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BUILDING TYPES STUDY: LOW-RISE HOUSING  
FULL CONTENTS ON PAGES 10 AND 11

# ARCHITECTURAL RECORD

OCTOBER 1978

**10**

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## The happy trend to revitalization of city neighborhoods turns out to have some sobering side effects . . .

There are examples in almost every city (and more than a few smaller towns) of older neighborhoods that have fallen into disrepair, being given new life and vitality as more and more young families commit themselves to the city, instead of continuing the decades-old push to the suburbs. These families bring vigor and enthusiasm to the task; they bring commitment to the cause of the city; they bring tax money.

To almost all observers, this trend to rebuilding the residential areas in our cities and towns has seemed an altogether desirable trend—physically, socially, politically.

But . . .

A just-completed study by the National Urban Coalition sounds a serious warning. In a just-published report, "Displacement: City Neighborhoods in Transition,"\* the Coalition has released the results of a two-year study of the effects of private-market rehabilitation on 65 urban neighborhoods in 44 cities from Albuquerque to New Bedford, Massachusetts; from Newark to San Francisco, from Racine to Richmond. It concludes that "a combination of forces, including escalating housing prices [and taxes] has led to poor, elderly, and minority residents being displaced by the more affluent newcomers in renovated urban neighborhoods across the country."

The report has no quarrel with the work underway in many cities where, through government and/or private initiatives and support, local residents are rehabilitating their own homes. And it strongly supports the attempts being made in some localities to assist low-income homeowners to keep their houses by special "circuit-breaker" tax abatements and by offering opportunities for purchase of rehabilitatable housing by low- and moderate-income residents through "write-off" pricing and low-interest or otherwise subsidized improvement loans. Rather, the report focuses on the inability of the low-income or elderly family, who may have lived in the neighborhood all their lives, to cope with the private-market pressure—not just when that pressure is speculative but when that pressure is just plain sound "urban pioneering" commitment.

What's to be done? The Coalition points out that "People who are dislocated from

improving neighborhoods do not vanish into thin air. Those who are poor take their poverty with them when they move [so that] an improving neighborhood in one part of a metropolitan area will probably mean declining neighborhoods elsewhere—unless there is a prudent and creative policy." Some of its specific strategy recommendations:

1. Establishment of better counseling for residents. Counseling could include referring residents to organizations set up to offer families who wish to rehab their own homes advice, or financial aid, or reference to a lending organization "with broader criteria for mortgages and rehabilitation loans."

2. Establishment of increased resources for rehabilitation—specifically direct rehabilitation grant and loan programs, especially government programs that leverage outside investment. The Coalition points out that "for disadvantaged *homeowners*, the need is for long-term, low-interest rehabilitation loans and for small grants-in-aid or loans, available on short notice for repairs to bring homes up to code. These homeowners also need property-tax forgiveness . . . to shield them from the full impact of rapid increases in property assessment." For disadvantaged *renters* in improved neighborhoods the need is, of course, for rental subsidies.

3. Improved legislative protection for the disadvantaged—with special emphasis on statutes which affect the rights of tenants who live in buildings which are subject to rehabilitation. Finally . . . .

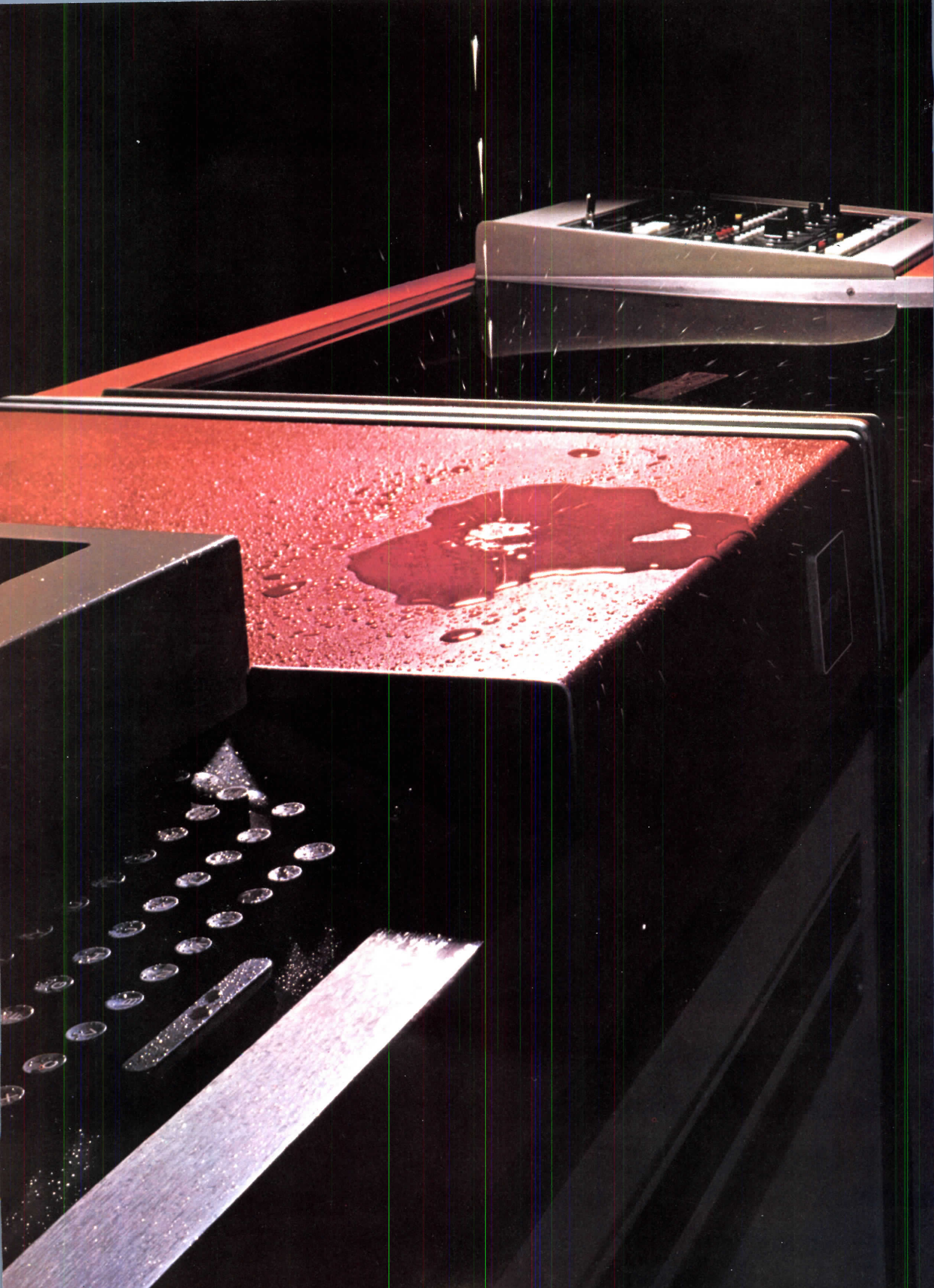
4. "Improved use of existing government programs and policies to promote neighborhood diversity." Specifically, the Coalition urges the rehabilitation and sale or rental to low-income families of HUD-owned abandoned housing; the expansion of urban homesteading and as-is housing programs dovetailed with rehab assistance programs; and the stronger use of Federal regulatory powers (or a carrot such as special Federal depository status) to encourage lending institutions to make loans to lower income families. Finally, "in areas where speculative rehabilitation is widespread, government should act to moderate quick turnover and high profit taking through selective tax policies."

To me, at least, the National Urban Coalition has made a strong case. For any architect involved in this kind of rehabilitation, the new report would seem must reading. . . .

—Walter F. Wagner, Jr.

\*Copies of the 38-page report are available for \$4.00 by writing The National Urban Coalition, 1201 Connecticut Avenue, N.W., Washington, D.C. 20036.







**Thanks to a "surge" of commercial and industrial projects, July contracts totaled \$14.7 billion, 36 per cent ahead of last July's "weak" level, according to the F.W. Dodge Division of McGraw-Hill Information Systems Company. "Based on the strong volume of new work started during the past few months," says Dodge chief economist George A. Christie, "the construction industry should be operating close to full capacity for at least the balance of this year." Nonresidential contracts rose 57 per cent, with retail contracts increasing by a third and manufacturing and office projects more than doubling last year's level. (New square footage in offices, says Mr. Christie, may equal "the record office-building years of 1969 and 1973.") Housing continues steady at 2 million units per month.**

**By the year 2000, solar energy will supply between 5 and 13 per cent of U.S. energy needs, depending on the Federal encouragement provided, the interagency Solar Energy Policy Committee estimates. Details on page 34.**

**The GAO continues to press for competitive bidding in A-E selection; with Comptroller General Elmer B. Staats holding the view that A-Es should compete on a price basis "just like all other businesses." Details on page 35.**

**Charles R. Ince, Jr., has been named president of the AIA Research Corp., succeeding John P. Eberhard, FAIA, who resigned the post at the end of August. Mr. Ince joined AIA/RC in 1976 as executive administrator of energy programs and became vice president in 1978. Earlier, he was with the Federal Energy Administration. An architecture graduate of Stanford, he has also worked in private architectural practice.**

**Bologna, Italy, has under construction a downtown center designed by Kenzo Tange, encompassing three office towers, an exhibition hall and retail space, all connected by traditional Bolognese arcades. Details on page 34.**

**The California Council, AIA, San Francisco, has appointed Daniel J. Sheridan its executive vice president. For the last seven years, Mr. Sheridan has served as executive director of the Minnesota Society, AIA.**

**Charles Eames, architect, furniture designer and graphic artist, died in late August at the age of 71. Earlier this year, the AIA bestowed its 25-Year Award for design of enduring significance on Eames's own house at Pacific Palisades, California. The house, which incorporated off-the-shelf industrial structural components, influenced a generation of architectural students. To the public, Eames was best known for the molded plywood "Eames chair," designed in the 1940s, and for the only slightly less famous upholstered lounge chair designed in the late 1950s.**

**San Diego saved Bertram Goodhue's buildings from the 1915 Panama-California Exhibition (see RECORD, September 1978, pages 104-105), but the fabric of the lath and stucco structures suffered considerable deterioration over the ensuing 60 years. A \$1.62-million restoration, funded by the Federal government is now nearing completion. Restoration of the California Building, a designated national landmark, includes "strengthening" the cast stone, reroofing the dome and replicating the tiles around its base, and reproducing some of the ornament in fiberglass. The building now houses the city's Museum of Man.**

**The AIA Foundation has received \$26,000 from the National Endowment of the Arts to inventory its archives. The archives, which were collected by the Institute, include architectural plans, drawings and related materials from the 18th, 19th and 20th centuries. The Foundation says that use of the archives for research will be restricted until the inventory is completed.**

**The Institute of Business Designers will sponsor a student "rally" on the design of office furniture systems, offering seminars and exhibits by designers and manufacturers. Sponsored by the Michigan and Ohio regional chapters of IBD, Rapids Rally '78 will take place November 5-6 in Grand Rapids. For information: Robert B. Valentine, IBD, Design Collective, Inc., 55 West Long Street, Columbus, Ohio 43215.**

**The AIA Western Mountain Region will convene its 1978 Conference October 11-14 at Santa Fe, New Mexico. The major addresses will be delivered by Vincent Scully, architectural historian, and Edward T. Hall, anthropologist and social scientist. For information: John McHugh, AIA, P. O. Box 5619, Santa Fe, New Mexico 87501.**

**Landscape Architecture magazine seeks submissions for a special issue on residential landscape design. Of particular interest, the magazine says, are landscape projects on complex sites where water, steep topography, adjacent land uses and other challenges are encountered. Proposals for consideration must be received no later than October 20, though the final deadline for manuscripts and illustrations is December 15. For a detailed contributors guide: Editorial Office, Landscape Architecture, 1190 East Broadway, Louisville, Kentucky 40204.**

**"A View of Frank Gehry's Architecture" will be exhibited at P.S.1 in Long Island City, New York, through November 21. The show will study the evolution of Mr. Gehry's design through photos and models. P.S.1 is a 19th-century schoolhouse adapted by New York's Institute for Art and Urban Resources as studios and galleries.**

## Study group predicts that U.S. will derive 5-13 per cent of its power needs from solar energy by 2000

Government experts are raising their estimate of solar energy's potential contribution to the nation's power needs. The exact amount of the contribution, experts say, is closely tied to government policies.

According to preliminary conclusions of the government's Interagency Solar Energy Policy Committee, solar energy will supply between 5 per cent and 13 per cent of the country's total energy demand by the year 2000, depending on the price of oil and of other alternative fuels, without major changes in government policy. (The Committee comprises solar experts from 18 agencies, who meet under the aegis of the Department of Energy to coordinate Federal activity in this area.)

The intervention of government to hype up solar development will drive the level of development higher, the experts believe.

In a "maximum practical case," where government adopts "very aggressive programs" still within the traditional Federal role, the contribution of solar energy would be 18.1 quads per year (a quad equalling 1 quadrillion Btu), or roughly twice the contribution than at the "base" level of Federal aid and incentives.

Still another 50 per cent,

amounting to another 10 quads, could theoretically be supplied if there was "much greater Federal presence in the design of residential and commercial buildings, in long-range planning, in industrial decision-making, and in energy planning generally," the report says.

The report breaks down the potential solar contribution into sectors, for the purpose of defining both possible developments and proposed Federal actions to encourage the use of solar energy.

The first of these is solar heating and cooling in buildings. Under the base case, assuming price of oil at a medium-high \$25 per barrel, the study projects between 5 million and 6 million dwelling units using solar energy by the year 2000. This means that 13 per cent of all new homes built over the next two decades would use solar energy.

In the maximum practical case, this number of homes increases to 22 million, and at the technical limit to 37 million. Proposed government actions in this area include mortgage and tax incentives beyond those already put forward in the national energy plan, as well as "development of incentives for builders to exceed mandated building energy performance stan-

dards with passive systems."

The second category covered is agricultural and industrial energy uses, where the report sees the greatest potential in "conventional space and water heating and process heat applications. In the base case, solar energy is expected to meet less than 1 per cent of demand in this area, supplying 0.2 quads. This amount would go up to 2.6 quads in the maximum practical case, and 3.5 quads at the technical limit.

Proposed Federal actions here include further financial incentives, research programs and adaptation of government regulations to encourage solar use.

The solar technology slated to make the biggest contribution is biomass—that is, the heat and gases generated by the consumption and decay of organic materials, including wood used both in residences and in industry. Biomass currently accounts for 1.8 quads of energy yearly, and estimates are that in the base case its application could provide 3.1 quads, in the maximum practical case 5.5 quads, and at the technical limit 7 quads.

An alternative energy source with potentially large construction impact is wind. In the base case, says

the Committee's report, "about 15,000 one-and-a-half megawatt machines . . . would be operating" by the year 2000, accounting for some 0.6 quads. In the maximum case, the number of machines would go up to 45,000, and at the technical limit, to 75,000.

Meanwhile, there are growing indications that government does intend to encourage solar energy development. Before its adjournment later this month, Congress expects to approve legislation establishing tax credits for homeowners and businessmen to buy and install solar appliances.

Moreover, the construction budget for the military services includes \$100 million for solar equipment—a development that will have an enormous impact on a solar industry that now only does \$150 million in annual business.

Advocates for more solar spending are stepping up their pleas for more Federal solar funds by pointing out that solar is the only energy form that has not been heavily subsidized, and therefore has not had a fair shake in the market and in all the cost comparisons.—William Hickman/Sarah Miller/Everett Clark, *World News, Washington*.

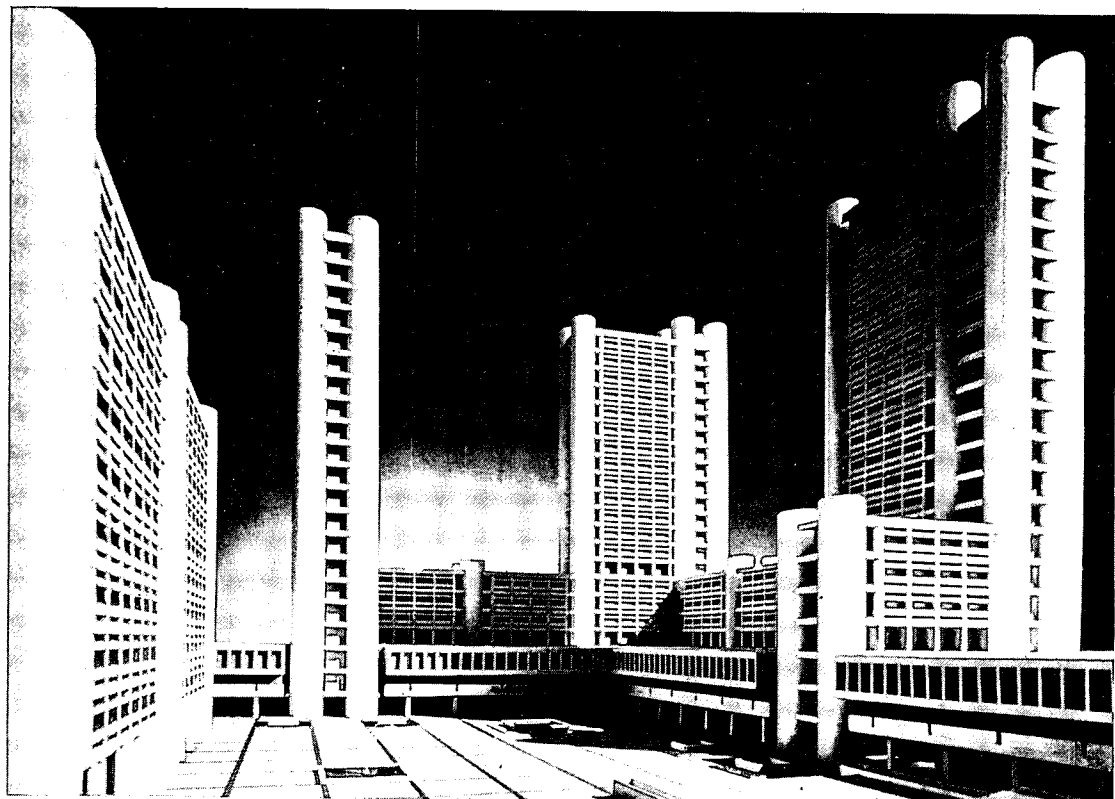
## For Bologna, Tange designs towers, arcades and piazzas

Bologna, like the rest of Italy's Emilia-Romagna district, has been since the Middle Ages a city of towers identifying the city's powerful families, of piazzas that function as public living rooms and as forums for political debate, and of sheltering arcades that connect its public and commercial buildings.

The Japanese architect Kenzo Tange has incorporated all of these features in a new city center intended to relieve pressure on Bologna's historic center, where no further construction is possible. The new Fiera District Center will offer pedestrians and debaters a 97,000-sq-ft piazza and about a mile and a half of arcades. Cylindrical concrete towers tie the new buildings to traditional Bolognese architecture and house vertical circulation and mechanical stacks.

The master plan for the Fiera district was developed by Tange as part of his over-all urban redevelopment plan in the 1960s. The larger urban plan has been stalled by the economic crisis, but the Finanziaria Fiera, a holding company comprising the city, the province and the Chamber of Commerce, is developing the smaller Tange plan separately as a business and exhibition center.

The complex will include office buildings for public services, such as the post office, and for "tertiary"



services—in Italian terms, semi-official, nongovernmental organizations such as workers' co-ops and artisans' associations. A large exhibition hall will expand facilities in the adjacent Fiera district, which plays host to more than a dozen national and international expositions every year (the word *fiera* means "fair"). The center

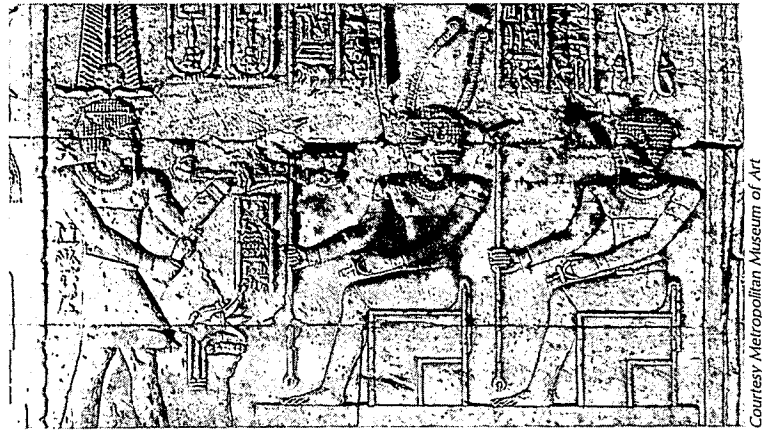
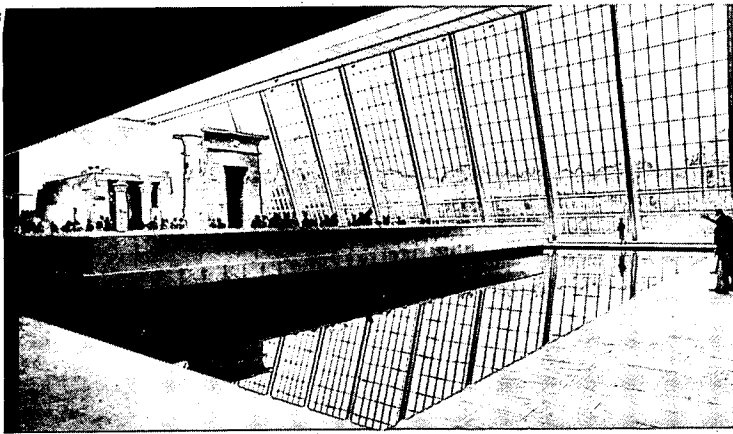
will also accommodate a hotel, a bank, shops and restaurants, cultural and recreational facilities.

At the eastern end of the center, the large piazza, bounded by three 20-story office buildings and nearly 2,000 feet of arcades, will cover a parking garage.

The first buildings to get under

construction were the co-op and artisans' offices and the bank (at left in the photograph of the model), which are scheduled for completion in 1980. The rest of the Fiera Center is scheduled for 1984 completion, and the entire development is expected to cost \$47-58 million.—Lois Bolton, *World News, Milan*.





## A Nubian temple from the first century B.C. finds a 20th-century home at the Metropolitan Museum

Even before the predicted Tut fever hits New Yorkers later this year when the popular exhibit opens, the Metropolitan Museum of Art has whetted Egyptological appetites with the Temple of Dendur. Last month the museum opened its new Sackler Wing, designed by Kevin Roche, John Dinkeloo Associates to house the reconstructed temple, designed by an unknown Egyptian architect.

Described by a 19th century traveler to Nubia as "an exquisite toy, so covered with sculptures, so smooth, so new-looking, so admirably built," the small temple was raised in 15 B.C. during the Roman occupation for the cult of Isis and Osiris and as a mortuary chapel for a pair of princeling brothers drowned in the Nile, a fate thought to deify its victims. (In bas-relief above, the brothers Pedesi and Pihor receive offerings from pharaoh.)

The temple, sited on the west bank of the Nile about 50 miles south of Aswan, consisted of two buildings: a gateway set on a stone wharf, and

a three-room structure set about 30 ft behind the gate. It was converted to a Coptic church some time in the sixth century, and from the eighth century on attracted travelers—first Arabs, then in the 19th century Europeans and Americans—who scratched their names and other messages in the soft sandstone. (The study of these graffiti forms a sub-theme of scholarly investigation.)

When the Aswan High Dam was projected in the early 1960s, it was clear that Dendur, like all the rest of Nubia, would disappear under the waters of Lake Nasser. UNESCO undertook a massive international campaign to save the Nubian monuments, from the raising of the temples at Abu Simbel to the removal of a number of other temples.

The Egyptians dismantled the Dendur temple in the mid-1960s and offered it to the United States in gratitude for a \$16-million contribution to the UNESCO effort, on condition that the building form part of an important Egyptian collection and

that it be adequately preserved.

The Metropolitan Museum, whose Egyptian collection eminently satisfied the condition, was named by the U.S. government and received the crated stones in 1968, after they had been shipped by freighter under a load of "Italian cheeses, canned tomatoes and jars of maraschino cherries," reports Arthur Rosenblatt, AIA, the Met's vice president for architecture and planning. For a number of years, strollers in Central Park gazed at them through vinyl panels in an air-supported structure set up in one of the Museum's parking lots, and in 1974 reconstruction, directed by architects Brown Lawford and Forbes, began. The new building was constructed around the completed restoration.

Roche, Dinkeloo dimensioned the new wing generously to emphasize the tininess of the temple—the ceiling rises 62 ft over the 26-ft-high gateway, and the display area measures an unobstructed 200- by 120-ft. In front of the exhibit, a reflecting

pool suggests the Nile River lapping against the 40- by 50-ft quay that supports the gateway.

The north facade of the wing is a sloping glass curtain wall that admits favorable natural light as well as allowing the public to view the illuminated temple from the outdoors at night. The skylight, supported by 200-ft steel trusses, is insulating glass with reflective glass on the outside. A translucent hung ceiling diffuses daylight so that the new building casts no shadows on the old one.

The new wing also houses additional gallery space and offices for curators and the Center for Far Eastern Studies (Far Eastern Art Department), and offers access to the existing museum. The Tutankhamun collection will be shown on a mezzanine overlooking the Dendur temple.

The project cost \$9.5 million, including \$870,000 for reassembling the temple, and is named for Drs. Arthur M. Sackler, Jr., Mortimer B. Sackler and Raymond R. Sackler, who were major donors.

## GAO continues to press for A-E competitive pricing

A leading opponent of the traditional "most-qualified" selection procedure for architects and engineers on Federal design work claims progress for his side.

Comptroller General Elmer B. Staats, head of the congressional General Accounting Office, points to two recent victories: one is congressional insistence on a trial of competitive bidding by the Army's Corps of Engineers (see story at right), and the other is the National Society of Professional Engineers' loss before the Supreme Court in its battle to keep a competitive bidding ban in the society's code of ethics.

Mr. Staats has long held the view that A-Es should compete on a price basis "just like all other businesses."

In an ARCHITECTURAL RECORD interview, he freely acknowledged that the government does not necessarily benefit from the lowest price for design services. "The price of the A-E services," Mr. Staats said, "is not as

important as the price of the end product."

Still, he argues that "there is no real competition" among A-Es, and he feels that there ought to be so that Federal agencies will know if they are getting the best deal for the taxpayers' money.

One of Mr. Staats's top aides, General Counsel Paul G. Dembling, is also a forceful advocate of price competition among construction designers. The present system, he complains, results in architects and engineers competing only on the "basis of their pedigree"—that is, how well they have performed in the past for other owners.

Mr. Dembling is a former official of the National Aeronautics and Space Administration. He argues that work done by architects and engineers is little different in complexity from that performed by space agency research and development contractors. And these R&D contractors are able to compete on price and do so effectively, he contends. —William Hickman, *World News, Washington*.

## Congress wants A-E bids for Corps of Engineers

The Congressional appropriations committees have instructed the Corps of Engineers to undertake a \$5-million test of a system of competitive price procurement for architectural and engineering services.

Direct orders to undertake the effort were written by a Senate-House conference committee. The House, which always considers appropriations measures first, wrote language into its report recommending that the Defense Department set aside funds for a trial of competitive selection and suggested that the General Services Administration's Level Three procurement procedures would be an appropriate model.

The Senate Appropriations Committee disagreed, saying that competitive bidding might compromise the quality of the project construction. Moreover, the senators contended, the extra expense involved in Level Three selection—where three or more firms are paid for preliminary

designs—could not be justified in the name of competition.

When the conflicting views of the committees reached conference, however, the senators withdrew their objections.

Since the recommendation is contained in a conference report and not in the bill itself, it does not have the force of law. But most agencies are quick to do the bidding of the appropriations panels.

The trial is viewed with alarm by professional societies in Washington because it would mark the first time the Federal government has insisted on competitive bidding by A-Es. (The Brooks Law's non-priced, competitive negotiations requirements do not apply to the Defense Department.)

In previous years, the authorization bill for the military services has always carried what is known as the "Rivers amendment," which has language similar to the Brooks Law. The appropriations measure this year supersedes previous Rivers amendments. —William Hickman, *World News, Washington*.



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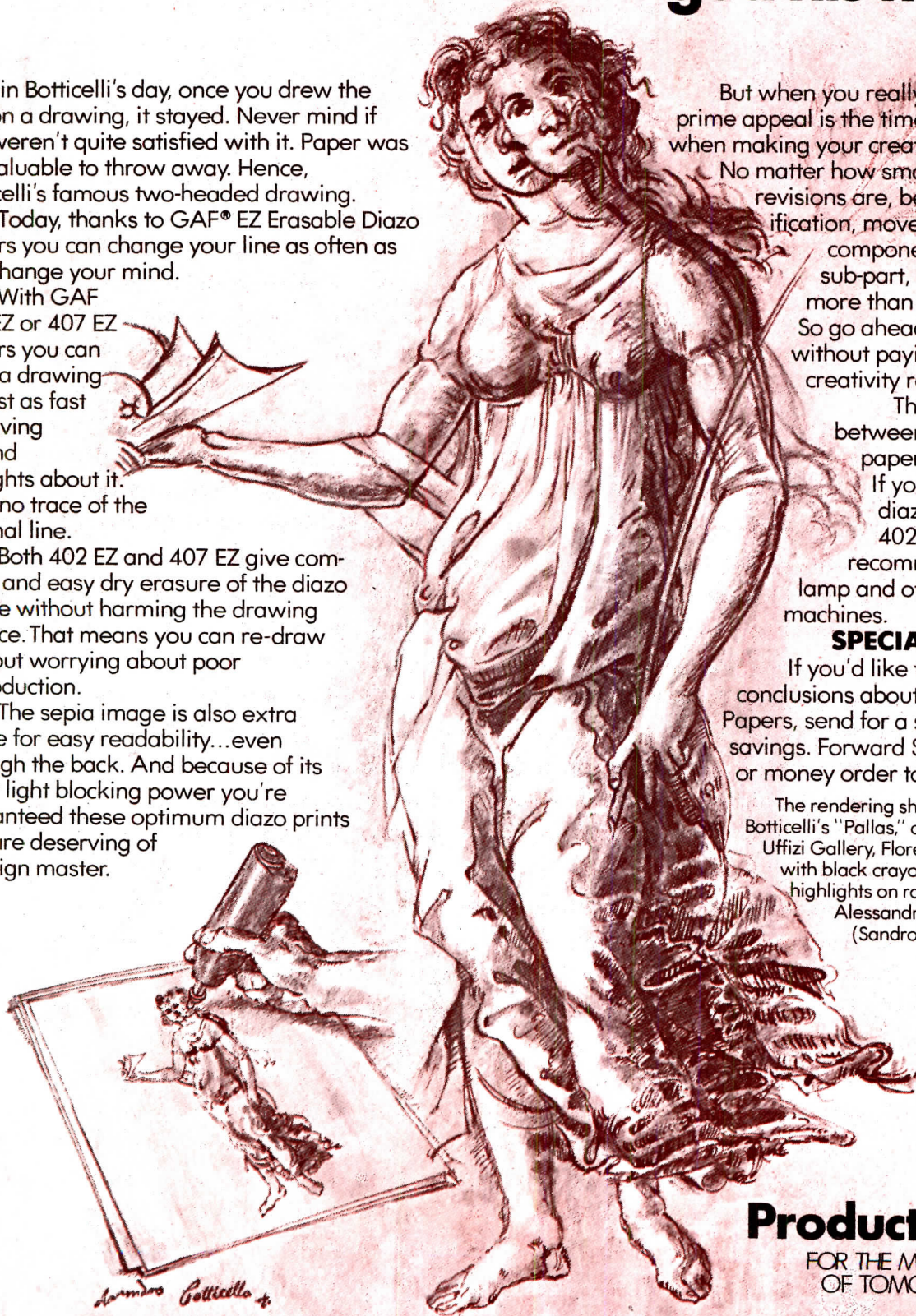
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The rendering shown is a reproduction of Botticelli's "Pallas," circa 1481. Displayed in the Uffizi Gallery, Florence, the sketch is drawn with black crayon and pen using white lead highlights on rose-colored prepared paper.

Alessandro di Mariano Filipepi  
(Sandro Botticelli) 1445-1510.



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**Four Georgia honor awards go to three Atlanta firms**

Three Atlanta firms shared the four Honor Awards made by the Georgia Association, AIA, in its sixth annual Design Awards Program.

Heery & Heery, Architects and Engineers, received an award for the Woodruff Medical Center Administration Building at Emory University, Atlanta (1). Commenting on the medical school building, the jury called it "a symbolic building, with suitable monumental scale," and further commended its sensitive siting, "preserving most of the site for desired green spaces."

