BUILDING TYPES STUDY: RECORD INTERIORS OF 1980

MUSEUM BY WALTER NETSCH GIVEN ORDER BY HIS FIELD THEORY

A TOWER PROPOSAL FOR RADIO CITY MUSIC HALL

A FARMHOUSE ADDITION, BY CHARLES MOORE AND THE URBAN INNOVATIONS GROUP

FULL CONTENTS ON PAGES 10 AND 11

ARCHITECTURAL RECORD

JANUARY 1980 1 A McGRAW-HILL PUBLICATION $5.50 PER COPY

Today, all across the nation, many millions of square yards of Armstrong Vinyl Corlon are performing beautifully. And many of these installations have been in place for over 20 years. That's just one reason Armstrong .090″ gauge sheet Vinyl Corlon is one of the most widely

specified commercial floors. Another is the system that makes it work.

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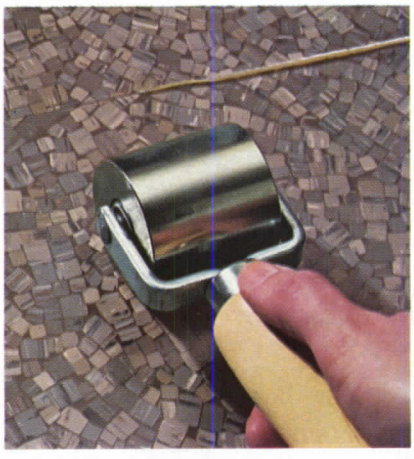
Corlon comes in 6′-wide rolls up to 90′ long. You get a monolithic look because there are few seams. For example, you'll have about 93% fewer seams with Vinyl Corlon than with the same area of 12″ x 12″ tile.

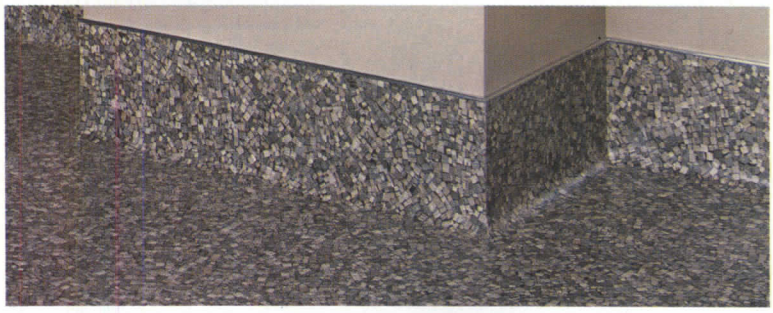


Epoxy-bonded seams.

An exclusive Armstrong epoxy adhesive chemically bonds the seams without heat or special tools. They won't come apart. And they won't trap dirt and moisture.

Wide range of colors and designs.

Armstrong Vinyl Corlon comes in five distinctive chip patterns and 28 colors ranging from bright and modern to neutral and natural.



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Flash-coving makes it simple to create a gentle radius where floor meets wall, eliminating the sharp corner where dirt can hide.

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Armstrong Vinyl Corlons are inlaid materials. Because the pattern and color go all the way through to the backing, they won't wear off like printed products. And because the inlaid construction is smooth and dense, spills wipe right up. Simple regular maintenance keeps the floor looking like new. These resilient floors meet the flame-spread and smoke-developed requirements of the most widely recognized building codes and regulations.

Vinyl Corlon floors can be installed with a perimeter bonding system developed by Armstrong. In most cases, you can install them right over an old floor and eliminate a lot of work and expense.

The Armstrong Vinyl Corlon Commercial Flooring System. Specify it, and you'll get one beautiful long-lasting floor. For more information, write Dept. 99FAR, Lancaster, PA 17604.

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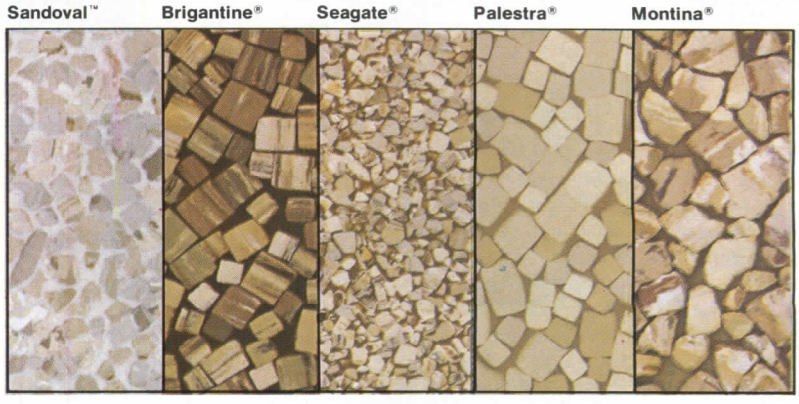

Circle 2 on inquiry card

Letters to the editor

I was delighted to see the article on the preservation and transformation of the Paramount Arts Center in Aurora, Illinois, which appeared in the April 1979 issue of ARCHITECTURAL RECORD. But you failed to give credit to Ben-Ami Friedman, the urban designer who conceptualized the design treatment, brought the design team together and initiated the project. Indeed, way back in the December 1976 issue of ARCHITECTURAL RECORD your article on Aurora gave Mr. Friedman extensive recognition for his work on the theater building, as well as for his bold urban design strategy for the decaying downtown. Why not include him in your credits now that his work is successfully completed?

I had the pleasure of interviewing Ben-Ami Friedman on my television series about the built environment, *Design Plus*, and seeing for myself how his urban design strategy encompassed architectural design, historic preservation, economic development and human resources. This strategy is now substantially fulfilled in the form of restored buildings and bridges, new streetscapes and pedestrian areas, and a return of activity. Perhaps you would now let your readers know it was Mr. Friedman's broad-based process that brought new life to the Paramount theater and to the rest of Aurora's downtown.

Judith Carrington
Producer, Design Plus
New York City

I've read your magazine with great enthusiasm for the past 16 years, and I have worshiped the well-known heroes of contemporary architecture, and the not so well-known. But I raise a question: Where are we, the corporate architects, in your publication? Why don't we appear?

Having worked in private practice with a large and very good architectural firm in Charlotte, North Carolina, having been employed by a municipality, and having done research to fulfill my ego with numerous degrees, I now find corporate architecture a very different, rewarding, exciting and educational experience.

Private architects often pay lip service to life-cycle costing, but we experience life-cycle evaluation every day that we function. Private architects deal with cost estimates; we have to deal with budgeting committees and the Board of Directors—and major corporations are very sensitive to cost. Private architects use energy conservation quite often as a springboard to find their way through the doors of a client, many of them depending upon their engineers for support; we do energy conservation every day—we must reduce operating bills, begin to fix our costs, and find alternative means to provide power as sources begin to diminish.

We corporate architects don't build a lot of buildings, don't do a tremendous amount of design work per se. But we deal with a range of everyday problems: furniture changes, interior design, tax credits, life-cycle costing, maintenance of facility, energy conservation.

The role an architect has in many corporations may be the very reason that practicing architects can work with corporations, because we are "communicators." The corporate architect translates the practicing architect's ideas into a terminology and format that can be understood by the corporate decision-makers.

I believe the corporate architect is a growing breed, getting stronger and needing some recognition. How about taking a look at the corporate architects of ITT, IBM, R. J. Reynolds? Corporate architects are no longer individuals that cannot make it on their own. They have a purpose and a skill which many private architects do not have, and accomplishments and experiences not duplicated in any private architectural office.

I do not recommend that an architect work for the rest of his life as a corporate architect. I do feel, however, that the experience is unparalleled, and what it offers can only result in a tremendous knowledge and understanding of corporate clients, their needs, their language, their frustrations, their wants and their desires.

Douglas C. Burns, AIA
Assistant Vice President
Corporate Facilities and Services
PCA International, Inc.
Matthews, North Carolina

Earlier this year [in 1979] I wrote a letter complaining about the article in your December 1978 issue of RECORD (pages 122-125). In this article, which was a review of a book published by the MIT Press entitled *The Federal Presence: Architecture, Politics and Symbols in United States Government Buildings,* you featured a photograph of the competition drawing of the side elevation of the Wright Memorial and repeated, without troubling to check easily available records, the erroneous designation of the Quartermaster Corps as designer and builder of the Wright Memorial. This was not true, for the designer of the memorial was myself, and the architectural contract was given to my former firm, Alfred Easton Poor and Robert Perry Rodgers.

Alfred Easton Poor, FAIA
New York City

Calendar

JANUARY

18-22 The 1980 National Association of Home Builders 36th Annual Convention & Exposition; at the Las Vegas Convention Center. For information: Betty Christy, Director of Media Relations, NAHB, 15th and M Sts., N.W., Washington, D.C. 20005 (202/452-0200).

20-22 Architects' Seismic Seminar, sponsored by the Northern Nevada Chapter/AIA and the Graduate School of Architecture, University of Utah; held at the Comstock Hotel, Reno, Nevada. Contact: Ray Hellmann, AIA, 137 Vassar St., Reno, Nev. 89502.

29-30 Construction Superforum, "How to Fight Inflation and Recession to Survive and Profit in the 1980s," sponsored by the F.W. Dodge Division of McGraw-Hill Information Systems Company. Program will be held at McGraw-Hill World Headquarters, New York City. Contact: McGraw-Hill Conference & Exposition Center, 1221 Avenue of the Americas, Rm. 3677, New York, N.Y. 10020 (212/997-4930).

FEBRUARY

3-7 Semi-annual meeting, American Society of Heating, Refrigerating and Air-Conditioning Engineers; at the Los Angeles Hilton. Contact: ASHRAE, 345 E. 47th St., New York, N.Y. 10017.

4-5 Seminar, "Building Re-Use: Managing Costs, Codes and Design," Biltmore Hotel, Los Angeles. Contact: ARCHITECTURAL RECORD SEMINARS, 1221 Avenue of the Americas, New York, N.Y. 10020 (212/997-3088).

5-6 "Health Facility Codes and Standards 1980," sponsored by the American Hospital Association; to be held in Clearwater Beach, Fla. Contact: Joseph G. Sprague, Director, Design and Construction, Division of Health Facilities and Standards, American Hospital Association, 840 North Lake Shore Dr., Chicago, Ill. 60611.

6 Seminar, "Design/Build and the Law," Biltmore Hotel, Los Angeles. Contact: ARCHITECTURAL RECORD SEMINARS (see Feb. 4).

6-9 Conference, "Regional Architecture Considered/Reconsidered," sponsored by the San Francisco Center for Architecture and Urban Studies, 1045 Sansome St., San Francisco, Calif. 94111.

7 Seminar, "Design Cost Analysis for Architects & Engineers," Biltmore Hotel, Los Angeles. Contact: ARCHITECTURAL RECORD SEMINARS (see Feb. 4).

14-16 "Expo Convention '80," sponsored by the National Home Improvement Council; at the Fontainbleau Hilton, Miami Beach, Fla. Contact: NHIC, 11 E. 44th St., New York, N.Y. 10017.

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, ARCHITECTURE and WESTERN ARCHITECT AND ENGINEER) (USPS 132-650)
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WATTS NEW

ENERGY MANAGEMENT VIEWS FROM THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION VOL. III NO. 2

LIFE SAFETY SYSTEMS — THE LIFE AND PROPERTY SAVED MAY BE YOURS.

The first life safety system was probably a full bucket of water and a heavy wooden bar going across a door. Unfortunately, methods for protecting buildings and their occupants from the ravages of fire and crime have progressed little beyond that stage until relatively recently.

It was only in the mid-1960's that the need for more effective fire detection systems became obvious. Until then, most large buildings used a superstructure of steel rods embedded in concrete. They had windows that opened to the outside, and rather limited ventilation systems. In general, they were pretty fire-safe.

More contemporary buildings, however, often employ steel beam superstructures, sealed exterior windows and extensive ventilation systems. New wall and ceiling materials are frequently flammable, and extensive ductwork can spread a fire very rapidly.

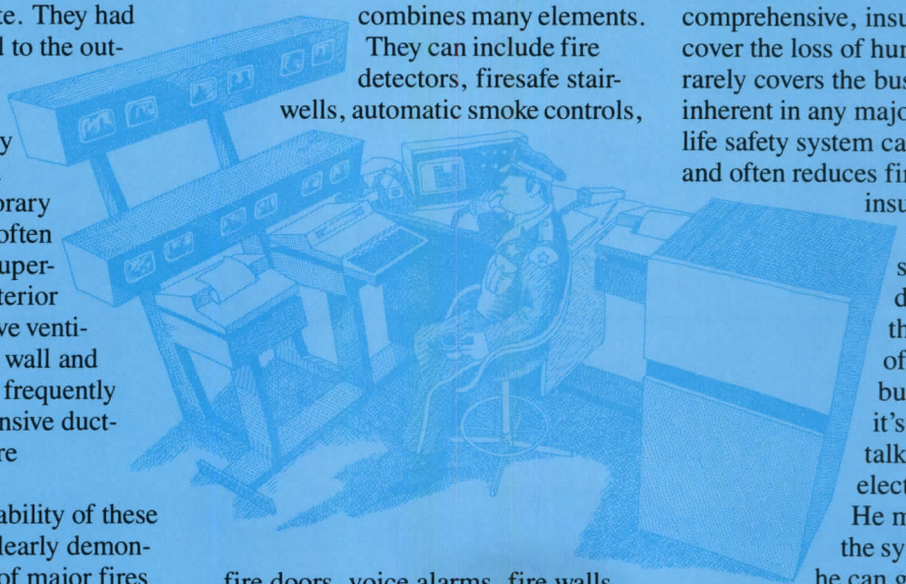
The fire vulnerability of these buildings has been clearly demonstrated by a number of major fires in this country and overseas in the past ten years. In every case, an up-to-date, centralized fire detection system would have greatly reduced loss of life and property damage.

The 1960's were also a time when crime prevention became a major concern for building owners. The many entrances to buildings and the thousands of people moving in and out of major structures provided the ideal environment for criminals. And from 1960 to 1973, reported burglaries rose 181%.

At first, building owners attacked intrusion and fire detection problems piecemeal, instead of as a whole. A bewildering array of detectors and alarms could be found — often within one building.

But, as progress in electronic technology continued, with its computers, audio-visual displays and automatic control devices, the system approach to life and property safety became a practical idea.

The best fire safety system combines many elements. They can include fire detectors, firesafe stairwells, automatic smoke controls, fire doors, voice alarms, fire walls, automatic sprinklers, fire extinguishers, safety areas, fire-resistant building materials, automatic elevator recall, two-way communicators, mechanical equipment monitors, a comprehensive fire protection plan, an emergency generator, water standpipes, and — most important — a 24-hour fire control center.



This computerized control center can also double as your crime prevention control center, connecting to the latest intrusion protection equipment such as ultrasonic detectors, area protection devices, perimeter protection, motion detectors, and protective lighting.

As the heart of a complete life safety system, the computer command center can identify the type of emergency and pinpoint its exact location. Audio or visual alarms can be activated and corrective measures set in motion.

Today, life safety systems are at work in hospitals, factories, high-rise apartments and office buildings, shopping malls, and universities. The systems are viewed as excellent investments, because no matter how comprehensive, insurance can never cover the loss of human life, and rarely covers the business losses inherent in any major fire. A good life safety system can protect both and often reduces fire and theft insurance rates.

For a life safety system designed to meet the unique needs of your building or building complex, it's a good idea to talk with a qualified electrical contractor. He may not design the system for you, but he can give expert advice on the types of equipment and devices you may need, and objectively recommend the most efficient means of wiring your desired system.

For more information, request, on your letterhead, a free copy of the NECA publication "The Life and Property You Save May Be Your Own," Index No. 30043.

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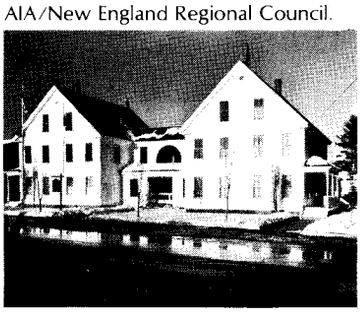
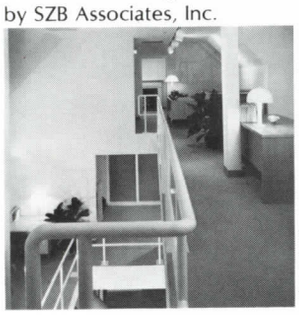


ARCHITECTURAL BUSINESS

BUILDING TYPES STUDY 540



Alan Ward

FEATURES

ARCHITECTURAL ENGINEERING

NEXT MONTH IN RECORD

Building Types Study: Large arenas
Several new arenas, two of them multipurpose structures, are added evidence of the nation's burgeoning interest in sports and in the facilities required to house large-scale sports activities. One of these designs, the Olympic Arena at Lake Placid, will soon be the focus of the 1980 Winter Games.

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Last year's "Celebration of Architecture" was a resounding success! Let's keep it going . . .

The "celebration" conceived by Ehrman Mitchell as the theme of his year as AIA president was, I thought (and said several times on this page) one of the most imaginative and most needed programs that the AIA has sponsored in a long time. As Mitch said in a recent article in the *Daily Pacific Builder,* "Because the quality of our architecture is influenced by the quality of dialogue between architect and client, there is a tremendous need to broaden channels of communication by stimulating greater public interest in architecture. There is a need for increased interaction, both between the public and the profession, and among architects. . . . The process of design is very much a two-way street: the more aware the public, the more the demand for excellence in architecture."

Well, there was plenty of awareness building last year. The AIA Public Relations Department has just released a list of over 70 major events sponsored mostly by local or state chapters intended to attract public attention to what architects do. Herewith some of the events that seem to me the most effective kind of "celebration:"

- Three chapters held events designed to attract the public to architect-designed houses—which seems to me an especially effective way for architects to explain what is "good architecture" since everyone who lives in a house has a good basis of comparison. Specifically, The Seattle Chapter joined with *The Seattle Times* to host a Home of the Month reception; the Tulsa Chapter, as part of a week-long celebration, organized house tours with a "talk show" based on each; and the Northern Virginia Chapter invited citizens to a tour of passive-solar-designed houses.
- A number of chapters invited even more active citizen participation designed to promote "thinking about architecture." Items: The Michigan Society invited submission of photographs for a contest to select "The 50 Most Significant Works of Architecture in Michigan" and the photos chosen were displayed in the State Capitol rotunda. The Southwest Oregon Chapter invited the public to make nominations for "buildings which make a significant architectural contribution to the built environment" and the awards were presented at a public showing. The East Kentucky Chapter set up a booth in the center of an area under rehabilitation in downtown Lexington and solicited comments from the residents of the area. While the ideas were formally recorded for study, many were written "graffiti-style" on the white-painted walls of the booth and attracted enormous attention. Wisconsin's four chapters carried a newspaper and radio campaign asking children to draw the "ideal home" and adults to name their favorite building. Awards were presented to the children, and the winner of the adult contest—the Performing Arts Center in Milwaukee, was draped with a special banner. The Broward Country (Florida) Chapter sponsored a design contest in all county schools, inviting younger students to "draw your own house," older students to design structures using simple schematics. Winners will be announced at a public ceremony this year, and published in the local press; and the chapter hopes to make this an annual event.
- A number of chapters attracted attention to architecture by involving public figures: the mayor of Sacramento helped promote the Central Valley Chapter celebration by declaring an official "Celebration of Architecture Week." A number of California chapters joined to celebrate the dedication of San Francisco's Market Street rehabilitation and featured Mayor Dianne Feinstein. Detroit Mayor Coleman Young designated an "Architects Week" during which all of the city's award-winning buildings of the last ten years flew banners calling attention to their excellence and inviting public visits during which designs were analyzed and discussed. Boston Mayor Kevin White participated actively in a public ceremony at Faneuil Hall to "honor the city for working to preserve its rich architectural heritage while simultaneously growing with new vitality." Other public figures involved in the "celebrations" of architects from their area included Jackson (Mississippi) Mayor Dale Danks; Albany (New York) Mayor Erastus Corning; Des Moines Mayor Richard Olsen; Nebraska Governor Charles Thone; and Chicago Mayor Jane Byrne, who shortly after participation in AIA national design conference entitled "Open House: Chicago Architecture," created a Mayor's Architectural Advisory Committee of nine local architects to study and make recommendations for all major physical planning in the city. Mayor Byrnes' action suggests that involving important local officials not only helps assure a higher level of publicity for an architectural event, but can generate meaningful action by the government in the cause of better design.
- Related to this kind of government participation is the on-going and impressive R/UDAT program. This year, as part of the celebration R/UDAT teams worked not only in the National Convention host city of Kansas City (see editorial, July); but in Knoxville, Tennessee; Olympia, Washington; and Springfield, Illinois. While this program continues to develop some controversy since it offers, in effect, "free design service," I cannot help thinking that because of the intense public interest and participation generated by a local R/UDAT not only the local citizenry benefit because of the ideas generated (assuming, of course, they are implemented at least in part by local government); but local architects benefit because of the awareness generated of better planning and design.
- A few chapters honored builders and developers—another technique which seems not only well deserved but "politically" smart in terms of encouraging more developers to seek out and understand good design. At the Northwest Regional Conference in Hawaii, a developer was cited for "his commitment to high standards in architecture and land planning"; the Des Moines Council presented awards to "individuals and groups which have enhanced the built environment by their efforts and interests"; and as part of the "Maine Festival," the chapter there presented "Client/Owner Design Excellence Awards" to the owners of five buildings.
- There were additionally scores of programs inviting the public to lectures and meetings, but I'd like to finish this plea for continuing this "Celebration" in the cause of public education by listing two events which seem to me particularly timely given our growing awareness of the need to protect the older buildings which form so much of the character of our cities. In July, the AIA Foundation sponsored an exhibition of photographs, artifacts, and original drawings of "Capital Losses"—Washington buildings lost to the wrecker's ball. Earlier in the year, 40 successfully remodeled Washington buildings were festooned with banners proclaiming "Buildings Reborn."

Well, enough. My enthusiasm for this program of celebration of architecture runneth over. I, for one, hope that, as the AIA Board and local chapters move on to new and needed programs, this effort at public education be kept alive and flourishing. It is essential—and it sure is fun. —*W. W.*

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Give your specifications to Owens-Corning, and our experts will help you select the right system for your open office.

Send for the free *Integrated Ceiling Systems Manual* with this coupon. (Or look it up in *Sweet's Catalog*, Section 13.5.)

Your big beautiful space doesn't have to become another big noisy place.

Circle 8 on inquiry card

Senator Moynihan of New York proposes a Federal "Supervising Architect" for GSA, as well as a Statement of Principles of Architectural Excellence for Public Buildings, in a bill offered to Congress. Details on page 34.

The Department of Energy has issued its building energy performance standards (BEPS), which prove to be unexpectedly tough. A congressional committee contemplates the approval of a six-month delay in the implementation of the new standards, pushing the date back to early 1981, while ASHRAE asks for a still longer delay—up to three years—"to further resolve complex technical issues." AIA has endorsed the BEPS. Details on page 35.

Contracts for nonresidential building continued healthy in October—up 14 per cent for the month, with a total of $4.9 billion, according to the F. W. Dodge Division of McGraw-Hill Information Systems Company. But George A. Christie, Dodge's chief economist, cautioned, "Financing for October's commercial, industrial and other nonresidential building projects had been arranged well in advance of the Federal Reserve's most recent round of credit restraints. The October 6th escalation will not begin to impact nonresidential construction for another couple of months." And the economist added, "This year's lead in cumulative contract value for all new construction shrank to a scant 3 per cent over 1978 at the end of 10 months." In October, one-family housing dropped 9 per cent, but an increase in multifamily contracts held the over-all residential decline to 3 per cent.

Despite present signs of economic health, the United States can expect "the much-heralded recession" this year, predicts Eric B. Herr, vice president-economics of McGraw-Hill Publications Company. Mr. Herr foresees a 1½ per cent decline in real GNP in 1980, "with the first half bearing the brunt." He blames "overspending by consumers, overemploying by business and other economic excesses," and adds that "continuing energy and inflation problems will help damp recovery in the second half."

The National Institute of Building Sciences elected Joseph H. Newman chairman of the board of directors at its annual meeting in October, and at the same time re-elected James V. Rice chairman of the National Executive Committee of its Consultative Council, the Institute's membership arm. Mr. Newman, who is executive vice president of Tishman Realty & Construction Co., Inc., New York City, was appointed to the NIBS board in 1976 by President Ford, re-appointed last year by President Carter. (NIBS was created by Congress as a nongovernment organization.) Mr. Rice is vice president, Mortgage Finance, Pease Company, Hamilton, Ohio.

Architect Moshe Safdie has been named program director of the 1980 International Design Conference in Aspen. The conference, which meets this year for the 30th time, will convene June 15 to 20 and will address the subject "Form and Purpose." For information: IDCA, P. O. Box 664, Aspen, Colorado 81611 (303/925-2257).

The new Environment-Behavior Research Institute will conduct pure and applied research into the interactions of human behavior and the physical environment, and will develop research applications in architecture, landscape architecture and urban planning. The Institute was established by the School of Architecture and Urban Planning at the University of Wisconsin-Milawaukee, which named Gary T. Moore as the first director.

MIT has received $250,000 for interdisciplinary research and teaching in the arts and media technology. The money, awarded by the National Endowment for the Arts, is a Challenge Grant, which must be met three-to-one by private donations. MIT intends to use the grant for the establishment of new facilities, designed by I. M. Pei and including exhibition and archive space, teaching and production facilities and work space for resident artists.

The Building Research Advisory Board has appointed engineer Joseph H. Zettel chairman for this year. Mr. Zettel is Senior Scientist at the Colorado School of Mines, and has headed BRAB committees on Energy Conservation in the Built Environment and on Solar Energy for the Heating and Cooling of Buildings.

The Hartford Loss Prevention Awards Competition seeks ideas for reducing work-related accidents. The competition, sponsored by the Hartford Insurance Group and the National Safety Council, offers $75,000 in awards, including a $15,000 first prize. Papers are due by May 1. For information: Administrator, The Hartford Loss Prevention Awards Competition, National Safety Council, 444 North Michigan Avenue, Chicago, Illinois 60611.

The Fine Arts Work Center in Provincetown, Massachusetts, offers $10,000 in an architectural competition for the renovation of its studio complex. The well-known establishment has since 1915 offered working and living space for artists and writers and also supports a winter residency program. Applications should include a brief statement (no more than 500 words) describing the candidate's design values and approach to historical renovation, and should accompany a résumé, a project list (with photographs if possible), and two references from people familiar with the candidate's design. The deadline for applications is February 1, and the professional advisor is Calvin F. Opitz, Architect, 4 Agassiz Park, Jamaica Plain, Massachusetts 02130 (617/522-0839).

Senator Moynihan proposes a Federal "Supervising Architect" to ensure quality in government building

A bill now under consideration by the U.S. Congress proposes the creation of a Federal "Supervising Architect" who would operate out of the General Services Administration and who would be responsible for ensuring the high quality of Federal building design.

Senator Daniel Patrick Moynihan (D.-N.Y.), the original advocate of the measure (S. 2080), says that the holder of the proposed new title would be chiefly "responsible for the maintenance of high standards of quality in Federal architecture."

For about one hundred years, ending in 1939, the Federal government employed an overseeing architect who was attached to the U.S. Treasury. Some architectural historians mark the decline of Federal architecture with the abolition of the post.

The Moynihan bill is comprehensive. In one title, it suggests the adoption of a Statement of Principles of Architectural Excellence for Public Buildings. These are liberally borrowed from an early proposal for architectural excellence called "The Guiding Principles for Federal Architecture." It was the same Daniel Patrick Moynihan who prepared the Guiding Principles for the late President Kennedy in 1962.

Over a good many years, Senator Moynihan has agitated for better architecture and for the improvement of organizational procedures at the GSA. Early in 1979, he used his position as head of a special Senate Public Works Committee panel to freeze all applications for proposed Federal buildings until the basic Public Buildings Act of 1959 was revamped.

Now that the bill is under active consideration, the shape of the new GSA building program is taking shape. Senator Moynihan strongly wants GSA to build more buildings to house government workers and to lease fewer of them.

If he has his way, the government will set a goal: no more than 20 per cent of its workers can be housed in rental space. In recent years, as various administrations have held down budget spending, the GSA has leased more space and spent more money for leasing. Senator Moynihan wants to reverse this trend.

And if the government builds more, it should build buildings of quality design, the Senator strongly believes.

The lease-versus-construction situation has indeed become lopsided, even threatening to the budget-conscious. While the current GSA budget for new construction is less than $20 million, its annual lease payments are more than $500 million. If that trend is not reversed, the GSA will be paying out $1 billion a year for what Senator Moynihan calls "rent receipts."

The Senator has a plan outlined in his legislation. Let GSA borrow from the Treasury for funds to build the buildings it needs, at the same time reducing its leased space. Simultaneously with the accumulation of government assets, the GSA would be in a position to improve Federal architecture.

Senator Moynihan wants to bring order to the GSA building planning process. He wants the agency to come to Capitol Hill each year with an annual building program. At present, the agency sends up individual prospectuses throughout the year, and those are considered piecemeal.

The proposed change, advocates claim, would take some of the "pork" out of the present public building approval process—a process that some people claim depends more on political accommodation than on demonstrated space needs.

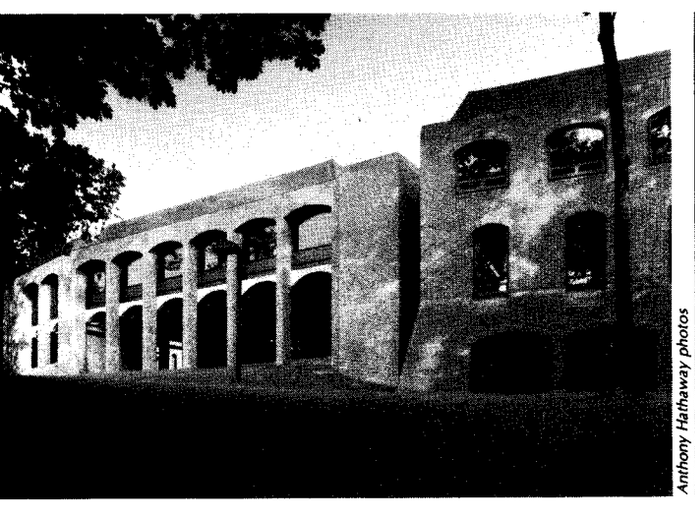
Elsewhere the Moynihan bill calls for consideration of socio-economic factors in the siting of Federal buildings. The bill would make the Commissioner of the Public Buildings Services a statutory position subject to Senate confirmation. GSA staff architects and engineers would be charged with designing at least one-quarter of all projects so the agency can keep their skills honed and their incentives high.

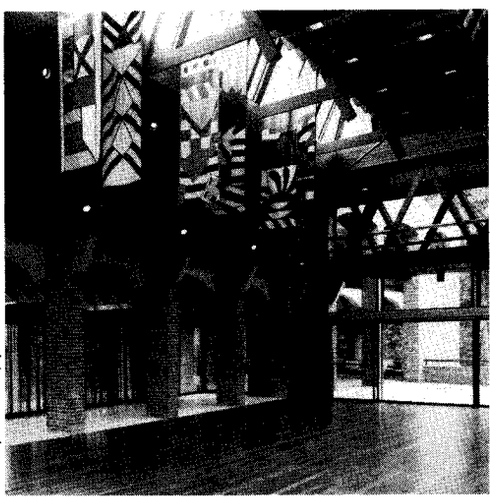
Design competitions for major projects would be required, and at least ½ of 1 per cent of the cost of each new project or alteration would be set aside for art-in-architecture.

The Moynihan proposals have won initial applause. Thirteen senators have joined him in sponsoring the measure. And though the House got its first glimpse of the bill just last month, several members have reacted favorably.

Nevertheless, it will be February before the lawmakers get down to the nitty-gritty of the proposal, and some changes are likely. Senator Moynihan has indicated that he is agreeable to perfecting amendments. —*William Hickman, World News, Washington.*

New Zealand Embassy carries on Washington's diplomatic building boom





Anthony Hathaway photos

A building boom of a very special nature appears to be taking place in Washington, D.C.—architecture for diplomacy. Last month, RECORD reported five chanceries designed for the new International Center (Buildings in the News, page 43). This month, it learns of the recently completed New Zealand Embassy.

The embassy, designed by architects Warren & Mahoney of Christchurch, New Zealand, is located in Washington's ambassadorial district. Neighbors include New Zealand's own Georgian Revival Ambassador's Residence, other Colonial-style buildings, and, just behind the site, what the architects call "Lutyens's splendid willful masterpiece," the Residence of the British Ambassador.

The New Zealand Embassy has brick walls "in deference to Lutyens." Because flexibility of office space was not an issue, the architects were free to predetermine the function of interior spaces and to use fenestration as a compositional medium on the exterior. Windows of "classic" proportions are played off against "fatter" windows, which the designers liken to windows of 19th-century industrial buildings. The lower two floors of the embassy, which occupies a steep-sloped site, are windowless and house the parking garage.

Though the massive brick walls and battered lower floors suggest the solidity of a castle, the architects achieved the required domestic scale by curving the embassy's three elements—two office wings and an entry hall between—around Observatory Circle in front. At the rear, the building was further broken down into three blocks, curved to accommodate ground contours.

The large reception hall at the center of the embassy reflects more clearly than the rest of the building New Zealand's traditional construction. Heavy timber trusses, using finishes and structural techniques common in the country, support a glazed roof. Curved precast tees supporting the floor above repeat the form of the brick arches.

The hall's glazed end walls open a view on one side toward a garden running down to Rock Creek Park ("a surprisingly rural prospect," comment the architects) and on the other side toward a conservatory for New Zealand flora.

OSHA would involve A-Es in construction-site safety

A Federal safety agency feels that somehow architects and engineers ought to have a role in protecting workers on job sites.

Just how this might work is undecided, but the Occupational Safety and Health Administration points to incidents such as the Rosemont, Illinois, stadium collapse and says that it is unable to determine who is responsible for safety strategies.

Here's how one official posed the issue: "It does appear that questions are raised by the collapse about whether anybody was concentrating on the integrity of the erection plan."

This official goes on to say that his agency wants to make sure there "is some kind of planning procedure looking at safety."

