontaneous growth process which took place

under totally different conditions in today's developed countries. I am convinced that an orderly and human development of our society requires long-term territorial and national planning . . . I believe that the construction sector and the modernization of human settlements, including massive investments in housing, transport, public services and energy supplies can be the leading force for growth in the new development model. I am also convinced that this is practical from the economic point of view in the developed world as well as in the developing countries and that it could lead to permanent growth.

"The two main preconditions for introducing a leading growth sector are the existence of a latent demand and the capacity for mobilizing internal resources to meet this demand. An economic development strategy based on the improvement of human settlements will contain both requirements in the majority of developing countries and will combine the necessary multiplying effects with a more equitable distribution of goods and services and with a healthy development of the environment.

"The construction and housing industries are the only two economic sectors of importance in developing economies for which basic materials are available locally and which do not require imported, large-scale components. Therefore this strategy emphasizes local capacities and possibilities.

"Both these industries employ a large number of untrained workers who cannot otherwise be absorbed into the labor force without long and expensive educational and training programs. Therefore, a large number of otherwise unemployable workers can become important economically as producers and consumers.

"Furthermore, both these industries have a greater and faster multiplying effect than any other economic activity. In many countries the vigor of the construction and housing sectors is the only important indicator of the country's economic vitality. Demand is limitless in the first place for housing and in the second for the entire infrastructure of human settlements. This opens great possibilities not only to mobilize savings but also to innovate new forms of commercial and mortgage credit and mutual and self-help programs. In this field, international financing can be a catalyst.

"Finally, this policy will better the quality of life of the masses. . . . Every year, regardless of investment rates or of increases in the gross national product, there are more

hungry and uprooted people. Want, more than political ideology, is the predominant theme of our days."

Architecture and socio-cultural development: the two speakers were in conflict—one urging the transfer of advanced Western technology to the developing world, the other deploring it as an unmitigated social and cultural disaster

Japan's leading architect, Kenzo Tange, and the noted Belgian archaeologist Raymond Lemaire were each to discuss socio-cultural themes. Tange's views are more technological than socio-cultural and no longer fashionable in the planning vanguard. Said he: . . . "There are two ways in which a society can develop technological structure. Either it can develop the existing social base to the point where technology can grow upwards, or it can import the technology first from developed countries, and let the base grow downwards later. I personally think that importing the top-class technology is better, and this is also applicable to architecture in developing countries.

"Once I saw a petro-chemical complex standing independent in the middle of the desert. It looked very beautiful and even harmonious with the surrounding nature. I often prefer this kind of petro-chemical complex to a normal city. Of course native buildings built of materials like mud and clay are often very harmonious and sometimes these are necessary, but on the other hand I like to expect that a purely contemporary city could be created suddenly in the desert.

"Chandigarh and Brasilia have shown us how the modern city can be lifted from one culture and placed in a new developing one, and the result is satisfactory. As architects, tackling the world-wide habitat crisis, we should think about the mobility of resources and the transfer of technology and know-how."

Raymond Lemaire is president of the International Council of Historical Monuments and Sites. He led the team of architects and planners who restored Grand Beguinage, Louvain La Neuve, Belgium. For this project he and his team received the 1978 UIA Sir Patrick Abercrombie Prize, which is given for important work in town planning or urban development.

Although the two men did not publicly debate, Lemaire's views are in profound disagreement with Tange's. Said Lemaire: "It is difficult to deny the absolutist, almost despotic character of contemporary architecture or the doctrinaire behavior of the majority of its great theoreticians.

The results are striking: the same type of architecture can be found in different places around the globe.

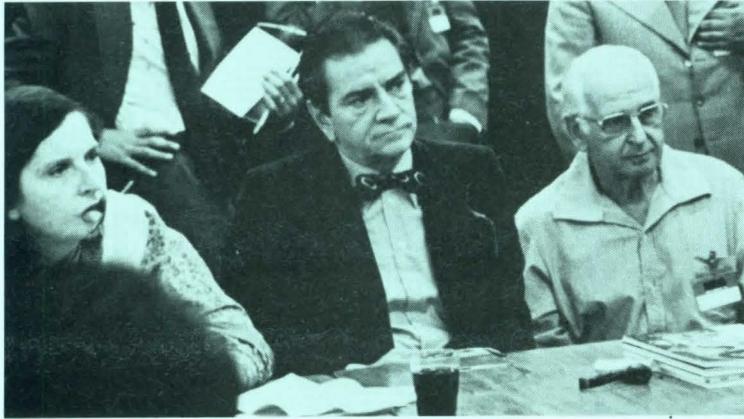
"Must we admit that the specific needs and souls of individuals and groups, their sense of beauty, their sensitivity, their inventive capacity no longer count? That differences in climate, nature and light are no longer important? Must all these factors which once led to diversified architecture no longer influence the expression of tomorrow's architecture because it will stem from uniform molds, determined only by economics and technique? . . . The diversity of the cultures of the globe is architecture's first wealth. If it wants to remain as an essential cultural factor, architecture must respect this diversity and participate fully in its creativity. . . .

"The ease of communications and the often brutal importation of industrial technologies (often for profit exclusively) which are implanted in regions where the population has not been psychologically or socially prepared to receive them has spread a veil of uniformity over the diversity of regions and human races. The uniformity of 'universal' architecture forms part of this veil. This architecture does not respond to human needs as much as it does to a programming, technological and economic dimension. Its artistic expression, if it may be called that, is foreign to local traditions, sensitivity and social and cultural identity.

"Unfortunately, at the political and economic power level, this type of architecture is a political choice. . . . On the cultural level, however, this choice signifies a condemnation of the past which then becomes a symbol of underdevelopment and runs the risk of being wholly rejected. . . . The social consequences are as serious. . . . Is it not revealing to admit, along with the sociologists, that despite elementary comforts and the safety of the new low-income districts of the South American cities, social life is more intense and human relations are richer in the *favelas* which are adapted to the existing urban structures? And have we not observed in Brussels that the inhabitants of the slum district of the 'Marolles' prefer their streets and their humble and uncomfortable dwellings to the modern and fully equipped apartments which replaced their old homes and which were referred to as rabbit cages?

"Finally, this brutal evolution provoked by architecture can also have dangerous economic repercussions. For centuries the habitat in Europe occupied a primary place in

in October to discuss architecture and national development



Mildred F. Schmertz, Bruno Zevi, Pierre Vago, (top), Louise Noelle Gras de Mereles, Blake Hughes and Jorge Glusberg (above) at a meeting of architectural critics and journalists held at the 1978 UIA Congress in Mexico City.

family budgets. The climate, the traditional importance of architecture in social life, the systematic use of durable and expensive materials and the need for specialized labor have marked European architecture throughout its history. Today's building components reflect the primacy of technical and economic values. Architecture has been converted into a marketable product. The product must therefore be produced at the lowest cost in relation to needs and expectations, and cost often precludes consideration of these needs.

"Introducing advanced technologies and their economics into societies which have not evolved in the same way as the Western world, that function with different economic structures, that do not possess the same natural resources or that require an enormous infrastructure to support the modernization, upsets the economic equilibrium. Materials and techniques often must be imported, which means spending precious foreign currency on goods which will not help to produce new goods. Traditional building markets are threatened. Although the local building industry is often fragile, it is admirably suited to the local climate, expresses an often remarkable artistic sensibility, using materials which are

not expensive and sometimes free. Buildings are erected by a qualified labor force, assisted by neighbors.

"Such structures are being replaced by simple Western models built of concrete blocks and corrugated iron. Elementary as these buildings are, the price the inhabitants must pay is high in terms of their income. It upsets their precarious economic balance.

"I would urge a more modest approach to urban planning and architecture, an approach which seeks to serve more than to glorify, to express the soul and the sensitivity of the community rather than the genius—however exceptional it might be—of the architect, the pride of the building master. Those who build must be taught once again how to weave the coat of life, a coat that will be soft and comfortable for social groups and for individuals. It must be fitted to their shape."

Architecture and technological development: a Japanese Metabolist thinks that a more flexible technology could better accommodate human needs and fantasies

Speaking in behalf of what he calls "metabolic" technology was Kenji Ekuo, an industrial designer from

Japan who was former president of the International Council of Societies of Industrial Design. He believes that "the technology of today is becoming inflexible . . . and is growing away from the needs of man. Planned cities, road systems and apartments all give an illusion of being highly efficient, but in reality, do not function effectively—they already assume the appearance of ruins.

"Why is this? It is because the 'blood of life'—human needs and their emotional aspects—is not circulated. Consequently, these modern-day technological products appear to be antagonistic to man . . . We are presently using these facilities only because there is no other choice. Of course, technology itself is not evil; the problem lies in the nature of its development.

"The lifestyle of man is changing rapidly, becoming increasingly varied and complex. However, the technological-physical framework of our life, whether it be a city or a transportation system, impedes these changes. We must remember that the technological system is just one of the multitude of systems composing human life. Social, cultural, personal, natural and other systems exist. Technology must no longer be isolated but must absorb the social changes, emerging lifestyles and sentiments of people. Technology is effective when it is joined with various other systems."

Architecture and development of human settlements: Western models should not be imposed on the developing world. Architects involved in human settlement design must respect the people, the culture, the traditions and the systems of the country

Arthur Erickson, the distinguished Canadian architect, has long been interested in the developing world. His ideas have much in common with those of Raymond Lemaire. Warned Erickson: "As architects from various countries, we should be wary of 'international' solutions, but must find answers which are unique to the social, cultural and technological condition of our own regions.

"How can we do this—how can we rediscover the roots of architecture? Only by regaining our sense of place and time, of environment and tradition. It is not sufficient for the human settlement to provide merely the means of habitation, well-being and social communion, and the infrastructure and facilities for these. A settlement is much more than can ever be attempted or planned beforehand by man, but like the character of man himself, is formed from

the forces of the immediate environment, and the tradition that originates in the environment as the unconscious ethos of a people. Tradition provides the basic structure, the unthought habitude, the familiar pattern on which the settlement grows into a permanent community. The environment provides the challenge and the inspiration . . .

"The new architect has to become resensitized to all that the International School has denied us. He must learn to respect all peoples, all cultures, all traditions and systems wherever he builds. He must understand technology not as something which binds him into a mechanistic ethos, but must realize that it is a dynamic activity which can be shaped to any requirement. He must begin to question, indeed defy, the inhumanity of scale, the unliveability and unworkability of the skyscraper city—that misplaced utopia of the mercantile mind, that ill-dreamt 'ville radieuse.' He should condemn the indiscriminate use of the high-rise as a universal urban form.

"The architect must assert his conscience, assume his responsibility as one of the last bearers of human culture which faces total emasculation through indiscriminate mechanization. The cry of James Joyce's young poet—that the artist must learn to forge the conscience of the race—sounds out of place to our ears, but I will paraphrase it. We, the old architects, must learn, together with the young who will inherit our mission, to forge the conscience of mankind."

The role of architects in national development: what is the real influence of architects today on development and growth in their countries?

Mahdi Elmandjira, who examined this question, is an economist from Morocco, professor at the University of Mohamed V, Rabat, former Associate Executive Director of UNESCO and President of the World Federation for Studies of the Future World of the Club of Rome. "The answer," he said, "will vary from one country to another and even from one architect to another, but there seems to be a trend toward the reduction in the role of the architect in the decision-making process affecting architecture. This development is probably the outcome of an increasing complexity in political, economic, social and cultural management which results in a greater differentiation in roles and calls for a greater coordination. This is a situation to which many

continued on page 40

continued from page 39

architects still have to adapt.

"Yet as contradictory as it may seem this reduction in the procedural role of the architect has potentially increased the weight of his intervention—which has to undergo a mutation before it can become fully effective . . . It is not enough to say that architects have not very often been given the means to respond adequately to the challenge of national development. They have to participate directly in the definition of their new role and not wait for this to be done for them by others. Few people are better equipped than architects—as a result of their training and the nature of their work—to deal with complexity, inter-disciplinary approaches and coordination."

The role of women in architecture: women architects from all over the world came to the Congress to discuss the problems they face within the profession while presenting their ideas and achievements

When the conferees were not listening to the major speeches, they were making speeches of their own. A women's caucus was held during the Congress which was organized by the National Council of Women Architects and Engineers of Mexico. Architect Nelly Garcia Bellizzia chaired the caucus, which was attended by women architects from the U.S., France, England, Denmark, Finland, Spain and Australia, as well as from South America and the Near and Far East. The women decided to establish

a working group within UIA to participate in all its programs and to further the role of women in national and international development.

The role of architectural criticism: should architectural critics be affiliated with institutions? Will they lose their independence as they gain power?

Of great interest to the architectural journalists and critics present at the Congress was the possibility that in the future the importance of architectural criticism might receive some form of acknowledgement by the UIA. A critics' symposium was attended by approximately 58 architectural writers to discuss whether the participation of critics and journalists in the UIA Congresses should be

formalized in any way and indeed whether the UIA should designate certain critics to advise it in such matters as establishing the content of meetings, the membership of juries, etc. No conclusions were reached, but six persons agreed to serve on a committee which will study these and other related issues. The committee: Max Blumenthal, editor-in-chief, *Techniques & Architecture* (France); Jorge Glusberg, director, Center of Art and Communication (Argentina); Blake Hughes, publisher, and Mildred F. Schmertz, senior editor, *ARCHITECTURAL RECORD*, (U.S.A.); Louise Noelle Gras de Mereles, editor, *Arquitectura/Mexico* (Mexico); Bruno Zevi, editor, *L'Architettura* (Italy).

UIA awards acknowledge talent and projects of international impact

Architectural critics are already not without influence in the UIA. Two critics of note, Monica Pidgeon and Bruno Zevi, served on the UIA prize jury along with Pierre Vago, honorary president of the UIA, Michel Weill, Secretary General of the UIA, Tadeusz Barucki of Poland and Ren Suzuki of Japan.

As already noted, they gave the Sir Patrick Abercrombie Prize to Louvain La Neuve (Belgium) and the team of architects and urban planners who under the direction of Raymond Lemaire restored it. The Auguste Perret Prize went to the Kiyonori Kikutake workshop (Japan) for its architectural achievements and to the Piano and Rogers workshop (Great Britain). The jury cites both workshops "for translating technological research into an artistic message."

The Jean Tschumi Prize went to Leonard J. Currie and the School of Architecture of Lima, Peru. In his role as head of this school Currie took the initiative of promoting the drafting of the Machu-Picchu Charter of 1977 which updates the Athens Charter written by Le Corbusier and the CIAM group in 1933. The purpose: to further the influence of current urban design theory.

The Sir Robert Matthew Prize went to John F.C. Turner (Great Britain) for (in the words of the jury): "improving the quality of human settlements by means of a judicious transfer of technology. He has actively helped new communities acquire their autonomy in the creation of their environment."

250 delegates from 80 countries went on to Acapulco to vote

At the end of the Congress most of the 7,000 went home, but delegates left the polluted city for the sea. Their most important vote, from the standpoint of U.S. architects, was the election of Philadelphia architect Louis de Moll as President of the UIA to succeed outgoing President Jai Rattan Bhalla of India. —Mildred F. Schmertz.

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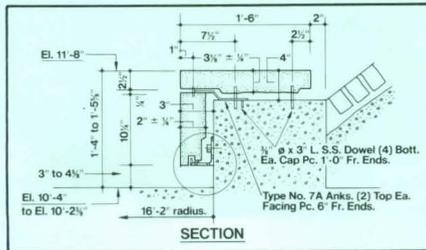
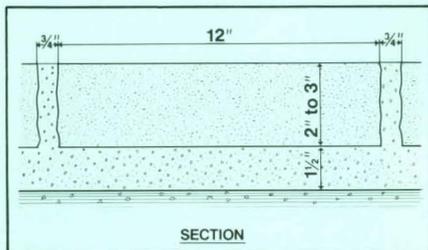
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Computer analysis helped select the most efficient heating and air-conditioning system. Forty percent of the heating requirement will be met by heat recovery from lighting.

As a result, less gas will be needed to heat all three buildings of the complex than was originally needed to heat two of them in 1918.

This landmark, now well-scrubbed and skirted with a city park, *brings new life to downtown Albany.*

"Historic preservation need not be compromised by responsible and efficient and elegant engineering."—Jury

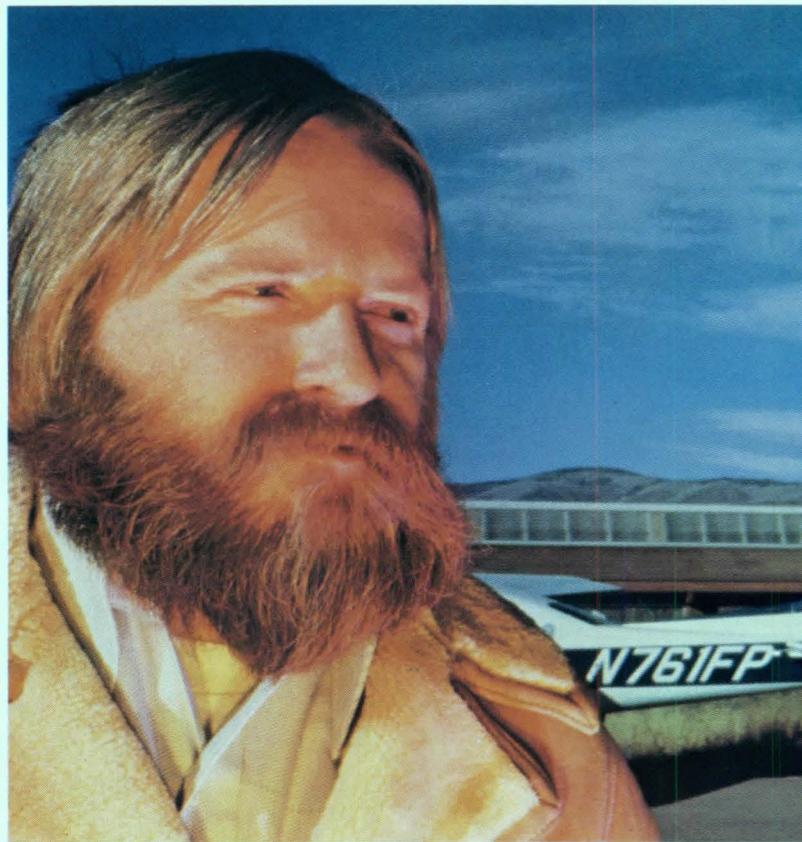
PITKIN COUNTY AIR TERMINAL, ASPEN, COLORADO. This is the first public building in America to complement solar heating with *moveable* insulation systems.

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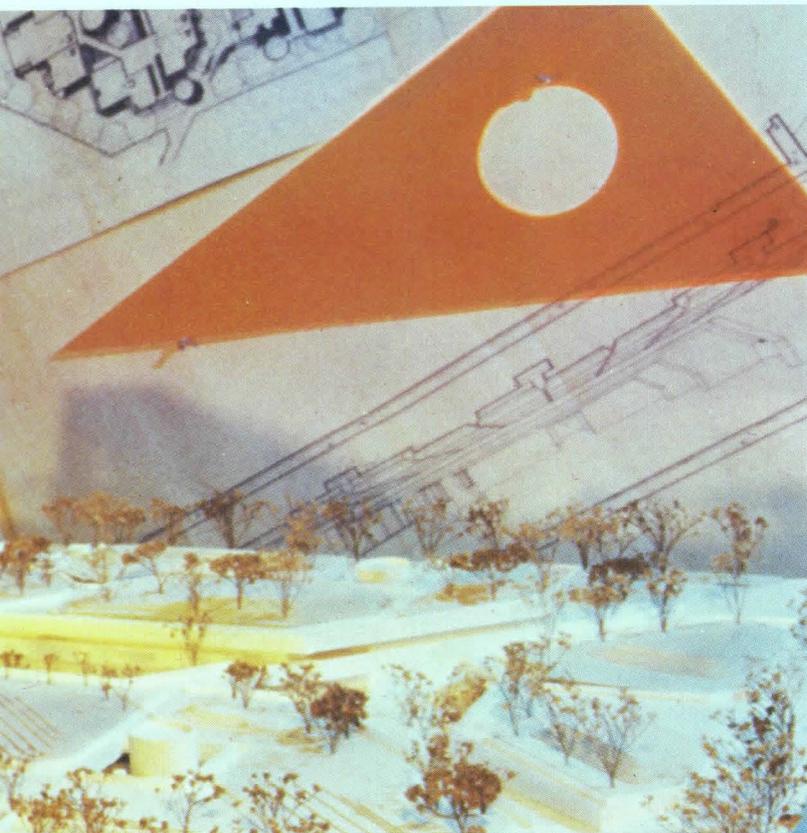


Buford Duke, Jr., AIA—Benham-Blair & Associates of California, Inc., Los Angeles, California.





James Copland, Tim Hagman, Larry Yaw—Copland, Finholm, Hagman, Yaw Ltd., Aspen, Colorado.



STATE OFFICE BUILDING, SACRAMENTO, CALIFORNIA. This building design was already a winner.

It beat out forty other entries in a design competition held by the State of California in their search for a truly energy-efficient state office building.

Once built, the building will come close to achieving the impossible: maximum exposure for solar generation, minimum exposure for energy conservation.

For maximum exposure, there will be a six-story office tower. Solar panels covering the south side will generate energy for heating and cooling.

To conserve energy, the rest of the office space will be built underground, around a great sunken courtyard. Light wells will provide natural lighting. Overhead, an urban park will provide insulation.

"Here is a clear, strong, architectural statement relating to energy conservation through design."—Jury

MUSEUM OF SCIENCE AND INDUSTRY, TAMPA, FLORIDA. The roof will be the energy center of this building.

It will be canted on one side so it shades the museum. Roof vents will provide natural ventilation. Rainwater from the roof will be recycled for use inside the building.

A proposed photovoltaic solar system would generate electricity.

These systems will be exposed and displayed so museum visitors can see them work.

"This will be a national demonstration of the most progressive principles of energy conservation."—Jury



Thomas P. Reilly, AIA, Victor D. Langhart, AIA, Ronald L. Whatley—Rogers, Nagel, Langhart, Inc., Denver, Colorado.



HONORABLE MENTION—Commercial: Georgia Power Company Headquarters, Atlanta, Georgia, Heery and Heery, Architects and Engineers; South Central Bell Telephone Headquarters, Jefferson County, Alabama, Crawford Giattina and Associates, Architects. Governmental: Police and Fire Department Services Building, Mountain View, California, Goodwin B. Steinberg Associates, Architects. Industrial: University of Minnesota Law School Building, Minneapolis, Minnesota, Leonard S. Parker Associates, Architects. JURY—William W. Caudill, FAIA, Chairman of the Board, Caudill, Rowlett, Scott, Inc., Houston, Texas; David L. Grumman, P. E., Enercon



H. Dean Rowe, AIA—Rowe Holmes Associates, Inc., Tampa, Florida.



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"The sensitive contextual design doesn't give up major responsibility to energy conservation."—Jury



Limited, Evanston, Illinois; John J. Labosky, P.E., Smith, Hinchman and Grylls, Detroit, Michigan; James S. Polshek, FAIA, Dean of Architecture and Planning, Columbia University, New York, New York; Frank J. Powell, M.E. National Bureau of Standards, Washington, D.C.; Jack E. Tumilty, President, Jack E. Tumilty and Associates, Tulsa, Oklahoma.

For a free booklet with more information and pictures of this year's winning entries, write X. S. Meeks, Owens-Corning Fiberglas Corporation, Fiberglas Tower, Toledo, Ohio 43659.

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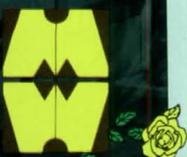
of jambs, head, and sill.

The sash exterior is rolled aluminum. Glazing stops are white vinyl or brown Lexan. The inside of the window is beautiful, insulating wood. The Marvin Casemaster shown here has a heavy 6/4 frame, 1 3/4" sash, extremely low air infiltration, and double or triple glazing.

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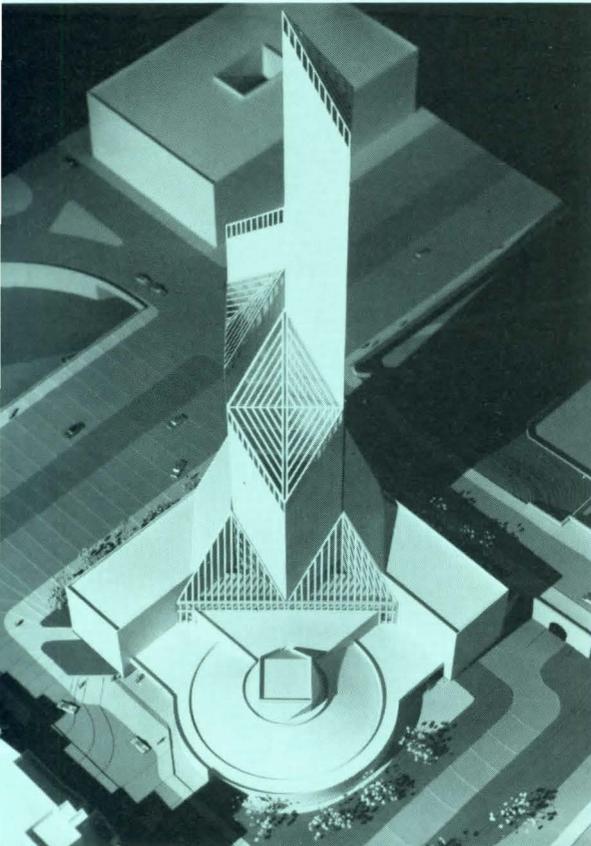
You've never been so insulated in all your life.

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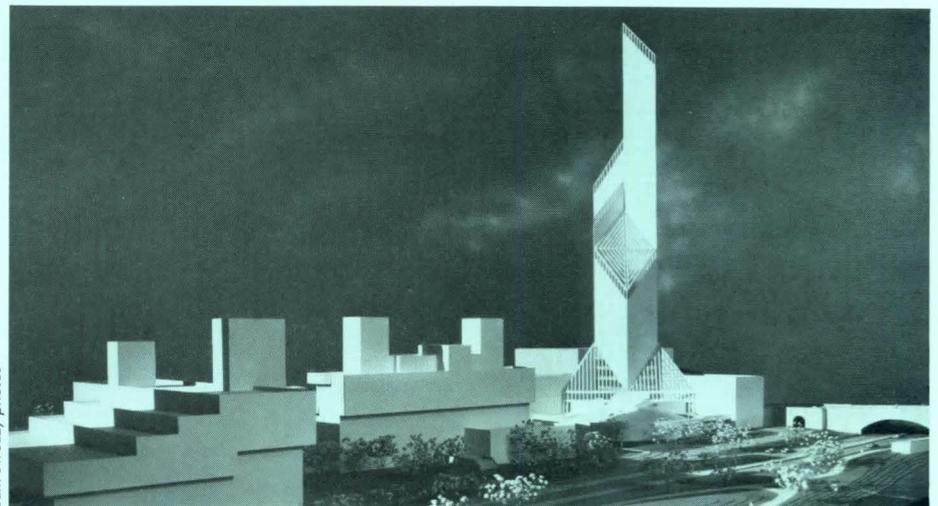
At Boston University, new academic tower will provide a symbolic center for a sprawling campus



The campus of Boston University "was not so much built as it was assembled," says the chairman of its board of trustees, Dr. Arthur G. B. Metcalf. Over the years, the university has collected an assortment of old and new buildings that now stretch for a mile and a half along the south bank of the Charles River. To repair the university's lack of a social

and visual center, The Architects Collaborative, Inc., have designed a 35-story Academic Center to accommodate teaching and administrative space and to furnish a physical image that will be visible and highly recognizable from the rest of the campus and from the city. The large square base of the building, with its twin triangular atriums, will contain

lecture and seminar rooms, and the smaller towers will contain offices for deans and visiting academics. The slanted lozenge of skylight midway up the tower will cover a variety of possible floor plans, terraces and atriums, including a faculty club with a 30-ft sloping glass wall. An amphitheater will fill the university's need for a central assembly hall.



Sam Sweezy photos

The facade of Dallas's central library will lean back to parallel City Hall's overhanging cantilever

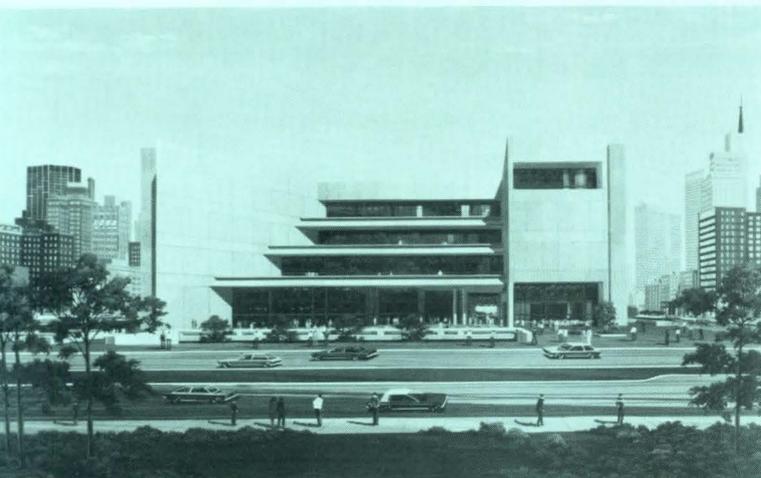
Shisher and Spillman Architects, incorporated, designed Dallas's new \$40-million library not to copy but to complement the Pei-designed Municipal Services Center (City Hall), which it faces across a seven-acre landscaped plaza.

The library, whose chief function is to house its research collection, will be part of a complex encompassing the Dallas Convention Center as well as City Hall. The building will also contain the downtown branch library, an audi-

torium and meeting rooms. The building's precast panels will match the concrete of City Hall in color (buff) and texture, and the structural and fenestration modules of the two buildings will be similar. The south elevation of the library

(below left), which fronts on the plaza, steps back in contrast to the overhanging cantilever of City Hall's north facade. On the library's north front (below right), a broad stairway forms an entrance to a pedestrian concourse from

the city's central business district. The concourse, which will be open 24 hours a day, will bisect the building to separate the branch library and the auditorium, which may be open at odd hours. —Lorraine Smith, *World News, Dallas*.



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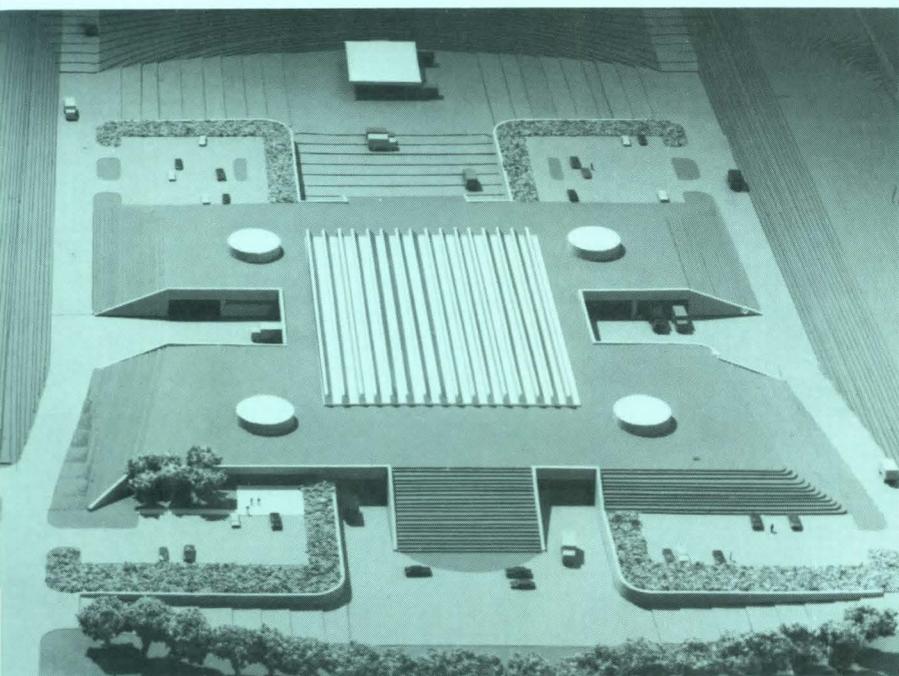
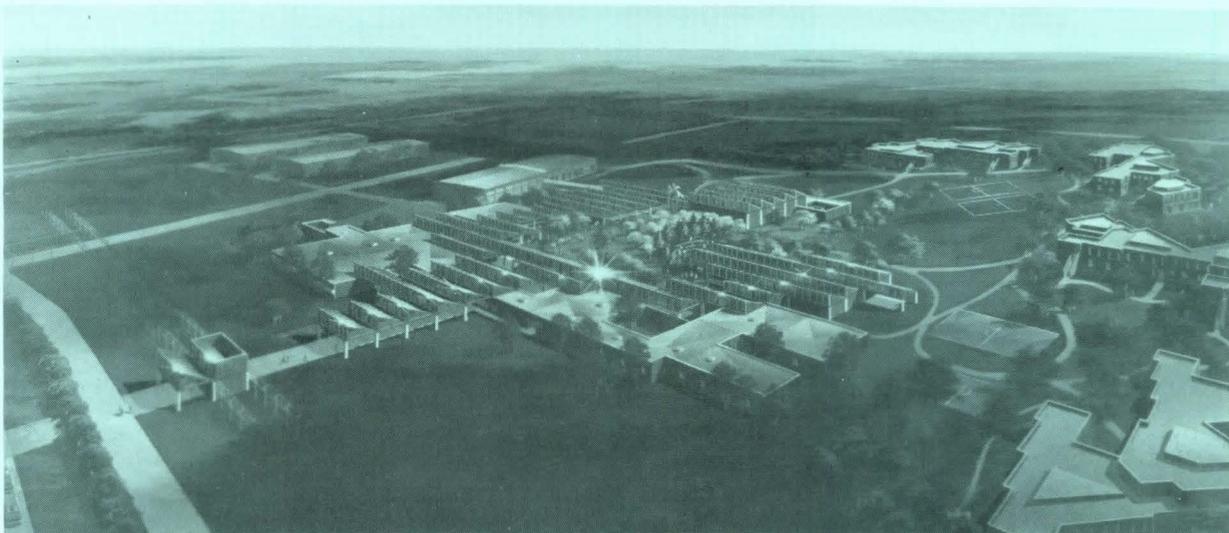
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Federal prison will have solar heating/cooling

A 26,000-sq-ft array of solar collectors on the Federal correctional institution at Bastrop, Texas, will provide heating and cooling for the 500-inmate facility. The installation will provide an air-driven central heating system and an absorption-type air-conditioning system, as well as domestic hot water. Architects CRS Inc. report also that the prison will incorporate innovations in internal design, reducing psychological scale by decentralizing living units and allowing each prisoner his own room.



County building nestles in gravel pit

The Zimmer Gunsul Frasca Partnership killed at least four birds with one stone with their design for the underground Multnomah County (Oregon) Operations and Maintenance Building. The facility reclaims 15 acres of a played-out gravel pit owned by the county. Only about a quarter of the building volume lies above the earth; the berms that provide natural insulation; vehicle ramps and access portals lead to shops and garages on the lower of the building's two levels. The berms, in addition to reducing

energy consumption by an estimated 50 per cent, will also minimize the visual impact of the facility in a neighborhood surrounded by existing and proposed residential development. Moreover, the architects report, by sinking the building 25 ft into the ground, they reduced the required length of foundation piles by half. A solar energy system, funded by a grant from the Department of Energy, will supply all of the building's cooling and hot water and about half its winter heating.

Photo Art



North-facing clerestories augment south-facing solar collectors

The sawtooth roof of the Police Services and Fire Administration Building in Mountain View, California, fills both active and passive solar functions. In the vertical walls supporting the high back ends of the solar collectors, architects Goodwin B. Steinberg associates punched large clerestories. The north-facing double-glazed windows will admit enough cool natural light to the white-painted interior to allow an average lighting load of 1.5W/sq ft. The active solar system will satisfy the

building's needs for heating, cooling, hot water and freeze protection. The steel cross-bracing at the clerestory glazing will be painted a vivid color to contrast with the white concrete-washed walls and red tile roofs—materials corresponding to the local Spanish-flavored architecture. Slit windows facing east, west and south will also minimize light/heat gain. At the front entrance, an emblematic tower will carry a stained-glass clock face designed by the architects.



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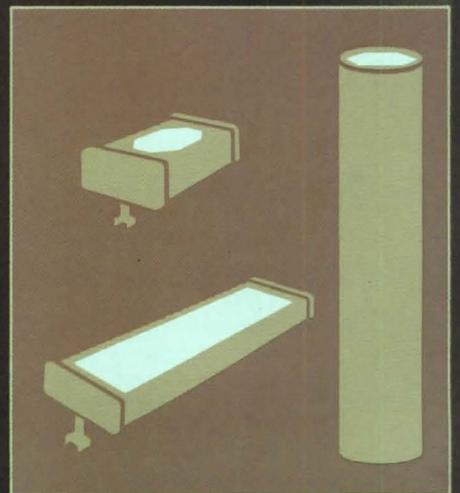
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Objets d'architecture

ORNAMENTAL IRONWORK: AN ILLUSTRATED GUIDE TO ITS DESIGN, HISTORY, & USE IN AMERICAN ARCHITECTURE, by Susan and Michael Southworth, photographs by Charles C. Withers; David R. Godine, publisher, \$20.00.