The jury also commended the siting of the National Institute Food Distributor Association Headquarters in Marietta, Georgia (2), designed by Rufus R. Hughes/Dale A. Durfee, Architects. Set on the wooded bank of a lake, the cedar-sheathed building

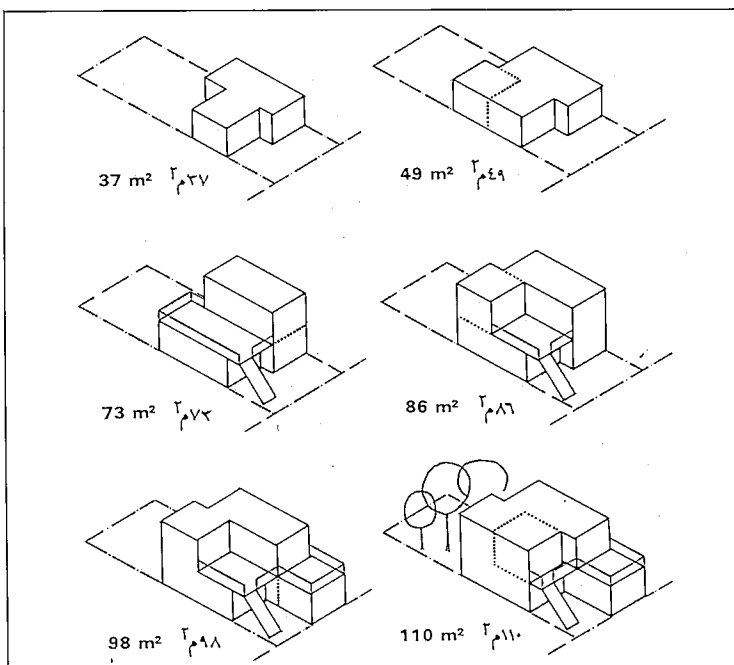
"is handsomely executed," said the jury, "very exciting, dynamic in balance and at peace with the lake."

Thompson, Ventulett, Stainback & Associates, Inc., received two Honor Awards—one for the IBM Corporate Headquarters Building in Atlanta (3), the other for the Honeywell Office Building in Decatur, Georgia (4). Both buildings are situated near water—IBM on the Chattahoochee River, Honeywell on a greenbelt next to Peachtree Creek.

The jury termed the IBM Building, which bridges a lake between two ridges, "a classic example of the richness a simple rectangular form can have when handled and expressed properly . . ." and found the Honeywell building, which wraps around a hill, "a beautifully detailed, crisp, tight-skinned building."

Members of the jury were Pershing Wong, AIA, a senior associate in the firm I.M. Pei & Partners, who served as chairman; Stanley Abercrombie, AIA, editor of *Interiors* magazine; and Roger H. Clark, AIA, associate professor at North Carolina State University.

Mr. Abercrombie, summing up the jurors' observations of the 47 entries in this year's program, said, "The submissions, as a whole, had an air of confidence and competence without excitement or great experimentation. They displayed a reluctance to participate in the eccentric excesses that some designers are now indulging in. They were conservative, and the conservatism was welcome."



**For Sadat City, planners propose "expandable core house"**

The construction of Sadat City, midway between Cairo and Alexandria just outside the Nile delta (see RECORD, September 1978, page 37), is part of President Sadat's effort to draw "a new map of Egypt." Intended to attract population from overcrowded Alexandria and Cairo, Sadat City is one of four new centers now in the early stages of construction—the first new cities to be built in Egypt since the creation of Suez, Imailia and Port Said in the 19th century.

Its planners have organized the city around a hierarchy of "spines" and *midans* (public plazas)—a central spine to accommodate major governmental and business functions; perpendicular district spines, and, perpendicular to those, neighborhood spines. The designers have offset the alignment of the spines to relieve the remorselessness of the grid, to give a sense of arrival at the *midans*, and to open up the possibility of small areal grids on the diagonal.

Neighborhood centers, of which 12 are projected by Year 5, will serve between 4,000 and 6,000 residents.

In the early stages of the city's development, the population is expected to comprise mostly single people, and plans call for 40 per cent of the housing to be apartments. By Year 10, however, the ratio of single people should fall to 20 per cent as increasing numbers of families immigrate, and most of the population, at least after Year 5, will live in single-family attached houses, in contrast to present Egyptian custom. The government expects that land tenure will be a powerful incentive for immigration, and only people holding jobs in Sadat City will be allowed to buy house lots. (The planners also envision an "urban homesteading" program in which low-income homeowners would be given lots on condition they build on them.)

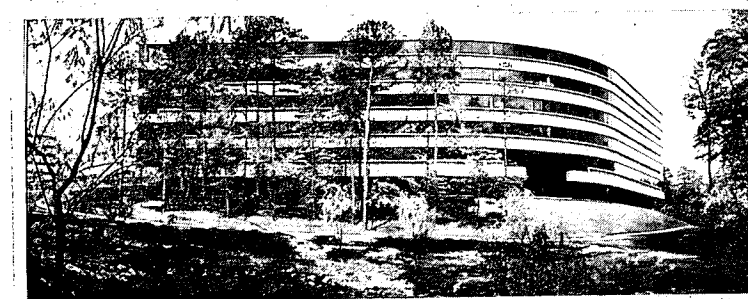
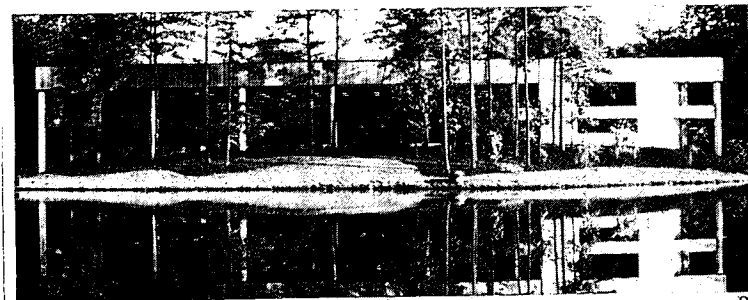
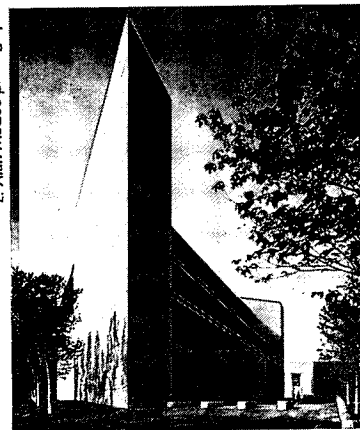
Lots, measuring 7 by 20 meters, could accommodate any size shelter from a tent to an elaborate townhouse. The size was judged compatible with irrigation standards allowing the use of nontoxic wastewater for garden irrigation.

The planners propose an expandable core house, built around a basic utility core. The house would be built out to the sides of the lot, leaving one yard for entertaining, another for domestic function, including food production. The three-room core building would enclose living room, sleeping quarters, kitchen and bathroom, and plumbing would be limited to shower, toilet and kitchen sink. As the family or its income increase, it will be able to make improvements and additions according to necessity or desire.

Plans also call for the construction of apartments over commercial buildings and for some freestanding apartment houses. Luxury apartments and detached villas will be constructed by upper-income residents.

Though the planners have intended to leave as much freedom as possible for design variation, they have proposed some standards. They suggest, for instance, that buildings be constructed close to each other both to provide shade and to maximize the use of irrigation water. Building heights, they suggest, should be limited to five stories to save energy both in construction and in vertical circulation, and to channel cooling breezes without creating wind eddies in the desert environment.

Members of the international Sadat City Planning Group, include Sabbour Associates, David A. Crane and Partners, Marcel Breuer and Associates, Parsons, Brinkerhoff International, Inc., Peat, Marwick, Mitchell & Co. and Warner Burns Toan & Lunde.



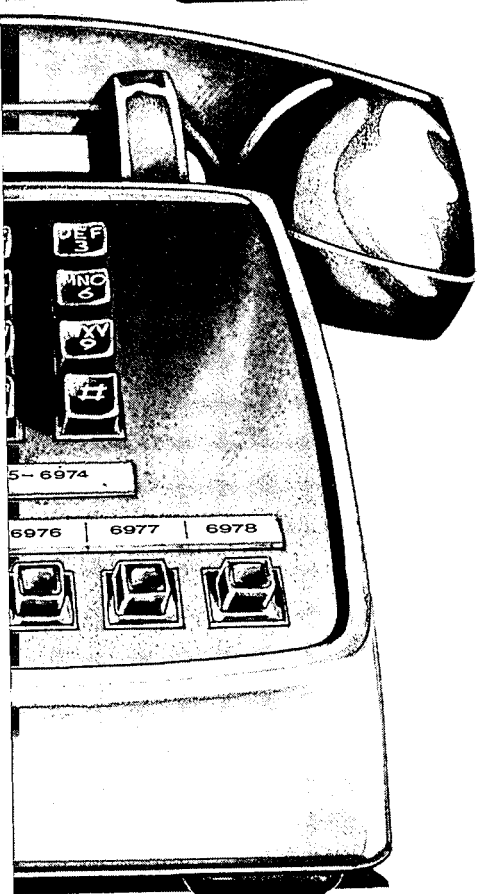
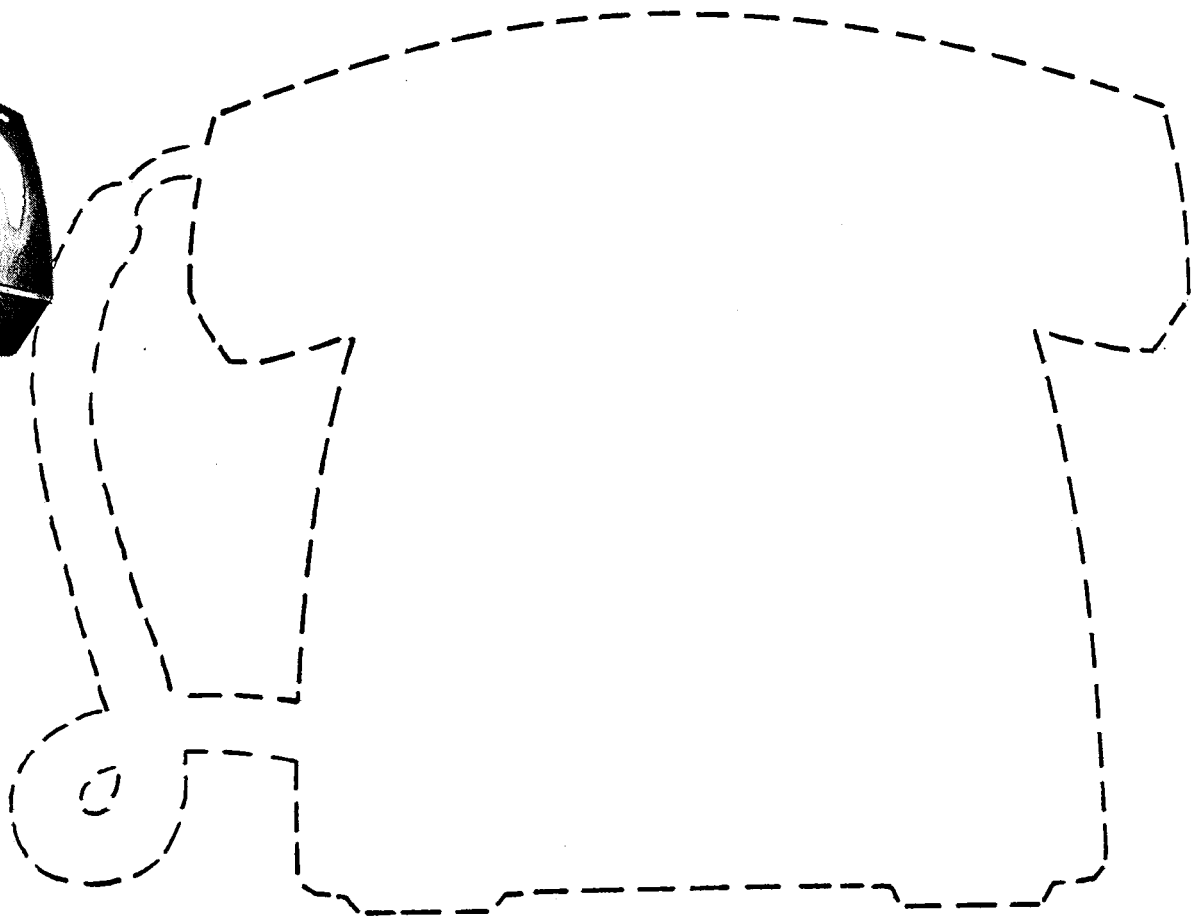
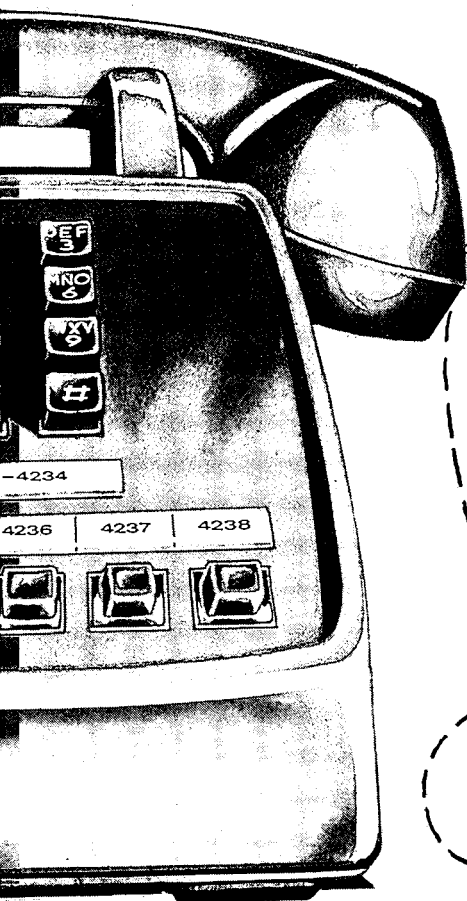


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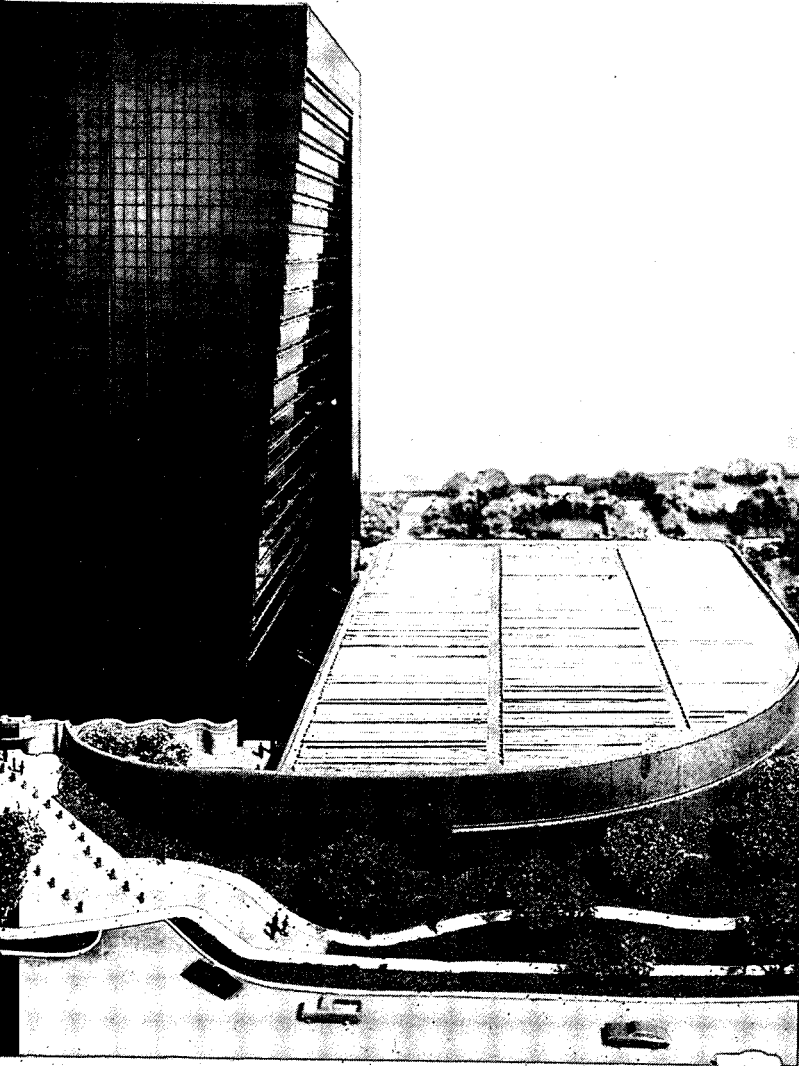
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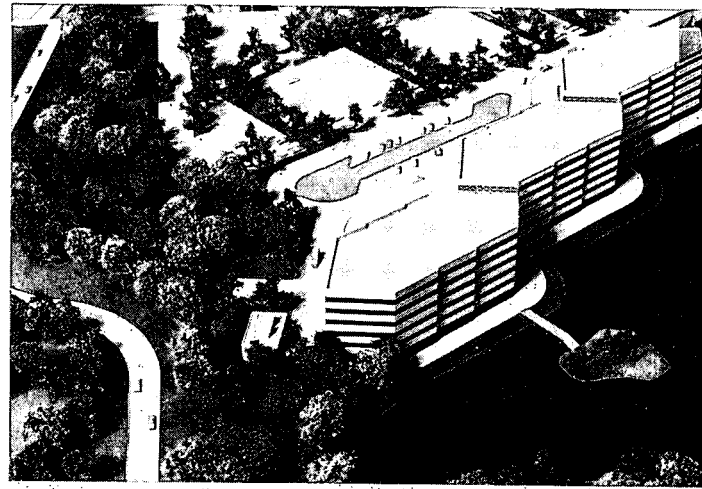
Paul G. Beswick



### Georgia Power builds for energy conservation

The Georgia Power Company, contemplating a new headquarters to consolidate its offices in Atlanta, determined at the outset to construct a model of efficient energy usage in buildings. Heery & Heery, Architects and Engineers, therefore, before undertaking even preliminary design, took a census of Atlanta offices completed since 1950 and analyzed their operation to produce a reasonable energy budget for the power company. As design progressed, aspects of the building and its components were monitored against computer simulations for performance. The resultant design calls for a 24-story building sheathed in bronze-colored reflective glass, only 20 per cent of which is vision panels. Opaque glass panels entirely cover the narrow east and west sides of the building, where additional insulating

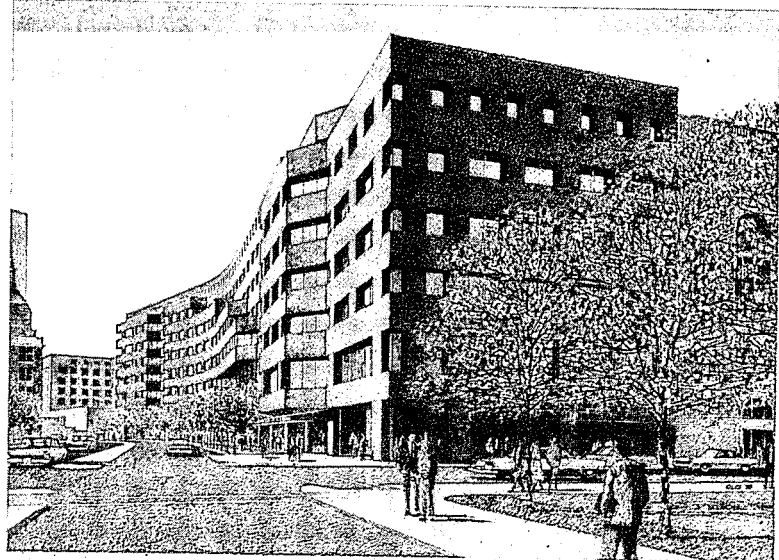
"buffers" are provided by spaces requiring little heating or cooling—the elevator core at one end, stairs and storage at the other. South-facing windows are shielded by overhanging floors (though winter sun can penetrate) and small sunscreens, while the north wall is flush to take advantage of natural light. The architects estimate that the design, assisted by carefully designed mechanical systems, will reduce energy consumption to about 55 per cent that of comparable Atlanta office buildings. They also expect that an array of parabolic solar collectors for heating, cooling and domestic hot water will reduce the need for purchased power by another 10 to 15 per cent. The collectors will be carried on a three-story brick building that will house all 24-hour operations, reducing load in the tower at night.



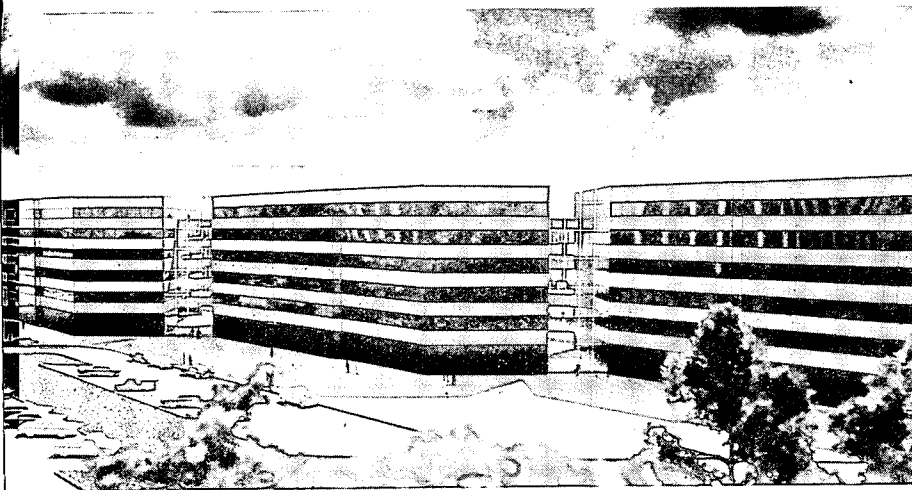
### State building will add to Boston nightlife

The functions of the Massachusetts State Transportation Building, in addition to providing office space for 2,000 state employees, include the resuscitation of Boston's decaying downtown theater district, the generation of new construction in the Park Plaza renewal area, and the preservation of existing buildings of quality. Special legislation allows com-

mercial use of the building's street level, and architects Goody, Clancy & Associates have designed an eight-story atrium as the focus of a commercial mall. They have further integrated the building and its neighborhood by extending a dead-end theater street through the building, creating a walk to Boylston Street and Boston Common.





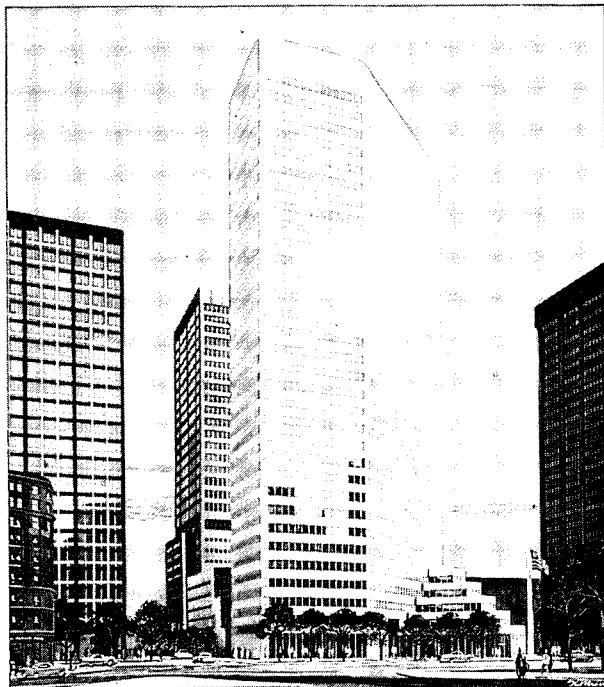
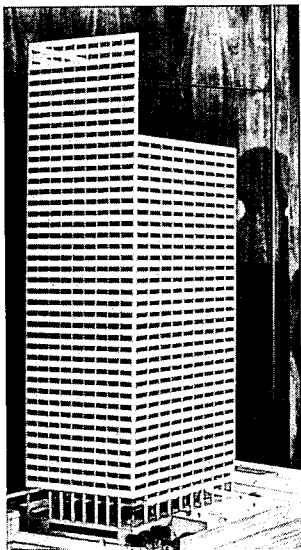


**Its developer moves to The Woodlands, Texas**

The developer of The Woodlands, Texas, Mitchell Energy & Development Corp., plans to move its headquarters from Houston to the new community—about 25 miles north of the city. The company's new office, designed by S.I. Morris Associates, comprises three hexagonal buildings strung along the shore of a man-made lake and intended to serve as a gateway to the town. Six-story glass atriums, connecting the buildings and housing bridges for all floors, will be lighted at night. The curtain wall will be composed of alternating lines of tan concrete spandrels and reflective insulating glass. Construction on two of the buildings will get underway this year, on the third in a year or two. (Mitchell, in addition to The Woodlands, has interests in oil and in other real estate.)

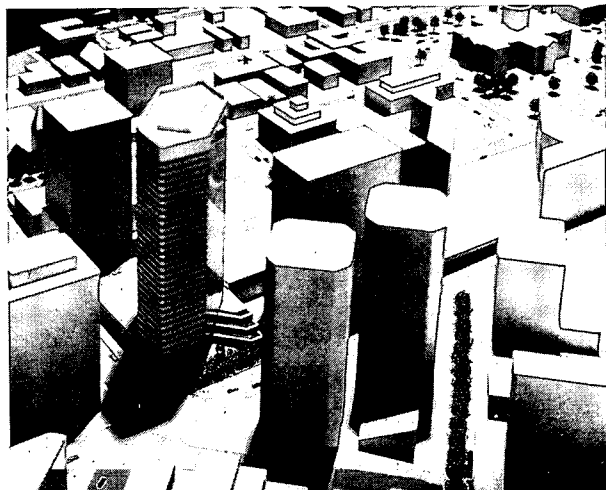
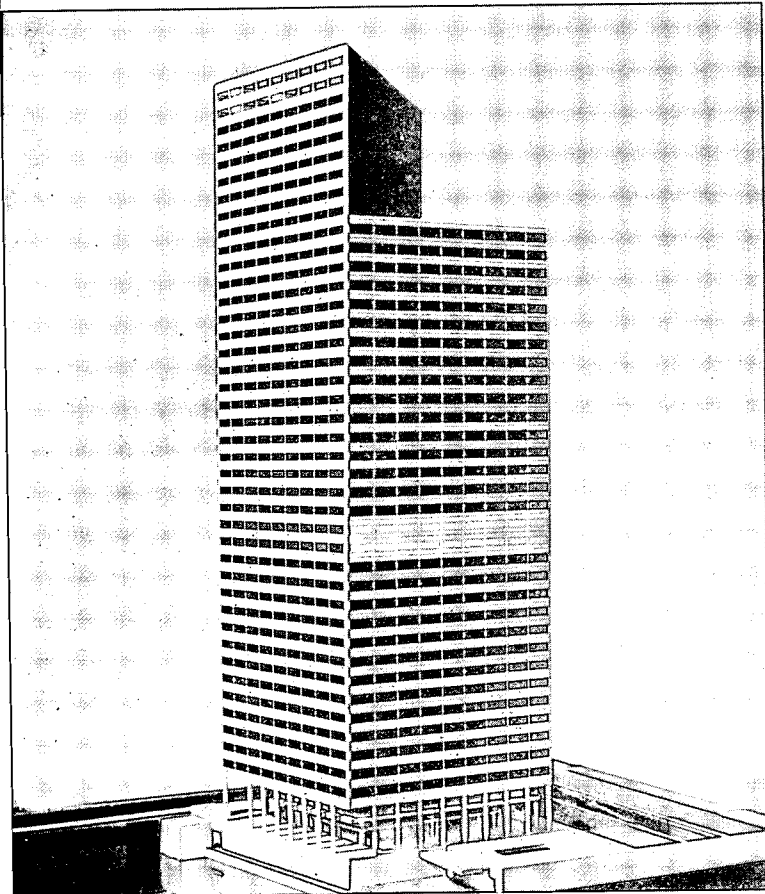
**Trapezoidal tower rises on the banks of the Chicago**

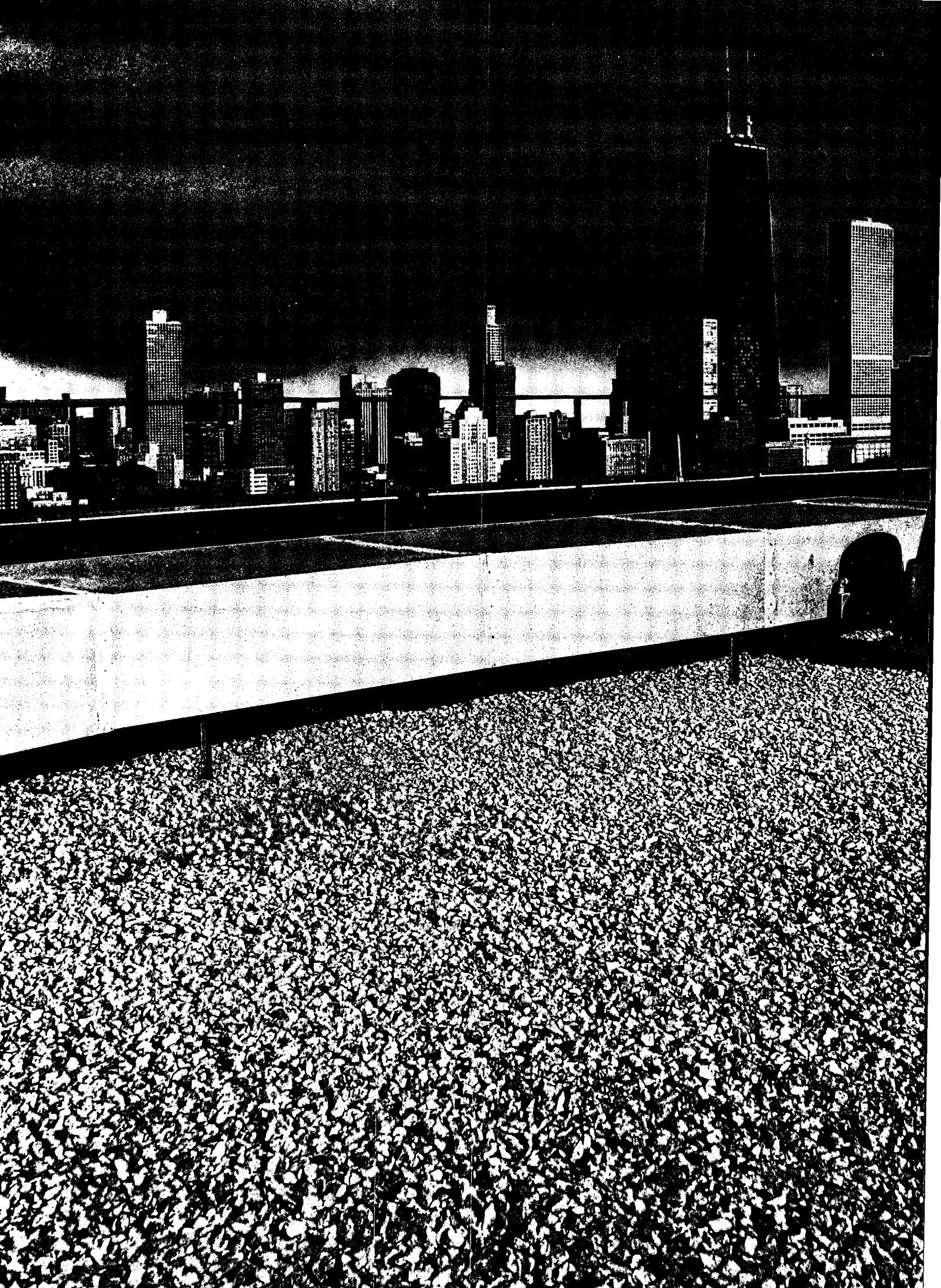
Harry Weese describes his firm's design for a 40-story speculative office building in Chicago as two triangular towers "like Siamese twins," but with one taller than the other. A triangular skylighted atrium will occupy the top three floors of the lower tower, and at street level a 32-ft-high lobby will be overlooked by office mezzanines. The developers, a group of Chicago businessmen in joint venture, hope to build a public park on the site along the Chicago riverfront. The building will be faced with white aluminum panels and bronze-tinted glass. Completion of the building is scheduled for 1980.



**Hexagonal tower resolves conflicting street grids**

At Broadway Street, the rectangular grid of downtown Denver meets a similar but diagonally opposed rectangular grid. A 34-story office building designed by Kohn Pedersen Fox Associates for a site at the junction of these grids takes hexagonal form to bring the street patterns into harmony and to parallel a pair of diamond-shaped towers across the street. The prow of the ship-shaped Columbia Plaza building points down 17th Street, the city's major commercial thoroughfare. The hexagon also furnishes each floor with six corner offices. The building and the attached atrium will be faced with aluminum and reflective glass.







## Money market certificates reverse savings outflow

This past spring, when sharply rising short- and intermediate-term interest rates slowed savings flows to thrift institutions, fears mounted that housing starts would plummet in the second half, removing an important prop of economic growth. In an unusual move, the Federal Reserve Board and the Federal Home Loan Bank Board on June 1 authorized two new savings certificates (one for six months and the other for eight years), specifically to help savings flows to thrift institutions. The resulting success may well point the way to a mortgage market better equipped to compete for savings with other sectors of the economy.

The six-month money market certificate (MMC), issued in minimum denominations of \$10,000, has been the most important because it has no fixed interest ceiling rate. Instead, each week commercial banks and thrift institutions (savings associations and mutual savings banks) fix the rates on new MMCs according to the average discount on six-month Treasury bills, with thrift institutions permitted to pay an additional ¼ per cent above the bill rate.

The effect of MMCs was immediate. In the first weeks of their availability, thrift institutions issued \$10 billion MMCs, approximately 40 per cent of which represented new money. Savings gains, which had shown weakness since October 1977, improved in June and July (see bottom chart). Thrift institution officials attributed the reversal directly to the new MMC's ability to match rates with open market instruments.