In its preliminary probe, OSHA is only "collecting information," and one of its inquiries is the relationship between A-Es and contractors.

Under the agency's charter, it is clearly the employer (generally the contractor or construction manager) who is responsible for workers' safety. But there is a strong suspicion that the designers could be more helpful in preparing the safety strategy.

The Corps of Engineers already closely supervises job-site safety, OSHA says, and the agency is studying its approach. —*Vicky Cahan/William Hickman, World News, Washington.*

DOE publishes its BEPS, but may delay enforcement

The building community is busily dissecting the Energy Department's unexpectedly tough proposal for building energy performance standards (BEPS) with an eye to assessing whether they can be implemented under the compressed timetable now specified.

A congressional committee is considering a suggestion that a six-month delay, until early 1981, be approved. The delay would ease some of the worries of architects and other members of the building community over problems they face in complying with the standards.

The Department of Energy says it is amenable to the delay, if only because pushing back the deadline would remove the risk of election-year politics influencing the consideration of sanctions for failure to comply.

The Department boasts about its success in developing BEPS, which it claims can result in a 50 per cent decrease in energy consumption in some buildings. Construction costs, the Department says, will not be greatly affected.

"That's the exciting thing to me," says Maxine Savitz, Acting Assistant Secretary for Conservation and Solar Applications at DOE. "We are greatly increasing energy efficiency with almost no increase in first costs."

That slight increase in first costs—probably in the 3 per cent range—would be made up early in the building's life cycle through lower utility bills. That, at least, is the theory behind BEPS.

DOE set a design energy budget for each type of building in each of 78 metropolitan areas. Architects and engineers could achieve the savings specified in the budget any way they wish as long as they meet the regional energy limitations.

State and local governments would be encouraged to adopt BEPS as part of their building codes. In noncomplying jurisdictions, DOE could ask the President to ask the Congress to impose sanctions. The toughest of the sanctions would be a cutoff in construction loans from any Federally related lending institution.

The standards that were formally proposed in late November are a modified version of an initial proposal released for comments a year earlier. The year of reconsideration was devoted mostly to economic aspects, and the result was mixed: some factors were tightened, while others were relaxed.

The most significant tightening came in the budget numbers themselves. The standards for high-rise commercial buildings, for instance, specify energy budgets set at a level that could be met by only 30 per cent of the buildings specially redesigned for DOE in 1977.

Not quite so tough are the numbers for hospitals and low-rise residential buildings: 70 per cent of those redesigned would meet the budget. For all other commercial and multifamily buildings, the budgets are set at a level that 50 per cent of the redesigned buildings would achieve.

So tight are these standards that the Environmental Protection Agency asked DOE to consider the quality of indoor air. That caused DOE to specify six-tenths air change per hour.

DOE is rigidly adhering to its performance concept, but has yielded to suggestions that it permit a multi-path approach, including the use of the component performance standards of the American Society of Heating, Refrigerating and Air-Conditioning Engineers. DOE claims that ASHRAE's Standard 90-75 must be modified, however, and made about 20 per cent more stringent before it can be considered equivalent to BEPS.

For the design of family housing, the Department of Housing and Urban Development's Minimum Property Standards will be beefed up to accommodate BEPS.

Dr. Savitz says the use of the ASHRAE standard and the MPS will ease the burden on designers. "Architects and engineers are familiar with 90-75 and homebuilders are accustomed to working with MPS."

DOE's first stab at the standards was criticized because it included a complicated formula for adjusting energy budgets, assessing different fuels as they affect energy delivery costs and social factors. In place of these so-called Resource Impact Factors (RIF) and Resource Utilization Factors (RUF), DOE now plans to use a purely economic weighting factor.

To the Department's surprise, the economic adjustments came out almost identical with the adjustments based on RIFs and RUFs. "The electric utilities (which were impacted most) may not believe it, but that's the way it turned out," says Dr. Savitz.

To determine whether a building meets its design energy budget, the architect or engineer will need to use one of several computer programs DOE has developed or modified for this purpose.

The initial reaction to BEPS in Congress has been enthusiastic. Senator Charles H. Percy (R.-Ill.), a long-time congressional advocate of energy conservation through performance standards, urges DOE to be tough in implementing the standards. "I think you will find a receptive Congress and a very receptive American public," the Senator told John C. Sawhill, the Deputy Secretary of the Energy Department.

The congressional questions for now boil down to two: should there be a delay, and should DOE or HUD have charge of enforcement?

The timetable now calls for DOE to accept written and oral comments on the standards through February. In March, the Department plans to make the necessary adjustments and declare them final. The standards will take effect six months later, after which DOE must decide whether to recommend that the President ask Congress to invoke sanctions against state and local governments not complying. As Dr. Savitz points out, this would be in the heat of the election campaign, when it might be impossible, or at least difficult, for the government to focus on its strategy for invoking sanctions.

Senator Percy's Governmental Operations Subcommittee is expected to grant a six-month extension for enforcement.

The American Institute of Architects endorses adoption of the BEPS. Following an Institute Board meeting last month, AIA President Charles E. Schwing noted that the organization had "strongly encouraged" BEPS to begin with. Under the standards, "architects will continue to play a crucial role in maximizing energy conservation in the built environment," Mr. Schwing said.

The American Society of Heating, Refrigerating and Air-Conditioning Engineers was less happy, however. An ASHRAE spokesman told Congress that the one year allowed for implementation was "unrealistic," and suggested that DOE have "perhaps three years or more."

The enforcement authority, now vested in HUD, will probably be switched to DOE by statute. HUD does not object to the switch, and most industry groups (excepting the National Association of Home Builders, which is closely allied to HUD) favor the switch. —*William Hickman, World News, Washington.*

HUMAN SETTLEMENTS: WORLD NEWS

Governments urged to link rural and urban planning

While the problem of urban squatters has engaged considerable attention in the developing nations, the problems of housing and employing the rural poor would appear to have been at least partially overlooked. The discrepancies between policies directed to urban settlements and to rural needs was observed by Eric Carlson of the United Nations Center for Human Settlements (Habitat), who addressed the recent international Conference on the Financing and Administration of Rural Human Settlements.

"There seems little question," said Mr. Carlson, "but that policies discriminating against agriculture in general and agricultural labor in particular have exacerbated rural underemployment and poverty, and contributed to the increase in rates of rural-urban migration."

The International Rural Housing Association organized the conference, which met October 7 to 13, 1979, in Torremolinos, Spain, concurrently with IRHA's III General Assembly. Cooperating sponsors included the Spanish Ministry of Public Works and Urbanism and the UNCHS.

Not only did the conference set out to redress any oversight of rural housing needs—it demonstrated that a good many people have contemplated the question.

In the Recommendations for National Governments issued by the conference, the conferees showed themselves most anxious that governments not regard rural problems as different and apart from other national needs. Rather, they called for "an integrated policy which considers rural housing . . . in the context of a series of measures which contribute to the improvement of the social, economic, and general welfare of the population."

More specifically, the conference requested governments "to link programs for rural housing to programs for sanitation, education, marketing of agricultural products, provision of services and other economic and social development services."

The conferees concluded that housing should be carried out chiefly as a self-help activity "to expedite the production process of rural housing and improve its quality." Nonetheless, they also expressed concern about the quality of construction and the dissemination of appropriate technical information. They urged governments "to initiate, as soon as possible, training programs for intermediate-level rural human settlements managers (barefoot architects, mid-level managers) similar to the intermediate-level workers in the health sector.

The conference also considered the financing needed to support rural housing and research. "There are no magic solutions in sight for the financing of rural housing," said Mr. Carlson, "nor is there any 'honey pot' source of funds. . . . "

The conference, evidently more optimistic than Mr. Carlson, recommended that governments "adopt flexible measures for the recovery of investments through payment quotas preferably established in accordance with harvest periods [and] scaled in reasonable periods of time."

The conference also recommended "measures to reduce the costs of all aspects related to the production process for housing and its different components, such as land, technology, administration, construction materials and financing."

Moreover, the conference asked international agencies for more financial resources in the development of rural shelter programs, and said that financial institutions should increase the availability of "soft loans" and other assistance.

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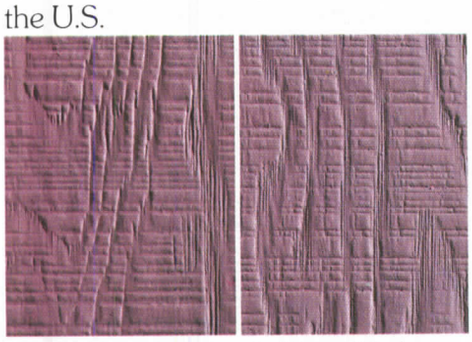

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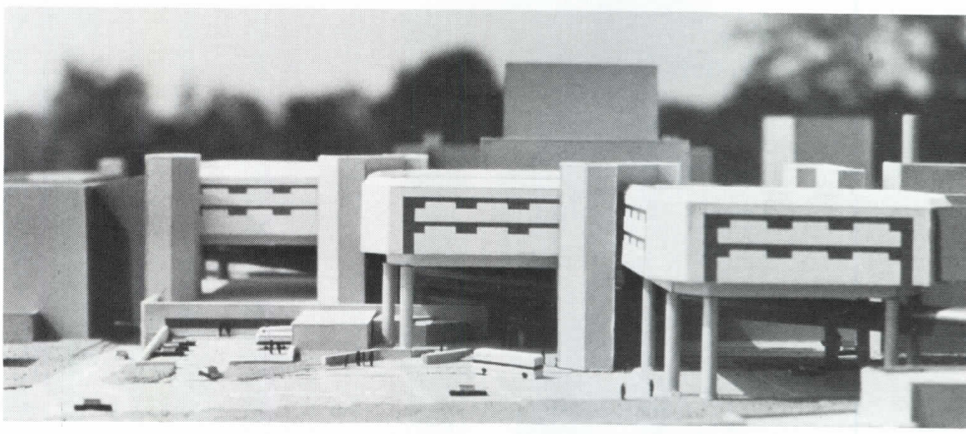
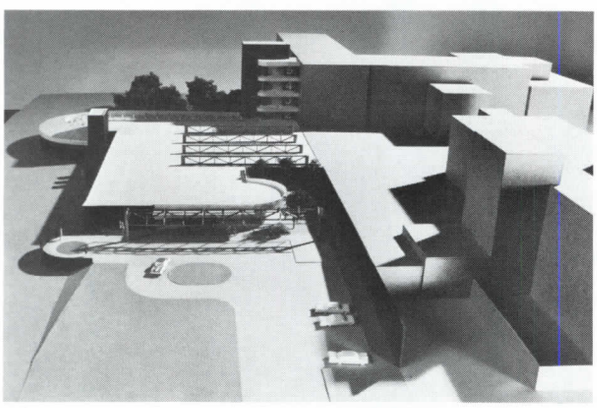
Circle 20 on inquiry card

Memphis adds four units to its Medical Center

For a 22-acre addition to Medical Center Hospital in Memphis, architects Walk Jones & Francis Mah, Inc., designed four units—three distinct patient units augmented by a fourth building with facilities for emergency treatment and radiation and nuclear medicine. The patient units will have hospital rooms on the top two floors, the units allocated to such specializations as coronary medicine, orthopedics and surgery. The patient rooms will be raised on pilotis, with a mechanical floor at the bottom of the raised units. Pedestrian bridges running beneath the mechanical floor, as well as enclosed circulation, will connect the three units with each other and with existing buildings, and cores between units will allow transfer from one to the other.



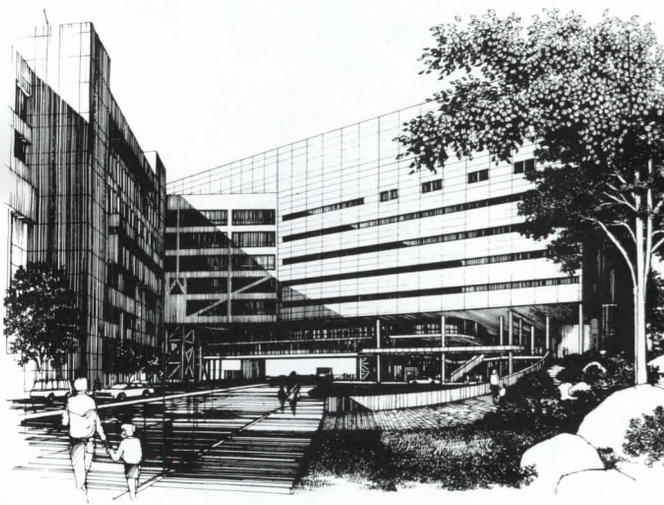


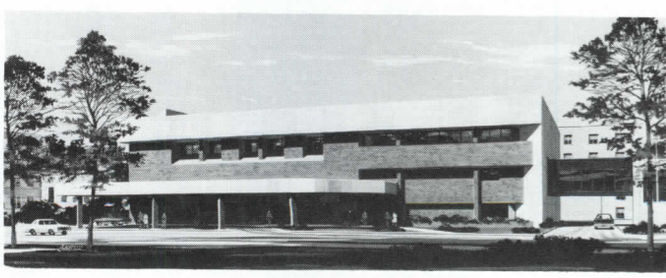
Gary Methodist Hospital gets new medical wing

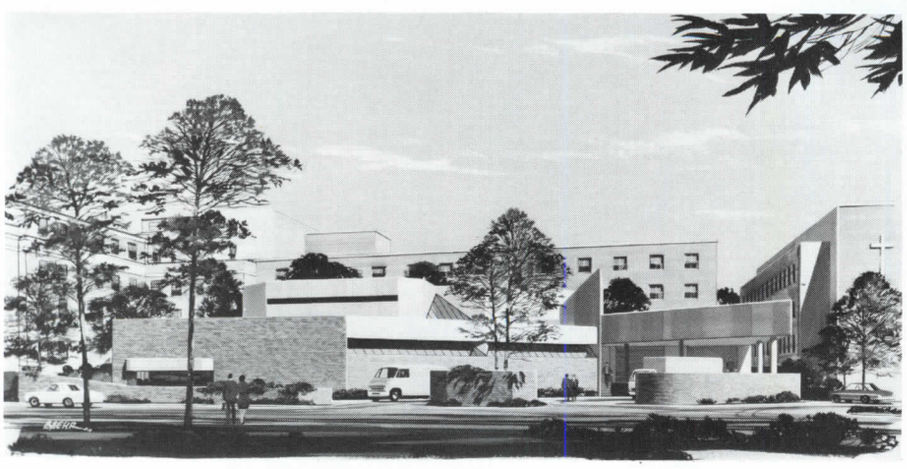
Schmidt, Garden & Erikson have designed a wing for Methodist Hospital in Gary, Indiana, that will combine an emergency department, an intensive care unit and a surgical suite. Long-span steel trusses above the surgical suite permit the high ceilings and open spaces required there, as well as lending the department visual identity. The intensive care unit will occupy a semicircular wing that allows observation of the ICU's 12 beds from a single nurse's station. An elevator at one end of the addition will furnish vertical circulation to five floors of the existing hospital.

Boston hospital answers complex medical and urban planning needs

The program for the Tufts New England Medical Center Hospital required that it be a focus for existing clinical and teaching facilities, that it provide core facilities for the hospital, and that it replace the Boston Floating Children's Hospital. Beyond that, say architects Perry, Dean, Stahl & Rogers, the building posed "one of the most complex siting problems in Boston." The new hospital will span Washington Street, "a major urban institutional boulevard," and create a plaza linking Music Hall, the hospitals, two subway stations and the children's hospital entrance.







Two buildings expand service at Trenton hospital

St. Francis Medical Center in Trenton, New Jersey, needed no new patient beds, but did need some up-to-date medical facilities—surgical suites, diagnostic facilities, intensive care unit, outpatient clinic—and such supporting services as a cafeteria and general storage. The Eggers Group designed two buildings within the existing complex: a four-story clinical building (above) and a two-story service building (left). They recognized differing fenestration needs as an opportunity to "break the hospital box," and used windowless walls in such equipment-laden areas as recovery rooms, glazed walls in the ICU, where patients may spend days.

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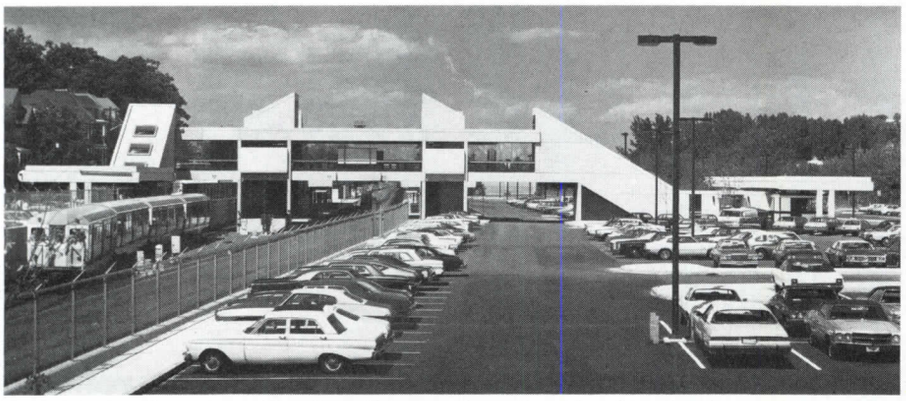
AIA/New England Regional Council bestows six design awards



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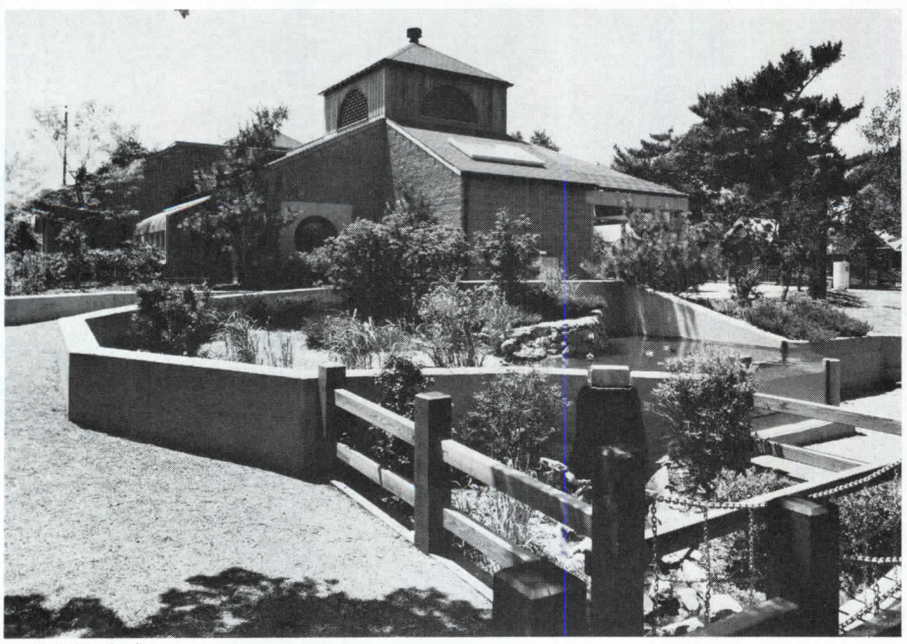
Award for Excellence in Architecture: Oak Grove Rapid Transit Station, Malden, Massachusetts; Sert, Jackson and Associates, architects. Said the jury, "The intention is not to create a mood, but to facilitate the efficient and comfortable transfer of passengers from one mode of transport to another. . . . The structure is a perfect diagram of those movements, delineated in a strong geometry and executed in a tough concrete vocabulary with enduring values, both symbolically and in terms of physical survival. . . . This station is a welcome addition to the already extensive vocabulary of [public transit]."

©Steve Rosenthal

Award for Excellence in Architecture Involving Extended Use: East Cambridge Savings Bank, Massachusetts; Charles C. Hilgenhurst and Associates, architects (RECORD, April 1979, pages 97-102). Said the jury, "[The renovation and] the new annex, including the quarter circle connection to the original banking room, have been done with great sympathy, and the entire resulting product shows that one can respect and even, by manipulation, reaffirm the past in a new setting without condescension and without distorting . . . today's contribution."

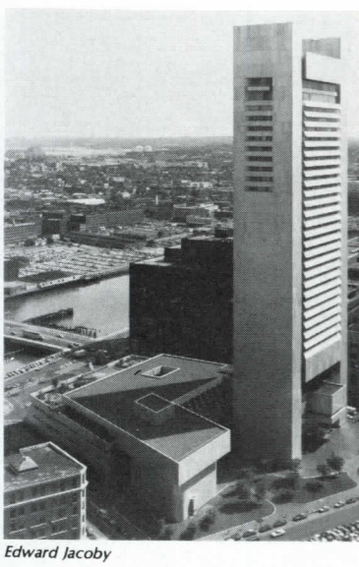


Foulds-Wilson Studios

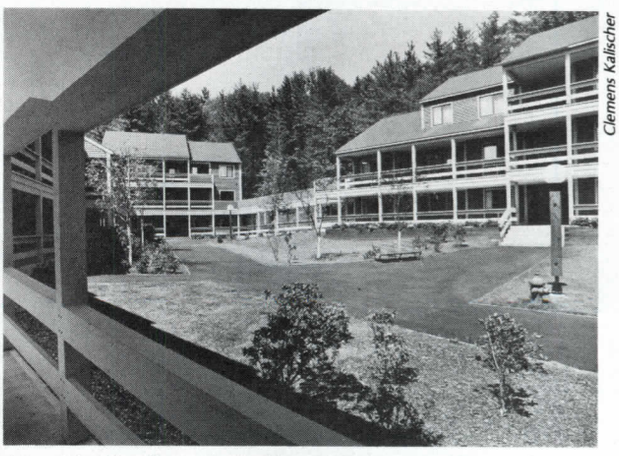
Award for Excellence in Architecture: Roger Williams Park Zoo, Providence, Rhode Island; The Architects Design Group, architects. Said the jury, "The children's pavilion is intended as a summarizing abstract for the entire complex, a year-round introduction giving orientation on animal life to schoolchildren. . . . The [tent-like] high structures are handled in a very imaginative manner wholly sympathetic to the presence of children but without obtrusive cuteness and always with fully adult judgment. . . ."

Award for Excellence in Architecture Involving Extended Use: Office of the Town Government in Durham, New Hampshire; John R. Benson and Beckstoffer and Associates, architects. The jury commented, "Someone had the brilliant idea that two identical two-family houses in the town center could be connected and used for town offices. . . . The important thing is that almost no changes were made within the houses."

Award for Excellence in Architecture: Federal Reserve Bank of Boston; Hugh Stubbins and Associates, Inc., architect (RECORD, September 1978, pages 109-118). The jury commented, "Did one really need a column-free portal 143 feet wide just to enter the building, or to sort out public from secure areas, or to get the public through to the exhibition functions? These questions disturb us, but when we examine the execution, we see that the whole thing has been carried out with consummate bravado and sophistication—form, materials, lighting—the works."



Edward Jacoby



Clemens Kalischer

Award for Excellence in Architecture: Heaton Court, Stockbridge, Massachusetts; Goody, Clancy and Associates, Inc., architects (RECORD, mid-May 1979, pages 116-117). The jury said, "The striking thing about the project is a timeless quality. There is absolutely no pretense to make any kind of statement about modern design, and this place will not soon be dated. One of the jurors even said that he could visualize spending his declining years in a place such as this. This is vernacular architecture, and we can use more of it."

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Life cycle costing, taken step by step

This is the conclusion of a two-part discussion of life cycle cost analysis as it is practiced by the Detroit architectural and engineering firm of Smith, Hinchman & Grylls Associates. The previous discussion (RECORD, December 1979, page 63) dealt primarily with the principles and concepts necessary as an introduction to life cycle costing. Although this information is an essential prerequisite, a good understanding of the subject can be acquired only by application of these techniques to a project. The designer must determine areas of study, develop design alternatives, estimate the significant costs of these alternatives, convert these costs to an equivalent time period and make a selection based on the economic and non-economic factors of that study area.

By Stephen J. Kirk, AIA, CVS

Figure 1

Life Cycle Cost - Study Areas

Areas of Study:	Conceptual	Schematic	Design Development
General Project Budget Layout Criteria & Standards	-Design Concepts -Program Interpretation -Site/Facility Massing -Access, Circulation -Project Budget -Design Intentions -Net to Gross Ratios	-Schematic Floor Plans -Schematic Sections -Approach to Systems Integration -Floor to Floor Height -Functional Space Relationships	-Floor Plans -Sections -Typical Details -Integrated Systems -Space Circulation -Specifications
Structural Foundation Substructure Superstructure	-Performance Requirements -Structural Bay Sizing -Framing Systems Exploration -Subsurface Conditions -Underground Concepts -Initial Framing Review -Structural Load Criteria	-Schematic Basement Plan -Selection of Foundation System -Structural System Selection -Framing Plan Outline -Sizing of Elements	-Basement Floor Plan -Key Foundation Elements, Details -Floor & Roof Framing Plans -Sizing of Major Elements -Outline Specifications
Architectural Exterior Closure Roofing Interior Construction Elevators Equipment	-Approach to Elevations Views to/from Building -Roof Type & Pitch -Interior Design -Configuration of Key Rooms -Organization of Circulation Scheme -Need & Types of Vertical Circulation -Impact of Key Equipment on Facility & Site -Passive Solar Usage	-Concept Elaboration -Selection of Wall Systems -Schematic Elevations -Selection of Roof Systems -Room Design -Selection of Partitions -Circulation Sizing -Basic Elevator & Vertical Transportation Concepts -Impact of Key Equipment on Room Design	-Elevations -Key Elevation Details -Key Roofing Details -Initial Finish Schedules -Interior Construction Elements -Integration of Structural Framing -Key Interior Elevations -Outline Specification for Equipment Items
Mechanical HVAC Plumbing Fire Protection	-Basic Energy Concepts -Impact of Mechanical Concepts on Facility -Initial Systems Selection -Space Allocation -Performance Requirements for Plumbing, HVAC, Fire Protection	-Mechanical Systems Selection -Refinement of Service & Distribution Concepts -Input to Schematic Plans -Energy Conservation	-Detailed System Selection -Initial System Drawings & Key Details -Distribution & Riser Diagrams -Outline Specifications for System Elements
Electrical Service & Distribution Lighting & Power	-Basic Power Supply -Approaches to Use of Natural & Artificial Lighting -Performance Requirements for Lighting -Need for Special Electrical Systems	-Window/Skylight Design & Sizing -Selection of Lighting & Electrical Systems -General Service, Power & Distribution Concepts	-Detailed Systems Selection -Distribution Diagrams -Key Space Lighting Layouts -Outline Specification for Electrical Elements
Site Preparation Utilities Landscaping	-Site Selection -Site Development Criteria -Site Forms & Massing -Requirements for Access -Views to/from Facility -Utility Supply -Site Drainage	-Design Concept Elaboration -Initial Site Plan -Schematic Planting, Grading, Paving Plans	-Site Plan -Planting Plan -Typical Site Details -Outline Specification for Site Materials

The selection of study areas for LCC at times is quite simple as frequently there are numerous design questions concerning facility tradeoffs. **Figure 1** provides a list of suggested study areas during the various phases of a project, organized by UNIFORMAT categories.

Once the study areas have been identified and alternatives have been generated, the designer must estimate the LCC costs. Probably the most perplexing problem facing the architect is, "where do I find out what the owning and operating costs are going to be if I select system A?" Some historical information can be obtained from organizations such as the Building Owners and Managers Association in Chicago; this type of data, however, is only useful in establishing a "ball park" estimate of what a similar facility should cost to own and operate over time. For the information to be meaningful, it must be organized in a systems format (similar to UNIFORMAT) and be at a level of detail consistent with the stage of the project. **Figure 2** provides an example (elevators) of the types and level of detail of life cycle information required.

Case history shows how lighting options can be studied for energy use

The technique of LCC is illustrated by the following case study of a seven-story office/computer facility to be located in the southwestern part of the United States.

The location and exposure of the office areas (north and east) and the client's goal of energy conservation, strongly suggested various combinations of daylighting schemes and supplemental lighting systems. (The combined energy impact of fixture lighting and hvac cooling for the space in office buildings can amount to as much as 50 per cent of the total building energy requirements.)

The several issues to be examined in depth during the course of a week included: a) fenestration; b) artificial lighting; c) energy conservation; d) mechanical requirements; e) direct versus indirect lighting; f) coffered versus flat ceiling; and g) lighting reflective devices.

continued on page 61

Stephen J. Kirk is a project manager and an associate in the Value Management Division of Smith, Hinchman & Grylls Associates in Washington, D.C. He is currently co-authoring a book with Alphonse Dell'Isola for McGraw-Hill, entitled *Life Cycle Costing for Design Professionals* to be published in late 1980.

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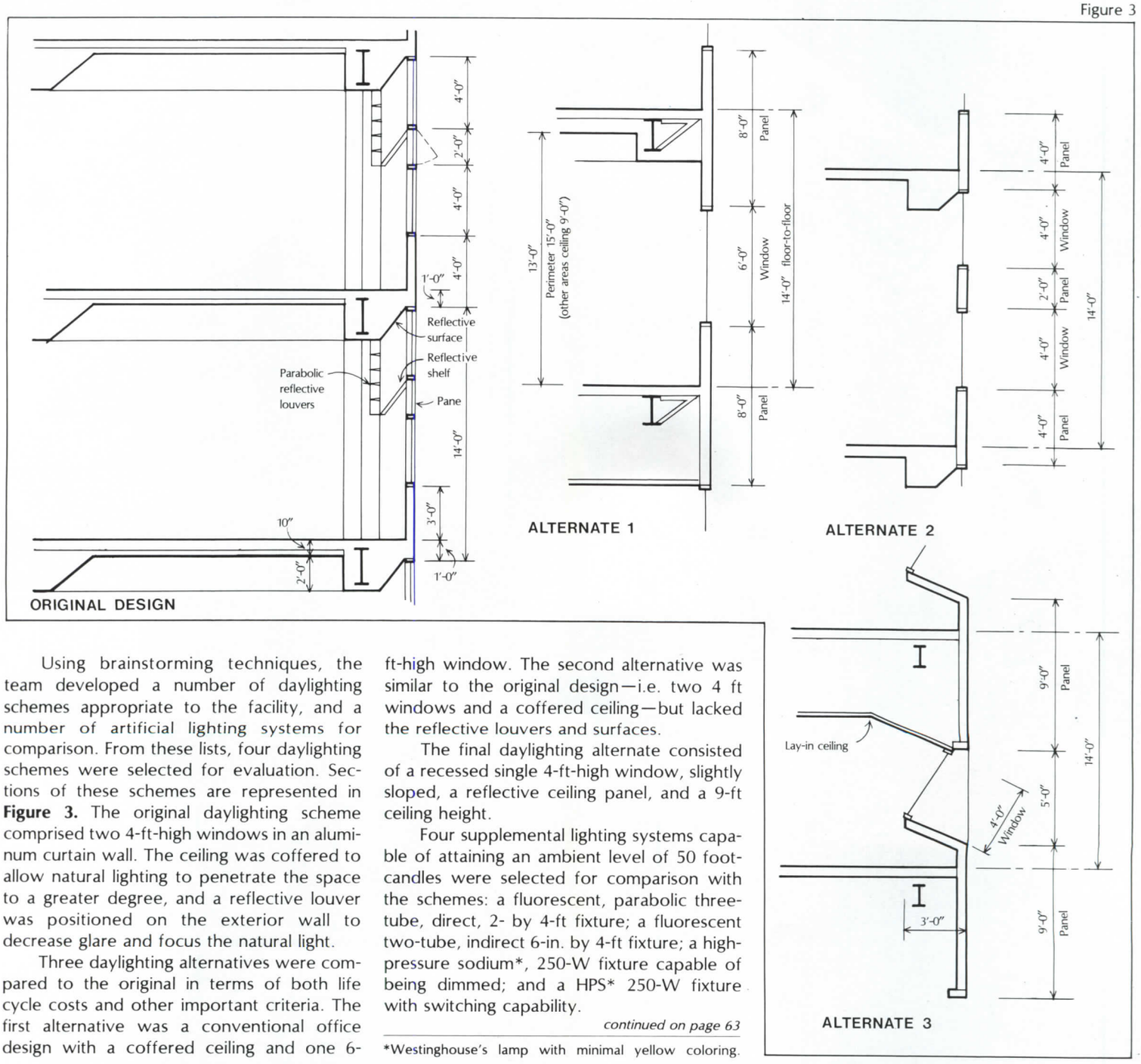
Figure 2

ITEM DESCRIPTION	UNIT OF MEASURE	MAINTENANCE DESCRIPTION	MAINTENANCE ANNUAL COST LABOR	MATERIAL	EQUIPMENT	ENERGY DEMAND (EU)	REPLACEMENT LIFE (YRS)	PERCENT REPLACED
07 CONVEYING SYSTEM								
0701 ELEVATORS								
Passenger Elevators - high Speed, automatic (25 HP; 75% efficiency)	Ea.	Remove gum, sweep and damp mop or vacuum carpet. Damp-wipe walls trim and doors. Wax or shampoo as necessary. (20.0 min. twice weekly)	346.6	15.0	3.0	75.0 KW	20	100
	Stop	Inspection & Repair (35.0 hours per year)	525	500	50.0			
Passenger Elevators - hydraulic (25 HP; 75% efficiency)	Ea.	Remove gum, sweep and damp mop or vacuum carpet. Damp-wipe walls trim and doors. Wax or shampoo as necessary. (20.0 min. twice weekly)	346,6	15.0	3.0	18,65 KW	20	100
	Stop	Inspection & Repair (14.0 hours per year)	210	200	40.0			
Freight Elevators - Hydraulic (35 H.P.; 75% efficiency)	Ea.	Sweep floor, dust walls and doors (10.0 min. twice weekly)	173.3	7.5	1.5	18,65 KW	20	100
	Stop	Inspection & Repair (14.0 hours per year)	210	200	40.0			

To illustrate the whole range of steps to be taken in life cycle costing, the case study of lighting options for a seven-story office building/computer center was selected for this article. The drawings below show the original daylighting scheme and three alternatives which were compared with the original in terms of both lifecycle costs and other criteria. The complete costing is shown in Figure 4 and comparisons of initial, energy, and lifecycle costs are tabulated in Figure 5.