THE RUN OF THE MILL, by Steve Dunwell; David R. Godine, publisher, \$30.00.

ART NOUVEAU AND ART DECO LIGHTING, by Alastair Duncan; Simon and Schuster, \$25.00.

THE AMERICAN STORE WINDOW, by Leonard S. Marcus; Whitney Library of Design, \$25.00.

CHAIR: THE CURRENT STATE OF THE ART, WITH THE WHO, THE WHY, AND THE WHAT OF IT, produced by Peter Bradford, edited by Barbara Prete; Thomas Y. Crowell, \$19.95.

Reviewed by Gerald Allen

Level-headed publishers generally pitch their architecture books straight to the presumed center of the market, coming up over and over again with books on professional practice, books on solar energy, books on arcane technical matters, and books on the works of individual architects, particular periods of architectural history, and individual building types. The yearly output of published volumes directed to so modestly populated a profession is really staggering, and it is arguable that it would under the circumstances take a person of some hubris, folly, or both to presume to write yet another work on any of these subjects. But write them they do. The marketing theory is that architects will buy publications directly related to architecture, read them (or at least look at them), and then "use" them in their professional practice, and this is undoubtedly true, since the books do keep coming.

But still this is not the whole truth. Architects are notorious pack rats when it comes to things visual, things seen either in the flesh or in reproduction. This habit is not just an occupational eccentricity, because in fact one of the consummately "useful" things that a good architect can have in his or her bag of tricks is a truly rich collection of remembered images and likenesses, things that can at any moment be retrieved and reformed in some often improbable way into a new work. The entire process of observation, recollection, and reformation is improbable, and random too. So why should the objects originally observed have to be strictly architectural?

The truth, of course, is that they don't.

It is a pleasure, then, to note several recently published books that raise the curtain on outlandish objects of great beauty and interest for the architect's inspection. The first of these interesting objects is books themselves. It would be hard to imagine a contemporary commercial publisher who so consistently and so very well remembers the art of fine bookmaking as does David R. Godine in Boston. What do good design, good typography, good paper, good printing, and good binding make? They make a good-looking book, and Godine makes good-looking books. The firm published the handsome volume *H.H. Richardson and his Office: Selected Drawings* in 1974, and just recently two more interesting books related to architecture have followed: *Ornamental Ironwork* and *The Run of the Mill*.

Ornamental Ironwork lacks tight-lipped singlemindedness in the most admirable way, for it is at once a picture book, a history, a technical manual, a pattern book (with historical designs placed side by side with contemporary ones by the authors)—and even a kind of buyers' guide, since at the end there is a directory of ornamental ironworkers today in the United States. The didactic design messages of the book are few, but the photographs and drawings, which are superb, leave at least one overall designer's impression, albeit a quite simple one, which is that iron is a material that can be wrought, cast, and otherwise malleated, and that, as ornament, it achieves its beauty by having been and by hinting at how.

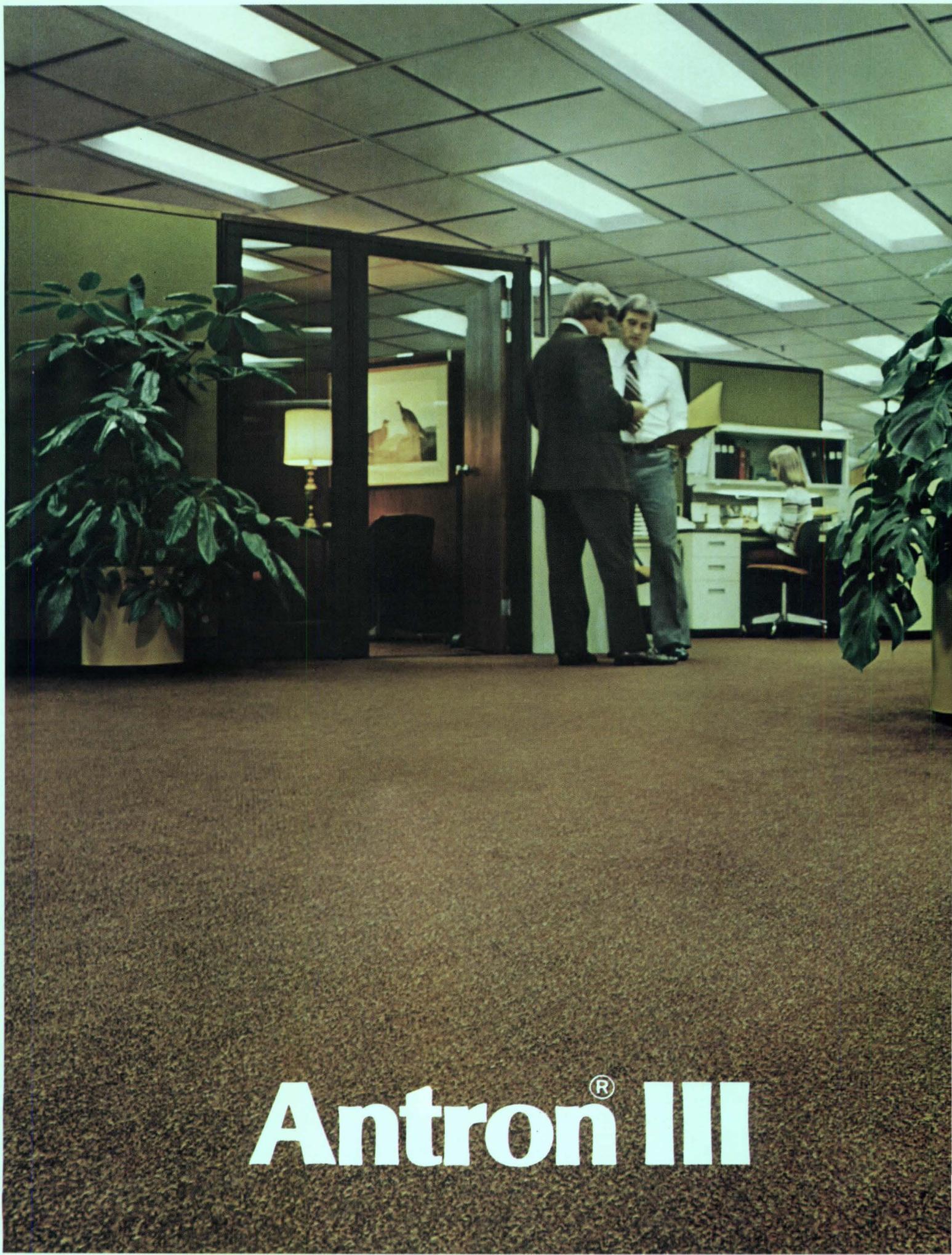
The Run of the Mill, a chronicle of the rise and fall of mills and factories in New England, contains a really handsome collection of photographs and drawings, most of them historical. As such it would seem to qualify in a way as an architecture book about a single building type. But if it is that, it is also many other things as well, for the book mainly examines the stuff of which architecture is made—in this case the economic, social, technological, and (through a series of interviews with surviving workers from the old factories) personal factors that give it its meaning and also its poignancy.

Para-architectural books from publishers other than David R. Godine include *Art Nouveau and Art Deco Lighting*, a scholarly book that nonetheless is also a lively and fascinating catalogue of possibilities for people who feel they have had it with track lights and can lights. It hints, in a tantalizing way, of what once was and what again might be. There are critical essays on both "Art"

styles, plus short biographies of artists for the inquisitive. The color photographs are first-rate, though those in black and white—too many of which, from the Art Deco period, appear to have been rephotographed from other publications—are slightly less than completely wonderful.

Store-window displays—a fact documented in *The American Store Window*—are, like buildings, interesting not only for the social history they involve, but also for the fact that they show how a relatively narrow selection of physical materials assembled in a certain way can make vivid the representation of an idea, a feeling, or a whole view of life. Store-window displays, in other words, show us about design. The collection of them in question is varied and catholic, and it ranges from the early 1930s to the present, with an historical critique that begins even further back than that. The triumph of this volume is its presentation of long-buried photographs that are unavailable to the layman just about anywhere else.

The chair, and therefore *Chair*, is a subject of interest to almost any designer, and, though the book assembled by Peter Bradford and Barbara Prete is in some minor ways maddening, the subject still manages to maintain its interest. Based on a series of lectures at the Cooper-Hewitt Museum in New York, the book presents interviews with eight different commentators on the subject: Ralph Caplan, Ward Bennett, Joseph d'Urso, Niels Diffrient, Mary Blade, Nicos Zographos, Donald Gratz, and Charles Stendig. The standard posturings are evident: d'Urso, for instance, notes that "a floor should be an inviting surface to sit upon. If you don't sit on it, there is a reason, and that is because the surface isn't inviting." (Surely there are several more obvious reasons that this, but never mind.) And Peter Bradford, who is a very talented graphic designer, has committed the minor sin of going too far (as opposed to the major one of not going far enough): the typeface is Helvetica, natch, but often rendered in the text fulsomely bold, jazzily alternating between lines of black and warmish gray. The illustrations are rung about with fat black rules, and the whole design is accomplished to a fare-thee-well. Less verve, perhaps, would have been more sufficient, but the result is still pleasing, and the subject more than engaging, since, as Ralph Caplan glamorously points out, "like sex, chairs are both ubiquitous and misunderstood." It would be an amusing pastime to compile a list of further items which also meet these two criteria.



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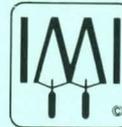
Jenniges sees the national energy crisis causing more and more architects, engineers, builders and owners to turn to masonry, which means an even brighter future for masonry craftsmen. "It's the best way you can build," he says. "My apprentices have years of steady work ahead of them." Jenniges adds: "There are so many different masonry materials to work with. Not just the hundreds of varieties and sizes of brick and concrete block, but stone, marble, ceramic tile, terrazzo, mosaics, and plaster. You have to work hard at this trade, but when you finish a building, you can turn around, look at it and say, 'I had a hand in that building and I'm proud of it.'

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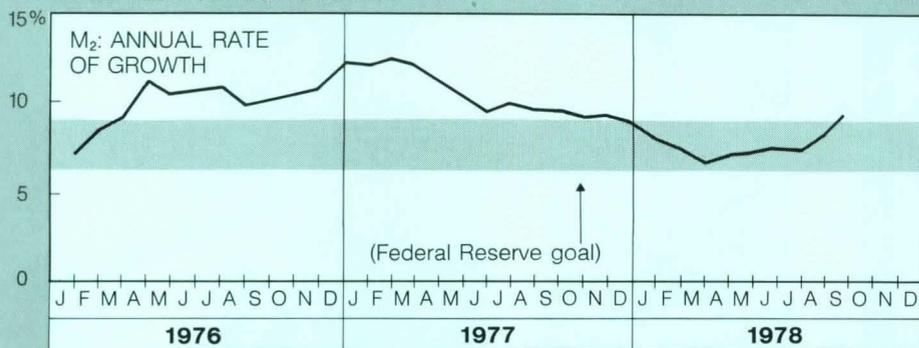
*Member, Local 1, Minneapolis, Minn., International Union of Bricklayers and Allied Craftsmen.



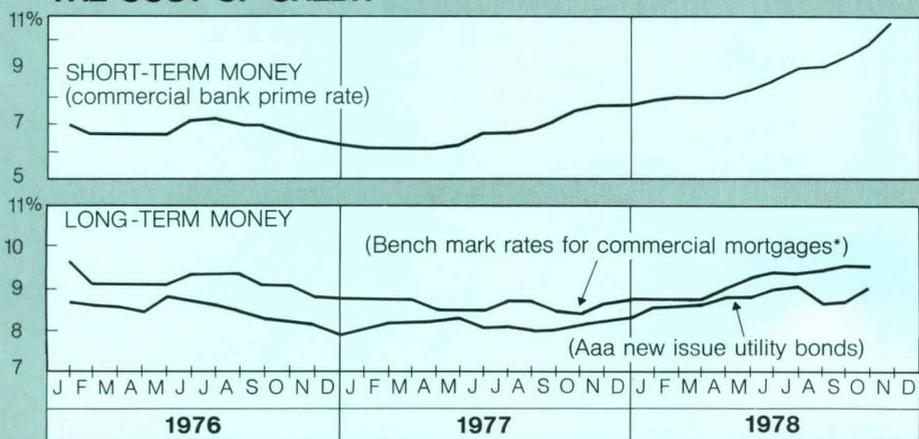
Federal Reserve actions will impact the 1979 building outlook

The dramatic actions of the Federal Reserve Board on November 1 to reduce the growth in credit have taken some of the luster off the 1979 Construction Outlook. On that day, the Federal Reserve raised the discount rate—the rate it charges commercial banks for borrowings—from 8½ per cent to 9½ per cent, and increased the reserve requirements—the amount of deposits that banks must leave with the Federal Reserve—from 6 per cent to 8 per cent on large certificates of deposit that mature in six months or less. These actions were taken to help support the dollar's value on international markets, but their impact domestically will be to increase the *cost* of and slow the *growth* of credit. [In some instances, the following information revises the 1979 Construction Outlook in the November issue. —Ed.]

THE SUPPLY OF CREDIT

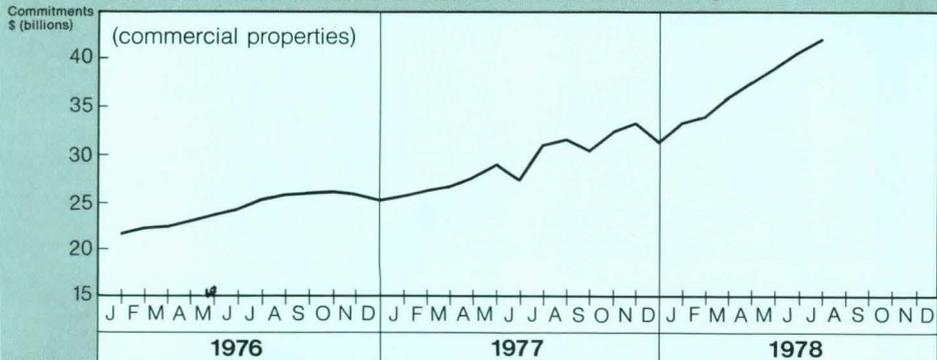


THE COST OF CREDIT



*Source: Citicorp Real Estate Inc.

OUTSTANDING MORTGAGE COMMITMENTS



Before November 1, the outlook was for total construction activity to plateau at a very high level in 1979. Because of the monetary actions taken that day, the outlook has changed. Construction activity will be passing its peak sooner and turning downward in the first half. Still the decline will not be as demoralizing as in 1974, since total construction activity for the year will only be 10 per cent below the 1978 square foot figure.

The effect of tighter monetary policy on specific segments of construction activity will be mixed. Homebuilding will certainly feel the twin pinches of higher cost and reduced availability of mortgage funds in the first half. Single-family starts for the year will fall from 1,350,000 units in 1978 to 1,100,000 units in 1979. Multi-family starts could hold up at 600,000 units, unchanged from 1978, provided Federal subsidy support continues unabated.

Total nonresidential construction should decline 5 per cent from 1,245 million square feet in 1978 to 1,185 million square feet in 1979. The decline will be centered almost entirely in stores, which are expected to decline 15 per cent from their 1978 figure of 525 million square feet.

In sharp contrast, office and manufacturing building construction is expected to continue its amazing growth in 1979. Office building construction will rise 8 per cent from 200 million square feet in 1978 to 215 million square feet in 1979, and manufacturing building construction will rise 10 per cent from 200 million square feet in 1978 to 220 million square feet in 1979.

Institutional building, such as educational and health facilities, will not be greatly affected by tighter monetary policy, since most of this construction is publicly financed. Still this activity was not expected to be very strong in 1979, since the forecast was for only 328 million square feet of new building, just 2 per cent above the 1978 figure.

As the economy slows during the first quarter in response to tighter monetary policy, the heavy demand for credit will ease. In turn, monetary policy will gradually loosen, which will encourage an economic recovery, especially in construction activity, in the second half.

Phillip E. Kidd
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Programming, predilections, and design

Architects tend to think of themselves as rational romantics, carefully analyzing problems, and only then letting inspiration provide the final boost to an ideal solution. Yet design decisions are probably made on the basis of highly subjective, even unconscious, preconceptions at least as often as they are on the basis of rational analysis. These preconceptions are not those of the architect alone. Often before the architect is selected, the site is chosen and the size and density of the project determined, based on the preconceptions of the client. The selection of the architect himself is usually based on the matching of his past performance with the preconceptions of the client as to what the project ought to be—in organization and appearance. Preconceptions decide not only what is appropriate but what is possible. The exploration of certain alternatives is ruled out because they are instinctively felt to be inappropriate. How else do different architects and clients arrive at such disparate solutions to essentially the same problem? By the action of prejudice, taste, predilection. This is not bad, although there is a tendency to deny it as a part of our self image as rational professionals.

by Herbert McLaughlin

An analysis of the design process and the role of preconceptions in the process is vital to understanding how decisions are made not only in architecture, but in real estate development as well, for everyone in the development process is, at one level or another, a designer.

Design begins unconsciously the moment the building is described, even in the most abstract terms. Images snap into the mind of the user, client and architect. These images are extraordinarily hard to eliminate, particularly for the architect who has been classically trained to think in these terms: to conceptualize, to visualize quickly. His academic tradition has been sculptural. The client expects him to think in these terms. From the first glimmer of conception of the project, the examination of the site or of the building to be remodeled, the players begin to define the problem and, by defining, therefore begin to solve it or at least to limit the number of solutions which seem possible.

Vital to the design process is what I describe as the predilection filter. This is the screen which shuts out certain data, the possibility of certain decisions. It is formed by past experience, success, failure, esthetic preference, happy childhoods, prenatal experiences, you name it. The design process and the action of the prediction filtered within it can be described in terms of five interacting activities.

1. Gathering of data such as wind, sun, budgets, topography, client's desires, user characteristics and sorting, screening and in some instances denial of validity of that data by the predilection/experience filter.

2. Input of general data about the building type already existing by dint of the architect's experience, or collected as background research, again screened by the predilection filter.

3. Analysis and correlation of data, again filtered.

4. Development of performance criteria which describe what the project should and can be functionally and esthetically through analyzing the above, and by experience gained during exploring initial design solutions. This is a most critical phase, particularly with respect to positions on what the project can and should be, the architect's and client's definition of what is possible. This is vital to the definition of the point at which all feel that a satisfactory design has been achieved.

5. Designing more refined solutions and testing them against the performance criteria and then altering the designs until they meet the criteria either in the original state or as modified by the lessons learned during design.

When the architect is presented with a commission, all of these activities begin immediately and then develop and are refined at various rates, depending on the style of the designer and the nature of the project and the sequence in which information and decisions become available from the client or others. Of these activities, the working of the prediction/experience filter is by far and away the most important as it affects all the others.

In all of us, experience is limiting as well as broadening. It forms our priorities for exploration, the style of exploration, and even whether or not we will explore an idea at all. Certain data, and even the notion that certain solutions are possible or desirable, are rejected or passed through and altered very

quickly by this filter. The follower of Mies sees the same landscape differently than the follower of Wright. For one, the wind may be a welcome breeze, for another a nuisance.

The architect's predilection/experience filter is particularly critical. His role is usually such that all information must go through him before it can be analyzed and expressed in design. Also, on a normal project, the architect has been selected because the client has seen and approved of the design results of the past actions of the architect's filter.

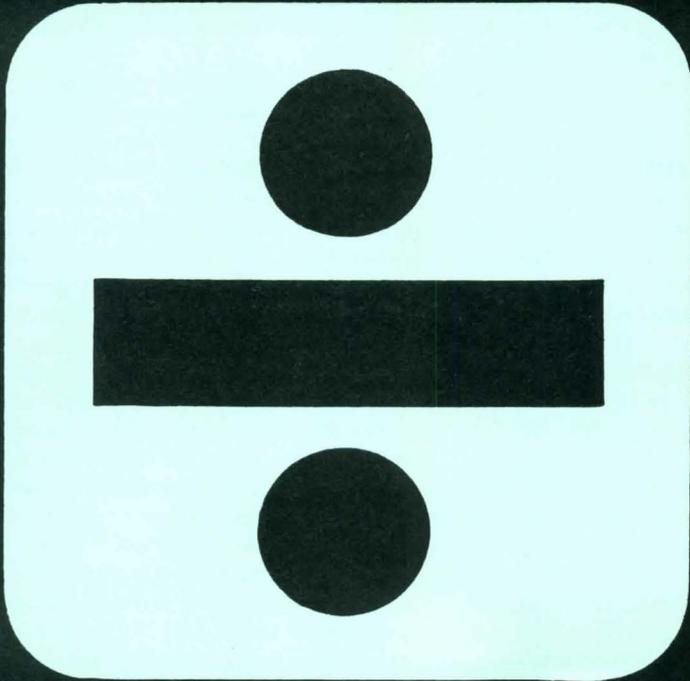
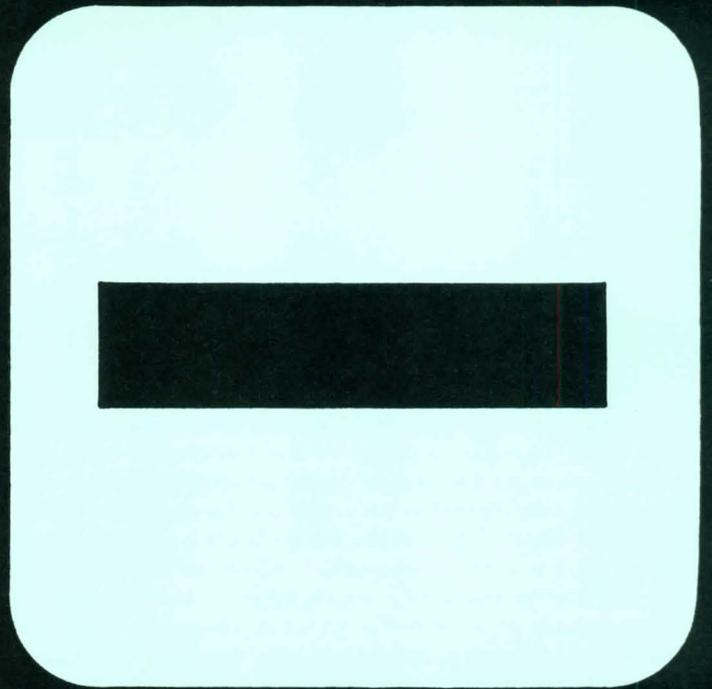
Programming is design. It can help avoid client, architect preconception.

Architects, like it or not, design in patterns. Their work is identifiable, usually readily so. The relative uniformity of their design approaches is testimony to the strength and impenetrability of their filters. Some see the world and its architecture as needing to be organized into very clear and uniform and systematic experiences. Others see in it a need for expressive chaos, mazes which can be explored and are sources of surprise, even expressions of rebellion. How does one modify the actions of the filter, open it up, if one assumes that such opening is desirable? Obviously it is best done at the very start of the design process.

First, it is vital that all concerned realize that: 1) not only the architect designs in patterns—we all do; and 2) that clear prototypes of solutions do exist for most building types and they are subject to analysis regarding their success or failure. An analysis of patterns is probably the best first step in opening up the predilection filter. This starts with the analysis and recording of the architect's and client's prejudices. This recording should be careful and complete. We have found in some instances that it is useful to have another architect be responsible for the analysis of past work.

The analysis of the work of other architects attacking a similar problem should go beyond the typical review of the literature. The literature of architecture is unfortunately of little assistance in gaining any real insight into a problem. Books tend to become out-of-date very rapidly and often express one very specific point of view. Magazine articles unfortunately seldom delve beyond the appearance of a project. Reports of systematic post-occupancy evaluation of projects are generally unavailable because systematic post-occupancy evaluation is so seldom done. Nonetheless, it is critical that a serious

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review of patterns of solution for the building type at hand be made available.

It is vital that the client be integrated into this analysis of patterns of solution by his architect and others, and it is also vital that the user who is so often different from the client, be integrated. This usually means that the client and user must be educated in the characteristics and opportunities which are inherent in the site and the building type. They equally are the victims of experience and a limited sense of opportunity, more so than the architect, who at least has usually seen a variety of solutions to similar building problems. He may have rejected many of these solutions for personal reasons, but at least he has seen them. The client or the user may well have seen few, if any, alternatives to his present situation. Further, the client and the user may be timid about making comments which they fear are ignorant or naive. Education that provides a variety of experience, a sense of opportunity, and a vocabulary and self-confidence, is the start of an answer.

There are, of course, many educated clients, such as developers, or other clients who have sustained building programs in a particular building type. The effort with these clients must be directed towards opening up their already fixed predilection filters. Some techniques that further integrate the educated client or user in the design include: squatting, marathoning, and numerical evaluation systems of alternate schemes. The notion of developing and analyzing alternative schemes is, of course, critical.

From this analysis of patterns, and discussion of design objectives and alternatives, should emerge clear design notes. These may well have been tested for possibility of achievement through preliminary design solutions. These clearly stated design mandates are perhaps the single most valuable tool for dealing with the preconception filter because they make very clear what is thought of as being both correct and possible.

Programming should compel architects and clients to examine their prejudices

Often a program is conceived of as merely a list of spaces and a description of desirable relationships. The naive client, and often the naive architect or programmer, may think that such a list is neutral—that Mies and Wright would evolve the same list.

I think not. Indeed, I am sure not. For the predilection filter is always at work. Images of what life, and therefore buildings, ought to be, or (at a less hopeful level) can be, perme-

ate lists of spaces, which are summaries of expectations, estimates of what is possible due to cost or organization. Various types of buildings are subconsciously seen as suitable for the solution of various problems—low rise or high rise, flat roof or pitched, large squarish assemblages of air conditioned areas or spatulate, naturally ventilated fingers or space. The list of spaces reflects this. Rooms are organized into clusters; interrelationships are described either explicitly or by hierarchies or groupings of space.

A contemporary program usually goes well beyond the traditional lists of the size and character of spaces and interrelationships. It describes, among other things, the functional and design intent of a building, often suggests forms and materials which are appropriate, the organization and interrelationship of component parts, costs, finishes, construction systems and timing. Such a document, then, defines many basic design options. Decisions as to whether a building is high rise or low, or a combination of both, or whether a project consists of one building or more are made when programming defines net-to-gross ratios and project budgets. The program frequently decides, for instance, how dormitory bedrooms relate to a lounge—whether it states so directly or sets up a series of functional imperatives which force the solution.

The existence of a program document "demystifies" the design process

The presentation methodology of a program, in writing, is in a form which others (the client, user, etc.) are able to understand and criticize. The design process is thereby opened up to others instead of being hidden, as is usual, to be only partially revealed behind mystifying layers of verbiage and the dazzle of beautifully finished drawings. (The mystery of the process is heightened when designs are presented dramatically after the architect emerges from his "studio" following a suitably long delay while his unrevealed "research" is subjected to the marvelous alchemy of the creative act.)

The existence of such a program document, particularly one which might discuss classic solutions for the problems at hand, the peculiarities of this specific problem, and the architect's and client's predilections and priorities, in many ways seems to intrude on the architect's traditional freedom. It firms up design decisions very early, bringing the client and user deeply into the design process since the document should be couched in terms both can understand. The design process is

thus demystified. This is forced not only by process and presentation, but by the fact that the evolution of the document increasingly involves social scientists, cost estimators, building managers, and professional programmers, whose views certainly complicate and may frustrate the architect's traditional secretive processes.

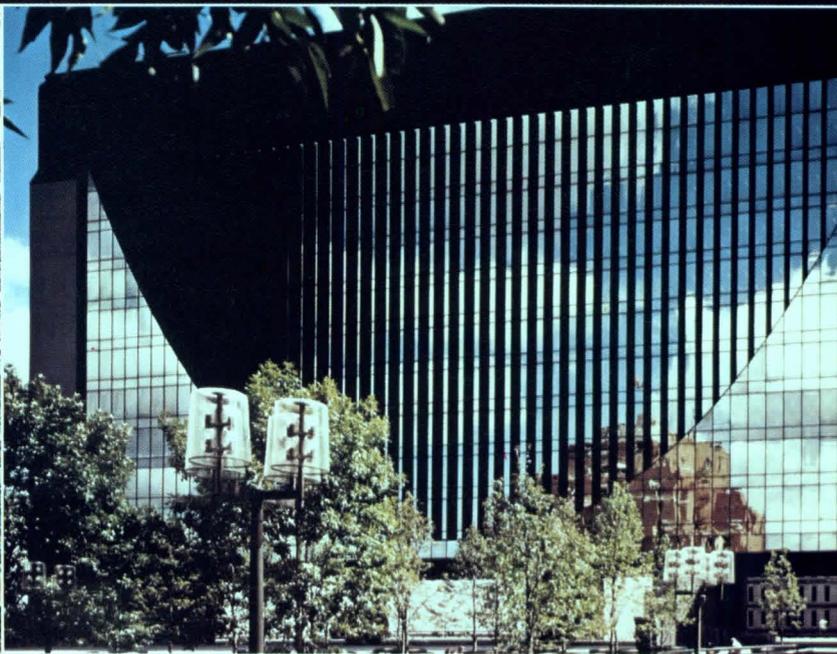
In reality, programming is design, particularly contemporary programming, which has become increasingly comprehensive and complex. Not only is programming design, but it is a peculiar form of design, allowing client and architect to break through many of the preconceptions and limitations which dominate the usual design process.

This can be an unpopular view. It is often resented by the independent programmer who feels that this definition is threatening to his usually already uneasy alliance with the architectural profession. It is often equally distasteful to the architect, even those who feel generally sympathetic to programming. This type of architect often works with client-prepared programs, or has an independent programming department in this office. He feels that only the "design" architect should design. The notion that the programmer is actively designing before the designer comes on the scene is threatening, and yet the notion that the designer should be active during programming is novel. As a result, programming is frequently referred to as a "pre-design" activity.

The architect who realizes that programming is design, and participates fully, need not feel threatened. Architects should be eager to share design with others—clients, users, consultants. For, if we view design as defined above, it is important to include others. Only through sharing decisions can we have sufficient knowledge to solve the problems. The more different people and perspectives involved in the process, the greater the chance of defining the problem correctly and uncovering unforeseen side and aftereffects. The architect/planner working in isolation cannot be rational enough to trace all consequences and purge all biases from his mind.

This desire to increase involvement of participants in design does cause problems. The designer must try to make the decision-making process understandable to all involved, transparent so to speak, so each can contribute to his fullest extent. It is then difficult to hide behind mysticism and dogma. Programming is then not only design, but an activity that can make the rest of the design process especially rewarding.





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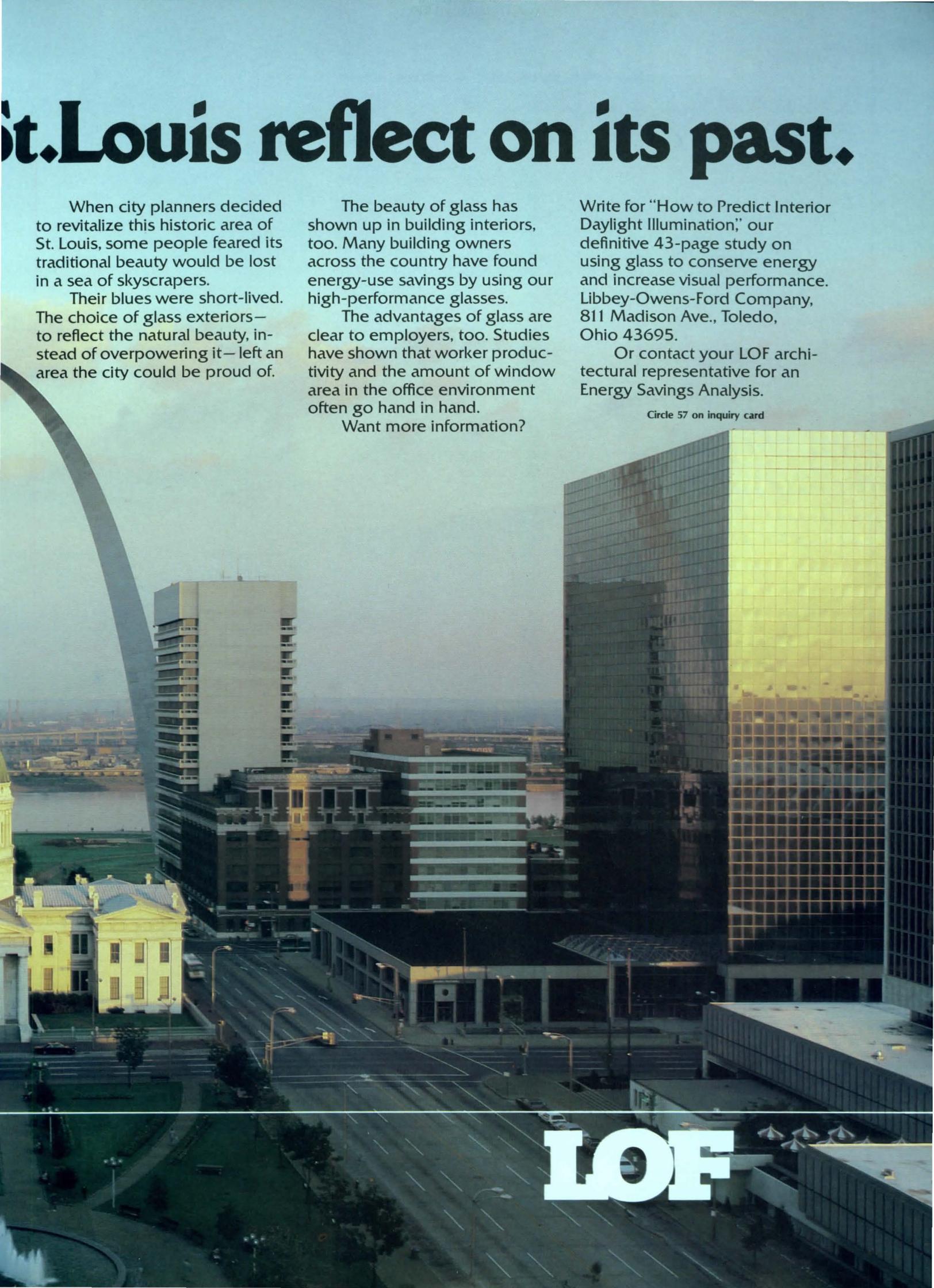
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the discussion is closed.



Each year, the number of submissions to the Record Interiors awards program has grown. But for this landmark tenth program, the editors received an astonishing four times more submissions than in any previous year—clear evidence of the growing interest of a growing number of architects in interior design work. But more important than the quantity is the quality; and on the next 30 pages are presented—with pleasure and with pride in the design skill of the architects—the twenty-one winners in this year's . . .

RECORD INTERIORS OF 1979

The existence of and growing participation in this awards program is not a suggestion that there are two kinds of architecture: interior architecture and—what?—exterior architecture. It is rather a response to the fact that more and more architects (an astonishing 85 per cent of RECORD's readers) are involved in interior design not just of buildings they have designed, but interior design for tenants in office buildings and retail complexes and—increasingly—doing interiors in worthwhile older buildings being put to new use. (It is no accident that many of this year's awards are given for the successful integration of new uses with the special demands of "period" buildings.)

This year's winners reinforce the architect's skill in expressing the particular character not only of buildings, but of particular regions, needs and desires. Not too long ago, it might have raised eyebrows to talk about such pluralistic approaches, but the unusual diversity of this year's award winners must certainly show that there are—in interiors as in building design—broadened concepts of what constitutes good design.

And nowhere can the differing directions being taken by architects be sensed more quickly than in the spaces they design for their own use. The first three projects shown on the following pages are design offices—and they encompass an amazingly broad range of possible directions. The Design Consortium offices (page 92) present a straightforward image to passers-by in a remodeled storefront in Minneapolis. But closer inspection presents an extraordinary high level of detailing and spatial concept. PBNA (page 94) chose a National Register building in Kansas City, and fitted in their operations with an admirable respect for existing character. And Dennis Jenkins Associates (page 96) occupies a loft space that could now only be described as a very specially created environment. (Several of the awards this year went to projects that make much of essentially featureless space—spaces where there just was not a building concept that the designers could "relate to." Most notable are the several "space-expanding" environments of Gamal El-Zoghby on pages 111-114.)

And the diversity in this year's projects certainly extends outside of the designers' own offices. It ranges from the near restoration of New York City's Museum of Modern Art cinema (page 115), to a totally new structure inserted into the burned-out walls of a distinguished old chapel (pages 116-117), to the almost frivolous atmosphere in a movie-company cafeteria (page 120).