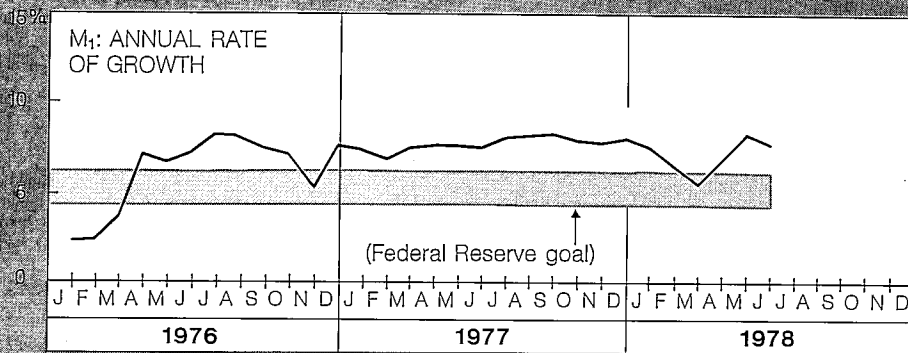
There are also two longer range implications of the authorization of MMCs. First, the Federal government is admitting that besides inter-industry competition for savings, commercial banks and thrift institutions must compete with other demanders, such as businesses and the Federal government. Second, the government is acknowledging that fluctuating interest rates allocate scarce credit more efficiently than administered rate ceilings. In effect, the government is stating that fluctuating rates permit individual institutions to determine whether the return from potential investments warrants the payment of market rates for funds, and that prescribed, inflexible, ceilings deny them that choice.

Thus, MMCs are an important step in modifying the heretofore arbitrary procedures for setting administered interest rate ceilings. Their proliferation will intensify the pressure on the Federal government to allow broad scale introduction of variable rate mortgages. In turn, acceptance of these mortgages will force badly needed reforms in the rate setting procedures under state usury laws, which affect nonresidential finance as well as residential finance. The end result will be a mortgage market better able to compete for savings with other sectors of the economy. That will not eliminate the ups and downs of the construction cycle, but it should help dampen the amplitude of those swings.

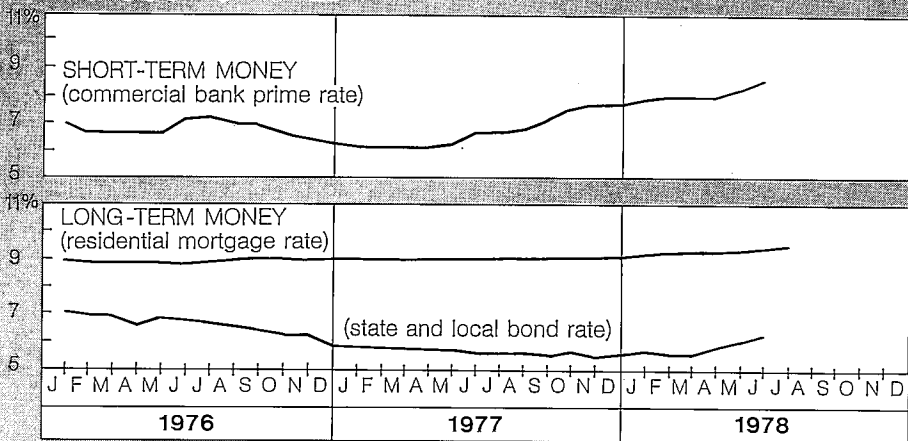
Phillip E. Kidd

Director of Economic Research  
 McGraw-Hill Information Systems Company

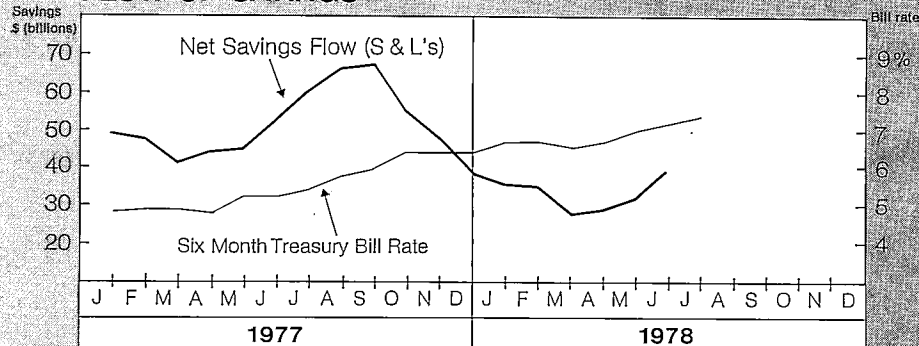
### THE SUPPLY OF CREDIT



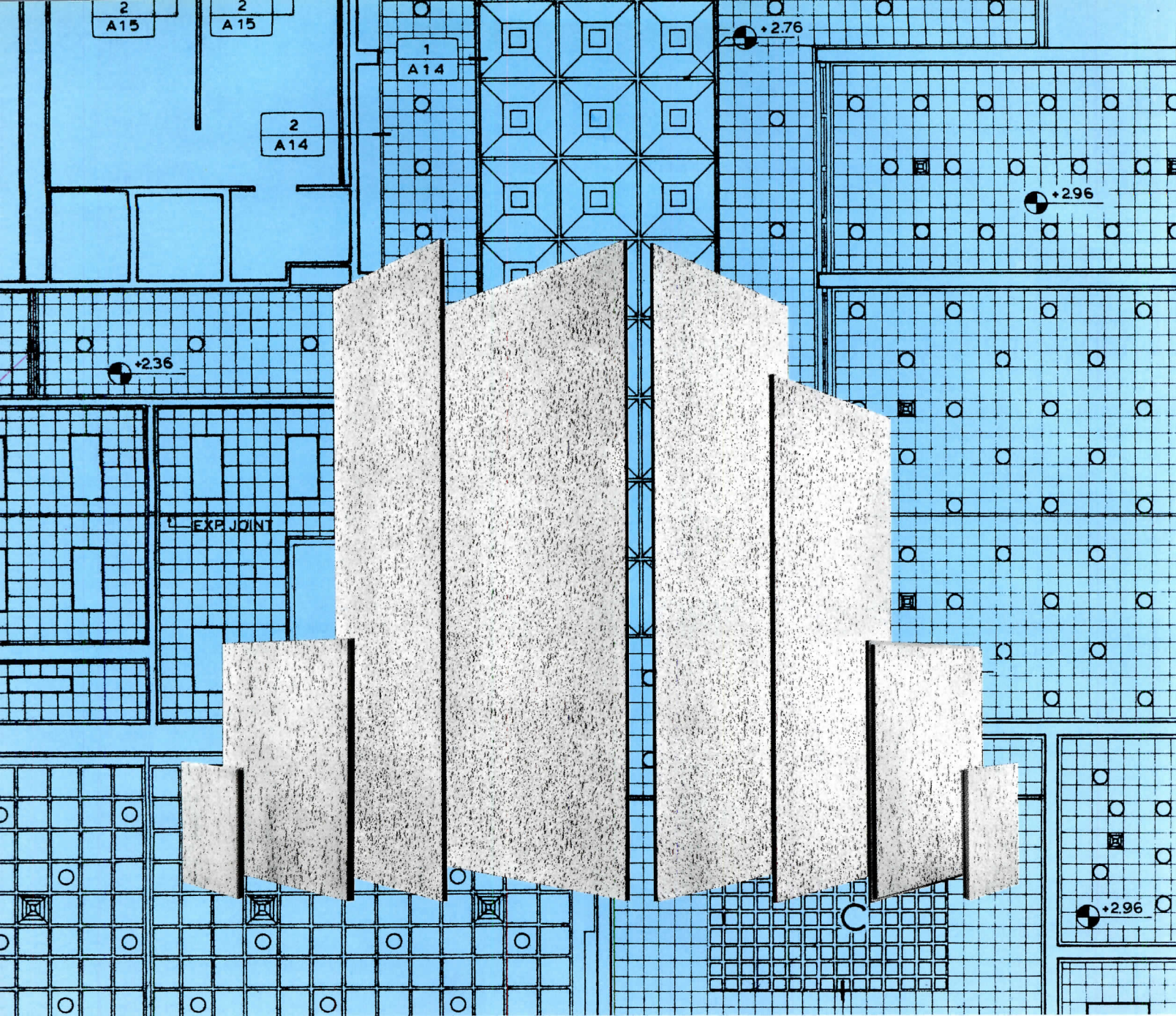
### THE COST OF CREDIT



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## Low-cost computer provides financial, project controls

A turnkey computer system—both hardware and software—that will provide the medium-sized design firm with project and financial control systems is now available for approximately \$50,000, including a training package. According to the suppliers, Tampa-based BST Consultants, Inc., the computer package will also permit the user to run technical programs. The first system is scheduled for installation in January 1979. Considered a low-cost, easily implemented system, this package is recommended for architectural and engineering firms of 40 persons and up. With the system, firms can automate most typical functions, including detailed project reporting; revenue calculation; billing; manpower utilization reports; project budgeting; accounting, and specification text editing.

For the past four years, BST Consultants, Inc. has provided software for project and financial control for large general purpose computers, and computer processing services to the architectural and engineering professions. With the introduction by Data General of relatively inexpensive and facile mini-computers suitable for architectural applications, BST is now marketing the complete system. A \$400/month maintenance contract is offered by Data General.

### Project control reporting system can report revenue in two ways

A number of report output formats can be generated by this computer system, which breaks out information in two ways: project control (PCS), and financial control (FCS). The project control system is a matrix reporting system. In most engineering firms—and some architectural firms—there is a vertical management hierarchy, and a horizontal project management level that cuts across departments or disciplines. This computer system can report information in both vertical and horizontal formats.

Earned revenue can be reported in two ways: 1) by project responsibility, and 2) by department performing the work. It is possible, for instance, to show project performance reports by project manager with a departmental or discipline manager receiving a report on all projects for which there is a budget.

Both project and financial control systems are highly integrated, meaning that data flowing to one system are collected and posted in other systems. For instance, expenses that are charged back to clients can be posted on the books as expenses, but also posted as revenue to be billed to the client. The computer can provide automatic revenue calculation based upon contract type; automated billing and income statements by department, displaying earned revenue for personnel assigned to that department; and direct and indirect expenses in detail.

### Numerous reporting formats can be selected for project control

Following are some of the project reporting formats afforded by this package:

*Project master file:* This report is produced when a project is opened, or a charge is made to an existing project. The report is printed on 8½ by 11 paper. PCS is capable of assigning unique multipliers to four other direct cost (ODC) accounts to accommodate markups. A firm may use either raw cost or effort (raw cost times a project multiplier) for project control purposes. A project may even have budgets for separate tasks and department budgets within tasks.

*Project manager's biweekly report:* This report is available to a project manager on a selected basis, displaying charges to his project. Another format of this report displays weekly, month-to-date and project-to-date charges. The system can also provide weekly reports to a department manager showing the detail of the projects worked on by his employees.

*Project manager's monthly report:* This format shows the "per cent complete" estimate from each department or discipline that has a budget for the project. The system calculates a weighted per cent complete for the project as a whole, and generates turnaround documents to secure the per cent complete estimates. If desired, the system can use "effort to complete" instead.

*Error report:* Organized by department, this report is for entering time card and ODC errors, which are held in suspense until corrected.

*Staff utilization report:* This report shows chargeable and non-chargeable time.

### Financial reporting, and special reports for upper management, can be provided

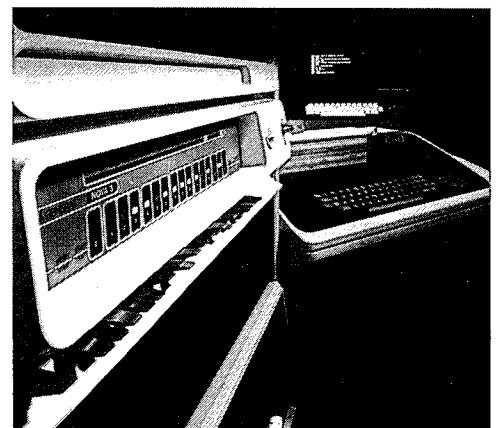
Special upper management reporting formats can be developed to show: project performance within project manager responsibility; exceptions, or displays of any project with a negative variance either for the month or to

date; profitability by type of project and type of client; specific department performance on portions of projects for which there are budgets; revenue generated by employees; backlogs; and history of billings and collections for each project within clients.

The computer can also provide an audit trail for accounting purposes; and a pre-billing analysis permitting project managers to make changes by line item. This latter capability means that invoices can be prepared using several invoice formats. The system provides the ability to flow write-ups or downs made in the billing system back to the project history file.

### Technical programs that can be run include existing IBM 1130

COGO (coordinated geometry) used by surveyors and civil engineers, and stress programs are two typical uses of the technical capability of this computer. Of some importance, is the system's capacity to run the many non-proprietary IBM 1130 programs that engineering firms have used for years, thus saving the costs of duplicating valuable programs on this new system.



Shown is the processor, terminal printer and CRT comprising the "NOVA 3" computer manufactured by Data General and used in the BST system. This is a 16-bit computer that can be used for the development and execution of programs written in extended BASIC, business BASIC, FORTRAN IV, FORTRAN 5, Assembler or ALGOL. Multiple processor configurations are available for high uptime applications.





# The look you pick

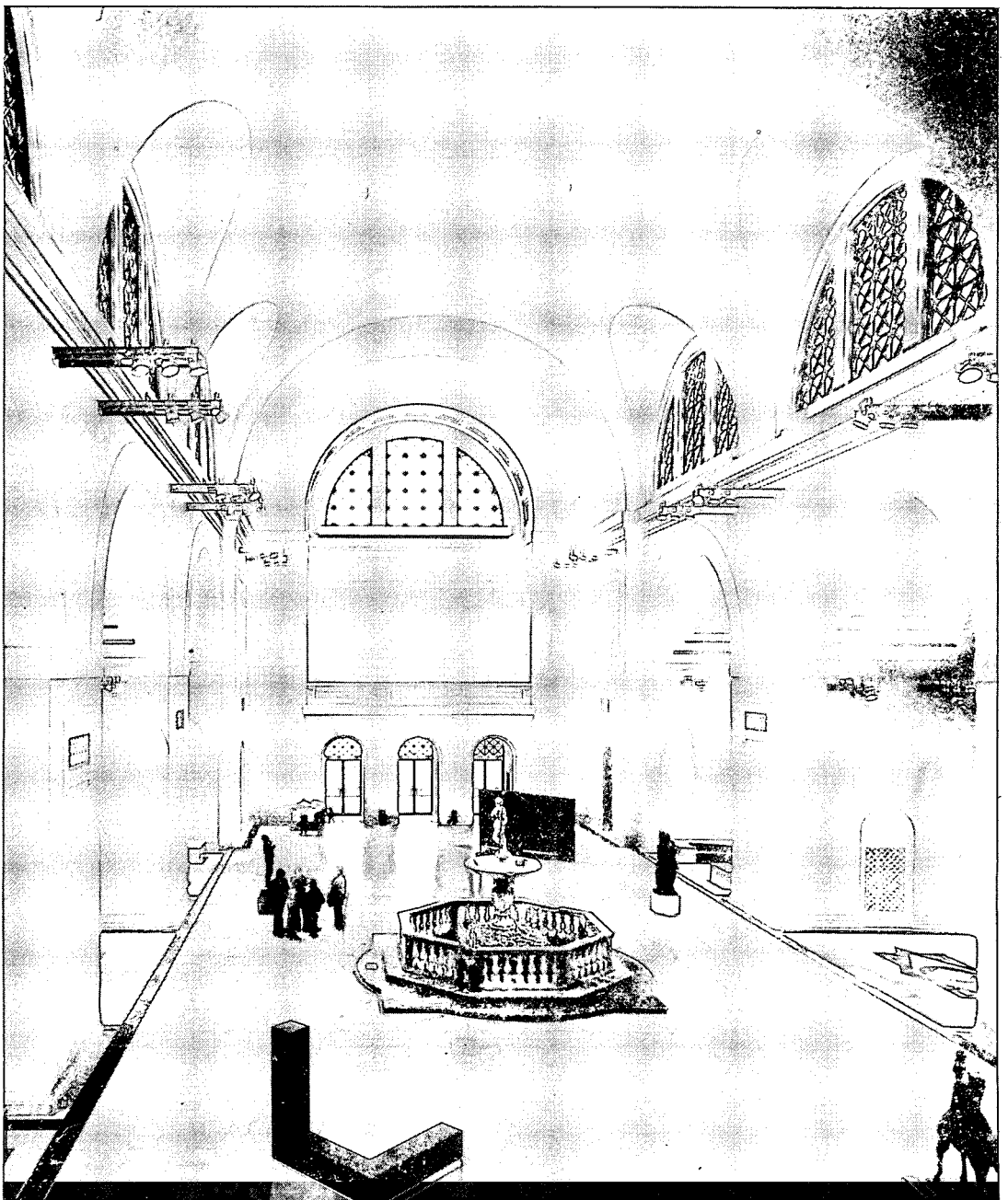
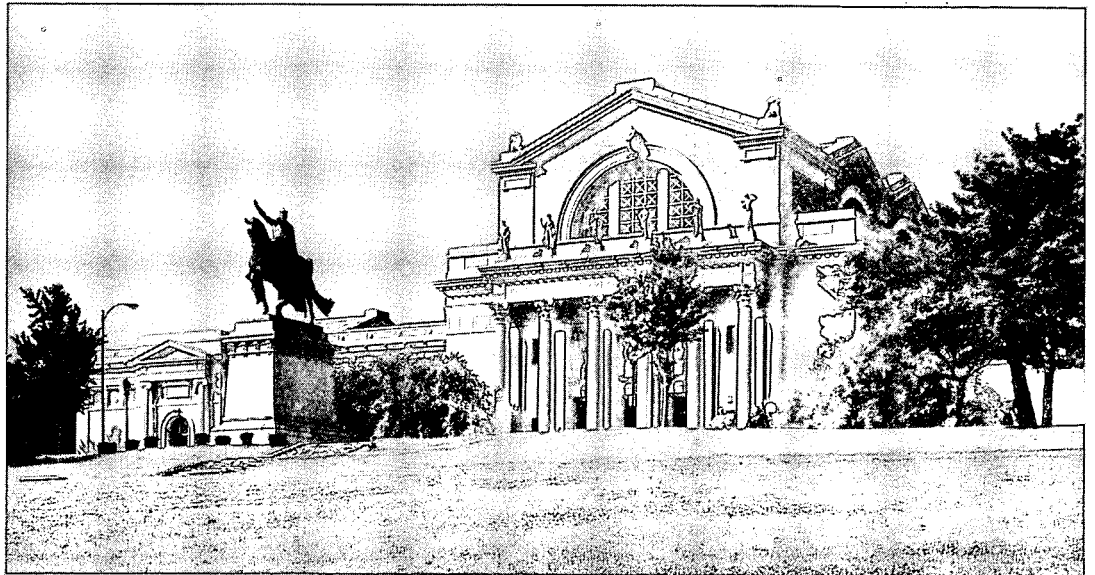




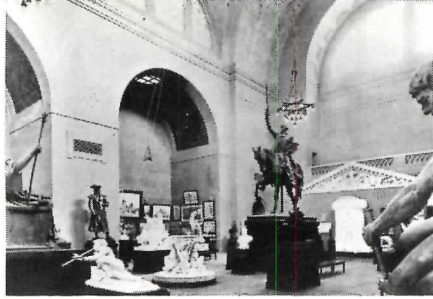
# HARDY HOLZMAN PFEIFFER RE-ESTABLISH THE FORMAL THEMES OF A GREAT BEAUX ARTS BUILDING

...ss Gilbert was the original architect of the St. Louis Art Museum completed in 1904. Like other American Beaux Arts architects he looked to ancient Rome in his search for timeless architectural values which he hoped to bring to his work. For his vast St. Louis project, designed as part of the St. Louis Exposition, he decided that the Thermae of Trajan had a spatial order which would be the best. (A few years later McKim, Mead and White were to turn to the same source for Pennsylvania Station). He fashioned the combined concourse and sculpture hall of the museum (right and overleaf) after the tepidarium. As in the Roman bath, the hall has three great bays with arched recesses at opposite ends of each bay. The whole is roofed by a barrel vault interrupted by lunettes. At each end of the main axis are three arched doorways spanned by a balcony and crowned by a lunette. All of these elements, thanks to the perceptions and craft of Hugh Hardy, Malcolm Holzman and Norman Pfeiffer have become readable once more and a magnificent room has emerged. The architects, who do what they do "interpretive restoration," have also re-discovered and successfully re-created the formal dynamics of other spaces within the museum. They clearly love the building. In Hugh Hardy's words: "This major work by a once-forgotten architect gives delight in its audacity and solidity, its remembrance of the past and its commitment to the future."  
—Mildred F. Schmertz

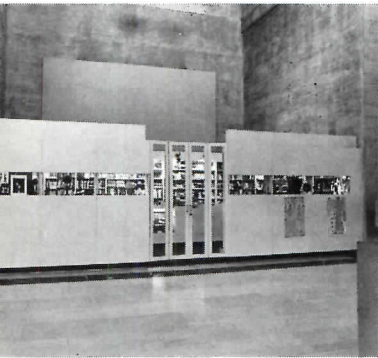
© Cervin Robinson







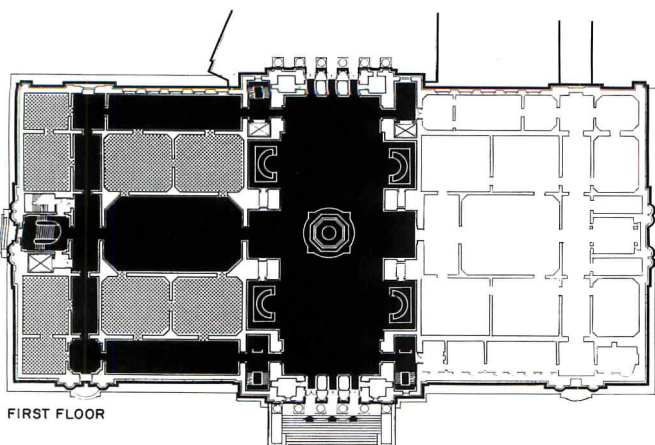
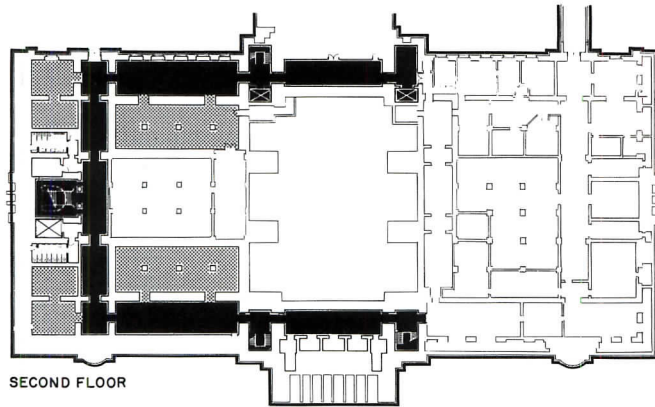
## The Sculpture Hall has been masterfully



Through the 74-year life of the museum, Cass Gilbert's design was little understood, and many depredations were made upon it (top and left). HHP began by removing these piecemeal accretions, thus re-stating Gilbert's axial and spatial themes. The main axis (overleaf) and the minor axis (opposite page) were clarified and enhanced. The museum insisted that the fountain at the crossing of the two axes remain and the architects agreed. Though not part of Cass Gilbert's original design, it helps turn the concourse from a channel to a room. By making the most of the fountain, HHP had all of architectural and town planning wisdom behind them, for every intersection of paths of movement is transformed by a monument or fountain as a place to stop and be.

Further, HHP wished to celebrate Gilbert's arches and vaults. They made exhaustive lighting studies with the firm of Jules Fisher & Paul Marantz, Inc. to find the best way to light the walls, floor, and ceiling.

The architects investigated Gilbert's ornament and color palettes in buildings in which they were better preserved than in the art museum (the St. Louis Public library for an example). They found that he loved bright colors and rich decorative devices. The Sculpture Hall once had a highly patterned tile ceiling. Despite what they learned, HHP elected to use color and ornament sparingly in the belief that color and decoration of extreme subtlety was better suited to today's esthetic standards. The over-all effect has the delicacy in color and light of a fine drawing in the Beaux Arts manner.





restored—its forms purified through clarification, simplification and inspired lighting







The halls and passages have become im



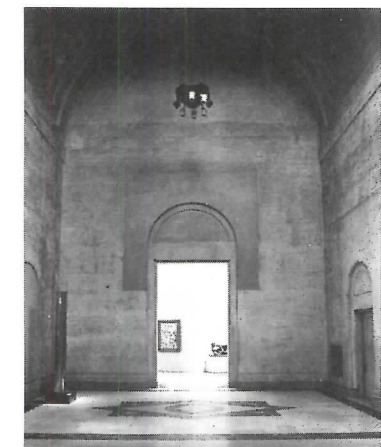
Cass Gilbert's axes form a lattice of movement which surrounds and contains the exhibition spaces. Down through the years, no one seems to have understood the architectural significance of this lattice or how it worked. Museum curators who should have known better cluttered these passages, blocked them off, sealed their windows and created fake period environments for their genuine art—making it difficult to distinguish between the two (top and left).

In order to re-establish the lattice, HHP had to cut new openings in certain walls and restore existing doorways and frames. All the openings and walls in the transformed main floor areas have new moldings copied from Gilbert's own profiles. The architects elected to restore this much of the ornament to introduce elements of appropriate scale within the huge volumes of the rooms. Doorways less grand than these would have looked hopelessly forlorn.

Where necessary the elegant doorways contain smoke alarm-activated, roll-down fire doors. These doors are carefully integrated into the delicately molded frames. Their presence is revealed by a nearly concealed one inch slot in the head and jambs.

The vista at right is a view from the Sculpture Hall, through a principal gallery to the hall containing the main staircase beyond. The gallery for smaller sculpture (below left) is parallel to the main facade.

The gallery (below right) has casework and moldings by Gilbert and murals by Elmer Garnsey. This square, domed room is lit by an oculus (not shown).

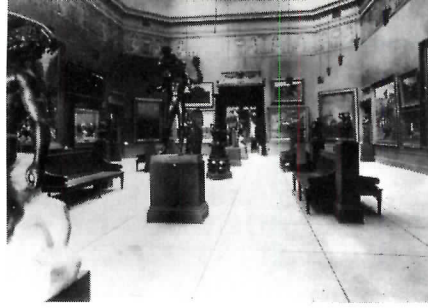




important once again—offering vistas to the outdoors or hints of masterworks ahead







The exhibition galleries can now be dis

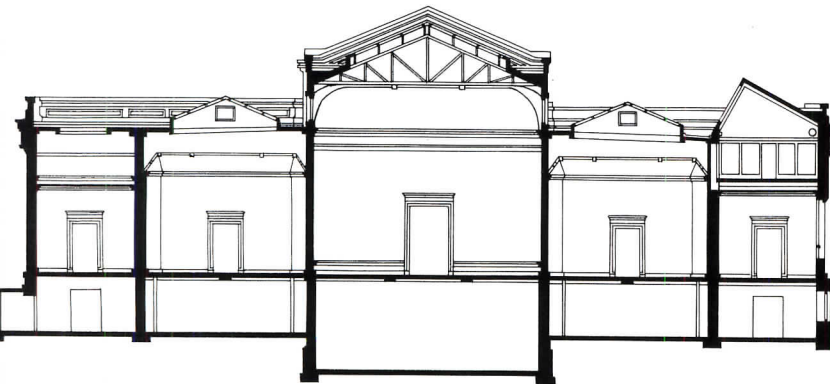
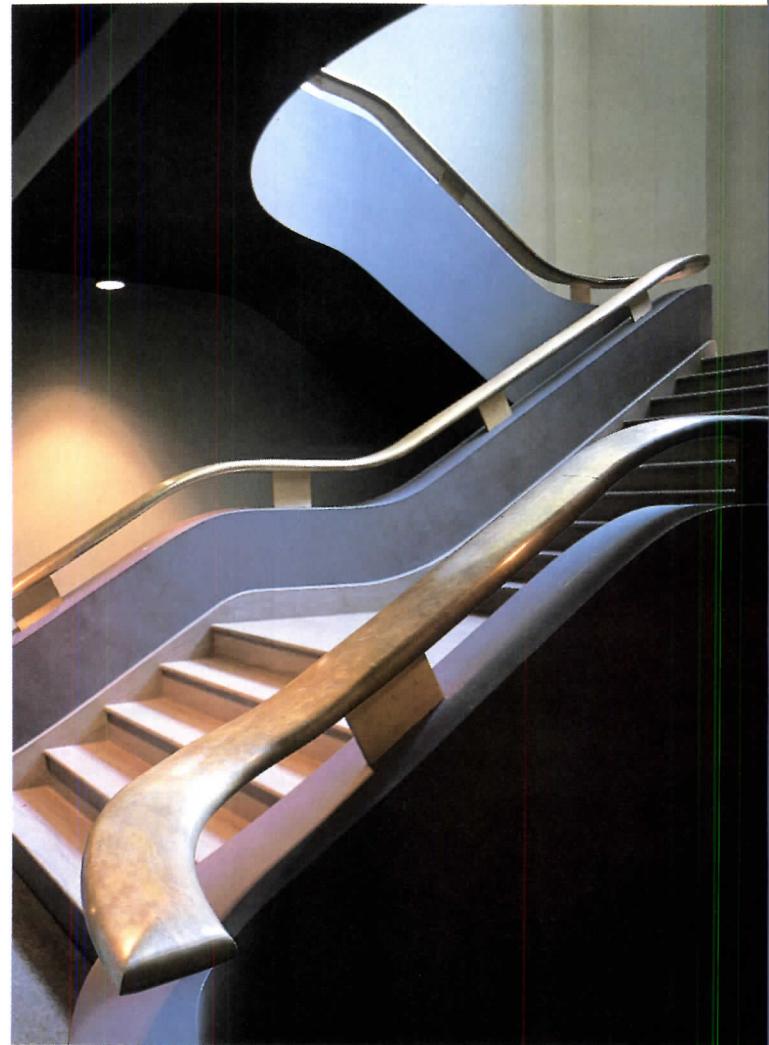


Cass Gilbert's skylights (section below) were re-constructed, re-glazed and augmented by incandescent light. The quantity of daylight was greatly reduced and the combined light better directed to the lower or viewing portions of the walls. A detailed account of the lighting solution is given on page 96. The museum was not originally designed for electric light, but an early incandescent system (above) was temporarily put in place for the 1904 St. Louis Exposition.

The museum required a new grand staircase (right) which HHP executed in an altogether contemporary manner. Nonetheless, by its sinuous curve, and dark rich colors it makes a gesture toward Gilbert's classicism.

A gallery on the second floor, one of two skylit studios which Gilbert had designed as places to give art classes, was used for storage (left) until this restoration. It is now the major new gallery for the display of prints, drawings and photographs (below). Its skylight has been reglazed with two layers of solar glass and fitted with louver blinds.

All wall surfaces throughout the renovation upon which paintings are hung have been resurfaced with 32-ply birch plywood, a surface easily repaired after the removal of paintings.