The table in Figure 3 shows how maintenance costs are derived for elevators.

Figure 3



Using brainstorming techniques, the team developed a number of daylighting schemes appropriate to the facility, and a number of artificial lighting systems for comparison. From these lists, four daylighting schemes were selected for evaluation. Sections of these schemes are represented in **Figure 3.** The original daylighting scheme comprised two 4-ft-high windows in an aluminum curtain wall. The ceiling was coffered to allow natural lighting to penetrate the space to a greater degree, and a reflective louver was positioned on the exterior wall to decrease glare and focus the natural light.

Three daylighting alternatives were compared to the original in terms of both life cycle costs and other important criteria. The first alternative was a conventional office design with a coffered ceiling and one 6-ft-high window. The second alternative was similar to the original design—i.e. two 4 ft windows and a coffered ceiling—but lacked the reflective louvers and surfaces.

The final daylighting alternate consisted of a recessed single 4-ft-high window, slightly sloped, a reflective ceiling panel, and a 9-ft ceiling height.

Four supplemental lighting systems capable of attaining an ambient level of 50 footcandles were selected for comparison with the schemes: a fluorescent, parabolic three-tube, direct, 2- by 4-ft fixture; a fluorescent two-tube, indirect 6-in. by 4-ft fixture; a high-pressure sodium*, 250-W fixture capable of being dimmed; and a HPS* 250-W fixture with switching capability.

continued on page 63

*Westinghouse's lamp with minimal yellow coloring.

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The interaction of the daylighting schemes with the various supplemental lighting means produced sixteen possible solutions for evaluation. Criteria and their corresponding weighted importance were established as follows:

Energy requirement data are provided by LUMEN 2 computer program

Life cycle cost estimates were prepared next for the various daylighting and lighting fixture alternates. **Figure 4** is an example of the completed estimate for the four daylighting schemes using a high-pressure sodium fixture with switching capability. Supplemental lighting energy requirements were estimated from daylighting data provided by the computer analysis program LUMEN 2. (This program was developed by Smith, Hinchman & Grylls to analyze lighting system performance.) A computer analysis also determined the cooling energy requirements of the alternate confiturations.

Maintenance costs were estimated for window washing, re-lamping, minor repair and cleaning; costs for replacement of venetian blinds, lighting fixutres, etc. were also included. The daylighting scheme with reflective louvers had the advantage of supplying an investment tax credit. The HPS fixture is considered by the Internal Revenue Service as "furniture" and as such may be depreciated over a seven-year period rather than over the building life of 40 years. The "credit" also has been assigned. Because the exterior wall design of Alternative 3 created less usable space for the client, it was assessed an "associated" cost. This denial of use (space) cost estimate was based on similar office space rental in the area. Finally, a 10 per cent salvage value (credit) was given to each daylighting scheme.

Each annual life cycle cost was converted to "present worth" (based on a 10 per cent interest rate and a 40-year economic life) using a discount table. One-time costs of replacements were also converted to present worth using the formula discussed in RECORD last month (page 65). The summation of initial, operation, maintenance, replacement, tax elements, associated and salvage present worth values becomes the life cycle cost for each alternate.

Once the life cycle costs were established for each of the sixteen combinations, these schemes were given "points" in the weighted evaluation. **Figure 5** is a summary matrix of these alternates. The total point score of each is presented first, and the lower portions of each box contain the estimated present worth costs. The recommended solution—the one with the highest composite score—was a combination of daylighting alternates 1 and 2. A 2-ft-high upper window and a 4-ft-high lower window with a 4-ft-high lower window with a coffered ceiling was suggested to the client as was the high-pressure sodium fixture.

Effective life cycle cost analyses will require an additional 400-600 A/E manhours

Until recently, only initial cost dollars have been of prime concern in the building cycle. However, life cycle costing techniques offer the opportunity to impose limits by the owner of thresholds for the designer to achieve, making the establishment of energy budgets, maintenance targets, and other owning and operation constraints possible. As experience grows in these areas, more efficient performance can be expected in the operation of buildings.

The best opportunity for saving life cycle dollars is in the earliest stages of the design process. As previously discussed, the concepts for the most part are well established. Difficulty may come in actually integrating them to be used in developing facilities that meet owner requirements at a lower total cost of ownership. Owners must take the responsibility for setting realistic goals in the planning/budgeting phase, requiring LCC, and providing funding as necessary to A/E's so that life cycle costing doesn't become just another paperwork exercise. A typical project ranging from $4-6 million requires approximately 400 to 600 additional manhours of effort to adequately review the significant areas identified in Figure 1.

Life Cycle Costing Estimate
General Purpose Work Sheet

Study Title: Day-Lighting Schemes
High Pressure Sodium* Fixtures - Switched ½ Bay
Discount Rate: 10% Economic Life: 40 Years
*New (w) Lamp 250W H S 7500 HRS/Life

	Original Describe: Two 4'-0" Windows, Reflective Louvers and Coffered Ceiling Fixed Sash		Alternative 1 Describe: Coffered Ceiling w/One 6'-0" Window Fixed Sash		Alternative 2 Describe: Two 4'-0" High Windows, No Reflective Louvers, Fixed Sash		Alternative 3 Describe: Recessed Single Sloped 4'-0" Windows Fixed Sash	
	Estimated Costs	Present Worth	Estimated Costs	Present Worth	Estimated Costs	Present Worth	Estimated Costs	Present Worth
Initial Costs								
A. Alum. & Glass Curtain Wall - N&E Elev.	$22.00/SF	800,800	$19.00/SF	691,580	$22.00/SF	800,800	$22.00/SF	800,800
B. Venetian Blinds, Vertical, Reflective Backing	$10.00/SF	16,000	$10.00/SF	12,000	$10.00/SF	16,000	$10.00/SF	8,000
C. Parabolic Reflective Louvers, 4'High,-E. Elev.	$50.00/LF	60,000						
D. Baseboard Convector HVAC Syst. (Differentials)	$25.00/LF	63,000		0	$25.00/LF	63,000		0
E. Reflective Surface - Alzak 24 Ga, & Furring	$3.00/SF	18,000						
F. Layin Ceiling System (22½ LF)								
G. Acoustical Tile on Furring							$1.04/SF	44,550
H. Ceiling Furring - 5/8" GYP. & Paint (30,000 SF)	$1.31/SF	67,796	1.31/SF	59,000	1.31/SF	67,796		
I. H.P. Sodium Fixtures-Switched, Distribution, Controls	1.20/SF	36,000			1.20/SF	36,000	$1.20/SF	15,120
J. Contingencies. 5%		354,040		354,040		354,040		354,040
K. Escalation 5 %	1415386	70,779	1114620	55,831	1337586	66,879	1228510	61,126
Total Intial Cost		79,779		55,831		66,879		61,126
		1,557,199		1228,282		1,471,394		1,394,762
Operations (Annual) Energy	Diff. Escal. Rate	PWA W/Escal.						
A. High Pressure Sodium-	0%	9.779	7,032	68,766	7,695	75,249	6,833	66,820	8,889	86,926
B. HVAC, Space Cooling	0%	9.779	13,589	132,887	11,000	107,569	13,589	132,887	11,000	107,569
C. High Pressure Sodium (Remaining Area)	0%	9.779	19,792	193,562	13,792	134,862	13,792	134,862	13,792	134,862
D.										
E.										
F.										
Total Annual Operations Costs				345,815		326,980		343,869		338,657
Maintenance (Annual)	Diff. Escal. Rate	PWA W/Escal.						
A. Alum.Panel-Clean ($.09/SF/Yr)	0%	9.779	1,400	13,692	1,750	17,115	1,400	13,692	2,800	27,384
B. Window - Washing($.17 /SF/YR)	0%	9.779	3,543	34,650	2,657	25,985	3,543	34,650	1,772	17,324
C. Parabolic Louver ($.25/SF/YR)	0%	9.779	1,200	11,735						
D. Baseboard HVAC ($.32/LF/YR)	0%	9.779	806	7,885			806	7,885		
E. Reflective Surface($.25/SF/YR)	0%	9.779	1,500	14,669						
F. Venetian Blinds ($.20/SF/YR)	0%	9.779	3,200	31,293	2,400	23,470	3,200	31,293	1,600	15,646
G. H.P. Sodium Fixt.(6.00/Fixt./YR)	0%	9.779	12,822	125,386	12,822	125,386	12,822	125,386	12,822	125,386
Total Annual Maintenance Costs				239,310		191,956		212,906		185,740
Replacement/Alterations (Single Expenditure)	Year	PW Factor						
A. Parabolic Reflective Louvers	10	.386	60,000	23,160						
B. Parabolic Reflective Louvers	20	.149	60,000	8,940						
C. Parabolic Reflective Louvers	30	.057	60,000	3,420						
D. Venetian Blinds	10	.386	16,000	6,176	12,000	4,632	16,000	6,176	8,000	3,088
E. Venetian Blinds	20	.149	16,000	2,384	12,000	1,788	16,000	2,384	8,000	1,192
F. Venetian Blinds	30	.057	16,000	912	12,000	684	16,000	912	8,000	456
G. Baseboard Convector HVAC	20	.149	20,000	2,980			20,000	2,980		
H. High Pressure Sodium Fixture	20	.149	354,040	52,752	354,040	52,752	354,040	52,752	354,040	52,752
I.										
J.										
Total Replacement/Alteration Costs				100,724		58,856		65,204		57,488
Tax Elements 10% Investment Tax Credit	Diff. Escal. Rate	PWA W/Escal.						
A. Parabolic Reflective Louvers	1	.909	(6,000)	(5,454)						
B. Reflective Surface	1	.909	(1,800)	(1,636)						
C. High Pressure Sodium-										
D. Depreciation over 7 Yrs.				(22,457)		(22,457)		(22,457)		(22,457)
E.										
F.										
G.										
Total Tax Elements				(29,547)		(22,457)		(22,457)		(22,457)
Associated (Annual)	Diff. Escal. Rate	PWA W/Escal.						
A. Denial of Use (Space) Loss	0%	9.779							75,600	738,900
B. ($10.00/SF/YR x 7560 SF)										
C.										
Total Annual Associated Costs										
Total Owning Present Worth Costs										738,900
Salvage At End Of Economic Life	Year	PW Factor						
Building (Struc., Arch., Mech., Elec., Equip.), 10% of Initial Cost	40	.022	(141,555)	(3114)	(111,682)	(2456)	(133,754)	(2502)	(122,251)	(2689)
Sitework										
Total Salvage				(3114)		(2456)		(2502)		(2689)
LCC Total Present Worth Life Cycle Costs				2,210,332		1,782,161		2,068,364		2,640,801
Life-Cycle Present Worth Dollar Savings				—		428,171		141,968		(430,469)

PW — Present Worth PWA — Present Worth Of Annuity

Figure 4

SUMMARY MATRIX

WINDOW/LIGHTING: SUMMARY — Subject (FIXED WINDOW SASH) — SEPTEMBER 10-14, 1979 — Date — TEAM #2
W/NEW WESTINGHOUSE 250W HPS LAMP

DAY-LIGHTING SCHEMES

LIGHTING FIXTURE DESCRIPTION:	CRITERIA:	ORIGINAL: Two 4'-0" High Windows Refl. Louvers & Coffered Ceiling	ALT.#1: Coffered Ceiling w/One 6'-0" Window	ALT.#2: Two 4'-0" High Windows, No Reflectors, Coffer Ceiling	ALT.#3: Recessed Single 4'-0" Window, 9'-0" Ceiling
FLUORESCENT PARABOLIC 3-TUBE, DIRECT	ENERGY	40	45	45	40
	LIFE CYCLE COST	50	70	55	30
	OTHER*	179	182	170	173
	TOTAL	269	297 (3)	270	243
	INITIAL COST	$1,613,200	$1,284,338	$1,527,400	$1,400,816
	LIFE CYCLE COST	2,203,482	1,778,704	2,046,933	2,644,575
	ENERGY COST	339,175	323,783	323,088	341,923
FLUORESCENT 2-TUBE, INDIRECT 6"x4' FIXTURE	ENERGY	15	15	20	10
	LIFE CYCLE COST	35	55	45	15
	OTHER *	206	209	197	200
	TOTAL	256	279	262	225
	INITIAL COST	$1,723,677	$1,394,815	$1,637,877	$1,511,293
	LIFE CYCLE COST	2,484,842	2,064,873	2,319,894	2,938,525
	ENERGY COST	456,131	445,498	431,645	472,189
HIGH PRESSURE SODIUM FIXTURE, DIMMED	ENERGY	40	50	50	45
	LIFE CYCLE COST	45	65	50	20
	OTHER *	200	203	191	194
	TOTAL	285 (7)	318 (2)	291 (6)	259
	INITIAL COST	$1,720,384	$1,391,522	$1,634,584	$1,508,002
	LIFE CYCLE COST	2,381,953	1,936,710	2,206,244	2,800,842
	ENERGY COST	332,410	296,499	297,164	313,681
HIGH PRESSURE SODIUM FIXTURE, SWITCHED	ENERGY	35	40	40	40
	LIFE CYCLE COST	50	70	55	30
	OTHER *	208	211	199	202
	TOTAL	293 (5)	321 (1)	294 (4)	272
	INITIAL COST	$1,557,144	$1,228,282	$1,471,344	$1,344,762
	LIFE CYCLE COST	2,210,332	1,782,161	2,068,364	2,640,801
	ENERGY COST	345,815	326,980	343,869	338,657

* CRITERIA: Glare Control, Spatial Brightless, Initial Costs, Apperance of Device, Color Rendition/Temp., Maintainability

IRS

Figure 5

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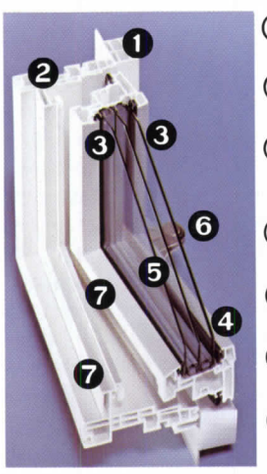

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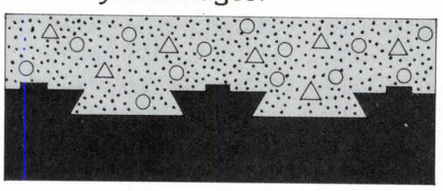

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by Kathleen L. Kalt

Without a system for organizing information, someone looking for an answer will waste valuable time searching for it, or may waste time and money ordering something that another employee has sitting on his or her desk. Worst of all, the information may not be found at all, possibly resulting in expensive mistakes.

Most architects have a cursory knowledge of traditional library organizational systems such as the Dewey Decimal Classification and the Library of Congress Classification System. Both organize published materials into a logical arrangement and assign specific numbers to each document for filing and retrieval. The Uniform Construction Index (UCI) is better known to the architect, as a classification system, which organizes product-related information into 16 broad divisions for filing, specifications and cost estimating purposes. While the UCI format works well for material and product catalogs, it is not easily adaptable to the many other books and reports that form the bulk of any firm's design library. Architectural firm libraries often have special problems, which make traditional classification systems inappropriate. Both Dewey Decimal and Library of Congress Classification Systems consume considerable staff time, and architects are not generally familiar with their use.

Five-step color coding system is simple for user and librarian

To answer the need for a simple library organizational system for architectural offices, I devised the following for Skidmore, Owings & Merrill in Washington, D. C. It is easy for the users to understand, quickly implemented by the librarian, flexible enough to expand with the interests of the office, and able to be refined as time allows.

Color, rather than numbers, is the basic organizational key for this collection. While many architects may be reluctant to look for a book marked "NA735 .A6T7," they will respond more readily to a visual cue. Although the use of color seems overly simplistic, the system may be as sophisticated as the librarian or the firm desires. After following these five steps, a firm's library can have: 1) books and publications arranged on the shelves in subject categories specifically geared for that office; 2) a highly visible color-coded identification system which makes location easy and mis-filing less likely; 3) a consecutively numbered record of each book owned by the firm, kept in a notebook by subject; 4) specialized subject indexes, also in a notebook; 5) an index by title of all books held; and 6) an author index on color-coded 3x5 cards.

Step 1: determine broad categories of books and assign a color to each

Buy a selection of colored plastic tape in two different thicknesses. In order to get the best selection of colors, use both office and library supply catalogs. When I began SOM/Washington's color-coded system, seven colors of tape were available, so our system has seven basic categories: reference (black); Washington, D.C. (red); architecture (white); planning (yellow); transportation (brown); landscape (green); and environmental (blue).

Every book on the shelves was removed and marked along the bottom of its spine with the color that best described its general subject category. In several cases, a publication dealt with more than one category; a decision was then made to determine the one most likely place to find it. In less than two weeks, over 3,000 books and reports were taped, marked as SOM's property, and shelved. As the staff watched this odd process, they became enthusiastic and invented "reasons" for particular colors: Washington was red for "red tape"; architecture was white for "purity"; and planning was yellow for "optimism." This first step alone made every book immediately more accessible to everyone, and much easier to locate than before.

Step 2: subdivide broad categories and assign a second color to each of these

The second refinement involved breaking down the seven basic categories into more specific sub-categories. These were indicated by a second, thinner band of colored tape on top of the first. For example, a book on transportation in Washington, D.C. would be labeled brown/red (see illustration). Books of a general nature were left with only one color of tape on them.

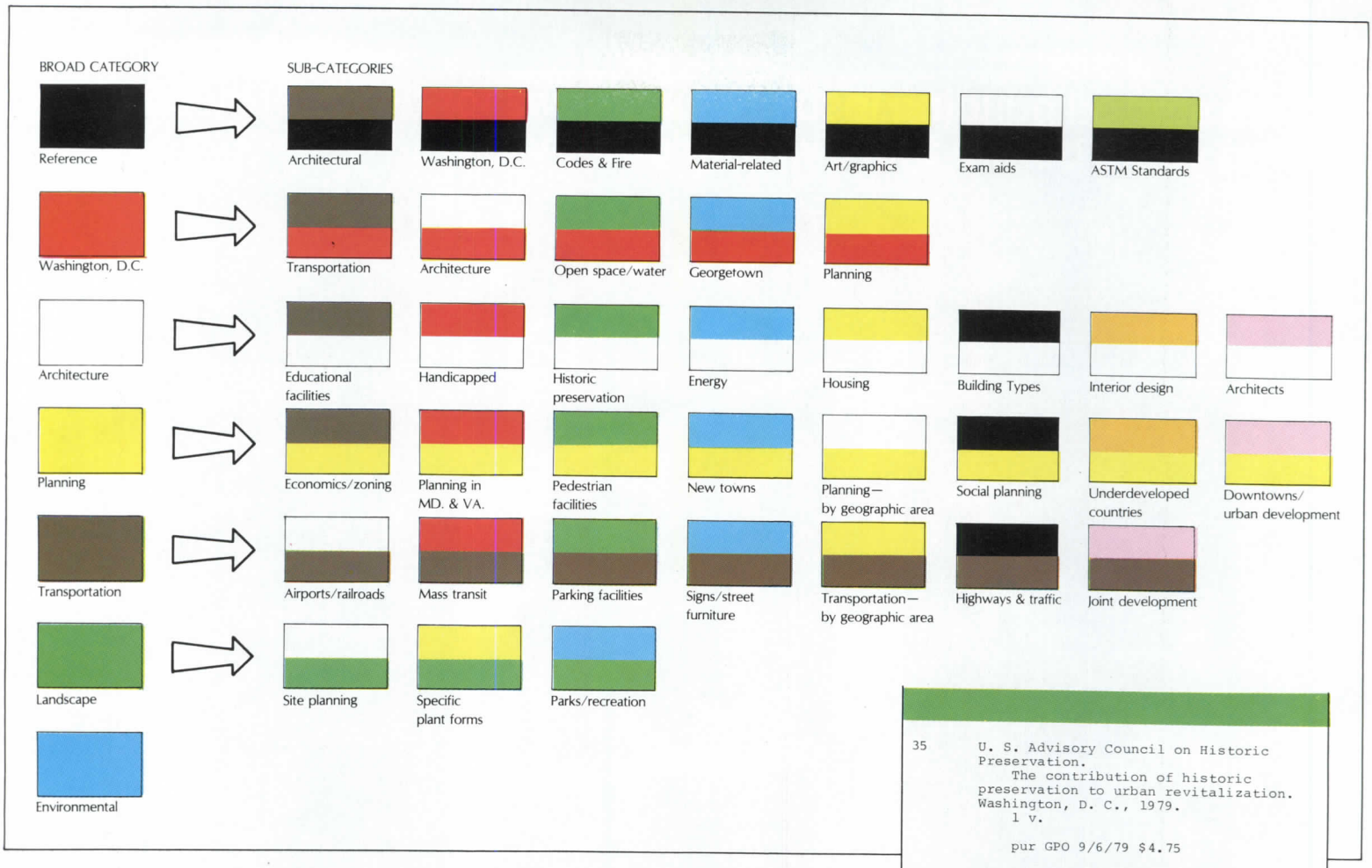
The classification categories evolved from the collection of books in SOM's library, and may not be pertinent in every A/E firm. It is important at this stage to let the interests and existing collection in an office dictate the categories to be used, rather than attempting to impose a given set of subjects upon any library. Because of SOM's involvement in planning and transportation, a large amount of reference material existed on specific topics such as joint development, economics and planning in underdeveloped countries. In another office, topics such as health care facilities, Middle Eastern concerns and engineering might deserve specific categories.

Step 3: assign consecutive inventory control numbers to each work

Although the first two steps kept the library materials in clear-cut sections and made them more accessible, there was still no record of specific books owned. Making a list of titles and assigning each book a control number was the next step.

Within each sub-category, books were

Kathleen Kalt is the librarian at Skidmore, Owings & Merrill, Washington, D.C.



numbered consecutively, beginning with 1. This simple approach is sufficient for keeping books in a specific location and for checking books out to users. It will also indicate how many books are in the collection and how many are added each year. Another benefit is that when books are numbered sequentially, all available shelf space can be utilized. In systems where the number on the book groups it in a subject category, such as Dewey and Library of Congress, space needs to be reserved at the end of each shelf to interfile new books in the proper places. In this system, space needs to be saved only at the end of every sub-category.

Also at this stage, all pertinent information regarding each book was typed on white 3x5 cards, which had been color-coded with markers to match the subcategories of the books themselves. This descriptive information serves both as an aid in finding the book on the shelf and in re-ordering the book if it is lost at a later time.

The most heavily used sections were inventoried first, and consecutive accession numbers assigned to each book in each color-coded category. Thus, "Architectural Graphic Standards" became #19 in the white/black section, because it deals with architectural reference, and was simply the 19th book in that section to be inventoried. The usefulness of the control number 19 comes in re-shelving the book (it will always be in the same place on the shelf) and for checking it out to staff members. Color-coded check-out cards were made, and when an architect takes out "Graphic Standards," the librarian simply writes #19 on the card. Then, when another person wants the same book, he can be directed immediately to the person who has it.

After the cards were typed, a photocopy was made of each (seven cards can be photocopied on a single sheet of paper). These copies were then cut apart and repasted on 8½x11 sheets of paper to form lists for each subject category. These lists are kept in a notebook on the librarian's desk, for quick consultation. The original 3x5 color-coded index cards are stored in numerical order by sub-category in a box, and consulted to determine the next number to be assigned to new books. In the future, if a card catalog becomes desirable, these cards can be sent out for duplication.

Step 4: cross-reference the collection to track multiple subject books

Although SOM's library is still at Step 3, plans for the future include a more detailed cross-referencing of the collection. Because this color-coding system forces the librarian to choose the *most* important category for any book, there will be cases when secondary subjects covered by the books need to be brought out. For example, although a book entitled "Landscape Planning for Energy Conservation" may be marked with green tape, it should be noted somewhere that it deals with energy conservation as well. At Step 4, refinements of this nature will be made, as well as geographical indexes so that all of the books dealing with any one city or state can be easily located. The added subject headings should also be typed on the 3x5 cards, which can then be easily sorted into piles for photocopying into specific subject listings.

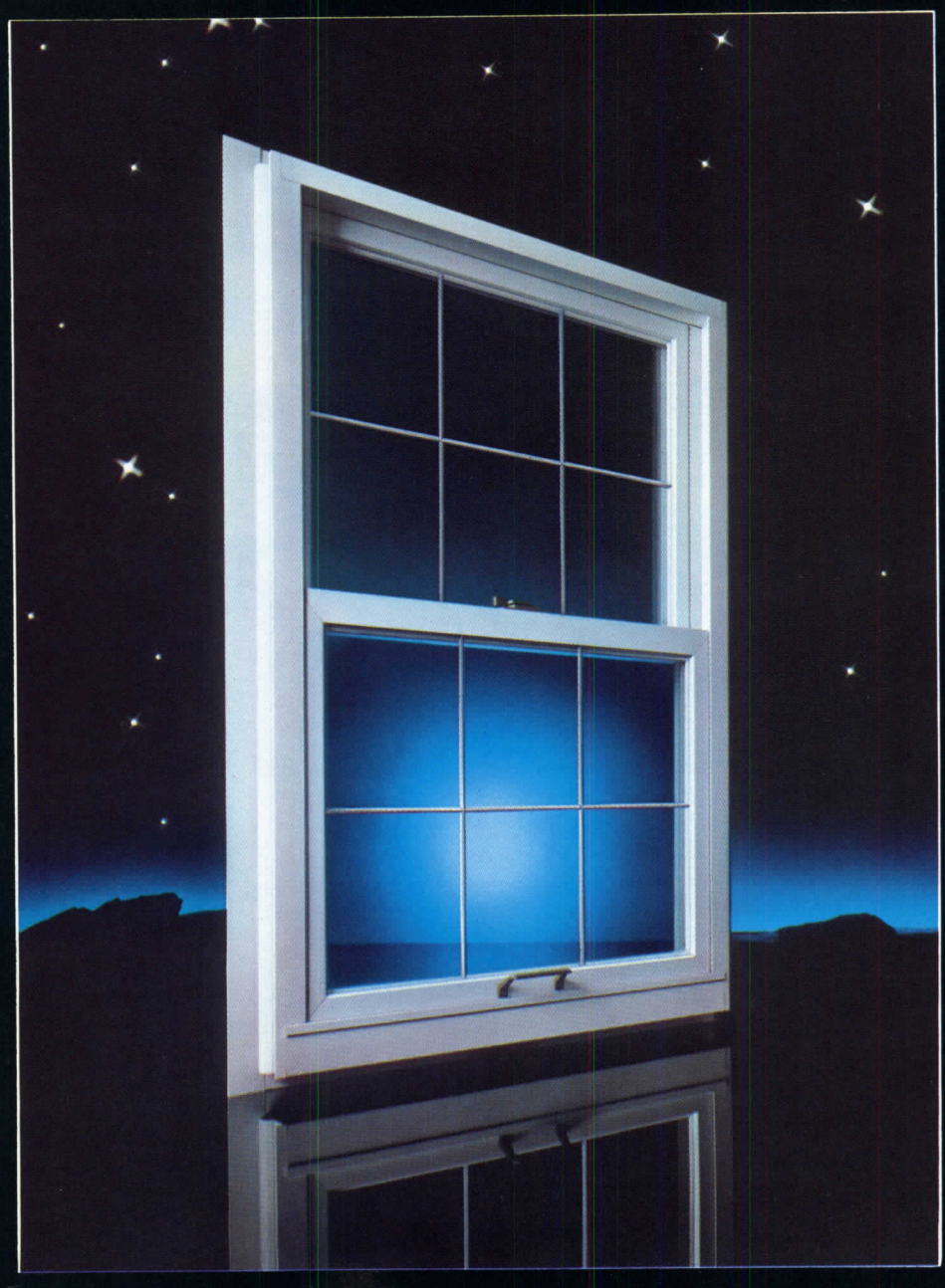
Step 5: index books by author and title

The last indexes to be produced are those by author and title. At this stage it will be useful to send the cards out to be mechanically duplicated, at about 7 cents a copy. They will then be interfiled by author and title.

When in full operation, the system outlined above will work as follows: a book, "The Contribution of Historic Preservation to Urban Revitalization," is ordered and received. It is marked with two widths plastic tape along the bottom of its spine: the lower band is white for architecture, and the upper band is green for its sub-category, historic preservation. An index card marked in white and green along its top is pulled out, and the next sequential "historic preservation" number is assigned to the book (see illustration). The book is marked with a number 35, then filed numerically with the other green and white books on the shelves. The card is photocopied two times, and copies pasted onto notebook pages under the headings "Historic Preservation," and "Downtown Revitalization." Another copy of the card is then made, and one filed under author (U. S. Advisory Council) and one under the title.

A graphic guide to the library helps users identify the colored section they want to consult. Books are checked out, and the numbers written on a check-out card.

We started building insulated windows for the energy crisis ten years before there was an energy crisis.



Today, everyone's looking for ways to sell energy saving, especially in windows. And it's no secret that many of today's products were developed yesterday. But when you're building quality housing, you can't afford "johnny-come-lately" products. You want a proven performer, a window with a winning track record.

Like the Alcoa Alaskan™ Insulating Window. The engineers at Alcoa's Technical Center started working on the Alaskan years ago. They designed it with the kind of concern for detail that goes into every new Alcoa® product. A thermal break to cut heat loss. Twin panes of welded-edge glass for increased insulation. And double weather stripping to minimize air infiltration.

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When you're considering energy-saving windows, think of the one with the proven track record—the Alcoa Alaskan.

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Alcoa means business, and the Alaskan Window means more business for you.

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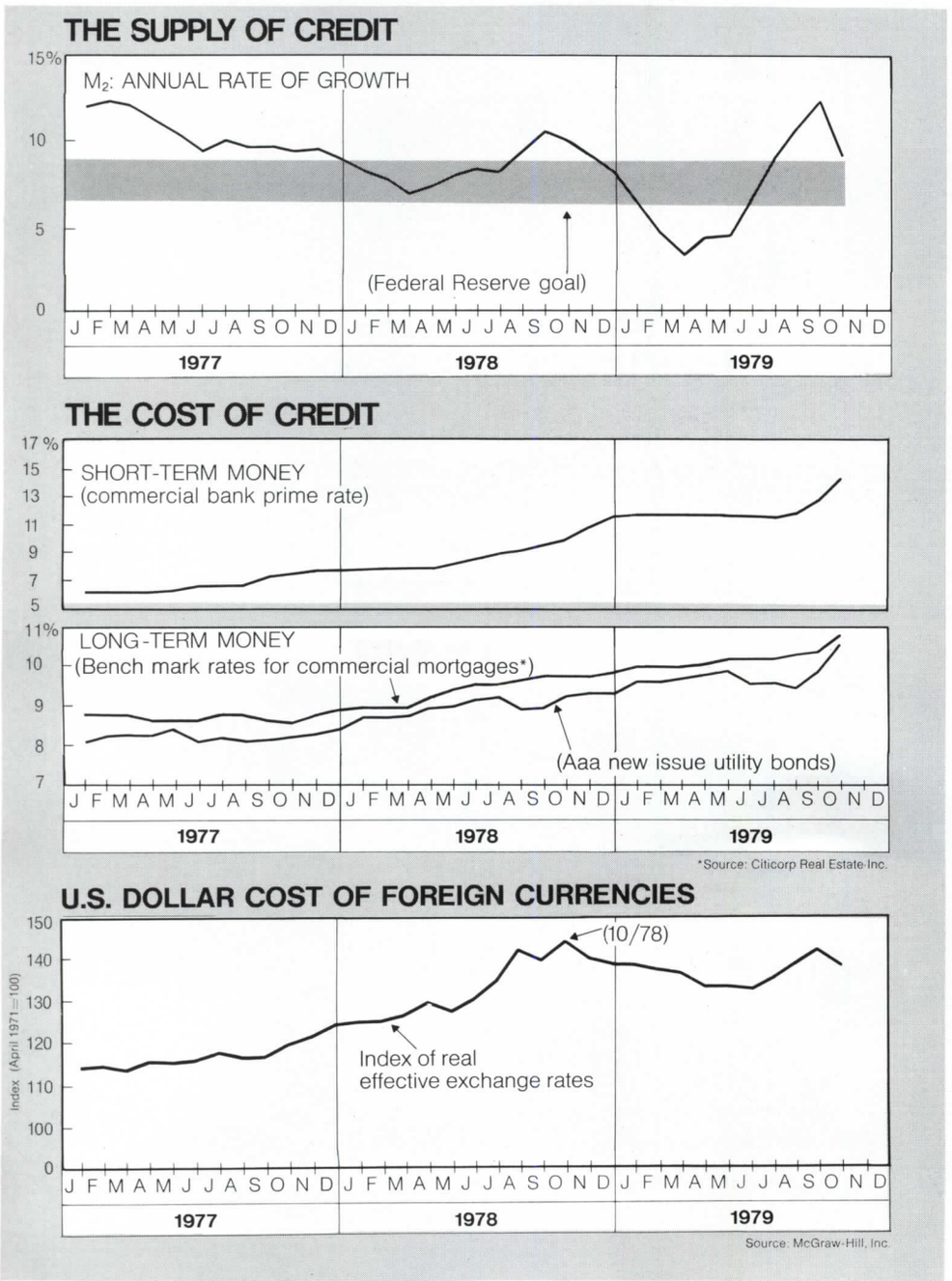
Circle 48 on inquiry card

Commercial property lending may revive slightly later in the year

The Federal Reserve's dramatic move on October 6 to limit the nation's money supply has severely impacted commercial mortgage lending. For the next six months—as the economy weakens—this situation will change only gradually, but improving availability of mortgage credit later this year should help reverse the decline in contracting for commercial building by year's end. But credit demands throughout the economy will have to ease perceptibly before interest rates can decline very much.

The Federal Reserve began tightening monetary policy in early August, but its efforts had no immediately visible impact on the growth of the money supply, or on our double-digit inflation. Indeed, in protest, the international community began unloading dollars in favor of gold, quickly depressing the dollar's value.

On October 6, the Federal Reserve took its much-publicized drastic action to curb monetary growth and support the dollar—it raised the discount rate to 12 per cent; established on 8 per cent reserve on large certificates of deposits, Eurodollar borrowings and certain international accounts held by banks; and shifted its policy emphasis from fluctuations in interest rates to growth of bank reserves. These actions were intended to raise the cost of funds to commercial banks, thus inhibiting their willingness to lend and slowing monetary growth. The swiftness and steepness of the ensuing interest rate rise, however, reflected the financial community's confusion over the Federal Reserve's sudden implementation of a new policy stance.