But every one of the 21 awards has this common characteristic: it successfully carries through a single strong idea. And the results are—as you will see—incredibly fresh and exciting. —*Charles K. Hoyt*

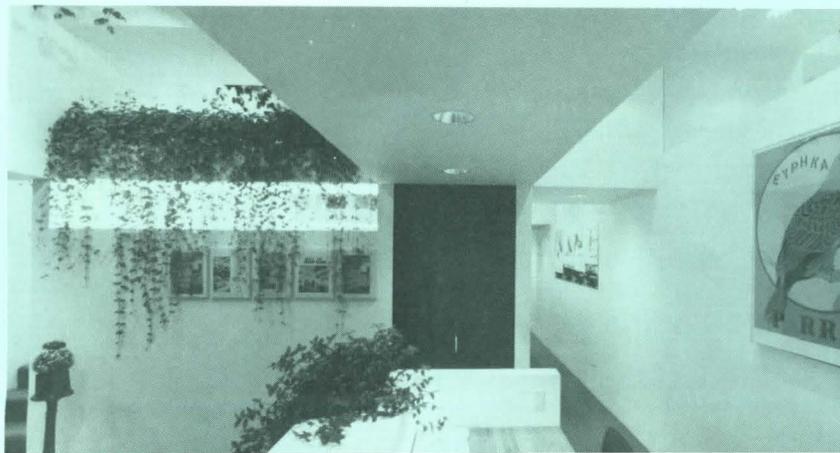
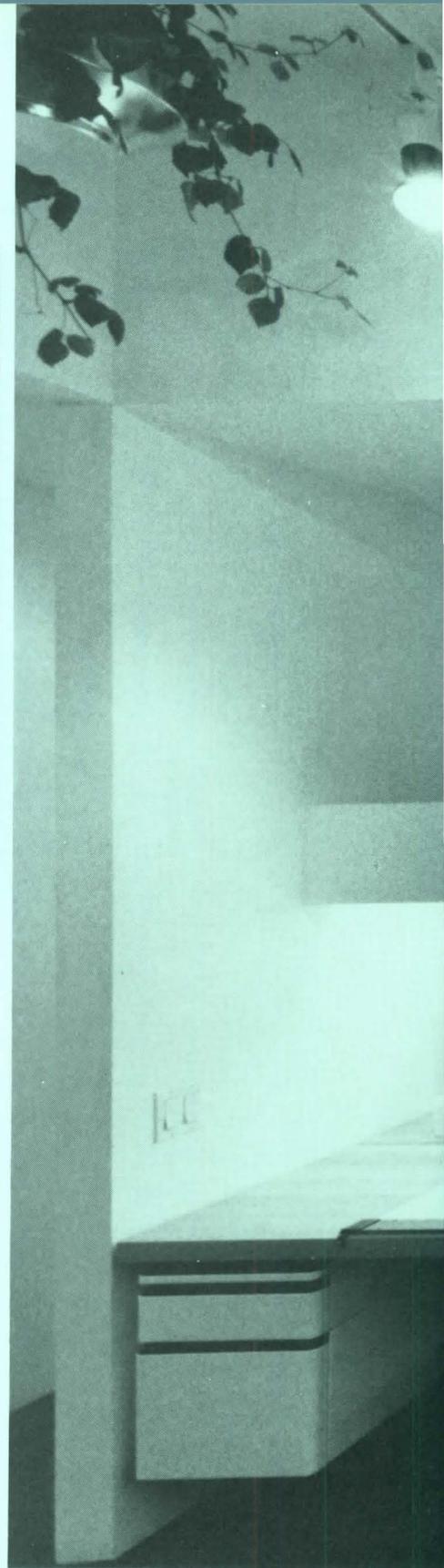
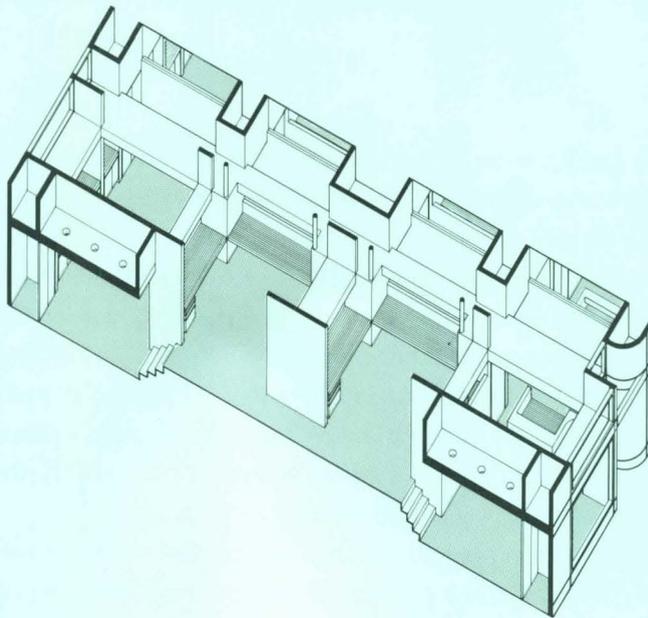
1 ARCHITECTS' OWN OFFICES BY THE DESIGN CONSORTIUM IN MINNEAPOLIS, MINNESOTA

As carefully thought through and detailed as a delicate puzzle, the Design Consortium's own office in a downtown former store is one of the firm's best advertisements. And because of the consideration behind the design, the tried-and-true palette of white on walls and bright primary colors on columns, exposed ducts, doors and furnishings creates an unusual visual impact.

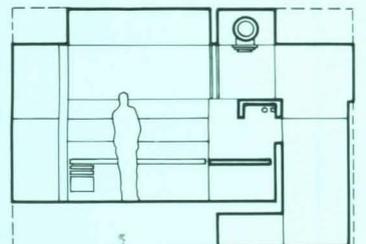
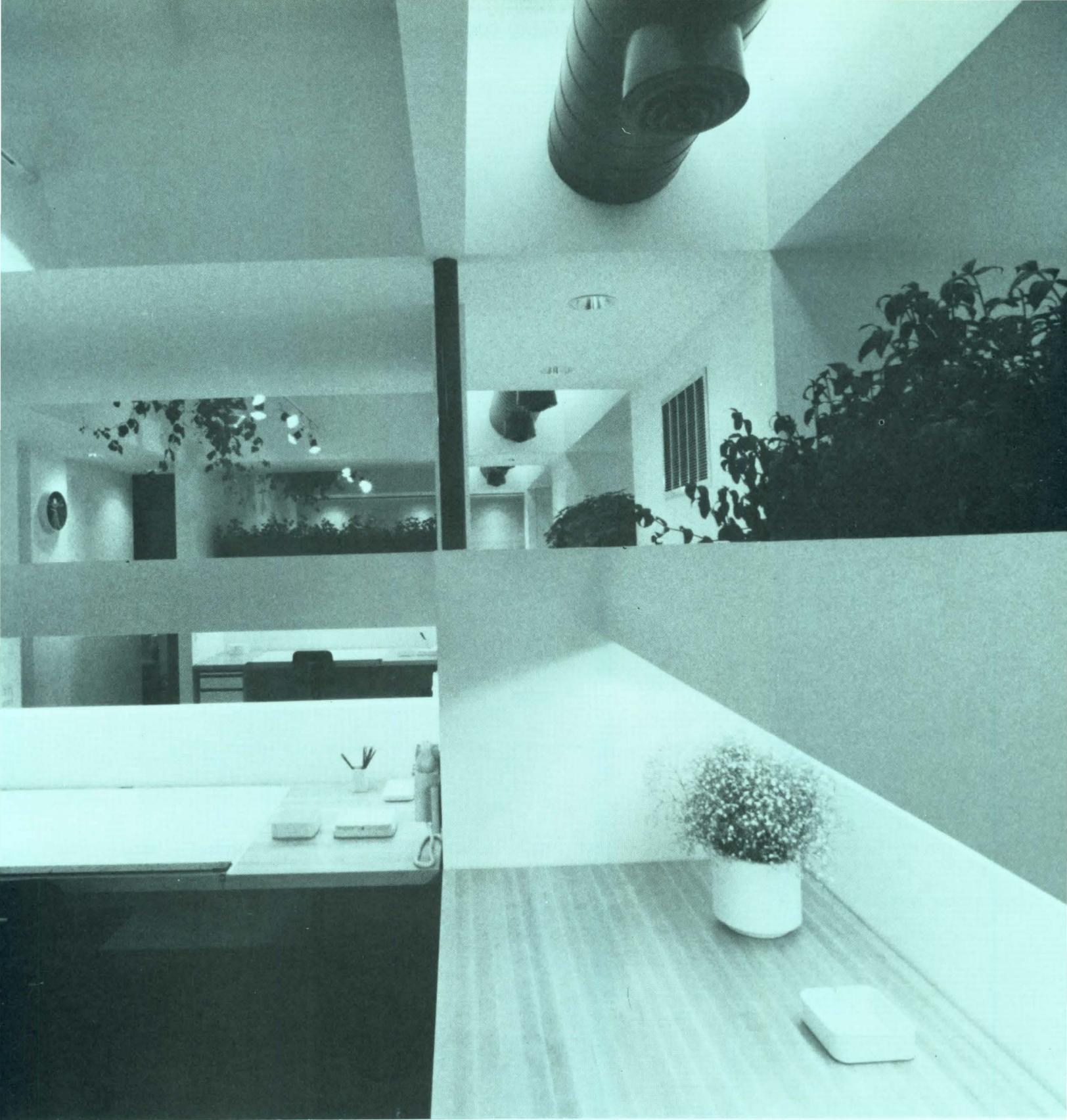
Essentially, the office is divided into a front reception area (photo below), an intermediate work "platform" and a semi-public multipurpose conference area at the back. The platform is in turn divided into two studios (photo opposite), which have two desks apiece. The raised position accomplished three purposes. First, it allows the occupants to look out of the windows while maintaining a visual separation from other inside activities. (Another interesting benefit at this raised level of view is the visual expansion of the space through mirrors along the side walls just above eye level.) Second, the space under the platform can be utilized for storage of such bulky items as files (see section opposite). And the changes in level clearly spell out the distinction between public and private space, routing visitors toward the back conference room in the easiest path of travel.

To accentuate the importance of the level changes and to make the direction of travel even more distinct, a series of dropped soffits hide storage cabinets, lighting and some of the mechanical and electrical equipment—while a round air duct hints at the concealed mechanical nature in a polite partially enclosed position.

ARCHITECT'S OFFICES, Minneapolis, Minnesota. Architects: *Design Consortium, Inc.* General contractor: *Place-makers.*



Phillip MacVillan James photos



2 ARCHITECTS' OWN OFFICES BY PATTY BERKEBILE NELSON ASSOCIATES IN KANSAS CITY, MISSOURI

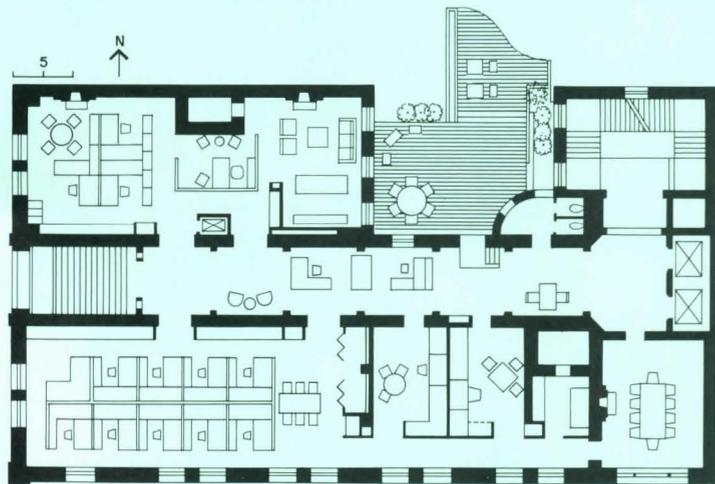
The strength of the architects work on these spaces for their own use lies in what they chose not to do—and in what was undone. The building is a seven-story structure on the National Register of Historic Places, and PBNA occupies the first floor.

Removing both an incrustation of partitions (including those covering cast iron fireplaces), and paint over marble wainscoting and oak woodwork, the architects arranged their flexible space needs within the original thick bearing walls. While inserting furniture, low partitions and air handling ducts that clearly speak of the best of the present, the architects have preserved the grand character of the older spaces as a tribute to the fine structure and their own sensibilities. And as a tribute to their practicality, the 5,430 square feet of space was remodeled at a cost of \$45,000. A redwood deck was built over an adjoining roof to provide an outdoor "lounge." The project was the recipient of a recent AIA merit award.

PBNA CORPORATE OFFICES, Kansas City, Missouri. Architects: *Patty Berkebile Nelson Associates*. General contractor: *Woodings Mid-Continent Construction*.



Paul S. Kivett photos

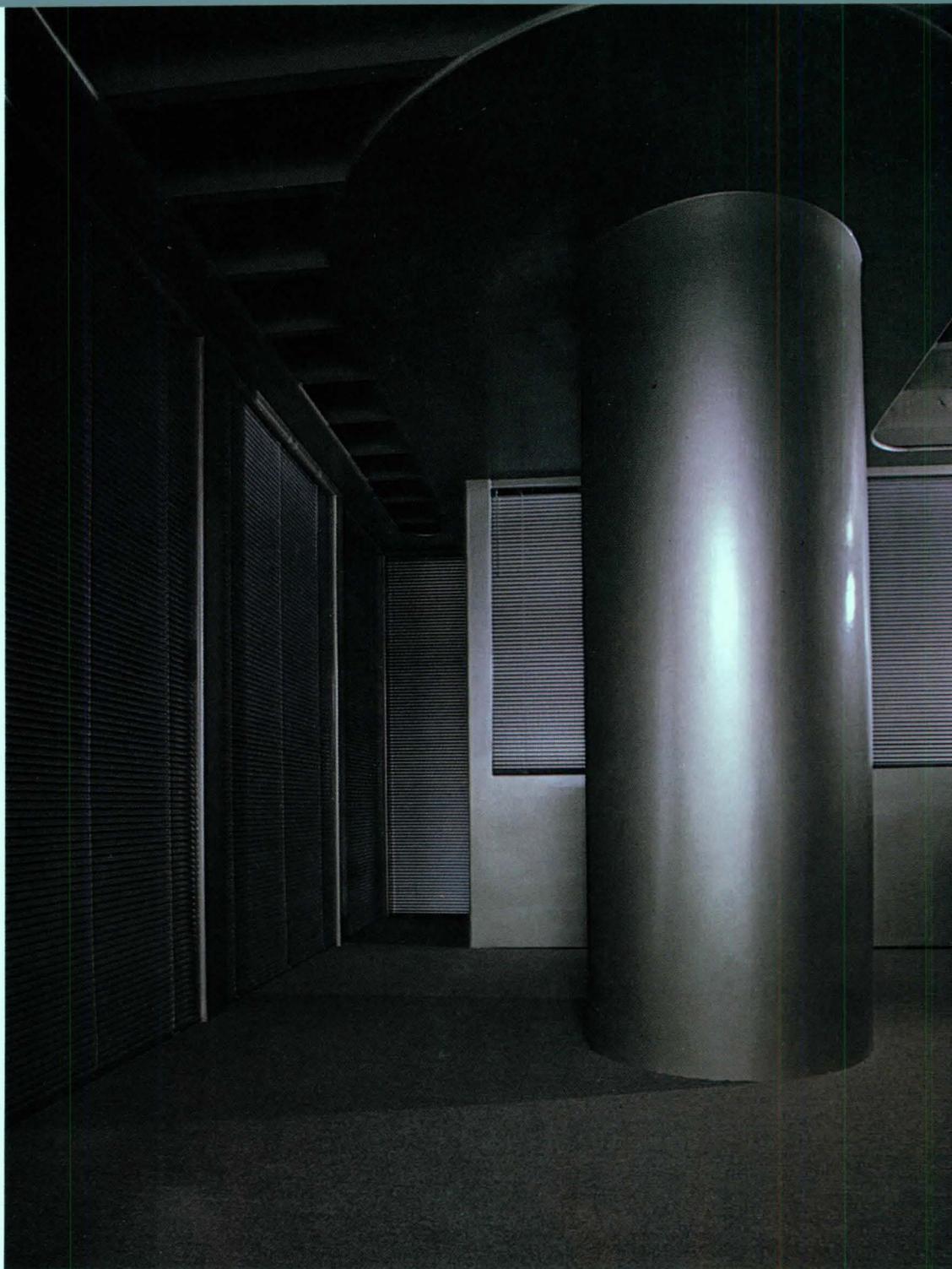
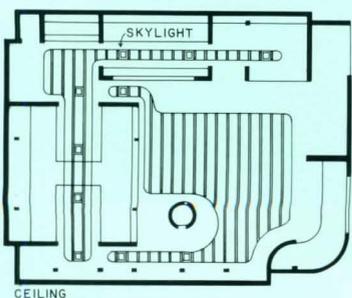
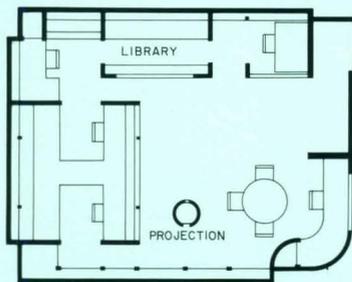




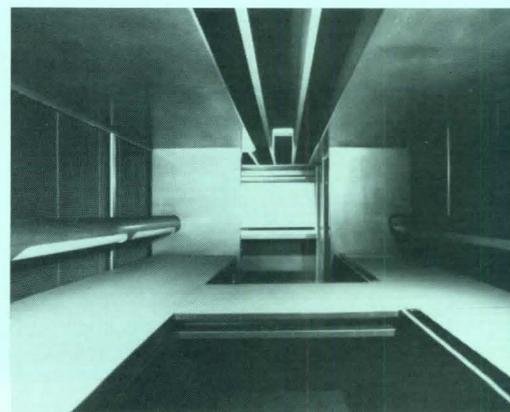
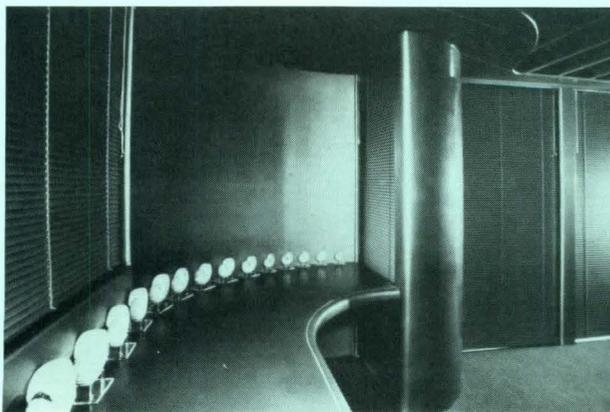
3 DESIGNER'S OWN OFFICES BY DENNIS JENKINS AND MICHAEL RADA IN COCONUT GROVE, FLORIDA

In extreme contrast to the approaches taken in the design offices shown on previous pages, this almost surreal environment is a *tour de force* that purposely combines not only function but—according to Jenkins—“self-sufficient artistic form.” Taking a windowless space in a loft building, Jenkins—with architect Michael Rada—has created an implication of space beyond that which actually exists. This implication is created by the silver-painted glossy surfaces forming partitions and ceiling panels over part of the wood joist construction. And it is the product of polished aluminum blinds that not only conceal storage areas around the perimeter, but separate various activities. The large cylinder houses a projection booth, and all of the silver surfaces are painted with automobile paint. The contrasting philosophy of this design makes it particularly appropriate at this time.

DENNIS JENKINS ASSOCIATES DESIGN STUDIO, Coconut Grove, Florida. Interior design: *Dennis Jenkins Associates—project manager: George Taylor. Consulting architect: Michael Rada. General contractor: Tandem, Inc.*



Michael Wray photos



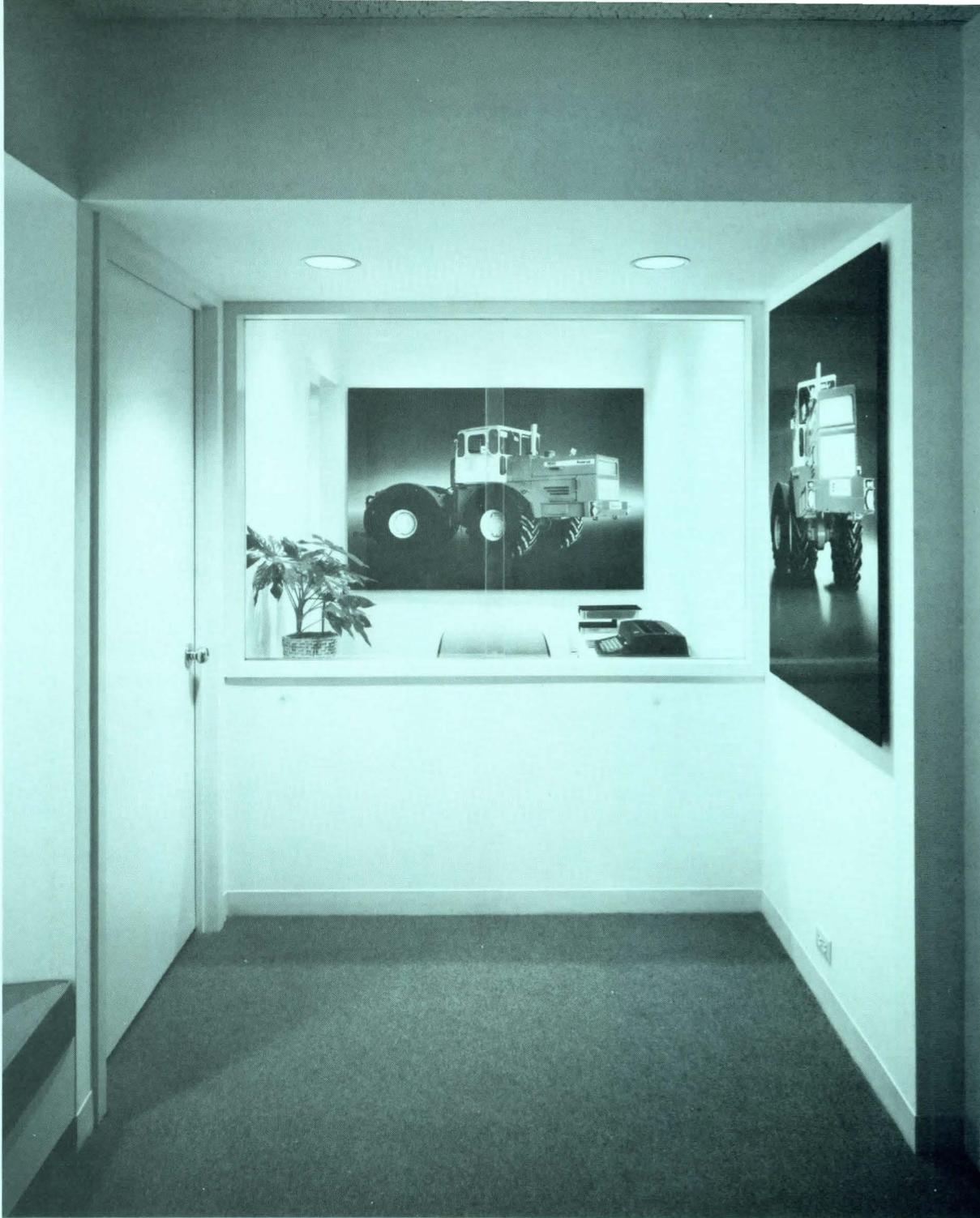
THE BELARUS MACHINERY OFFICES BY HOBART BETTS IN NEW YORK CITY

The Belarus Machinery importing company, an American corporation with a Soviet staff, rented 2,400 sq ft at the corner of a high-rise office building in New York City and asked for a bright, modest, and hospitable design that would allow prominent display of its products.

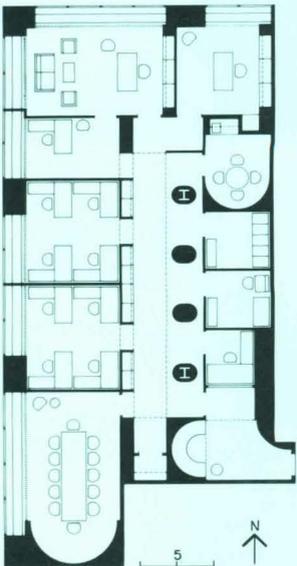
Architect Hobart Betts has used the interior corridor as the visual focus of the composition and as the solution to a major design problem: the achievement of a spacious atmosphere in a small and rather crowded office. With its generous width, the corridor accommodates both formal and casual circulation as well as display space for photomurals and models above the recessed filing cabinets. A row of rounded columns—the two in the middle “faked”—dramatizes the length of the long space.

The doors to interior spaces—the receptionist’s office and the employees’ lounge—line up with doors across the corridor to afford a glimpse of the outdoors through windows opposite. Betts restricted his color palette to white, beige carpet and bright red upholstery—matching the tractors in the photo murals.

BELARUS MACHINERY OF U.S.A., INC., New York City. Architects: *Hobart Betts Associates, Architects*. General contractor: *Nico Construction Co.*



David Franzen/ESTO photos



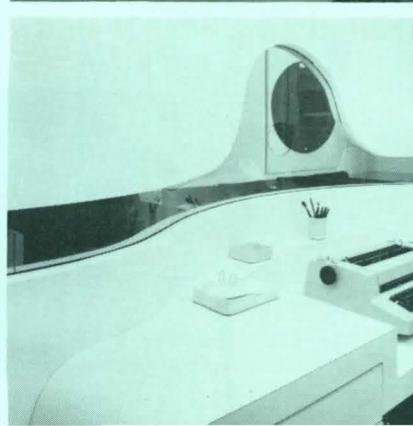
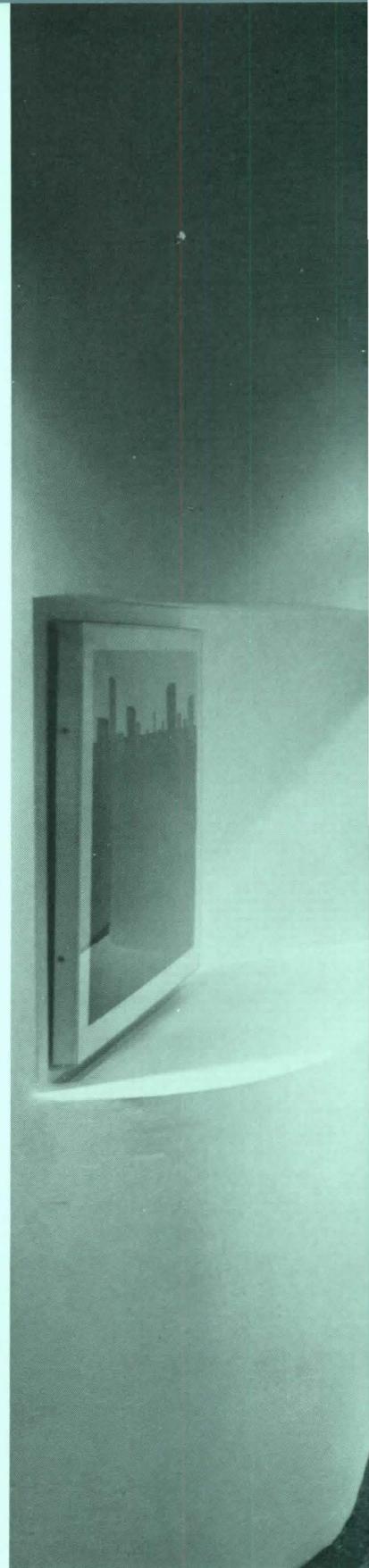
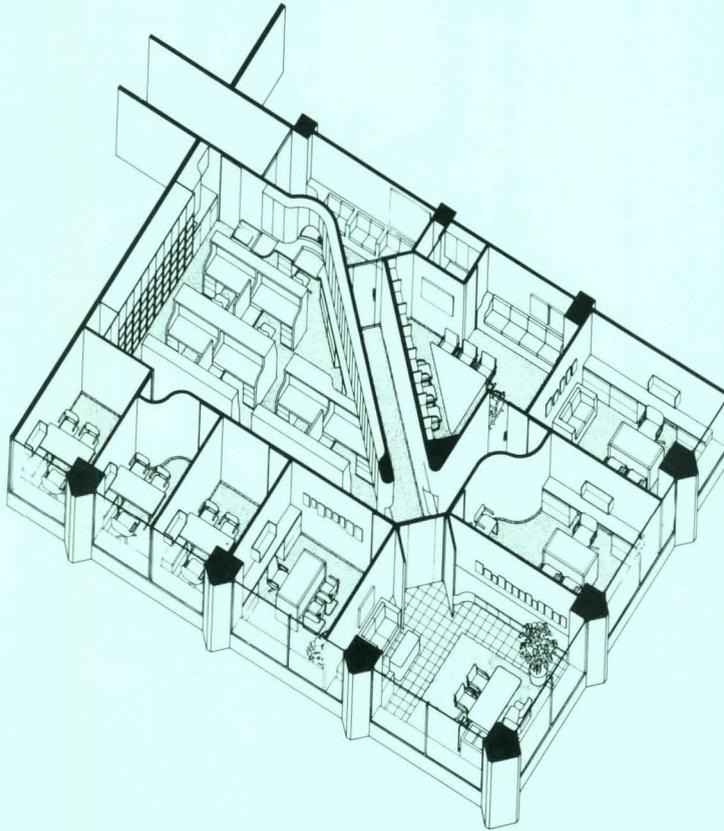
5 LAW OFFICES BY STANLEY TIGERMAN & ASSOCIATES, LTD. IN CHICAGO

Both these offices and those by Stull Associates on the following page have strong diagonals—cut by primary corridors—through what are otherwise rectilinear plans. But the diagonals are used for radically different purposes. This design by Stanley Tigerman for attorney Harvey Walner, expresses the dominant personality of the principal within his firm. According to Tigerman, "The suite is thought of as a one-man operation, with the funneling out of tasks from the central source."

Clients entering the offices are met in the reception area shown in the photographs below. From this space, the route to and importance of the principal's corner office is clearly spelled out by the circulation route, shown in the large photo at the right. This corridor slices through the other spaces from the reception area (background) to the principal's office—a very direct expression.

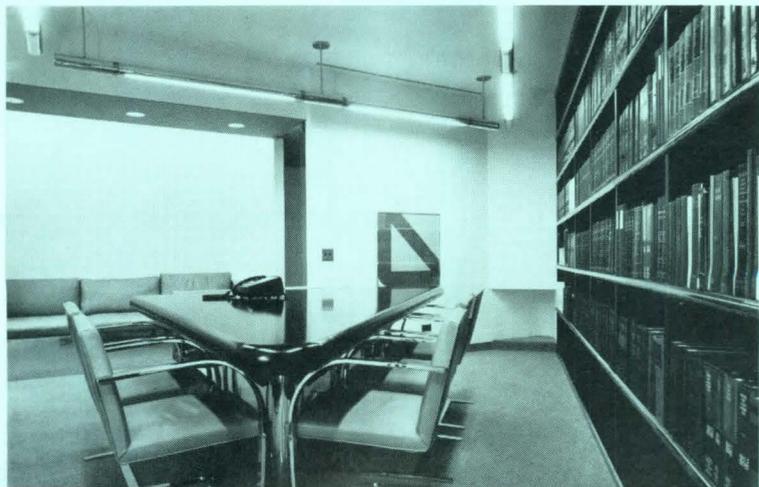
It is in the resulting irregular spaces created by this corridor that Tigerman's real genius for turning potential deficits into assets are realized—by both the arrangement of uses and by the unusual detailing of the furnishings. The receptionist's desk is located in an open-plan work area, in which the sinuously shaped, plastic-laminate-covered cabinetwork recalls high-backed roll-top desks of an earlier era. (The high backs provide natural separations for the work stations.) The triangular conference room has a triangular table, and all of the cabinet work is detailed in plastic laminate and stainless steel.

WALNER LAW OFFICE, Chicago, Illinois. Owner: *Harvey L. Walner*. Architects: *Stanley Tigerman & Associates, Ltd.*—*principal-in-charge-of-design: Stanley Tigerman; associate-in-charge: Robert Fugman; assistants: Deborah Doyle, Gil Gorski.*





Guy Arnold photos



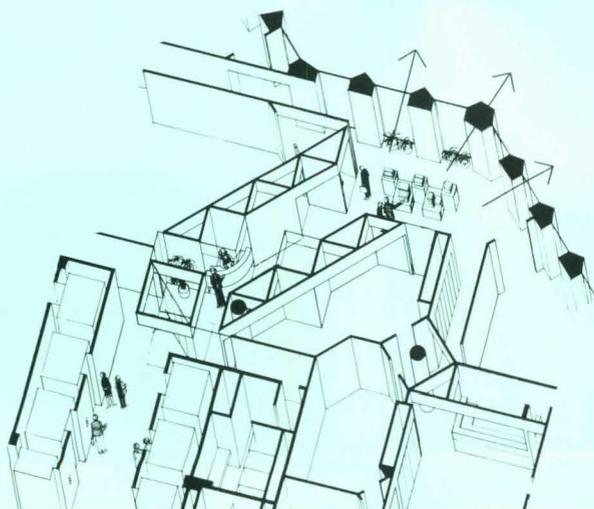
6 IBM OFFICE BY
STULL ASSOCIATES
IN BOSTON

The office products branch of IBM in Boston is one solution to an interior design problem strongly controlled by a building's geometric form. The floor occupied has a notched-out shape caused by the building's sculptured perimeter, designed to minimize loss of views of surrounding buildings in the City's Government Center. To avoid interior disorientation and to provide a large number of client-requested enclosed spaces (perimeter offices, and training, product demonstration and lunch rooms) the main corridors were aligned with views to both the north/south and east/west directions. Support functions were open planned (below) and positioned in areas with views. The entrance is a glass cube (right) that juts out at one corner of the elevator lobby and is set diagonally to the other office space, directing visitors to the reception area (middle) and their line of sight to a prime harbor view (plan below). The theme of glass square and half-square forms were used only at other corridor intersections that signal a transition from one direction to another. These points are reinforced by a change in carpet colors and soffit construction.

IBM OFFICE, Boston, Massachusetts.
Architects: *Stull Associates, Inc.* Mechanical engineer: *Roger Curry.* Lighting consultant: *William Lam Associates, Inc.* General contractor: *Aberthaw Construction Co.*



Steve Rosenthal photos



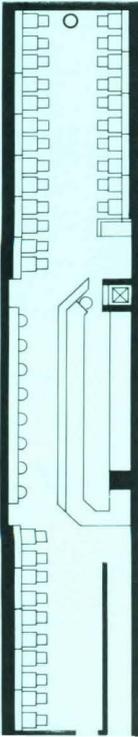
**HEALTHWORKS
RESTAURANT BY
WALKER/GROUP, INC.
IN NEW YORK CITY**

A prototype for a fast-food chain, this restaurant is notable for the straightforward way in which its design copes with the typical urban problem of extremely long and narrow spaces. Using only the cafeteria-style serving counter and kitchen to break the linear direction, the designers have produced a simple space consisting—like the health foods served—of honest materials, such as oak for benches and tables and quarry and ceramic tiles for floor and counters. Brown photo-murals, a bright yellow air duct, dark-painted chairs fill the space with warm color. And the white wall at the end stands out in contrast—reversing the usual eye-stopping solution of applying the major color on end walls.

HEALTHWORKS, 57th Street, New York City. Architects: *Walker/Group, Inc.*—project director: *John Beringer*. Kitchen consultants: *Romano/Gatland*. General contractor: *Jamco Construction Corporation*. Kitchen contractor: *Sefi Fabricators*.



Otto Baitz photos



8 THE KATONAH STATION RESTAURANT BY MYRON GOLDFINGER IN KATONAH, NEW YORK

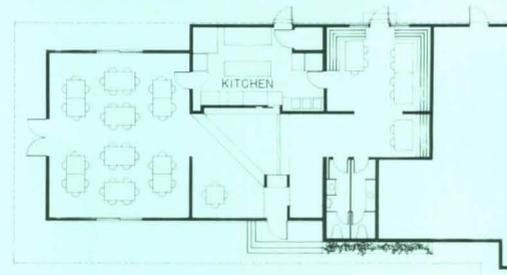
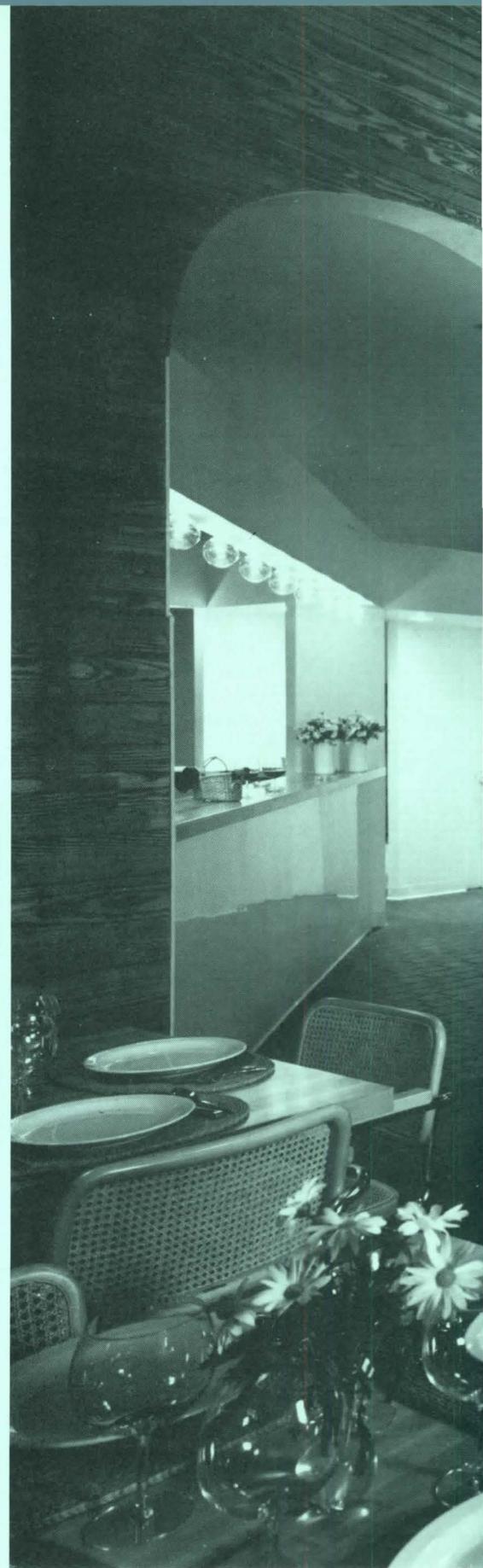
While the 19th-century railroad Station at Katonah, New York, scarcely qualifies as landmark architecture, it has, like its more splendid sisters around the country, received the benefit of tender restoration and adaptive use.