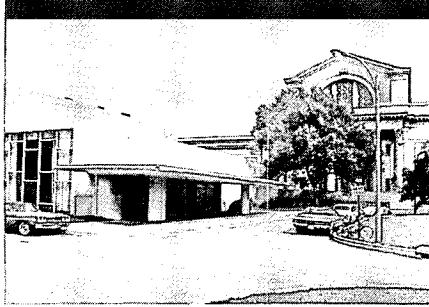




ned as great spaces—given scale by the correct use of ornament and light







## The southwest facade—spoiled by unfo

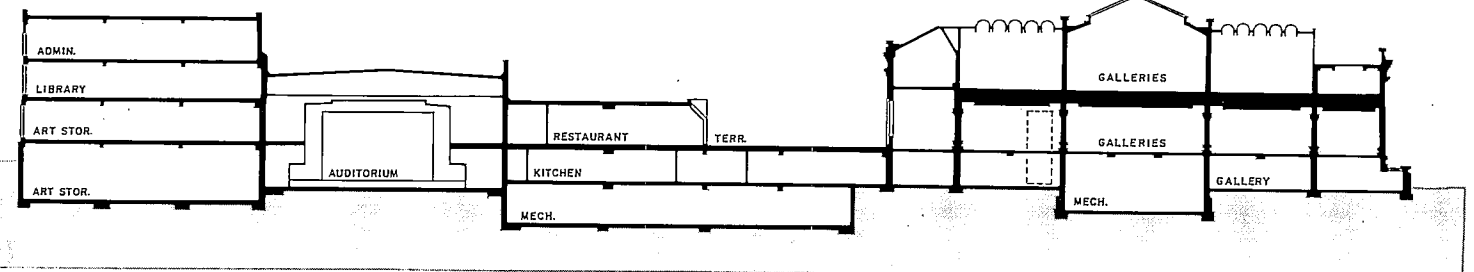
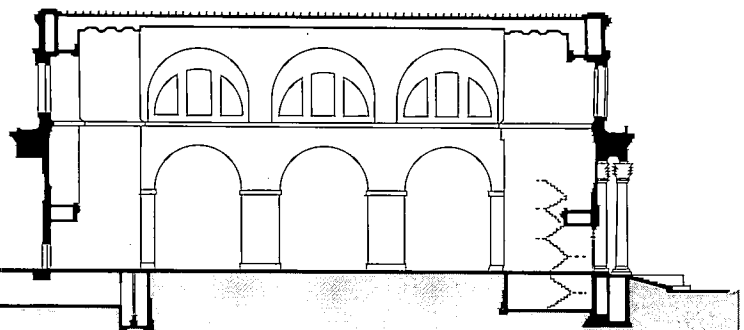
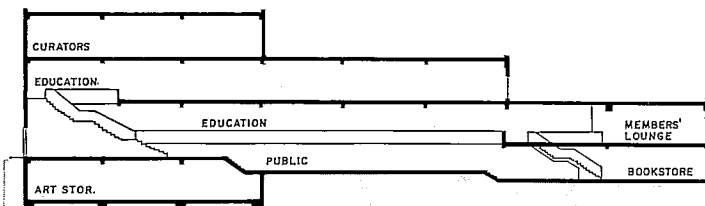
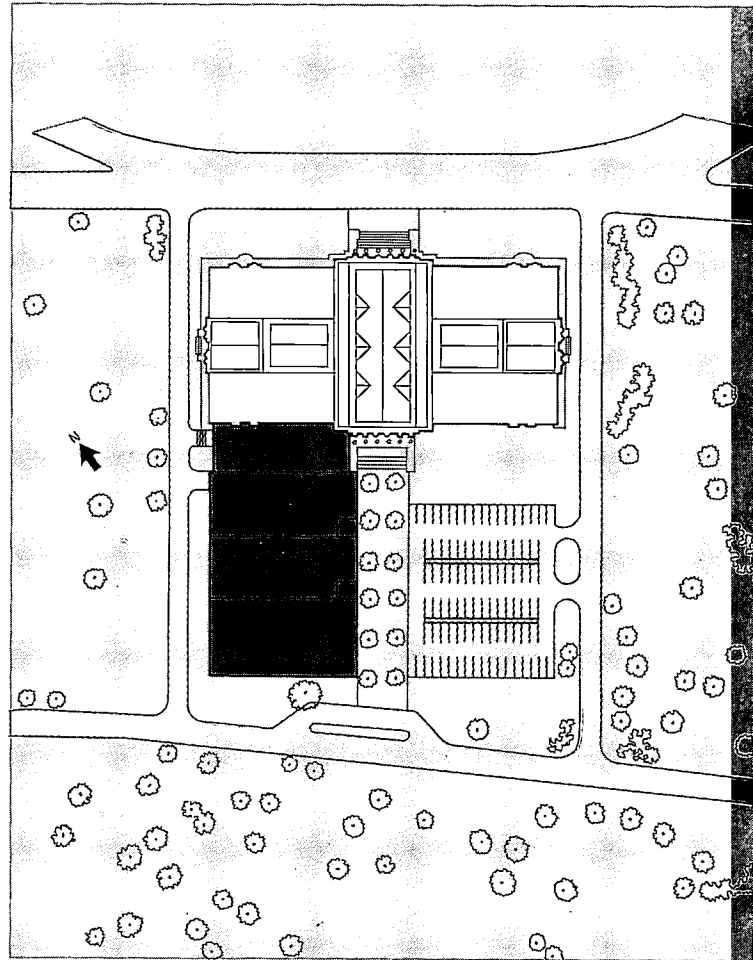


Cass Gilbert's southwest facade was partially concealed by an auditorium and service facilities added in the fifties which ignored the museum's major axis and violated its symmetry (top and left). Hardy Holzman Pfeiffer were asked to devise a master plan for the development of further facilities for administrative, curatorial and library functions on the southwest. They took this as an opportunity to improve the connections and scale relationships between the original building and the additions.

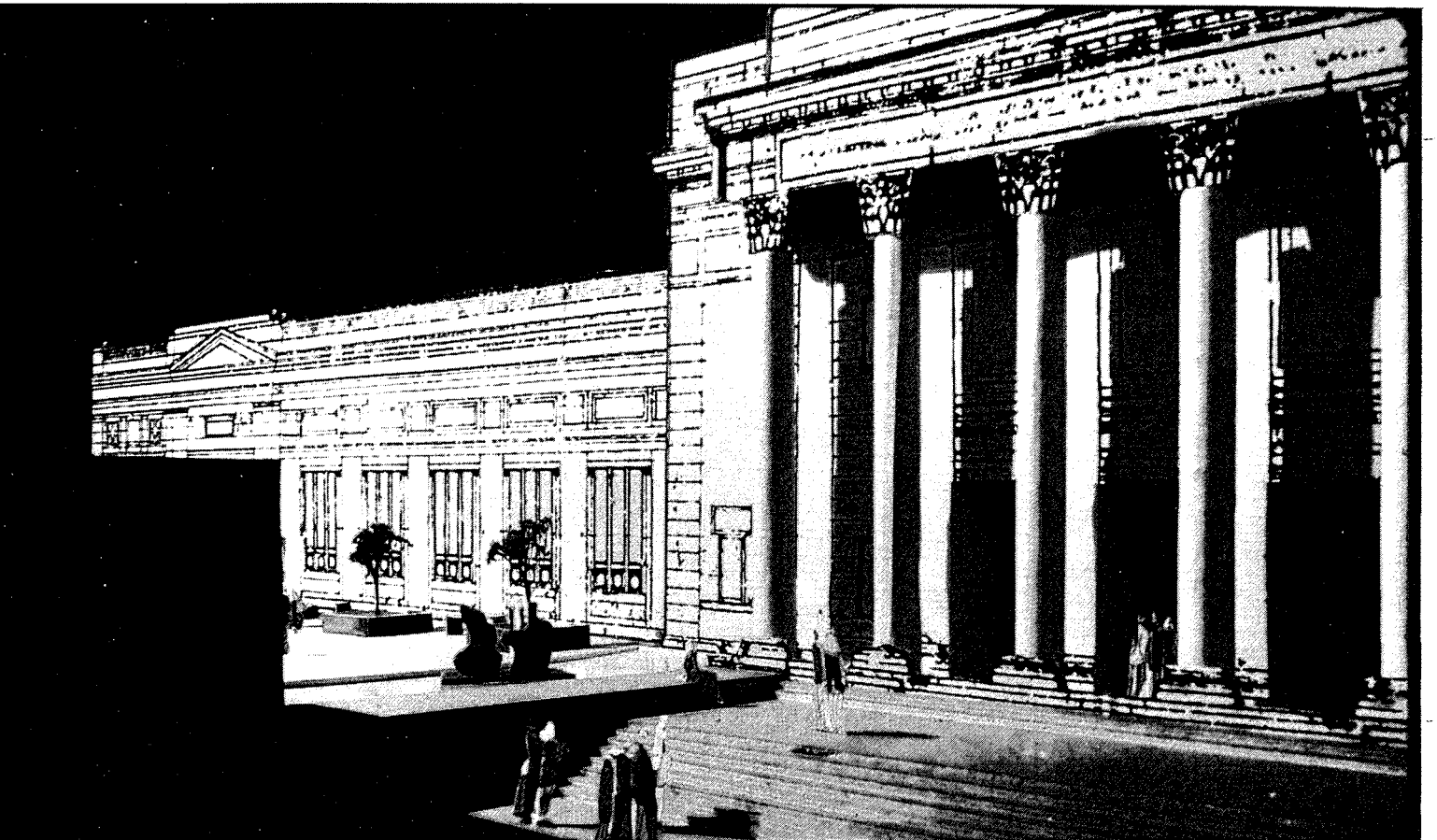
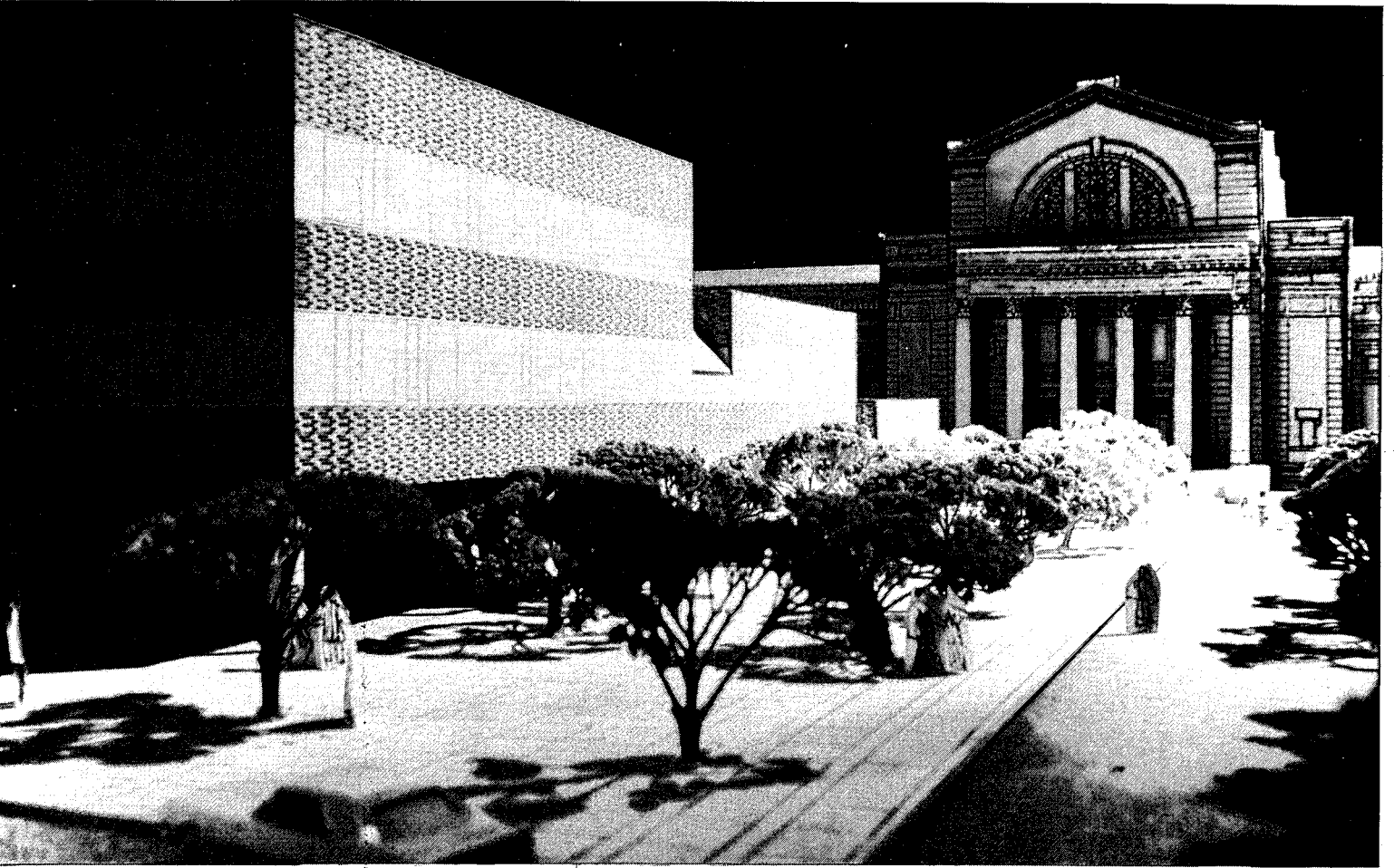
HHP's proposal (which is being carried out by Kivett and Myers) called for the three unit, stepped level structure shown in the site plan and model photos. The auditorium will be concealed within the skin of the middle unit. The architects believe that the new spaces need not have the monumental character of Cass Gilbert's work. Their proposal is being carried out as a brick masonry envelope which encloses an open simple interior with windows overlooking the park.

When work is completed, the Cass Gilbert building will once more be freestanding. Instead of the awkward connection which disfigured the facade, a new sculpture terrace will join the new and existing construction. Serving also as an extension of a restaurant, this terrace will provide a direct connection among all the areas of the museum at the lower level of the Gilbert building.

The main axis will be re-established by the restoration of the original south stairs and the provision of an avenue of trees accessible from the parking area.

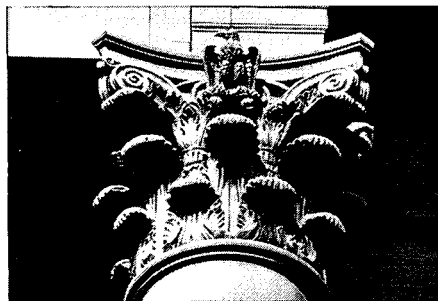
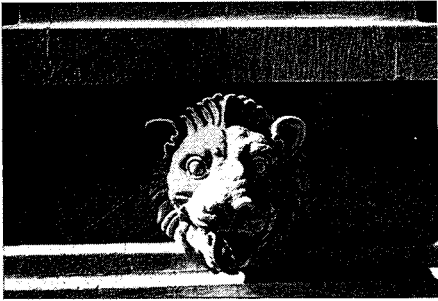


mate additions—is being corrected





## Hardy Holzman Pfeiffer were able to reveal Gilbert's mastery of Beaux Arts



There are not many architects still alive who received Beaux Arts training before 1930—the date which marks the ending of the influence of the Ecole des Beaux Arts in the United States. In the last four decades, those among them who believed that the birth of the Modern Movement heralded the death of true Architecture were little heeded when they spoke with admiration of the work of Henry Hornbostel, Stanford White, Paul Cret, John Russell Pope, Ralph Adams Cram, Bertram Goodhue, Cass Gilbert and the rest.

The few older architects who are still around to enjoy watching the younger practitioners discover Goodhue and Gilbert must also envy them their opportunities to restore fine eclectic buildings—chances these same young architects are eagerly seizing.

During the thirties, forties, fifties and sixties in the United States most alterations or additions to beautiful old buildings were depredations performed by architects for whom the eclectic work had little meaning or value. Today, more of the public, more owners, and more architects value our heritage of buildings which predate the Modern Movement and contemporary architectural styles. And more architects—through their historical and theoretical studies which are today's substitutes for Beaux Arts training—have begun to understand the formal dynamics of the historical styles.

This is a hopeful sign. Much critical attention is now being paid to the influences of a given architect's historical and theoretical understanding upon his original creative work. Just as important, however, is the influence of this understanding upon the buildings and urban environments which he is now being invited to repair or transform.

Today, because of energy concerns, the cost of new buildings, and the heightened awareness of the value of our architectural heritage, many architects get more invitations to fix an old building than to build a new one. A grand old state capitol, court house, post office, library or museum that needs a new roof usually also needs air conditioning, new plumbing and wiring and improved lighting.

Often this is all the client wants, but if the building is of architectural quality, the good architect tries to do more. He raises the level of dialogue with his client by helping him discover the building's timeless formal values, persuading him to restore these too. Another dialogue must then begin between the architect who will restore and the predecessor who designed a building with the strength to survive its own time.

Hugh Hardy, the partner-in-charge of the \$6.6 million St. Louis restoration, immersed himself in the life and work of Cass Gilbert. Though he was one of America's most

famous Beaux Arts architects, Gilbert never studied at the Ecole des Beaux Arts. He died in 1934 at the age of seventy-four. He was then what we call today an establishment figure, helping found the Architectural League in 1881, serving as its president, and becoming the president of the AIA. For good measure he served as president of the National Academy of Design and as a trustee of the Metropolitan Museum of Art.

His fame barely outlasted his life, for as a leading eclectic he was to be ignored by the polemicists of the Modern Movement who began to be heard in the decade of his death, and this eclipse of his reputation demonstrates the exclusionary power of polemic. Gilbert had, after all, designed the Woolworth Building (once the world's tallest) and the United States Custom House in New York, the United States Supreme Court Building in Washington, D.C., the St. Louis Public Library, in 1933 an arts building for Oberlin College (made famous once more because of a highly controversial addition by Robert Venturi), and many other commercial, institutional and governmental buildings.

Hugh Hardy believes that many of these projects established an eminent style which was widely copied. A re-assessment of Gilbert's work would help illuminate a period that the historians have neglected for too long. HHP's brilliant restoration of the St. Louis Art Museum should instigate the process.

The museum began as an integral part of a much grander scheme which Gilbert composed for the 1904 Exposition. It became a freestanding permanent masonry building displaying U.S. painting and plaster casts of sculpture as part of the Fair's complex devoted to the fine arts. During the Fair it was surrounded by temporary stucco pavilions displaying the art of Great Britain, Germany, Holland, Belgium, Italy and France. These temporary pavilions were later removed.

Although, as already noted, the art museum derives the form of its main hall from the Thermae of Caracalla, its galleries are not spanned by Roman masonry vaults. Gilbert made the most of the techniques available to him at the time and roofed his vast skylit galleries with steel trusses, using industrial building techniques.

Many neo-classic museums built around the turn of the century are composed in a manner similar to St. Louis with lower exhibition halls symmetrically arranged on opposite sides of a high vaulted central hall. Hardy points out, however, that "although Gilbert's spatial arrangement cannot be called unique, it is remarkably subtle in the way a variety of skylit volumes manipulates natural light. It is these contrasts between a central 38-foot-tall

## Composition because they understand it themselves

gallery and others of 24 feet and 18 feet—some on the north, some on the south, some with clerestories, some with windows; each offering a different intensity and color of light—that distinguish his design. And it is from both the reinforcement of the axial plan and the celebration of natural light that our present restoration takes its premise.”

Hardy Holzman Pfeiffer’s success in St. Louis was rooted as much in the firm’s technological sophistication as in its grasp of the subtleties of Gilbert’s design. Their first task was to respond to the museum’s need for a better physical environment for its art.

By 1973, soon after the restoration and new construction program began, the building’s original skylights, then 69 years old, were badly corroded. Rain leaked through them and, as already noted, they admitted far too much daylight for proper conservation of the art. The artificial lighting was entirely inadequate, wall and ceiling surfaces were in bad repair, and the floor surfaces were an ill-assorted collection of materials—marble, soapstone, tile, and wood, which failed to reinforce the geometric order of the Beaux Arts plan. Here and there were doorways and furnishings of today’s dimensions, looking dinky and forlorn in the vast rooms. So many ill-proportioned spaces had been installed within Gilbert’s halls and rooms that it required today’s equivalent of Beaux Arts training to sense the presence of a once vigorously legible order.

As we now see, it was all there: rectangles within rectangles forming the well-articulated network of halls, vestibules and stairs connecting rooms related to each other within a carefully graded hierarchy of volumes. HHP’s restoration allows the public once again to be accommodated grandly, invited to make its way on foot up the main staircase and into the Sculpture Hall and on into spaces designed to be experienced as walked through—fine passages forming a succession of axes, cross axes and cross-cross axes.

Although the architects were invited to restore only the galleries to the southeast of the Sculpture Hall, there they have made a consequential gesture toward re-establishing the building’s symmetry.

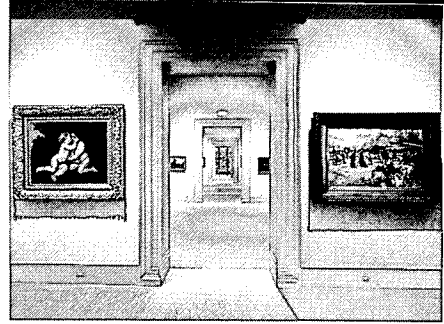
The axes once more accommodate sight as well as movement. On the principal facade a niche was transformed into a window to provide a view down a secondary axis of the building to the surrounding park (photos right). By this adjustment HHP improved Gilbert’s building by honoring in one more way the Beaux Arts principle that the composition of the interior be made manifest on the exterior.

For this project, appropriately, the architects did everything possible to conceal the

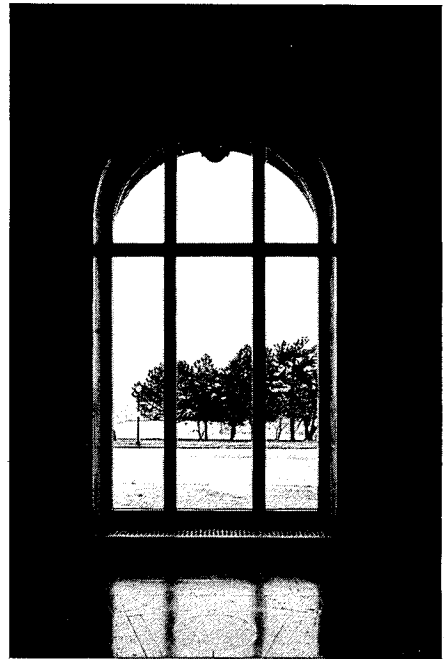
sophisticated new climate control and security systems required to meet the standards of environmental quality for today’s museums. All such equipment has been located within the original walls and fan rooms and in a new partially buried concrete structure.

Connoisseurs of HHP’s exposed ductwork painted lavender or green must look hard to find a single specimen in the St. Louis restoration. There is an exposed duct in the print gallery—a personal signature. It is lavender and the only one.—M.F.S.

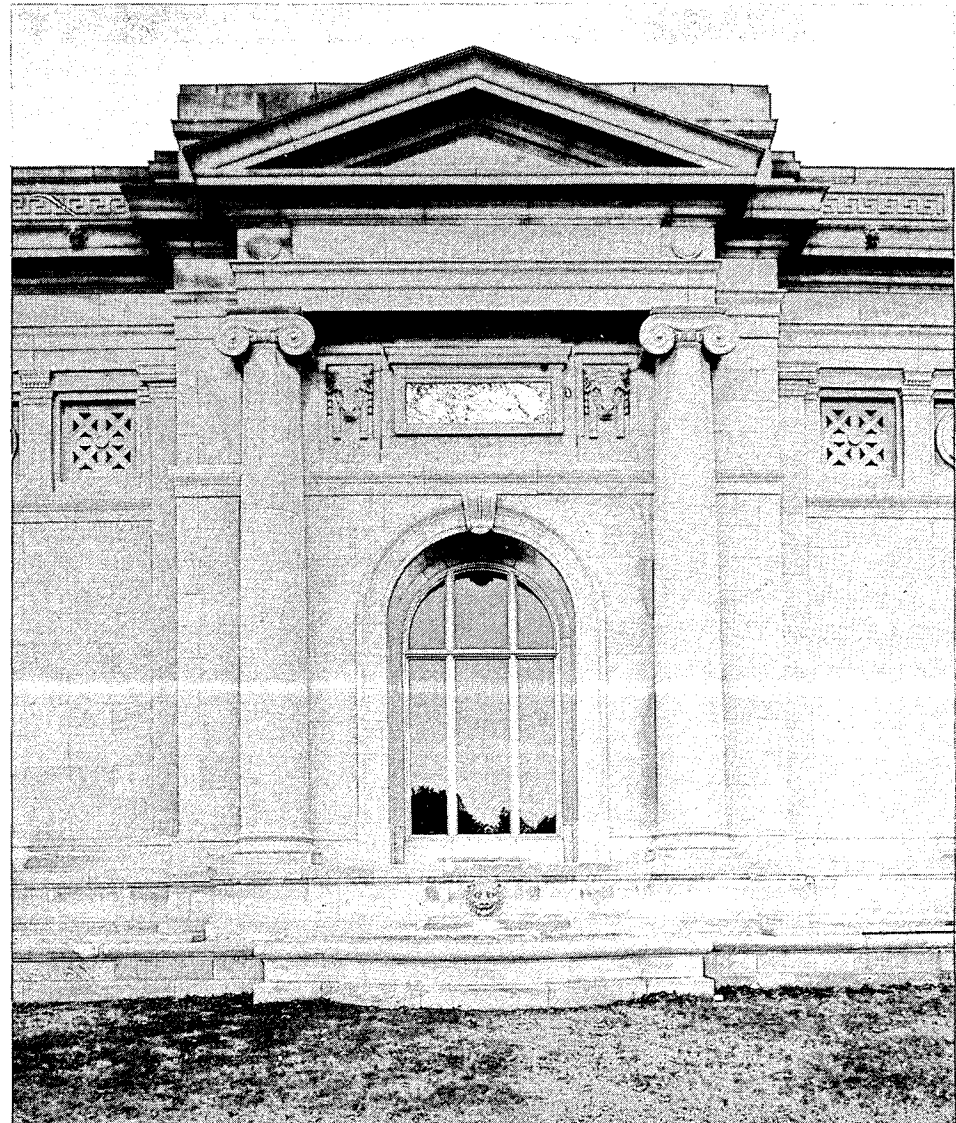
THE ST. LOUIS ART MUSEUM, St. Louis, Missouri. Architects: *Hardy Holzman Pfeiffer Associates*—partner-in-charge: *Hugh Hardy*; project architect: *Alec W. Gibson*. Consultants: *Peckham & Guyton* (field architects); *LeMessurier Associates/SCI* (structural); *Crawford & White* (mechanical); *Van & Vierge* (electrical); *Jules Fisher & Paul Marantz, Inc.* (lighting). Construction manager: *Howard Needles Tammen & Bergendoff, Inc.* General contractor: *Dickie Construction Co.*



Robert Pettus



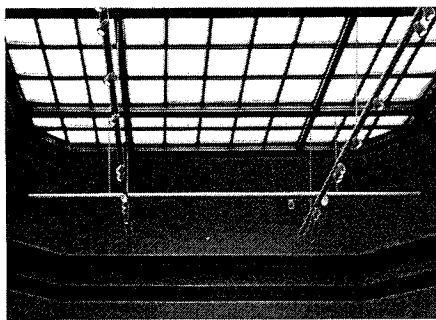
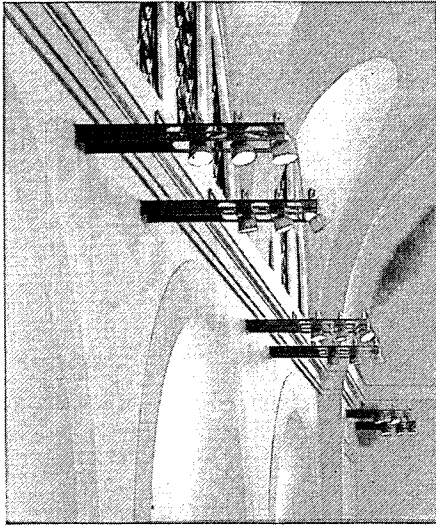
Robert Pettus



Robert Pettus



## The light itself was re-designed—because too much daylight is bad for art



*A key problem for the architects and their lighting consultants, Jules Fisher & Paul Marantz, Inc., was how to mediate between their desire to retain Cass Gilbert's beautiful daylit spaces and their knowledge of the destructive qualities of such light to works of art. Helping Hardy Holzman Pfeiffer establish new lighting standards for the St. Louis Art Museum and meeting them became a technical and esthetic challenge. In the words of Paul Marantz:*

A museum is a building about seeing. Nowhere is light more critical to the success of an interior space and its program than here. The St. Louis Art Museum preceded the electric era in concept and chronology. The existing interior architecture offered little guidance for the introduction of electric lighting, which in earlier attempts had been glued on or dangled in. Neither was there any historical vocabulary of light fittings in reasonable scale to the enormous spaces, which would have provided the plastic flow of light we have learned to use.

On the other hand, Cass Gilbert was deeply concerned with daylight and brought it into his museum in ingenious ways. He incorporated an extensive system of skylights/laylight in every gallery, and clerestory windows in the great Sculpture Hall. Our problem as lighting designers was to retain the daylit spaces while removing the art destroying qualities of the daylight itself.

We made a big reduction in the quantity of daylight and completely eliminated ultraviolet radiation since it does not contribute to seeing. Now the interior wall illumination by daylight is equal to about one half of one per cent of the exterior daylight available on the roof. We achieved this by installing glass and louver sandwiches in both the skylight and laylight. These reduce, filter, and redistribute the daylight so that the largest quantity of light is focused in the hanging zone on the lower portions of the walls, thus enhancing the pictures.\*

The viewer's eye will tell him that this vastly reduced illumination is equal to daylight as long as no clues remain to give away the deception. Therefore, we fitted every window and door with the appropriate light-absorbent glass to maintain direct exterior views in the proper scalar relationship to the gallery top lighting. The Sculpture Hall is used as a light conditioning room, in which the eye adjusts from outdoor brightness to the low light levels of the galleries.

A system to provide for gallery lighting by daylight alone would properly require mechanical regulation of the light intensity to prevent either destructively high levels in summer, or gloom in winter and on overcast days. Budget, our lack of faith in inaccessible

machinery, and belief that the caprices of daylight are a virtue, suggested to us that the daylight system be designed passively for the 90th percentile clear summer day and that an incandescent electric light system be used to support the daylight as required. Thus daylight and electric light (which is not "artificial," conventional language notwithstanding) were considered as one complementary system.

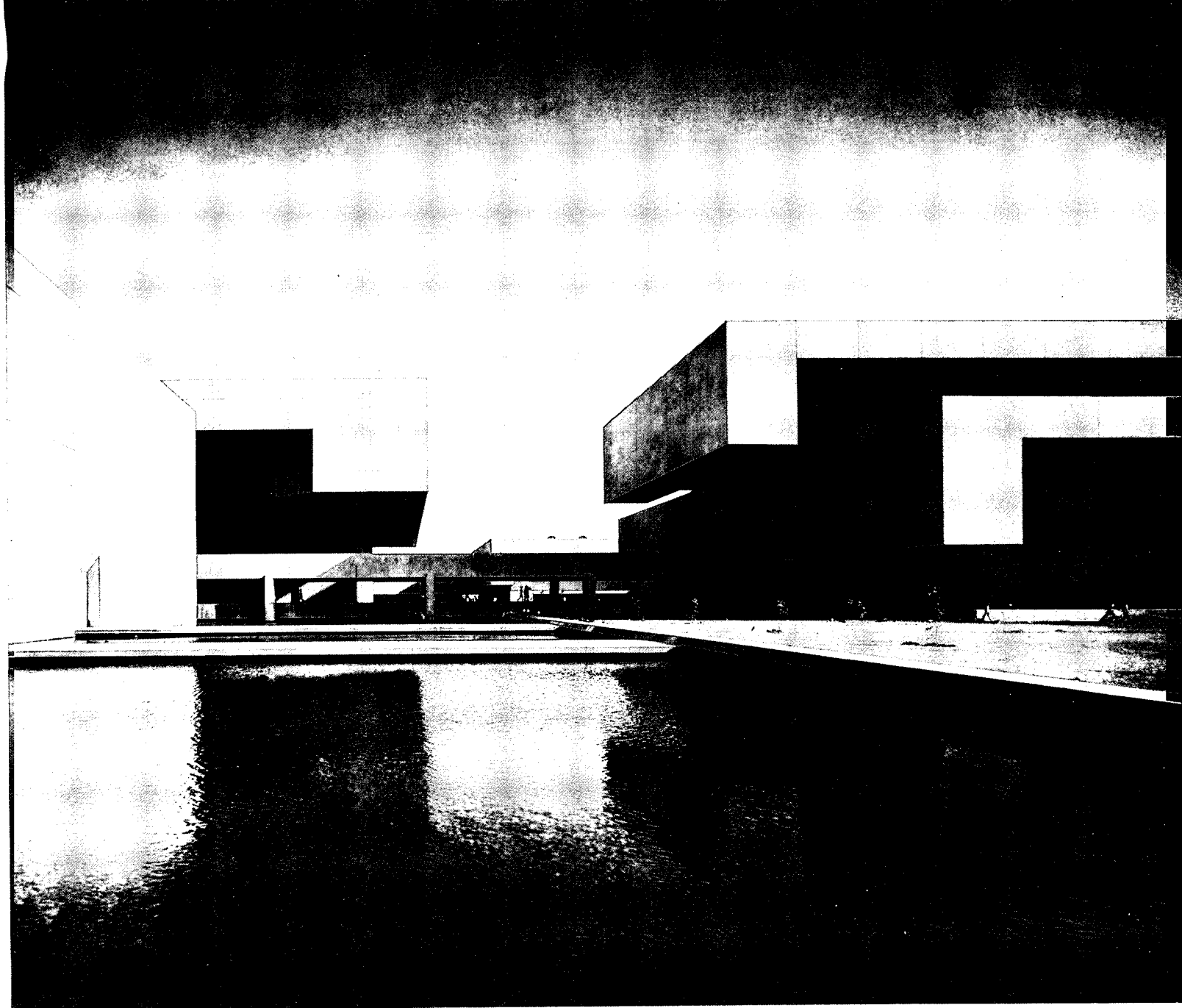
The units of hardware designed for the incandescent system are among the few contemporary images (apart from certain art works) included in the building. We emphasized this modern intrusion upon the turn-of-the-century structure by clearly separating the two, detaching the tracks and other lighting elements from the building envelope. In Sculpture Hall, cantilevered brackets hold the lighting units away from the masonry walls. We carefully considered how big we should design the entire assembly of each unit to be in scale with the immense room. We also made a great many studies to find the proper scale for the lighting fixtures in the galleries.

The only concealed lighting we installed consists of some uplighting for the lower side vaults, end vaults, and lunettes of Sculpture Hall to give the space plasticity and greater interest at night.

The illumination of the St. Louis Art Museum differs significantly from that of other recently built museums. Louis Kahn's two last museums, for an example, are lit differently from St. Louis and from each other, with our solution for St. Louis directly in between. The Kimball Museum in Fort Worth admits far less daylight than the British Art Center at Yale University (June 1977, pages 95-104) which has largely daylit galleries. While the St. Louis Art Museum admits less than one-third of the daylight allowed into the new Yale building, it—like the Kahn museum—gives the impression of abundant daylight filling the space.