The Federal Reserve can only control the money supply indirectly through its manipulation of the banking system's reserves, which are the basis of bank lending. It can operate on either the *cost* of these reserves or the *volume*, but not both. Before October 6, its policy focus was on the *cost* of reserves. By pushing the Federal funds rate (the rate banks pay to borrow the excess reserves of other institutions) up or down, the Federal Reserve sought to establish the desired level of reserves. After October 6, it switched emphasis to controlling the *volume* of reserves, allowing the Federal funds rate to fluctuate wildly. Without its usual monetary policy beacon, the financial community, seeing its money costs rising and fearing an impending credit crunch, promptly tightened lending policies, sometimes even curtailing lending. Interest rates jumped sharply.

Overseas, the Federal Reserve's initiatives and resultant rapid escalation in interest rates were well received—the dollar's value firmed and even rose against most currencies. But the continued international concern about our level of inflation places a significant constraint on future Federal Reserve actions. To convince our international partners that the United States is committed to reducing inflation, monetary policy cannot be eased until there is a definite, persistent drop in our inflation rate. That only will occur once the economy has slowed and credit demand has weakened—probably in this quarter.

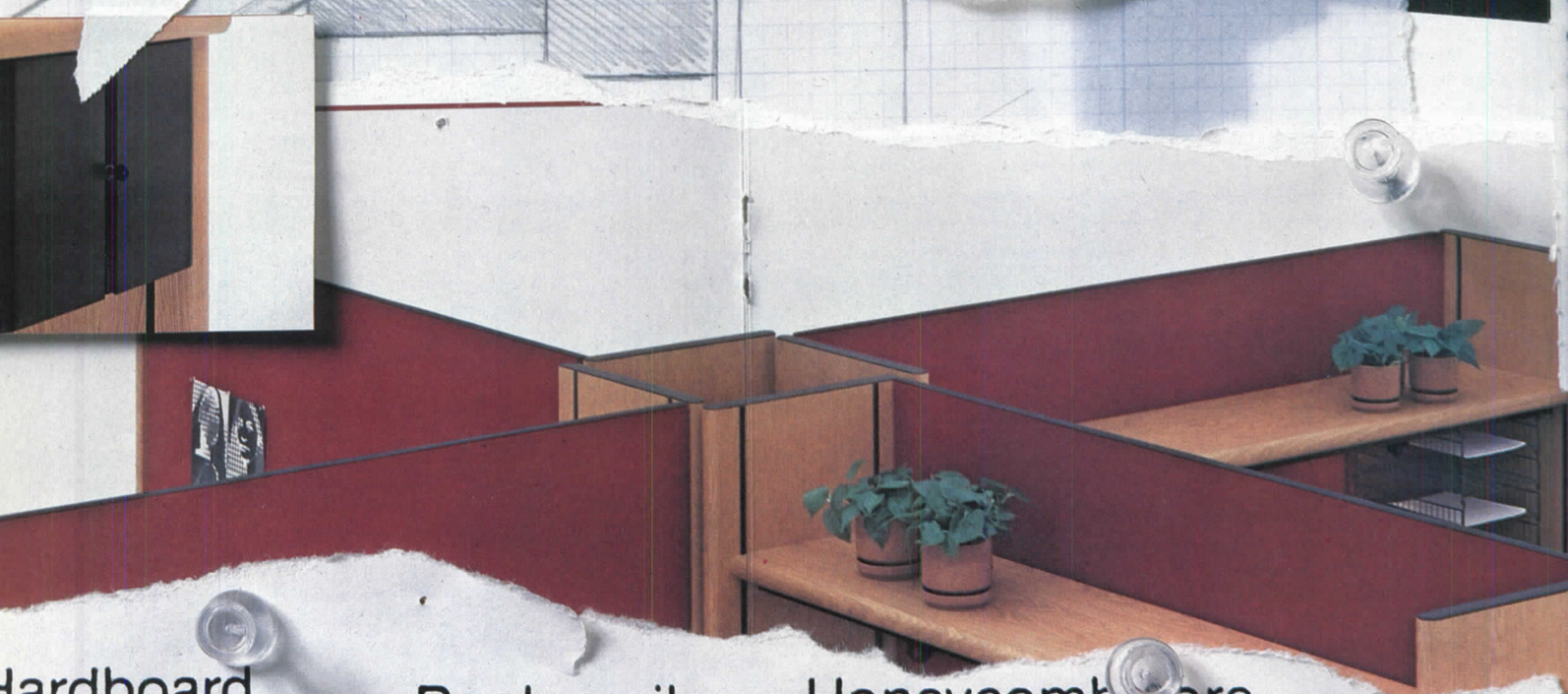
But the international concern also means that, despite growing political pressure during an election year, the Federal Reserve will only gradually loosen monetary policy to avoid renewing inflation. This could slow the recovery, which would be quite different from 1975 when monetary policy became very aggressive to help the economy out of a recession.

Domestically, the Federal Reserve's actions contributed to a growing scarcity of commercial mortgage funds. Life insurance companies—the primary source of these funds for the past eighteen months—plagued by policy loans and anticipating higher interest rates in the future, shifted funds into the short-term market and away from long-term investments, including commercial loans. They will continue this strategy until the economy slows enough to lower credit demands and dampen inflation, allowing interest rates to fall. The transition to this economic environment should begin sometime in the first quarter of 1980. Then life insurance companies will gradually increase their income property lending. This will take time, but an improved availability of funds should help limit 1980's slippage in commercial square footage to 20 per cent below 1979, a less severe decline than in the 1974-75 recession.

Phillip E. Kidd
Director of Economic Research
McGraw-Hill Information Systems Co.

C-form

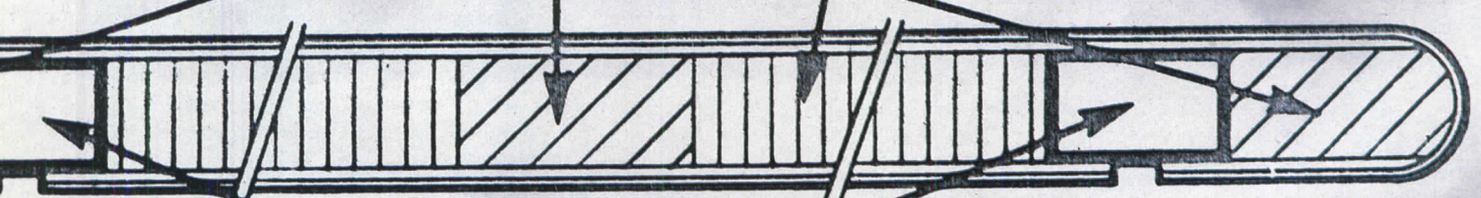
Work Organiz



Hardboard

Poplar rails

Honeycomb core



edge

Steel tubes

h 26 1/4 *(h 656)*
top size: d 22 3/4, w

pedestals: left to ri

file drawer/file draw
file drawer/2 box dra

h 26 1/4 *(h 656*
top size: d 22

CD275 2 pedestal
CD276 2 pedestal

FOR A HUNDRED YEARS, ARCHITECTS HAVE BEEN BLAMED FOR LEAKY ROOFS. SO CELOTEX DECIDED TO MAKE THEM NOT SO LEAKY.

Finally, an improved roofing system that is easy to apply properly, so it eliminates the major roofing problems.

We don't announce new products lightly. So when we do come up with something new, you can be sure it's a winner. After all, with our predecessor companies, we've been in the roofing business since 1854.

Celo-Glass IV is a special type of fiberglass asphalt mat that makes proper installation easier and thereby achieves the most problem-free roof on the market today.

Other fiberglass felts allow hot bitumen to penetrate immediately, making it difficult for workmen to broom properly. Celo-Glass IV has uniformly distributed fibers that permit controlled penetration of the bitumen, assuring good interply adhesion. In addition, Celo-Glass IV felts are stronger, weigh less, lay smoother and resist moisture and rotting better than conventional asphalt felts.

What's more, Celo-Glass IV meets ASTM 2178 Type IV requirements, the most stringent of all. It is approved for all sections of the country.

In short, Celo-Glass IV represents the most problem-free roof that can be designed today. We realize that architects will still get the blame for leaks, should they ever occur, but now you won't be blamed as often.

For more information, contact Peter G. Nazaretian at Celotex Roofing Products Division, P.O. Box 22602, Tampa, Florida 33622. (813) 871-4584.

"Between the world and the weather since 1854."

a Jim Walter company

Circle 53 on inquiry card

Fast-track schedule and large bays call for steel framing

The project:
American Cyanamid Corporate Headquarters Expansion, Wayne, N.J.

"Steel framing was critical to the fast-track construction sequence we used on this project," says Robert Schofield, architect, Schofield/Colgan, Nyack, N.Y. "We were able to select the primary framing members, bid, and order the steel before every design detail was worked out. This allowed us to get construction under way before all the working drawings were completed.

"Furthermore, we decided that steel was the most appropriate framing material for the spacious 30 ft x 30 ft bays required."

Electrified steel deck for flexibility

"Our client wanted an underfloor electrical and telephone distribution system similar to the existing headquarters building on the site," comments Alger Ross, P.E., Edwin M. Ragold Associates, consulting engineers. "We find that a blend of composite cellular and non-cellular steel deck on steel beams is a very economical and functional way of meeting this requirement.

"The alternative to this system would have been a poured-in-place or precast concrete floor system with cellular deck on top of the structural slab. Since a cellular electrical distribution system was required, it was more economical to support a cellular steel deck directly on steel beams and to make the deck and slab one structural unit."

Built into the hillside

The owners did not want the new building to compete visually with the original structure. Accordingly, the new structure is situated so that only the penthouse reception area is visible from the entrance plaza. The top office floor is connected to the lowest floor of the original building by means of an underground passage beneath the plaza.

The structure is subdivided into terraced blocks, so that the form relates to the sloping hillside. The exterior is treated with a sun screen to reduce cooling loads, while at the same time allowing views of the surrounding woods.

Office space is planned on a module of five feet by six feet and can be adapted to either open space planning or individual private offices.

Sales engineering services

Steel framing is well suited to fast-tracking. It offers great design flexibility, enabling a project to "get off the ground" quickly.

Our Sales Engineering Division offers professional technical and advisory services to help simplify your steel design. Our preliminary frame analysis program, for example, can be very helpful to you if it is conducted before architectural parameters are finalized. No fee or obligation is involved.

For more information about any of our engineering and design services, get in touch with the Bethlehem Sales Engineer nearest you. He can be reached through one of the Bethlehem Sales offices listed below. Bethlehem Steel Corporation, Bethlehem, PA 18016.

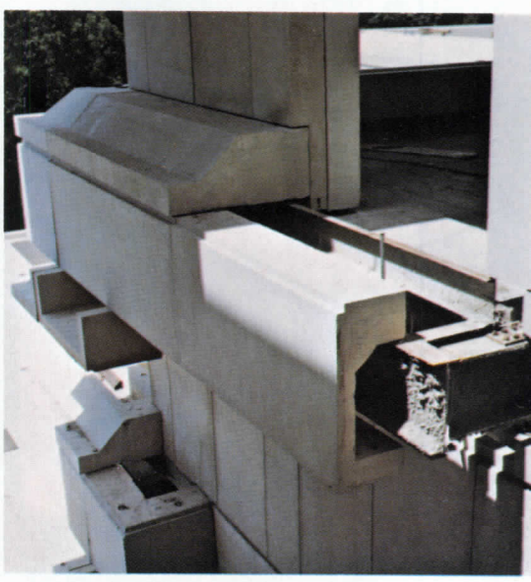
Owner:
American Cyanamid Company, Wayne, N.J.

Architect:
Schofield/Colgan, Architects, Nyack, N.Y.

Structural Engineer:
Edwin M. Ragold Associates, Bloomfield, N.J.

Fabricator:
F. M. Weaver, Inc., Lansdale, Pa.

General Contractor:
James King & Sons, Inc., New York, N.Y.



Some 1,100 tons of A36 steel were used in the construction of the West Headquarters Building. The steel frame simplified the many connections required for the precast concrete exterior, as well as installation of the mechanical and electrical systems.
The 162,000-sq-ft office building, located on a hillside across an entrance plaza from the original headquarters building, provides modular office space for 650 employees.

Security's shining hour.

Russwin's new reversible and convertible 5000 Series mortise lockset. A unique achievement in positive protection. Combines all-wrought steel strength, the Emhart* High Security Locking System and armored design. Provides the symmetrical beauty and greater security of Russwin proportional styling for apartments, motels, homes, hospitals, educational institutions and commercial buildings. Hardware Division, Emhart Industries, Inc., Berlin, Connecticut 06037.

RUSSWIN

*Patent No. 4,103,526

Circle 54 on inquiry card

An **EMHART** Unit

RECORD INTERIORS OF 1980

This is the eleventh presentation of Record Interiors—an annual award program recognizing excellence in interior design by architects. The winners were chosen by the editors from a dazzling array of submissions that made the decision process exceedingly difficult. (Others of the submissions will be shown in the coming months). If one thing characterizes the winners. . . .

The cool white interiors with which so many architects were so long associated now are seen only where they are especially appropriate. In the winning designs, you will see—in interiors as in all architecture today—a far broader palette. And in many cases, you will see a new, more considerate attitude towards the character of the original spaces that the architects started with. And there is strong attention to how the elements go together. Mies' statement "God is in the details" is certainly alive today, although the effect can be very different from what he had in mind. —*Charles K. Hoyt*

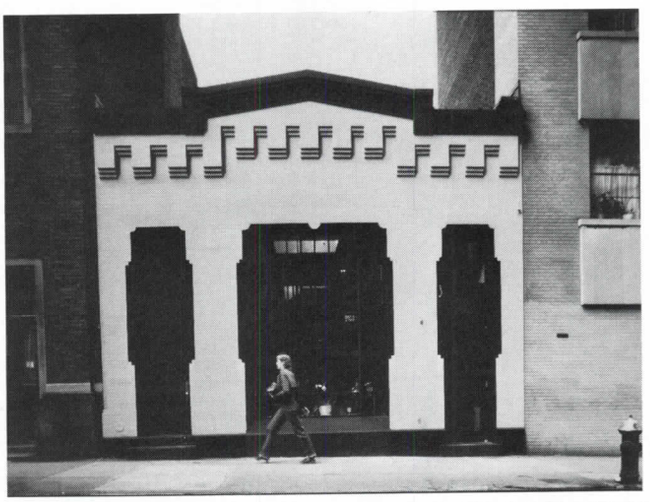
A SHOWROOM AND DESIGN STUDIO IN NEW YORK CITY, BY DAVID HIRSCH OF BIER/BAXT/HIRSCH

Remodeled from the former carriage house of John D. Rockefeller in New York City, this combination showroom and design studio for a record-jacket manufacturer is remarkable for its appropriate expression of new uses through fresh and spare imagery, while maintaining a strong sense of historic continuity. Partner-in-charge David Hirsch has worked extensively in what he describes as "the format of existing historical elements," and he believes in starting with the existing and unique assets of a given space as a basis for design. Of course, the real talent is in recognizing such assets *as assets* and in successfully and sympathetically adopting the new elements to them.

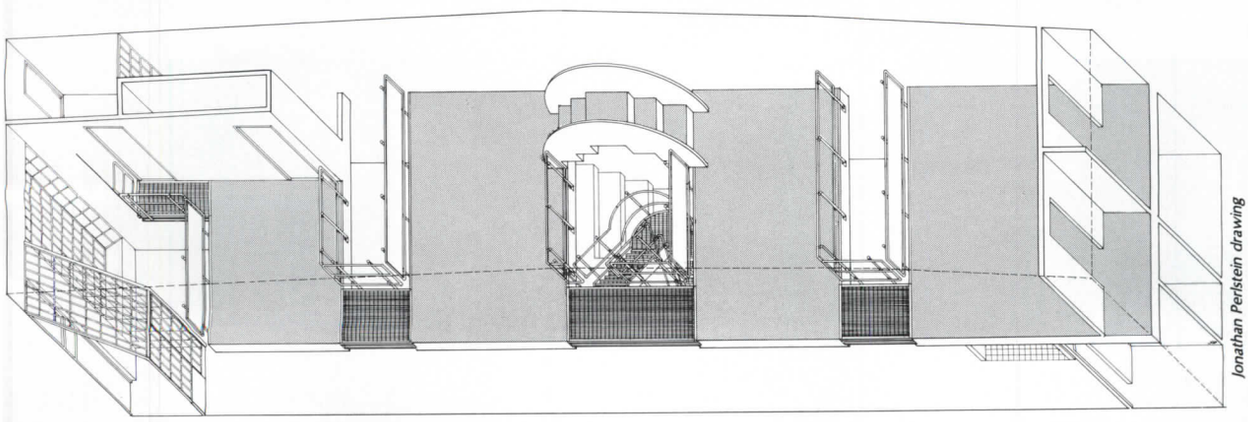
Here, three double-height spaces—created by openings in a new mezzanine that align with original timber-framed skylights—logically separate the four basic functional parts of the main floor. These parts are devoted to a reception area and three open-plan islands of oak desks for the sales teams. The mezzanine houses the design department at the rear of the building, and conference and office space toward the front. And in much more than the skylights, Hirsch has maintained the former "feel" of the space by its openness, simple character and careful attention to details—such as the small glass panels of the new vestibule that match those of the existing industrial-style storefront.

Other elements are clearly new, such as the strongly articulated metal railings on the mezzanine and central stair. The details are simple, such as the cargo-cloth privacy panels on mezzanine railings, industrial steel grilles between sections of the mezzanine, exposed standard air ducts, and wire kitchen shelving for record displays. And such simplicity has allowed a good budget for the new oak work stations and other quality furnishings.

ALBUM GRAPHICS, New York, New York. Owner: *Album Graphics Incorporated.* Architect: *David Hirsch of Bier/Baxt/Hirsch.* Engineers: *Anthony Vairamedes* (structural), *Domnick Stewart* (mechanical). Lighting consultant: *Lighting Associates.* General contractor: *NSC Construction Company.*

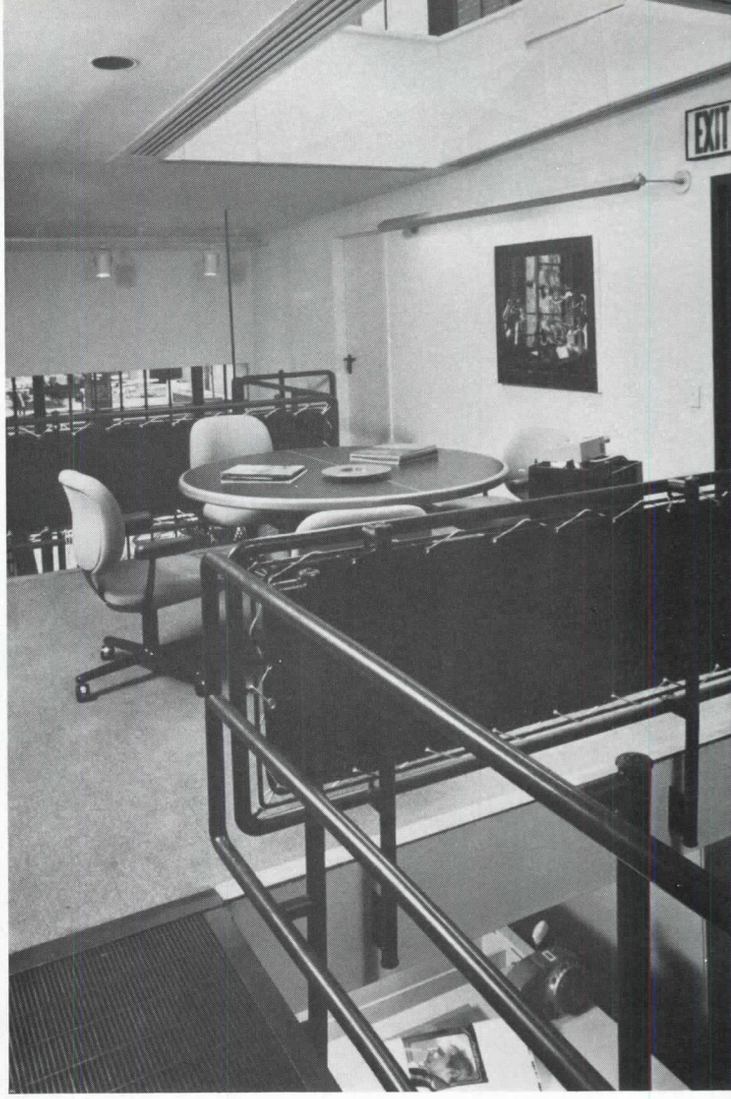


Hirsch/Jenkinson photos



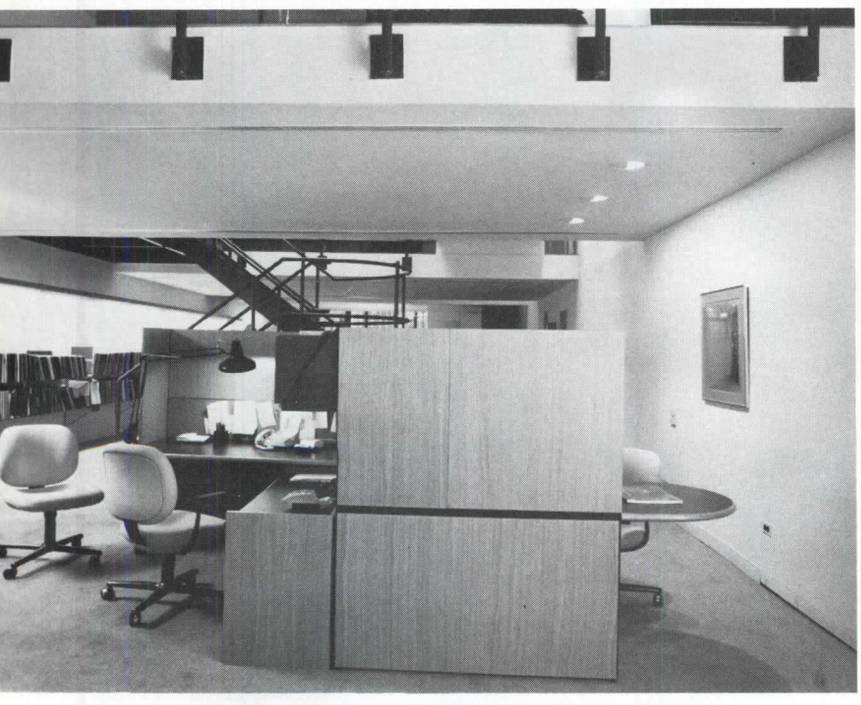
Jonathan Perlstein drawing

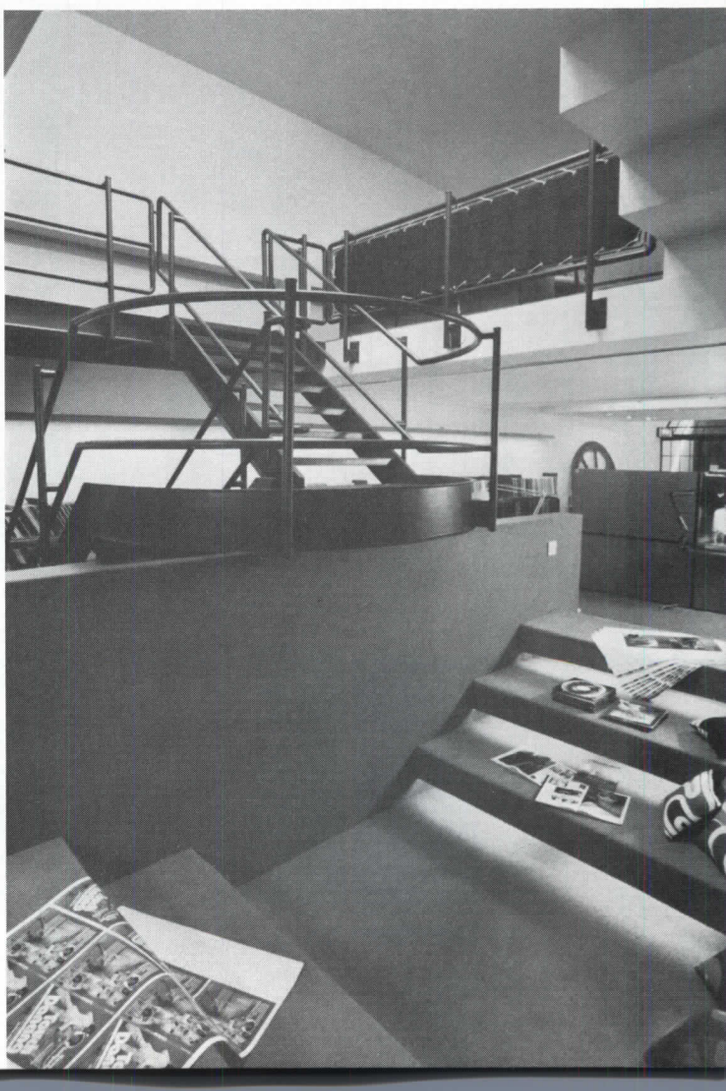

Record World
CASHBOX
CASHBOX
CASHBOX



BIER/BAXT/HIRSCH

The playful bridge in the photo opposite spanning between mezzanine sections was designed as much for a "relaxation spot" as for circulation—as was the "pit" under it (photo right). The intricate sculptural shape under stairs is repeated near the reception desk (photo above).

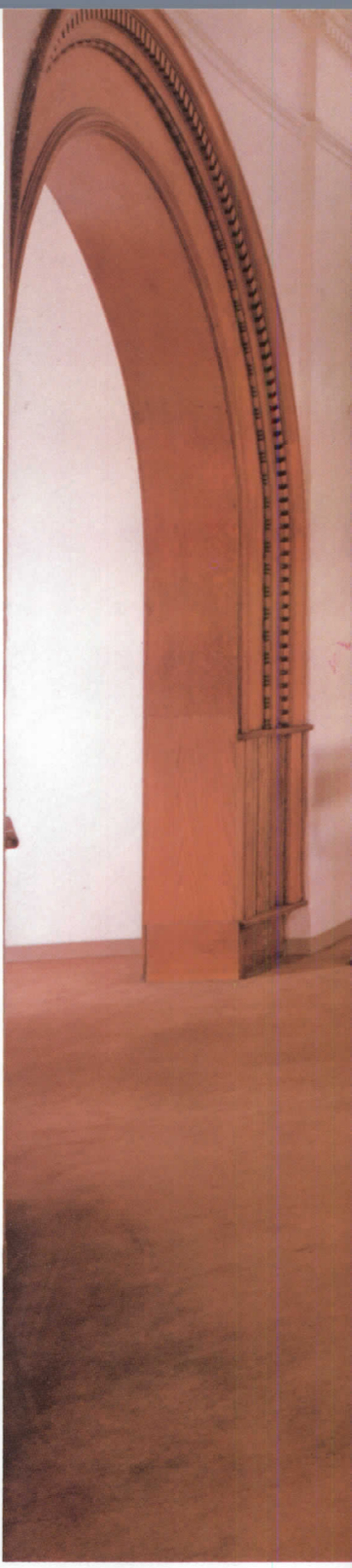




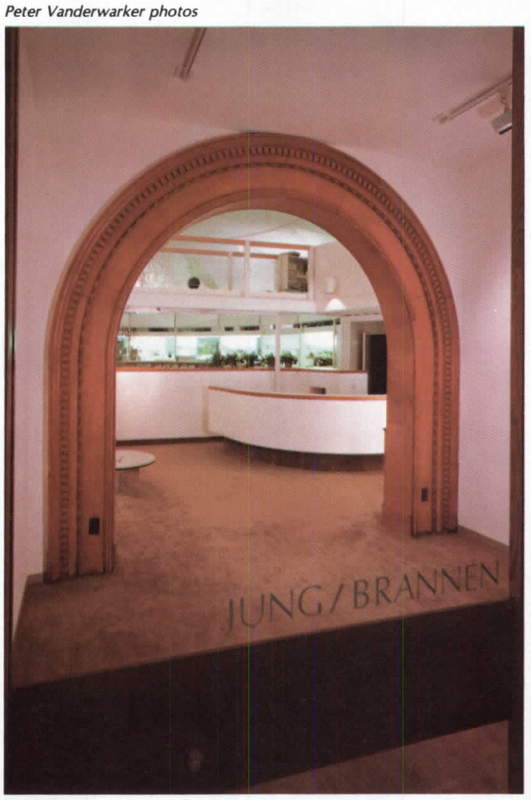
ARCHITECTS' OFFICES IN BOSTON, BY JUNG/BRANNEN ASSOCIATES

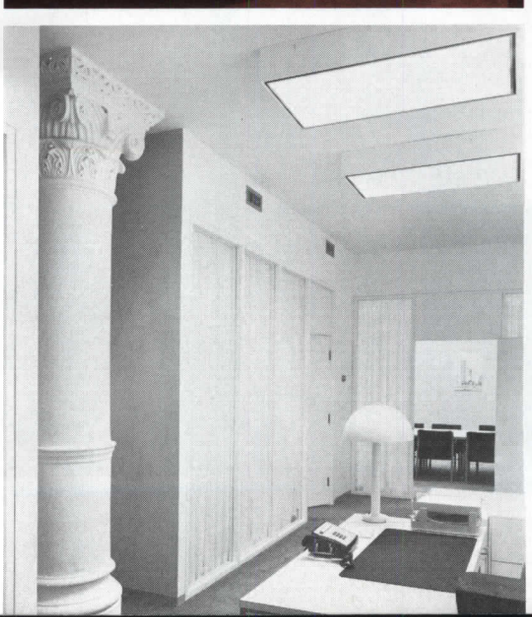
These architects have taken maximum visual advantage of a wonderful old large-scale rotunda, while gracefully accommodating the many necessary small-scale furnishings that their office functions require. Reception, resource files, meeting areas, drafting tables, and private offices are all located with minimal intrusion in what had been the board room of the old Boston Chamber of Commerce building—a formidable granite structure built between 1890 and 1892 to designs by architects Shepley, Rutan & Coolidge (drawing above).

When the architects moved in, the soaring 75-foot-diameter space had been truncated by the construction of a new floor for a previous tenant at the original visitors'-mezzanine level. But despite the lost height, the room was just the sort of impressive "found dividend" that such older buildings can yield. In order to produce the required floor area and to get as many people near windows as possible, a new mezzanine—containing some twenty drafting tables around the room's circumference—became a frank insertion in a "technological" idiom. Meanwhile, original details, such as the oak-trimmed arch at the entrance (small photo at right) were restored to express the unique nature of the original space. Resource files and a conference and display area occupy the great open center of the room (small, left-hand photo on the opposite page)—replacing a warren of partitions and cubicles set up by the previous tenants. Jung/Brannen are to be commended for the sympathetic way in which they have reinforced existing character with not only an open, radial arrangement of elements, but also with an appropriate palette of sophisticated finishes and textures.

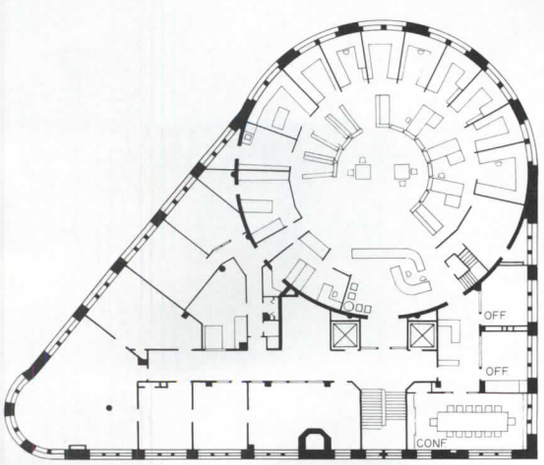


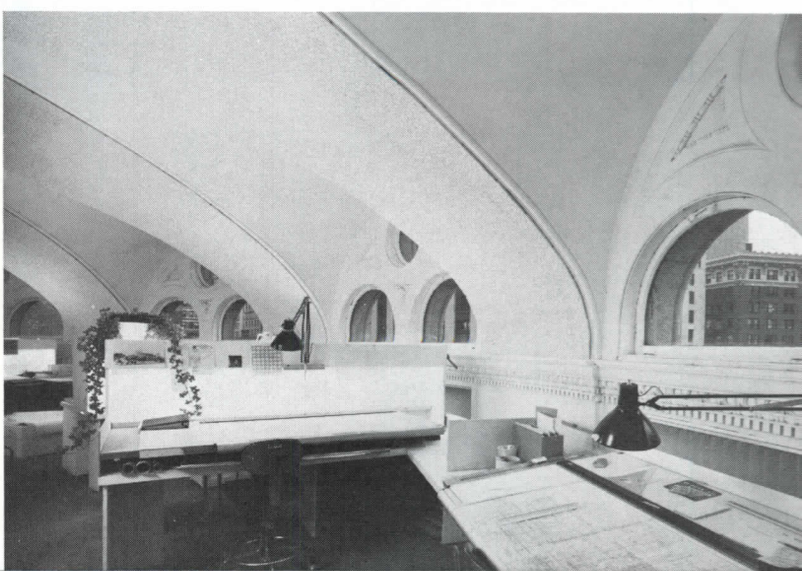
Peter Vanderwarker photos





THE OFFICES OF JUNG/BRANNEN ASSOCIATES INC. Architects: *Jung/Brannen Associates*. Engineers: *Paul J. Weidlinger Associates* (structural); *Barstow Engineering Inc.* (mechanical/electrical). General contractor: *Bowdin Construction*.