At the new Katonah Station Restaurant, the main dining room occupies the old baggage room, where, when travel was more leisurely, luggage was held until it was claimed. Architect Myron Goldfinger retained the utilitarian tongue-and-groove board walls, after sandblasting them to remove half a century's accumulation of paint. He also enlarged the opening into the bar (formerly the waiting room), designing an arched opening to echo existing vaulting and lunette in the area now given to the private dining room (at right in plan).

Because the trains still stop at Katonah—it is a functioning commuter station—it was a condition of the project that the building be open to passengers between 6 and 10 o'clock in the morning. During those hours, tables and chairs are removed from the private dining room and an adjacent alcove; and the banquettes, which Goldfinger fashioned from the old waiting room benches, resume their original purpose. After the commuter rush, the restaurant staff returns the banquette pillows and sets up for lunch.

Restaurant clientele enters through a new door at the front of the building, and is guided by the diagonal bar to the main dining room. Passengers enter the waiting room at the back of the building through a door to the train platform.

KATONAH STATION RESTAURANT, Katonah, New York. Owner: *Ira Marcus*. Architect: *Myron Goldfinger*.





Norman McGrath photos

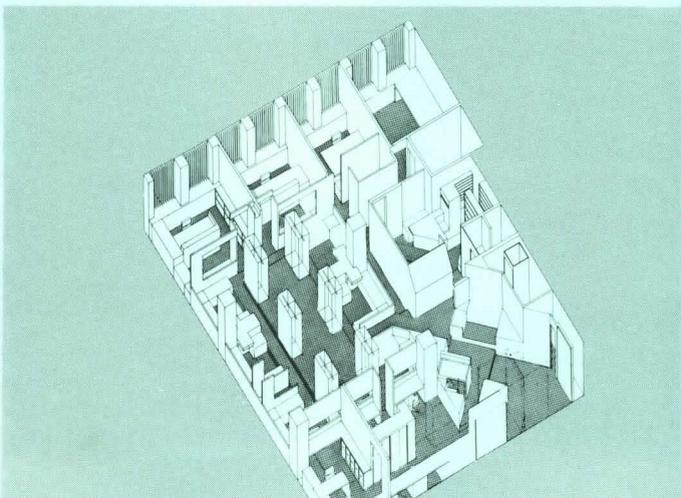
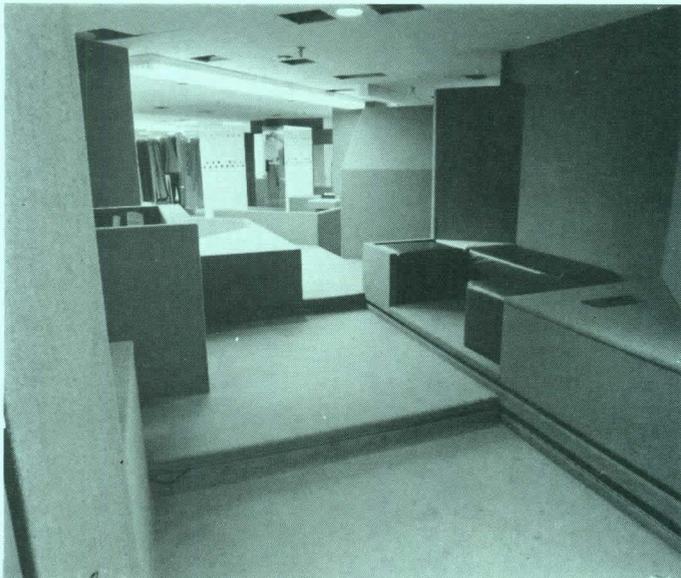
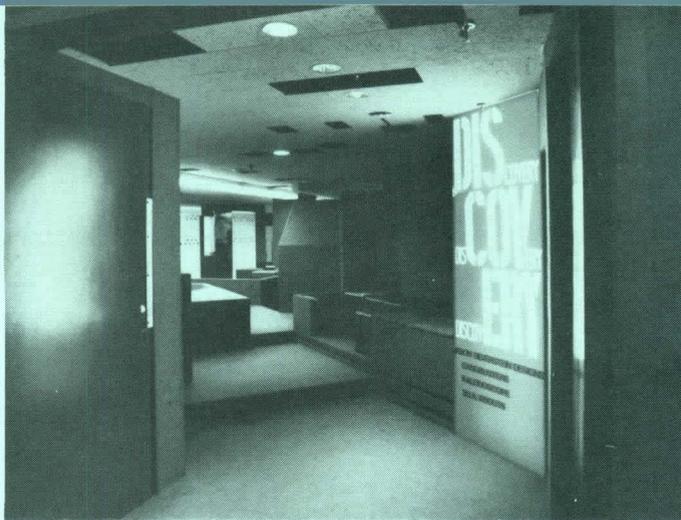


9 DISCOVERY ASSOCIATES
SHOW AND
SALES ROOM
BY GAMAL EL-ZOGHBY,
IN NEW YORK CITY

In contrast to the work of many architects on these pages, Gamal El-Zoghby's designs are often as independent as possible of the structures in which they are located. And the approach is particularly appropriate for this wholesale fashion facility—located on a high-but-viewless floor of an office building in the garment district. What the architect has created is a neutral-colored background for the clothes to be shown to best advantage—a background that is both simple and luxurious.

Given 3,000 square feet of space, a budget of only \$30,000 and a mandate for speed, El-Zoghby was able to complete this installation in four and a half months from the start of design. Included in the program are a reception area (photos top), a sales and fashion show area with six sales "stations" (photos below and opposite), offices for salespersons, designers and operational staff, a sewing room, a sample room, storage, a kitchen, and a sauna and shower. These latter support facilities are located around the perimeter of the main room and salespersons have views to that main space through the narrow openings shown to the right in the large photo. All of the cabinet-work is covered with carpet except desk and table tops, which are covered in plastic cloth.

DISCOVERY ASSOCIATES, New York, New York. Owner: *Jason Silverstein*. Architect: *Gamal El-Zoghby*—site supervisor: *Carole Allen*. General contractor: *Martin Construction Co.*



Robert Perron photos



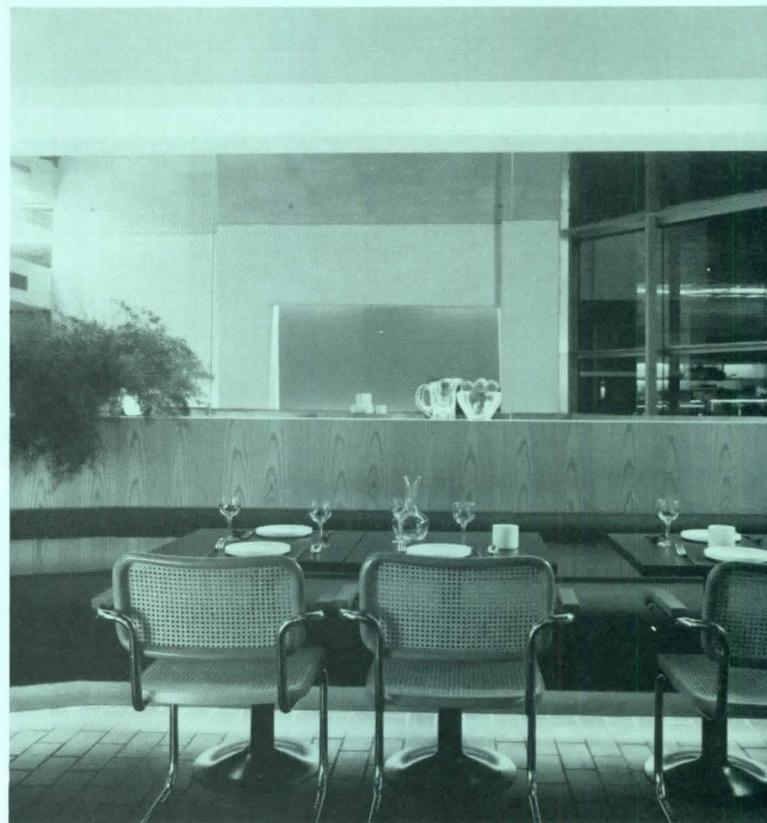
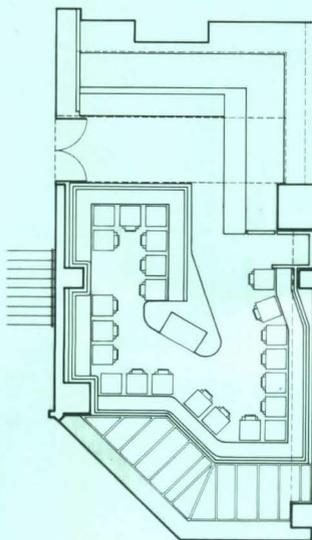
10 NYBORG NELSON RESTAURANT BY GORDON KAHN IN NEW YORK CITY

The unusual and adept combination of a "take-out" operation and a rather elegant restaurant, this new facility located within the retail arcades of the Citicorp Building (RECORD, June 1978) accommodates both functions with style—all in 1,100 square feet of floor space. Part of the secret is the gracefully designed central service island, which provides a highly functional separation not only of the two different types of service, but of the 48 seats at dining tables from each other—without causing the closed-in feeling of total separation. Another secret is the preparation of food in another nearby location, although full facilities for keeping foods at proper temperatures, trash disposal, and storage of table settings must be accommodated within the dining space. Hence, the service island is somewhat larger than might be expected if a full kitchen was close-by. The oiled, light ash wood cabinets, low level lighting, polished aluminum acoustic ceiling, brick floors, and white walls all create an appropriate ambiance for the Scandinavian foods that are served.

Tom Yee photos



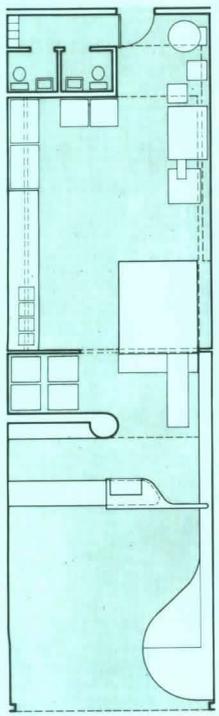
NYBORG NELSON, New York, New York. Owner: *Hans Booge*. Architects: *Gordon Kahn Associate Architects—designers: Max Gordon and Douglas Kahn*. Kitchen consultant: *Kitchen Consultant, Inc.* General contractor: *RR & D Construction*.



**AU BON PAIN BAKERY
BY GORDON KAHN IN
BURLINGTON,
MASSACHUSETTS**

A prototype for a nationally franchised chain of baked-goods stores, this 1400-square-foot installation in a shopping mall tells customers the nature of the products sold in a way that is at once clear, reassuring and stimulating. The bread and pastries are baked in front of customers in stainless steel ovens located behind the sales counter. The completed products are then arranged so that—by the design of the store—they can become the primary decorative element. The products are multiplied in mirrors and contrasted to smooth, clean, brightly colored surfaces that not only help attract the eye, but speak of the high level of sanitary conditions in which they are baked and sold. Dough is made and cured in a room behind the ovens. This room is hermetically sealed to provide constant temperature and humidity, but even this area can be glimpsed through the double-glazed transom above the stainless steel laminated beam. Customers wishing to eat products on the spot can be seated on the tiled ledge projecting toward the entrance.

AU BON PAIN, Burlington Massachusetts. Owner: *Au Bon Pain Corporation*—client: *Lewis Rapuano*. Architects: *Gordon Kahn Associate Architects*—designers: *Max Gordon and Douglas Kahn*; associate-in-charge of production: *Steven Silverstein*. Mechanical/electrical engineer: *Jack Green*. General contractor: *Ben-Mal Construction Company*.

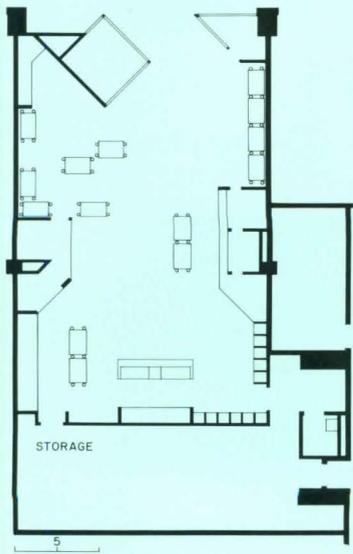


Tom Yee photos

12 ROBERT LOREN STORE
BY DENNIS JENKINS
ASSOCIATES AND
H. CARLTON DECKER
IN MIAMI, FLORIDA

For a specialty store on a shopping mall, the designers have evoked a utilitarian imagery associated with the products sold: a colorful jumble of items used in the bathroom ranging from waste paper baskets to robes. To complement this merchandise, there are shiny white walls and display shelves made of plumbing-grade plastic pipe. (The pipe is also used to house linear lighting fixtures that are arranged in a lighthearted and seemingly casual pattern above the shelves.) A dark painted ceiling and dark carpeting heighten by contrast the white surfaces. The message about the merchandise is made on the exterior of the shop by galvanized metal paneling in conjunction with still more plastic pipe. The 2,215 square feet were completed for a cost of \$26 per square foot, including mechanical and electrical equipment.

ROBERT LOREN BATH SHOP, Miami, Florida. Owners: Robert Kirkendall and Loren Welch. Joint-venture architects and designers: Dennis Jenkins Associates and H. Carlton Decker—project designer: Barbara Magruder; project architect: James Koepp. Mechanical and electrical engineers: Webb Consulting Engineers, Inc. Contractor: Creative Commercial Constructors.

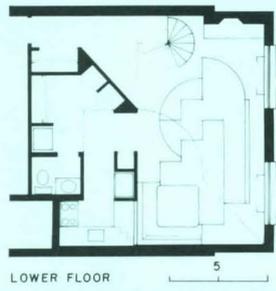


Dan Forer

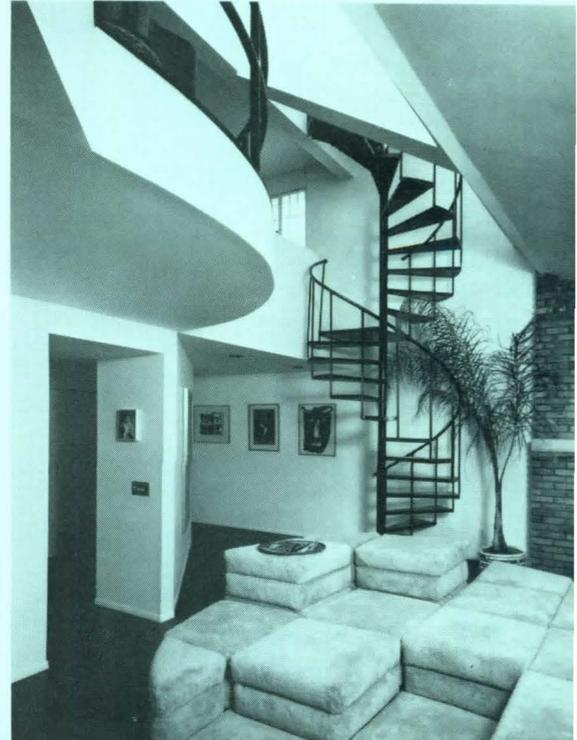
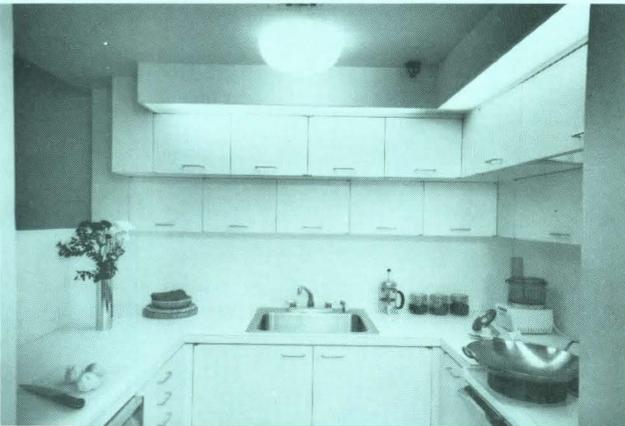
**APARTMENT BY
CHARLES BOXENBAUM
IN NEW YORK CITY**

Creating the impression of spaciousness in an 850-square-foot apartment, architect Boxenbaum has opened and closed views both horizontally and vertically in such a way as to create the impression that there is always something more around the corner. Located on the top floors of a former townhouse, the apartment for a single owner takes maximum advantage of ever-changing light qualities through both large existing windows and a new skylight high above the main space. A custom-built couch allows for varied seating arrangements to accommodate large and small groups. In the loft-bedroom and kitchen (photo below) carefully designed cabinets complete an almost shiplike use of space and careful attention to detail.

APARTMENT, New York, New York.
Architect: *Charles Boxenbaum*. General contractor: *Comulus Development Corporation*. Cabinets: *J.P. Winter*.



Norman McGrath photos



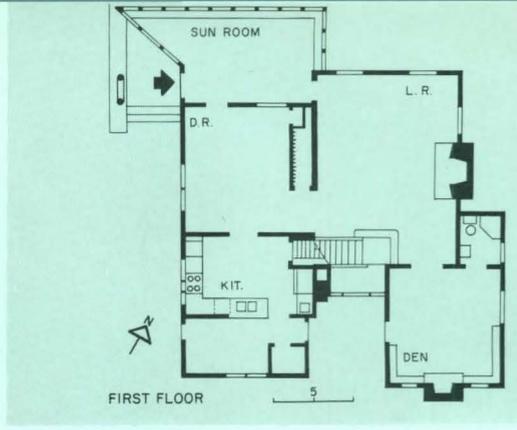
14 GRAHAM HOUSE BY BOHLIN POWELL BROWN IN DALLAS, PENNSYLVANIA

The recent changes made to this substantial suburban house are admirable for their modesty and seeming simplicity—although the resulting character is radically different from what it had been: that of a farm house built in the mid-nineteenth century, encrusted with partitions and additions that produced a confusing and confined environment. A fire and the subsequent purchase by a distributor of distinguished modern furniture opened the way for a new life that is a small part change and a large part appreciation of the critical reasons that such gradually built and undirected environments often fail. Most critical was the former separation of the living room from a pleasant back garden (photo top)—and the resulting darkness within.

Focusing the major thrust of quickly discernible changes on the stairwell, Bohlin Powell Brown created a two-story steel window that both opens the living room (photos, above) to the garden and creates a totally different character for the well shown in the photo at the right. (A whimsical detail of the upper corridor is a second "window" into the owners' closet that provides light and view, but appears to be a constantly changing collage alongside more stable framed artworks on the wall.)

Other changes to the house are less apparent: the removal of the least successful additions, the new diagonal placement of the main entrance, new paneling that replaces a recent and inappropriate fireplace—and the simplification of details wherever such was appropriate. Still, according to Peter Bohlin, "We have taken pleasure in the strange mix of details and trim . . . thinking of this renovation as a step in the evolutionary life of the building."

RESIDENCE RENOVATION, Dallas, Pennsylvania. Owners: Mr. and Mrs. Thomas Graham, Jr. Architects: Bohlin Powell Brown—partner-in-charge: Peter Bohlin. Landscape designer: John Brown General contractor: Bowden and Northrup.

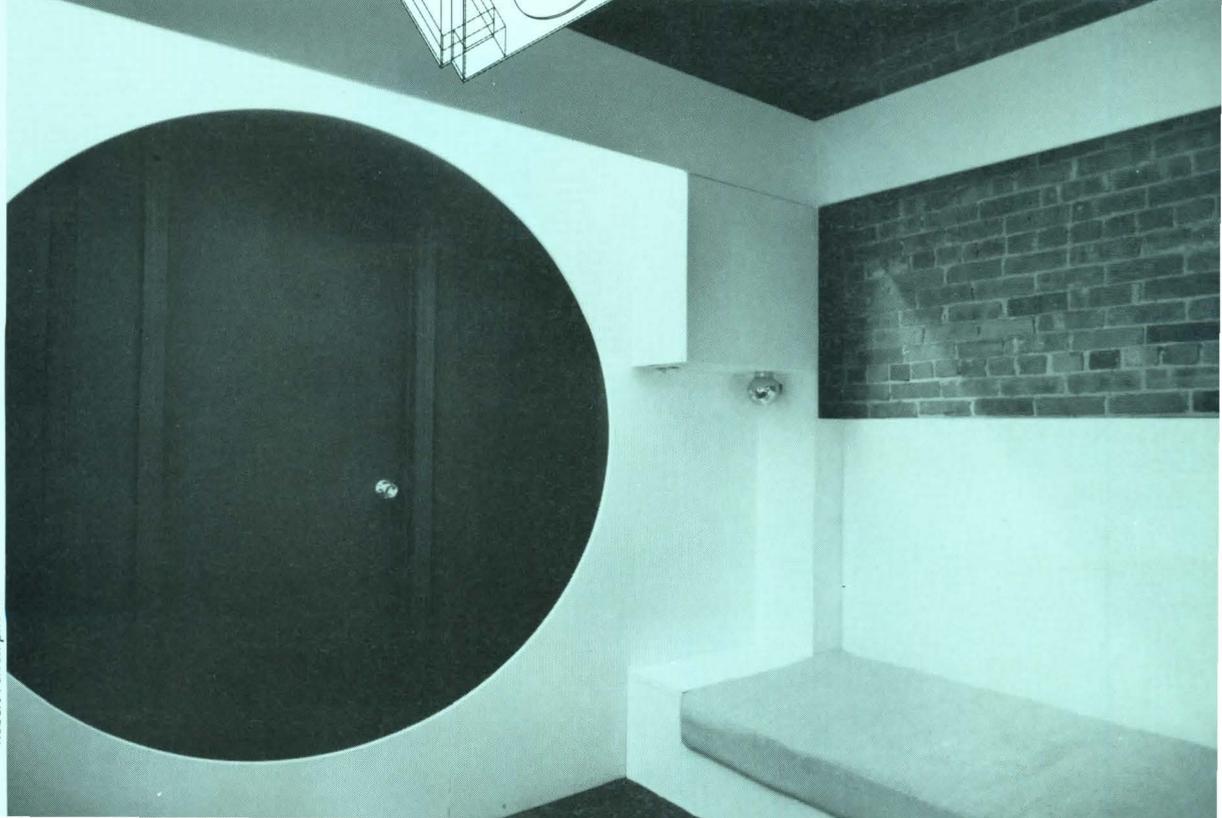
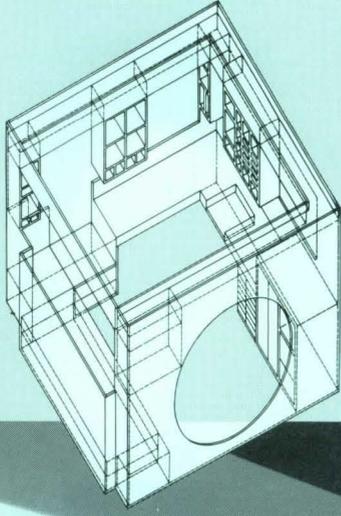


Joseph Molitor photos

**JOHN TIGHE
HOME OFFICE BY
GAMAL EL-ZOGHBY IN
NEW YORK CITY**

A clear expression of this architect's philosophy of creating rooms within rooms, this office in the home of an author is also an experiment with modules, which El-Zoghby sees as infinitely expandable to eventually create total living environments. This module is a ten-foot square, and allows just enough floor space for the owner to practice yoga exercises—a subject he often writes about. Rather than shrinking the room by the inserted construction, the architect feels that the space is (at least psychologically) expanded because of the implied space that exists beyond the module. The outer enclosing walls are painted dark brown to enhance their "dematerialized" character. The new cabinetwork is built of three-quarter-inch plywood and is finished with white paint—except for the desk and counter tops which are laminated with plastic.

HOME OFFICE, New York, New York.
Owner: *John Tighe*. Architects: *Gamal El-Zoghby—construction and planning; David Mammina and Guy Bocchino*.

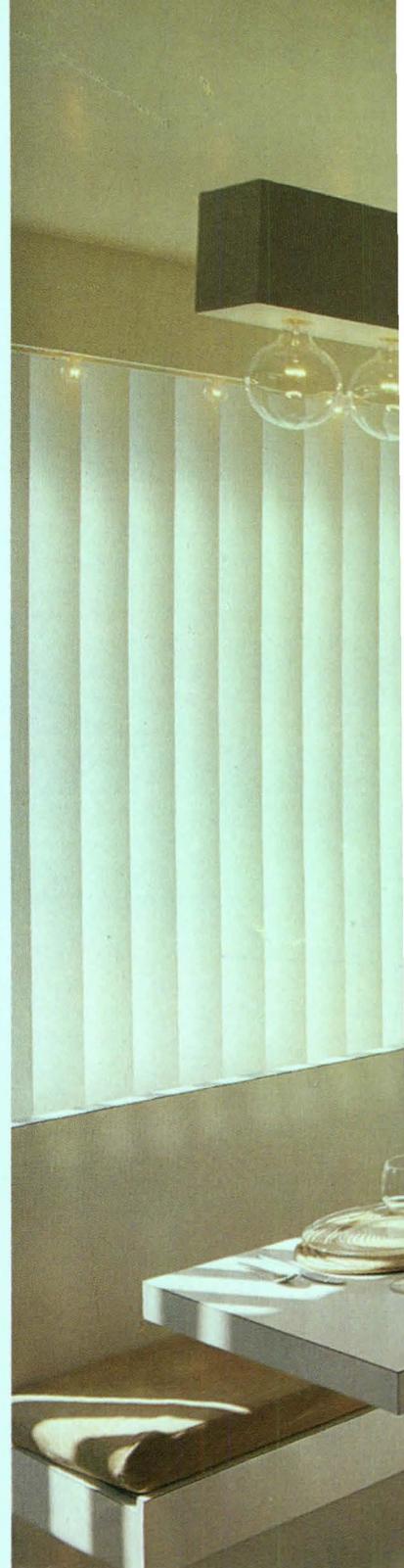
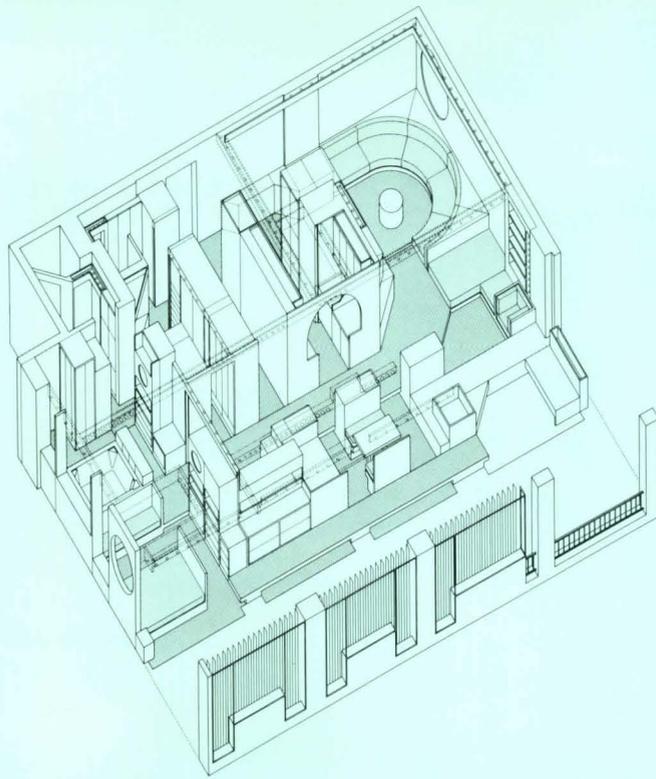


Robert Perron photos

16 AN APARTMENT BY GAMAL EL-ZOGHBY IN NEW YORK CITY

An elaborate development on the concept of modules, this once-conventional two-bedroom apartment has been visually expanded by removing all partitions, and by redirecting the main axis along the 42-foot length of window wall. This redirection comes from placing the modules within the main space instead of around it (as in El-Zoghby's room on the last page). Here, large and small "boxes" contain the utilitarian functions ranging from the kitchen and dressing room to cabinets for the dining area that are intricately detailed to allow, for instance, the viewing of the same built-in television from multiple locations—or to allow simple expansion of the dining table to provide continuous seating at the main table and the small adjacent table that is normally a desk (in front of the pillows in the photo opposite). Spaces are further defined by changes of level so that the relatively modest living area (photo, opposite) is several steps above (and has less ceiling height) than the rest. Similarly, the one remaining sleeping area is raised and includes a tub with built-in water agitation and faucets that are concealed in the standing "headboard" (photo, right). The canopied bed is a product of what the architect refers to as "imagery association." All of the cabinetwork is constructed of particle board, laminated with plastic. The 1200-square-foot space was completed at the cost of \$45,000.

APARTMENT, New York, New York.
 Architect: *Gamal El-Zoghby*. General contractor: *Urban Craft, Inc.*, *Richard Fassett and Christopher McNeur*.



Robert Perron photos



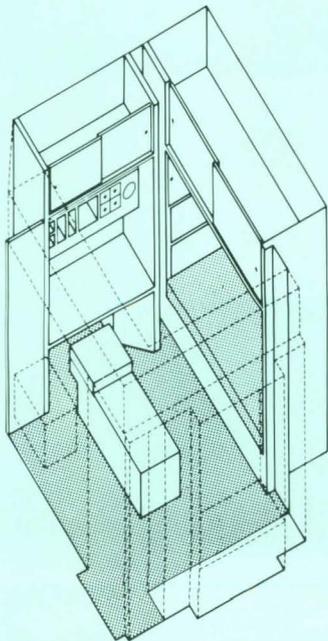


17 ROOM FOR MR. AND MRS. J. BENNETT BY GAMAL EL-ZOGHBY IN NEW YORK CITY

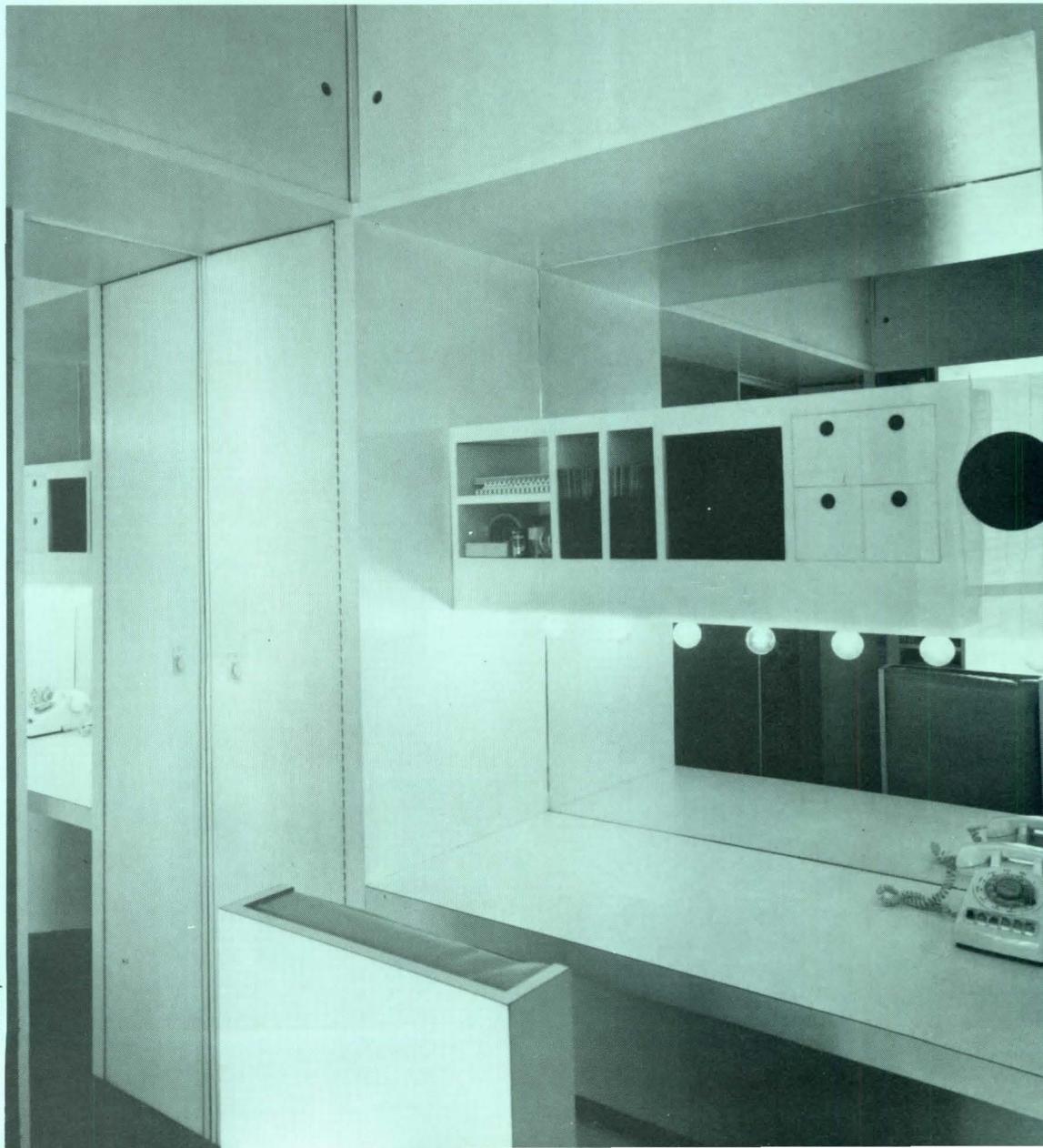
From an eight-foot-square former maid's room, the architect has created a "family room" that often is used at the expense of the rest of a large Fifth Avenue apartment. And for El-Zoghby, this is his best example of the psychological expansion of space to date. The coffee table stores paints, and is also the desk chair, when a back panel is raised. By arrangement of the elements (and by high sound absorption from carpeted walls), a number of activities can take place at once—from paper work to crafts to television viewing.

But the key to the real reason that not only the family but visitors and friends gravitate to this room is the sense of "infinite space" that is created by mirrors in unusual places. Besides the large mirror that allows eye contact all around the room from a seated position at the desk, recessed six-inch-wide mirrors run from floor to ceiling and separate the cabinets around the mattress-sofa and the cabinets around the desk from each other and from the walls. Hence, each group appears to be an independent unit in a much larger space.

FAMILY ROOM, New York, New York.
Owner: Mr. & Mrs. J. Bennett. Architect: Gamal El-Zoghby. Construction: Gamal El-Zoghby, Virginia Ayers and Carole Allen.