\*In the new skylight installation, insulating glass was used to reduce heat loss. The outer layer is a tempered gray glass to reduce the total transmittance of daylight. The lower layer is a white opal glass to diffuse the light and serve as a cover for the light dispersion box or attic which has been painted white.

The laylights at the ceiling level have a top layer which consists of an opal ultraviolet shield of acrylic plastic. In addition to screening out the harmful ultraviolet rays this layer keeps dust out of the louver directly below it and will act as a safety net in the unlikely event of skylight breakage. The louver is approximately .650 inches deep with 3/8 inch hexagonal cells which direct light downward and even the light distribution. A two-inch air space between the louver and the lower layer of stippled tempered glass helps conceal the louver pattern from below. The new ceiling assembly was prefabricated in aluminum frames and dropped into the existing ceiling framework.

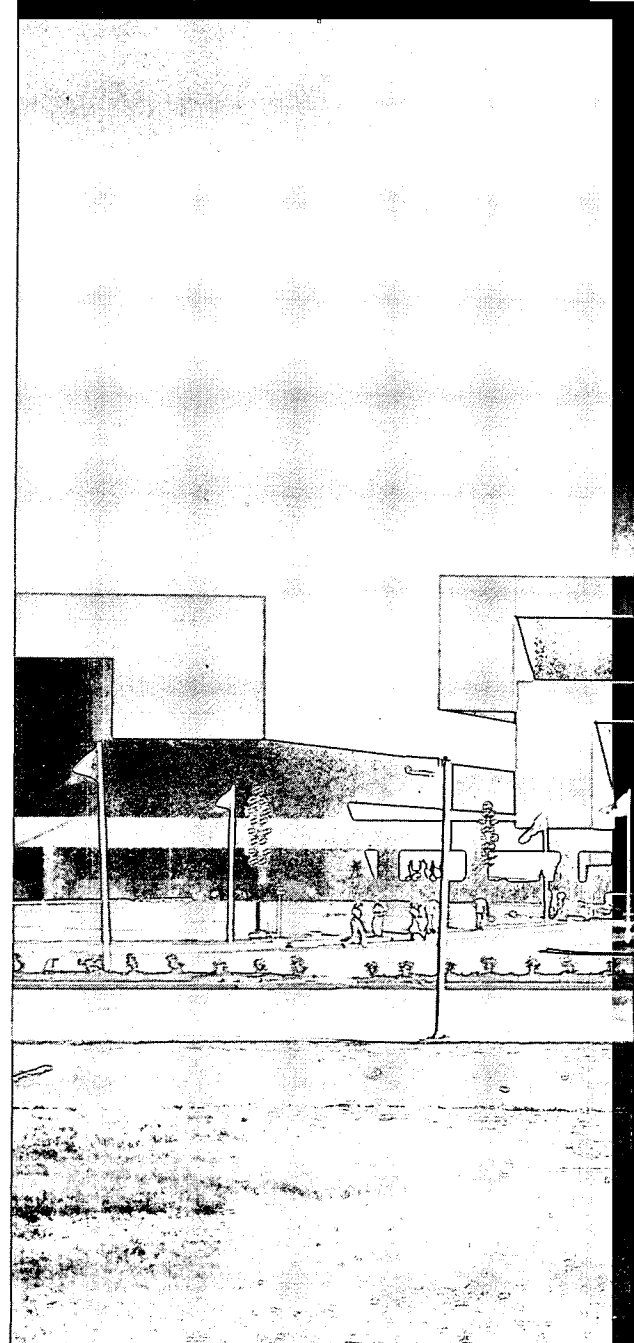
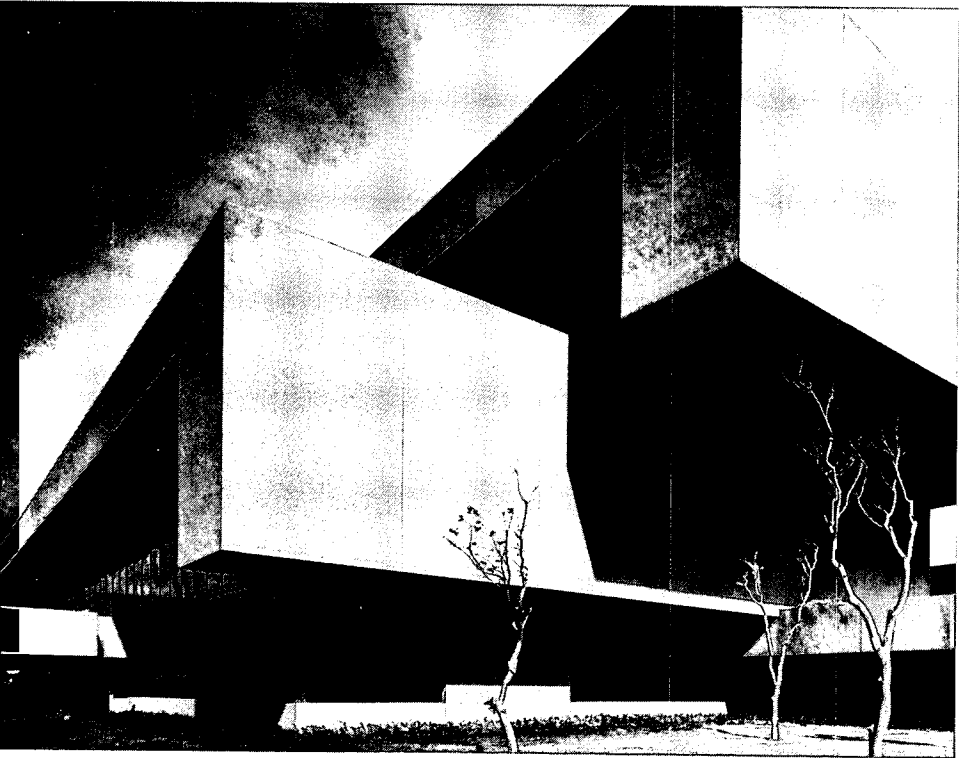
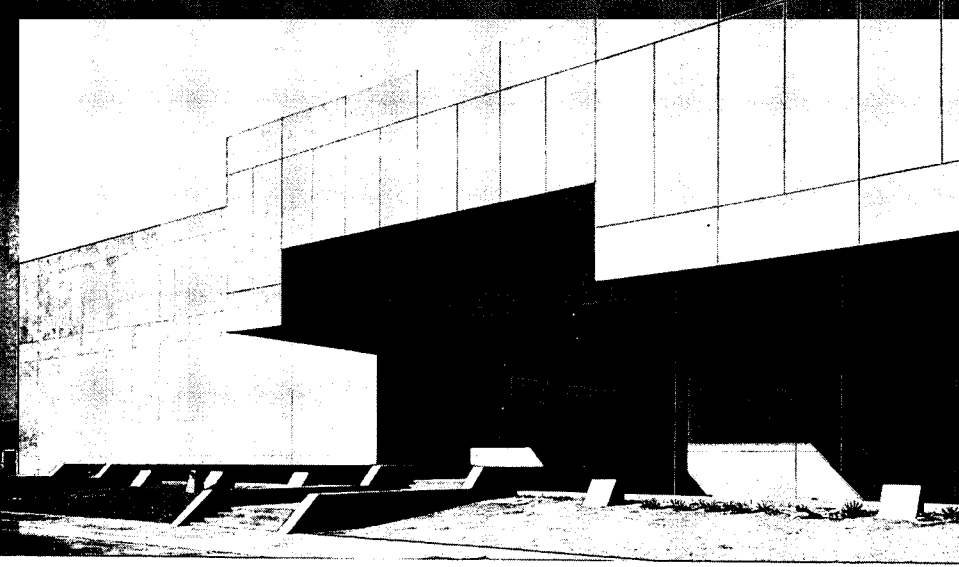


*Kawasumi photos*

# MANILA'S NEW CONVENTION CENTER

The Philippine International Convention Center, a massive new project, was designed to evoke powerful imagery that speaks of the nation's economic achievements and aspirations. Architect Leandro Locsin has produced—in a truly grand manner—a group of buildings intended to build national pride and attract international attention. And the importance is well directed, because of the role that the Center is to play, a role that the Philippine government sees as critical to the future of the country. . . .

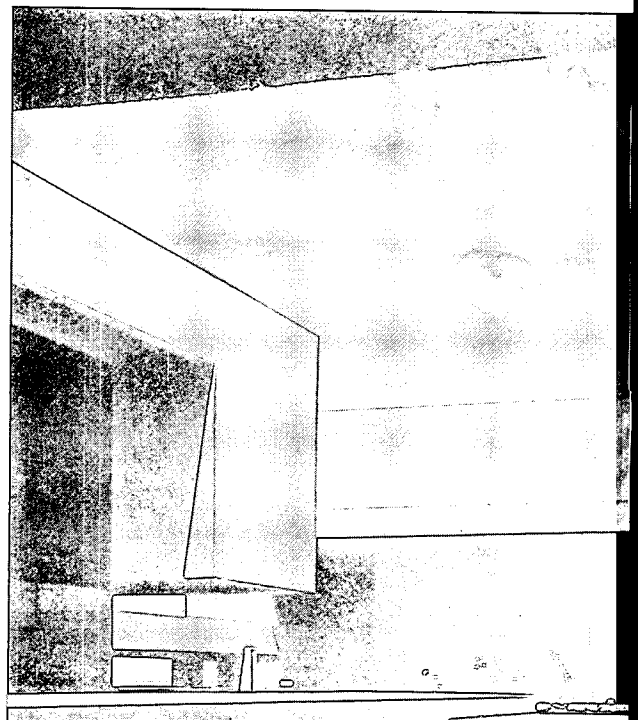


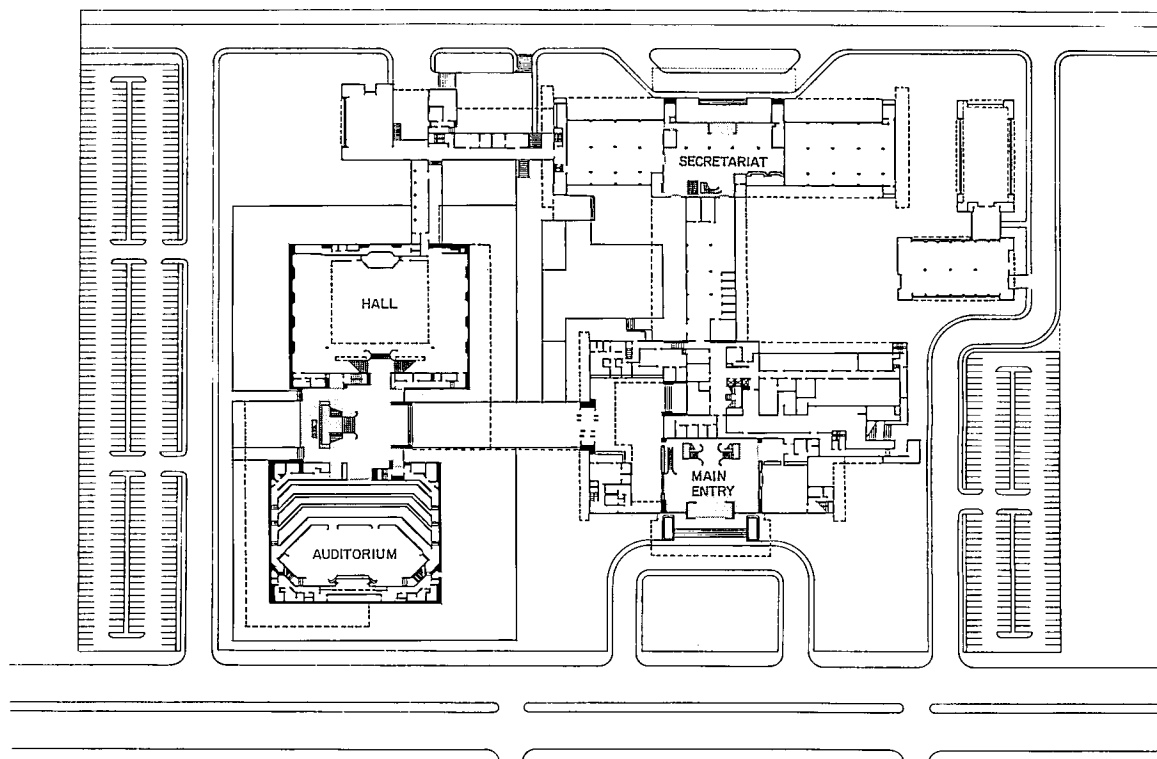
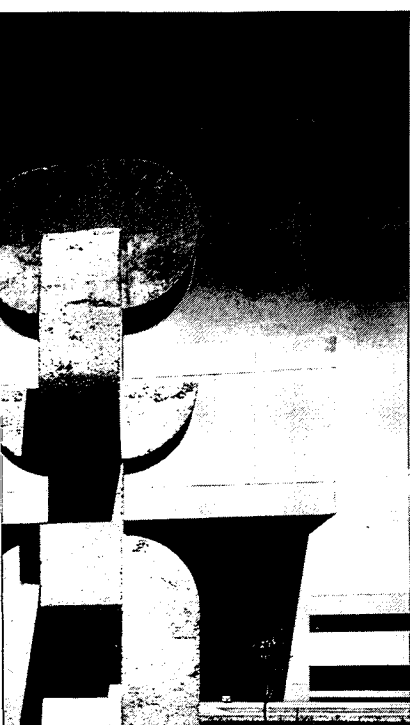
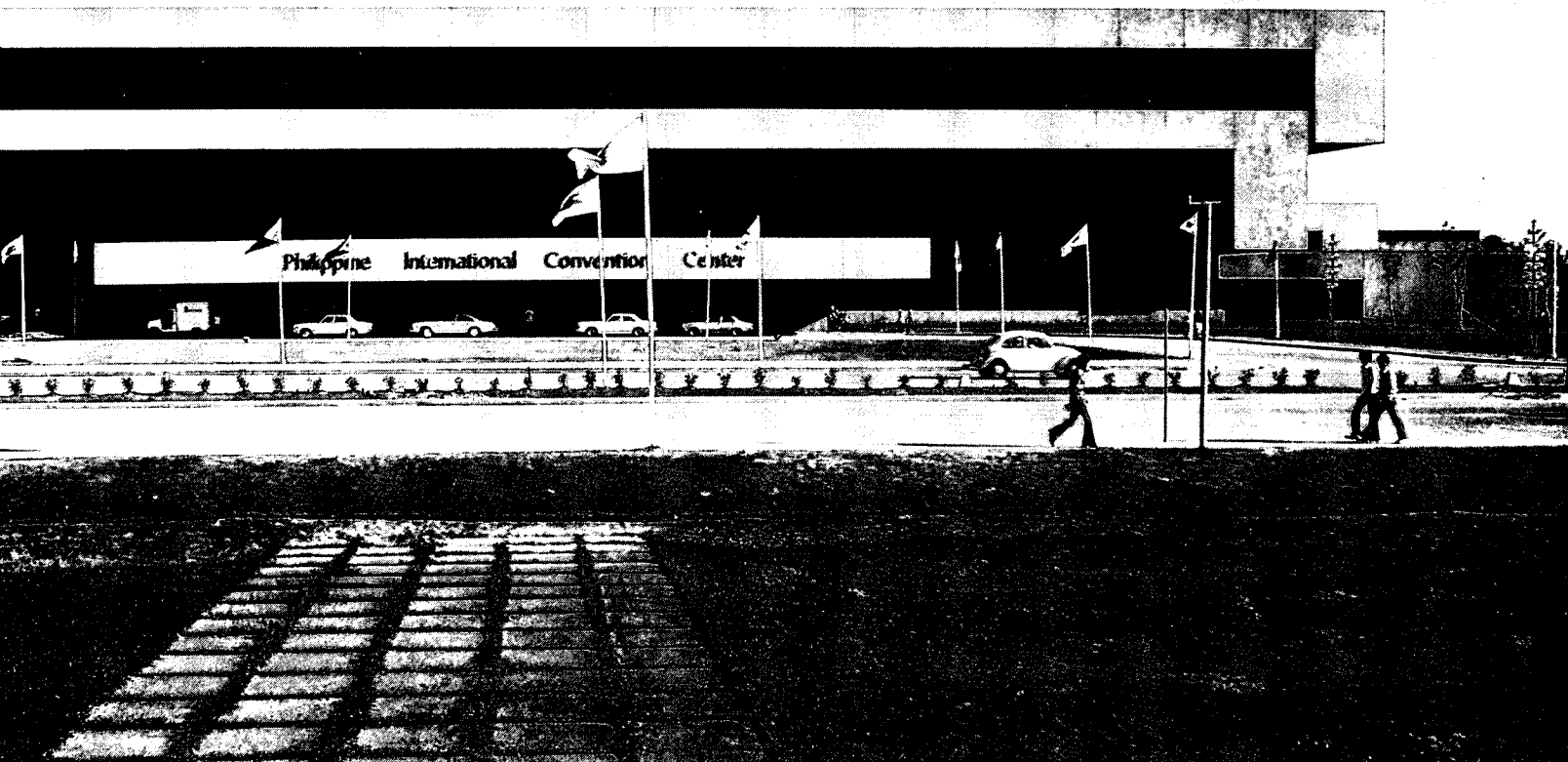


Part of the enormous complex of buildings designed by Locsin for the new Cultural Center of the Philippines, the Convention Center is the physical focus of a national thrust toward economic strength in Asia. Accordingly, it is far more than the assemblage of flexible spaces that characterize such centers with more parochial aspirations. It is a national statement in a powerful voice.

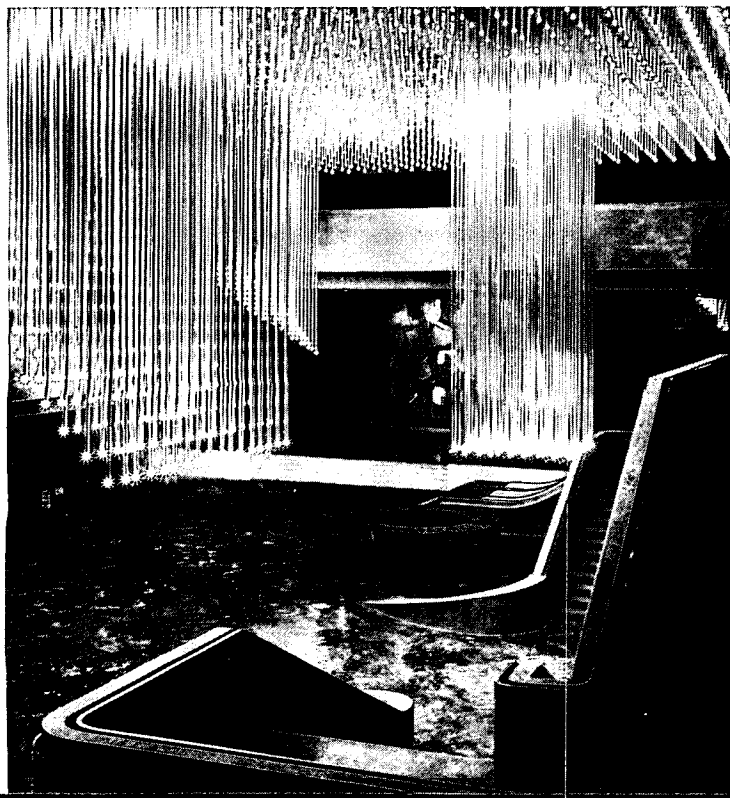
One of the reasons for the enormous size is the formal separation of uses. Instead of the spaces that can provide for a multitude of functions, a multitude of spaces each serve a limited range of specific purposes, according to capacities, arrangements and mechanical conveniences. The reception area for persons entering the complex (lower right in plan) occupies by itself the major portion of the building in the photo above. (Views of this space can be seen at the bottom of the two following pages.) Proceeding to the left of the reception area, the visitor passes along a processional route (photo overleaf) created by a wide, open gallery to a second grand lobby (see large color photograph, overleaf) from which both a hall for entertainment and exhibitions and a 5000-seat "Plenary Hall" or auditorium are reached. The scale is magnificent, and the finishes sumptuous. Many smaller meeting rooms, auditoriums, offices and dining rooms complete the complex, and each provides just the desired background for the specific activities within.

While the inverted-U shape of the roofs may not be something







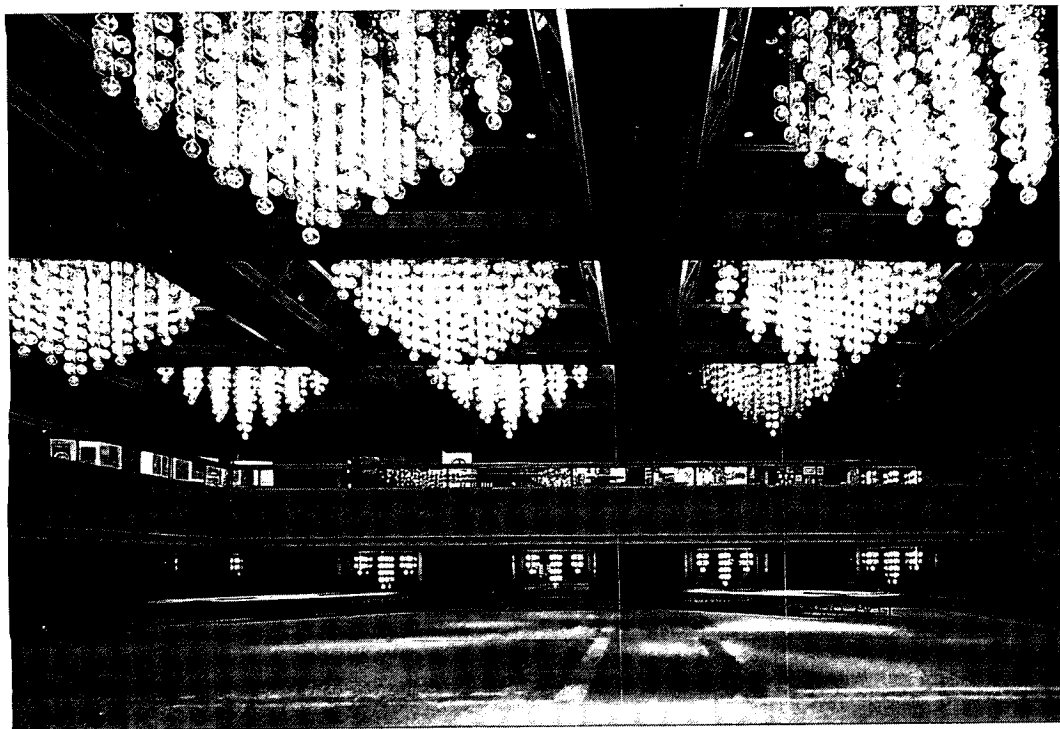


completely new, the scale and proportions here create a uniquely monumental character that is enhanced by Locsin's delight in visually sublimating his structures' connections with the ground. (This device is enhanced by a moat on which parts of the heavy granite-clad concrete structures seem to float.) Locsin's use of lavish interior materials includes the Philippine gray-brown marble floors, concrete with an aggregate of shells, exotic local woods, lacquered ceilings and many works by national artists. The stainless steel sculpture in the lobby outside of the auditorium (photo opposite top) is the work of Arturo Luz, and the mural in the entrance hall (photos left and opposite, bottom) is by Joya. Special lighting effects designed by consultant John Marsteller include the suspended grouping of thousands of illuminated chrome tubes from the entrance hall ceiling.

PHILIPPINE INTERNATIONAL CONVENTION CENTER, Cultural Center Complex, Manila, Philippines. Owner: *Central Bank of the Philippines*. Architects: *Leandro V. Locsin & Associates*. Engineers: *Trans-Asia (Philippines) Inc. (structural); South East Asia Corporation (SEACON) (foundations/soils); Trans-Asia (Philippines) Inc. (mechanical/electrical)*. Consultants: *Electro-Systems Industries Corporation (acoustical); John Marsteller TSLE AG/The Spatial Light Environments (lighting); Ildefonso P. Santos (landscape); Philippine Advertising Counselors Inc. (graphics); Trans-Asia (Philippines) and H.R. Lopes, Inc. (costs)*. General contractors: *David M. Consunji, Inc. and Atlantic, Gulf & Pacific Co, Inc.*







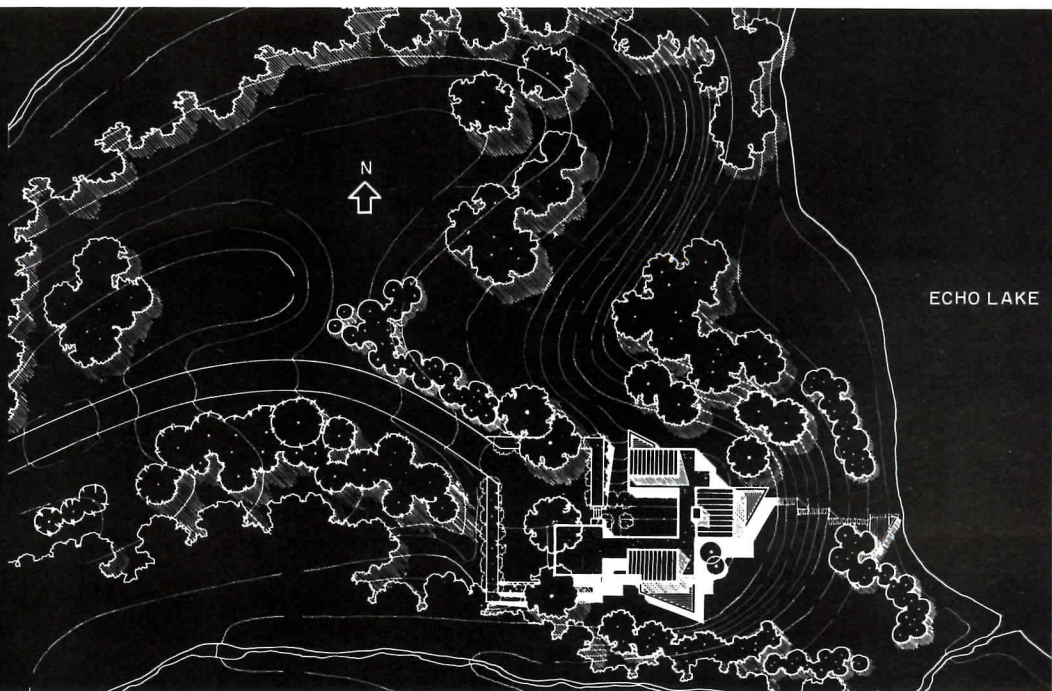
The main auditorium (or Plenary Hall as it is called by architect Locsin) has 5,000 seats upholstered in colors "meant to recall the local seas." Of these seats, almost 2,000 can be rearranged from the positions shown above in order to surround large tables in front of the platform. The grid of bronze tubes over this area of flexible seating holds both decorative and functional lights. The electronics system in the auditorium also includes wireless earphones for translation into six languages, and laser beam focus of sounds to all parts of the room from a single point source. Opposite a connecting lobby, a reception hall holds up to 6,000 for cocktails or 4,000 for dinners.





## HOUSE SHAPED FOR AN OHIO LAKEFRONT

Its siting and mass bring down its apparent scale and give its occupants fine views of woodland and water. Its interior organization, though rambling, retains a clear formality. In many ways it is a house that expresses "the good life" and does so with spirit and distinction.







Balthazar Korab photos



Architect Alfred French designed this house for his brother's family on a 6.3-acre property overlooking a good-sized lake. Views open to the lake and two wooded ravines at either side. Bent around a small entry court, the plan at the first floor centers on a living room and is flanked by kitchen on one side, master bedroom on the other. All are linked by a generous circulation gallery designed to facilitate the owner's request that living, dining and kitchen spaces be separate but visually connected. The downstairs, when finished, will contain several future bedrooms.

The roof forms echo the fall of land on three sides and in this way heighten the sense that the house is sited on the crown of a small hill. Trees press in quite close around, masking the house on all sides to ensure privacy, and filtering the daylight before it reaches some of the high clerestories.

By dropping the ceiling over the gallery then allowing it to rise full height over the major rooms, a spatial hierarchy is clearly stated and can be read both inside and out.

By placing the living room on axial center and lowering its floor by two steps, the architect has firmly underscored this hierarchy.

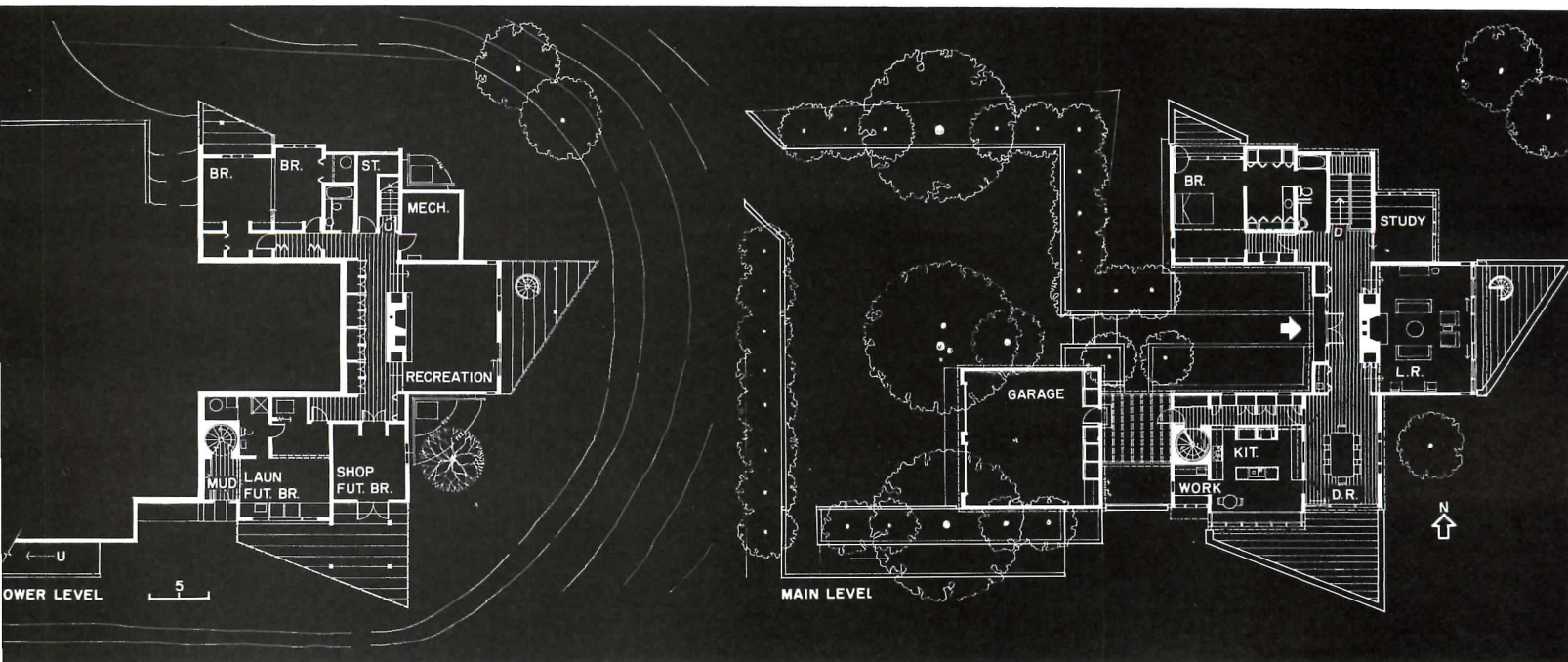
The modulation of space is not just vertical. The volumes are connected through nicely contrived openings that generate a spatial liveliness and offer long and short views of both house and site (photo, above right). The house is framed in 2- by 6-inch studs sheathed and finished outside in cedar.

Floors are red oak. Partitions and ceilings are dry wall. The roof is finished in black asphalt shingle. All openings are double glazed and several of them are fitted with Mylar blinds to reduce heat loss and gain. The mechanical system is forced air with electric heat pumps.

DANIEL P. FRENCH RESIDENCE, Piqua, Ohio. Architects: Alfred French and Associates, Inc. Engineers: Bakke & Kopp, Inc. (structural); Ballou & McFarlin (electrical). Consultant: Charles E. Wood (landscape); Nona Becker (interiors). Contractor: Hinger Associates, Inc.