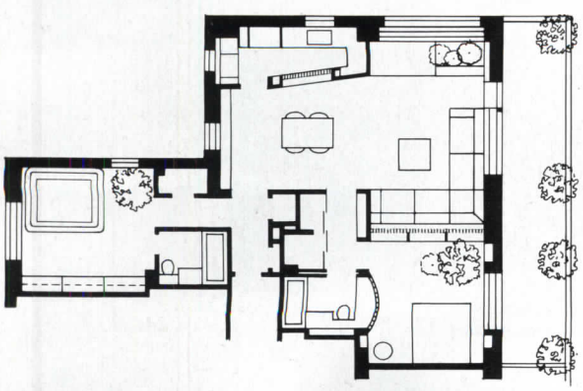




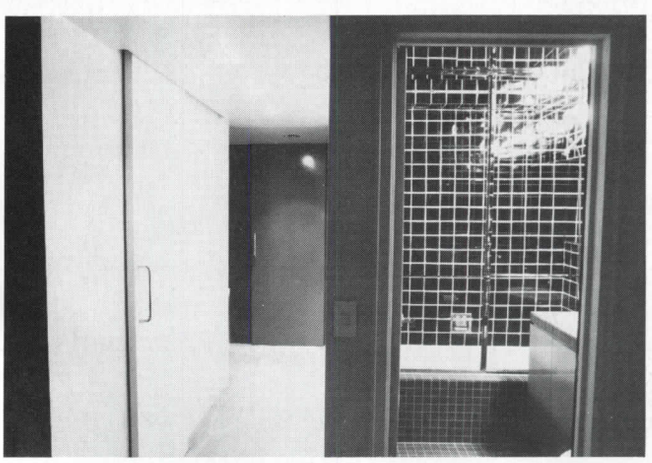
NEW YORK CITY APARTMENT BY DANIEL LOUIS GOLDNER AND ASSOCIATES

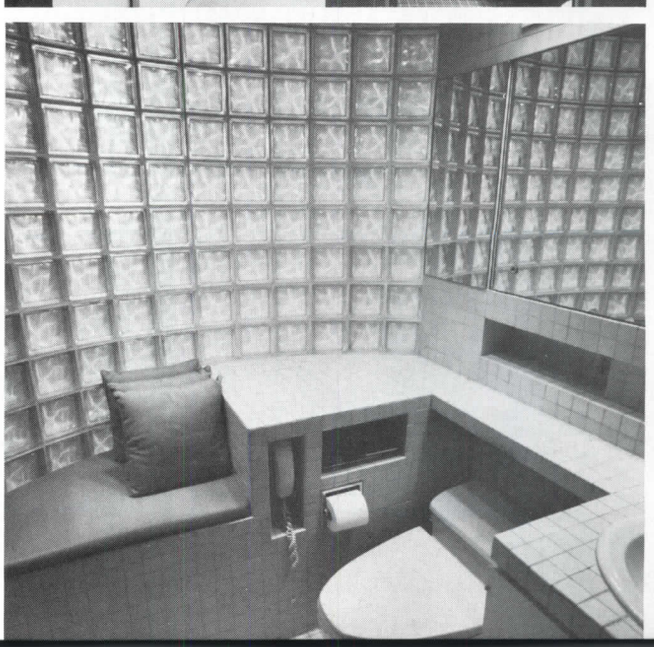
Given its modest size, this apartment is remarkable for an urbane and spacious character *and* for strict attention to detail. Far from the esthetic of bright and white surfaces, these soft gray surfaces—along with subtle lighting—produce a luxurious, perhaps even mysterious, atmosphere. The limited color is muted and is applied to whole walls that indicate the locations of various activities. As seen in the plan, the spaces are a study-guest room (at left), an entry leading to the dining room (center) and the adjacent living room. The master bedroom is in the lower right-hand corner. A slight angling of the wall, which separates the kitchen from the dining room, (right in lower photo opposite) not only serves the purpose of better kitchen functioning, but it produces a forced perspective of greater length when seen from the living room. Indeed, there are many such suggestions of more space than really exists. Horizontal openings in the walls between living room and master bedroom (top photos) and between the dining room and kitchen allow partial views of "borrowed" space—but can be closed off by vertical blinds for privacy. Similarly, the curving glass-block wall between the master bedroom and bath (bottom photo this page) not only adds a sense of space and daylighting to the small interior bath; but also creates a point of interest and translucence in the bedroom. The generous use of mirrors and the low height of all furnishings—including the dining room tables and chairs—carries through the effect of spaciousness. To a great extent, the success of the design relies on the careful detailing that so strongly completes this polished esthetic. Cabinets, furniture and surfaces have been carefully thought through and controlled. Of special note, the elaborate lighting is operated by two master panels, each with 32 dimmers, that become elements of the design themselves.

APARTMENT, New York, New York. Owner: *Edmund Resciniti.* Architects: *Daniel Louis Goldner and Associates—project architect: Ernest Guenzburger.* Contractor: *Plateaus Construction Ltd.*



David Steinberg photos





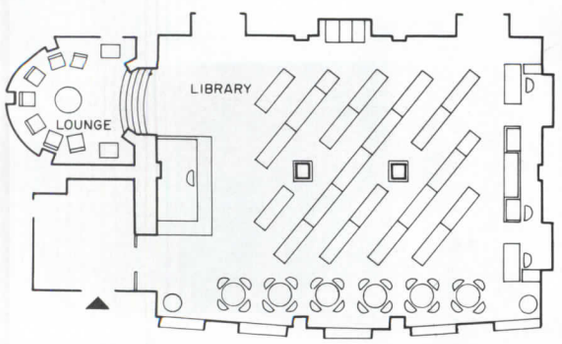
A LIBRARY IN ROME, BY GEORGE BATORI OF RM & B CONSULTANTS

Located in a turn-of-the-century hotel, these two rooms are a respectful continuation of the original Beaux-Arts character of the building, while fulfilling a modern program in a forthright manner. Sleek furniture and panels are floated within the ornate spaces. The program was an answer to the needs of the client—the United States International Communications Agency—for updated functions and image at low cost. The architects designated a front room (plan below and photos on this page) as the library proper. To the rear, a large column-free room (large photo) became an exhibition gallery and meeting room.

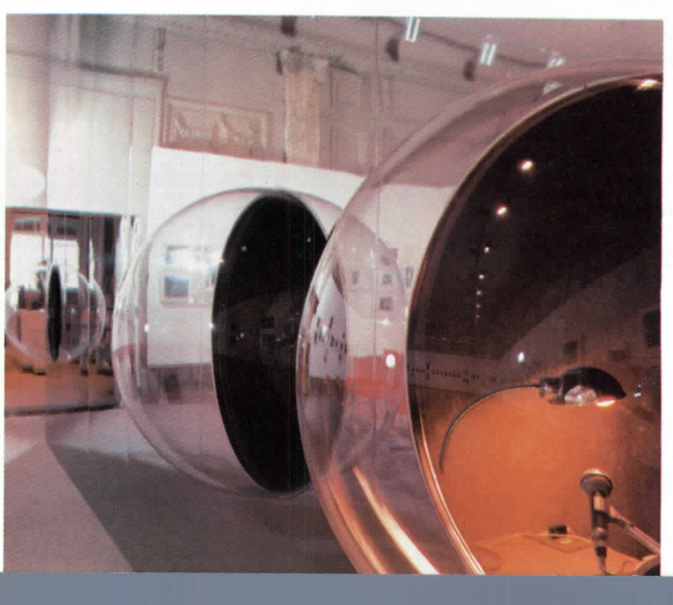
In the library, white plastic-laminate covered shelves hold books and equipment which are identified by standing plaques with removable letters, color coded to the USICA system. Reading tables and bright chairs are arranged along windows to take maximum advantage of natural light. A small circular space (opposite, lower left) near the main desk is furnished with bright green canvas chairs as an informal place to read newspapers.

The exhibition/meeting room can be rearranged by the exchange of casual cushioned platforms for stackable seating during large assemblies. A white strip of vinyl covered exhibition panels floats clear of the walls, so that—as architect Batori puts it—"the old walls can breathe." But the truly spectacular contrast of new and old—a contrast that sets the tone of the entire new design—is provided by the polished stainless steel "capsule" that houses three translation booths behind circular plastic "dome" windows (opposite, lower right), a projection booth, and storage. It is a truly elegant contemporary counterpoint to an elegant traditional space.

AMERICAN LIBRARY, Rome, Italy. Owner: *United States International Communications Agency—program director: Lois Roth; regional librarian: Karen Stephen.* Architect: *George Batori of RM & B Consultants (formerly Rader Mileto/Associates).* Contractor: *Interchoice SRL.*



Ricardo Grande photos



THE ARCHITECTS' OWN OFFICES IN KANSAS CITY, BY HNTB

When the firm of Howard Needles Tammen & Bergendoff was faced with the need to increase staff and services of its Kansas City architectural division (formerly Kivett and Myers), an ample and convenient space was found in a former banking room. With simple means (color, big plants and careful use of existing details and partitions—and often high quality materials—from the bank) an economical and soaringly grand office has been achieved.

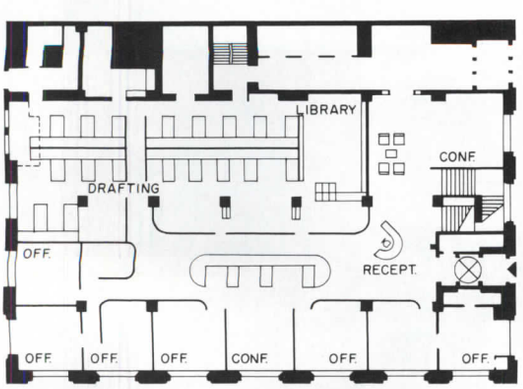
The need for economy was ramified by a potential move of the branch within three years. Thus the program stressed a low construction investment and a high re-use factor for new furnishings and equipment—all without reducing the public image of the firm or denigrating its working environment.

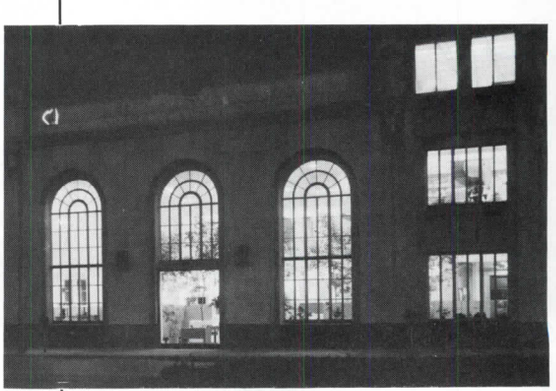
The big main level (9,760 square feet) is surrounded by a mezzanine (6,500 square feet) on three sides, creating a 23-foot-high well focused on three tall, fanlighted windows. This space was organized by a colorful arrangement of low, modular office partitions, with bright fabric banners flying above. The existing walnut and marble wainscoting, and marble floors in the public spaces, were spruced up; walls and ceilings painted bright white; and major activity areas carpeted.

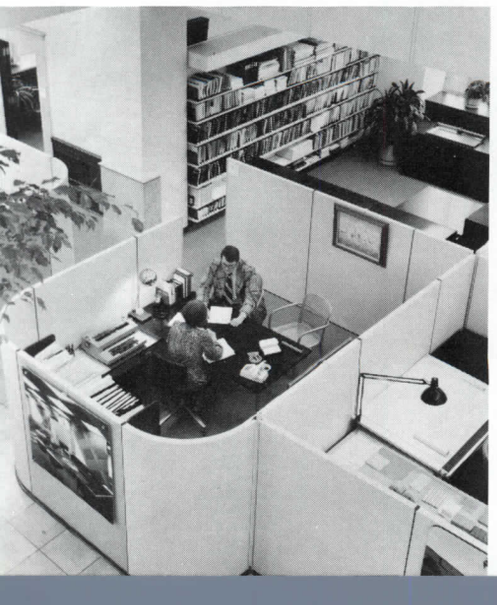
Drafting and work spaces for the various departments (structural, mechanical and electrical, interiors, construction services, and part of the architectural staff) are on the mezzanine. A lower level provides a model and photograph-display area, the main conference room, storage and rest rooms. Vaults are used to store plans and records. The architects estimate that, when the expected relocation takes place, fifty per cent of the total cost of the interiors will be recoverable.

HNTB OFFICES, Kansas City, Missouri. Architects: *Howard Needles Tammen & Bergendoff (formerly Kivett and Myers division)—partner-in-charge: William Love;* project manager: *Marvin Manlove;* project architect: *Steve Turley.* Interior designers: *HNTB Interior Architecture Department.* Construction: *Bob Eldridge Construction Co.*

Paul S. Kivett photos





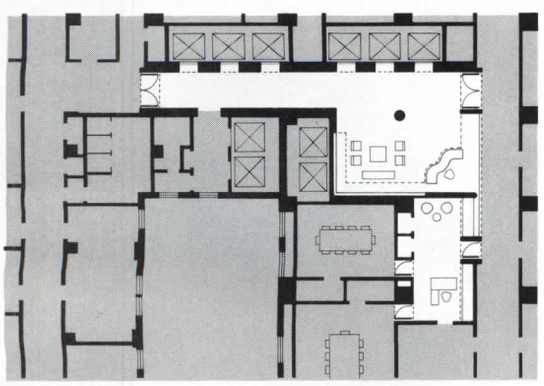


AN EXECUTIVE RECEPTION AREA IN NEW YORK CITY, BY KOHN PEDERSEN FOX ASSOCIATES

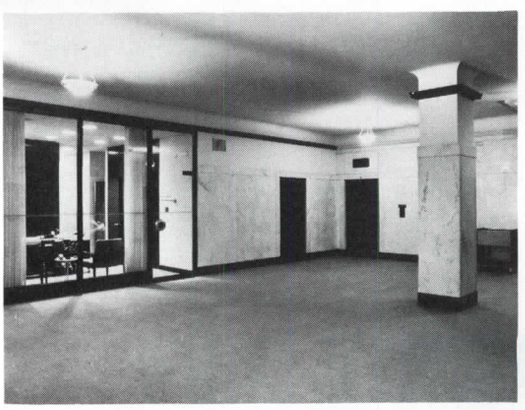
Located in a turn-of-the-century office building, this reception area satisfies the two seemingly conflicting goals of tight security and a welcoming image. And it does this in an extremely elegant palette of details, furnishings, surfaces and colors. The original reception area (small photo below left) had not been changed in the past 70 years. It little matched the expectations created by the beautiful monumental, neo-classic lobby on the ground floor—much less the corporate image desired by the client. This new space continues the elegance of the ground-floor space—but in a totally different idiom.

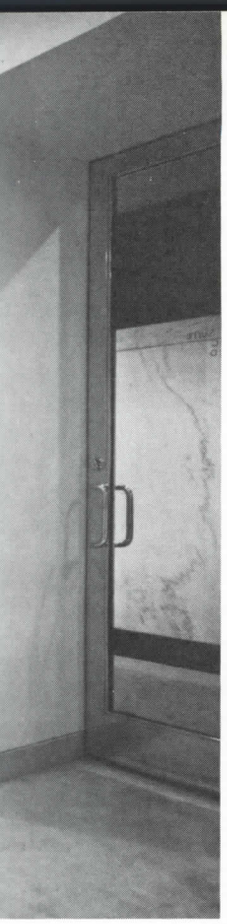
First, it establishes a new high level of importance for serious artwork as a basic part of architectural design. A mural, its edges carefully detailed to make it an integral part of two enclosing walls, was created especially for the space by artist Robert Natkin. As the architects state, it has become a "bright corner window that visually expands the actual space through the illusory qualities of luminosity and airiness." Perhaps more important, it creates a sense of a very special place. To capitalize on the mural, the architects have created a strongly disciplined—yet almost sensual—environment of warm neutral surfaces that break into undulating curves at the reception desk. Carefully placed lighting enhances an environment in which the objects such as furniture seem almost to float. An adjacent anteroom for two conference rooms (near photo above) carries through the intentions.

EXECUTIVE FLOOR LOBBY AND RECEPTION AREA, New York, New York. Owners: *American Telephone & Telegraph Company/195 Broadway Corporation—district staff manager, building engineering: Chet Giordano; manager: Carlton Brown; assistant manager: Gary Wieland.* Architects: *Kohn Pedersen Fox Associates—partner-in-charge: A. Eugene Kohn; project designer: Paul Rosen; project manager: Robert Cioppa; job captain: Arthur Korenstein; senior draftsman: Harold Rolls.* Engineers: *Jansen & Rogan* (mechanical/electrical). Consultants: *Fisher-Marantz* (lighting). General contractor: *H.L. Fischer, Inc.*



Evelyn Hofer photos



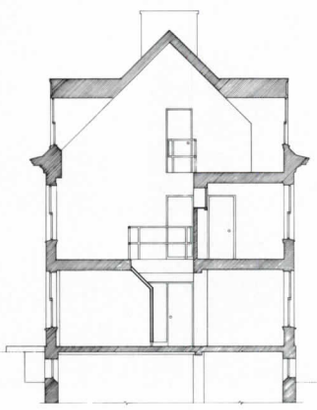


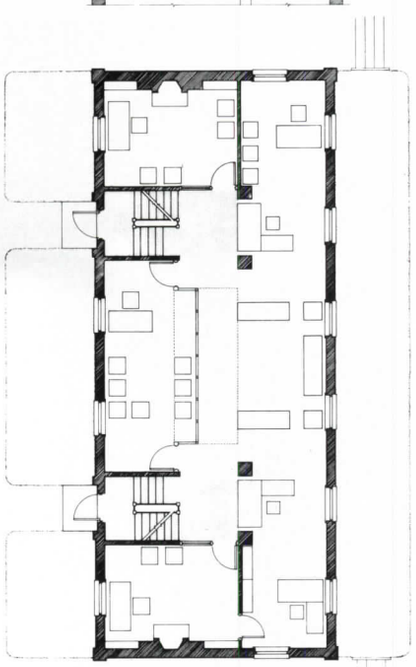
OFFICES IN CAMBRIDGE, MASS., BY SZB ASSOCIATES, INC.

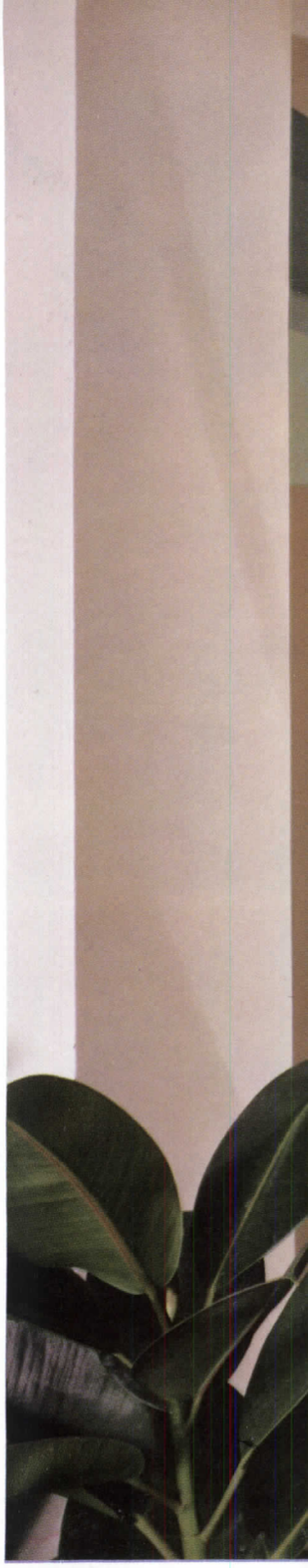
Notable for producing a major change with one relatively modest structural innovation, this remodeling for the administrative offices of the Harvard Graduate School of Business Administration has, as its central focus, a narrow light well cut through the two upper floors. As a result, all of the activities, related by function, are related visually as well. The key to the design's success lies in the sensitive way in which the proportions of the well relate to the interior space as a whole, and help to unify the interior as one large volume. The architects have opened a closed box by the simplest of means.

Formerly a warren of offices, the three floors are in a building designated by the master plan of McKim, Mead & White as faculty housing. The building, built in 1927, lends a special charm to the quadrangle of which it is an integral part, and the lack of exterior alteration is a particular tribute to intelligent planning. Much of the floor areas within are now open, without partitions. And where new partitions were required, they were handled with particular skill—as in the case of the translucent-glass enclosure at the bottom of the well, which admits "borrowed" light while maintaining privacy. The well was accomplished with less than an eight-percent loss of the original floor area. The well and the deft handling of the other new major elements have created a successful, totally contemporary and workable environment, while respecting the old building.

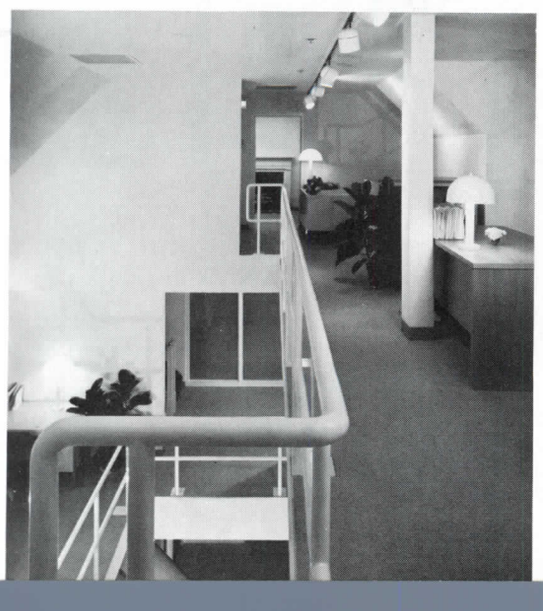
GLASS HALL, HARVARD BUSINESS SCHOOL, Cambridge, Massachusetts. Owner: *The President and Fellows of Harvard College*. Architects: *SZB Associates, Inc.—architects: Ilhan Zeybekoglu and Vincent Solomita; job captain: Eric Ward*. Engineers: *Souza and True Inc.* (structural); *Progressive Consulting Engineers* (mechanical); *Metcalf Engineering* (electrical). General contractor: *Minton Construction Company*.







Alan Ward photos



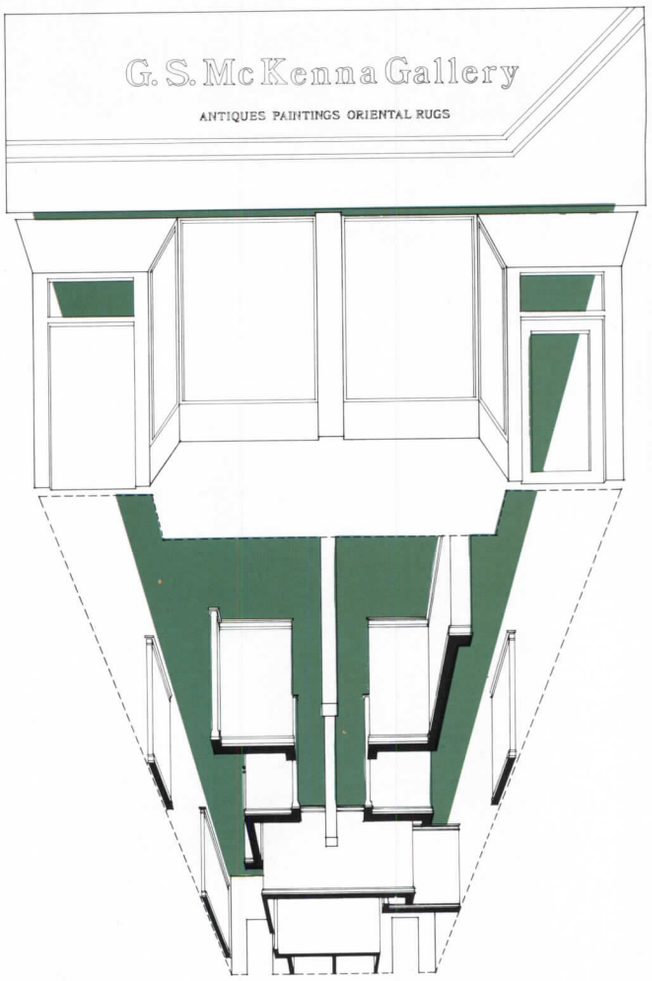
A GALLERY IN CHARLOTTE, N. C. BY GERALD ALLEN

This small shop is in a very ordinary setting—the space previously housed a budget-clothing emporium in a hodgepodge strip of stores set behind a parking space on a busy street in suburban Charlotte. It is the kind of space that occurs along Main Streets everywhere—but which, alas, seldom gets any kind of design attention. This design serves as a splendid example of what can be done from such modest beginnings—with a very modest budget but a lot of design thought and skill.

The 1800-square-foot building—25 feet wide, 71 feet deep, and 12 feet high—was first stripped bare. The walls and structural columns were painted white; the maple floors (one quality feature that came with the building) refinished; and the ceiling tiles patched or replaced and painted a deep balsam green. A series of nine-foot-high partitions are placed so that they successfully suggest varied fragments of large rooms—suitable settings for the moderately priced antique furniture, paintings and porcelain, and Oriental rugs on sale. A hint of "stately Southern home" is suggested by the detailing of the partitions (all managed with stock moldings and shapes) and the procession of colors used—lime green for one "room," peach for the next, and pale yellow. Where the partitions stop, they are simply sheared off and the ends painted the balsam green of the ceiling; separating and "framing" the room settings, yet relating all of the settings to the total space. The partitions are 2x6 studs and drywall; the spotlighting, porcelain fixtures in a stock steel channel; the fluorescents left exposed. These simple means and materials held the cost of the project, including all fees, to $8 per square foot.

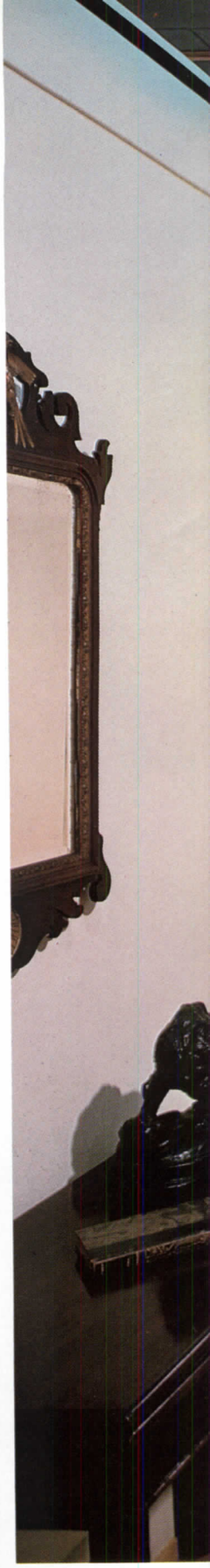
The "worm's eye" perspective shows the simple store front—the sign has a balsam green background with lettering and a stripe (which turns up to mark the entrance) in the same peach and yellow used inside. Designer Gerald Allen has made it all seem very simple and spare and at the same time very elegant—which is, of course, a very difficult kind of design.

G. S. McKENNA GALLERY, Charlotte, N. C. Architects: *Gerald Allen for Peter Gluck & Associates.* General contractor: *Russ Jones Realty and Construction Co.*



Drawing: Michael Barclay and Thomas Giblin

Photos: Gordon H. Schenk, Jr.

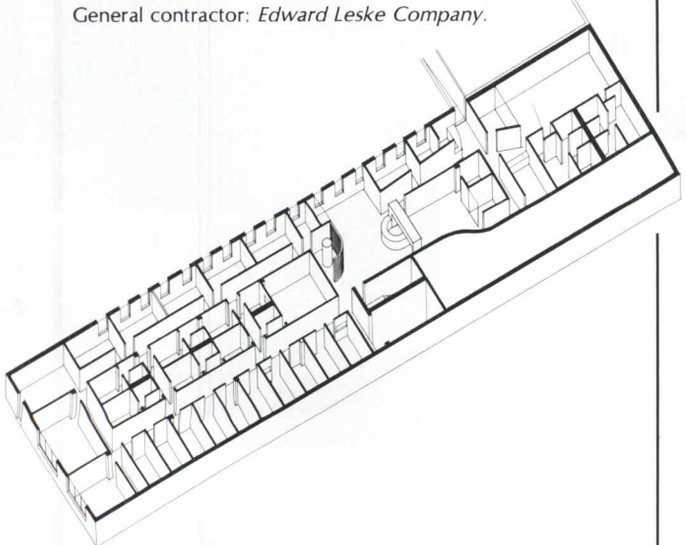


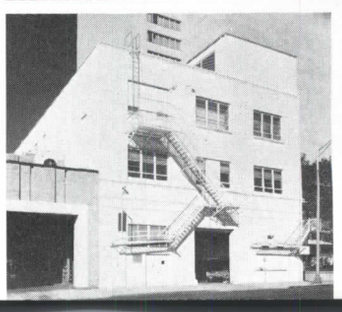
A HEALTH AND FITNESS FACILITY IN NEWARK, BY THE GRAD PARTNERSHIP/ RONALD H. SCHMIDT

Inserted into what was an ordinary sort of maintenance garage, this environment was designed to create a comforting psychological effect on the many New Jersey Bell employees who pass through on a regularly scheduled basis. And it stands as a tribute to what can be made from "ordinary" buildings. Reflective surfaces generate not only a polished sense of the operation's importance, but are a constant visual reminder of the facility's sole target, "self"—and the improvement or at least maintenance thereof.

What is essentially a gymnasium—technically, an aerobic fitness facility—is located to the extreme right in the isometric, and is shown in the small inset photo. Here, the "energy level" is constantly kept high with the photo-mural images of runners in suspended action endlessly reflected in the mirrored walls and ceilings. Several small offices with angled corridor walls are located between the gymnasium and the central reception area. These offices control the major means of access, a bridge from another building. The reception area (large photo right) is not only the focus of the plan, but of the architects' intentions to create a "reassuring" atmosphere through polish—both in the design and in its reliance on broad reflective surfaces. Although the furnishings are sparse, they and the people using them take on new importance in their repeated images on mirrored walls and an aluminum ceiling. The remainder of the 14,000-square-foot floor is devoted to the more utilitarian spaces required by a corporate medical department.

THE NEW JERSEY BELL MEDICAL & AEROBIC FITNESS FACILITY, Newark, New Jersey. Owner: *New Jersey Bell.* Architects: *The Grad Partnership/Ronald H. Schmidt—project partner and designer: Ronald H. Schmidt; project manager: Francis X. Sloan; assistant: Roberta Root.* Engineers: *Jansen & Rogan Engineers* (mechanical/electrical). General contractor: *Edward Leske Company.*



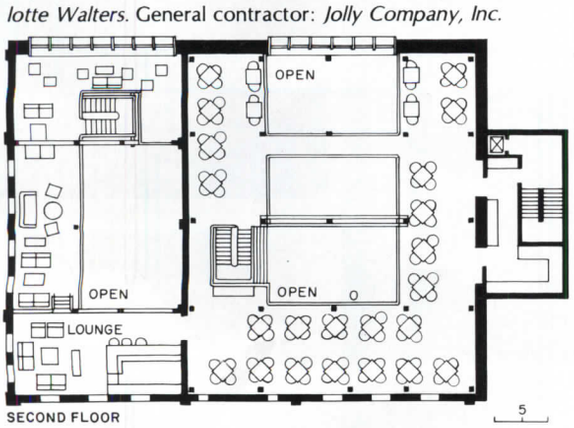


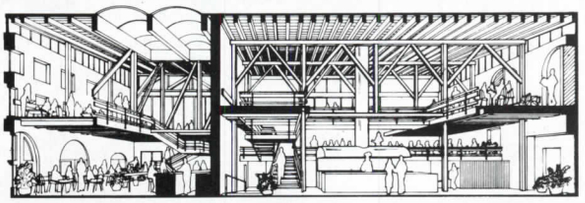
Otto Baitz photos

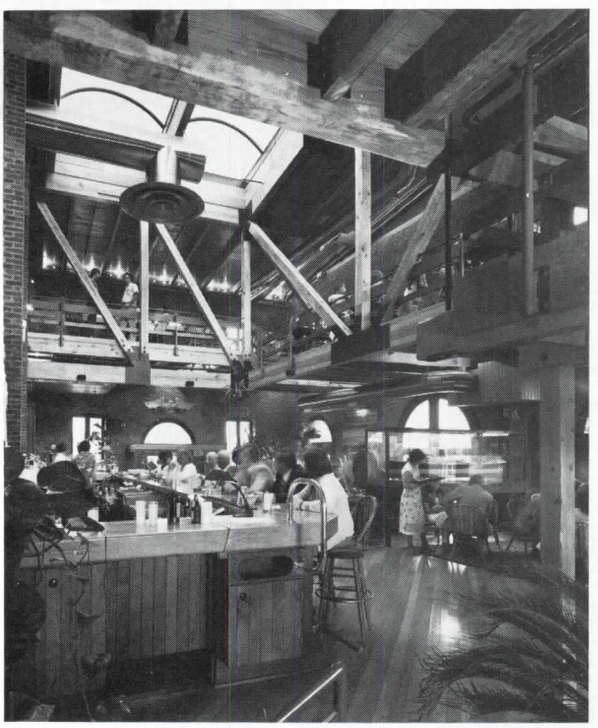
RESTAURANT IN BALTIMORE, BY ANDERSON NOTTER FINEGOLD INC.

This newest Chart House (the same architects have done one on a Boston pier) is in a 1909 building which housed a boiler and substation for Baltimore's streetcar system. It is on a pier in the Inner Harbor, one of the first projects completed in what is to be a major rehabilitation of the area. The exterior of the two-story structure was restored to its original appearance on the two major facades; the harborside facade (which had been bricked in and stuccoed) was given large glass areas to accentuate the spectacular water view from both the dining and lounge areas. An existing masonry bearing wall (see section) became a natural divider between the bar and restaurant. In the bar section (photos this page), a new heavy-timber double truss was designed to support a new mezzanine level and a new roof with a central skylight over the bar—and forms a handsome contemporary foil to the heavy timbers that are so important a part of the interior. The three-level restaurant area (photos opposite) uses the existing floor system, which had remained sound in this portion of the building. A concrete dock on the harborside elevation became a raised seating area; a higher wooden deck inside the front wall of the building was extended back at each side to form a major U-shaped dining level around the central 24-foot-long, stainless-steel broiler bar. The stainless theme is repeated in the round air-handling ducts and the smaller heating/air conditioning ducts throughout the space—a striking counterpoint to the warm wood and brick tones which dominate the space. From this level, stairs lead up to a mezzanine with additional tables overlooking the broiler bar; and in turn, to the third level shown in the plan. Indoor plantings add interest and another appropriate color mass to the spaces.