Robert Perron photos

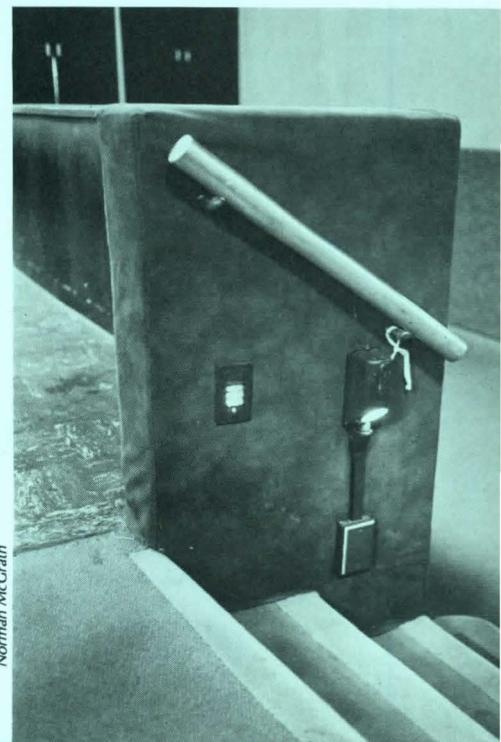
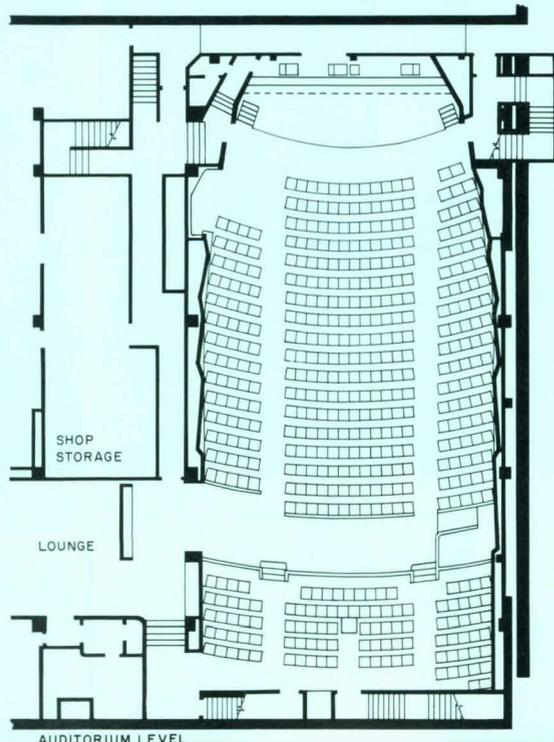


THE MUSEUM OF MODERN ART AUDITORIUM BY BUCK/CANE IN NEW YORK CITY

More an evocation than a restoration, recent work on this room is admirable for its respect of the original architectural intent in a landmark structure—while coping with both new requirements and previously changed physical dimensions. Completed in 1939, the Museum's main building was designed by Phillip Goodwin and Edward Durell Stone as one of the few truly International Style buildings to be built in this country. Over the years, the building has undergone extensive changes, and nowhere was this more evident than in what had become—before this recent renovation—a step-sister space. In 1958, the screen and stage were moved forward into the room to gain more floor area for other uses behind. And uncontrolled application of inappropriate materials and details (photo bottom) obscured the once graceful space. Most important, the mechanical and technical aspects of the space had made even minimal quality in projection impossible.

Avoiding the easy and attractive alternative of a total redesign, the architects found (with great effort) the original plans, and fit the updated technical needs within the original intentions. Today, the room discreetly provides such new program elements as seating for the handicapped, flexibility in lighting control, facilities for simultaneous translations and improved acoustics—as well as a host of new equipment directly connected to the projection of film and sound. The \$400,000 cost was financed by a donation.

THE ROY AND NIUTA TITUS AUDITORIUM, New York, New York. Owner: *The Museum of Modern Art*. Coordinator for the owner: *Boyce Nemece Designs*. Architects: *Buck/Cane, Architects*. Mechanical engineers: *Flack & Kurtz*. Acoustic consultant: *Lewis Goodfried & Associates*. General contractor: *John Gallin & Son, Inc.*



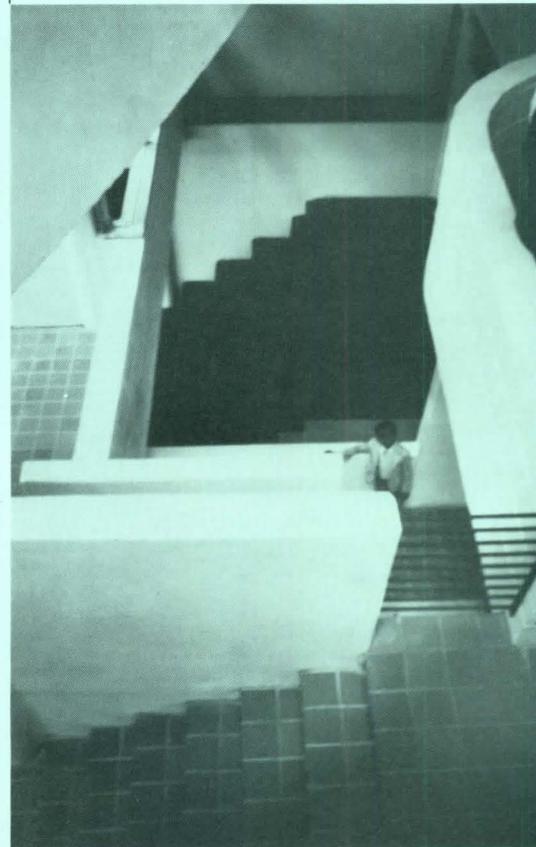
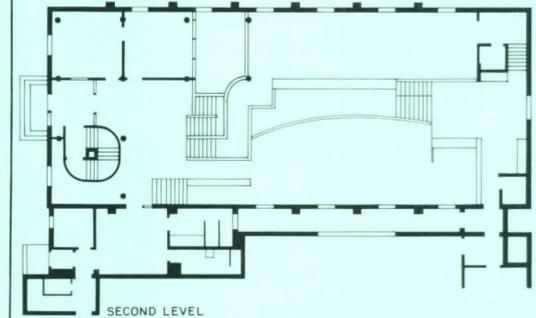
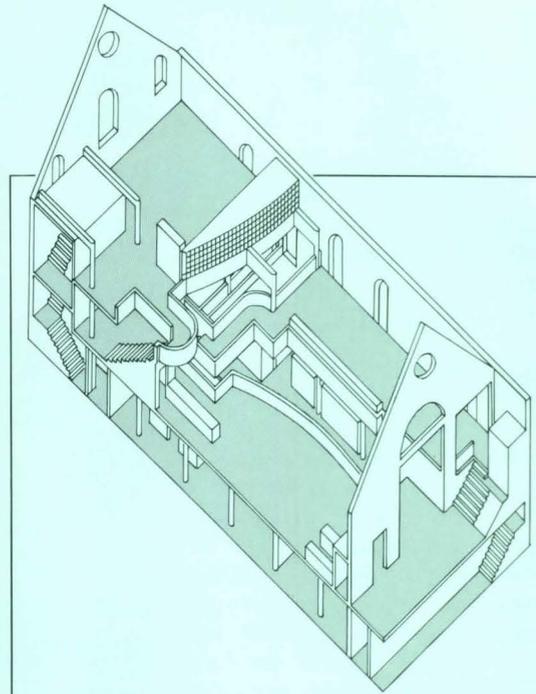
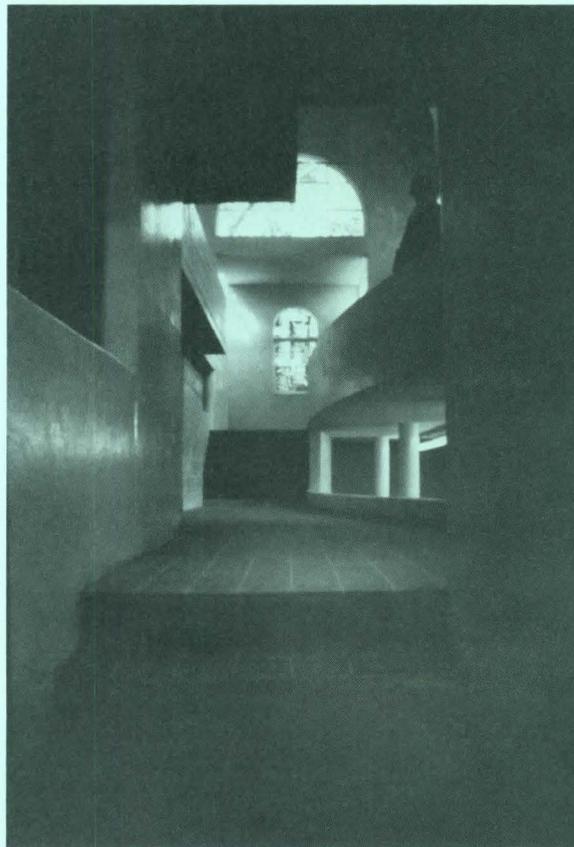
Norman McGrath

19 COMMUNITY CENTER BY VITTO AND ROBINSON IN NEW YORK CITY

Faced with a fire-gutted landmark chapel (photo right), architects William Vitto and Ira Oaklander have designed an independent structure within—a structure that not only fulfills a totally new program but respects the spatial qualities of the original building built in 1870. While the shell—including the dramatic wood trusses of the roof was restored to its original appearance, the series of platforms that contain the various functions are designed to be seen as a totally new insertion of white-painted concrete and concrete block.

Opening onto a central "street," these platforms are seen as part of the over-all space instead of a series of isolated rooms. The primary daytime functions are child care and after-school programs, in a series of classrooms and a kindergarten on the lower levels. (Appropriately, the "street" leads to a skylit play area where the altar used to be.) Adult education and community groups generally use the meeting room-chapel on the highest level in their evening activities.

Citing early problems with the original contractor, architect Vitto took over the construction for the church, after a long delay that reduced an already low construction budget. Accordingly, Vitto enlisted members of the congregation who owned and would operate the center to do the actual work—although few had had previous appropriate experience. And to further reduce costs, materials were used in unusual ways—such as the concrete block that forms curved walls. The robust result has wound up to be appropriate to both its use and to the strong nature of its enclosing shell. The project has received a citation from the local chapter of the American Institute of Architects.



Danille Swick photos

COMMUNITY CENTER, Brooklyn, New York. Owner: *Stuyvesant Heights Christian Church*. Architects: *Vitto & Robinson Architects—architects-in-charge: William Vitto and Ira Oaklander*. Structural engineer: *Trevor Salmon*.

TWENTIETH CENTURY-FOX DATA PROCESSING FACILITY AND COMMISSARY BY GENSLER AND ASSOCIATES IN LOS ANGELES

Two simultaneous projects by the same architects for the same client point up one of the major observations of this year's awards program: good design is increasingly responsive to context. The very different solutions by Gensler and Associates for a data processing facility (shown on these two pages) and a commissary (overleaf) are products of very different programs, the very different natures of the activities to be housed, and the very different buildings that would house them.

The data processing facility occupies part of a nearly windowless third floor, where props were once stored. Reflecting the "space age" function, and a need to create a self-contained environment, Gensler has created an almost other-worldly series of spaces. Reflected light from hanging industrial fixtures is bounced from a gleaming corrugated aluminum ceiling. Open plan work areas are reached by a corridor in which views of the computer can be seen through horizontal windows in the enclosing walls (top photo).

By contrast, the nearby commissary occupies a pleasant low building that is a landmark of an earlier era of film making. Gensler's work on the commissary is described overleaf, and it has reinforced a beloved existing character while updating facilities to current needs.

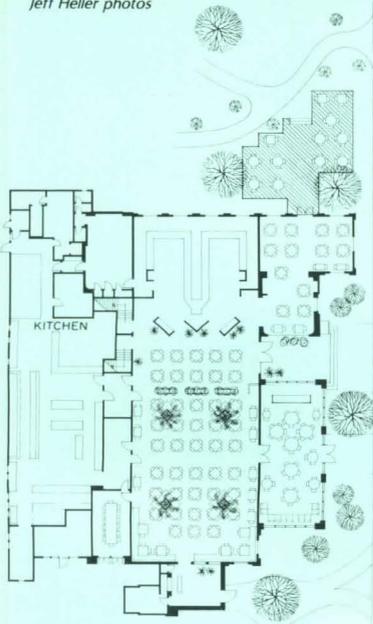
DATA PROCESSING FACILITY, Los Angeles, California. Owner: *Twentieth Century-Fox Film Corporation*. Architects: *Gensler Associates—project team: Ed Friedrichs, Tim Clement, Phyllis Farrell and Gabe Armendariz.*

COMMISSARY, Los Angeles, California. Owner: *Twentieth Century-Fox Film Corporation*. Architects: *Gensler Associates—project team: Ed Friedrichs, Terry Stephens, Tim Clement, Nancy McKay*. Structural engineer: *Ira Kessey*. General contractor: *Lazar & Associates.*

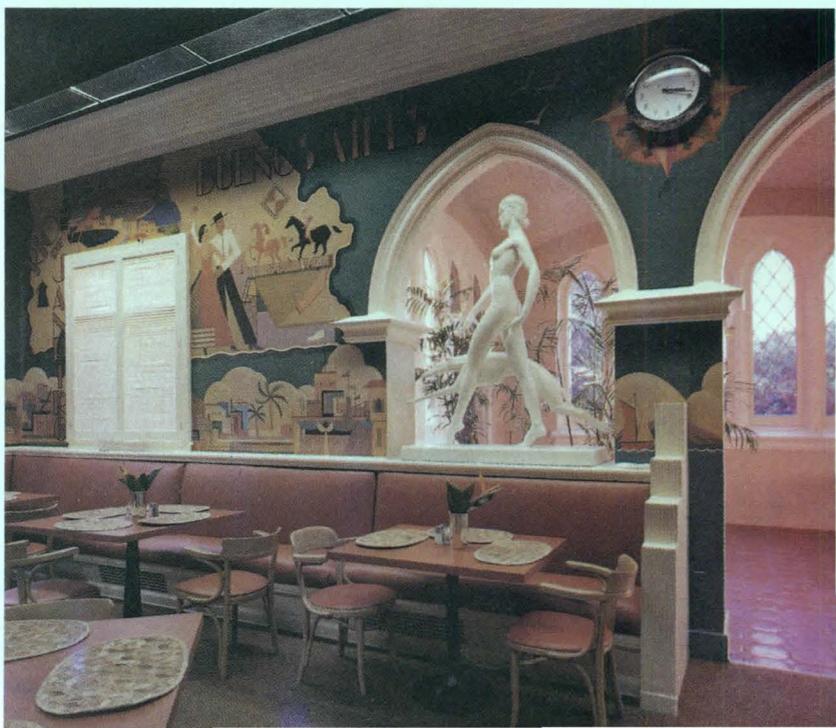




Jeff Heller photos

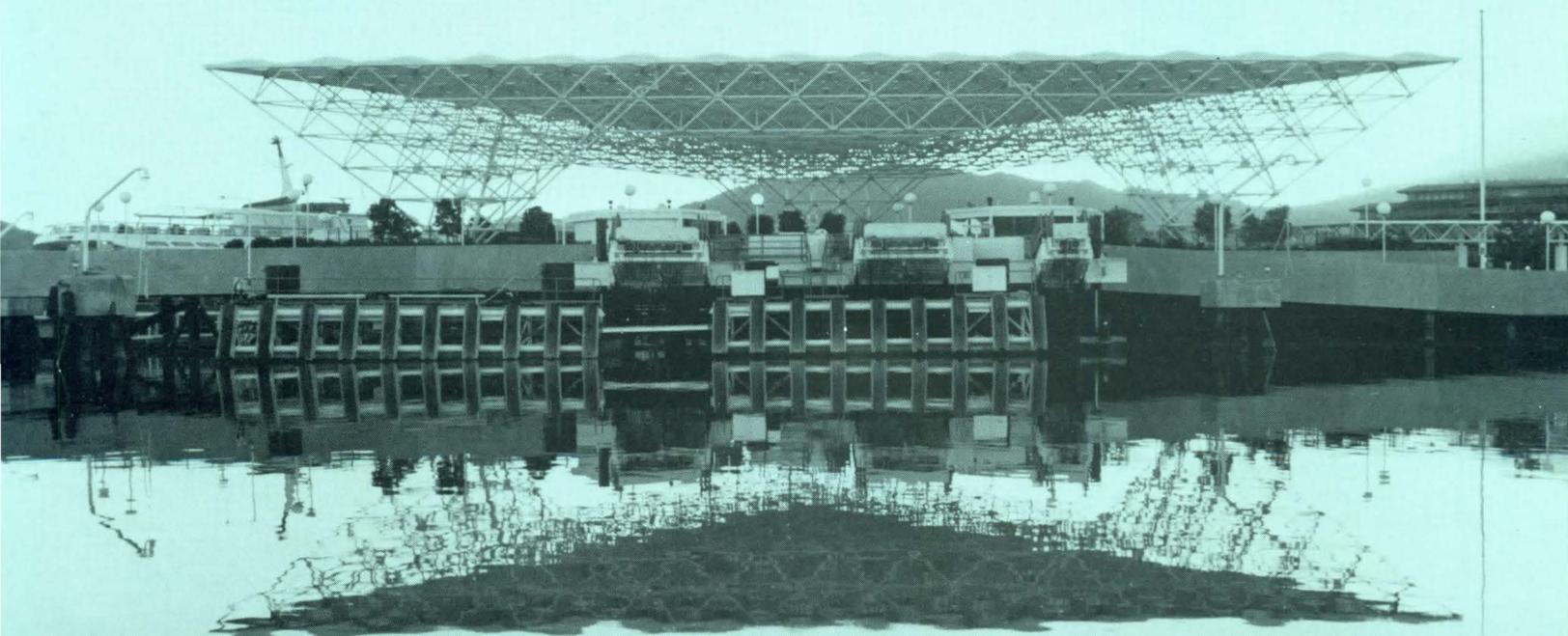


A nostalgic leftover of the era "when film companies made films," the Twentieth Century-Fox Commissary has been updated by Gensler to provide two types of service at tables (bottom of plan) and a cafeteria. The main room (see photos) retains the building's original murals in restored condition, and has been refurbished and relighted—including redirection of natural light through the central skylight by the use of hanging white banners. An exterior dining deck (top of plan) was installed to expand seating and to take advantage of the temperate climate.



THE ARTFUL DESIGN OF A NON-BUILDING

As the northern-most terminus for nearly 2000 daily passengers who commute by ferry between San Francisco and Marin County, the Larkspur Ferry Terminal provides a unique travel experience. The terminal is a non-building—a triangular-shaped steel space frame accentuates the point of arrival and departure with a light, airy and sometimes ethereal visual appeal. Unlike most transit facilities, it combines the functional necessity of public space with the art of design. —*Janet Nairn*



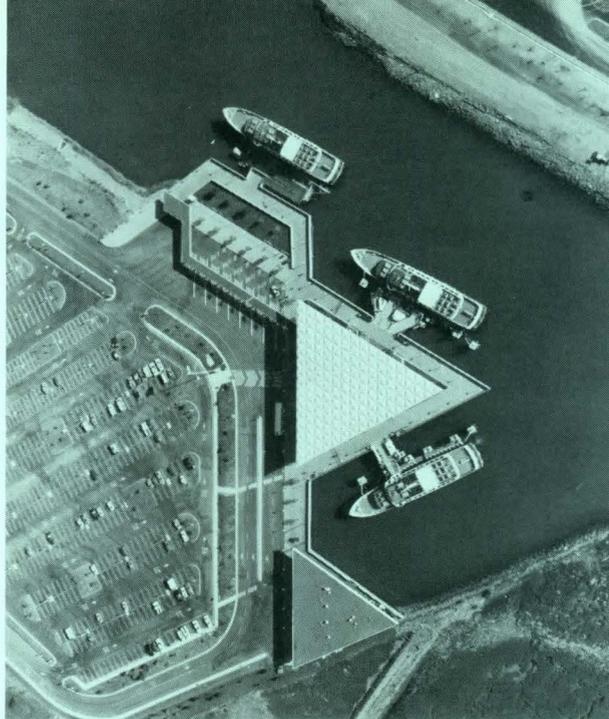
The Larkspur Ferry Terminal is a highly visible structure—seen from both the water and from passing freeways—with its use of a triangular steel space frame painted white, topped by translucent skylights. While an exciting visual form, it marks a continuing sensitivity by design professionals in the San Francisco Bay Area to creative solutions of mass transit problems.

The space frame is an equilateral triangle 192 feet on each side, tapering to three 20-foot-high inverted pyramidal legs. The triangular theme is carried throughout the frame's trusswork with all horizontal members on six levels forming smaller equilateral triangles. Below the trusswork is a 16,000-square-foot open deck. Geologically, the site is composed of soft and compressible bay mud and marshland, which necessitated the use of a pile-supported cast-in-place concrete deck that extends out over the water. This provides a stiff, rigid unit intended to withstand seismic activity. The triangular structure creates three docking berths and maintenance space in the narrow channel. Beyond it, and filling a 25-acre site jutting out into the Corte Madera Creek, are support facilities, including a service building, fuel storage and parking area.

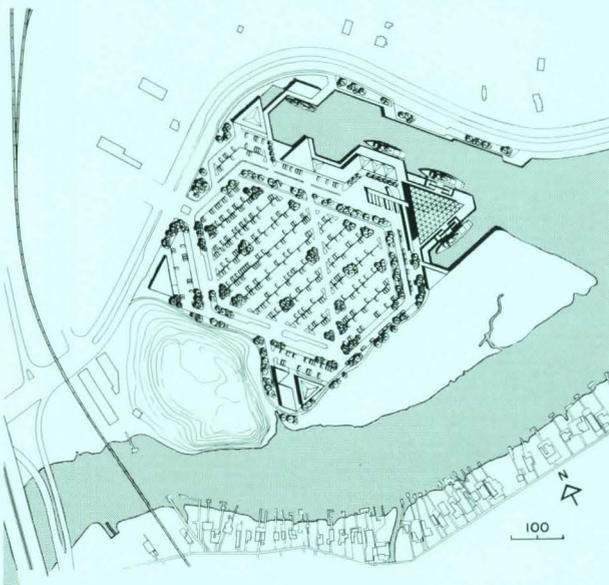
Local controversy has plagued the achievements of the design, with the primary criticism being—and one which has merit—the lack of shelter from the blustery cold, wet winds and fog that blow in from the Pacific Ocean. Only low transparent plastic panels mounted on short concrete walls surrounding the deck as protection exist now. The design, however, was partially the result of the criteria set forth by the owner, the Golden Gate Bridge, Highway & Transportation District, which called for only a cover over a large area; and partially the result of budget cutbacks. One solution devised by the architects to combat the weather is a series of colorful flaps, which could be attached to the space frame and lowered during inclement weather, but these have not been installed.

Traffic circulation is, of course, important in a facility that handles nearly 2000 passengers daily. Ticket booths and entry points are located opposite the parking area, bus stops and drive-through drop-off points. Once underneath the space frame, passengers are directed subtly by perimeter beams and variations in deck levels to one of two boarding locations. Disembarking passengers use ramps along the perimeter that return to the parking area. Extra wide ramps jut out from these perimeter walkways to simplify ferry docking and passenger loading.

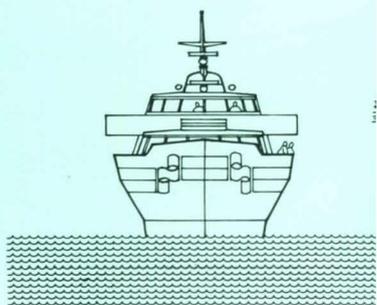
LARKSPUR FERRY TERMINAL, Larkspur, California. Owner: Golden Gate Bridge, Highway & Transportation District. Architects: Braccia/De Brer/Heglund—Jacques De Brer, project designer. Engineers: Kaiser Engineers (structural/mechanical/electrical). Landscape architects: Royston, Hanamoto, Beck & Abey. Geotechnical consultants: Harding-Lawson Associates. General contractor: Williams & Burrows, Inc.



Bill Wasson

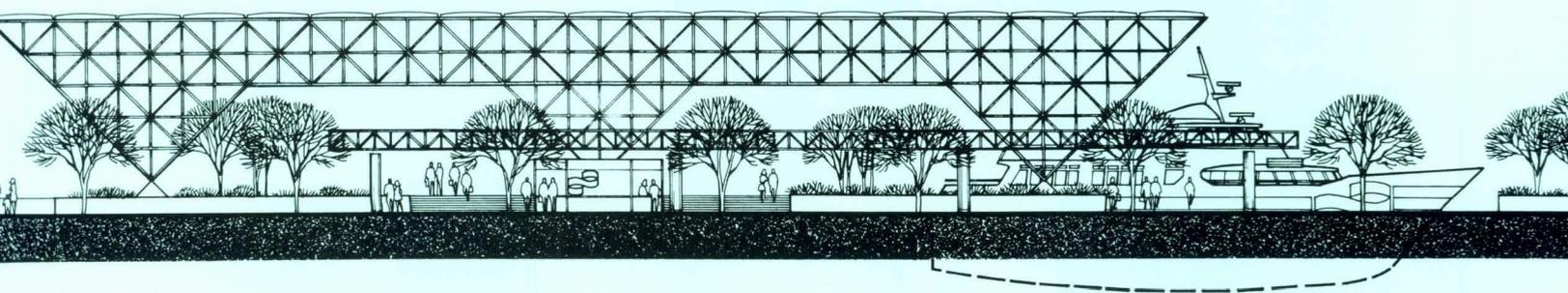


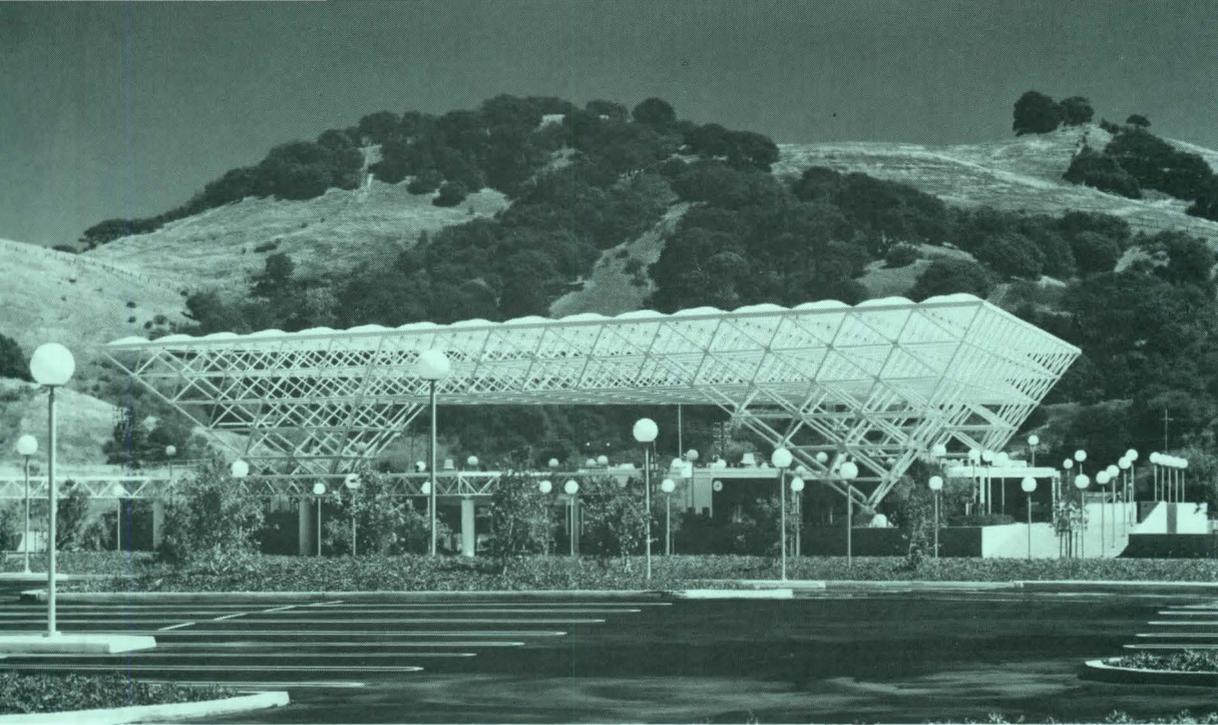
Jacques De Brer





Bill Wasson





Barbeau Engh



Mitsuya Okumura photos except as noted



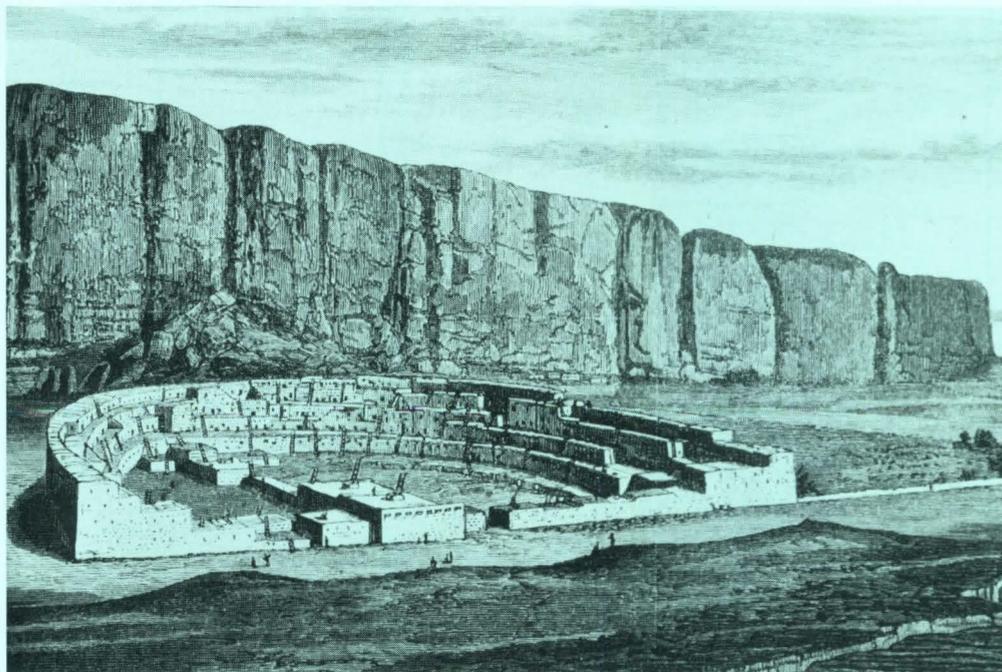
The visual intensity of the Larkspur Ferry Terminal is derived from the use of the striking steel space frame. Seen from the parking area (top) the frame appears almost to float. An extension of the trusswork (bottom) ties in a third berth and landscaped open space, which will eventually link up with commercial development along the bank. The space frame is open underneath (middle) and a series of steps and ramps lead to boarding points. Several freestanding enclosures, clad in mirror glass, house maintenance equipment and passenger facilities. Information kiosks are scattered throughout; and seating is around the perimeter.

THREE PERSPECTIVES ON ENERGY

This essay argues that it is not nearly enough to concern ourselves with the technology of the energy problem—but that we also need to concern ourselves with its historical, economic, and cultural aspects if we are to solve it.

by Donald Watson

Pueblo Bonito in New Mexico. An analysis of the structure shows irradiation in winter to be constant from 8:00 A.M. to 4:00 P.M. and greater than in summer, during which it decreases during the hot afternoon (from *Energy and Craft*, by Ralph Knowles).



Energy is limited only because of limits in the way it is viewed, a "crisis" only because its implications have been too long overlooked. Energy efficiency is not a new criterion of design, for the context of building has always been defined by climatic and material limitations. Even when these are severe, they have not prevented building designers from evolving solutions of great craft and elegance.

Indigenous and vernacular building at its best is a direct expression of adaptation to climate and to constraints of resources. Pueblo structures in the American Southwest, for instance, could hardly be improved on for natural control of seasonal climatic impacts, and early American building styles can in some measure be traced to the exigencies imposed by the environment and by building methods. Most recently, a renewed appreciation of the indigenous tradition in architecture has resulted in a literature devoted quite expressly to its analysis—not just from an interest in cultural preservation, but also to find lessons for modern designers working in similar cultures and climates.¹ One elegant example is the vernacular house of Baghdad

in Iraq. Its adaptive strategies include zoning of the plan: family activities move between lower rooms (of heavy masonry) on summer days and courtyard and roof terraces on summer nights, and to the second floor (of light wood and glass) during the winter, thus taking advantage of distinct building solutions for different seasons.

An example from Roman antiquity, the Forum Baths in Ostia (about 250 AD), combined direct solar heating and "hypocaust," or under-the-floor, warm-air heating. The Forum Baths are a large public building with a series of rooms used in sequence, each with a distinct temperature and humidity requirement. The fireplace-flue heating system used the wall and floor structure—an early and exemplary application of radiant heating.

But after the fall of Rome and the emergence of European countries from the dark ages the lessons of the past had to be relearned. The history of the fireplace characterizes this relearning. First there was the open fire in the center of a room, with smoke exiting as best it could through doors and roof openings. Then, in the multistoried feudal castles, flues were incorporated into the wall—an early example, from about 1090, being in Colchester in England. The stove appeared first in Europe in Alsace in 1490, made of brick and tile. Subsequently wood and coal fires were enclosed in special metal and masonry ovens, often with extended flues built in a labyrinthine pattern within the fireplace wall, so that its mass was heated from the combustion flue and became a radiant heating element. The dimensioning of such a flue—developed from German and

Russian precedents—was the subject of a treatise by Carl John Cronstedt and Fabian Wrede in Sweden in 1775.

Thereafter the fireplace or stove was developed as a piece of equipment engineered not only for heating but also for ventilation. Iron stoves could also be mass-produced, the first manufactured cast-iron stove reputedly dating from 1642, built in Lynn, Massachusetts. The science was, of course, further developed by Benjamin Franklin, who had introduced the "Pennsylvania Stove" in 1744. Franklin's royalist counterpart and contemporary, Benjamin Thompson, Count of Rumford, practiced and wrote about improved fireplace design in London and in the colonies.

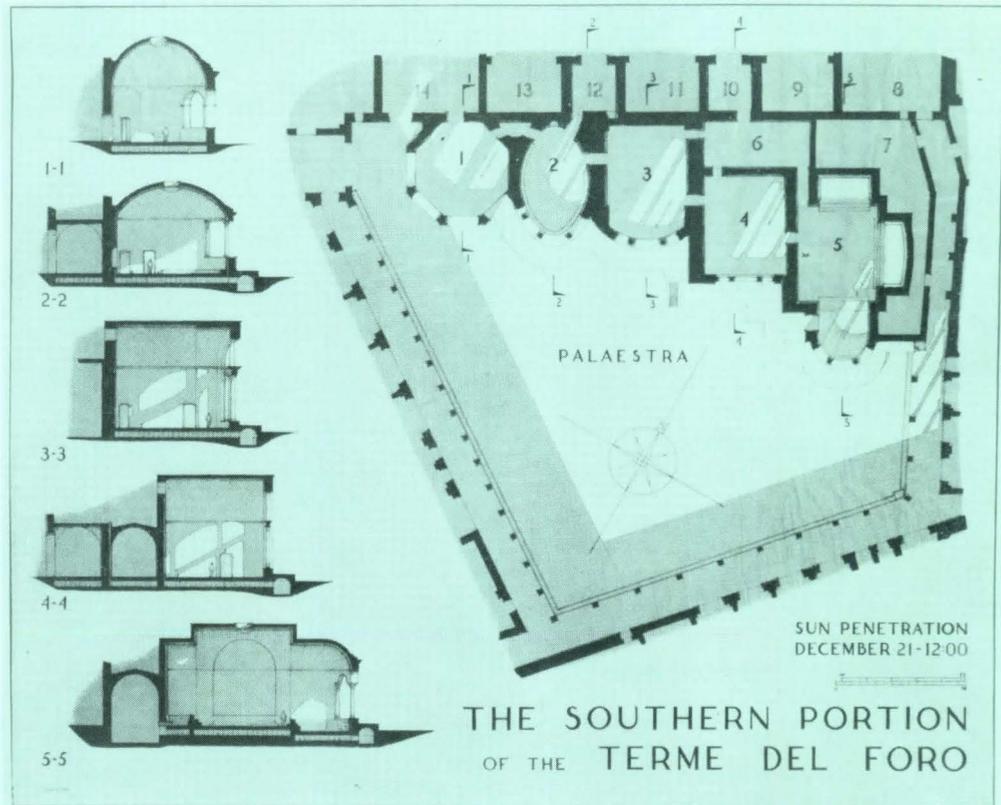
The efforts of Franklin and Count Rumford to reduce the smoke in rooms indicate that an effective tradition of designing satisfactory fuel-burning devices had not evolved very far for over 500 years. But the chimney doctors popularized their art too late, for by 1748 James Watt had already heated his office by steam, fulfilling Renaissance proposals to use piped hot water for space heating. Pipes allowed designers to remove the fires to a remote location.

Succeeding generations of architects, and the new profession of mechanical engineering, then began to develop and use central heating and ventilation systems. Coal, the primary fuel for the nineteenth century, determined not only the relationship between heating technology and design within buildings, but patterns of human settlement. Agreeable living conditions could not be found next to coal-burning factories, or even commercial districts. And so decentralization

Donald Watson is an architect and visiting professor at the Yale School of Architecture, where he serves as chairman of the Environmental Design program; he is author of numerous publications on energy-efficient building design, including *Designing and Building a Solar House*. This essay is excerpted from the book *Energy Conservation through Building Design*, to be published in March by Architectural Record Books, including essays by Francisco Arumi, J. Douglas Balcomb, Robert Bruegmann, Jeffrey Cook, Fred S. Dubin, Eugene Eccli, Baruch Givoni, James C. Hedstrom, Ralph Knowles, Harold E. Marshall, Robert D. McFarland, Murray Milne, Donald Prowler, Rosalie Ruegg, Diane Serber, Lawrence G. Spielvogel, John Philip Steadman, Richard G. Stein, Sim Van der Ryn, and John I. Yellot.

"The context of building has always been defined by climatic and material limitations. That has not prevented building designers from evolving solutions of craft and elegance."

The Forum Baths in Ostia (about 250 AD) received heat from solar radiation and supplemented it with an early and exemplary application of radiant heating (drawing by permission of Edwin D. Thatcher).



and the separation of work from residence resulted in urban segregation by zone.

Oil and natural gas, cleaner to burn and easier to transport and store, simply cleaned up coal's act. Their uniform quality enabled much finer control of energy conversion and transport, and since heat could be moved more easily from the point of production to the point of use, the energy performance of the building envelope itself could be disregarded. Thus in the end fossil fuels became a substitute for climate-responsive buildings.