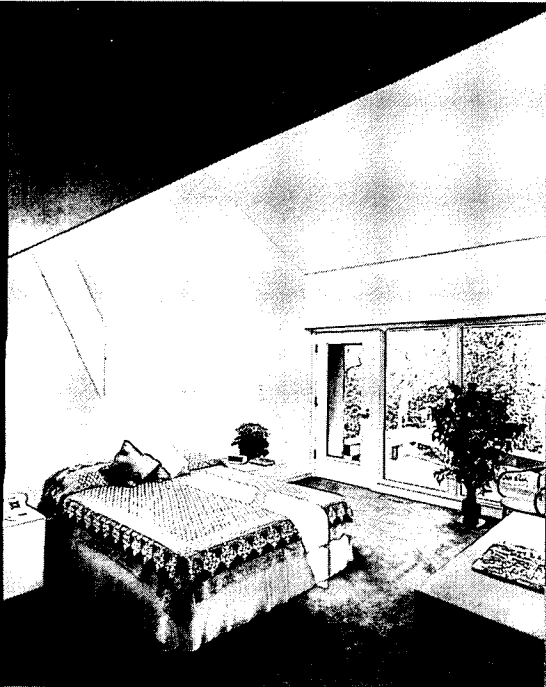
*The high clerestories and the careful placement of incandescent fixtures combine to give the French house an unusually warm quality of light. One result is that colors read with unexpected intensity.*







*The controlled vista down the gallery is released by the window wall at the end and by glimpses into the living room at left. The combination of textures also slows the eye on its passage down this narrow space.*

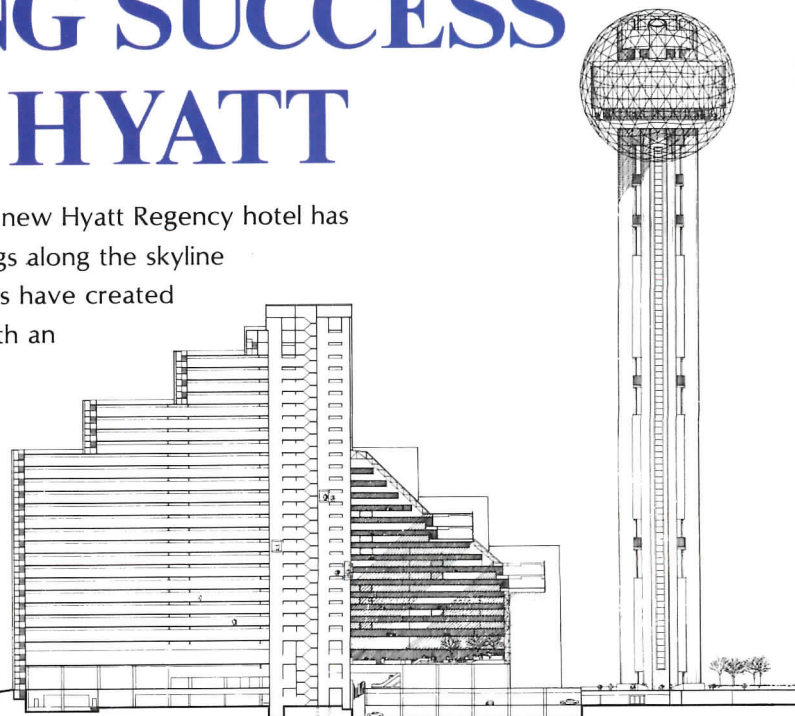




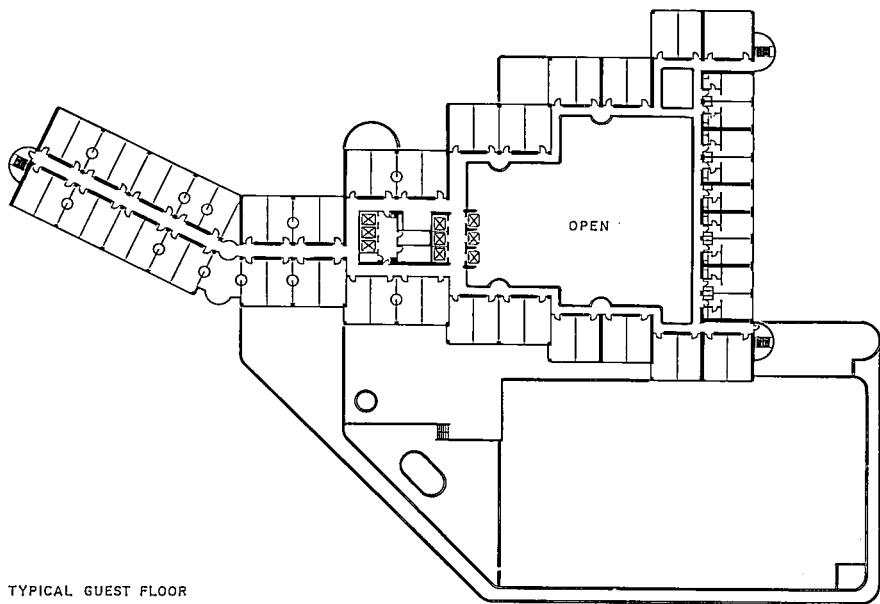
Balthazar Korab photos

# SHIMMERING SUCCESS FOR DALLAS HYATT

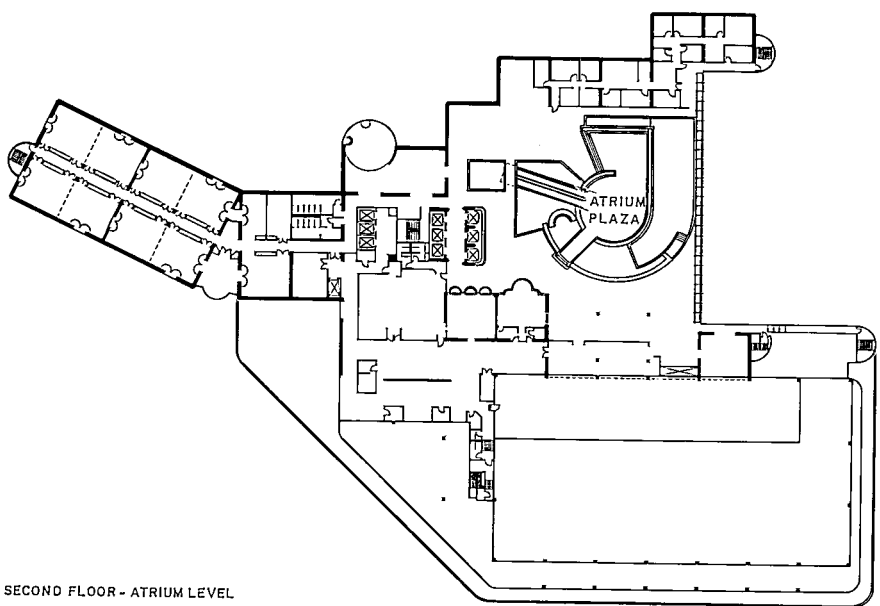
Adding a new sophistication to the look of Dallas, the new Hyatt Regency hotel has made an impression on the city that few other buildings along the skyline are able to match. Architects Welton Becket Associates have created a Camelot—a provocative, dramatic structure, one with an almost scaleless quality, that is ever-changing through its fragmented reflectances. —Janet Nairn



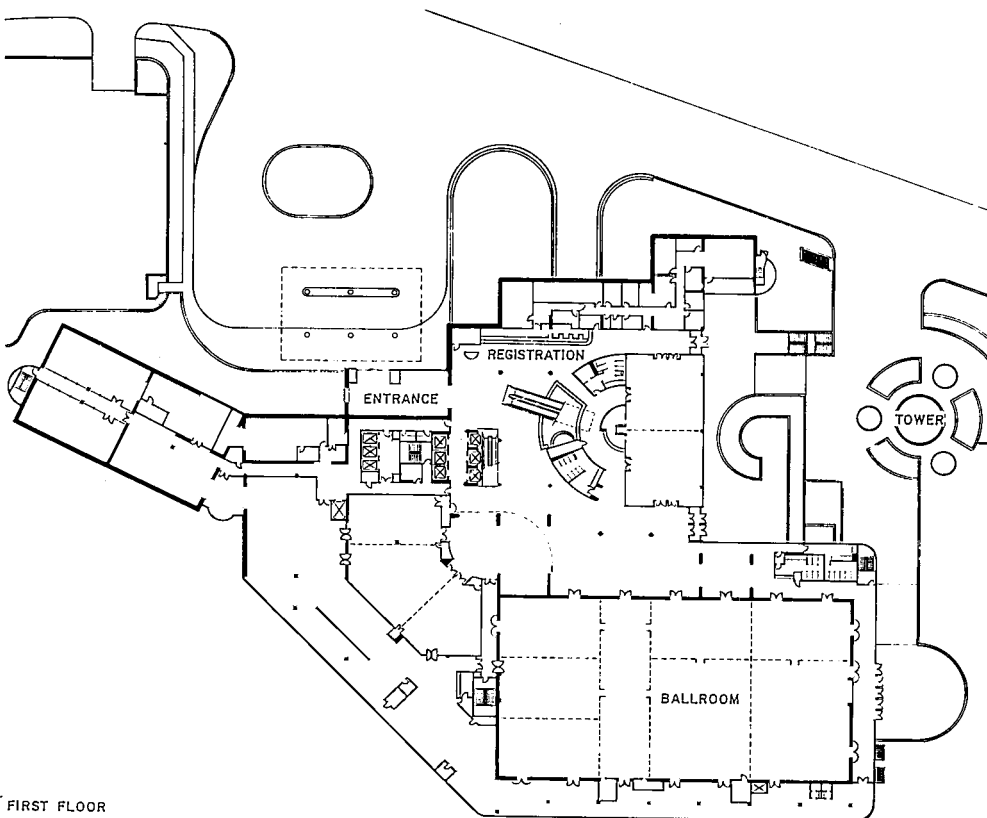




TYPICAL GUEST FLOOR



SECOND FLOOR - ATRIUM LEVEL



FIRST FLOOR

In a city that could easily be called the American capital of mirror buildings, one more on the skyline could easily be overlooked—except for this newest Regency hotel in the Hyatt chain. Its allure is its almost magical quality—a quality rarely found today in buildings of this scope.

Located on the edge of the Dallas central business district, the Hyatt hotel occupies a prominent position in the 50-acre Reunion redevelopment area. The name Reunion is symbolic of the goals of the development: a marriage of old and new Dallas and a reunion with the city's original transportation hub, the Union Terminal Building, located near the hotel. The spot is ideal because of its proximity to downtown Dallas and to an elaborate system of freeways and roadways, conveniently tying it to outlying areas.

The hotel is the first structure completed in the new core area, and is being developed by the Woodbine Development Corporation on privately-owned land. The City of Dallas is developing a Special Events Center near the hotel (expected to be completed in early 1980). The city has also hired local architects to restore the Union Terminal to its original 1914 design as a transportation center, with the addition of specialty shops; it is connected to the hotel by an underground tunnel. A part of the Reunion area will be ten acres of public parks, which span the development, creating the largest greenbelt in the downtown area, to be augmented by a series of waterfalls and reflecting pools. Shuttle bus transportation will be used extensively from the hotel to-and-from downtown, and from a parking area (which serves Reunion and as fringe parking for the business district).

Because of the prominent site the hotel occupies, and the expansiveness of the area around it, the hotel was designed to be an ever-changing visual experience, to be experienced from both near and far. In fact, the mystery and delight begin from miles away, as the structure is seen from cars on the freeways. It is the complete integration of forms and exterior materials that create the building's qualities. The reflective glass facade shimmers with moving and distorted lights from passing cars and adjacent buildings, and as the light of the day changes, it is also mirrored, with the full structure projecting a spectrum of light, color and movement.

Beyond the mirror glass facade, the structure has a scaleless dimension. It is an enormous structure—with 1,000 guest rooms positioned in towers with seven distinct roof heights, the highest tower being 30 stories. These varying heights are mixed with rounded forms at the building's corners and slanted roof lines on the southern elevation.

Structurally, it is also distinguished by its innovative and economical use of steel plate shear walls to stiffen the towers to withstand wind force. The plates were stacked on top of each other between columns only in the narrow (east-west) direction; in some cases two panels were joined horizontally to form a broader wall. Stiffeners were added to some panels due to the stress in the wall. Wind shear is transferred from the shear walls to









diagonal bracing on the lower two levels, spread through the floor diaphragm, and collected again in the concrete foundation. There was a combination of reasons for the selection of steel plates rather than concrete, but the two major reasons were that the contractor felt using concrete would lengthen the construction time, and a steel moment-resistant frame would have required a tremendous amount of material. The plates actually reduced the amount of steel in columns and beams because the plates accommodate both lateral wind bracing and vertical forces (for more details, see *RECORD*, mid-August, 1978, pages 116-117).

Like other Hyatt Regency hotels, the rooms are arranged around an interior atrium space, this one being 200 feet high, 100 feet wide, and 120 feet deep. It is highlighted by a skylight on the southern elevation cascading down from the top of the atrium, but interrupted by four blocks of special suites on the seventh, eighth, eleventh and twelfth floors (see section). The skylight not only permits natural light to flow into the space, but the six-story-high curtain wall below the seventh floor opens up views toward fountains and trees in the adjacent park.

The geometry of the circle is quite evident in the interior design—from the entry tunnel (see overleaf) to the organizational pattern in the atrium plaza, to the semi-circular atrium balconies, and to the arc of the fountains. Glass elevators rise through the atrium along the north wall with views to the atrium plaza and beyond through the glass wall; at the 19th floor, the elevators emerge from the atrium and continue upward along the exterior face of the building in glass-enclosed shafts.

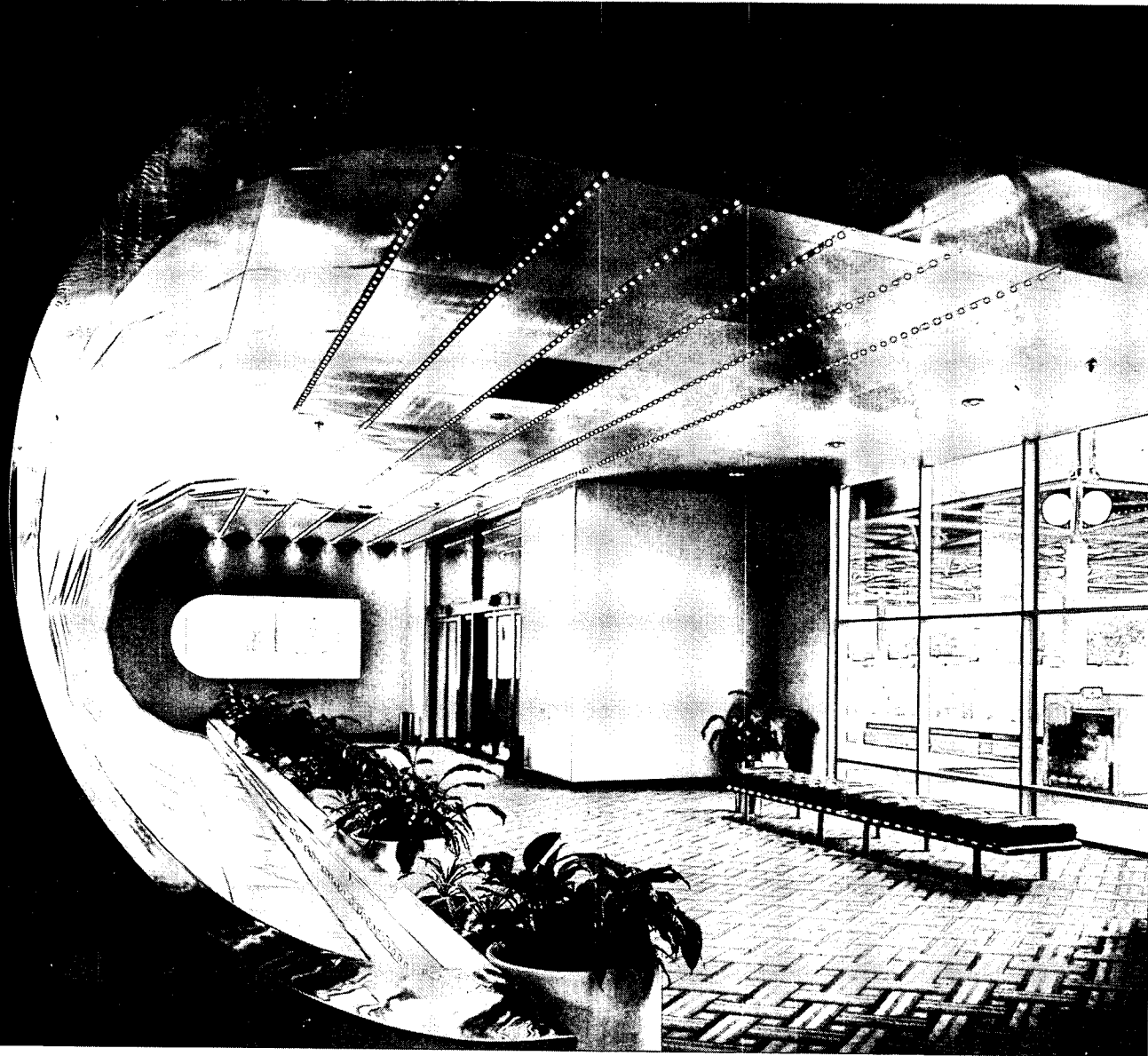
Included in the over-all hotel project is the adjacent Reunion Tower—a 560-foot-high steel and concrete tower, topped by a geodesic dome that contains a restaurant, bar and observation deck. The tower has been dubbed "the electric dandelion" by locals because of the lights attached to an open web framework around the top sphere. Computer-controlled light shows are possible with changing designs. The observation deck houses a glass-enclosed radio station and some displays in addition to providing a full panorama of Dallas and outlying districts.

**HYATT REGENCY HOTEL, Dallas, Texas.** Owner: *Hunt Investment Corporation*. Developer: *Woodbine Development Corporation*. Architects: *Welton Becket Associates (Los Angeles office)*—*Alan Rosen, director; Louis Naidorf, director of design; Victor Chu, project designer; Albert Peterson, project director*. Engineers: *Welton Becket Associates (Los Angeles office)*—*Richard Troy, director of structural engineering; Nabih Youssef, project structural engineer (structural); Herman Blum Consulting Engineers, Inc. (mechanical/electrical)*. Consultants: *Evans & Hillman, Inc. (lighting design); The Richards Group (graphics)*. Landscape architects: *Myrick-Newman-Dahlberg, Inc.* Interior design: *Howard Hirsch and Associates*. General contractor: *Henry C. Beck Company*.



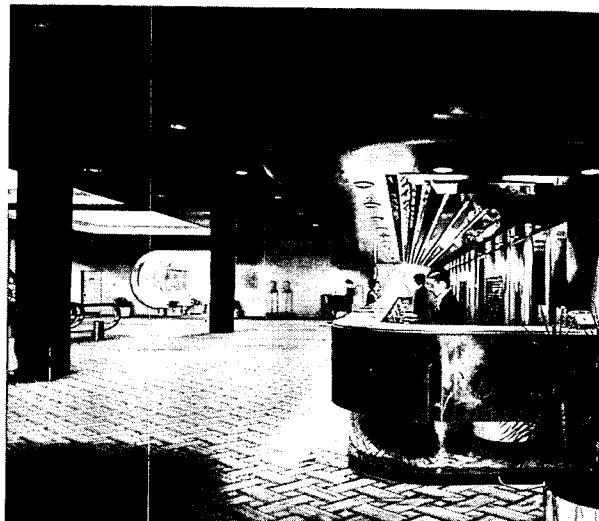


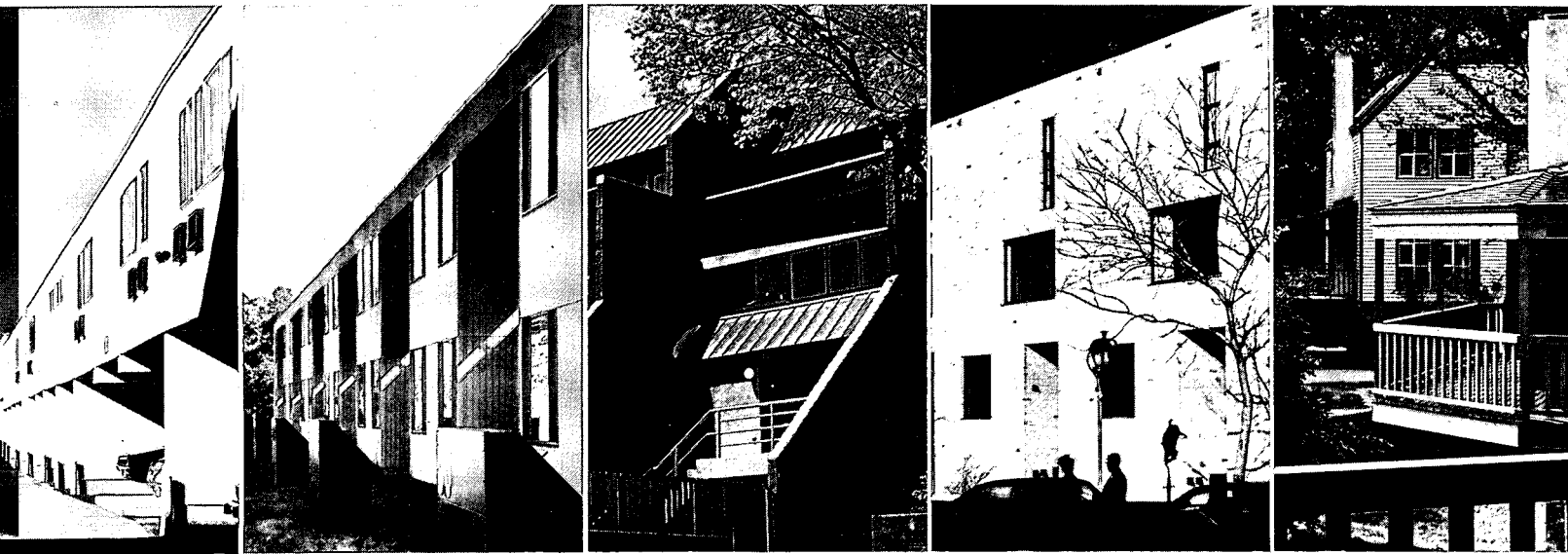




The entry tunnel to the Hyatt Regency hotel (above), lined with silver panels and red carpeting, creates an exciting—and unexpected—entrance to the hotel. Its design carries forth the geometry of the sphere, used throughout the atrium space. This tunnel leads guests directly to the long registration desk (below), which also continues the curvilinear shape. As one rises on

the central escalator from the lobby to the atrium plaza, the grandness of the space, filled with light and activity, is slowly revealed. The "Park Place" lounge (left) is only one of many seating areas on this level, but it is the closest to the tall curtain wall which is so prominent a design element in the atrium. Nearby is a 20-foot waterfall descending to a pool in the lobby.





## HOUSING EQUALS HOUSES

# ALTERNATIVES FOR LOW-RISE HOUSING DESIGN

Architects often speculate that the house is the original and therefore the fundamental building type, and that designing it is one of the most taxing, as well as one of the most interesting, jobs that they are likely to be called upon to perform. The main goals are two, and in some ways they are opposite from each other. On the one hand built form is given to a set of individual and personal needs and aspirations. On the other, the house should express some more general concerns, responding to both its geographical and cultural place and, whenever appropriate, adding to it. The former goal is individual and the latter one social—which is to say that the house is very simply an expression of people and of their tentative compromise between their own individuality (which they need) and their collective social purpose (which they also need). This brings back the original point: the house is the fundamental building type. But if this is true, then it is also true that it is not the design of the house but of *housing* that is the most taxing of all, because it maintains nearly all of the challenges of single-family-house design while adding to them a whole new collection all its own, including most of the demands (except the most highly technical ones) of any other large and complicated building type. This is quite evidently the case in practical terms, for not only is a housing job more difficult to administer in an architectural office, it also requires more elaborate and sometimes apparently counterproductive political, social, and (always) economic concerns. For this reason, mere process in the realms of housing design is of high interest, and a skillful nego-

tiation of all the practical obstacles often seems in itself to signal success. You justly get rewarded for having made it at all as much as for what you actually made. Gwathmey Siegel Architects' housing development shown on the following pages was built extraordinarily inexpensively, and that itself is laudable. And Moshe Safdie & Associates' designs for Coldspring in Baltimore (pages 118-121) are getting built through a unique and energetic combination of Federal, local, and private interests and that is worth reporting too. Nonetheless the problem still remains: housing is, or should be, like houses, only harder. For one thing, the individuals whose needs and aspirations should be given built form are unknown, and so the task becomes to provide an empty but flexible stage for them rather than a complete setting—a fact, incidentally, that some architects find hard to accept. Another difficulty is that the collective social purposes houses are meant to express are, in the case of housing designed in one swoop by one designer, not collective at all—or, if the designer is a good one, they are only collective by proxy. Perhaps here, too, the task is to provide an empty stage, but one attractive enough to invite embellishment rather than removal to another theater. Related to this dilemma is the question of image. Should housing do what Louis Sauer Associates' skillfully does and modulate itself to what is around it (pages 122-123)? Or should it look "modern" as Gwathmey Siegel's do? Or should they look "traditional" as Callister Payne and Bischoff's do (pages 124-128)? The first is as sensible and modest as the second is exciting

and the third comforting and there seem to be no clear winners. Another vexing problem—perhaps the least easily resolved of all—is that of the automobile. People feel ambiguous about it anyway. It is a friend and a necessity when we want it, a foe and an eyesore when we don't. In a single-family house this ambiguity can usually be smoothed over, but as densities increase to make housing, so do the number of cars and parking spaces and roadways, and the ambiguity reasserts itself. Architects seem to have two basic ways of responding to it—by banishing the cars to the edge of the site, or by putting them in some way next to the units—and each way responds directly to one half of the ambiguity without fully addressing the other. Perhaps the most surprising approach shown in the collection on the following pages is Moshe Safdie's, which puts the car near but well out of sight beneath a pedestrian mall—though the question still remains of whether doing that does not automatically reduce the population of the mall and therefore its social utility. Difficulties, then, there are aplenty and so it will come as no surprise that the housing designs shown on the following pages show them as well as some notable successes. What conclusions can be drawn? The critical one to do is not to become daunted by the problems, particularly not to become daunted to the extent of forgetting the essential point, which is that housing, like houses, is not just about finance, or about government, or about technology, or even about architectural "art," but is about people and their simultaneously individual and social selves.

—Gerald Allen



## WHITNEY ROAD RESIDENTIAL DEVELOPMENT

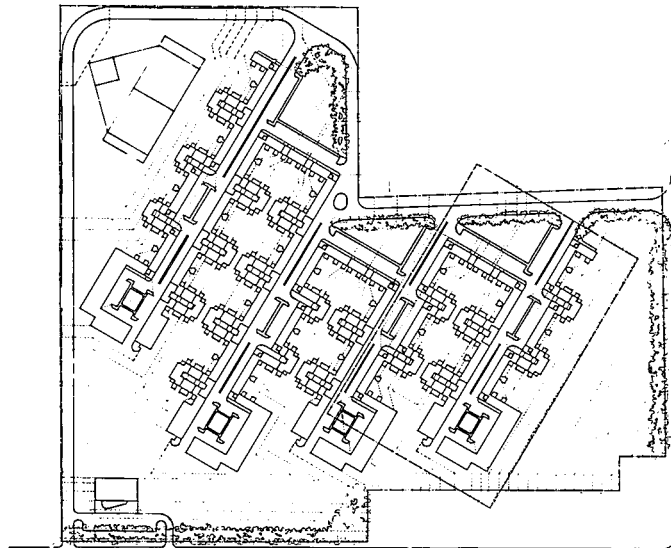
This housing development designed by Gwathmey Siegel Architects (and described and critiqued by *RECORD* in July 1974, pages 105-109, and March 1975, pages 141-145) creates a residential community with convenience facilities near the individual units, with a separate community center (at the lower left of the site plan on the opposite page), and with open play areas. Townhouses and garden apartments are located in four linear cul-de-sacs which serve as parking areas (with a covered parking space for each unit) and as

the entrance way to each apartment. The other sides of the units, facing away from the cul-de-sacs, share semi-enclosed green spaces. The site plan provides for a vehicular circulation system separate from the pedestrian one, so that people can walk on covered walkways or through the shared green areas without having to cross the paths of cars. Of the 560 housing units in the development, 120 are for elderly people, and the rest are for occupancy by single people, couples and larger families. The apartments for the elderly

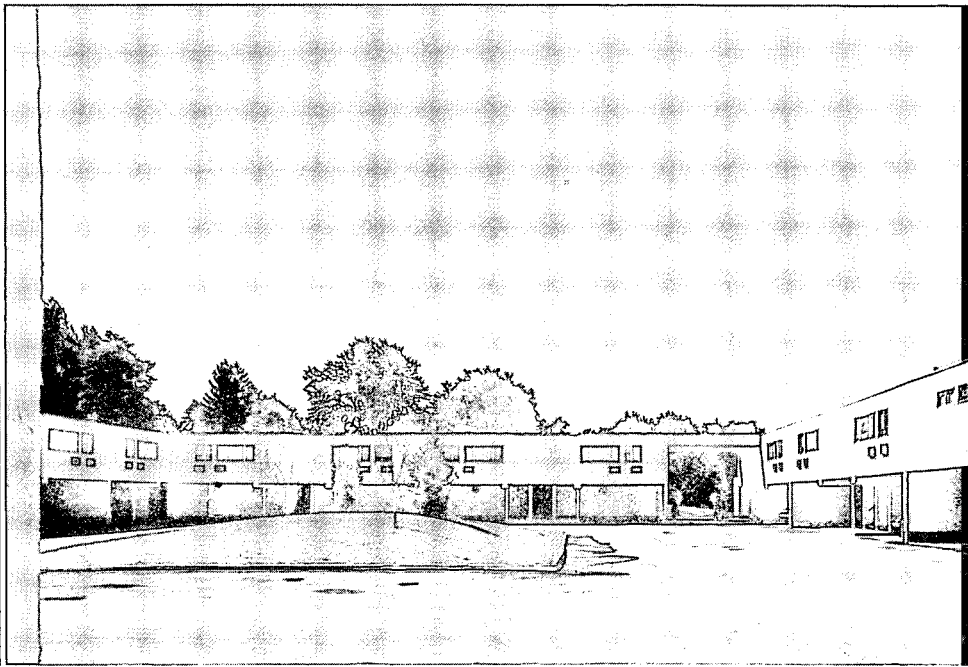
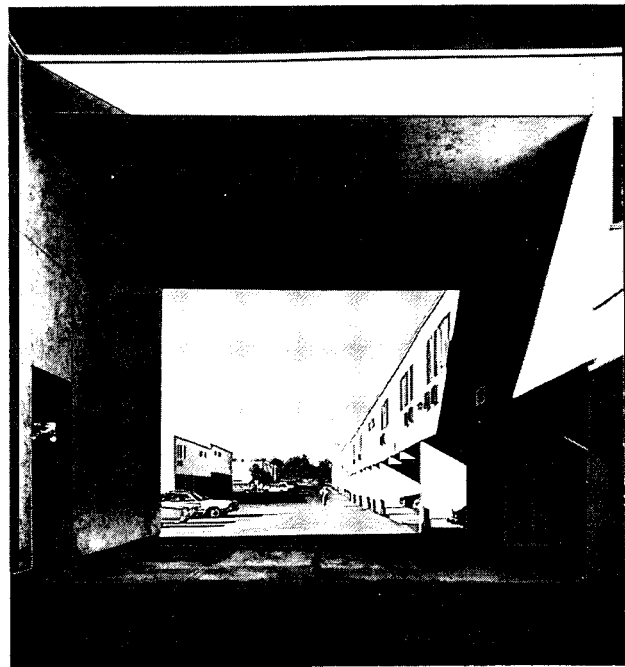


are located for convenient access to the community facilities and to buses, and therefore to shopping and other public facilities.

WHITNEY ROAD RESIDENTIAL DEVELOPMENT, Perinton, New York. Architects: *Gwathmey Siegel—project architect, Marvin Mitchell*. Client: *New York State Urban Development Corporation*. Engineers: *Geiger & Berger* (structural); *Langer Polise* (mechanical). Landscape architects: *Peter Rolland & Associates*. General contractor: *Jewel Builders*.