THE CHART HOUSE, Baltimore, Maryland. Architects: *Anderson Notter Finegold Inc.—Anthony C. Platt, partner-in-charge; Nancy Goodwin, project architect; Jane G. Lucas, interiors.* Engineers: *David M. Berg Inc.* (structural), *Environmental Design Engineers Inc.* (mechanical/electrical). Consultant or historical furniture and antiques: *Charlotte Walters.* General contractor: *Jolly Company, Inc.*



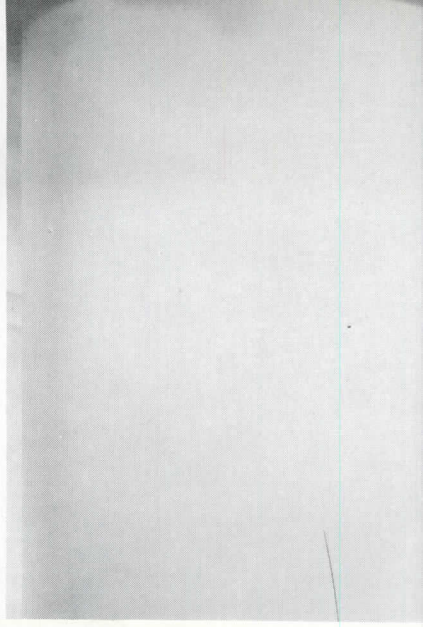




©Steve Rosenthal photos

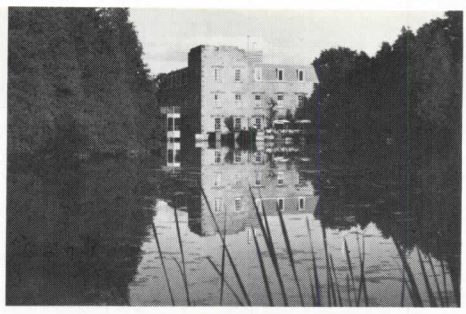
SHOWROOM IN MINNEAPOLIS, BY DESIGN CONSORTIUM

Fifteen-foot-high ceilings, a usable basement, a 30-degree cant in plan on the street exposure, an awkward dual entry, and a column line down the center of the main space: this was the roll call of mixed blessings that the architects grappled with as



RECORD INTERIORS OF 1980

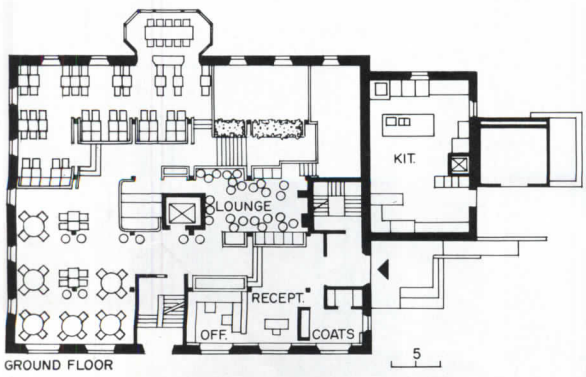
PUBLIC ROOMS FOR AN INN IN ALTON, ONTARIO BY HAMILTON RIDGELY BENNETT



According to the jury's report accompanying a recent award from the Ontario Association of Architects: "The Millcroft Inn in Alton is an outstanding example of the thoroughness, involvement and integrity which architecture should represent." What the jury recognized was the way in which completely contemporary detailing—such as hardware, railings and light fixtures—had been carefully used to enhance, rather than disturb, the atmosphere of the building, built as a mill in 1881. Indeed, a second look reveals that much more than detailing is completely contemporary. For instance, the dining room, a large area, is divided by changes in floor level to achieve greater intimacy. The spaces thus created flow into each other in a very contemporary way, and are modulated by such devices as the overhead lattice-screen wall. Exposed stone walls and old wood decking on the ceiling here seen entirely appropriate, and capitalize on the pastoral waterside setting.

Corridors for access to twenty-two bedrooms on the upper floors surround a new skylighted well that brings natural light to the public rooms below. This whole approach to mixing the best of several eras is accomplished and noteworthy. The inn is part of a $2.5 million-dollar hotel complex on a 100-acre site by the architects. It is—in addition to the O.A.A. award—a recipient of a National Award of Honor presented by the Governor General for Heritage Canada, a government organization set up to encourage preservation.

THE MILLCROFT INN, Alton, Ontario, Canada. Architects: *Hamilton Ridgely Bennett—project architect: William Bennett; partner-in-charge-of-interiors: Gordon Ridgely.* Engineers: *Peter Sheffield & Associates* (structural); *Smith Andersen* (mechanical); *ECE Group* (electrical). Landscape architect: *Knecht & Berchtold.* Furniture services: *Elizabeth Geddes Designers Ltd.* General contractor: *E.G.M. Cape Construction Ltd.*



GROUND FLOOR

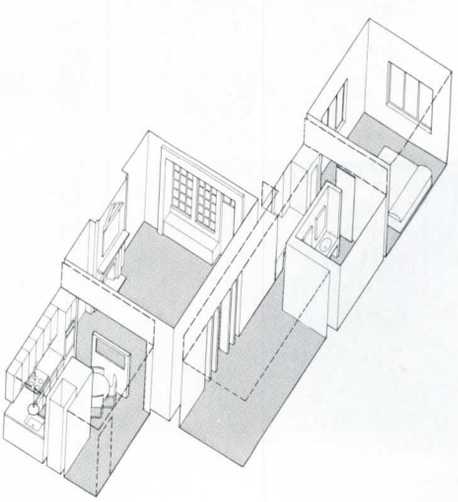
Applied Photography Ltd. photos

RESIDENCES AND OFFICES IN A NEW YORK TOWNHOUSE BY THE CROXTON COLLABORATIVE

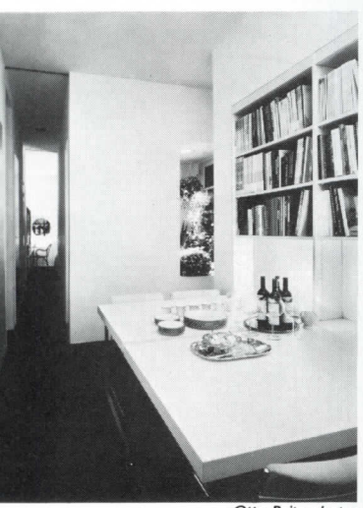
Two apartments and the architects' own offices share a Beaux Arts townhouse, a consistent design language, and a contemporary elegance that fits their context well. Although the first two floors of the turn-of-the-century building had been completely remodeled by McKim, Mead and White in 1917, a subsequent conversion to apartments left only isolated details from grander times. Accordingly, the architects—much of whose work is concerned with preservation—were able to extensively revise floor plans and to plan around existing elements in a thoroughly new manner, with a clear conscience.

In the ground floor apartment designed for Mr. and Mrs. Thomas Seaman (isometric and photos on this page), only the living room with its ceiling moldings and fireplace survived intact. And this became the focus around which spaces were altered not only for functional reasons, but to bring the living room into a better formal relationship with the rest. Two small spaces at the entrance (bottom of isometric) were combined into one large kitchen, dining and entry area with a tile floor. A Renaissance relief that belonged to the owners was mounted on the low division wall between living and entry area, and serves as an eye-diverting focus before entering the living room itself. The living room has been painted a strong terra cotta color to emphasize its importance. Elsewhere in the apartment, partitions have been removed to provide a study adjacent to the living room and a large bath.

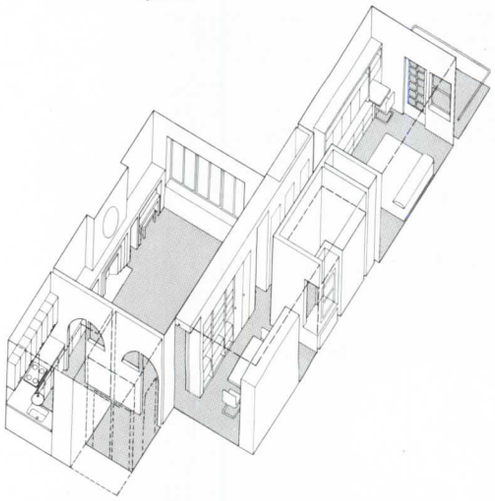
Architect Randolph Croxton's own apartment (photos and isometric on the opposite page) has a plan similar to the Seaman apartment, although the divisions between kitchen (bottom photo) and entry and between living room and study have been purposely accentuated instead of reduced. The wall between the living room and the study (sometimes used as a dining room, as in the photo) was thickened by the addition of bookcases. Ceiling moldings and the marble surfaces around the fireplace were the only original elements left in the living room when Croxton moved in. According to Croxton: "It was not easy to detail the fireplace and surrounding cabinetry to look like it had always been there." In the architectural offices (see following page), the small floor area has been utilized to the utmost to produce efficiency and a simultaneous feeling of spaciousness. Indeed, in all of the spaces, there is a tight arrangement of elements that capitalizes on the airiness of the larger rooms where they do exist.



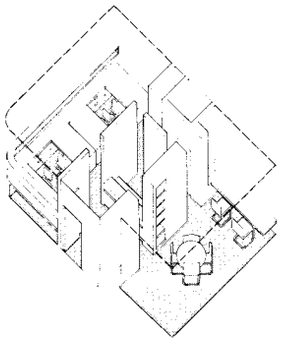
THE SEAMAN AND CROXTON RESIDENCES AND THE CROXTON COLLABORATIVE OFFICES, New York, New York. Architects: *The Croxton Collaborative—project architect: Randolph R. Croxton; associate-in-charge: John T. Obelenus.* Lighting consultant: *Carroll Cline.*

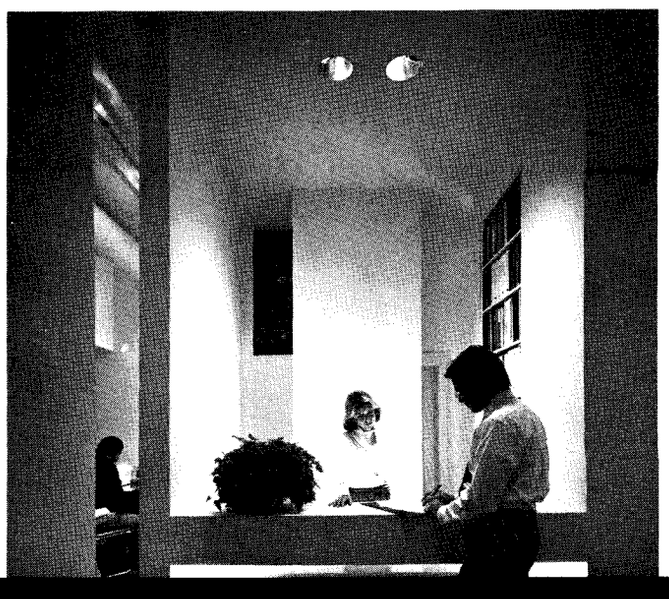


Otto Baitz photos



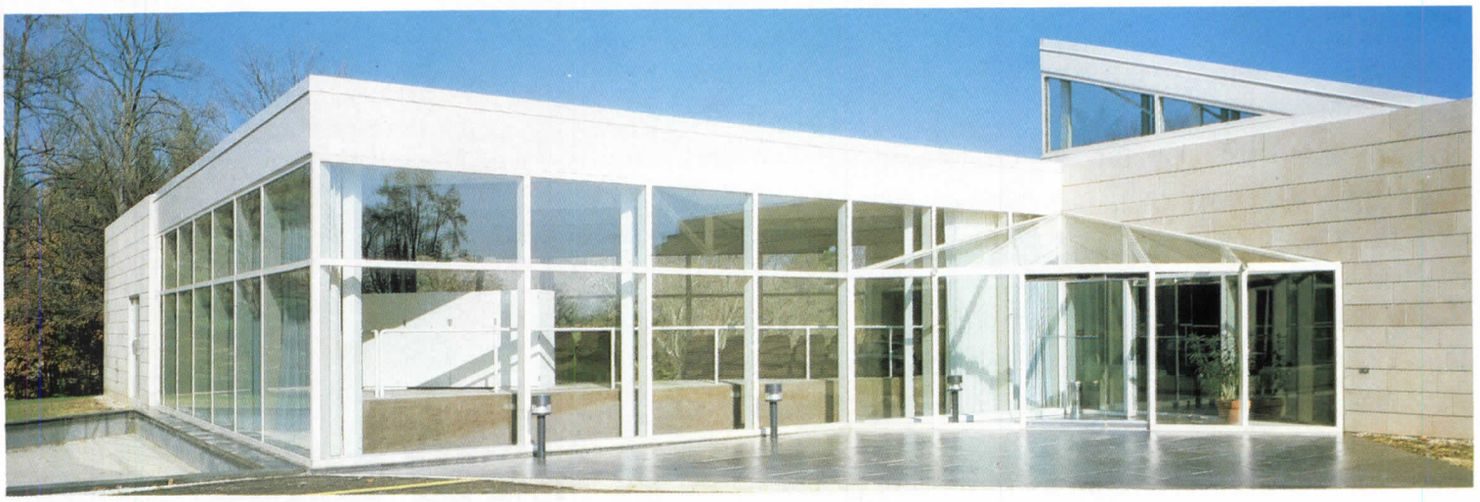
Crisp detailing of the offices lends a ship-like efficiency in appearance and function. At the same time, this ground-floor space carries through the elegance of the residential work in the same townhouse.





Proportional systems have always been used in architecture, fundamentally as symbols. The triangle and hexagon, for example, have meaning for the religions of the East and West; the square and the octagon are also universal images. Until the Modern Movement declared that form must follow function, all architecture was geometrically ordered and during the modern revolution and since, all good architecture continues to be. Le Corbusier insisted upon it and so do Buckminster Fuller and Walter Netsch. The Field Theory is as important as Corbu's Modulor or Bucky's dome. Netsch makes beautiful buildings with it. The Miami University Art Museum is his latest. —*Mildred F. Schmertz*

A NEW MUSEUM BY WALTER NETSCH OF SOM GIVEN ORDER BY HIS FIELD THEORY



The new Miami University Art Museum occupies the crest of a gently sloping site that overlooks a pond and a wooded area on the campus. An active center for the teaching and display of art, the building was designed to promote a multifaceted involvement with the arts. It includes a 115-seat media center, several so-called "media alcoves," and five separate art galleries.

Because the building houses many types of art including pre-Columbian works, furniture, glass, folk art, paintings, prints and sculpture, a number of different-sized galleries were provided to properly present such a variety of forms and sizes. These include small, intimate spaces as well as large skylit areas, all contained in a one-story, barrier-free structure.

Architect Netsch wished the art display areas to open outward to the very beautiful natural surroundings. Each major gallery is oriented to views of the nearby woods. The pool at the building entrance recalls a quiet pond and stream nearby. Limestone and wood, indigenous to the region, are the major building materials.

Netsch perceives spatial relationships as a carefully orchestrated, unfolding sequence of visual effects experienced as one walks through his buildings. The sequence begins at the landscaped parking area, which is connected by a slate-paved entry plaza to a glass-enclosed entry vestibule. From this plaza, it is possible to look directly through the glass enclosed media center to the pond and wooded area.

From the lobby, one may proceed directly to the gallery spaces. To provide the appropriately scaled environment for the variety of material to be exhibited, the galleries sequentially expand in size. The expansion occurs within a strict geometric formula devised within Netsch's Field Theory (diagrams, page 116). The first is a small gallery for drawings, prints and

Moore and the Urban Innovations Group have created an important sense of graduated development between the natural and the manmade. The house is extended beyond the footings and walls that normally define "space contained" and gently blends into the site—never abruptly crashing into the ground or intruding upon the landscape.

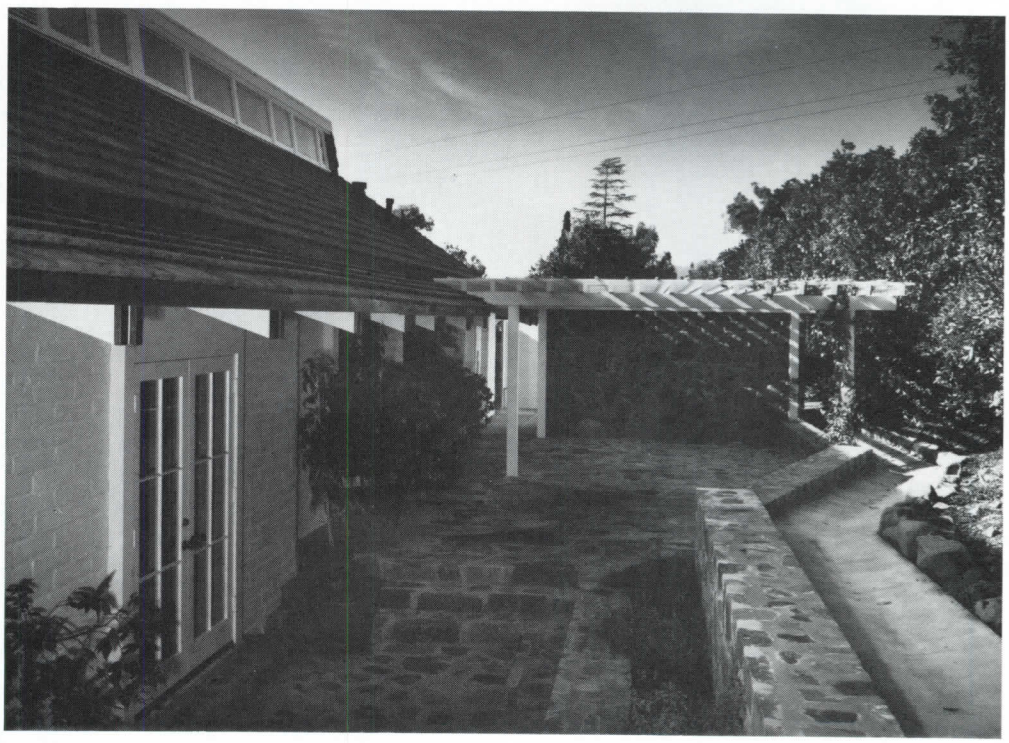
The fieldstone walkway, which leads to the overhung shelter of the entry, gradually evolves into that important encircling low wall—creating a more subtle transition between the house and the land. The architects have thus found an effective device for naturalizing and creating a benign connection between a built and a natural environment.

It was a major concern of architect and client alike to take optimum advantage of a Southern California climate and a rural site; therefore, a fluent dialogue between indoor and outdoor spaces has been created. There is a strong sense of flow that diminishes any possible feeling of containment or constriction, and the interdependency between the internal and the external expands and enhances each area. The emphasis is clearly placed on the envelopment of many spaces rather than on the control of a single space.

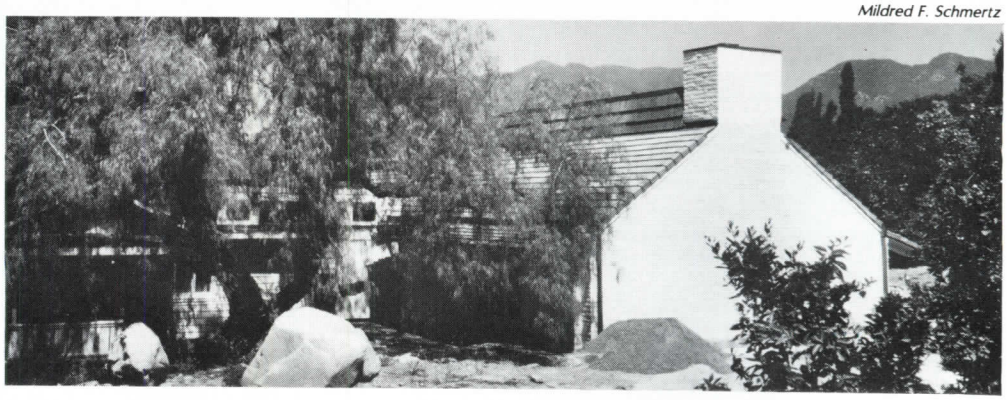
This liberal notion of encompassing is a pleasant result of a plan that invites movement outdoors, onto tree-lined terraces. The living room, dining room, and study, all open onto a long and variegated rear deck that serves both as an extension to the interior spaces and also as an effective intermediary between the house and the sloping orange grove. The deck has been carefully designed to create interesting variations, instead of the usual monotonous shaft running the entire length of the house. For example: the dining room opens onto a lattice-covered arbor that creates a feeling of protection, and a sense of definition, without overwhelming or enclosing. The living room leads out onto the same terrace at its narrowest, most intimate point; creating a modest extension. And then as the fieldstone wall angles out to accommodate the arbor, an asymmetrical and defined area is appropriated for the study. This all creates visual interest for outdoor spaces that are made alive through spatial development, variation, and irregularity.

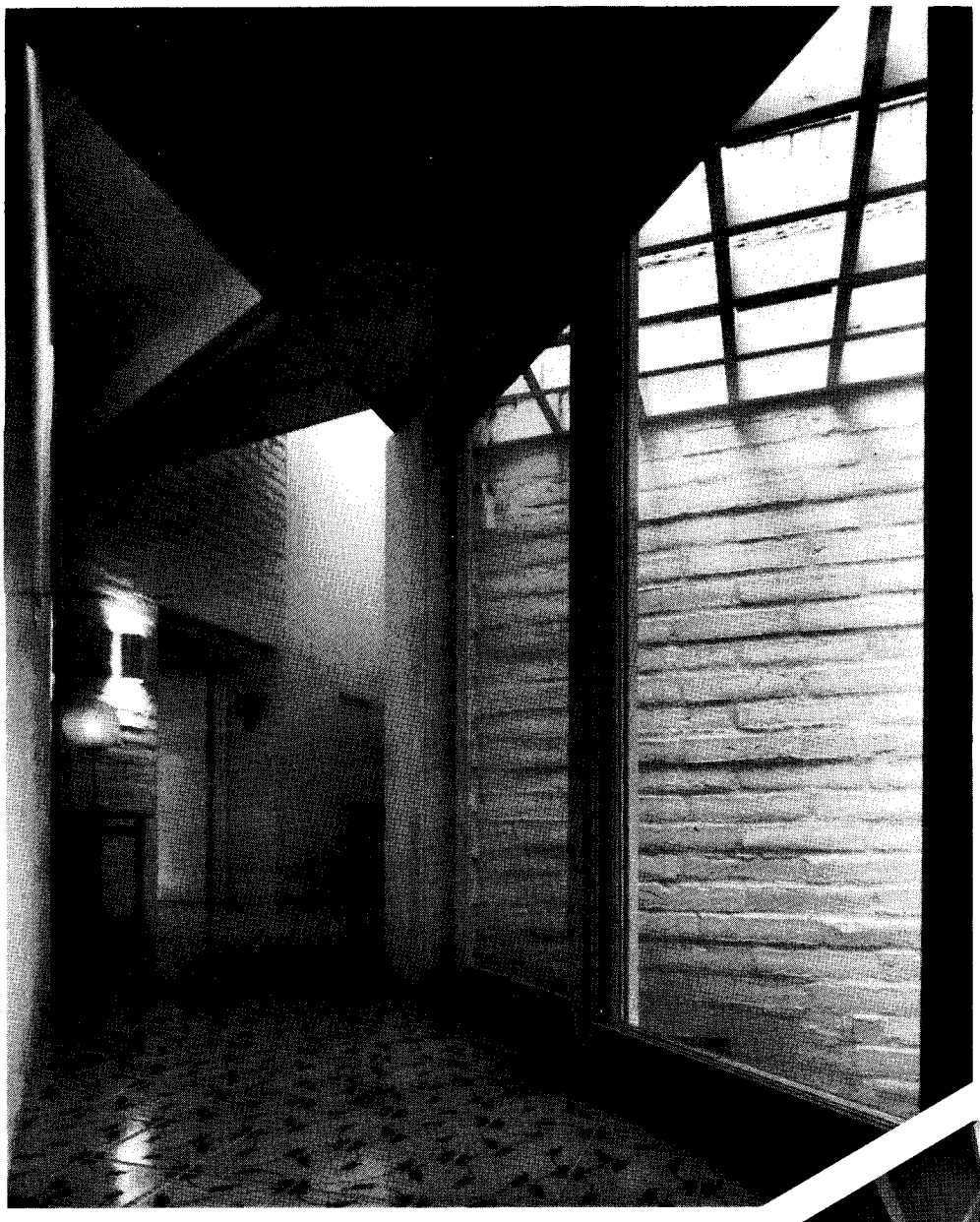
Between the new addition and the farmhouse (behind the entry) is another terrace that leads into an open courtyard, shaded and protected by trees. This specific area creates an articulate sense of moving away from the house, onto a stone terrace, leading through an open courtyard, and finally into the outside.

Mildred F. Schmertz



Mildred F. Schmertz



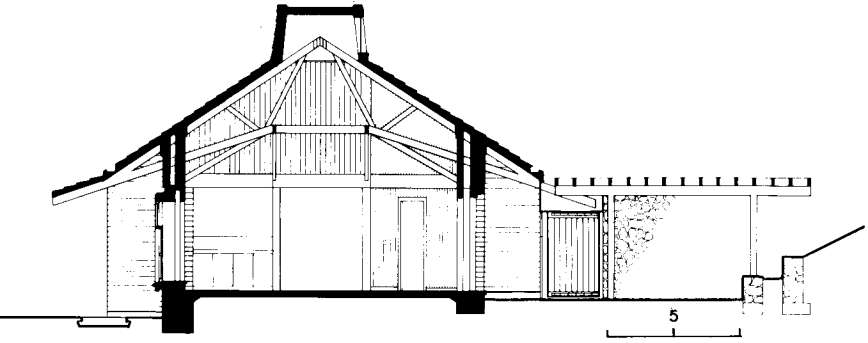


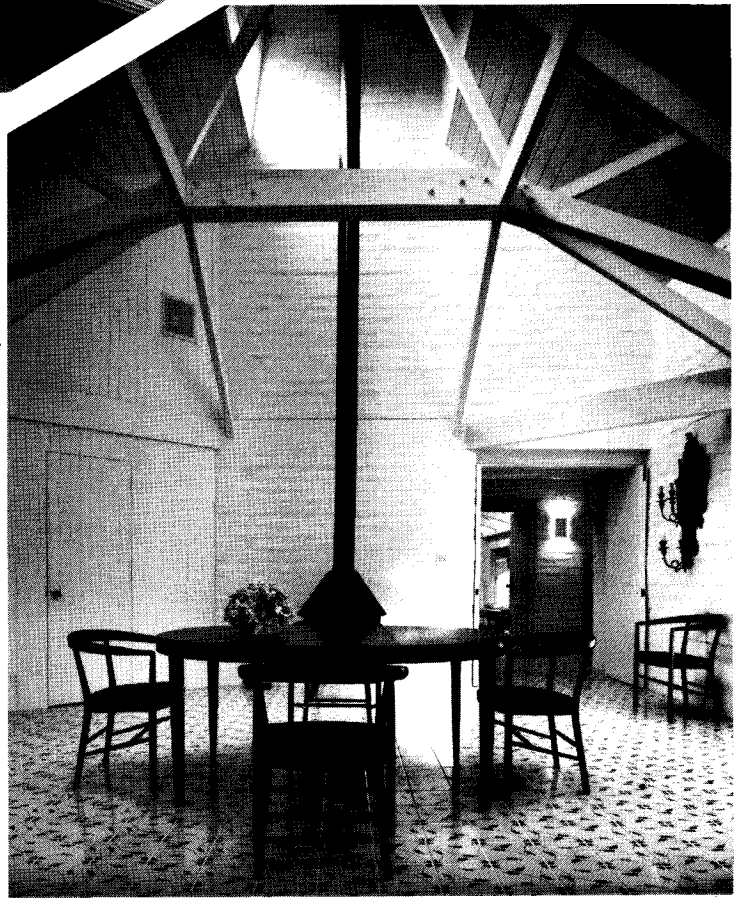
The sun-filled entry leads into an ingeniously designed dining area. The architects have created a six-sided room that is perceived as eight-sided. (The two extra sides are formed by beams that cross on the southeast and southwest corners, filling in to create an octagon.) This subtle play of form creates both illusion and symmetry. Height is emphasized by the slender flue of an iron stove, reaching to the ceiling for venting. This long black flue serves to guide the eye upward, dramatically underscoring height; just as the trusses lower and break up the volume to warm the space and focus the eye.

The entry looks out onto the terrace between the living room and the original farmhouse. Cantilevered away from a glass wall (photo left) is an overhang that forms a pattern of light and shadow filtering into the foyer, preventing a feeling of enclosure.

Moore and fellow architects Barton Phelps and John Ruble have created an environment for living commensurate with their clients' wishes, the site, and the original farmhouse. Through imaginative play with light and the artful manipulation of space, they have produced a home that blends the clients' strong and unusual demands with the architects' high standards of design. —*C.K.G.*

PRIVATE RESIDENCE, California. Architects: *Charles W. Moore/Urban Innovations Group—project managers: Barton Phelps, John Ruble.* Engineers: *Kurily & Szymanski* (structural); *Buena Engineers* (foundations); *John Kerr Associates* (mechanical). Consultants: *Richard Peters* (lighting); *Richard Chylinski* (specifications). Contractor: *Max Falk, Inc.*





Library roof hangs from a single column, maypole style

Joseph D. Goldreich

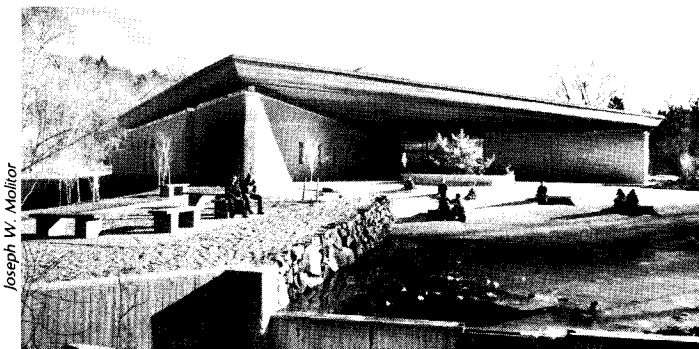
The main roof of the Chappaqua, New York, library "floats" above the non-bearing concrete masonry walls, supported by eight girders radiating from a single 35-ft mast column that weighs approximately 8 tons. Maypole-style hangers sloping from the top of the mast pick up the loads of the girders two-thirds the distance to their ends. Right: the architects created a pond and waterfall where a rerouted brook exits the site.

Three architectural design objectives led to the use of a single massive (8-ton) mast column to support the roof over 15,000 sq ft of main library space for a suburban library in Chappaqua, New York: 1) maximum visual control for a minimum staff, 2) complete interior flexibility, and 3) a covered recessed entryway. Eight cantilevered horizontal girders attached to the mast column and suspended by hangers sloping from the top of the 35-ft-high mast, maypole style, support the roof, the ceiling, and the soffit of the huge niche that signals the entrance and provides a sheltered outdoor space.

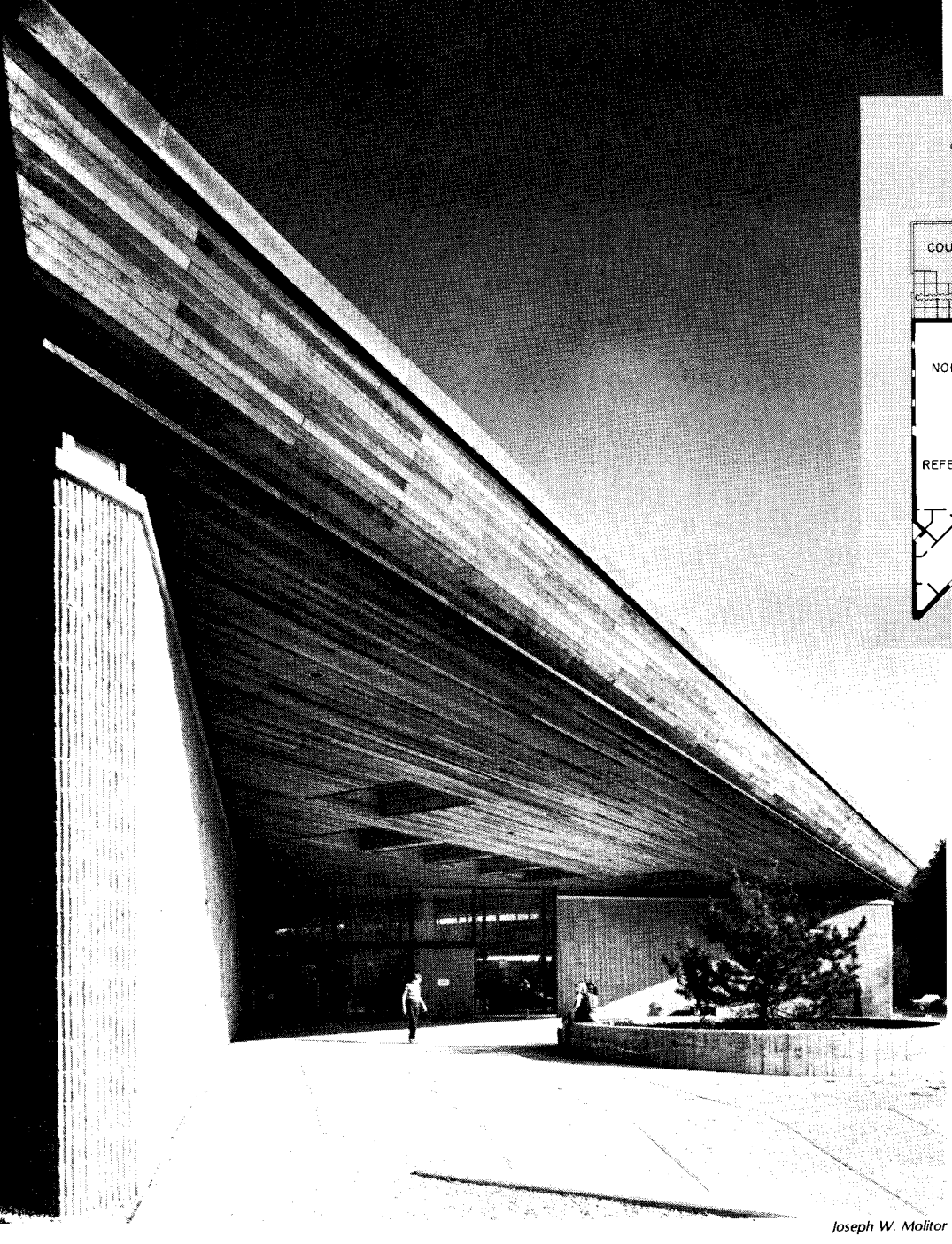
The structural behavior and configuration of the structural system, and the possibility of minimizing lengths of ducts, made the overhead space near the mast a logical location for the 900-sq-ft fan room for the main library space. The weight of the fan room partially offsets the uplift reactions of the cantilevers at the mast, and the sloped hangers frame the pyramidal roof that covers the fan room and visually heightens the building.