But the impact of climate was not altogether ignored by the early-twentieth-century architects who contributed to the development of the Modern Movement. Walter Gropius designed his own house in Lincoln, Massachusetts, as a "sun-tempered" structure. The Keck brothers in Chicago built the Crystal House for the Chicago World's Fair in 1933-1934 as an exploration of the esthetics of glass and steel and discovered it was so well heated by direct solar radiation that they then embarked on a decade-long investigation of solar-oriented dwellings that gave occasion for the first popular use of the term "solar house" in local newspapers at the time. In 1927, Buckminster Fuller proposed the Dymaxion house, based upon concepts of energy efficiency and industrial production. Le Corbusier, of course, was inspired by the industrial esthetic of oceanliners and airplanes, and in *Precisions*, published in 1930, proposed his own vision of the modern house, in which the walls are plenums—or "neutral walls" as he called them—for artificial control of heating and cooling. Sun control was developed into an architectural science by the Olgyay brothers in the early

1950s, and their subsequent publications are classics still in print today.

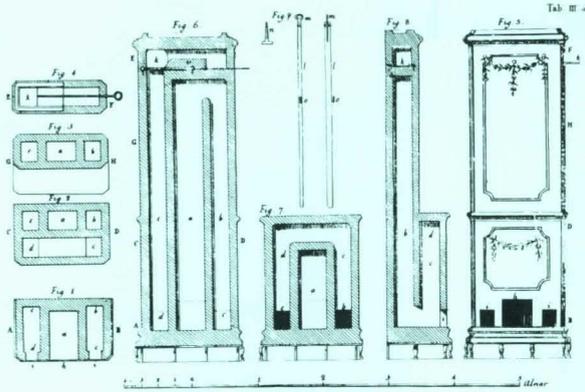
Much more recently, contemporary architects have begun to use the relative freedom of expression which modern technology offers to pursue design styles of their own invention, and "energy design" has been used as the rationale for esthetic gymnastics like putting buildings up in the air or under the ground. Now some commentators predict that energy conservation will provide the impetus for a total rethinking of architectural style as dramatic as that which followed the industrial revolution.

What, after all, is the energy crisis? And how does it affect building design? The projections of future fossil fuel supplies vary, being based more on assumptions than on substantiated fact. But in an authoritative summary of recent fuel-availability projections, V. E. McKelvey, director of the U.S. Geological Survey, presents the conclusion that known reserves of all recoverable world fuel resources would last 34 years if world consumption continued to grow by 5 per cent a year, the average rate from 1960 to 1973. If the consumption rate were reduced to 2 per cent a year, then the time to exhaustion would be 90 years. The projections are based only on known reserves, and they do not include total world resources thought to exist but still unproven. But counting the number of years to depletion is not a particularly relevant exercise once it has properly alerted us to the social and political implications of fuel scarcity. The important points are simply that supplying additional energy will in the future become increasingly costly no matter what the future source is to be,

and that continuing to increase energy demand involves unprecedented economic risk due to trade imbalances and their domestic repercussions—as well as social and environmental stresses due to the loss of natural resources, pollution, and other related health and safety costs associated with the energy-intensive development required by profligate energy use.

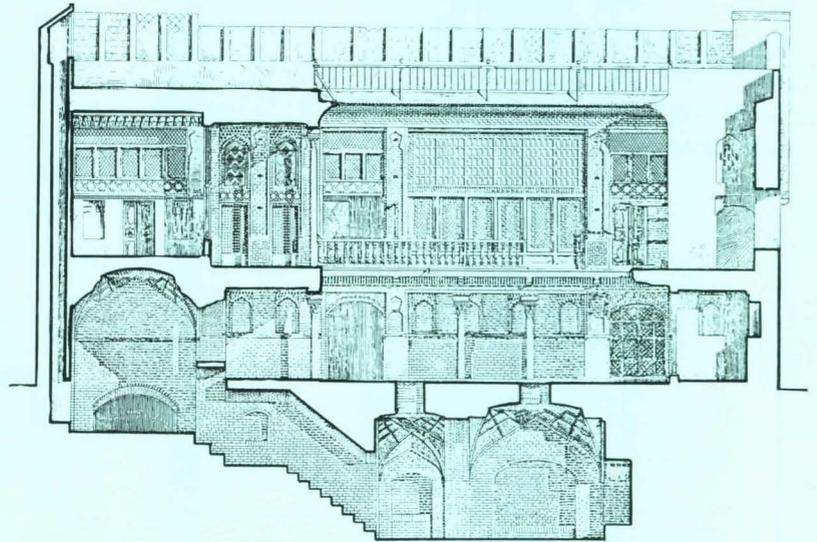
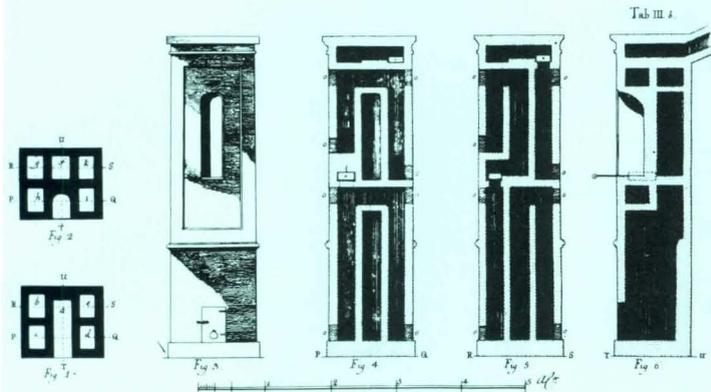
All of these points could be true, but why the connection with building design? The connection exists because of the combination of several facts. First, around 40 per cent of our national energy consumption is used in the building sector to heat, cool, and illuminate our buildings; to manufacture building products; and to construct buildings. Second, as much as one half of this energy could be saved by proper building design, construction, and use. Energy waste in the building sector has obvious economic impact on building owners and, beyond that, aggravates indirect environmental and health costs borne by future generations. The urgent decision is when to invest in energy conservation in the building sector. The longer the decision is delayed, the more difficult that option will be, as a greater portion of available capital is assigned each year to escalating energy expenditures to operate buildings.

These facts build the case for the energy conservation alternatives: an effort, equal to or greater than that now projected for energy development, should be devoted to conserve energy by improved design of buildings, transport, and other energy-intensive consumer products. The argument has been taken up by many authors that, due to energy waste in conversion and transmission,



The drawings on the left show an eighteenth-century Swedish fireplace design (from Kakelugnar, by Britt Tunander and Ingemar Tunander). The drawing below shows a traditional house in Baghdad.

yard-plan buildings provide mutual summer shading and permit sufficient winter irradiation on the second story to provide solar heating (from *Wohnhaus in Bagdad and Anderen Stadern des Irak* 1910, by D. Reuther).



a Btu saved is worth two Btu's produced, or, put in other terms, a dollar spent in energy conservation at the building scale could very well save twice the energy produced by an equivalent investment in power supply and production capacity.

The implications of the conservation alternative are thus enormously important to the design professions, as well as to the entire building industry. They are all the more so because, as coherent as the arguments for conservation may be, relatively little has actually been done to implement energy conservation practices compared to the range and magnitude of possibilities that already do exist.

To put the promise of the conservation alternative in a realistic framework, the difficulties of actually carrying out a large energy-conservation program at the building scale need to be faced. For if energy-conserving building design is ethical, wise, and economical, then why is it not inevitable?

The reasons come down to the fact that it is extremely difficult to change one's habits. Energy conservation requires changes in the way buildings are financed, designed, built, and used.

The most common argument offered against energy conservation design is that it is too costly, it cannot be financed, it cannot be marketed, it doesn't "pay back" quickly enough. In many cases, this economic reasoning can be faulted, but in others it cannot. Energy conservation does involve improved building quality which requires a larger economic investment than the "build cheap now, pay later" approach. The question that needs to be discussed, however, each time

the economic criterion is applied, is what are we saving by not investing in energy conservation? If it is capital or cash liquidity, what will that capital buy instead? Isn't there an increased price that everyone is willing to pay for stability of energy costs, for improved environmental quality, for increased economic and social well-being?

The point is that the market costs of energy does not now reflect its real cost, whether to produce and supply energy in the first place (plant costs are partly subsidized by tax credits and allowances, and energy charges are lower for large energy consumers); to clean up the environmental pollution and waste that result when energy is converted and transported (environmental clean-up costs are indirectly passed on to the general public or to future generations); or to replace the energy resource once it is depleted (in which case the replacement cost must include the entire capital expenditure required to supply an alternate source for the equivalent energy).

We need mechanisms by which the true costs of energy are reflected in our design decisions, either by marketplace corrections, which inevitably mean higher energy costs or—and here the ultimate economic advantage of energy conservation needs to be made emphatic—by reducing energy waste and consumption by conservative design.

From another important perspective—the cultural one—the interrelationship between building design and environmental quality should be recognized; it connects the act of design directly to the quality of life.

In the face of specious arguments that energy saving must result in lower environ-

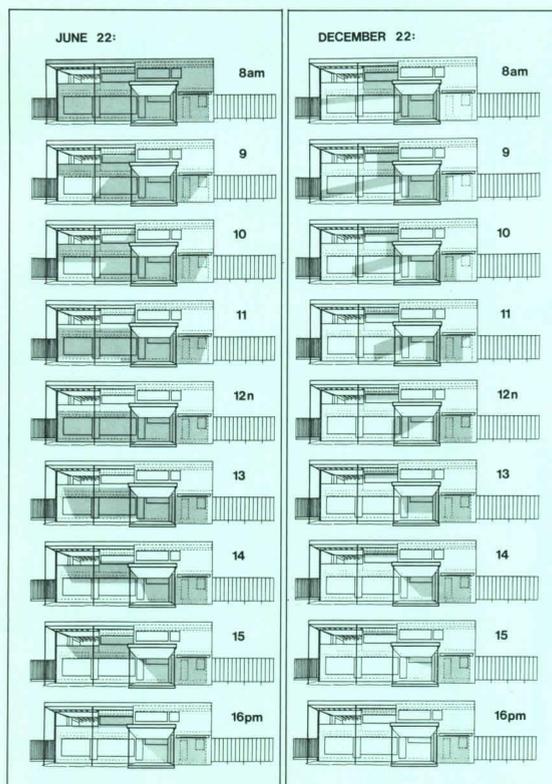
mental quality standards and reduced comfort and convenience, it needs to be clearly stated that the allocation of economic, energy, and environmental resources is part of the same solution to maintain and improve the quality of life. In this respect, the potential of design—to anticipate change, to correct imbalance, to prepare solutions that are efficient and elegant—is our most valuable resource. The question is whether we can, in fact, use and improve our design abilities to create and sustain our cultural choices. As put by M. King Hubert, a scientist now retired from a career in the Shell Oil Company and the U.S. Geological Survey and an early prognosticator of the current energy shortages:

The foremost problem confronting humanity today is how to make the transition from the precarious state we are now in to an optimum future state by the least catastrophic progression. Our principal impediments at present are neither lack of energy or material resources nor of essential physical and biological knowledge. Our principal constraints are cultural.²

But cultural change is difficult, the more so as it requires changes in the underlying social and institutional structures. In a 1970 lecture, "Environments at Risk," anthropologist Mary Douglas draws a parallel between the contemporary environmental movement and the movement that began a century earlier for the abolition of slavery. She sees it as one that is equally profound in its potential impact upon our economic and social assumptions and that can be expected to have overcome resistance to what is an equally but inevitable process of cultural evolution:

“Energy conservation does involve improved building quality, which requires a larger economic investment than the ‘build cheap now, pay later’ approach. But what are we saving by not investing in energy conservation?”

Analysis of window wall shading on Walter Gropius's house in Lincoln, Massachusetts (from Nevin Summers, *AIA Journal*, February, 1977).



The abolitionists succeeded in revolutionizing the image of man. In the same way, the ecological movement will succeed in changing the idea of nature. It will succeed in raising a tide of opinion that will put abuses of the environment under close surveillance. Strong sanctions against particular pollutions will come into force. It will succeed in these necessary changes for the same reason as the slavery abolition movement, partly by sheer dedication and mostly because the time is ripe³.

The energy issue has thus impelled design professionals into a perhaps unprecedented role as those most able to help solve resource and cultural problems by design. And rather than eliminate the esthetic component of design, the cultural perspective shows how necessary it is as the embodiment of our aspirations and commitments.

We know how to design energy-efficient buildings. It is at this moment only a matter of implementation.

We can conceive of this as requiring three steps. The first is relatively easy, that of utilizing technical-fix measures to reduce energy waste, with little cost or change in currently available building methods. The second is to address the fundamental patterns of energy use in the built environment by improved design of building and transport systems and other consumer products. Improved design alternatives depend on what changes can be made in institutional barriers in the building industry that act as disincentives to agreed-upon conservation goals. The third step—the most difficult, but an inevitable one if we are to meet our responsibility to ourselves, to the large segment of the world that is without even subsistence-level energy and other resources,

and to future generations—is a refocusing of our cultural values and social actions on a conservation ethic.

Viewing energy conservation efforts in terms of these steps—the technical, the institutional, and the ethical—helps to integrate technical invention with esthetically coherent and ethically appropriate design. Despite the apparent difficulties that await the necessary innovative program, there is a real basis for optimism and motivation in the renewed emphasis on quality. It provides the basis by which to make a distinction between those technologies that are disruptive to the environment and those that can help place us in balance with the ecological imperatives that ultimately bound our actions—ones that help connect us to our natural world and, through nature, to ourselves.

The quality of life, of the environment, of design, and of energy use are crucially interdependent. Just as energy requires a crossing of disciplines and of boundaries, it also serves to connect. The solution to the problems of energy and resources requires unprecedented cooperation between all segments of society, between private and public sectors, from local to national and international levels. We can improve our buildings, our cities, and our land by eliminating wasteful use of resources and by qualitative rather than quantitative goals in meeting technical and social needs.

Architects once studied the rules of proportion for the styles and orders of the classical temples of antiquity. The earth is now that temple: the rules are those of building and living within the limits of the earth's balance of resources and energy.

FOOTNOTES

1. This and the following historical paragraphs were written with the collaboration of Jeffrey Cook, to whom I am indebted for insights and examples and who allowed me to borrow freely from his manuscript, "History of Energy in Buildings."
2. As quoted in *The New York Times*, December 2, 1976.
3. Mary Douglas, "Environments at Risk" *Times Literary Supplement*, London, October 30, 1970.



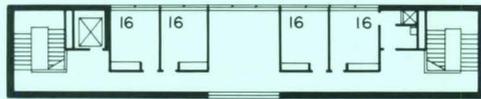
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A NEO-RICHARDSON ROMANESQUE CATHEDRAL BY EDWARD L. BARNES

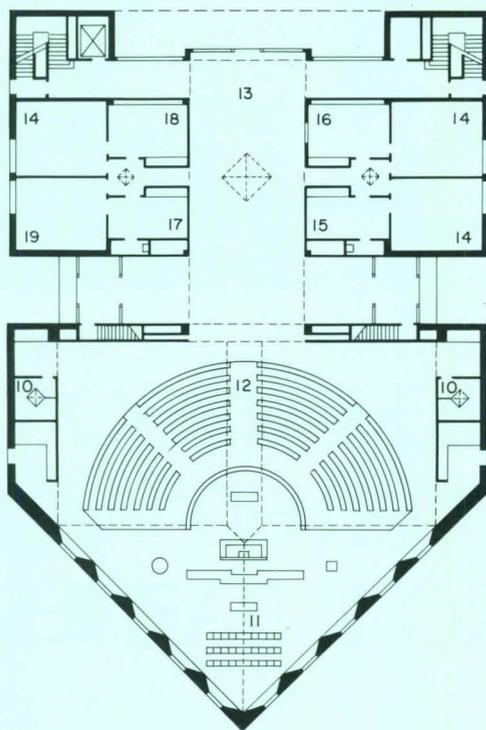


Like all good architects, Edward Larrabee Barnes has most of the architecture of the past in his head—an inexhaustible source of metaphorical forms to be drawn upon as needed. When he begins to design a building, he selects, recombines and transfigures functionally and symbolically appropriate forms, translating them into the language of modern technology and building economics. For the Cathedral of the Immaculate Conception in Burlington, Vermont, Barnes turned for inspiration to Burlington's most beautiful building—Henry Hobson Richardson's Billings Library at the University of Vermont (left). By inviting this building to teach him, he reminds us of the power and beauty of New England's Neo-Romanesque style. While designing a new Catholic church which is rooted in this style, he has nonetheless created an original work of art with its own metaphorical life. —*Mildred F. Schertz*

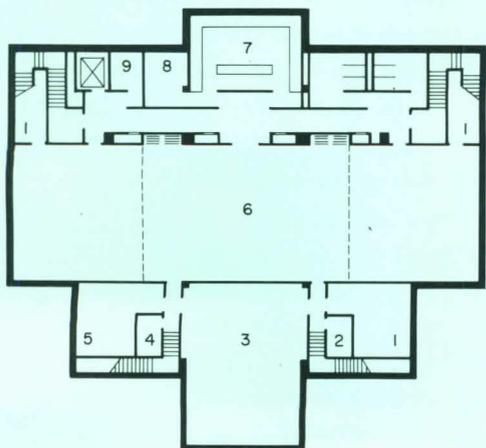
- 1 Storage
- 2 Janitor
- 3 Mechanical
- 4 Pump room
- 5 Electrical
- 6 Multi-purpose
- 7 Kitchen
- 8 Food storage
- 9 Elevator machine room
- 10 Confessional
- 11 St. Patrick Chapel
- 12 Main church
- 13 Narthex and concourse
- 14 Meeting room
- 15 Sacristy
- 16 Office
- 17 Vestry
- 18 Library
- 19 Choir rehearsal room



MEZZANINE



GROUND FLOOR



BASEMENT

Vermont towns—notably Burlington, Rutland and Montpelier—share a splendid heritage of late 19th-century masonry architecture. Neo-Romanesque buildings designed as libraries, classroom buildings, town halls or fire and police stations abound; and most of them, in spite of their secular functions, are religious in expression. Their forms and ornament are direct quotes from the great 8th-12th century churches of southern France. In winter these towered, turreted, apsed and arched monuments to Christian faith are enhanced by snow—a sight undreamed of by the pre-Gothic masons of Vezelay, Poitiers, Angouleme and Arles.

These buildings are more resonant than their gentler neighbors constructed in styles which historians have traditionally defined as part of the New England vernacular—Georgian, Classic Revival and Queen Anne. Barnes could have taken his cues for the new Burlington Cathedral from any of the less assertive styles, except for the fact that he was designing a small church to replace a large one on a site that lacked beauty or drama.

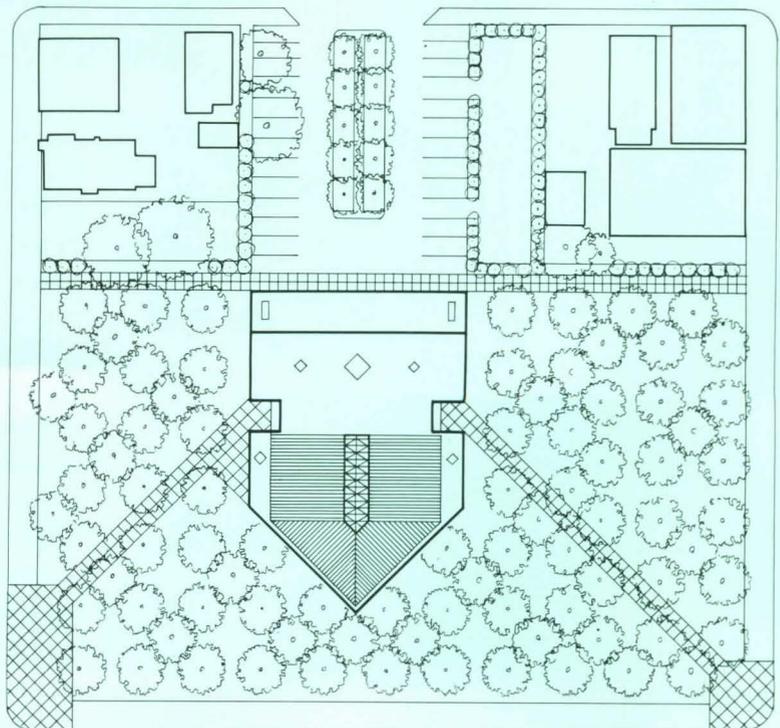
The earlier church had become too big for the dwindling Irish Catholic population of Burlington (the French Catholics have their own church) and when it burned several years ago, the congregation chose to replace it with a building to seat 450 people in the sanctuary and another 350 in an adjacent space. The site consists of approximately three-fourths of a city block (plot plan below) with miscellaneous small buildings on two of its corners. The entire block is hemmed in on all sides by buildings in many sizes, shapes and styles including a parking garage in weathering steel, part of Burlington Square—a recent downtown development designed by the Office of Mies van der Rohe (December 1977, pages 102-103). The new church, like its predecessor was to be a cathedral—not a big church but important in the diocesan sense as the seat of the local bishop. But it

had to *look* strong and pre-eminent in spite of its small size and unfortunate site. Resonance was needed.

The Richardson building, Barnes' model, was never a church. Nevertheless, it is rich in its Christian symbolism with particular references to an 11th-century church in Poitiers, the famous Notre Dame La Grande. No longer a library, it is now a friendly yet elegant student union—proof that space need not be "universal" to serve changing needs and that the symbolic content of forms can change. Forms which in the 11th century signaled "place of worship" and became metaphors for "library" in the 19th-century have come to mean "dignified but cozy student gathering place" today. Barnes has made them mean "church" again.

Barnes' quotes from the Richardson building are not direct and he has translated them into his own language. They consist of a way with circular forms, of bringing light into interiors, of pitching roofs, arching windows, introducing horizontal bands at window sills and accenting cornices. He has been influenced by Richardson's manner of accenting the coming together of different materials and the latter's use of color. This last resemblance is as important as the others.

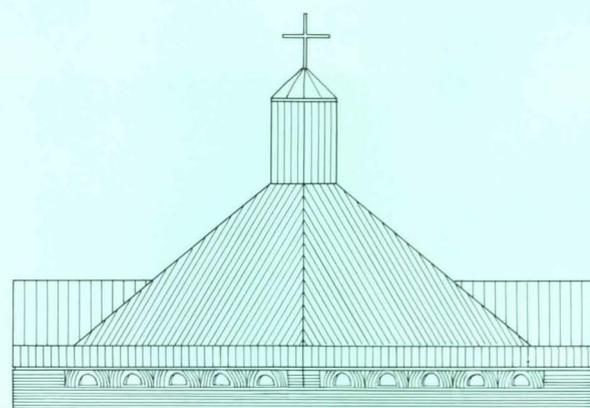
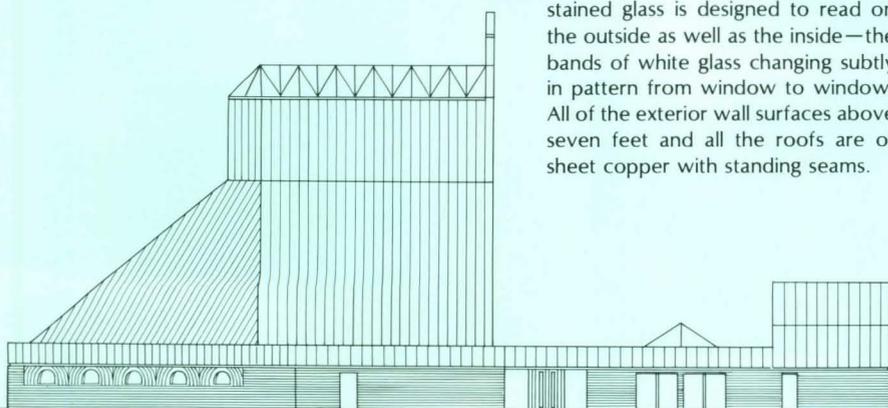
"Color in architecture" has lately come to mean the juxtaposition of large, flat areas covered with bold primary reds, blues, yellows and greens. By this standard, New England Neo-Romanesque buildings—in gray and purple granite with wine red brick and dark orange ornamental terra cotta—are colorless. And so is the Burlington Cathedral. In truth, of course, Barnes' church, like the building which inspired it, is rich and subtle in color from the meticulously studied semi-circular stained glass windows to the carefully selected green and brown tones of the banded brick. When the raised-seam copper roof turns dark green and the locust trees grow big and leafy this church will look even more wonderful. —M.F.S.







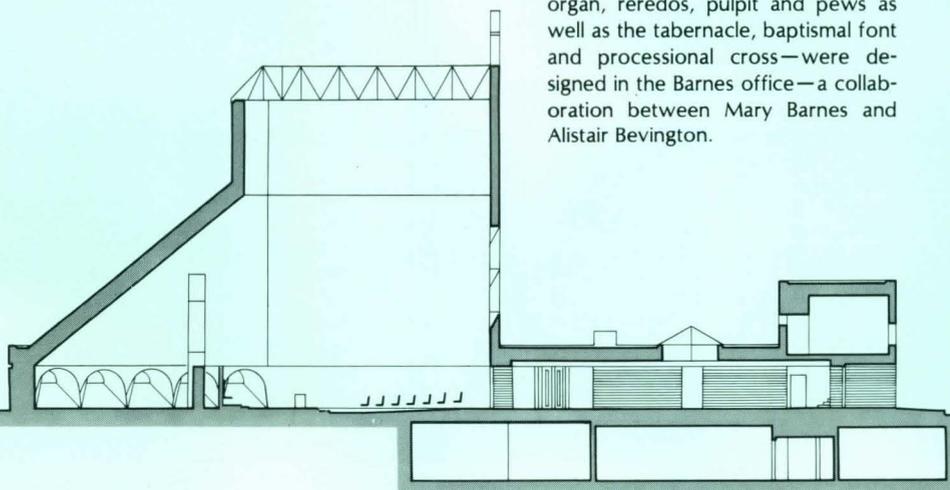
The exterior veneer consists of double-fired glazed brick in shades of green and brown in three continuous horizontal bands. The two upper bands continue through the entrances and form the wall surfaces of the interior concourse. The semi-circular windows have two completed arched tiers of ornamental brick work and four incomplete ones. The arch motif recalls Neo-Romanesque masonry construction but its interruption tells us that the voussoirs are ornamental, not structural. The stained glass is designed to read on the outside as well as the inside—the bands of white glass changing subtly in pattern from window to window. All of the exterior wall surfaces above seven feet and all the roofs are of sheet copper with standing seams.

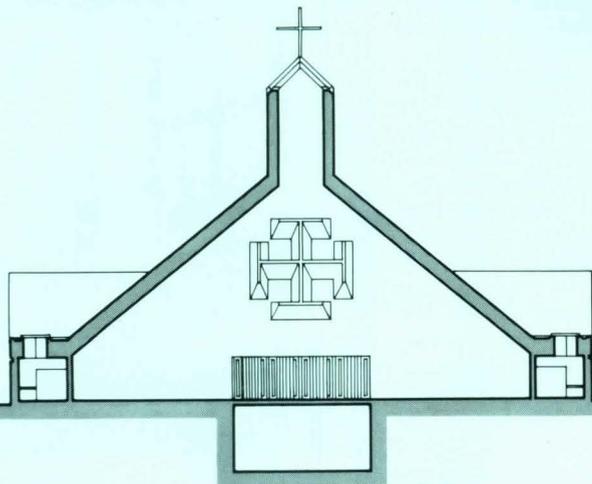


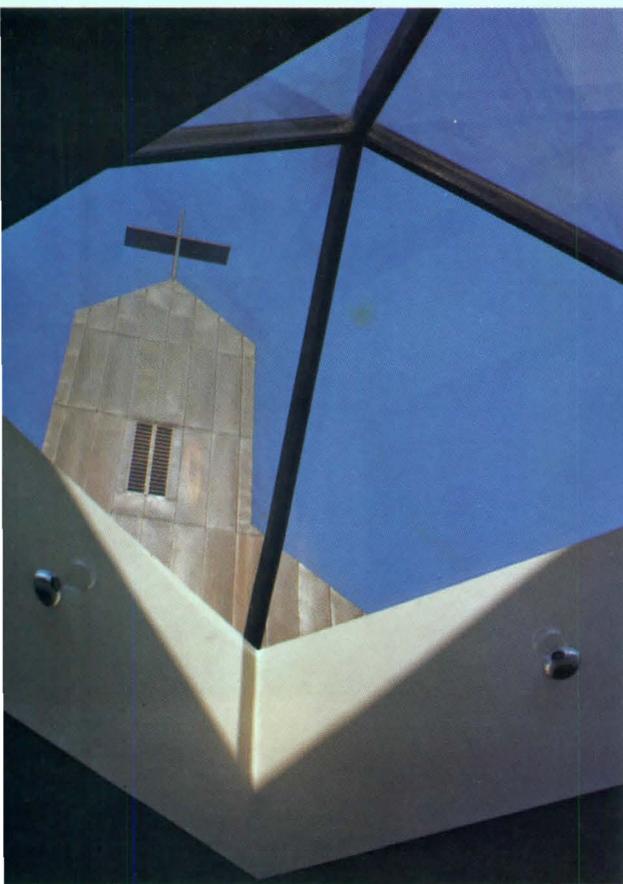
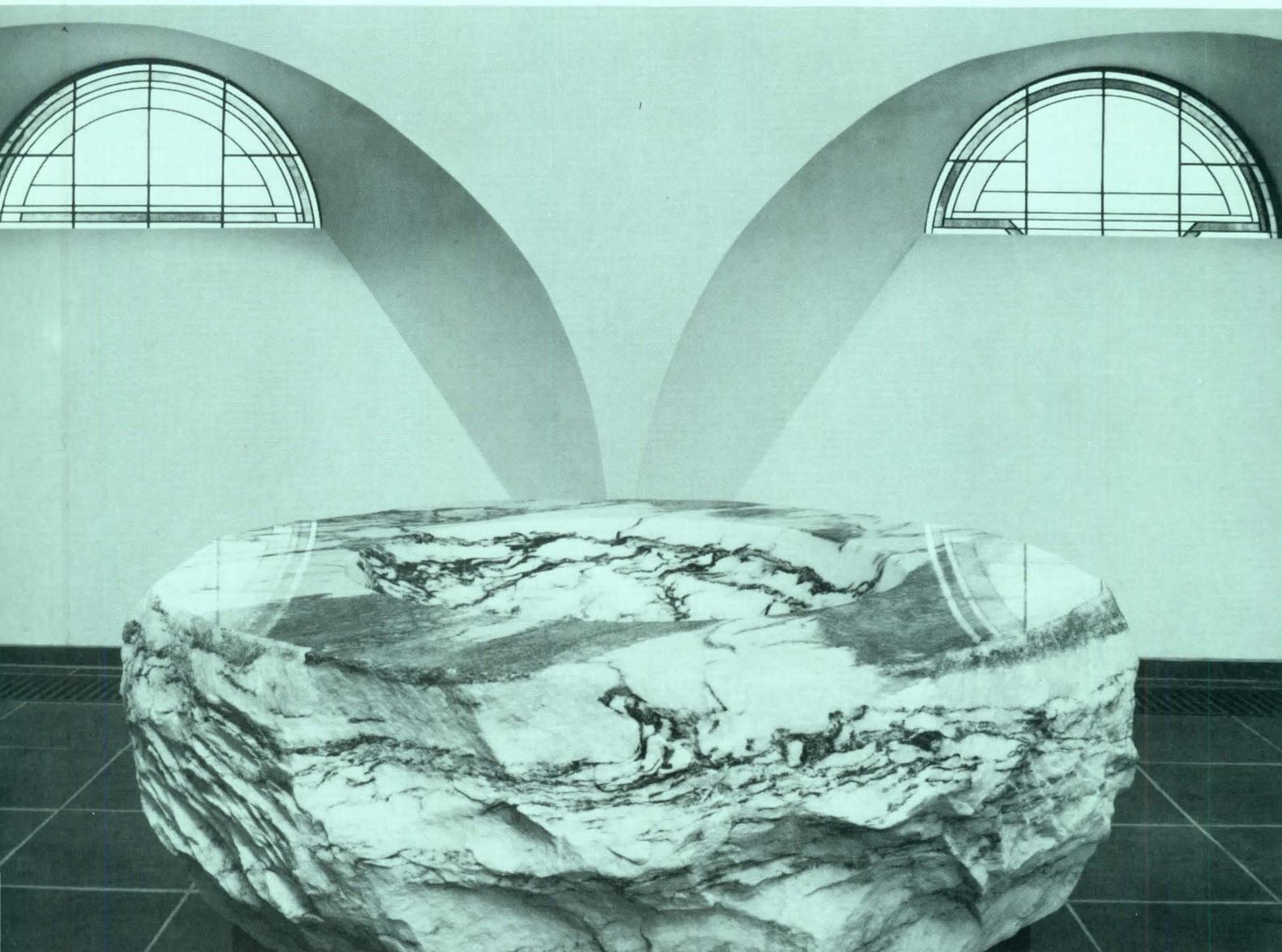




The sanctuary of the church is a tent-like structure similar in feeling to the curved reading room of Richardson's library. The Greek cross over the west door recalls the rose window in Christian churches. Its stained glass is the work of Robert Sowers. The floor, finished in Vermont slate, is bowl-shaped to improve sight lines. The sanctuary arrangements respond to liturgical changes instituted by Pope John XXIII. All of the interior fixtures—the altar, bishop's chair, organ, reredos, pulpit and pews as well as the tabernacle, baptismal font and processional cross—were designed in the Barnes office—a collaboration between Mary Barnes and Alistair Bevington.







The stained glass windows were designed by David Wilson. The interior walls which surround them are constructed of metal lath and plaster. They suggest the deep masonry walls of old churches while reflecting the light and colors of the glass. The baptismal font is of Vermont marble with a smooth finished bowl and edges. The tabernacle is of brass lined with cypress wood. It repeats the cross and window motifs. The view of the pinnacle cross (left) is from a skylight in the concourse.

CATHEDRAL OF THE IMMACULATE CONCEPTION, Burlington, Vermont. Owner: *The Roman Catholic Diocese of Burlington, Vermont.* Architect: *Edward Larrabee Barnes—associate: Alistair Bevington; project architect: Demetri Sarantitis; interior design: Mary Barnes, Toshiko Mori.* Associated architect: *Colin Lindberg (Burlington, Vermont).* Consultants: *Robert Silman Associates (structural); Hannaham & Johnston (mechanical/electrical); Klepper, Marshall, King Associates (acoustical); Donald Bliss (lighting); Kiley, Tyndall, Walker (landscape); Frank Kacmarcik (liturgical); Robert Sowers and David Wilson (stained glass).* General contractor: *Wright & Morrissey.*



BUFFALO'S NEW BUS STOP



Ronald Thomas photos

The Metropolitan Transportation Center, by Cannon Design, Inc., efficiently splices office functions and terminal facilities in an airy, festive setting.

During these gray wintery days, Buffalo's home fires are burning . . . well . . . brighter than they used to, anyway. And downtown.

Since the war, the place had turned into something of a tundra, architecturally. When the heat of development was on, nationally acclaimed works, like the Larkin Building by Frank Lloyd Wright, fell into the crevices; many others, like Adler & Sullivan's Prudential, fell into disrepair. The rhetoric and structure of "progress" gusted back and forth, updrafting in the form of isolated towers, upstaging a once-splendid streetscape. Recurrently, the slush brought on by the heat would freeze, sealing the spaces between the old and new buildings into a crust of car parks. By the mid-1970s, Buffalo's downtown had weathered many changes of this kind—managing to beam a bit, though looking battered. Only the city's architectural past, standing around here and there, seemed to have made it with style. Where, some asked plaintively, is our future?

Hopping a bus to Buffalo, and coming into the new Metropolitan Transportation Center, one can see where, sensing much else about the city as well. Because Buffalo's new bus stop, by Cannon Design, Inc., is not at all on the fringe of things, like most bus stops, but on the hinge of things—right downtown, on a block square site.

All around are commercial buildings and office buildings—the locus of more redevelopment ahead. Directly to the south, then ranging westward, is evidence of the kind of rich architectural history that Buffalo, until very recently, wanted to freeze out in formularizing its physical future: the old County Court House and Post Office, of 1894-1901, by James Knox Taylor, which is slated for conversion as a community college (also by Cannon Design); the academic but ebullient Ellicott Square building, of 1895, by Charles B. Atwood, chief designer for "Uncle Dan" Burnham, of Chicago fame; a Gothic-Revival church, by Richard Upjohn; then Adler & Sullivan's Prudential, of 1894-95, which has been subjected to visionless economic management and vile maintenance—this in the face of studies proving that "Pru" can yet be the smash hit of *this* century.

Obviously, not everyone hopping a bus to Buffalo, out of Buffalo, or around Buffalo is interested in making this kind of connection. But the regional transportation authority, responsible for both the metropolitan bus system and the servicing of intercity and interstate carriers, was interested in creating a portal of sorts, a portal through which people could more readily, richly identify with the surrounding city's revitalizing impulses. At the same time, functional requirements for the authority's administrative staff and for some 800,000 passengers a year, had to be housed in such a way that these functions wouldn't bump into each other—and in such a way that the resulting building wouldn't look like a bunch of baggage thrown by the curb.