*Norman McGrath photos*





## PURCHASE APARTMENT HOUSING PROJECT

Like the development shown on the previous two pages, these student apartment units for the New York State University College at Purchase rely on a careful series of two-part distinctions—in the plans (opposite) which place bedrooms on one side and more active and public rooms on the other, in the change of outside materials (brick on the bedroom sides and ends, and wood on the more active sides), and in the way it arranges all of the active sides of the buildings to flank a pedestrian street, thus using the buildings as organ-

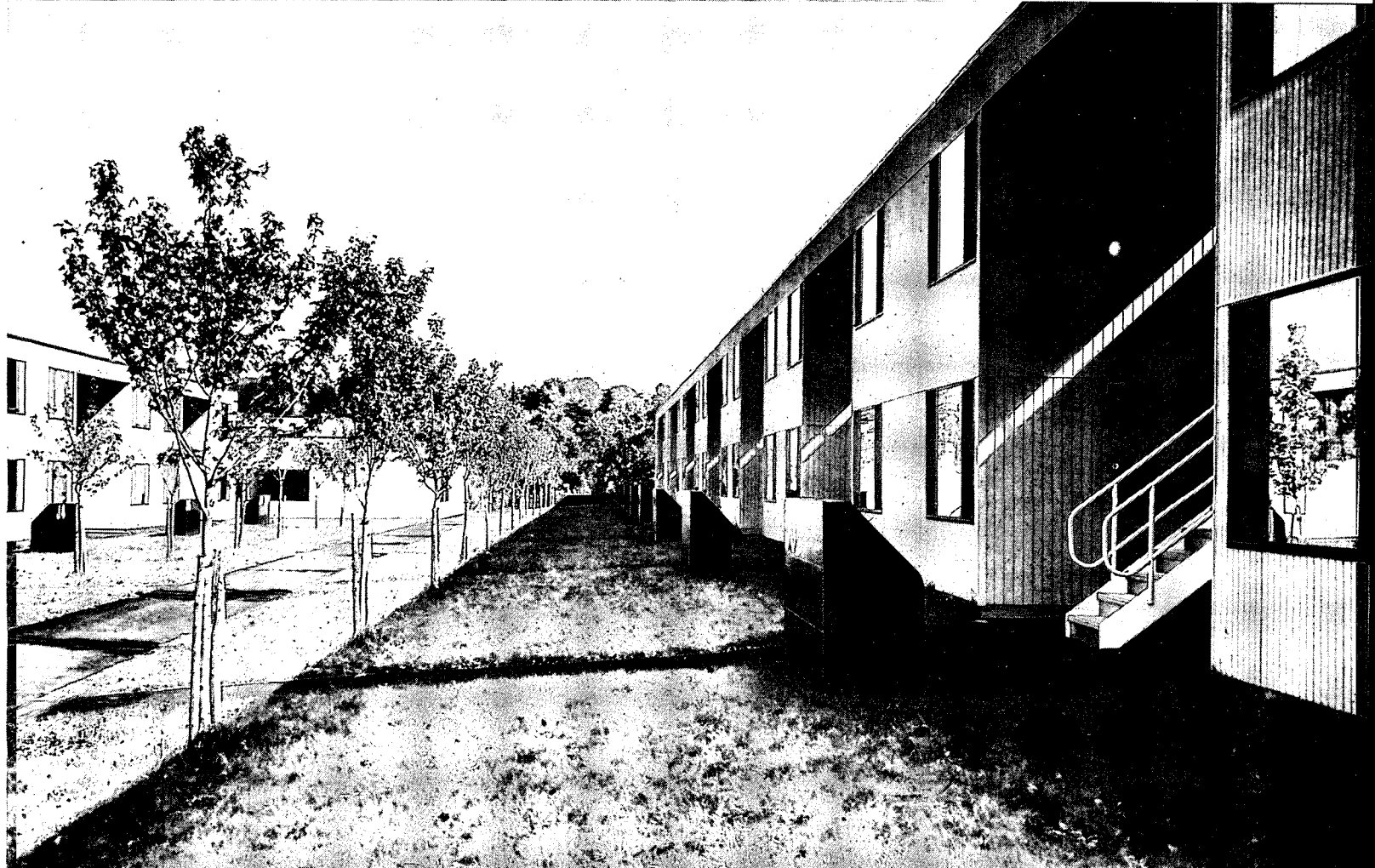
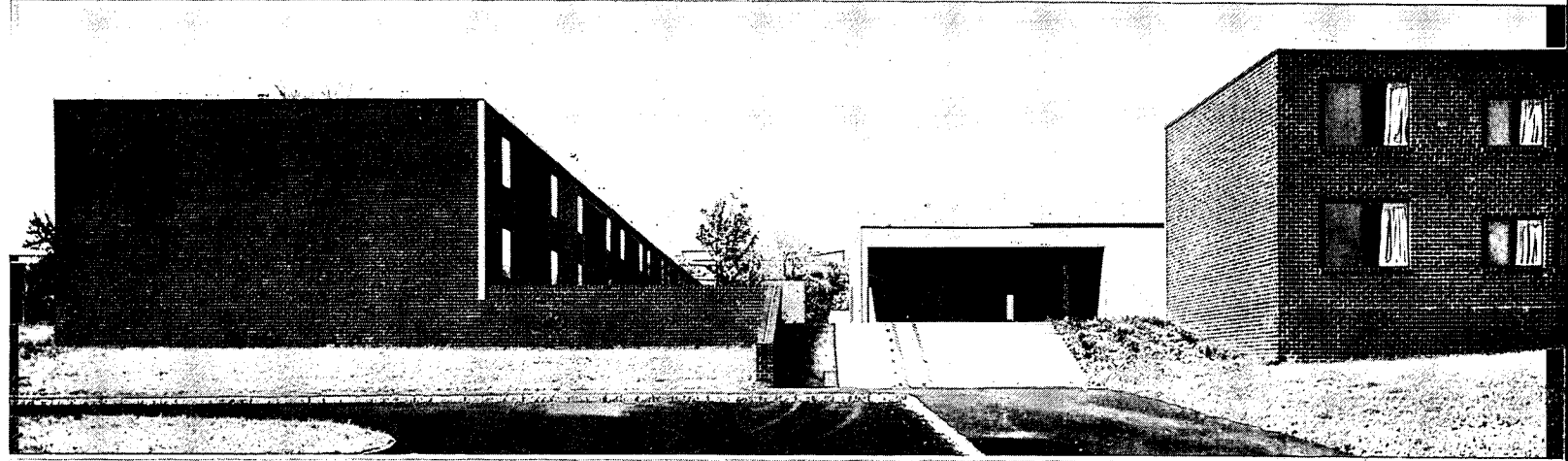
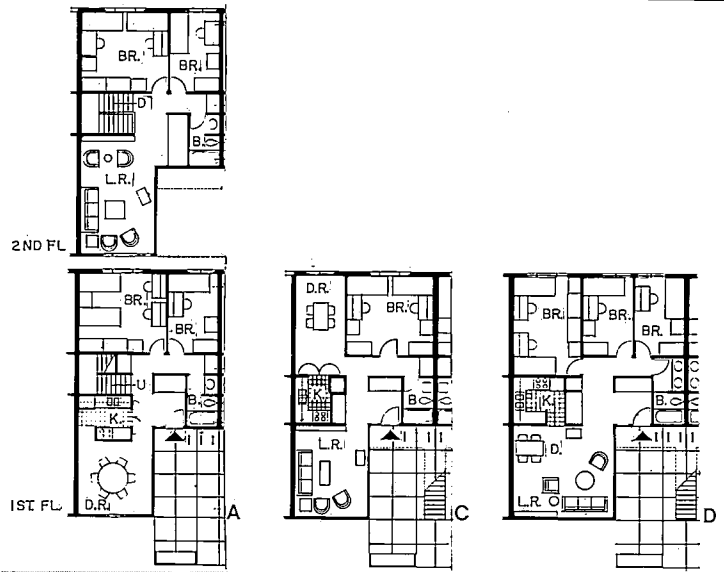
izers of outdoor space as well as containers for indoor ones. All of the entrances, of course, are from the pedestrian street, and the architects think of this street as a series of active, linear spaces, well lit at night and able to accommodate the daytime commotion of bikes and trash pickup. Corners that are produced by the intersection of streets become places for community facilities, and, at the other end of the spectrum, covered entry ways like the one shown below function as semi-private zones between the

streets and the apartments inside. The courts also provide space for storing bikes and trash, as well as shelter for the entrances, and they are lit by a strip of skylights in the roof seen in the photograph below.

APARTMENT HOUSING PROJECT, New York State University College at Purchase, Purchase, New York. Architects: *Gwathmey Siegel Architects*. Engineers: *Flack & Kurtz Engineers*. Consultant: *Peter Rolland & Associates* (site planning). General contractor: *Blitman Construction Corporation*.

*Norman McGrath photos*







## COLDSPRING

Coldspring is designed to be a 370-acre community within the city of Baltimore and will eventually house 12,400 people in 3,780 units. Its first phase has recently been completed. It consists of 124 units which the architects, Moshe Safdie & Associates, call "deckhouses." These were intended to provide the qualities of a townhouse in an over-all density of about twice that of conventional townhouse developments. To do this without covering the entire site with parking, a pedestrian deck was designed that

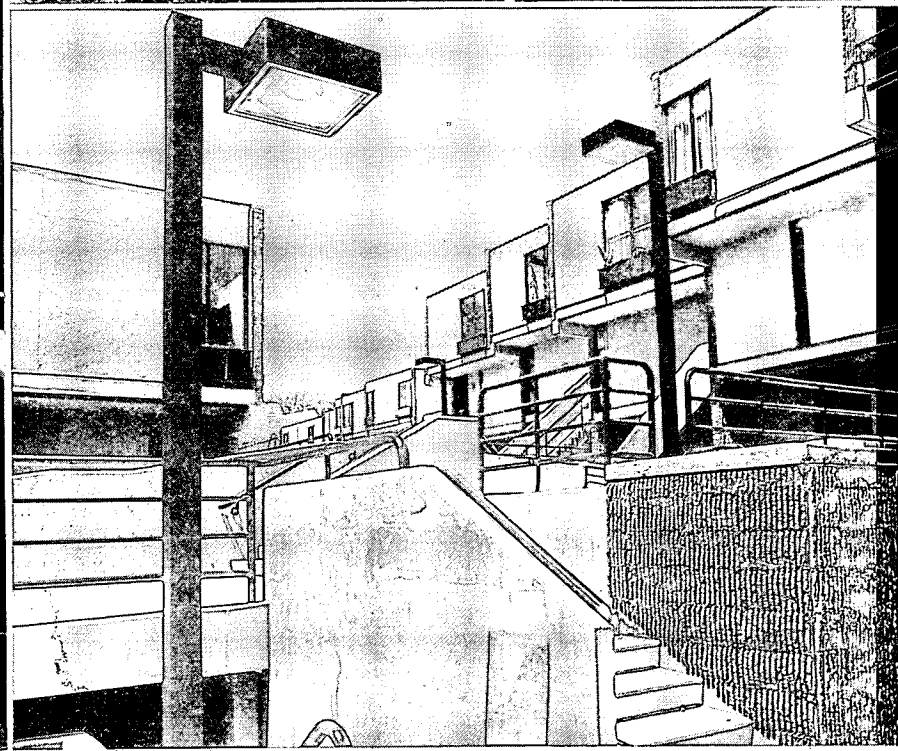
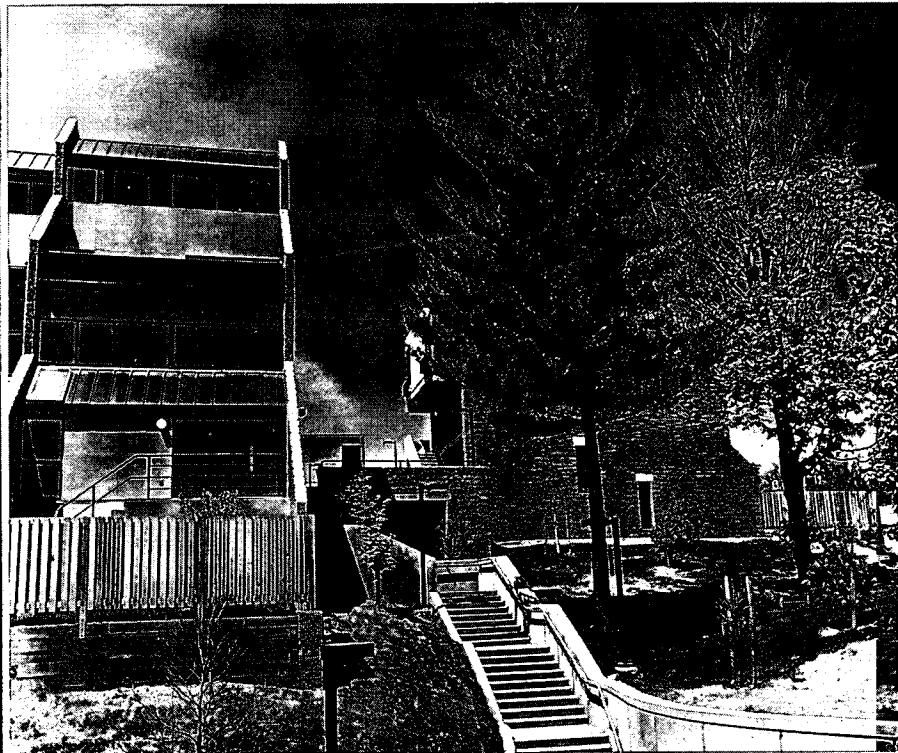
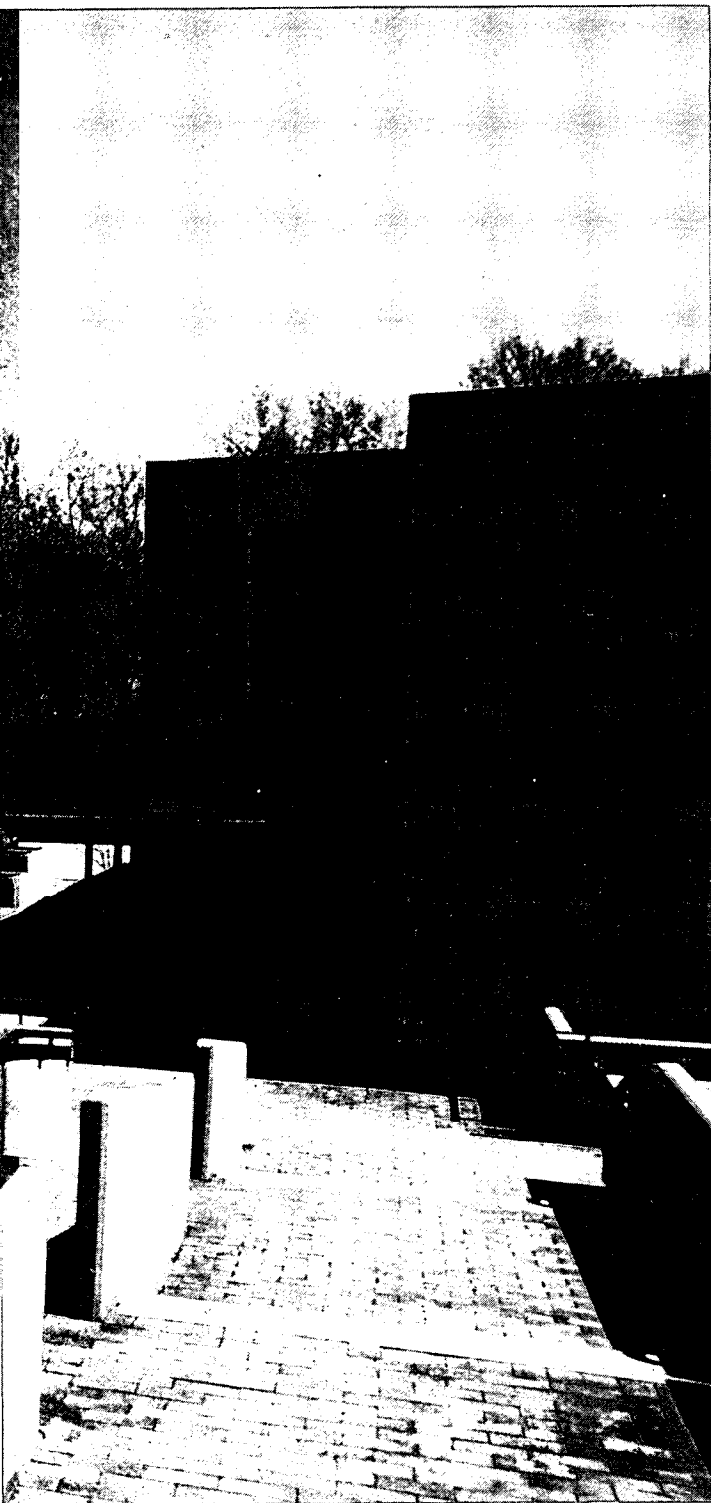
winds through the buildings at various levels, connected by ramps and stairs and bridges. The deck provides play spaces and also the pedestrian entrances to the houses. Furthermore it covers the parking below. About half of the units are conventional townhouses, and the other half are maisonnettes and duplexes stacked vertically. The lower of these units have direct access from the deck and from the parking area, and also they have gardens. The upper have access one flight above the deck by stairs and have gardens on

the roofs of the units below. Another remarkable feature of these housing units is their price, which ranges from \$33,170 for a two-bedroom maisonnette to \$58,850 for a three-bedroom townhouse. In addition, mortgages on them are available for 10 per cent down, with 30 years to pay and an interest rate of 7.5 per cent. All of this is made possible because, even though the development is privately built, the city of Baltimore, in an effort to stem the flight to the suburbs, has become the construction lender and mort-



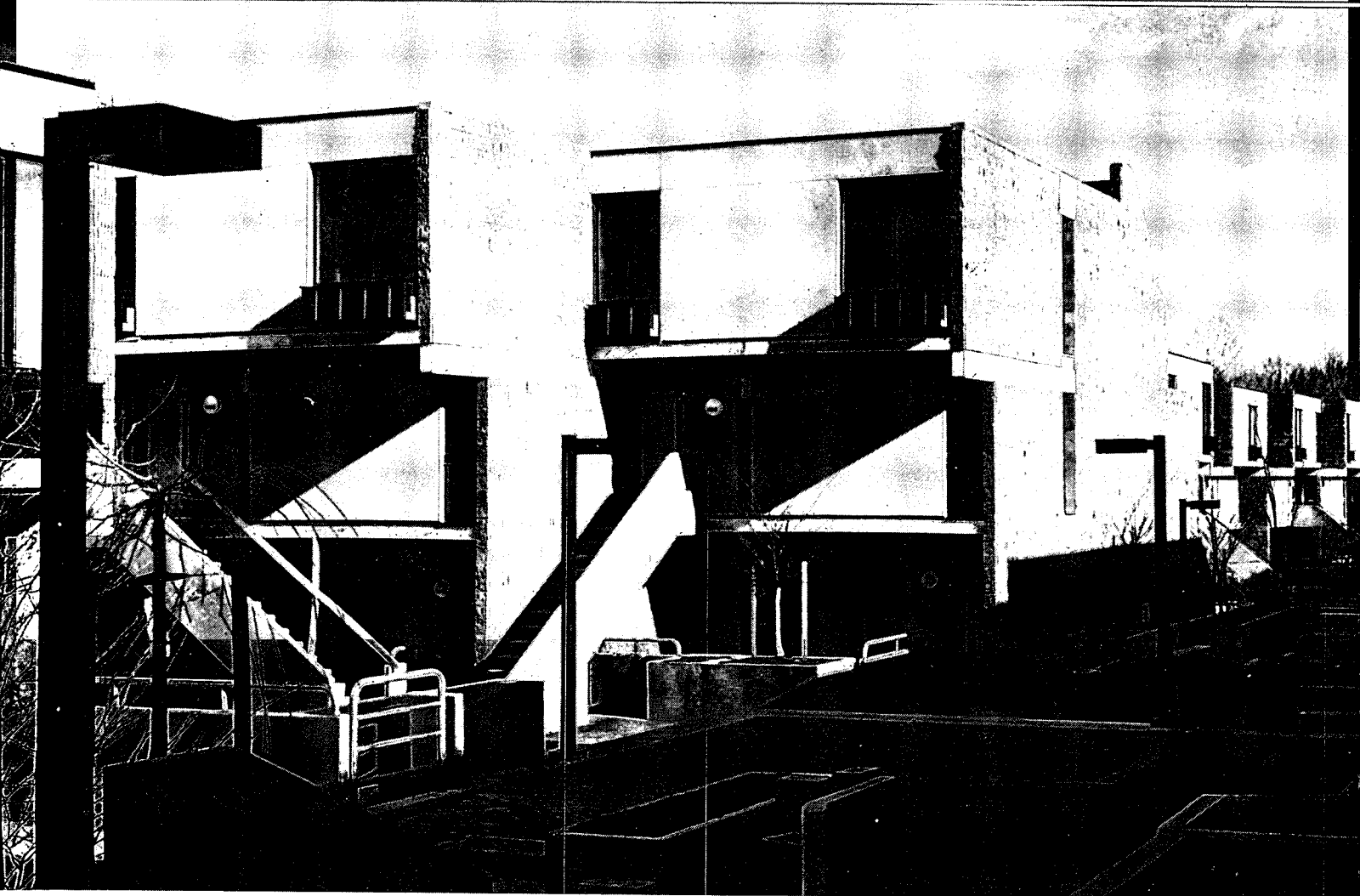
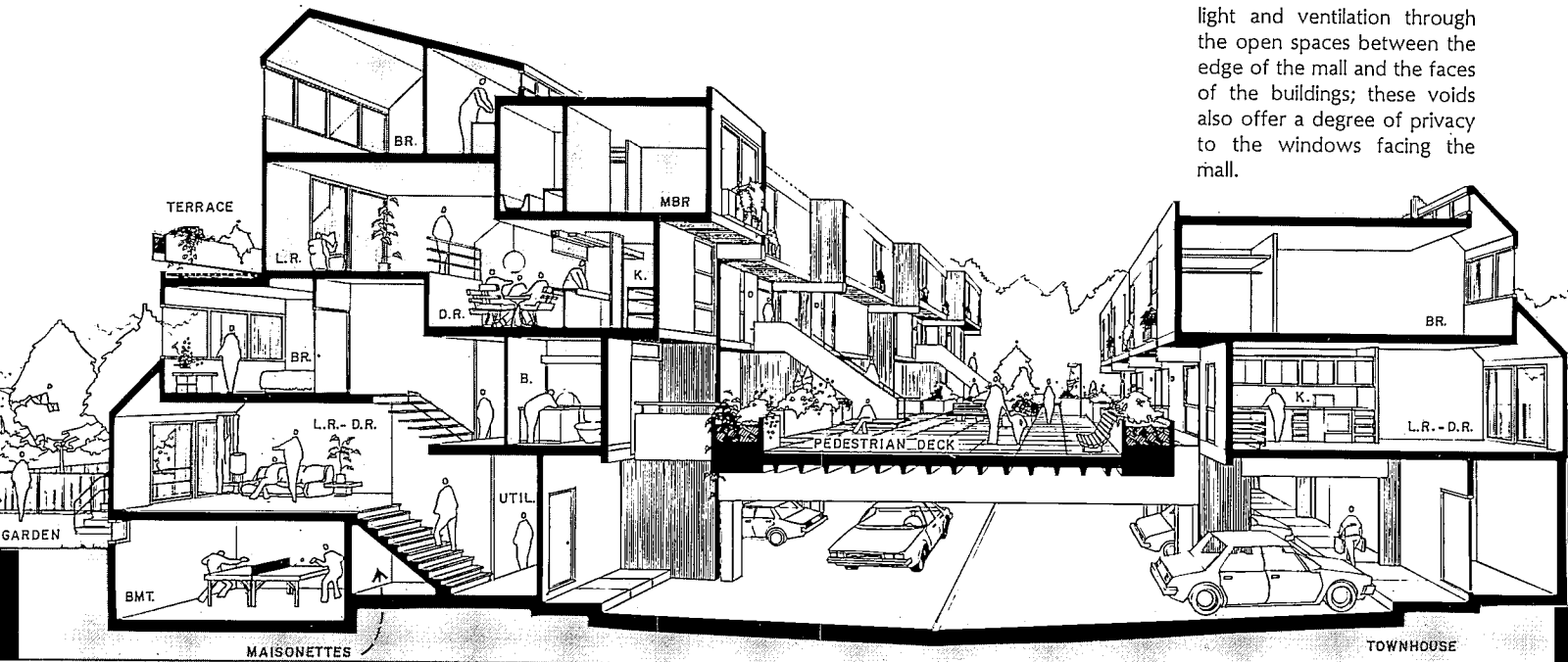
gage holder, aided by Federal development funds.

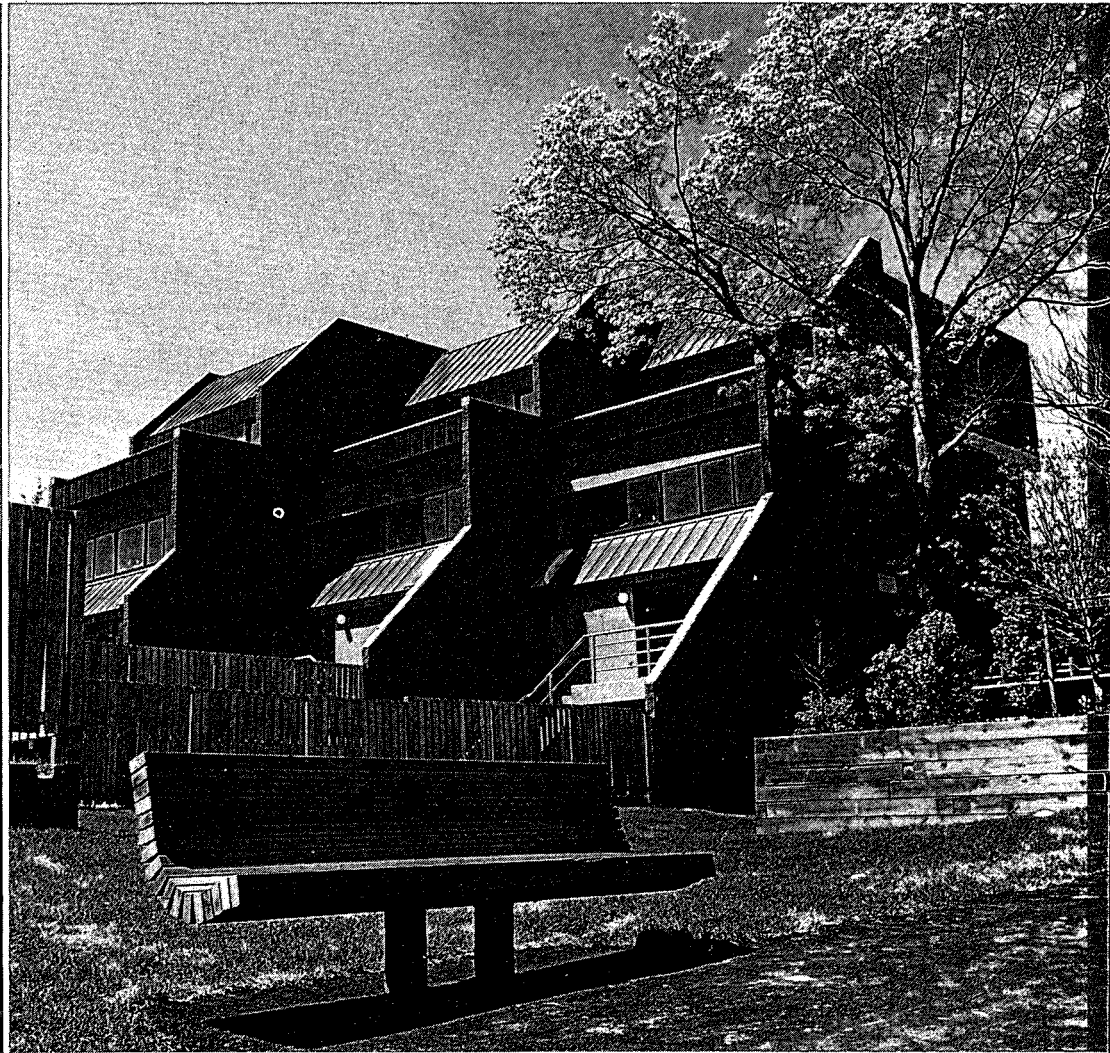
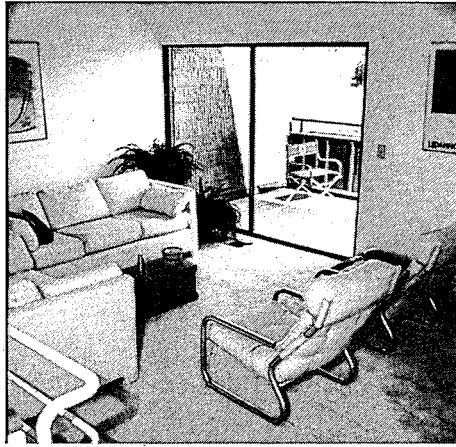
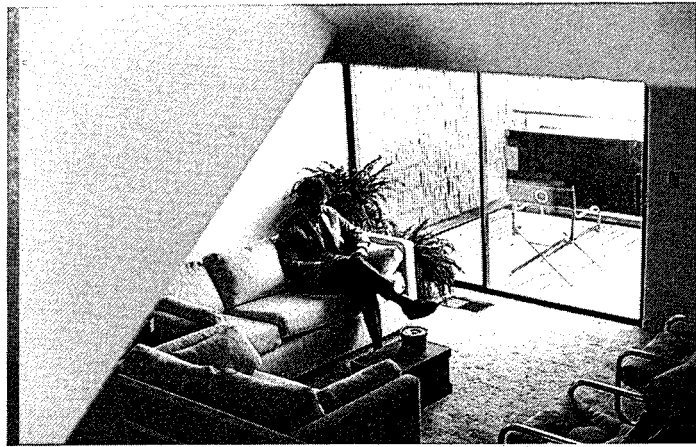
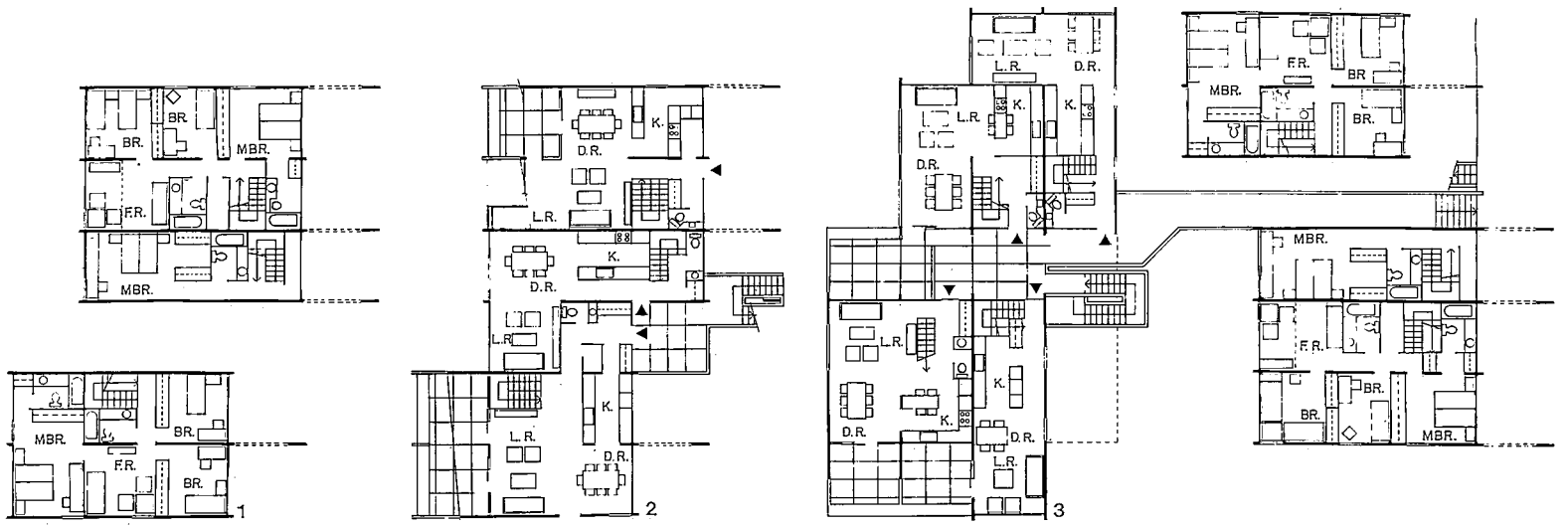
COLDSRING, Baltimore, Maryland. Architects: *Moshe Safdie & Associates*. Landscape architects: *Lawrence Halprin and Associates*. Engineers: *Conrad Associates* (structural); *Brar/Beauchamp Associates* (mechanical/electrical); *Dewberry, Nealon & Davis* (civil); *Law Engineering Testing Company* (soils/foundations). Consultants: *DeLeuw, Cather & Associates* (transportation); *Gladstone Associates* (economic); *Robert Hughes and Associates* (costs).





The drawing below shows how the basic format of the new housing at Coldspring works. Maisonnettes and complexes are stacked on top of each other in the range of buildings on the left, while more conventional two-story townhouses are across the pedestrian mall on the right. Beneath the mall is the parking area, which receives natural light and ventilation through the open spaces between the edge of the mall and the faces of the buildings; these voids also offer a degree of privacy to the windows facing the mall.