While the principal reason for the single column support for the main space was to give uninterrupted space, this approach also simplified foundation design. Restrictions on the use of the site led to the location of the building directly over a county trunk sewer and partially in the marshy channel and flood plain of a brook that traversed the site. The mast column, a few feet from the sewer, is supported by a cluster of 27 wood piles with the tips of the piles located below the elevation of the sewer, thus imposing no building load on it.

The 30-in.-deep main roof girders frame into the mast column 18 ft above the library floor level. Four of these, lying on the diagonal of the 15,000-sq-ft area, extend about 88 ft to the four corners of the main space. At their ends they are connected to steel tube columns in the masonry wall construction to

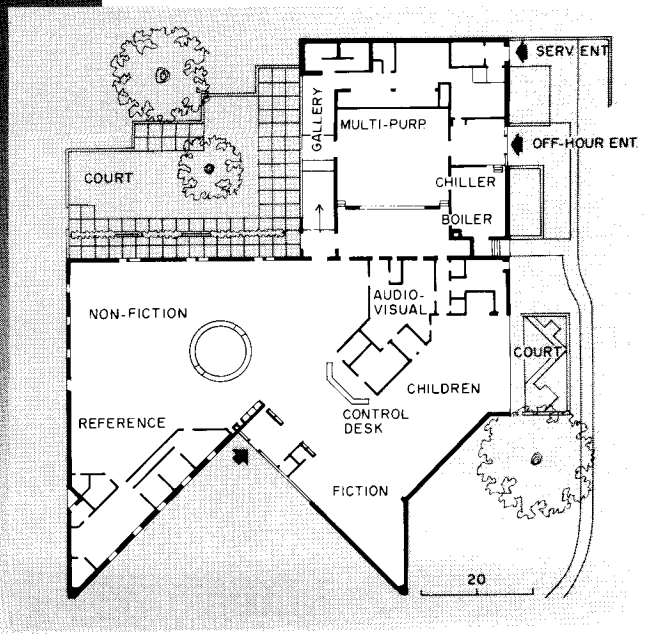


Joseph W. Molitor



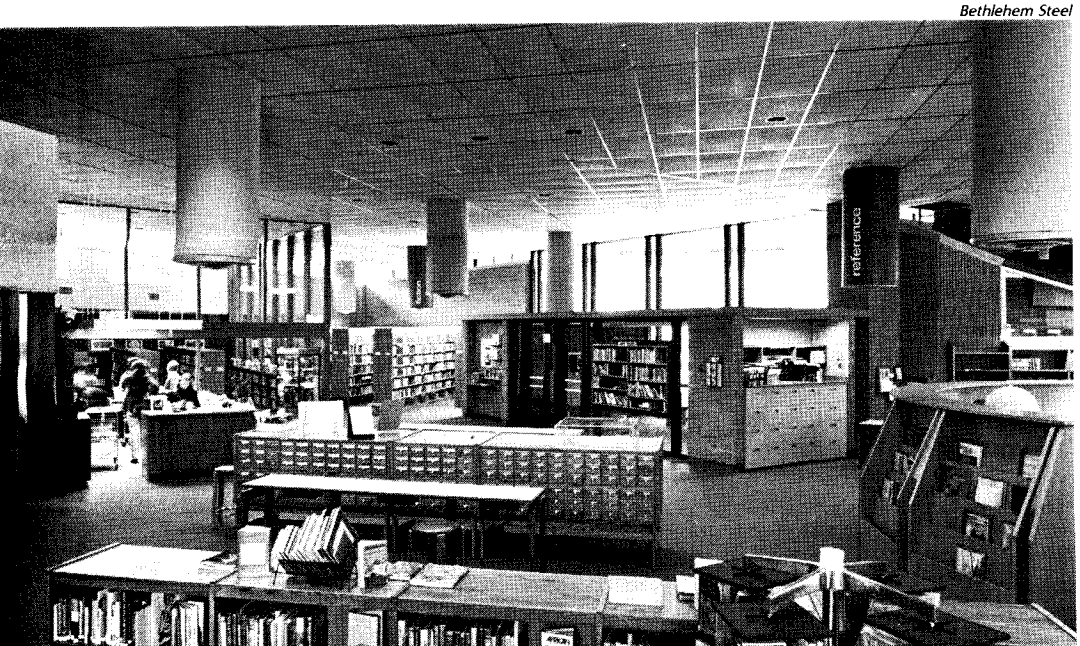
Joseph W. Molitor

The mast column is located at the center of a square area that encompasses the main library space and the vast niche that announces the main entrance to the building. Skylights in the roof of the niche let additional daylight into the sheltered space.



Upon entering the library, patrons face the control desk (at left in photo, below) which is located so the librarian on duty can monitor all open areas of the column-free space. Ceiling cylinders deliver conditioned air to the occupied space.

Bethlehem Steel



provide stability against horizontal twist resulting from wind load, but these steel tubes take only 10 per cent of the total vertical gravity load. The four girders perpendicular to the square area, on the other hand, are free at their ends and act as 24-ft cantilevers beyond their pick-up point by the sloping hangers. They are joined 15 feet short of the mast to the framing for the fan room floor—18-in.-deep members that transmit horizontal compressive forces from the sloping hanger supports to the center column.

The roof structure for the balance of the 23,500-sq-ft building is conventional open-web joists supported by steel beams framing to square tube columns.

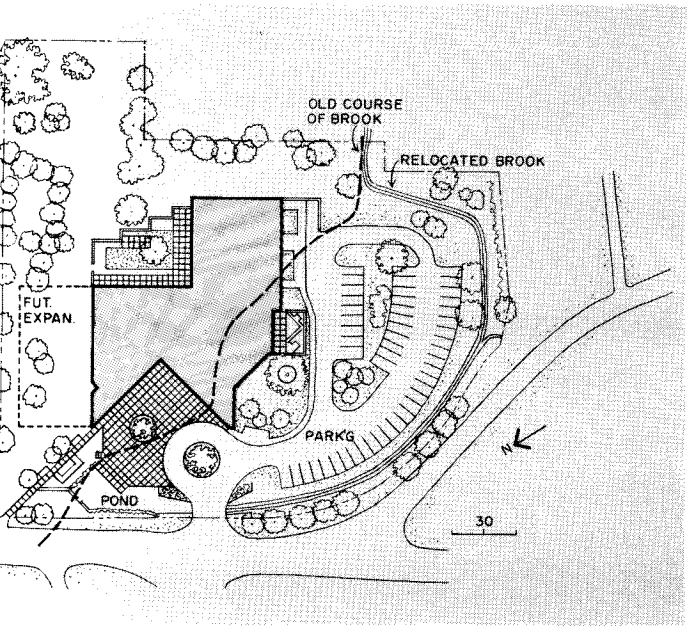
The unusual shape of the building, says its architect, Philip M. Chu, is the result of a functional arrangement of its internal spaces, in particular the contiguous location of the main entrance and the circulation desk. The library has a capacity for 70,000 books, seats 100 readers and provides ample work space. It has an audio-visual center, and outlets are provided in the library space for access to electronic transmission.

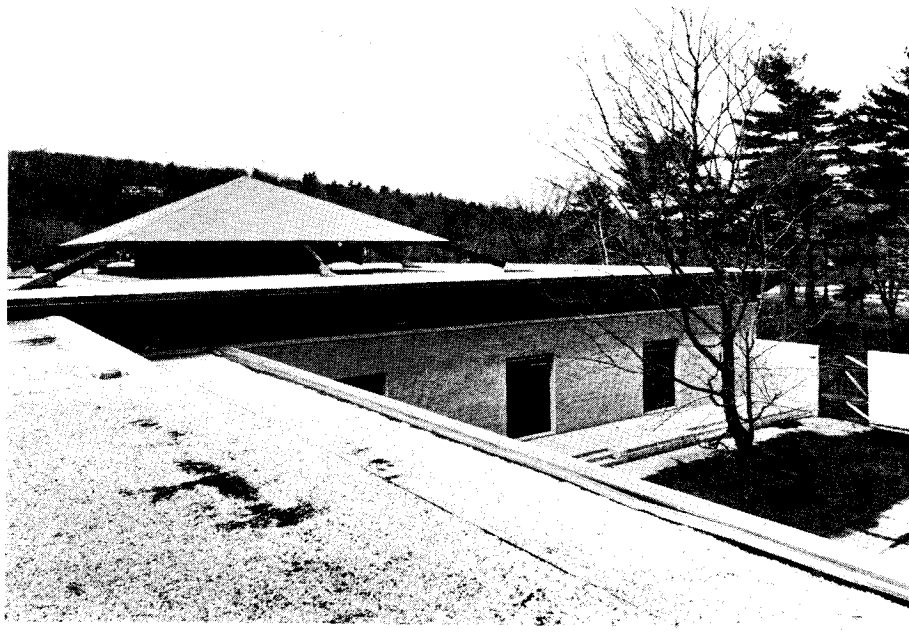
Additional facilities include a small meeting room, a display gallery, and a multipurpose room with a capacity of 200 seats for theater, music, film and public meetings.

Energy-saving features include: insulated cavity walls, insulating glass, sliding insulating panels to cover glass at night and on cold days, HID downlights in the main library space, a multiple-section modular boiler arrangement, and enthalpy changeover control. The air distribution for the multipurpose room was designed for three different modes of operation: 1) town meeting, 2) proscenium theater, and 3) theater-in-the-round.

Cost of the library was $1.7 million, nearly $100,000 below original budget estimate. Square foot cost was $54.

CHAPPAQUA PUBLIC LIBRARY, Chappaqua, New York. Architects: *Kilham, Beder & Chu.* Engineers: *Goldreich, Page & Thropp* (structural); *Dubin-Bloome Associates* (mechanical and electrical). General contractor: *Silverite Construction Co., Inc.*

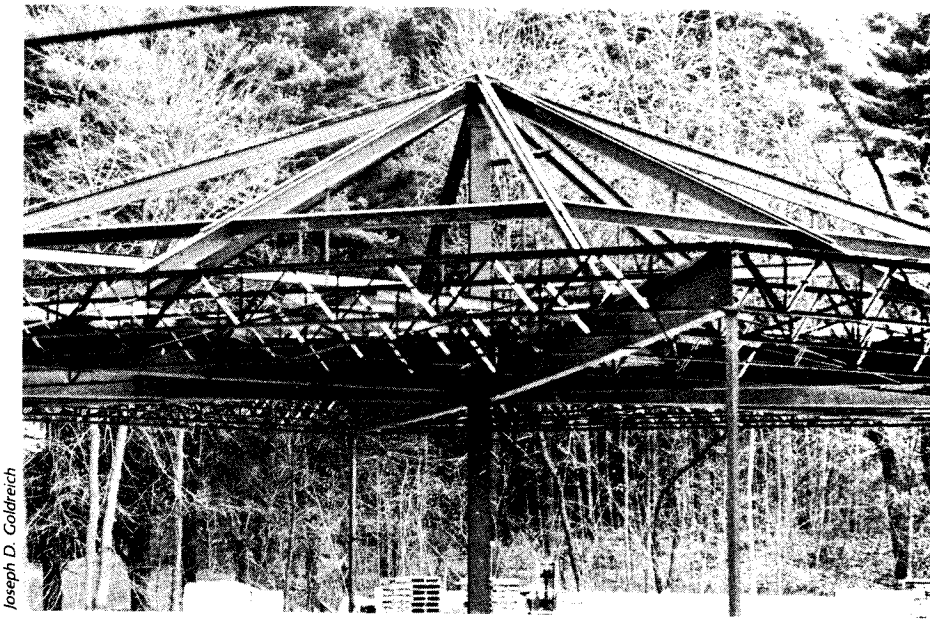




Bethlehem Steel

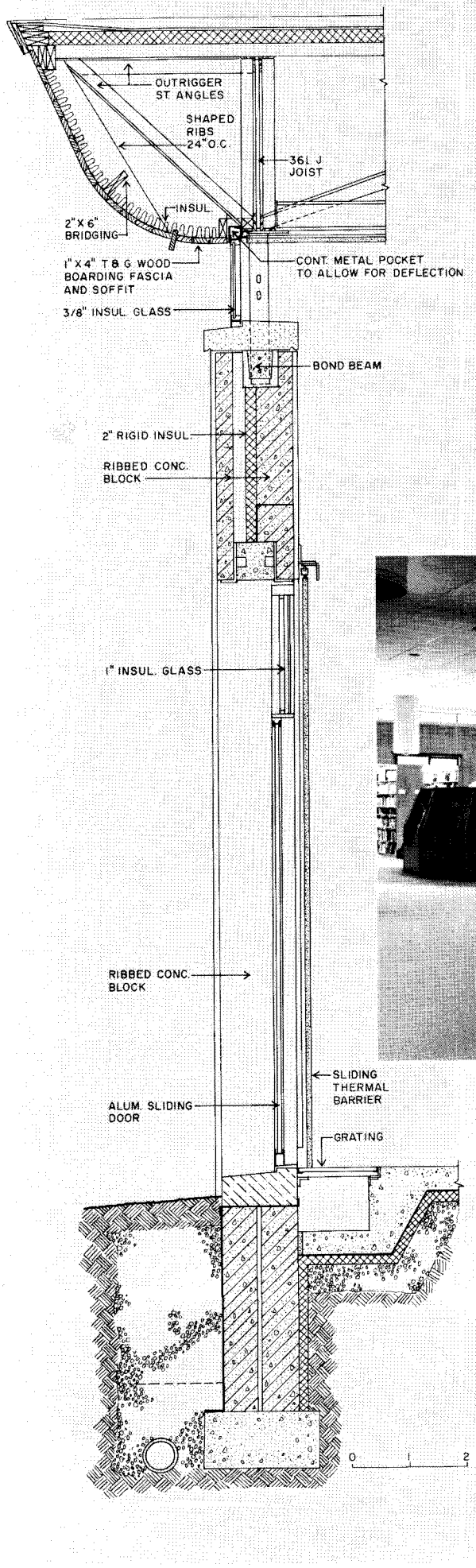
In addition to freeing interior space, the mast column design simplified foundations. The vertical load at this point is carried down to a cluster of 27 wood piles. The only other foundation loads are for walls that are carried on spread footings on compacted fill or existing ground. The pile foundation is only a few feet from a county trunk sewer that runs east and west directly under the building—but imposes no building load upon it. The site presented marginal foundation conditions because it had been marshy land bisected by a brook that was rerouted by the engineers to the periphery.

The maypole hangers for the cantilevered girders of the roof offered convenient support for a pyramidal roof over the above-ceiling fan room that occupies 900 sq ft in the center (photo right, top).

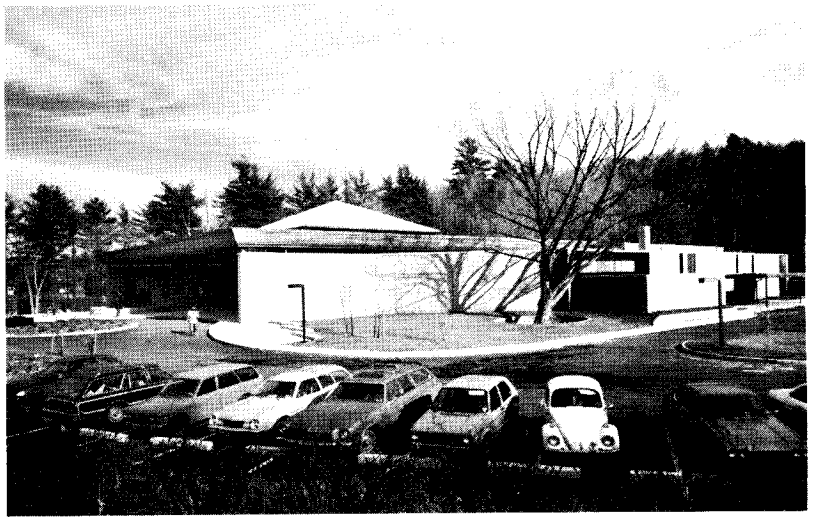


Joseph D. Goldreich

Joseph D. Goldreich

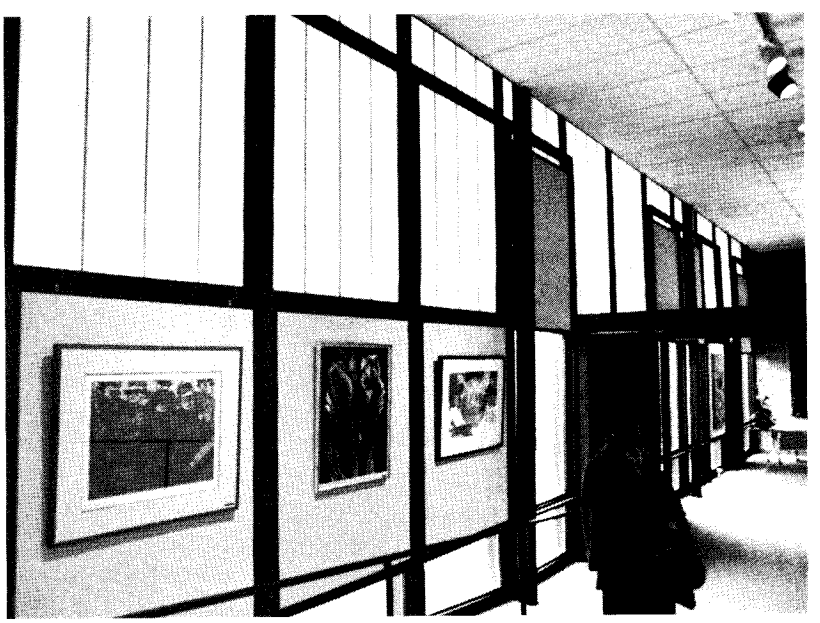


Joseph W. Molitor

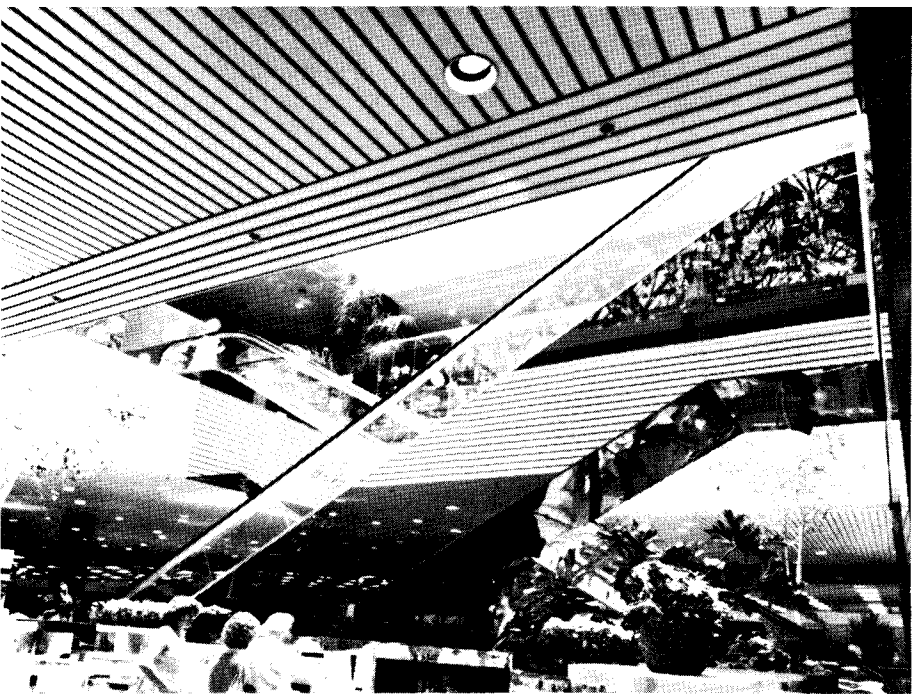


Energy consumption is reduced by means of insulated cavity walls, insulating glass judiciously used, and vinyl-covered fiberglass sliding panels that can be pulled in front of windows and glass doors. Wind load on walls is transferred to the roof structure by means of the detail shown at the top of the wall section. The outdoor-facing wall of the small gallery (bottom photo) has translucent, insulating-type plastic panels in the upper sash and transparent insulating glass in the lower sash, which is covered by sliding panels when art is displayed. The mechanical engineer saved energy by placing diffusers at the ends of hollow cylinders dropped down from the ceiling, avoiding air stratification.

Saul White



For more information, circle item numbers on Reader Service Inquiry Card, pages 199-200



Strong ceiling patterns result from aluminum strips

An aluminum ceiling system, new for this manufacturer, has a board-and-batten pattern. The panels are individual planks that conventionally snap into carriers; configuration options include a drop-ceiling or certain curved applications (as a cylindrical vertical column), with round or square edges. The gaps between panels can be closed with insulation or acoustical batts, or left open for hvac purposes. Standard plank lengths are 16 feet but special orders are available because the aluminum is roll-formed. The aluminum boards can be extended from an interior application (as is shown in this retail store) to an exterior soffit use. The finishes are bright metal, mirror, or a wide selection of enameled colors. ▪ Homeshield, Chicago, Ill.

circle 301 on inquiry card

Rugged fabric for transportation modes

Transportation, a new line of rugged fabrics for use in covering seats on buses, railway cars and airplanes, combines elegance with serviceability required in this kind of use. *Carriage Cloth* (below) is woven of 80 per cent wool and 20 per cent nylon; the *Zeppelin* textured weave (bottom) combines thick and thin yarns for a more textured surface and is made of 100 per cent wool fiber. ▪ Gretchen Bellinger, New York City.

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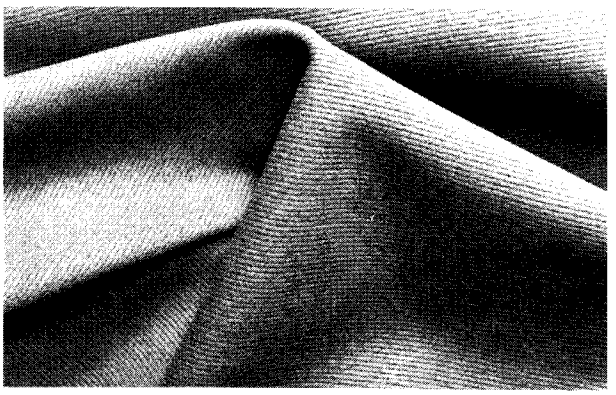

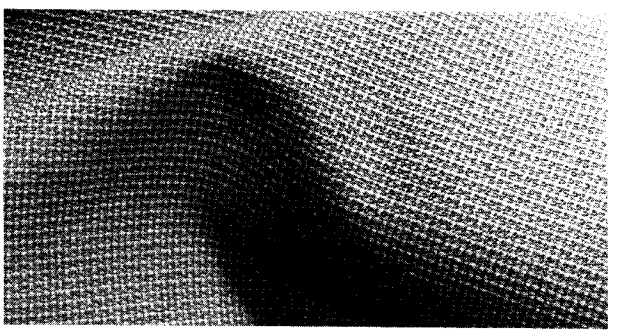

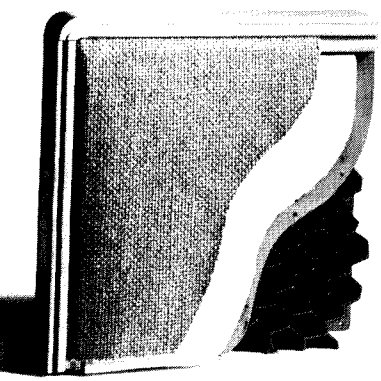

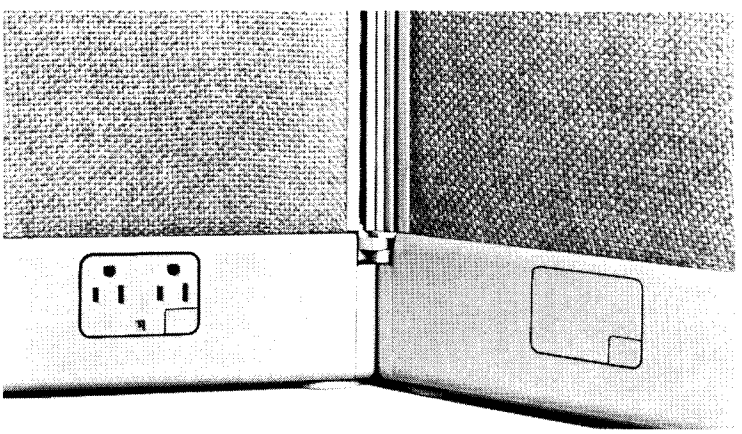

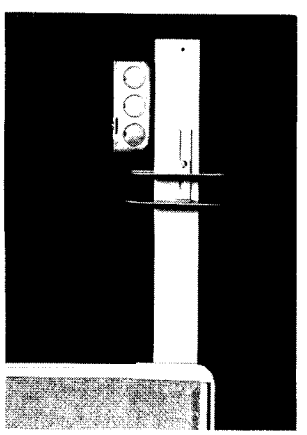

Electrical and acoustical solutions for the open office

A new Haworth solution to acoustical and electrical problems is demonstrated in its "TriCircuit ERA-1" system for UniGroup office interiors. The system integrates three separate 20-amp electrical circuits within compartmentalized base raceways; it allows user control over circuit allocation through a "circuit selection" device located on the back of each power receptacle. A finished panel (above middle) shows a hinged cover on each panel raceway for sleek base appearance. Telescoping power poles (above right) can be used to carry power from the plenum, through the panel to the base circuitry. A cutaway model (above left) shows an acoustical honeycomb core, claimed to achieve a .90 NRC rating for absorptive area in which sound is trapped and dissipated. ▪ Haworth, Inc., Holland, Mich.

circle 302 on inquiry card

more products on page 144

WHY COAT STAINLESS STEEL?

As nearly all architects are now aware, TCS (Terne-Coated Stainless Steel) is chrome-nickel stainless coated on both sides with an 80% lead/20% tin alloy.

But the question may still remain as to why any coating of stainless is desirable.

In the first place, the application of such a coating creates an end product which is demonstrably superior to both stainless and copper in durability and corrosion resistance. Secondly, TCS weathers to an attractive and uniform warm gray. Stainless, on the other hand, retains its original bright finish indefinitely, while the weathering of copper has been highly unpredictable in recent years. TCS also solders perfectly without special preparation whereas copper must be pretinned, and stainless requires a time-consuming and relatively costly procedure to obtain a leak-proof joint. Furthermore, TCS, unlike copper, is neutral toward other metals, and wash-off from it will not stain adjacent surfaces.

Expressed in the simplest terms, where roofing and weathersealing are involved there is no standard architectural metal available in the world today, including stainless and copper, which can match TCS in its performance characteristics and built-in safeguards against failure.

TCS

TERNE-COATED STAINLESS STEEL

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For more information, circle item numbers on Reader Service Inquiry Card, pages 199-200

ELECTRICAL DISTRIBUTION / The "MDS" system for power, lighting, electronics and communications is described for architects in a color brochure. Components include pre-wired *Power-T-Duct* and *Communi-Power* poles; system is equally suited for new construction or renovation. ▪ 3M, St. Paul, Minn.

circle 400 on inquiry card

UNDERFLOOR DUCTS / A 12-page folder compares the "TR Duct System, Phase II-Single Level" underfloor electrical/communicatioons duct system for concrete buildings with conventional raceways. ▪ H. H. Robertson Co., Pittsburgh.

circle 401 on inquiry card

HAZARDOUS AREA LIGHTS / *Petrolux* indoor/outdoor luminaires that conform to NEC and UL hazardous location standards are shown in a 12-page brochure. Reflector, light pattern, and mounting choices are covered. ▪ Johns-Manville Sales Corp., Holophane Div., Denver.

circle 402 on inquiry card

WIRING DEVICES / The "Interior Design" collection of switches, receptacles and wallplates for all building types is described in a full-line catalog. ▪ Slater Electric Inc., Glen Cove, N.Y.

circle 403 on inquiry card

STANDBY POWER / Color brochure describes a full line of standby/prime power generators and automatic transfer switches. Units range from 3 through 1000 KW, liquid or air cooled; gasoline, LF or natural gas, and diesel fuel models are shown in the literature. ▪ Kohler Co., Kohler, Wisc.

circle 404 on inquiry card

LAMP SAVINGS / Catalog presents all of this maker's fluorescent surface and wall fixtures, and includes a chart showing annual savings possible with various types of fluorescent lamps. ▪ Lightolier, Jersey City, N.J.

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WATER-SAVING FIXTURES / Folder shows how wash fountains equipped with water-saving sectional sprayheads and automatic shut-off valves can meet the energy conservation standards of ASHRAE 90-75. The vandal-resistant "Handi-Tap" push button control operates with less than two pounds opening force, meeting accessibility codes to serve disabled users. ▪ Bradley Crop., Menomonee Falls, Wisc.

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SURFACE & WALL LIGHTING / A 36-page catalog on surface and wall fluorescent lighting acts as a working manual, providing application, photometric and product data to help the professional select the proper lighting system for the particular surface lighting application. *Lytecel, Lumiform III, Surface 90+* and *Lumiframe* fixtures are featured in the color catalog. ▪ Lightolier, Jersey City, N.J.

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SOUND-ABSORBING SYSTEMS / Literature explains how *Vicracoustic* acoustic products combine superior sound control performance with an attractive, functional appearance. Most systems have a rated NRC of .85 and a K insulation factor of .22.; lines described include monolithic wall treatments; *Vicracoustic* 80 lightweight panels; open-plan baffles; and sound-absorbing panel systems in four configurations. All may be used with *Vicrtex* vinyl wallcoverings. ▪ L. E. Carpenter and Co., Wharton, N.J.

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ROUGHSAWN HARDBOARD / Catalog sheet describes an ⅛-in.-thick hardboard with the appearance of roughsawn cedar intended for use as a facing for interior and exterior wall systems including entry doors, garage doors and patio enclosure rooms. "Forestwood" is available primed, unprimed or prefinished in standard hardboard for interior use, or tempered for exterior applications. ▪ Forest Fiber Products Co., Forest Grove, Ore.

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CEDAR SIDING PANELS / Color brochure demonstrates the installation economies of red cedar barn shakes or shingles supplied as code-approved 8-ft. siding panels. Four textures are available for interior or exterior siding, mansards, gables, etc. ▪ Shakertown Siding, Winlock, Wash.

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REMODELING WITH CEDAR / Called "10 New Remodeling Ideas With Cedar," this color brochure depicts ways to update residences with simple overroofing to major remodeling suggestions. Send 25 cents to Red Cedar Shingle & Handsplit Shake Bureau, Suite 275, 515 - 116th Avenue NE, Bellevue, Wash. 98004.

PERFORATED METALS / Fabrications for industrial, architectural and ornamental applications are presented in a 33-page perforated metal products catalog. Standard die listings for round, square and slotted perforations in many different sizes and spacings are given; stock fabrications described include decorative sheets. ▪ National Perforating Corp., Clinton, Mass.

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OPERABLE/PORTABLE WALLS / The *Durafold* wall system includes individual panels, paired panels, and continuously hinged panels, offered with acoustical insulation to STC 40. A color brochure describes such product features as multiple wheeled trolleys, polymer discs, and an optional footbolt mechanism for extra stability, and illustrates how the slotted trim accepts standard kv brackets for removable work surfaces such as chalkboard and tackable fiberboard. ▪ Won-Door Corp., Salt Lake City.

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INDIRECT AMBIENT LIGHTING / *Indalux* energy-saving lighting products have been specially designed for offices, stores, schools, banks and other areas that require high-level, comfortable illumination. The line, composed of over 40 models, is based on HID sources, and covers a wattage range of from 70 to 1000. The indirect ambient lighting feature uses the ceiling as a reflector to diffuse and direct light throughout an area. The optical system has an *Alzak*-finished aluminum reflector, specular sidewalls and a diffuse bottom section that produces wide angle light patterns. Models available, in a variety of colors and finishes. ▪ J. H. Spaulding, Cincinnati.

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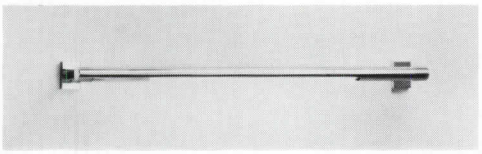

FLUORESCENT WALL BRACKET / Lighting fixture is made of extruded seamless aluminum tubing 3-in. in diameter. A clear linear prismatic acrylic diffuser runs the full length of the illuminated opening. Wall bracket luminaire can rotate through 330 deg for precise direction of the light. Three lengths are offered, accommodating 20-, 30-, or 40-Watt fluorescents. Connecting joints and elbows are supplied for continuous, tandem arrangements. Standard finish is polished chromes, but bracket fixtures are also available in polished brass, satin bronze, and high-gloss red, yellow or white. ▪ Habitat Inc., New York City.

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COPPER-SURFACED TILE / Each 12- by 12-in. "Serie Copper" wall and floor tile has a top layer of copper metallic powder fused with its clay body during the high-temperature firing process. Durable enough for light commercial as well as residential use, "Serie Copper" tiles from West Germany are suggested for restaurant, hotel, bar and office interiors. Manufactured by Roben, tile is available in stock in this country. ▪ Hastings Tile, Lake Success, N.Y.