Designing a really nice place for people to get on buses, off buses, or wait for buses isn't easy; moreover, it's not the kind of building type that many class-act architectural



The Metropolitan Transportation Center in Buffalo, New York, consists of a low-slung, skylit section, housing a concourse for the bus terminal, and a mid-rise office building, housing the administrative functions of the area's transportation authority. Cannon Design, Inc., the architect, has laid out and detailed the place with care, clarity, and a determination to allow the movement of people and the movement of light to assume the role of art. Graphics, though eye-catching, are as constrained as they are expressive in this limestone-and-glass pavilion.



firms covet. The bus station has become, generally speaking, rather seedily stereotyped as a bare-maintenance conduit for crowds, as a hangout for the misbegotten—and most, as “designed,” look, work, and feel like slammers. Passengers waiting or wandering around inside are safer, it has been assumed, in a fortress-style atmosphere. Cannon Design, while also considering how to tie 55,000 square feet of flexible office space into the station scheme, turned around a lot of preconceptions about necessity, amenity, and security in this not-so-glamorous genre.

Just to make sure that the office and station functions wouldn't bump into each other, the building houses them in two distinct masses. A vertical one, clad in limestone, dark solar gray glass, and black aluminum panels, is for the authority's offices (the windows open, helping to save energy), and a horizontal mass, clad more sparingly in limestone, is for the station concourse, which has the feeling of an open pavilion with its expanses of butt-jointed tempered glass. This transparency translates, as more efficient security. All the action is visible—the people, their interaction, and all the buses.

It also translates as amenity, and of an uncluttered, uncontrived nature. Two elements animate this architecture—the effect of people moving around the room, and the effect of light moving around the room. The people are informed by graphics that are crisp, consistent, and kept within a three-foot strip which winds around the perimeter of the concourse. The light is emboldened into arresting, ever-changing patterns as it comes down through a series of skylights, playing on and off a series of 140-foot steel trusses, which, in turn, are cantilevered 30 feet outside for covered access to the busses.

The connection not to be missed here is that between the horizontal and vertical sections—a roof garden, paved and landscaped, from which the people and light within the concourse below can be surveyed and enjoyed. This garden is itself a hinge, of space and experience, making the tower and concourse visibly at home with one another, lessening any sense that either of the two separate scales is stealing the show, splitting the scheme apart. Finally, this building, for all of its contrasting functional needs and nuances, is calm, cool, collected—just what one had best be, headed somewhere, or coming home, and just what a city had best be, too. Looking over to the west from there, to Adler & Sullivan's Prudential, there is a feeling that Buffalo's past and Buffalo's future may yet hit the road, together and on time. What else could such a thoughtful point of departure be suggesting? —*William Marlin*

METROPOLITAN TRANSPORTATION CENTER, Buffalo, New York. Architects: Cannon Design, Inc.; Mark Mendell, director of design; David Eberl, project manager; Rag Yadav, project designer; Robert Kryta, job captain; Douglas Purcell, interiors; Donald Stimson, lighting; Gary Scott, site work; Richard Dietrich, electrical; Thomas Moore, mechanical. Consultant: Rupley, Bahler & Blake (structural).



Spanning the terminal concourse of Buffalo's Metropolitan Transportation Center is a series of exposed steel trusses, 140 feet long, and these are cantilevered outside for covered access to the buses. A series of skylights, running above the trusses, admit lots of natural light, dappling the interior with plentiful, changing moods. A roof garden, on the second level, overlooks this busy room, creating a spatial hinge between the horizontal element of the concourse and the vertical element of the adjacent office building. Views south take in the city's rich architectural heritage.

The open plan is scrutinized in a pioneering survey on offices

A major public-opinion survey on office design conducted by Louis Harris & Associates, Inc. for Steelcase, Inc. provides architects and interior designers with a valuable resource for helping determine criteria and priorities for office planning. In-person interviews were conducted among 1,047 office workers, 209 business executives with office-planning responsibilities, and 225 architects and interior designers to determine, among other things, what workers do and do not like about their offices, how they feel about their say (or, rather, their lack of it) in the physical features of their offices; and what executives' and designers' perceptions are of the most important considerations for office design in the next 10 years. This article

abstracts results from four chapters of the seven-chapter book, "The Steelcase National Study of Office Environments: Do they Work?"

Some major findings of the survey: While the open-plan office affects approximately three in 10 workers, it is little understood by them, as is the role of design professionals—not surprising inasmuch as so few (only 19 per cent) feel they now have a voice in office planning; nearly twice as many feel they should have a say, and 42 per cent feel they should be represented by committee. Business executives still feel they would prefer the traditional process of working through supervisors and department heads.

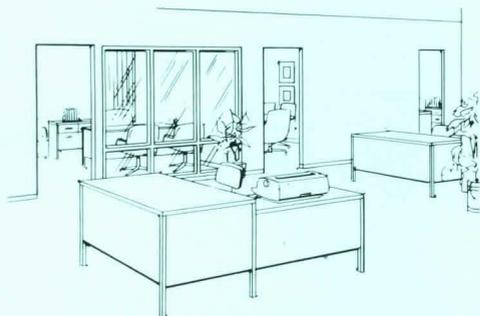
The single most important characteristic

for helping to get the job done well is the ability to concentrate without noise or other distractions.

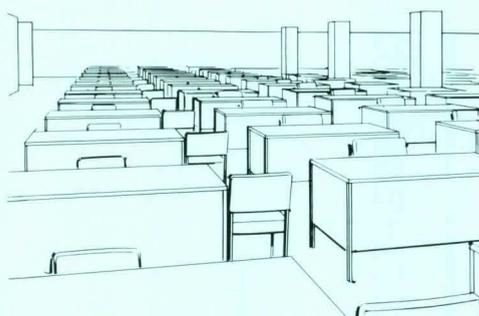
The two most important characteristics for personal workspace are its neat and well-organized look and the amount of privacy.

More than 40 per cent of office space has been renovated or relocated during the past five years; another 30 per cent will be renovated in the next five years, with 22 per cent needing renovation right now.

Architects and designers feel that half the time they receive inadequate input for planning offices because of inadequate criteria from management, employees not being asked at all, unrealistic clients, and a lack of communication with office workers.



A. "Conventional"



B. "Pool"



C. "Open Plan"



D. "Open Plan"



E. "Open Plan"

A preponderance of architects and designers, and business executives who have an influence on office planning and design, feel that future buildings will be designed to accommodate the open plan, and they feel that—to a somewhat lesser extent—the open-plan office will be more common in 10 years. In the survey

conducted by Louis Harris & Associates, 209 business executives, 225 architects and interior designers, and 1,047 office workers were interviewed. To obtain their opinions about the various types of office plans, they were shown the illustrations above as being representative of the principal types now in use.

How prevalent in the future?

Will office buildings be designed for the open plan?

(Number of respondents)	Business Executives (209)	Architects and Designers (225)
Will be growing trend	87%	91%
Will not be	9%	6%
Not sure	4%	3%

Will open-plan offices be more common in 10 years?

(Number of respondents)	Business Executives (209)	Architects and Designers (225)
Will be more common in 10 years	77%	84%
Will not be more common in 10 years	21%	14%
Not sure	2%	2%

The survey shows who has which type of office, by type of job and by type of industry.

Which types of offices do different categories of workers now have?

(Number of respondents)	Job Type					Job Level		
	Total (1047)	Executive/Manager/Supervisor (245)	Professional (319)	Secretarial (121)	Clerical (274)	Management (221)	Supervisory (205)	Regular Worker (597)
Type A:	39	48	33	56	34	56	40	32
Type B:	14	11	14	7	18	5	16	17
Type C:	8	7	8	7	10	5	5	10
Type D:	10	9	10	8	11	9	4	13
Type E:	12	11	19	5	8	10	15	11
None	13	11	12	12	12	11	14	12
Not sure/no answer	4	3	3	5	6	3	6	4

How does this break down by industry and by job function and department?

(Number of respondents)	Industry								Job Function/Department					
	Total (1047)	Manufacturing (197)	Government (178)	Health and Education (125)	Communications and Public Services (100)	Business and Professional Services (96)	Insurance and Real Estate (83)	Banking and Investments (66)	Accounting/Book-keeping/Financial (176)	Data Processing (84)	Customer Service (71)	Exec or Corporate (75)	Personnel (72)	
Type A "Conventional"	39	35	42	49	27	35	29	42	35	29	31	57	51	
Type B "Pool"	14	18	18	8	15	7	24	11	16	11	20	7	15	
Type C "Landscape"	8	9	7	4	7	10	12	8	7	12	6	7	6	
Type D	10	10	26	12	16	17	7	14	16	8	10	8	7	
Type E	12	14	12	3	18	18	12	15	8	24	15	11	6	
None	13	9	12	16	15	9	8	6	12	14	10	7	14	
Not sure/no answer	4	4	2	8	2	3	7	5	2	1	1	-	1	

Most existing offices are the conventional type—a combination of private offices and support personnel in open space. Nonetheless, 30 per cent of all workers have some form of open-plan office. Such offices are used principally by communications and utility companies (41 per cent have some form of open plan), business and professional service industries (45 per cent), banking (37 per cent) and data processing (44 per cent).

Business executives with responsibility for office planning estimate that 41 per cent of their companies' offices are open plan, and architects/designers said that 47 per cent of the offices they designed in 1977 were open plan.

Only 26 per cent of office workers (376 out of 1,047 interviewed) were able to articulate the meaning of the term "open plan" (see below), indicating they were not aware of its increasing use.

What types of offices do executives estimate their companies have; what types are architects planning?

(Number of respondents)	Business Executives (209)	Architects and Designers (225)
	Mean Percentage of Total Office Facilities:	Mean Percentage Planned in 1977
Type A "Conventional"	33	44
Type B "Pool"	20	4
Type C "Landscape"	11	16
Type D	13	17
Type E	17	14
	41	47

Executives and designers are familiar with the term "open plan," but office workers are not.

Executives' and designers' understanding of the term "open plan"

(Number of respondents)	Business Executives (199)	Architects and Designers (217)
Open office area, no physical partitions/walls; all work in large space	56	55
A versatile plan; nothing set, all subject to change, flexible	36	46
Modular systems, soft wall system, partitioning combined with furniture	34	31
Best utilization of space, efficient work stations	14	14
Open communications between employees and management, functional relationships	8	10
Open yet retains feeling of own work area, private area	10	8
Lack of privacy, no private areas	12	4
Long visual paths, high visibility	5	4
Facilitates grouping of people according to functional and communicational needs	4	3
Improvement of office workers' surroundings functionally and aesthetically	7	-
Any other answer	3	3

Office workers' understanding of the term "open plan"

(Number of respondents)	Office Workers (376)
Open office area, no physical partitions; all work in large space	73
Open communications between employees and management; freedom to hold meetings for better working conditions, give opinions, etc.	10
Freedom to plan own work routine; each employee responsible for own work without supervision	6
Free access to management; all doors open to employees	3
Employees may set up own work hours, free to come and go	3
A versatile plan; nothing set, all subject to change	3
How office is organized, goal and objectives of company	2
Any other answer	6
Nothing	1
Do not know	3

Interviewers asked executives and designers to rate the pros and cons of the open plan.

Advantages of the open plan

(Number of respondents)	Business Executives (209)		Architects and Designers (225)	
	%	Rank	%	Rank
Ability to change office layouts with a minimum of cost				
Strong advantage	82	88		
Somewhat of an advantage	15	10		
Not an advantage at all	3	1		
Not sure/no answer	-	1		
Ability to change office layouts with a minimum of dislocation				
Strong advantage	69	72		
Somewhat of an advantage	24	25		
Not an advantage at all	6	2		
Not sure/no answer	1	1		
Increased energy efficiency through task lighting				
Strong advantage	29	44		
Somewhat of an advantage	48	41		
Not an advantage at all	20	14		
Not sure/no answer	3	1		
Suitability for users of data and word processing equipment				
Strong advantage	20	24		
Somewhat of an advantage	46	37		
Not an advantage at all	34	29		
Not sure/no answer	-	9		
Adaptability to different individual users with different physical requirements				
Strong advantage	31	46		
Somewhat of an advantage	53	36		
Not an advantage at all	13	17		
Not sure/no answer	2	1		
Adaptability to different office functions and job requirements				
Strong advantage	41	67		
Somewhat of an advantage	49	26		
Not an advantage at all	10	6		
Not sure/no answer	-	2		
Increased employee productivity				
Strong advantage	21	40		
Somewhat of an advantage	42	39		
Not an advantage at all	31	17		
Not sure/no answer	5	4		

The original table includes an additional category, "Increased privacy for employees who previously have had none."

Drawbacks of the open plan

(Number of respondents)	Business Executives (209)		Architects and Designers (225)	
	%	Rank	%	Rank
Loss of status to people formerly in traditional private offices				
Serious drawback	43	32		
Somewhat of a drawback	45	43		
Not a drawback at all	12	24		
Not sure/no answer	-	-		
Loss of conversational privacy				
Serious drawback	43	29		
Somewhat of a drawback	46	50		
Not a drawback at all	11	20		
Not sure/no answer	-	2		
Loss of visual privacy to people formerly in traditional private offices				
Serious drawback	33	23		
Somewhat of a drawback	46	49		
Not a drawback at all	21	27		
Not sure/no answer	-	3		
Employee resistance				
Serious drawback	16	14		
Somewhat of a drawback	56	48		
Not a drawback at all	27	36		
Not sure/no answer	1	4		
Difficulty of making wiring systems flexible enough				
Serious drawback	13	21		
Somewhat of a drawback	38	43		
Not a drawback at all	44	34		
Not sure/no answer	5	3		
Suitability only for certain types of employees				
Serious drawback	13	11		
Somewhat of a drawback	57	52		
Not a drawback at all	29	36		
Not sure/no answer	2	3		
Initial high cost of installation				
Serious drawback	11	11		
Somewhat of a drawback	49	40		
Not a drawback at all	37	46		
Not sure/no answer	3	5		

The original table includes an additional category, "Suitability for certain types of buildings."

What criteria will have the most impact on planning?

The most important advantages of the open plan, according to both business executives and architects and designers are, first of all, the "ability to change office layouts with minimum cost," and, secondly, the "ability to change office layouts with minimum dislocation." These business executives feel that the major drawback is the "loss of status to people formerly in traditional offices." Not as many design professionals see this as a serious drawback. Architects and designers (44 per cent) believe that increased energy efficiency through task lighting is a strong advantage, while 48 per cent of the executives believe it is somewhat an advantage. Loss of conversational privacy was felt by 43 per cent of the business executives to be a serious drawback, while only 29 per cent of the designers felt this strongly, but 50 per cent of the designers considered it somewhat of

a drawback. Both executives and designers thought that employee resistance was somewhat a drawback.

When asked whether the benefits of the open plan outweigh its disadvantages, or vice versa, 57 per cent of the business executives and 75 per cent of the design professionals agreed to the former. Only 28 per cent of the executives and 13 per cent of architects and designers thought that disadvantages outweigh the benefits.

Of the two or three criteria considered to be the most important in developing office plans in the next 10 years (see table right), business executives ranked suitability for electronic, telecommunications, and data-processing needs first in their list, and designers ranked this second. Designers put energy efficiency first by a small margin. Effect on employee productivity ranked third in the executives' selection.

During the next 10 years, which two or three?

(Number of respondents)	Business Executives (209)		Architects and Designers (225)	
	%	Rank	%	Rank
Suitability for electronic, telecommunications, and data processing needs	29	1	42	2
Overall functioning	26	2	27	3
Effect on employee productivity	25	3	18	5
Energy efficiency	24	4	45	1
Adaptability to changes in the work force	21	5	17	6
Effect on employee satisfaction	19	6	15	8
Adaptability to new equipment needs	15	7	21	4
Overall space	15	7	6	14
Adaptability to internal reorganization	14	9	16	7
Effect on workflow	11	10	6	14
Adaptability and suitability to specific job requirements	10	11	8	12
Overall appearance	10	11	9	10
Effect on communication between departments	9	13	4	13
Effect on management satisfaction	5	14	4	18
Suitability of office furniture for job requirements	5	14	7	13
Effect on employee health and safety	4	16	8	11
Acoustics	3	17	5	12
Lighting	2	18	10	9
Impression on business visitors	2	18	4	18
Fire safety	1	20	6	14
Wiring	-	21	1	21
All (vol.)	-	-	1	-

All tend to agree on what helps employees most in doing their jobs.

Which characteristics do executives and designers feel are important, and that employees would choose?

(Number of respondents)	Business Executives (209)				Architects/Designers (225)				Office Workers (1047)
	Feel Are Important		Feel Employees Would Choose As Important		Feel Are Important		Feel Employees Would Choose As Important		Actual Choice As Important
	%	Rank	%	Rank	%	Rank	%	Rank	Rank
Heat, air conditioning, and ventilation	62	1	52	1	40	4	41	2	2
Ability to concentrate without noise and other distractions	50	2	49	2	52	1	46	1	1
Lighting for the work done	31	3	15	7	42	3	23	4	5
Ability to adjust work surface, chair and storage space to suit work requirements	31	3	28	3	47	2	38	3	6
Access to the tools, equipment, and materials used to work with	29	5	22	5	24	6	21	5	3
Suitability for the type of work done	24	6	15	7	32	5	20	6	12
Overall lighting	18	7	10	11	12	7	8	12	8
Conversational privacy	17	8	19	6	8	11	19	7	4
Visual privacy	10	9	13	9	7	14	12	10	13
Access to other areas and departments	10	9	8	13	12	7	7	14	6
Size	9	11	23	4	8	11	17	9	13
Storage space for working materials	8	12	11	10	12	7	9	11	9
Comfort of chair	8	12	9	12	9	10	18	8	9
Working surfaces	5	14	4	15	8	11	4	15	9
Back support of chair	3	15	2	16	4	15	4	15	15
Safety	2	16	1	17	1	16	2	17	16
Storage space for personal things	-	17	5	14	1	16	8	12	17

Which characteristics do various categories of employees feel are most important in getting the job done well?

Rank (Number of respondents)	Job Type							Type of Office				
	Total (1047)	Male (458)	Sex Female (589)	Executive/Supervisor (245)	Professional (319)	Secretarial (121)	Clerical (274)	Private (473)	Shared (570)	Conventional (405)	Pool (148)	Open Plan (318)
	%	%	%	%	%	%	%	%	%	%	%	%
1 Ability to concentrate without noise and other distractions	41	44	38	42	47	36	34	45	39	41	38	45
2 Heat, air conditioning, and ventilation	26	23	28	23	24	30	29	24	27	24	31	29
3 Access to the tools, equipment, and materials you work with	25	21	28	17	23	29	29	21	28	24	22	25
4 Conversational privacy	23	32	17	38	32	9	11	30	18	26	16	25
5 Lighting for the work you do	19	18	21	14	17	22	25	20	19	18	18	22
6 Ability to adjust your work surface, chair and storage space to suit your work requirements	15	15	16	11	18	16	18	15	16	15	17	15
6 Access to other areas and departments	15	16	14	15	16	23	9	16	13	15	11	16
8 Overall lighting	13	11	14	9	13	13	17	10	14	11	16	14
9 Storage space for working materials	11	11	11	10	11	11	13	13	9	10	16	11
9 Comfort of your chair	11	8	13	7	6	21	15	11	10	10	13	13
9 Working surfaces	11	11	10	9	9	7	13	12	9	11	11	11
12 Suitability for the type of work you do	10	10	9	11	9	7	11	9	10	9	9	10
13 Size	8	9	7	8	8	11	6	8	8	7	9	6
13 Visual privacy	8	10	6	9	11	3	4	10	6	8	6	7
15 Back support of your chair	4	1	5	3	2	3	7	4	4	4	5	3
16 Safety	3	3	3	3	2	1	5	1	5	3	5	2
17 Storage space for personal things	1	1	1	1	-	1	1	3	2	-	1	1
All (vol.)	2	2	3	4	2	2	3	-	1	3	4	1
None	-	-	-	-	-	-	-	-	-	-	-	-
Not sure/no answer	5	5	6	7	6	7	3	5	6	8	5	3

Ability to concentrate without noise and other distractions concerned office workers by far the most. Architects and designers agreed, and executives ranked this item a close second. Of about equal concern to workers were heating, air conditioning and ventilation (ranked second) and access to tools, equipment and materials (ranked third). Executives and architects thought that lighting

for tasks was third in importance, while workers ranked this fifth, slightly behind conversational privacy, though only 9 per cent of secretarial employees considered conversational privacy important. Office workers felt that overall lighting was fairly important, though it is interesting that executives and designers didn't think workers would rate this item in the top half.

For more information, circle item numbers on Reader Service Inquiry Card, pages 217-218

Warren Platner-designed furniture new addition to Lehigh-Leopold line



The set of desk, credenza and telephone console are all part of a new collection of office furniture designed by architect Warren Platner. (The side chairs shown are also Platner-designed.) The collection, called *Sculptures in Wood*, is the third group of furniture designed by Platner for Lehigh-Leopold. This latest design was commissioned as part of a company program launched to provide custom quality with moderate prices. Recently introduced in New York City, the furniture is available now, constructed of white oak.

■ Lehigh-Leopold Division of Litton Industries, New York City.

circle 300 on inquiry card



Chair designed after ergonomic studies

Combining correct back support with freedom of movement, the Rollback chair offers a new seating design for high stools used in offices. One open side permits the user to sit at any angle. With pressure, the cylindrical chairback spreads into an oval cushion; back support can be further adjusted by either raising and lowering the backrest or the backrest can be angled outward in any of seven positions. ■ Herman Miller, Inc., New York City.

circle 302 on inquiry card

Ambient lighting unit newly introduced by Steelcase

Steelcase has added High Intensity Discharge (HID) lighting to its Lite-Savers task and ambient lighting product line. Six models are available, each with the option of two heights and three different wattages of metal halide or mercury fixtures, with further variety of a down light, quartz-auxiliary light or an asymmetric reflec-

tor. The model shown (right) is a freestanding unit with a glass shelf between a solid base and top containing the light fixture, supported by four chrome poles. The top provides both down light and up light. Uses include office and retail spaces. ■ Steelcase, Inc., Grand Rapids, Mich.

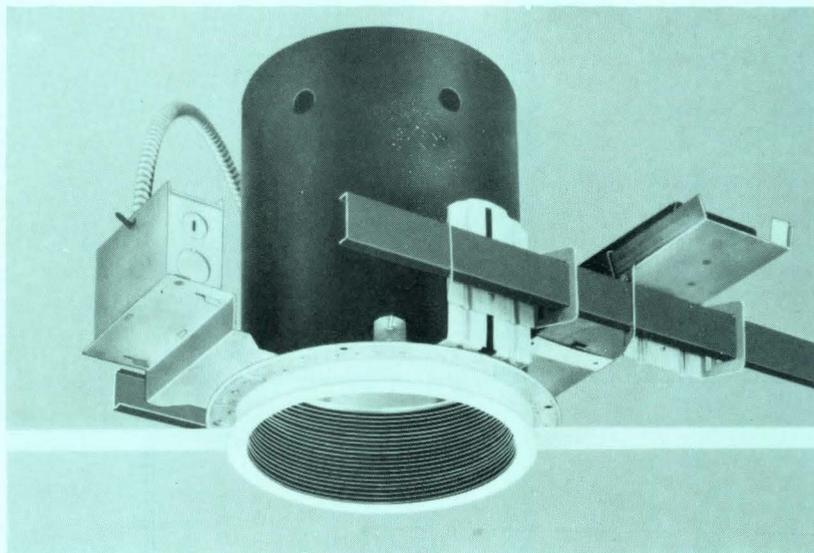
circle 301 on inquiry card



Down light offers variety of features for flexibility

Designed for high light output, this fixture is one of a new series of the company's recessed HID down lights. The model shown uses R-40 mercury lamps and features a modified *Alzak* aluminum parabolic reflector. The new down lights have encased ballasts isolated from the fixture body, thus reducing ballast noise and preventing heat build-up. These are mounted on a universal carrier with a quick-release latch for flexibility and easy installation. ■ ITT Gotham Lighting, c/o Lord, Sullivan & Yoder, Inc., Marion, Ohio.

circle 303 on inquiry card
more products on page 153





This simple ceiling helped GTE Sylvania save \$40,800 on heating and cooling costs in a year

It's a fact: Inadequate ceiling and roof insulation is a major source of heat loss—*especially in one-story, flat-roof buildings.*

That's why GTE Sylvania Incorporated put one of our Energy Saving Ceilings in a Massachusetts lab.

Result: Comparing similar buildings, 1975 heating and cooling savings totaled \$40,800. Savings on equipment needed for air conditioning: \$100,000.

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with Sonobatt™ insulation. Both are easy to install on any standard exposed grid system.

Make old ceilings save, too

Just slip our Sonobatt insulation on top of your present ceiling. You'll increase thermal efficiency up to 731 percent, depending on thickness.

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Or call us today. You'll put a ceiling on your energy costs tomorrow.

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Circle 63 on inquiry card

For more information, circle item numbers on Reader Service Inquiry Card, pages 217-218

RESIDENTIAL FIXTURES / Written to assist with product selection, color coordination and interior design, this 40-page idea booklet illustrates a full line of residential fixtures for bath and kitchen. Included are whirlpool baths, environmental enclosures such as the *Habitat* tubs, shower coves, toilets, bidets, lavatories, kitchen and bar sinks, and a number of water-saving fixtures and accessories. ■ Kohler Co., Kohler, Wis.

circle 400 on inquiry card

THROUGH-WALL HEAT PUMPS / Ratings and specifications based on the latest Federal Energy Administration test procedure are included in a 4-page folder on *Zoneline III* extended range heat pumps. Through-wall units for 230/208-Volt operation in cooling capacities of 9100-, 11,500-, and 13,700-Btu/hr are covered; 265-Volt capability will soon be added to the *Zoneline III* line. A companion "Question/Answer" brochure responds to some of the most commonly asked questions about year-round, energy-saving features of heat pumps. ■ General Electric Co., Louisville.

circle 401 on inquiry card

HVAC EQUIPMENT / Fuel-saving spot heaters, evaporative coolers, power vents, and gas, oil and electric furnaces are introduced in a 4-page brochure. Equipment sources nationwide are listed. ■ ITT Reznor, Mercer, Pa.

circle 402 on inquiry card

AIR HANDLING DUCTS / Product catalog describes a line of fiberglass, flexible metal and transite duct systems, and fiberglass duct insulations and liners for any shape or velocity requirement of hvac installations. Product presentation includes full specification data, fire hazard classifications and code compliance information. ■ Johns-Manville Sales Corp., Denver.

circle 403 on inquiry card

CENTRIFUGAL PUMPS / Horizontal single-stage split-case pumps for many commercial, industrial, municipal and construction applications are featured in a product brochure. Literature includes construction features, performance data, assembly drawings, parts lists and photos of typical applications. ■ Peerless Pump, Montebello, Calif.

circle 404 on inquiry card

FLOATLESS PUMP CONTROLLER / The *Sealtrod* sealed electrode pump controller, designed for sewage and sump installations, is described in a 4-page brochure. Controlling one or more pumps, the *Sealtrod* has no moving parts exposed to well liquids; electrodes are completely protected from oil or other corrosive elements. ■ Peerless Pump, Montebello, Calif.

circle 405 on inquiry card

RACEWAYS / An 8-page folder compares the new "TR" underfloor electrical/communications duct system for concrete buildings with conventional systems. Said to provide up to 120 per cent more electrical and communications capacity than other raceways, "TR" ducts use a flush multi-service outlet unit instead of tombstones. ■ H.H. Robertson Co., Pittsburgh.

circle 406 on inquiry card

INTEGRATED CEILINGS / A complete "single-source" line of acoustical materials, modular suspension systems, *Holophane* luminaires, and air distribution equipment is described in an integrated ceiling system catalog. Technical illustrations depict the basic components used in each of 10 different ceilings; color photographs show actual installations. Fire ratings, acoustical properties, etc., are given for all products. ■ Holophane Div., Johns-Manville Sales Corp., Denver.

circle 407 on inquiry card

OUTDOOR LIGHTING / A full-color brochure features several additions to the "Periclone Contemporary Series" lighting system for outdoor area illumination. All available sizes, finishes, HID wattages, and poles are shown in selection charts, specifications, photometric data, dimensional drawings and mounting details. Spacing charts and guides illustrate the type and amount of luminaires needed for particular applications such as general area lighting, parking lots, streets or narrow areas, and lighting for cities. ■ Moldcast Lighting, Pine Brook, N.J.

circle 408 on inquiry card

POWER GENERATION EQUIPMENT / A selection chart supplies basic information on the complete line of *Enginator* diesel and gas standby and prime power generation equipment. The kilowatt chart format permits architects and engineers to match electric power needs with the model number of the *Enginator* designed to provide it. ■ Waukesha Engine Div., Dresser Industries, Inc., Waukesha, Wis.

circle 409 on inquiry card

INSULATION BOARD / *Gaftemp* board provides lightweight insulation for built-up roofing systems installed over nailable, non-nailable or metal roof decks. An 8-page technical brochure explains the advantages, limitations, and suggested applications of the three *Gaftemp* boards: perlite, urethane and urethane/perlite insulations. Physical properties, heat transmission "U" values, and code acceptances are given for each configuration. ■ Building Materials Group, GAF Corp., New York City.

circle 410 on inquiry card

VAPOR BARRIER / Product information and code-approved installations for *Reflecto-Barrier* "Type P-K" insurance rated vapor barrier for insulated steel deck construction are printed on a sample of the material itself. The preformed system consists of two plies of kraft paper laminated with an asphalt adhesive, applied with a noncombustible rubber base adhesive. "Type P-K" is UL- and FM-approved. ■ Reflecto-Barrier Sales Co., Inc. Hartford, Conn.

circle 411 on inquiry card

PROFILED METAL ROOFS / Ten-page brochure uses color photos to show some of the various applications of *Galbestos* profiled roofs on a range of building types. Cutaway drawings demonstrate four different roof systems, insulated and un-insulated, using "Huski-Rib," mansard and inverted box-rib *Galbestos* panels. ■ H.H. Robertson Co., Pittsburgh, Pa.

circle 412 on inquiry card

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SHOWROOMS: 280 PARK AVENUE, NEW YORK; 1140 MERCHANDISE MART PLAZA, CHICAGO; SOUTHERN FURNITURE MARKET CENTER, HIGH POINT.

METAL BOOKSHELVES / Squared corners give a contemporary appearance to these three 36-in.-wide bookcases. Available in 29-, 42-, and 84-in. heights, all models have 12-in.-deep sliding shelves, easily pulled out and relocated on 3/4-in. centers. Sliding doors on the desk- and counter-height cases protect contents; one-piece back permits use as a freestanding unit. Optional splice channels conceal and secure edges of adjacent bookcases to form a multi-case storage system. All models are available from stock in black, dove gray and desert sand enamel finishes. ■ Lyon Metal Products, Inc., Aurora, Ill.

circle 304 on inquiry card



VERSATILE STORAGE / The "Risom/Burr" executive credenza is offered with two, three and four pedestals, and in a back desk configuration. Depending on the number of pedestals, the credenzas may be equipped with bookshelf, paper organizer, writing and machine slide, drawers, and filing units. Units are available in oil-finished walnut or oak veneers, and laminates with hardwood banding. Legs are chrome- or bronze-finished steel-tubing. ■ Howe Furniture Corp., New York City.

circle 305 on inquiry card

ROLL-AWAY SHUTTER / Designed to insulate and protect private houses, vacation homes and commercial structures, the "Therma-Roll" vertical rolling shutter installs on the exterior of the window frame. Individual slats are made of extruded PVC, with an insulating pocket of dead air, or of aluminum filled with expanded foam. When fully lowered the "Therma-Roll" shutter forms an interlocking, weatherproof surface; when partially open, slots in the hinge area between each slat admit some light into the interior. The storage housing is aluminum; the slats run in vertical, no-maintenance tracks fastened to each side of the window, glass door, or skylight. ■ Therma-Roll Corp., Golden, Colo.

circle 306 on inquiry card

RESTAURANT FURNITURE / The natural wood butcher block "Caribe" table is now offered with a maintenance-free low-gloss finish said to be impervious to alcohol, acetone, lighter fluid, etc. The top has a full bull-nose edge, and is guaranteed against cracking, warping and splitting. The oxidized bronze hobnail base acquires an attractive patina with use. ■ International Contract Furnishings, Inc., New York City.

circle 307 on inquiry card



FLUORESCENT TASK LIGHTING / The "Supertube" fixture can swivel 355 degrees on end ratchets to aim light for specific tasks. It can also be used for general illumination in homes, stores, libraries, etc. The "Supertube" uses F40 fluorescent lamps in single or tandem lamp models, and is offered in nine colors. ■ Columbia Lighting, GTE Sylvania, Stamford, Conn.

circle 308 on inquiry card



OUTDOOR SEATING / A durable side chair designed by Robin Day for outdoor use, the "Polo" chair has a one-piece shell of colored polypropylene with a pattern of holes for rain water drainage. Offered with three nylon-coated steel base configurations and in a choice of five shell colors, all "Polo" chairs are stackable. ■ Loewenstein, Ft. Lauderdale, Fla.

*circle 309 on inquiry card
more products on page 167*

Problem Wall? Flexi-Wall!

Flexi-Wall® is a unique one-step process in covering walls for renovation or new construction projects. It goes up like wallcovering... over almost any surface... hiding blemishes and bumps, bridging gaps and voids. It dries hard as plaster... strong, long lasting, protective. It's easy to put up, easy to clean, easy on the budget. And nice to look at, too... in 23 colors. Ever face the question: Problem wall? Only one answer: Flexi-Wall! Write for free samples. Flexi-Wall Systems, P. O. Box 88, Liberty, SC 29657.

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Offices opened

James W. Greenwell and Lewis J. Goetz are pleased to announce the opening of a new firm, Greenwell Goetz Architects, P.C. for the practice of architecture, planning and interior architecture. Their offices are located at 1606 20th Street, N.W., Washington, DC.

E. Patrick Holden, AIA is pleased to announce the formation of a new firm, Patrick Holden Architects, and the association of James C. Bethel, CSI with the firm. The new location is 30H Highland Park Village, Dallas, Texas.

Lee & Fan Architecture & Planning announces the opening of their office at 58 Sutter Street, San Francisco, California.

Richard C. Boast, is pleased to announce the formation of Phase III Design providing design and consultation services for architecture, planning and restaurant design. They are located at 60 Liberty Street, Post Office Box 149, Action, Massachusetts.

William Carl Phelan and Lee R. Woods announce the formation of their firm, Phelan & Woods, AIA, PS located at 600 Sixth Street South, Kirkland, Washington.

Newill and Associates have merged with Rancorn, Wildman and Krause of Tabb, Virginia. Roger Fulton Newill will be managing partner of the Norfolk office of Rancorn, Wildman and Krause.

Gary Sparks, Mike Martin and Grant Easterling are pleased to announce the new firm of Sparks Martin Easterling, Architects located at 5155 East 51st Street, Suite 207, Tulsa, Oklahoma.

Firm changes

Boutwell, Gordon, Beard & Grimes, AIA has promoted four members of its executive staff to partner and associate. Named partners in the firm were Stephen W. Domreis and Harold Bahls. Promoted to associates were John J. Vosmek, Jr. and Beth R. Cowman.

The Eugene, Oregon office of Brown and Caldwell Consulting Engineers have made the following staff additions: Eugene Appel as chief engineer; Paul Kramer, Michael Spero and Charles Arrera as project managers.

Caudill Rowlett Scott has announced the appointment of Robert W. Carington and S. Jay Neyland as senior vice presidents. Newly announced vice presidents include Edmond S. Abboud, Jay S. Bauer, Jim C. Kollaer, Carroll T. Leech, George Mann, Peter R. Stark and Patrick T. James. Also promoted to associates in the firm include Saad Ahmed, Vincent F. Calicchia, Rey de la Reza, Frank W. Hersom, Jerry Latta, Eugene L. Hayes, Don MacCormack, Cecil Smith, Michael J. Staphenhorst, George Todorovich and John Zona. William M. Pena, senior vice president has been named outstanding officer and George M. Willock has been named outstanding associate.

Robert L. Barnes has joined the architectural, engineering and consulting firm of Daniel, Mann, Johnson, & Mendenhall as vice president and programs director.

Irwin Haupt has been named an associate in charge of electrical engineering at Day & Zimmermann Associates.

Thomas Alan Abels has recently joined Robert Forscutt and Benito Noyola to form the new firm of Forscutt, Noyola & Abels, Architects and Planners in San Francisco.

Geotactics, a planning and architectural firm in New Haven, Connecticut announce that Robert Orr has joined its staff as an architect.

Globe Engineering Company announces that Robert L. Opila was named president of the company and assumes responsibility for all of Globe's operations. Norman Swift was named senior vice president and assumes responsibilities for Globe's engineering division.

Ronald H. Albert has joined the staff of Grayson Associates, Inc., Architects and Planners, Belmont, Massachusetts. He has assumed project design and supervision responsibilities for the firm.

Interspace Incorporated has joined the group of Interspace Companies Space Planning, interior design and graphics services.