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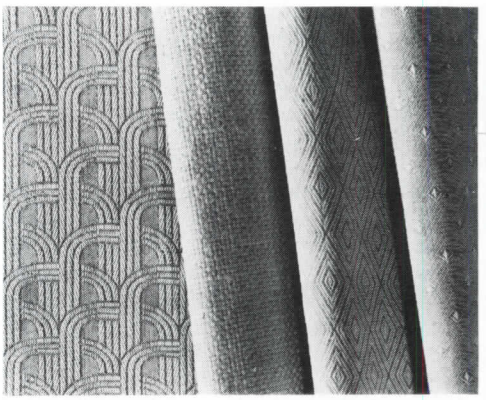
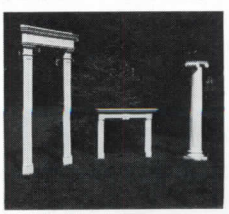


CONTRACT UPHOLSTERY / Natural Belgian linen weaves are suitable for drapery, upholstery, and wallcoverings. The 54-in.-wide fabrics shown here include two rayon/linen blends by *First Editions*, and two cotton/linen textures from *Maharam Fabric Corp.* Linen used in contract textiles has natural flame-, soil-, and static-resistance. ▪ Belgian Linen Assn., New York City.

circle 306 on inquiry card

PLASTER MOLDINGS / Handmade by the British firm of Hodkin and Jones, Ltd., these interior decorative plaster moldings are constructed with a reinforced inner webbing and two embedded wood nailing strips at each end. Lightweight products offered include: cornice and panel moldings in 10-ft lengths, centerpieces, niches, door and fireplace trim. There are also columns, pilasters, corbels and other decorations. ▪ Decorative Designs, Inc., Elkhart, Ind.



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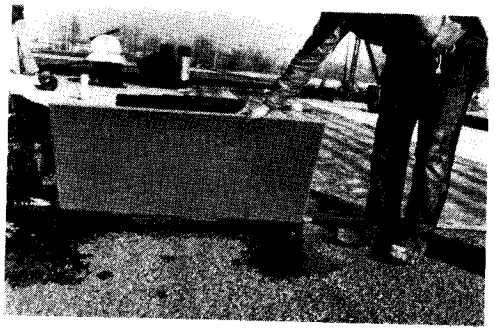
more products on page 147



RE-ROOF INSULATION BOARD / Available in 24- by 48-in. units, ¾-in.-thick, *Fesco* expanded perlite insulation board has channels on the underside in a grid pattern and rabbeted edges to assure unrestricted vapor pressure relief between the existing roof and the board. UL- and FM-approved, the board can be used over nailable, non-nailable, or metal roof decks; *Fesco* is applied using hot bitumen and/or mechanical fasteners. The *Fesco* boards also serve as a leveling course for the new roof system. ▪ Johns-Manville Sales Corp., Denver, Colo.

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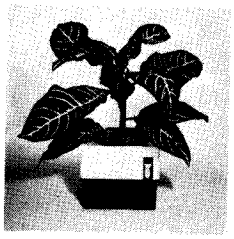

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COMPOSITE SHINGLE BASE / A nailable insulation board for use over structural plywood or wood lock-type decking, *Permalite* shingle base is composed of Class II urethane insulation, which has been factory-foamed between the structural nailable board top and bottom skin of asphalt-saturated felt. Shakes, shingles, roll roofing or tile may be fastened directly to the top side of the panel with galvanized annular thread roofing nails. *Permalite* shingle-base insulation comes in 1.2-, 2- and 3-in. nominal thicknesses, providing an R value of up to 21. ▪ Grefco, Inc., Los Angeles.

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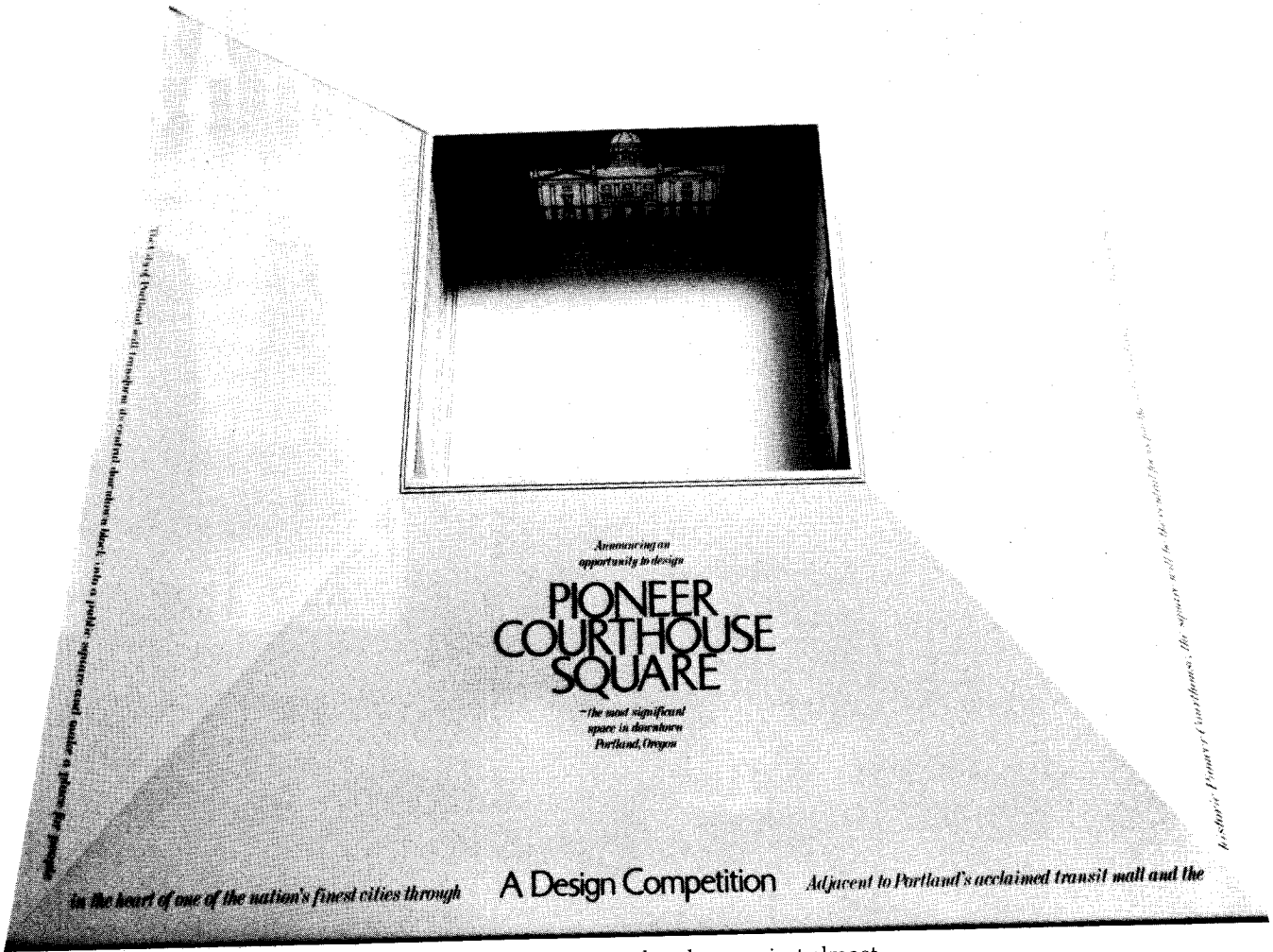

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Appropriate invention

ARCHITECTURE FOR THE POOR, *by Hassan Fathy; University of Chicago Press, $6.50.*

Reviewed by Felicia Clark

This is a seminal book, ranking with *Silent Spring, The Death and Life of Great American Cities,* and a very few others as development handbooks for the 20th century.

It is not a success story. It is the dramatic exposition of an egregious failure—a planning process, which by failing to bring in the relevant actors, comes to a disastrous conclusion: a town specifically designed and built—elegant, unoccupied, and in decay. It is a personal drama of an architect who pushed far beyond convention in exploring what was appropriate and logical for site and client.

The book is not about "architecture for the poor," although it contains explicit information on a low-cost building system. Its French title, *Construire avec le Peuple,* "build with the people" is its message; a description of a design process which searches for solutions among the people who are the clients, and attempts to blend their needs and technical skills into an appropriate architectural product. It is less a book about architecture than about methodology and the author's search for a counterbalance to modern architectural practices exemplified by the Western technologies and the loss of connection between architects and the people for whom they build.

Fathy appeals for a "new attitude towards rural rehabilitation," embodying a massive movement for cooperative self-help construction, grounded in local skills, materials and esthetics, and assisted by architects who are trained to work with *individuals.*

As a young architect in Egypt, in the early years of World War II, Fathy found supplies of imported materials (such as structural steel and concrete) unavailable, and began to investigate a traditional building system which goes back into Egyptian prehistory: houses and towns made with the local material, mud. This he believed to be true Egyptian architecture, still surviving in contemporary native houses, monasteries still in use from the fourth century and before, and depicted in the tomb paintings of the Pharoahs.

He began to design and build with Nubian workmen houses which out-performed their modern equivalents for coolness by day and warmth by night. Unit costs were 25 per cent less than those of conventional housing construction. He learned other native techniques to effectively address the fierce local conditions of the Egyptian desert: street patterns, house orientation and aperture size, wind traps, and cooling agents. He finds a few clients who are willing to experiment with the old rather than conform with the new, and builds for them elegant villas of mud.

A suburban villa, by Fathy, in Cairo. *Felicia Clark*

When asked by the Egyptian government to design and build a small town to relocate a problematic settlement of professional graverobbers (approximately 7,000 people) living in and around the Tombs of the Nobles at Luxor, in the Valley of the Kings, he seized the opportunity to demonstrate the merits of his ancient construction system. The project was rife with potential problems: What will these people do when their livelihood (tomb plundering) is taken away? How will they live in a new and quite different setting? But he plunges ahead with the enthusiasm and singleness of purpose which is characteristic of him to this day. "Our duty," he says, "is to build a village that should not be false to Egypt."

Fathy wanted to involve the villagers in the design of their own houses, but could not. They believed, shrewdly, that any involvement with Fathy's work would indicate their acceptance of the relocation scheme. After much day-by-day study of their lives and with some grudging assistance, mostly from the women of the village who appeared to be less politically attuned, he built 20 houses as an example. But nothing could break down the villagers' resistance to the move. The Gournais saw Fathy as an agent of the government, imposing upon them a situation not to their liking. Fathy was aware of this feeling but did not see that it spelled disaster. (Fathy also noted that, if the Gournais had been paying for their own houses, they would have been more involved: the classic public housing problem.) The Gournais presented formidable opposition. Like guerilla warriors, they were fighting for their very lives. They opened the dikes and flooded the site; spreading lies and rumors; sensing time and bureaucracy on their side.

In the meantime, Fathy belatedly discovered the economic absurdity of the program that he had been given. Even if the Gournais were or ever had been farmers, there was less than half enough farm land to support them. With naive optimism and enormous imagination, Fathy invented other resources: trades, crafts, touristic endeavors. His experiments were commended and encouraged by esthetes and artists. The government ignored him. Due to constant obstacles, his time and money ran low, but he continued to build with his team of Nubian workmen: the public buildings, the mosque, the school, the market. There was every evidence of the rightness of his scheme: historic, economic, esthetic—except for the one needed to make the project happen: support and commitment. Warnings of disaster were brushed aside. With faith in his own vision and in the logic of people to see what is good for them, he proceeded.

After three seasons (1945, 1946, 1947) of setbacks, governmental obstacles and bureaucratic delays, changes in the administration in Cairo brought the project to a standstill, half-finished. Fathy was dismissed and asked to return to teaching. Instead, he joined Doxiades to work in rural Iran, hoping to achieve somewhere a completed project that would convince Egypt and the desert world at last.

Fathy's construction system is dramatically simple. Sun-dried mud brick structures with vaults and domes have been known to exist in Egypt since before 4000 B. C. Bas-relief on the walls of Medinet-Habu show bricks being made over 6,000 years ago with molds identical to those in use in the area today. Mud brick granaries dating at least to 2000 B. C. still stand, along with monasteries the length of Egypt from Aswan to Wadi Natrun. As in ancient times, these bricks are cheap, light, insect- and fire-resistant. In dry conditions, protected from seepage, they appear to last indefinitely. The domed and vaulted buildings of Bagawat, Kharya and Wadi Natrum have

continued on page 189

Felicia Clark AICP was formerly Community Facilities Development Specialist for Sadat City, Arab Republic of Egypt, and consultant on participatory, community-based planning and design to the World Bank. She is now the director of the Boston Downtown Waterfront Study, and project coordinator for the national AIA study of the Regional Urban Design Assistance Teams.






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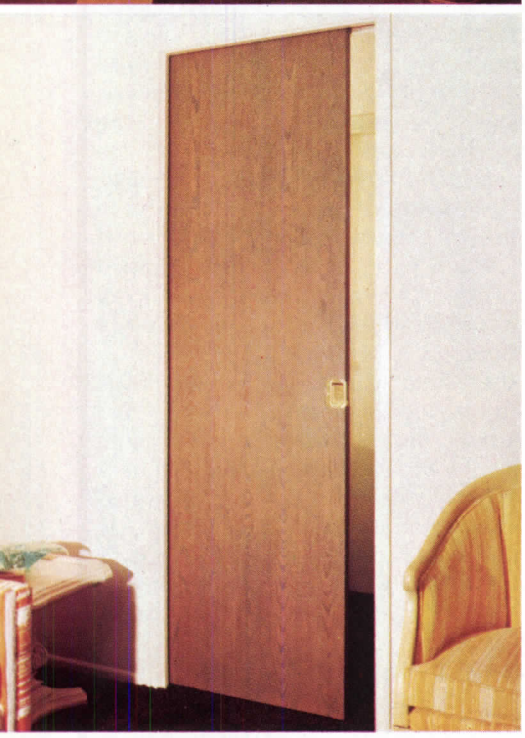


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withstood, unprotected, the winds and sandstorms for 1600 years. Because the roofs do not require structural spans, they can be built without costly imported components such as wood and steel. Fathy's prototype houses, with additional wall thicknesses and a dampproof course, could, Fathy states, be built anywhere in Egypt. Vault construction, in cross section, takes the form of a hyperbola. Spans are usually 12 to 13 feet, although it is possible to build them larger. The domes and vaults can cover square as well as round rooms and carry a second floor, supported by triangular vaulting or squinches at the corners. The dome profile can be high or low. Low dome is generally used for two-story construction, and can be filled to obtain a flat roof.

While Fathy accepts the modernization and urbanization of Egypt as inevitable, he is troubled by the losses it brings: the destruction of the social order of the village (with its strong networks of defenses and loyalties), the poor structures provided to house the people in the name of modern technology, and the modern architect's apparent lack of sensitivity to other problems, such as disease and poverty, which do not seem to fit into an architect's brief. Fathy goes outside that role to address these issues, as integral to the reconstruction of Gourna. He now sees architecture as the process of involvement with the whole life of the client; he fights the design attitude that architecture is style, that "a building can change its style as a man changes his clothes." He feels that a modern architect is a specialist who has been taught to work in the new materials, but that *that* is not enough. Modernity in itself is not an essential good. The architect must be willing to provide a sensitive combination of tradition and innovation.

He is struck by the loss of communication which the user and the builder-architect once had. In the old times, he believes, there was a precious and symbiotic involvement of the user/owner and the builder/designer: one with the knowledge of his needs and the other with the techniques to aid him to develop an appropriate setting. He quotes an ancient Egyptian proverb which warns that when the owner and designer cease to work on, develop and improve the house, something in the house and its occupants dies.

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Settlements have been delicate and sensitive expressions of social organizations throughout the past millenia. What do the mass-produced slums and suburbs of today do to the society as a whole? Why is New Gourna now unoccupied and falling into ruin, its site unmarked and hard to find even for the dedicated explorer?

Why not mud bricks and domes? Why have Egypt and similar countries so powerfully resisted Fathy's system for 20 years? The same dilemma occurs in South America. With the materials for adobe and the local skills lying ready at hand: why has this type of construction not become the norm?

Many, including Fathy, would say that it is a problem of image and conditioning. The results look primitive; giving the impression that poor people are not given the new technology because they are being discriminated against. Professor John Habraken of MIT suggests another reason: Fathy's housing system derives from a different, simpler age; it is part of a total ecosystem which embraced the lives and attitudes of the people. But conditions have changed. As one cannot rebuild Colonial Williamsburg in the twentieth century and make it work as a vital community, so one cannot re-introduce the building systems of the Nubians or the Fourth Century Copts.

What we can learn from Fathy, then, is an attitude. The culture may be changing everywhere; Fathy's process of inquiry remains an appropriate one in any situation. Fathy was "forced by poverty into genuine design." He is not copying the old forms, but taking the substance of the tradition and

continued on page 195

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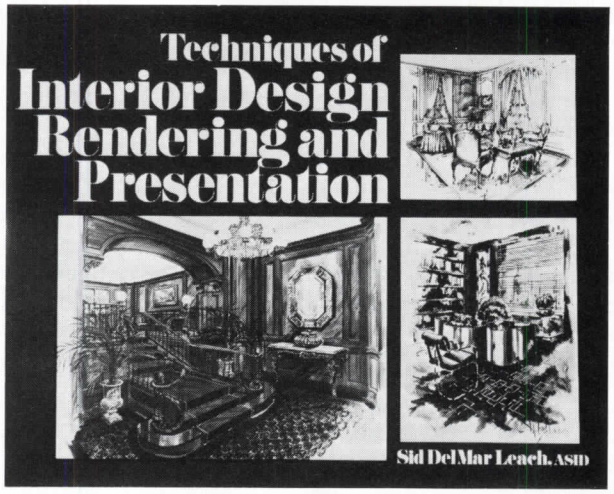

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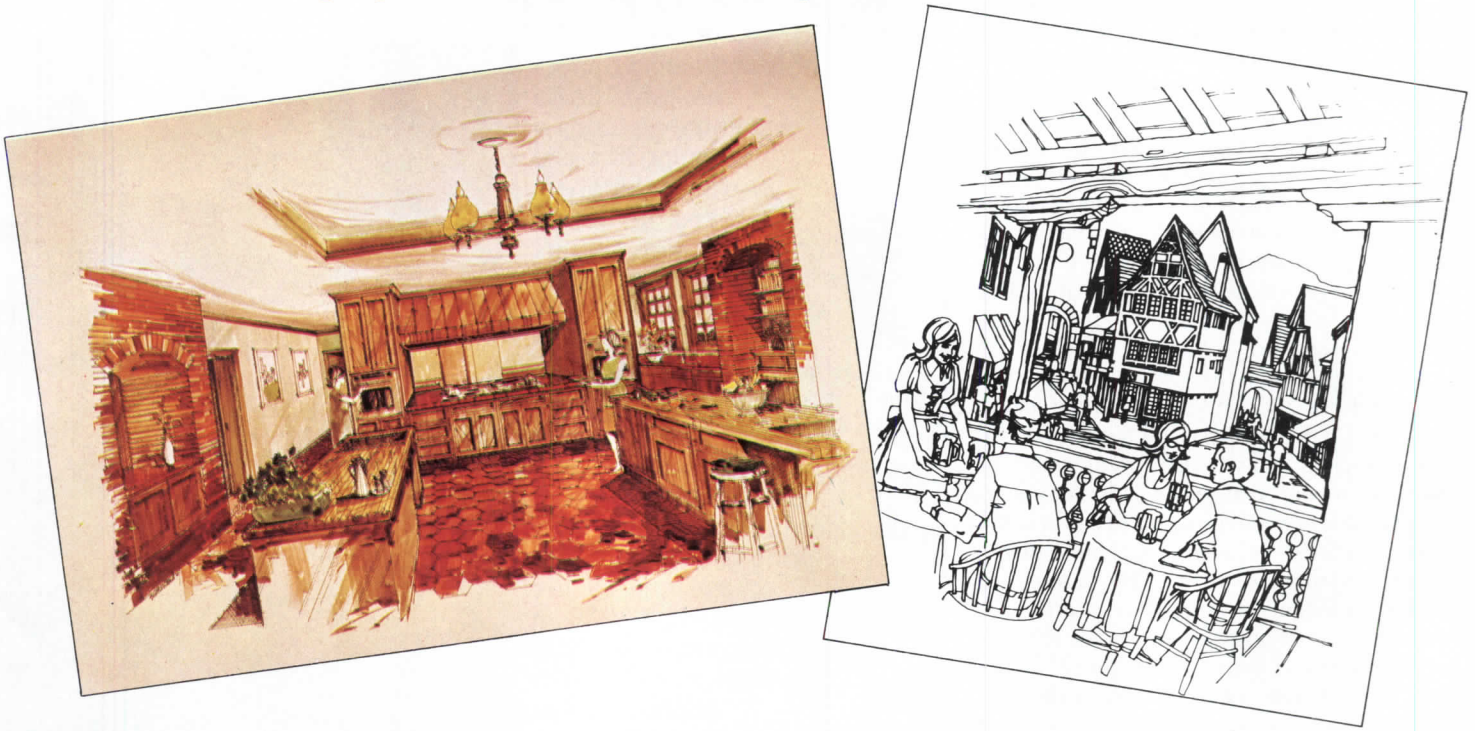

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Architect 20 years experience. Presently firm principal. Seeks challenging corporate management position in facilities development or product marketing. S.W. Connecticut, Westchester, NYC area preferred. PW-1676, Architectural Record.

Architect—Middle East, Design/Production — Canadian registered Muslim Architect, 34, seeks employment in Middle East. 7 years of post-graduate experience in design, production & supervision of shopping centres, high-rise office structures, recreational facilities, schools, commercial & industrial buildings. For resume write: R. Waidhyaratne, #203-2134 W. 6th Ave., Vancouver, B.C., Canada. V6K 1V6.

POSITIONS WANTED

Architectural/Mechanical Draftsman—22 years experience in the Architectural/Engineering field, age 41, currently President of own firm. Seeking permanent or contract employment with Southern or Western Firm. Salary negotiable. PW-1672, Architectural Record.

POSITIONS WANTED

Financial Executive—Heavyweight—Listed Co. V.P., Controller-CPA (Big 8 exp)—Attorney—Acquisitions, financial controls, taxes. Exp'd real estate, construction, home-building industries. Combines technical skill with imagination. $30,000 required. For resume, PW-9696, Architectural Record.

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FACULTY POSITIONS VACANT

Faculty Positions: The College of Architecture of King Faisal University in Dammam, Saudi Arabia, has just created new faculty positions for the academic year 1980-1981. Positions available at all levels in the following areas: Architecture, Urban and Regional Planning, Landscape Architecture, Engineering Sciences, Building Technology and Mathematics/Physics. Candidates should have Ph.D., M.A. or equivalent degree; practical and/or teaching experience preferred. Language of instruction is English. Positions begin in September 1980. Salary is competitive. Benefits include free furnished accommodation, air tickets to and from Saudi Arabia once a year for husband, wife and 2 children, educational allowance for four children, 60-day summer holiday. Please submit complete resume (including daytime telephone numbers) and a listing of three references to Dean Ahmed Farid Moustapha, College of Architecture, King Faisal University, % Saudi Arabian Educational Mission, 2221 West Loop South, Houston, TX 77027.

Washington State University, 4 Full-Time Arch. Faculty Positions Beg. Fall 1980. 1) Upper division design studio & lect. cost control 2) Upper division design studio & lect. urban design 3) Basic Design and Graphics studio supervision 4) Upper division Architectural and Urban History. Library collection supervision. Positions req. Master's Degree. Prof. license and/or 3 yrs exp. Prev. teach exp. desirable. Rank & sal commensurate w/qualif. Send vitae, incl 3 ref. by 3-1-80 to: Chairman, Dept. of Architecture, Washington State Univ., Pullman, WA. 99164. An equal opp/affirm action employer. Minority, women, handicapped, Vietnam-era and disabled veterans, and aged persons are encouraged to apply and to identify themselves as such in their applications.

FACULTY POSITIONS VACANT

Department Of Architecture/State University Of New York At Buffalo—Four *full-time* positions starting September 1980: 1) Environmental controls/design studio 2) Design studio/theory 3) Building technology/design studio 4) Structures. Salary according to rank and qualifications. Deadline March 1, 1980. Information from Prof. G. Anselevicius, Chairman, Dept. of Architecture, School of Arch. & Environmental Design, Hayes Hall, State University of New York, Buffalo, NY 14214. The State University of New York is an equal opportunity affirmative action employer.

Faculty Positions. Montana State University. 1) Teach environmental controls courses and design studio. M. Arch plus registration (or near). 2) Teach design. M. Arch as second professional degree plus registration. 3) Teach delineation courses and basic design. M. Arch as second professional degree or equivalent. 4) Teach architectural history. PhD architectural or art history (or near). 5) Teach planning courses plus design studio. Second professional degree: architecture; planning; landscape. All positions permanent. Assistant/Associate Professor beginning September 1980. Rank/salary commensurate with qualifications. Resume, portfolio, three references, transcripts to: George S. McClure, Jr., Chairman, Faculty Search Committee, School of Architecture, Montana State University, Bozeman, Montana 59717. MSU is an equal opportunity/affirmative action employer. Deadline March 1, 1980.

Director For The School Of Architecture— Position available as Director of the School of Architecture, University of Illinois at Chicago Circle. Beginning Sept. 1980. Duties: Organization and direction of school within structure of college and university administration; teaching; academic leadership in curriculum development. Minimum Qualifications: Evidence of administrative ability; professional degree in architecture; masters degree in architecture or related discipline or equivalent distinguished accomplishments in the profession; architectural registration. Academic research experience and professional/civic involvement desirable. Position: Full-time appointment as Professor of Architecture with tenure on faculty but not as administrator. Salary: Commensurate with qualifications and experience. Send letters of inquiry accompanied by vitae to: John Macsai Professor, College of Architecture, Art and Urban Sciences, 303 Jefferson Hall, University of Illinois at Chicago Circle, Box 4348, Chicago, Illinois 60680. The School of Architecture is one of four schools/departments in the college in 1980 will offer three (five year B. Arch. three year M. Arch—first Prof. degree; one year M. Arch—advanced study); and has approximately 650 students, 28 full-time and 15 part-time faculty. Closing date for applications is Jan. 31st, 1980. The University of Illinois is an Affirmative Action/Equal Opportunity Employer.

The College of Environmental Design at the University of Oklahoma has five tenure-track positions available in its architecture and construction science divisions, beginning with the fall semester, 1980. The terminal graduate degree, plus three years of appropriate professional experience are minimum requirements. Rank and salary commensurate with qualifications. Applications and inquiries should be sent to Dean Murlin Hodgell, College of Environmental Design, University of Oklahoma, Norman, Oklahoma 73019 by March 1, 1980. The University of Oklahoma is an Equal Opportunity/Affirmative Action Employer.

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NAME TITLE of individual to be contacted TELEPHONE (Optional)

ADDRESS: Mailing address of your personnel office

ORGANIZATION: Firm, Company, Government Agency or Institution

TYPE AND NUMBER OF STUDENTS SOUGHT: Architect Illustrator

Mechanical Engineer Computer Science Draftsperson Model Builder Other

Note: Last date coupons can be accepted for this year's summer job listings is March 3, 1980

FACULTY POSITIONS VACANT

Faculty: Young and developing architectural program seeks faculty committed to innovative, multidisciplinary, rigorous architectural education. Persons desired to: direct and teach architectural history (especially interested in someone with architectural preservation expertise), teach 1st and 2nd year introductory studies, and teach 3/4 year studies. Also interested in persons with expertise in computer application to design/programming, human behavioral—design, architectural technology and design. Multi-year and short term appointments available. Rank/salary commensurate with qualifications. Send vitae to Dean, College of Architecture, University of North Carolina at Charlotte, UNCC Station, Charlotte, N.C. 28223. UNCC is an equal opportunity/affirmative action employer.

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SPECIAL SERVICES

Architectural Renderings; commercial, industrial, high rise and site plans. Professionally produced in ink, color upon request. Call or write: Dennis Lynn 307-548-7139. SS-1750, Architectural Record.

Computer Applications—Software development services for architectural, engineering and construction management applications. Automated solutions in the areas of computer graphics, space planning, data base systems, cost estimating, and the analysis and maintenance of project and office management information. Write Robert J. Krawczyk, 1220 North LaSalle Suite 3E, Chicago, IL 60610, (312) 337-1356.

EQUIPMENT FOR SALE

FOR SALE A relocatable classroom unit, 24 x 36', wired for electric heat, air conditioning unit on rooftop, (no bathroom facilities) in "as is" condition. Buyer to be responsible for moving from present location at rear of Grant School. Any reasonable offer at or above $7,500 to be accompanied by a check for 10% of the price offered. **Herbert C. Massa, Business Administrator, Tel. 201-754-4620, Ext. 301.**

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OFFICIAL PROPOSALS

Miami Design Preservation League
Miami Beach, Florida
Call For Prequalifications

The Miami Design Preservation League will be issuing a request for proposal on Jan. 15 for a qualified professional team to work with its Planning Committee to develop a Master Plan for the Miami Beach Architectural District (Art Deco District) listed in the National Register of Historic Places. For information contact: Barbara Capitman, Project Director, MDPL, 1630 Euclid Ave., Miami Beach, FL 33139

BUSINESS OPPORTUNITIES

Associate Architect, Colorado mountain area. 50% ownership of designer office space; assume business. A professional environment in a natural setting. BO-1748, Architectural Record.

REQUIRED READING *continued from page 189*

letting it grow from the daily lives of the people who live now.

In Upper Egypt he found a low-cost, low-technology building system derived from local materials (mud and sand), using indigenous skills, and highly resistant to fierce climatic conditions. Unlike many relatively low-cost housing solutions, the results are beautiful. As villas for the rich or housing for the poor, they are elegant, functional, and attuned to the desert world.

Using the same techniques as the ancients, combined with a dedicated inquiry into the lives of the people, these building and town plans are monuments of appropriate invention in the twentieth century.

Fathy's intuitive feeling for what is pure and appropriate, his battle against the discrepancy between human life and the new technology, his sense of Egyptian urban life as it has evolved over time and all the little inventions that make it work—all add up to a unique and eloquent vision of an architect's role, and to the elegant buildings he produced.

But how can this be done behind a desk, with a contract system which requires the impersonal erection of thousands of identical models? This is the tragedy of Fathy's story. While recognizing the need for a process which includes all the actors, from the government bureaucrats and their allocation of funds to the users with their valuable insights, Fathy was unable to create a development continuum which could bring all these factors together into a successful final product. When Fathy revisited Gourna in 1961, only the boys school was occupied. The market, the khan, the crafts school, the mosque, the more than 100 homes, the shaded arcades and flowering courtyards were all deserted.

Fathy's book dramatizes two of the dilemmas of our age: the first is that human beings can and will remain individuals. How do you build for them when throughout most of the world the need is for speed and mass production? The second involves the dilemma of a professional in any discipline: how do you use what you have learned to create conditions in which people can find out and do things for themselves?

We are beginning to learn some of the answers to the second question. Self-help, participatory planning, exploration into local skills and appropriate technologies, are beginning to make themselves felt. We do not as yet see an answer to the first question. As Fathy so rightly states, you cannot build a setting for an individual from behind a desk, much less for millions who need housing.

Although Fathy has never had a broad following, his influence is beginning to be felt, vaults and domes (albeit often of precast concrete) are beginning to reappear in major current projects in the desert world. Whether this is the result of a vogue for indigenous styling or springs from an in-depth appreciation of Fathy's convictions is a question which has yet to be answered.

ADVERTISING INDEX

For detailed data, prefiled catalogs of the manufacturers listed below are available in your 1979 Sweet's Catalog File as follows:
G General Building (green)
E Engineering (brown)
I Industrial Construction and Renovation (blue)
L Light Residential Construction (yellow)
D Interiors (white)

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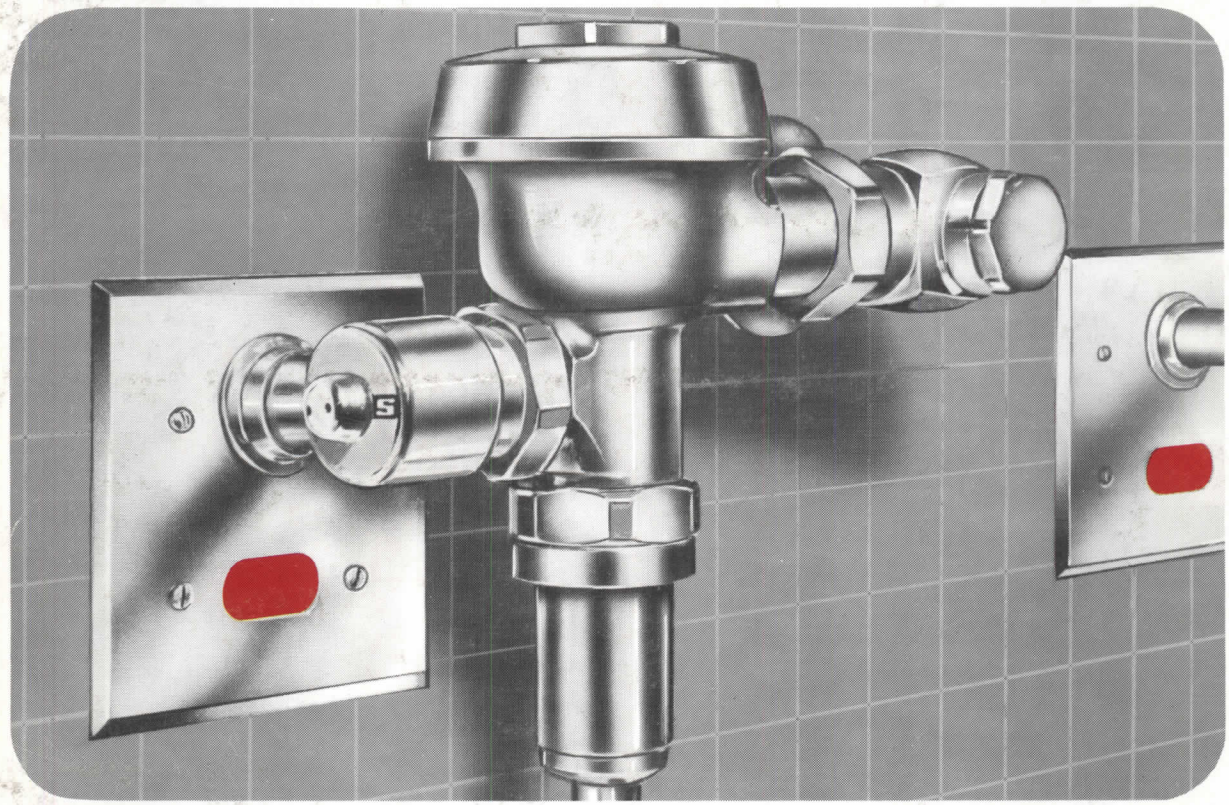

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