The office of Joseph Kiell, AIA Architect/Engineer announces a change in firm name to Kiell/Associates, AIA Architects/Engineers and the appointment of Frank Lo Presto to associate architect.

Lloyd Jones Brewer Associates Architects is happy to announce that Thomas E. Greacen II, Dan E. Houston, Bernard H. Rogers and James A. Farrar as new additions to the firm.

Mackinlay/Winnacker/McNeil AIA & Associates is pleased to announce the return of Murray C. McNeil, vice president to the home office of MWM in Oakland, California. Mr. McNeil spent eight years in Guam as principal-in-charge of the MWM Guam office.

Eugene Rodarte has joined Chicago-based Eva Maddox Associates, Inc. as a project co-ordinator. He will act as a client liaison and field supervisor.

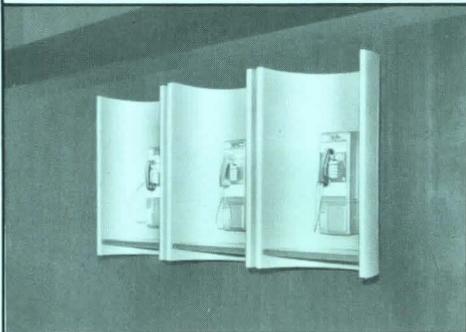
Pedro Goicouria has joined William Joseph Muse Architects Planners.

Alan Eliot Goldberg, partner of the late Eliot Noyes, is continuing the practice of Eliot Noyes Associates, Architects located in New Canaan, Connecticut. The firm also announces the promotion of Charles Baffo to senior associate and Boris Pogacnik to associate.

Leonard A. Peterson has been named president and managing principal of O'Donnell Wicklund Pigozzi Architects, Inc.

more office notes on page 207

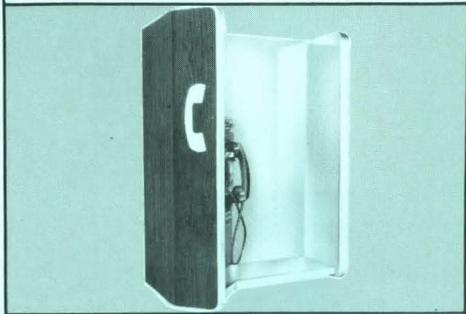
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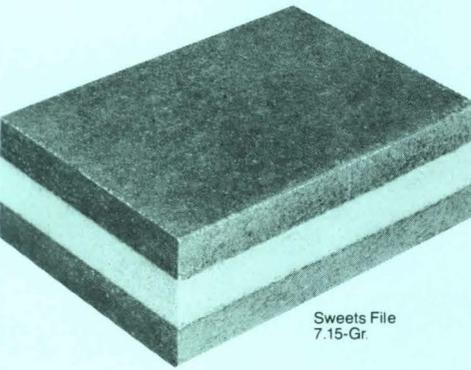
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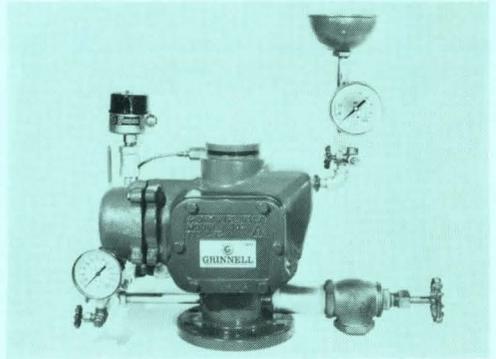
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LIGHTWEIGHT CONTROL VALVE / A dry pipe valve, model F302, is a differential latch-type valve used to control the flow of water to dry pipe sprinkler systems and to provide actuation of fire alarms when the sprinkler system operates. It is specifically designed for installation where piping and sprinklers are exposed to freezing temperatures, but the valves are not. ■ Grinnell Fire Protection Systems Co., Providence.

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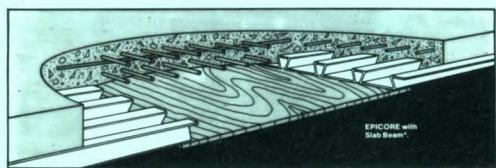
COMPONENT FURNITURE / The "Series 8000" offers a comprehensive and versatile organization of both freestanding and modular components. Panels can be either acoustical or non-acoustical with choice of fabric and trim, and has raceways carrying a Class A fire rating. ■ All-Steel Inc., Aurora, Ill.

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ARM CHAIR / Called the "UCD 137," this chair was designed for both contract and residential applications. It emphasizes an unbroken, flowing line and comes in walnut or oak frame with either leather or fabric seat and back. ■ Helikon Furniture Co., Inc., Taftville, Conn.



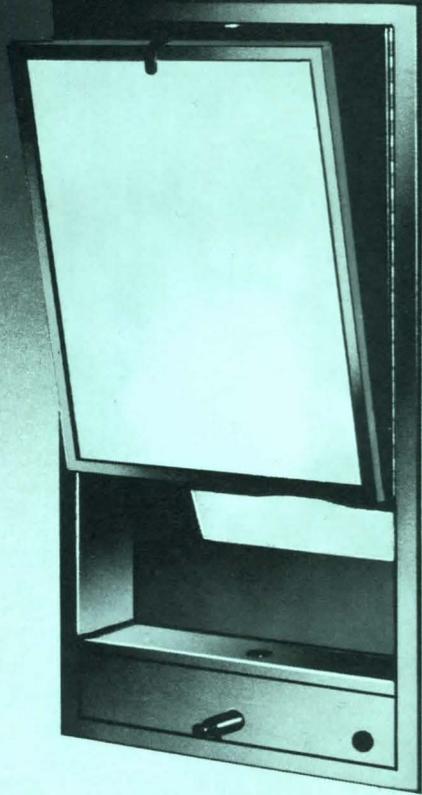
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SPECIAL FLOOR SYSTEM / The Epicore slab beam is shown with the Epicore steel composite floor deck in a floor system used most frequently for multiple-unit residential construction and in commercial and industrial buildings with residential load requirements. The system serves as a permanent form and positive reinforcing for concrete slabs. ■ Epic Metals Corp., Rankin, Pa.

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 more products on page 169

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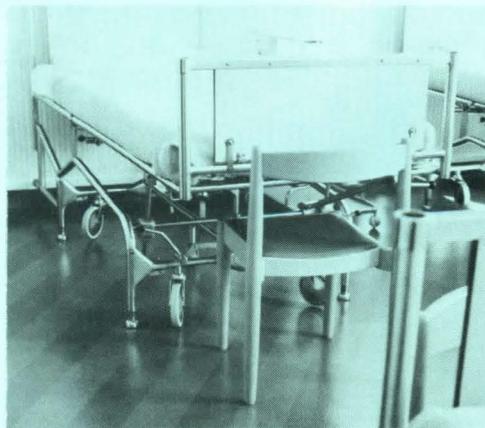
ROBE HOOK / Model B-671 of this company's line of clothing hooks is made of stainless steel (with a stain or bright polished finish). The flange is equipped with a concealed 16-gauge mounting bracket which locks to a concealed stainless steel wall plate. ■ Bobrick Washroom Equipment, Inc., North Hollywood, Calif.

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MIRRORED PANELS / Acrylic panels in the "Reflections Series" can be used in suspended ceilings; standard sizes are 2- by 2-ft and 2- by 4-ft, offered in 11 mirror colors and three texture variations. Panels are easy to cut, and custom sizes may be ordered. ■ ALP Lighting Products, Chicago, Ill.

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RESILIENT FLOORING / Named "Futur," this heavy-duty sheet vinyl flooring is suitable for high-traffic areas. Its durability is due to a polyurethane reinforced vinyl surface. ■ Tarkett, Tarco Eastern, Inc., Newton Square, Pa.

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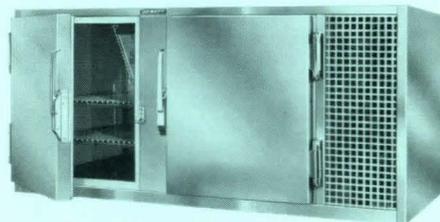
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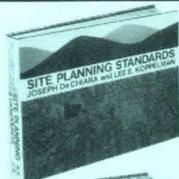
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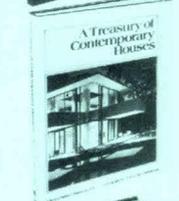
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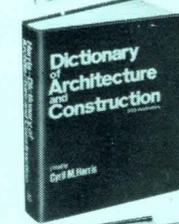
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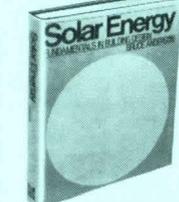
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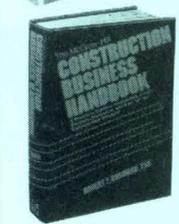
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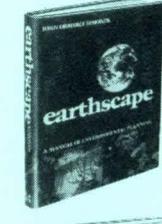
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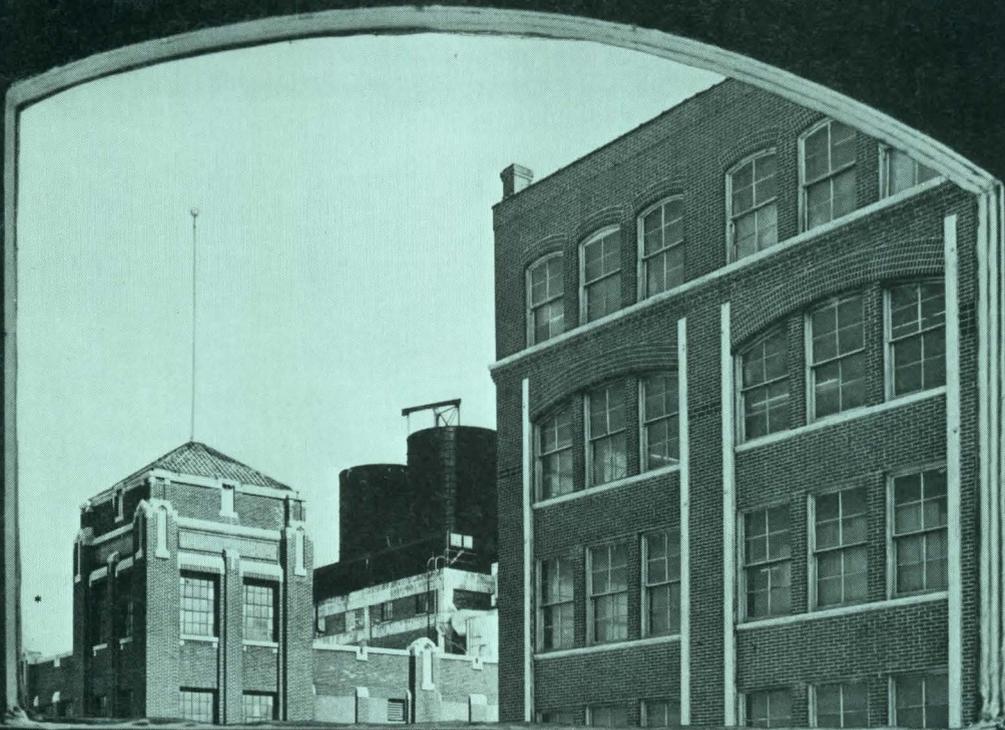
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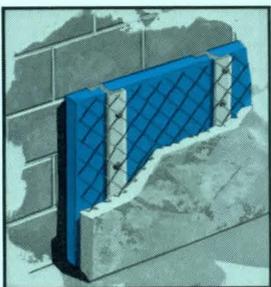
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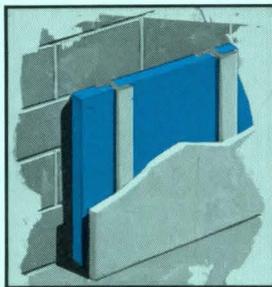
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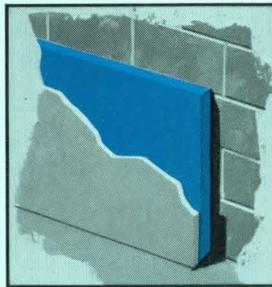
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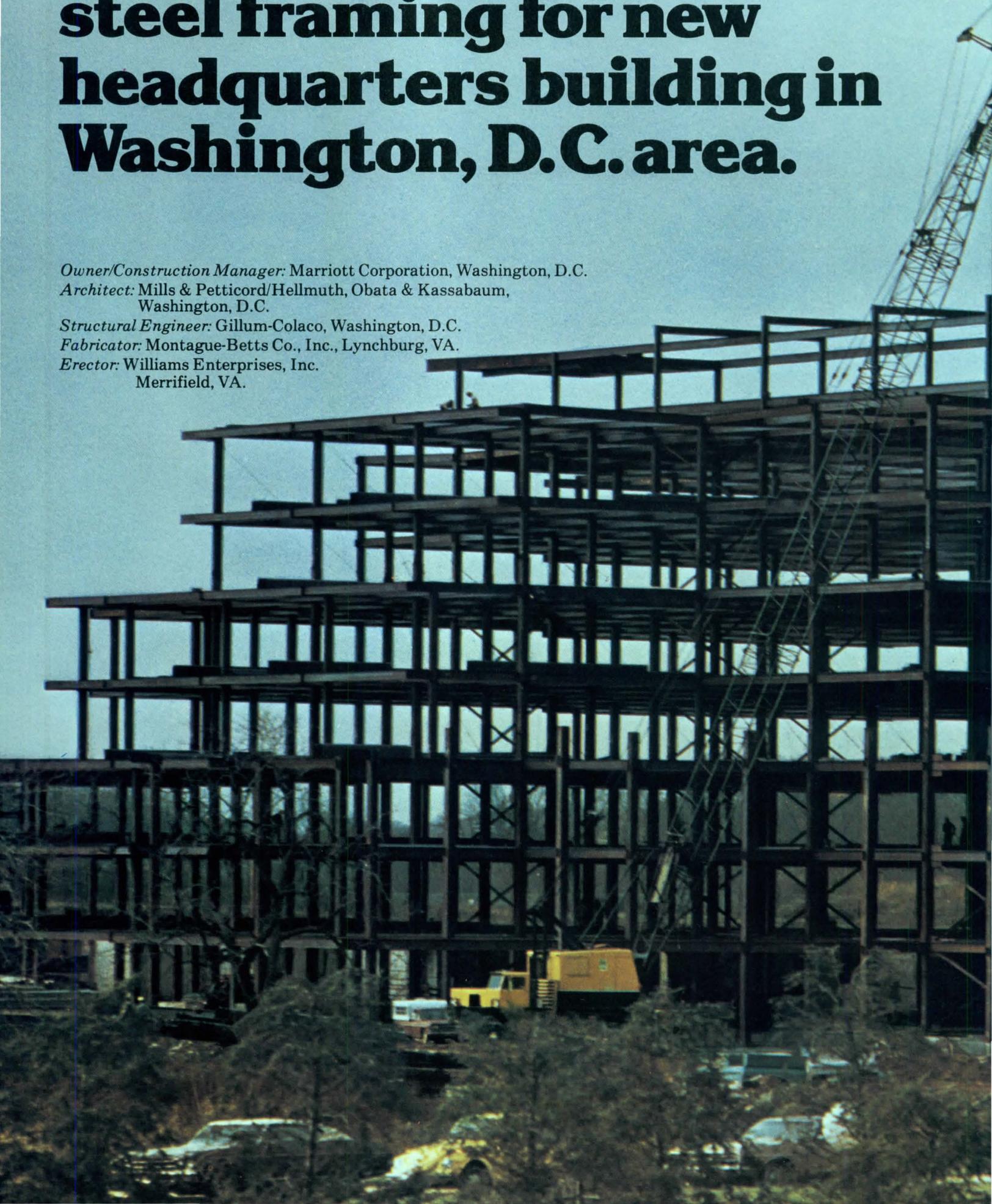
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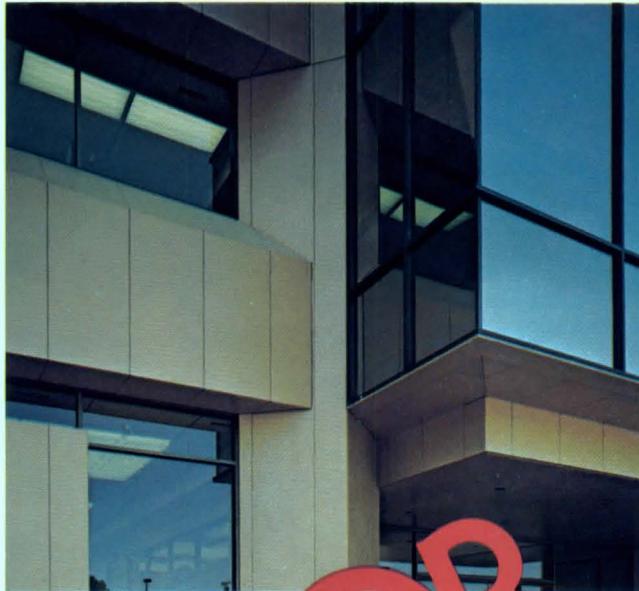
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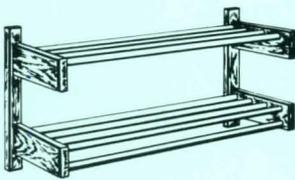
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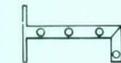
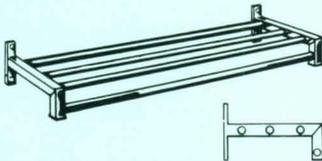
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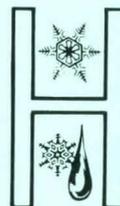


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The University of Tennessee, Knoxville invites nominations and applications for the position of Dean of the School of Architecture. The School offers a 5-year professional program leading to the Bachelor of Architecture degree with concentrations in Administration, design, history/humanities and Technology. A proposed graduate program is under development. New physical facilities are now under construction. The School has an enrollment of over 500 students and more than 30 full-time equivalent faculty positions. The University of Tennessee is both the state university and a land-grant institution. The Knoxville campus, with a student body of 30,000, serves as the comprehensive campus of the university and the principal center for graduate study in the state. The candidate should have experience in administration and the ability to work effectively with other administrators, faculty, and students. Desirable qualifications should include those requisite for professorial rank in the school such as the Master of Architecture degree, professional registration, and recognition through professional practice. The deadline for applications is March 15, 1979. Nominations should include as much detail as possible; applications must include resumes and names of references. Both should be sent to: Chairperson, Architecture Search Committee, Office of the Vice Chancellor, Academic Affairs, University of Tennessee, Knoxville, TN 37916. UTK is an E.E.O./Affirmative Action/Title IX/Section 504 Employer.

Miami University seeks two full-time faculty to join the Department of Architecture, Fall 1979—1) structural design, 2) urban/environmental design. Application deadline 15 January 1979. Contact Search Committee, Department of Architecture, Miami University, Oxford, Ohio 45056.

Structural Project Engr.: Min. 4 years Exper. in Steel and Concrete Commercial structures. Call or send resume to KKBNA, Inc., 7456 W. 5th Avenue, Denver, CO 80226 (303) 232-6050.

Rensselaer Polytechnic Institute's School of Architecture is looking for faculty in computer applications; environment controls; design. Applicants, proven in teaching and research, should want to advance both in interdisciplinary fashion. Send resumes to: Dean, School of Architecture/RPI Troy, NY 12181. RPI is an affirmative action/equal opportunity employer.

Architect: Immediate opening for registered architect. Established Pennsylvania home manufacturers specializing in custom building seeks architect to head 6-7 man department. Excellent in structures as important as design. Pay and benefit package very attractive. Send resume and references to Joseph Carusone, Northern Homes, Inc., Box 515, Chambersburg, PA 17201.

Design Studio and Theory (full or associate professor). Environmental Control and Design Studio (associate or assistant professor). For application and further information: G. Anselevicious, Chairman, Architecture Department, Hayes Hall, State University of New York, Buffalo, NY 14214. SUNYAB is an affirmative action, equal opportunity employer.

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Du Page County wishes to interview Architects with experience in County Correctional facilities.

Please Submit resumes of related experience to:

**Building Administrator
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All applications must be received by February 5, 1979.

Housing Project Manager—The Flint Neighborhood Improvement and Preservation Project Inc., a non-profit corporation, is seeking a project manager for an historic district project and also for related housing rehab programs. Candidates must have project and management skills, familiarity with historic properties programs and knowledge of residential rehab. Bachelor Degree in urban planning, business administration or a related field required. Three years of experience in applicable housing programs needed. Salary: \$17,750. Send resume to: Executive Director/Flint NIPP Inc., 1206 South Saginaw Street, Flint, Michigan 48502.

The University of British Columbia—Director, School of Architecture. Applications are invited for the position of Professor and Director, School of Architecture, The University of British Columbia. The School has 18 full time faculty members with nearly an equal number of part-time professionals. The three year Bachelor of Architecture programme requires a degree for entrance and has an enrollment of approximately 220 students. A two year graduate program leading to a Master's Degree in Architecture is also offered and approximately 18 students are presently engaged in such studies. The School is professionally recognized by the Royal Architectural Institute of Canada and accredited by the Commonwealth Association of Architects. It is a part of the Faculty of Applied Science of the University. The appointment as Director will be for an initial period of five years, and will take effect 1 July 1979 or as soon as possible thereafter. Rank and salary will be in accordance with qualifications and experience. Applications with supporting documentation and names of referees should be received before 15 March 1979 at the address given below: Dr. S. Cherry, Chairman, President's Selection Committee, New Director, School of Architecture, c/o Department of Civil Engineering, University of British Columbia, Vancouver, B.C., V6T 1W5, Canada.

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Iowa State University, Department of Architecture—Available September 1, 1979, tenure-track positions to teach and conduct research in one or more of the following areas: Architectural Design; Building Sciences; Communications & Communications Theory; History, Theory & Criticism; Housing, Urban & Behavioral Studies. Required qualifications include professional degree or equivalent, demonstrated capabilities in one or more of the above areas, research and professional experience. Send resume of education, experience and references to: Sanford R. Greenfield, FAIA, Professor & Chairman, Department of Architecture, Iowa State University, Ames, Iowa 50011. Iowa State University is an Equal Opportunity Affirmative Action Employer.

Architects/Draftsperson—Immediate openings at all experienced levels. Large institutional, educational, energy management work load. Progressive, established firm in Adirondack area offers unique living/working opportunities, to qualified applicants. Send experience, education, etc. to: Box 229, Glens Falls, NY 12801.

Faculty position, tenure track in Interior Architectural Design, (F.I. D.E.R. accredited) Responsibilities: Teach Undergraduate Interior Design and Design Communicative Skills Courses M.A. Arch., M.A. Int. Arch., M.A. Int. Des. Qualifications: 3 yrs. professional experience University-level teaching experience desirable. A vitae, three letters of reference and portfolio are required by Feb. 15, 1979. Contact: Dr. Howard G. Hitchcock, Chairman, Art Dept. Calif State Univ L. Beach, 1250 Bellflower Blvd. Long Beach, Ca. 90840. Equal Opportunity Employer.

Manager, Product Development—Leading Pacific Northwest residential construction company seeks design oriented architect to fill top-level supervisory position. Position is responsible for all matters relating to product selection and design, site evaluation/planning and materials selection. Will supervise outside architects and engineers engaged in product design functions. Candidate must have degree in architecture plus past experience in design and construction of quality residential buildings. Very attractive compensation package, including fringe benefits and profit sharing. Send complete education, job and salary history to Swanson-Dean Corporation, P.O. Box 488, Bellevue, Washington 98009. An Equal Opportunity Employer.

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Architect, Turkish, seven years diversified experience. Desire responsible and challenging position with design oriented architectural firm as project architect/designer in the U.S. Resume/Portfolio available. Reply to PW-8539, Architectural Record.

Architect Designer, 37, Argentine immigrant, male, single. 10 years USA and overseas diversified experience. Seeking responsible + challenging position with design oriented architectural firm. Portfolio + references available. PW-8563, Architectural Record.

Recent architectural graduate with B.S. in architecture, versatile designer and draftsperson with 4 years experience in preparation of construction documents for federal projects. Experience also includes specialization in energy, conservation of building types and reterofete of existing building. Experience also in civil engineering and environmental engineering. Area preferred—Atlanta, New York and California. 6112 Musgrave Street, Philadelphia, PA 19144.

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Perkins & Will is pleased to announce the promotions of David L. Ginsberg as executive vice president for firmwide health planning, Bradford Perkins as vice president and general manager of eastern operations, Frank Eliseo as vice president and managing partner of the New York and White Plains offices, Kenneth Carswell as vice president and managing partner of the Washington, DC office and Emily Malino as vice president and general manager of the eastern interior design group.

Ken Pfeiffer & Associates announced today that Guillermo H. Lois has joined the firm as manager of operations.

Poor, Swanke, Hayden & Connell are proud to announce the addition of William G. Brown, Daniel N. Bruno and Howard Morgan as associates in the firm.

Leroy James with Rees Associates, has been promoted to the position of associate and Mack S. Martin has been named senior associate and chief architect in the firm.

Whisler-Patri announce that Peter M. Hasselman has joined the firm as a principal.

Worley K. Wong, Ronald G. Brocchini & Associates are pleased to announce the appointment of Jack S. Johannes, Myra Mossman Brocchini, Henry H. Kubow, Stuart W. McIndoe and Sally Dahlstrom as associates in the firm. They would also like to announce that Ronald G. Brocchini has been honored by his election to the college of fellows of the American Institute of Architects.

Zetlin Associates, Inc. announce the appointment of Abraham Gutman and Frank H. Foster as vice presidents of the New York City and Boston based engineering and design firm.

New addresses

Marvin J. Cantor, AIA and Associates announces the relocation of his practice to One Skyline Center, Baileys Crossroads, Virginia.

Deeter Ritchey Sippel Associates Architects Planners have located their offices in the Landmark Bank Building, 1 Financial Plaza, Suite 1908, Fort Lauderdale, Florida.

Flack + Kurtz Consulting Engineers and Flack + Kurtz Energy Management Corporation have moved their offices to 475 Fifth Avenue, New York, New York.

A. M. Kinney Associates, Inc. Architects and Engineers are pleased to announce their move to 801 Davis Street, Evanston, Illinois.

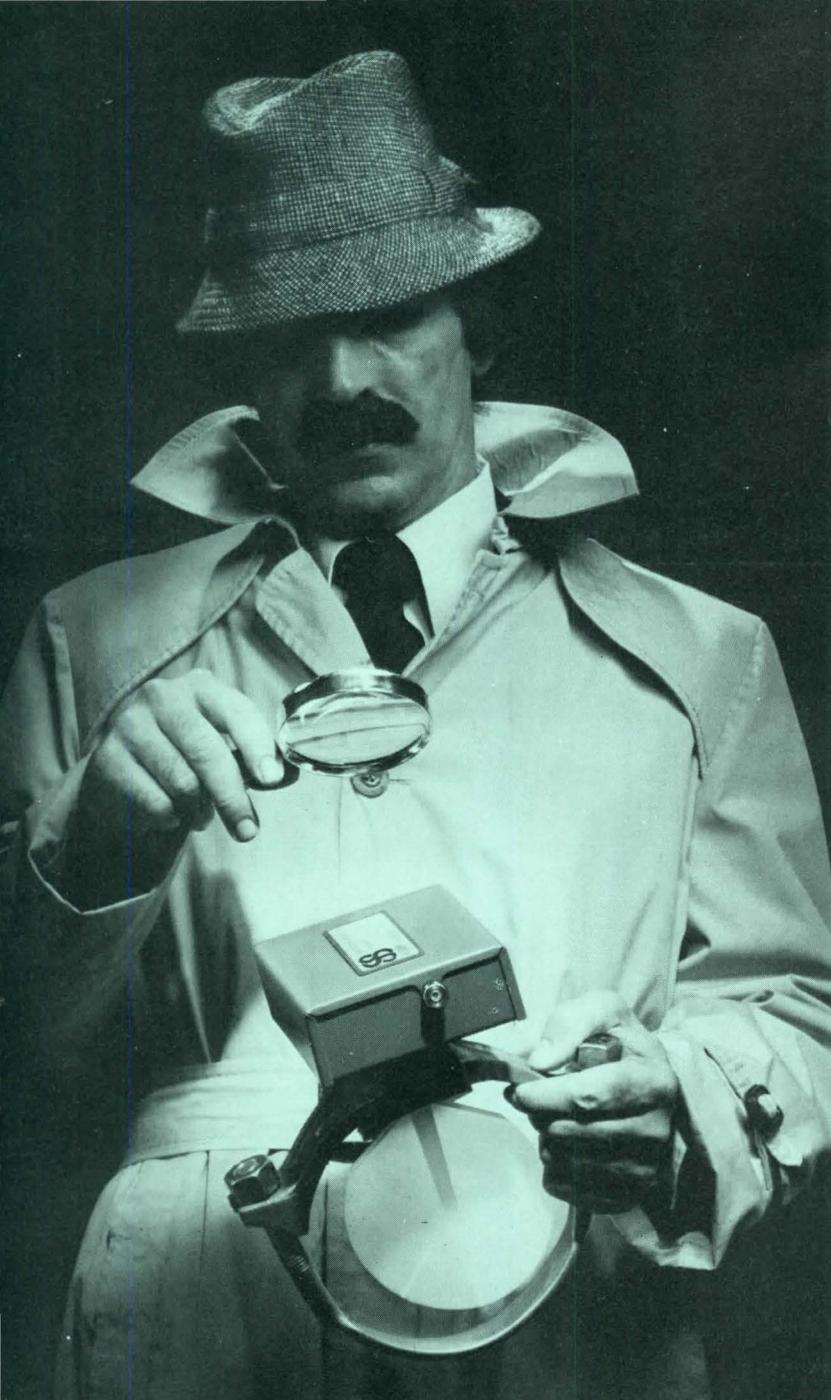
R. V. Lord & Associates, Inc. is pleased to announce the relocation of their offices to 5541 Central Avenue, Boulder, Colorado.

Panko/Sinclair Associates Inc. have moved their offices to 15 North Ellsworth Avenue, San Mateo, California.

Parkin Partnership Architects Planners and Parkin Engineers Limited are pleased to announce the new location of their offices at 55 University Avenue, Mezzanine floor, Toronto, Ontario, Canada.

Reichert-Facilides Associates Architects and Planners announce the relocation of their offices to Suite 410, Academy House, 1420 Locust Street, Philadelphia, Pennsylvania.

Moshe Safdie and Associates, Architects and Planners and Moshe Safdie, Architect announce that they are opening a new head office in Boston and their address will be: Moshe Safdie and Associates, Inc. Architects and Planners, 2 Faneuil Hall Marketplace, Boston, Massachusetts. The Montreal office will move to new premises where the address will be Moshe Safdie, Architect, 3601 University Street, Montreal, Quebec, Canada.



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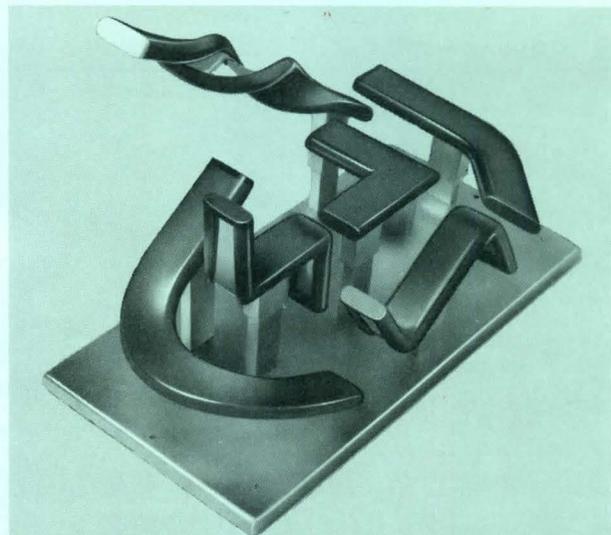
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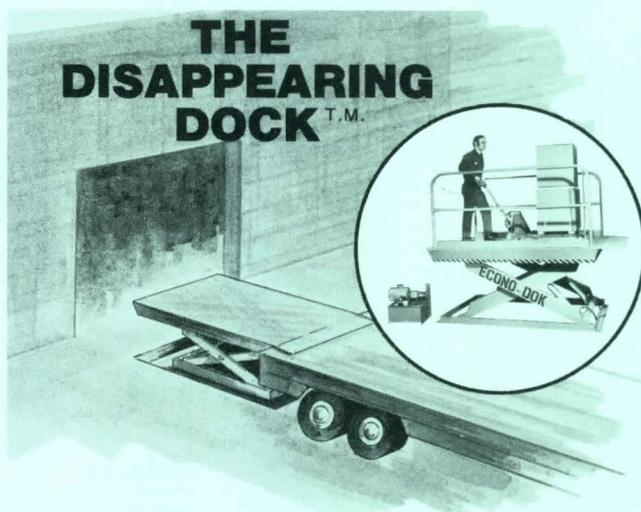
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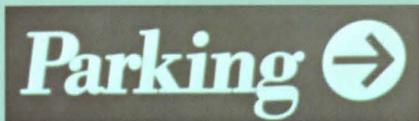
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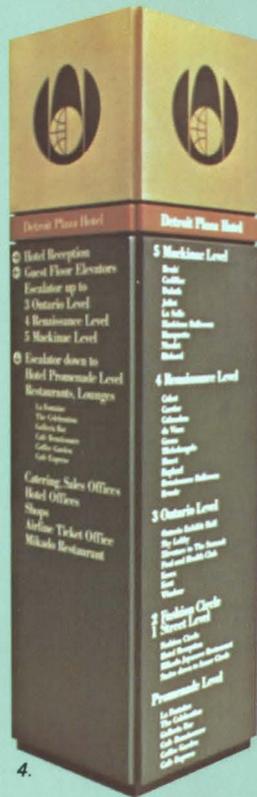
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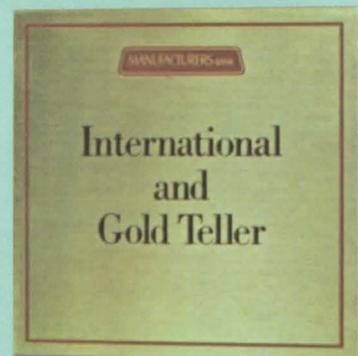


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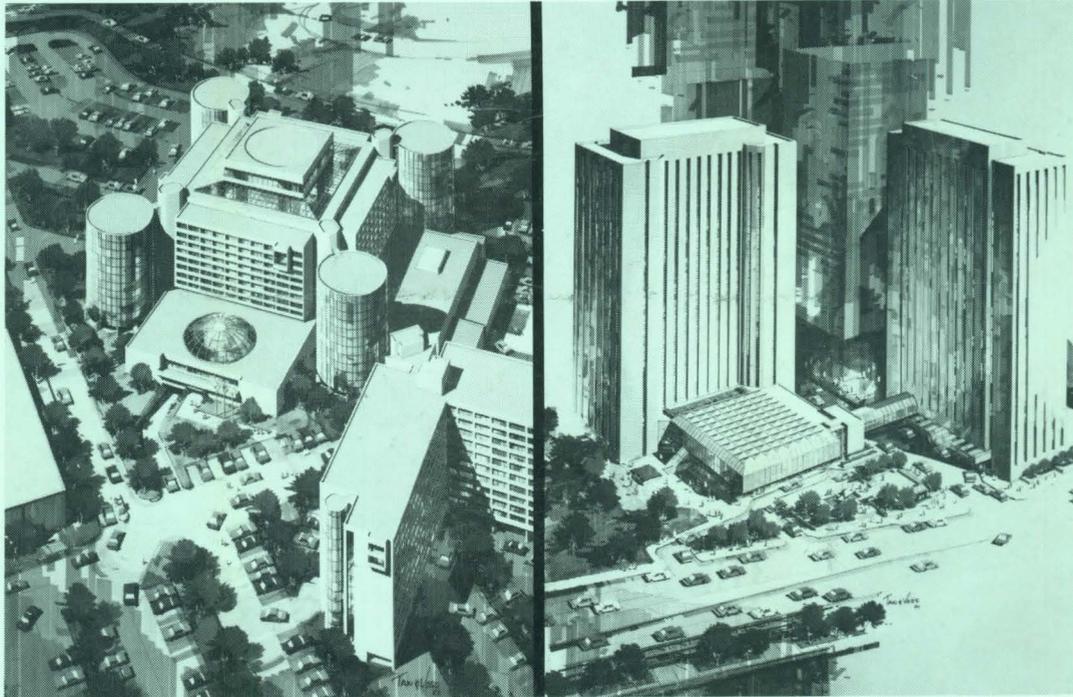
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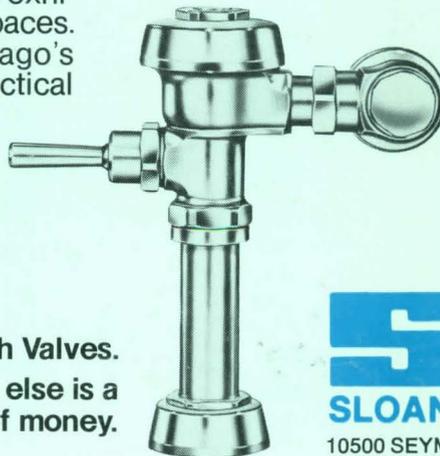
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