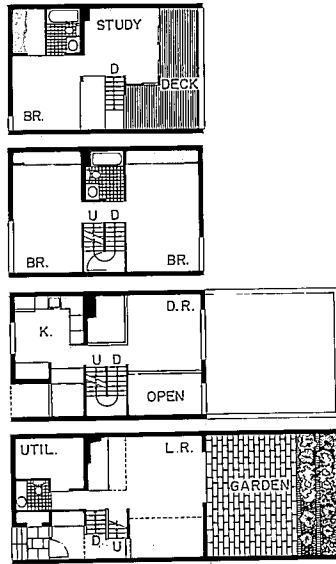
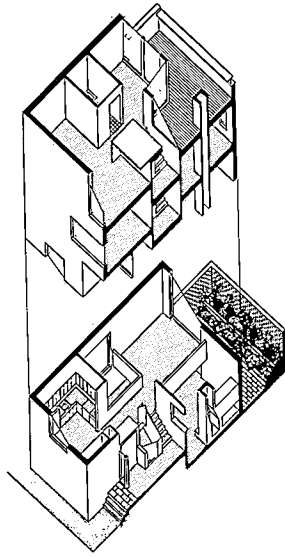
## SECOND STREET TOWNHOUSES

This low-rise development consists of eight luxury townhouses on 1.8 acre of cleared land extending the length of one block of Second Street in the Society Hill area of Philadelphia. Second Street connects the restored Head House Market and I.M. Pei's Society Hill Towers, and across the street from the new townhouses are a group of older buildings that have also been restored. Thus the new townhouses were conceived as infill connecting the old with the new while at the same time providing a foil for the historic

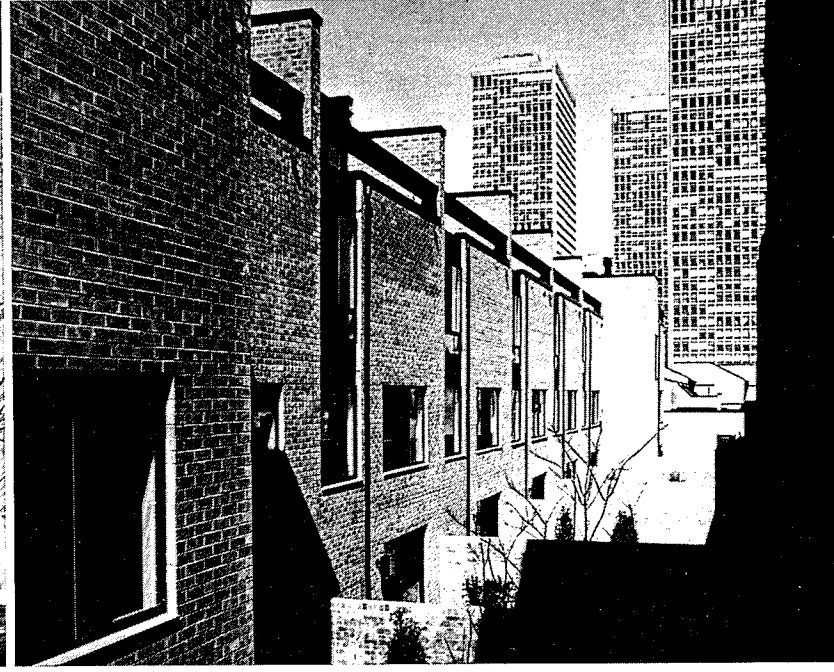
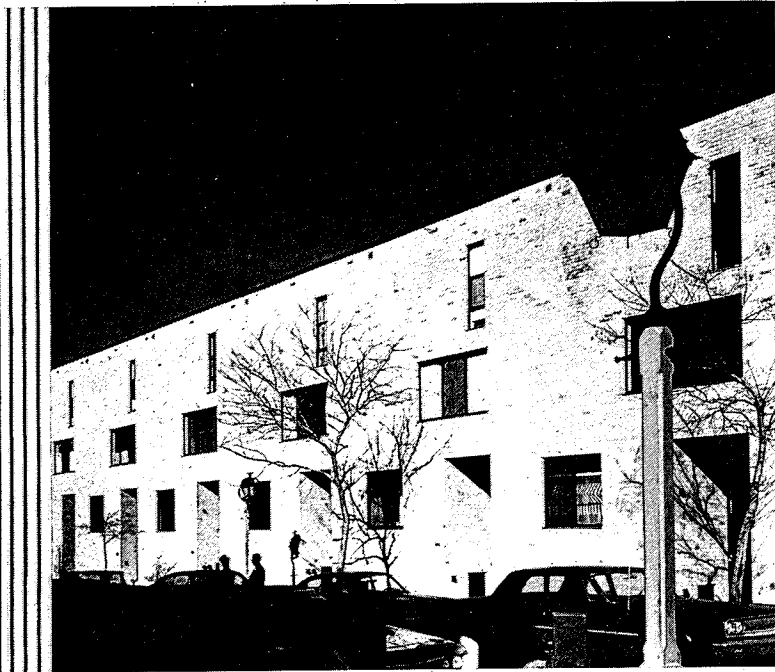
buildings across the street, and their facades—in the manner of row houses from the past—are related as much to the street as to the individual units, making a single urban thing as well as collection of things. The rear facades are treated less formally, their planes interrupted by balconies.

SECOND STREET TOWNHOUSES, Philadelphia, Pennsylvania. Architects: *Louis Sauer Associates*. Engineers: *Joseph Hoffman and Associates* (structural). General contractor: *Joseph Haas*.





David Hirsch photos





## LITTLETOWN QUARTER AT KINGSMILL

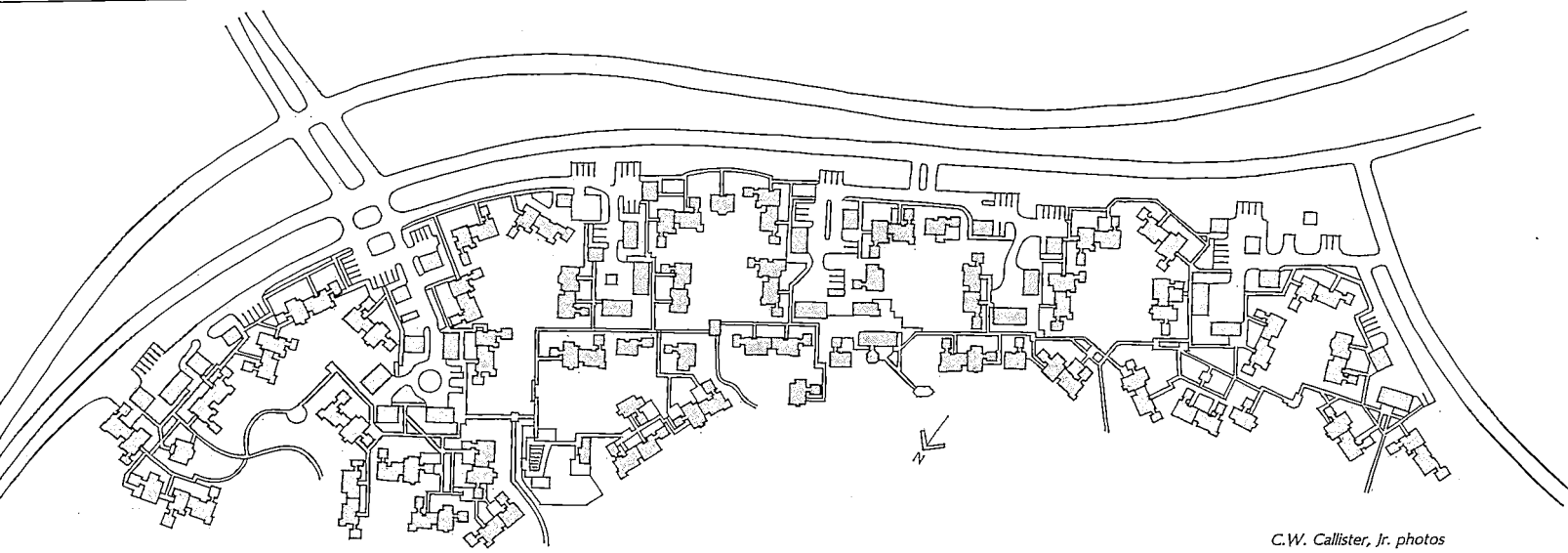
The search, seen in the design of the townhouses on the previous two pages, for an architecture that is evidently emulative of the context around it is carried at least two steps further in this 92-house project in Virginia. Here the context is a relatively natural and rural one near Williamsburg. The site is long and narrow, with open fields on one side and a golf course on the other. The houses are arranged in a loose serpentine pattern, then grouped into small neighborhoods. Each neighborhood has some special identifying

feature—ivy banks and sunken gardens, or larger amenities like a swimming pool, a crafts workshop, meeting houses, and a greenhouse. Five basic houses were designed, but their appearances can be varied considerably by the placement of optional latticed gazebos and attached greenhouses, plus what the architects call their "country kitchens." These are buildings that stand separate from the houses, connected to them by old-fashioned pantryways that lead to the dining rooms. Ten-foot-high ceilings allow the luxuries of tall

double-hung windows and window seats. Cars enter the site and are distributed in a fingerlike pattern into discrete automobile courts screened as much as possible from the rest of the site by berms. The central circulation system is a pedestrian one.

LITTLETOWN QUARTER AT KINGSMILL, Kingsmill, Virginia. Architects: *Callister Payne and Bischoff—project architects: Paul Bradley, Alfred Morrisette, and John Pryor.* Engineer: *Glenn Nelson.* General contractor: *Bush Properties.*





C.W. Callister, Jr. photos





## SHAWNEE VILLAGE

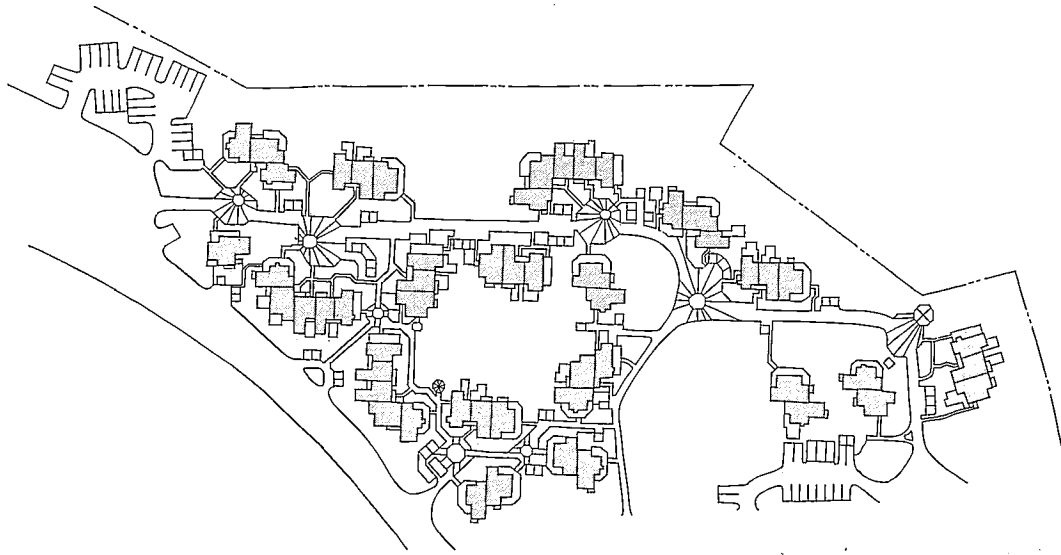
If the most vexing problem in multi-family housing design is accommodating a large number of cars on roadways and at rest without turning the site into a supermarket parking lot, then the architects of this development have contrived what is perhaps the ultimate solution. Here the cars are banished altogether from the residential areas of the site in garages or parking lots, and people either walk or ride on carts from there to the individual housing units—retreating, as it were, from a world of machines to some-

where else. Retreat, indeed, is in order, since Shawnee Village is a second-home, recreational community about an hour away from metropolitan New York. Having no automobile in most of its inhabited areas allows the buildings to be made relatively small but still prominent, related more to people than to the phenomena by which they arrived. In further pursuit of the goals of retreat, the architects have devised—as they did at Little-town Quarter in Virginia, shown on the previous two pages—a traditional-looking

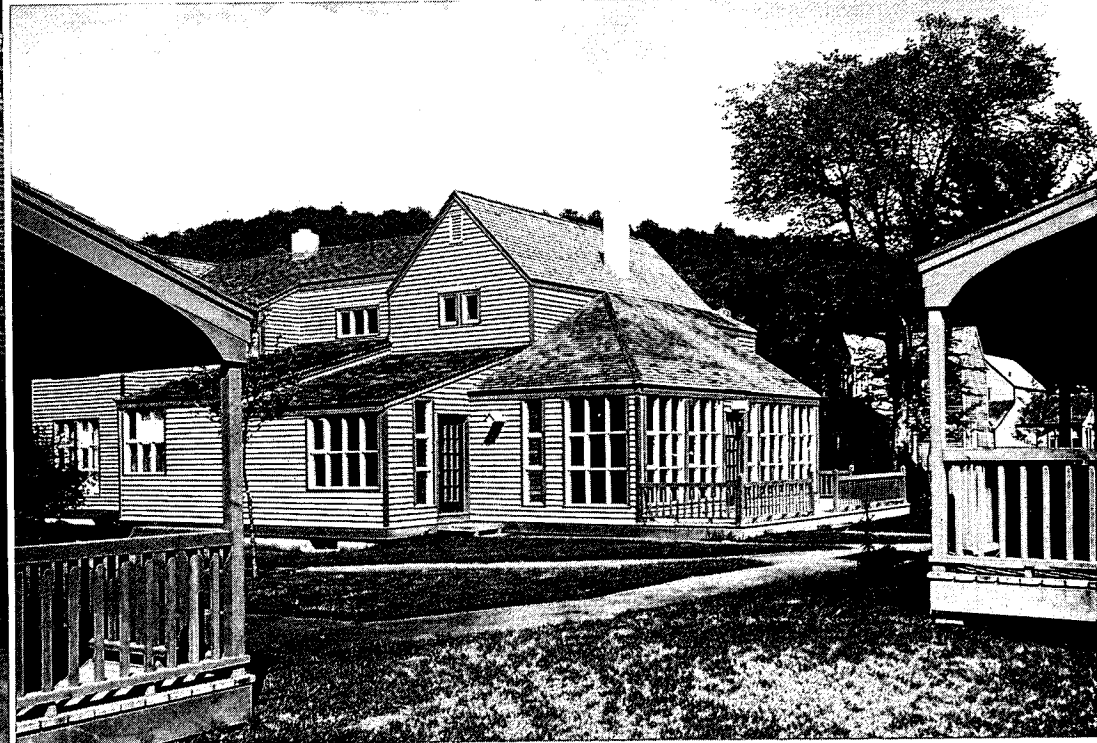
style of building, a gentle and handsomely detailed wood-frame vernacular, using familiar motifs like windows with relatively small panes of glass and covered porches.

SHAWNEE VILLAGE, Shawnee on the Delaware, Pennsylvania. Architects: *Callister Payne and Bischoff*—project architects: *John M. Payne, Christopher Riddle, and Lindsay Shives*. Engineers: *Edward C. Hess Associates, Inc.* Consultant: *Virginia Anawalt (Interiors)*. General contractor: *American Landmark Corporation*.

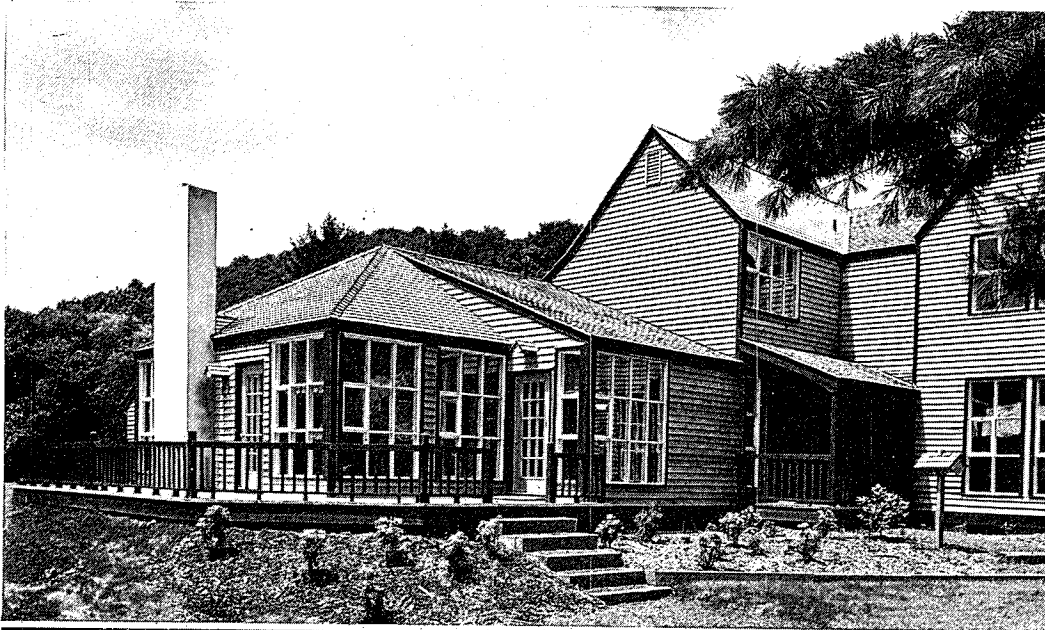




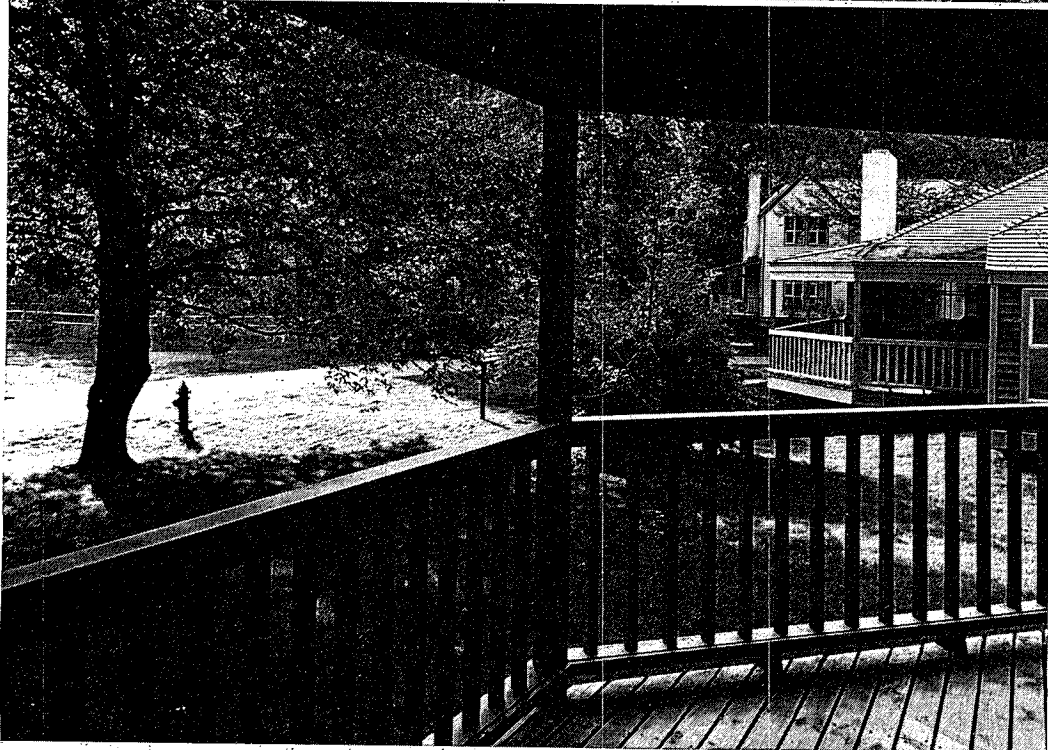
C.W. Callister, Jr. photos







Most of the buildings of Shawnee Village are made up of arrangements and rearrangements of several basic units. The architects wanted "to preserve and extend the architectural mood and pedestrian quality of a 1910 Model T resort village into the age of today's motor car." It is "a community which does not look like suburbia, a retreat away from automobiles."



C. W. Callister, Jr. photos

## Energy-standards project tests designers' conservation skills

In a research project just concluded, sponsored by HUD/DOE and conducted by AIA Research Corporation, 168 architect-engineer teams "redesigned" buildings of theirs constructed two to three years ago to get an idea of just how much energy savings they could achieve. What the project comprised, and what the results were (as exemplified by six of the 168 redesigns), follows.

This month the AIA Research Corporation will turn over to the Department of Housing and Urban Development the results of an \$8-million project designed to provide the basis for the energy performance standards for new buildings that Congress mandated be implemented by 1980. The project is unique in the annals of architectural practice: 168 architect/engineer teams were paid \$4.3 million to participate in a program of education and design review that culminated in the redesign of 168 buildings built in 1975 and 1976 in an effort to achieve "maximum levels of energy conservation." Six of these projects—typical of the innovative solutions submitted—are illustrated and briefly described here. (A more comprehensive article on the project will appear in an early issue.)

While the prime objective of the project, begun in May of last year, was to give a basis for developing energy performance standards, it had several important corollary benefits: 1) it indicated the current level of a cross-section of architect/engineer expertise in energy-conserving design; 2) it convincingly demonstrated that energy consumption should be considered at the start of design, and that early architect/engineer collaboration is imperative; 3) it showed that there are numerous opportunities for energy reductions when this approach is taken; 4) it suggested that the resulting designs can be good architecture.

To a large extent the redesigns relied on architectural techniques. Skylights, clerestories, natural ventilation and "passive" techniques such as berms, sod roofs and Trombe walls were abundant in the redesigns. Also they were more responsive to site and microclimatic conditions than before.

Some designs included photo-cell-controlled circuits for integration of daylight and electric light, but little innovation was evident in the electric lighting designs. In fact, consultants to the project agreed that this was the weakest area of the redesigns. Some a/e teams, though, did show non-uniform distribution of luminaires and different luminaire types to suit a variety of tasks within the same general area of the building. The hvac

systems, too, though generally energy-effective, were not novel, employing heat pumps and variable air-volume (VAV) air distribution—used for some time by progressive engineers.

Quality of the redesigns followed a bell-curve distribution, managers of the project report—some teams were very imaginative, others gave only minimal attention to opportunities, but most were somewhere in between. Many of the redesigns failed to quantify seasonal energy performance of the daylighting and passive techniques they used. Calculations sometimes were skimpy, and occasionally not provided at all. In this respect, the design teams were handicapped in a number of these areas by the unavailability of practical design tools.

The 168 building redesigns constituted Phase Two of a three-phase program stipulated by HUD for the development of the performance-type energy standards to be promulgated by the Department of Energy (DOE). Trial standards are to be published in the Federal Register by February of next year, and final standards are due by August.

The first phase called for an assessment of how much energy buildings currently have been designed to use. The second phase—the 168 building redesigns—was intended to determine how much reduction in energy consumption from current practice could reasonably be accomplished. These first two phases were conducted by the AIA Research Corporation. In Phase Three, HUD will work with architects, engineers and building officials in field-testing and implementing the standards.

In Phase One, more than 3,200 questionnaires were mailed to architects of 12 different basic types of non-residential buildings located in 37 cities, on which construction had begun in 1975 and 1976, as identified by *Dodge Reports*. Over 1,800 questionnaires were completed and returned on a voluntary basis but with assistance and prompting by teams from 14 different architectural schools. Of the returned questionnaires, 1,661 were sufficiently complete for energy consumptions of the buildings to be estimated through use of a short-form version of the AXCESS energy-analysis computer program developed by consulting engineers Syska & Hennessy, who also monitored the returns, along with AIA/RC, and supervised the data processing. In Phase One, also, information on low-rise housing was obtained from a survey conducted by the National Association of Home Builders. Approximately 5,000 forms were

returned, representing some 175,000 single and multi-family homes and a like number of mobile homes.

For Phase Two, AIA Research Corporation invited the 1,800 respondents to the initial questionnaire to submit proposals for compensation for their potential participation in this phase. It was understood that about 200 buildings would be randomly selected from those firms whose proposals were close enough to AIA/RC's budget target, and which would provide an evenly divided sample for 16 building categories and seven climatic zones.

Immediately after they were selected, the 168 design teams engaged in a 12-15 week charette to produce redesigns for more effective energy usage. All teams were required to attend a one-day data-requirements workshop, a two-and-a-half day redesign information seminar, a one-day concept design review, and a one-day pre-final review. For buildings with more complicated requirements, such as hospitals and schools, a redesign midreview also was required. Finally, the design teams had to submit final documents for the redesigned buildings.

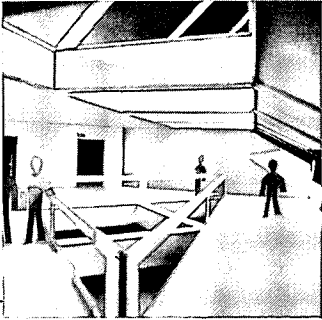
In Phase One, energy use was estimated for the total of 1,661 buildings, on the basis of about 150 parameters using the short-form AXCESS method.

In Phase Two, energy use was determined by computer for 168 buildings by the long-form AXCESS method (over 1,000 parameters considered) before and after redesign. Syska & Hennessy reviewed and analyzed a number of different strategies such as passive heating and certain control mechanisms used in the redesigns that the AXCESS program could not handle, and made value judgments on how much energy these might save. Furthermore, a computer program was developed to convert data in the redesigns to ASHRAE standard 90 criteria so that energy use under these constraints also could be determined.

HUD/DOE will determine the budget numbers for the standards after a consideration of all of the values obtained by the above methods, selecting budget numbers somewhere between what is technically possible, and what can be done within reasonable cost and design-time constraints, and also somewhere between existing standards and the maximum possible. The *design (not operating)* budgets will be in the form of Btu per square foot per year, with different numbers for different building types and for the seven different climatic zones.



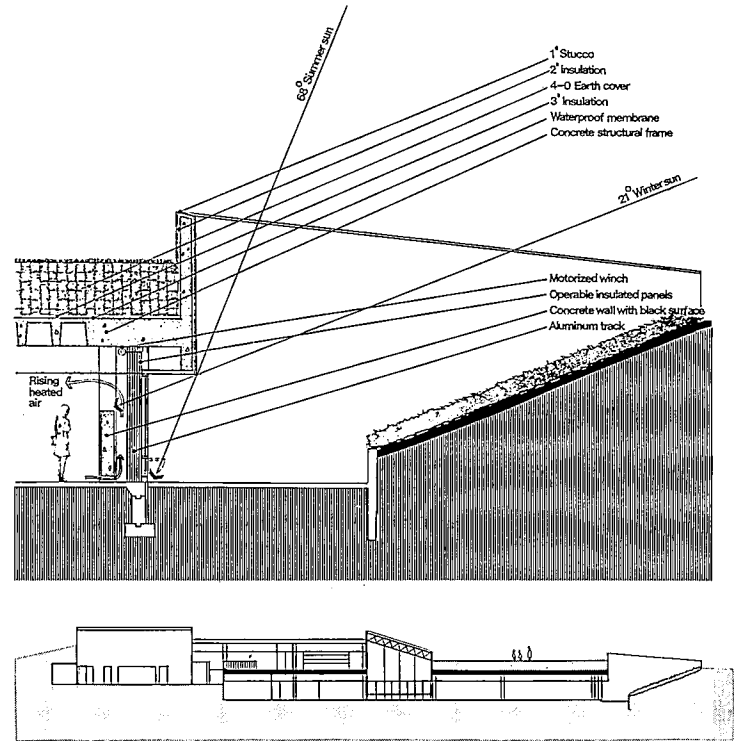
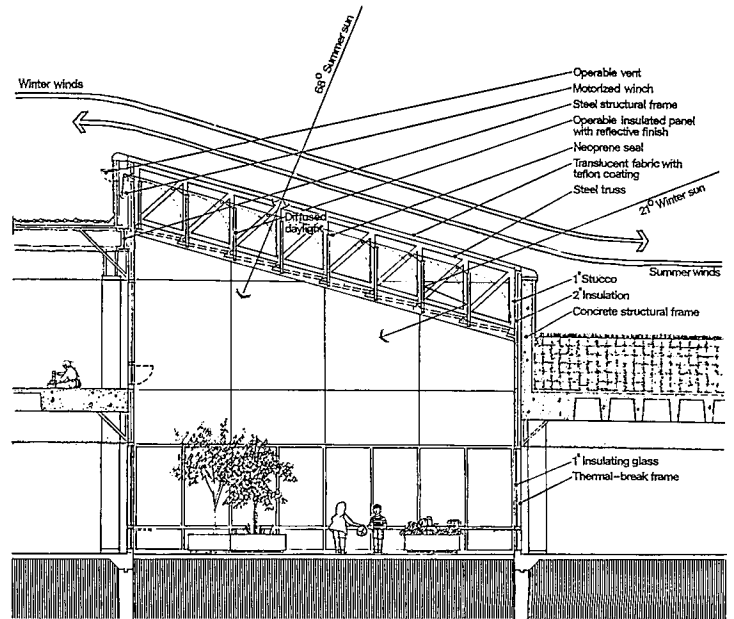
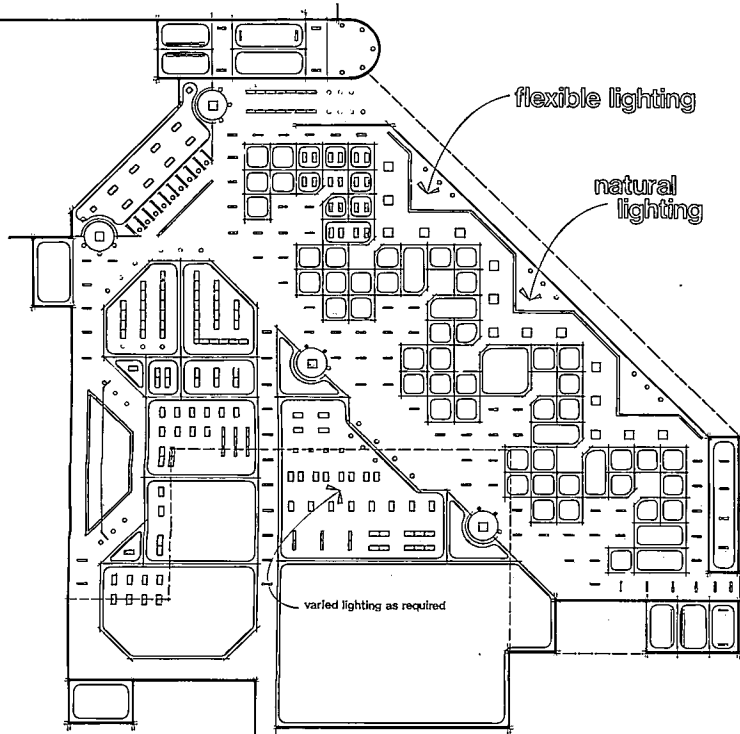
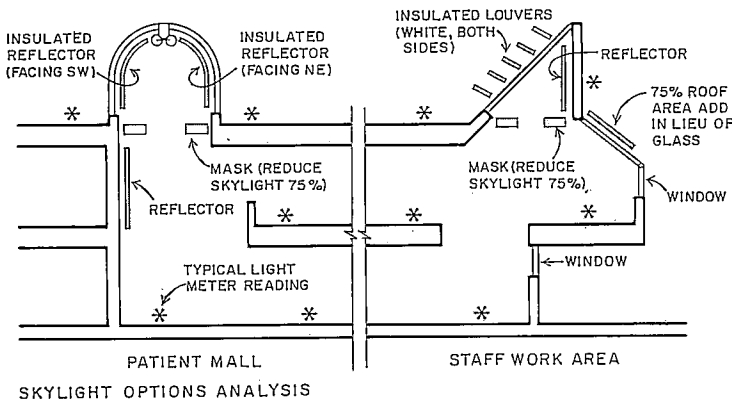
**A COMPUTER PROGRAM  
BASED ON MODEL TESTS  
PREDICTS THE EFFICACIES  
OF SKYLIGHT DESIGNS**



In the process of redesigning an ambulatory care facility, the architects built large-scale models of skylighted spaces to take illumination measurements with various combinations of louvers, reflectors and screens. For example, in a direct south summer sun situation, they simulated reflectors and/or louvers to produce indirect, cool light in the building. Using the results of the experiments, they wrote a brief computer program that compared the cost of natural light versus electric light. The results showed that skylights could be an asset if insulated louvers or screens were used to prevent night heat loss in winter, and heat gain in summer, and some type of movable shutter system to vary the amount of exposed glass.

The use of daylighting was estimated to have provided about 25 per cent of the total savings achieved. The other 75 per cent was attributed to heat pump systems for heating and cooling and for domestic hot water. Though waterloop type heat pumps were used in the original building, more optimum sizes were selected in the redesign for greater efficiency.

CLINIC, Maryland. Architects and engineers: *The VVCR Partnership.*



**BERMS AND SOD ROOFS  
REDUCE ENERGY LOSS,  
WHILE CONTROL DEVICES  
EXPLOIT DAYLIGHT, SUN**

Bermed walls, sod roofs, shaded glass, and a play court, which can be shaded by operable panels when the sun gets too warm, comprise the passive techniques for a Minnesota elementary school. The roof of the court is covered with Teflon-coated fabric to diffuse direct sun. The court also has vent windows at bottom and top for natural ventilation.

The overhang of a south-facing glazed wall shields it from sun in summer. A Trombe wall behind the glass provides warmed air for winter heating, and operable insulated panels block the sun's rays when heat is not needed.

Luminaires in classroom spaces next to the court and next to glass on the south facade of the building are connected to photocell control.

ELEMENTARY SCHOOL, Apple Valley, Minnesota. Architects and engineers: *Hammel Green & Abrahamson, Inc.*

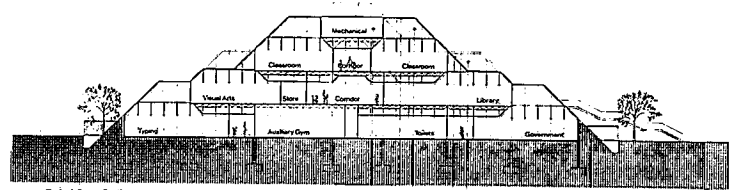
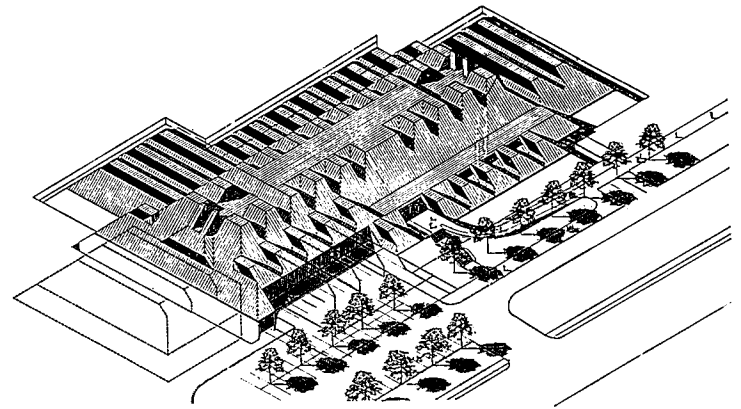
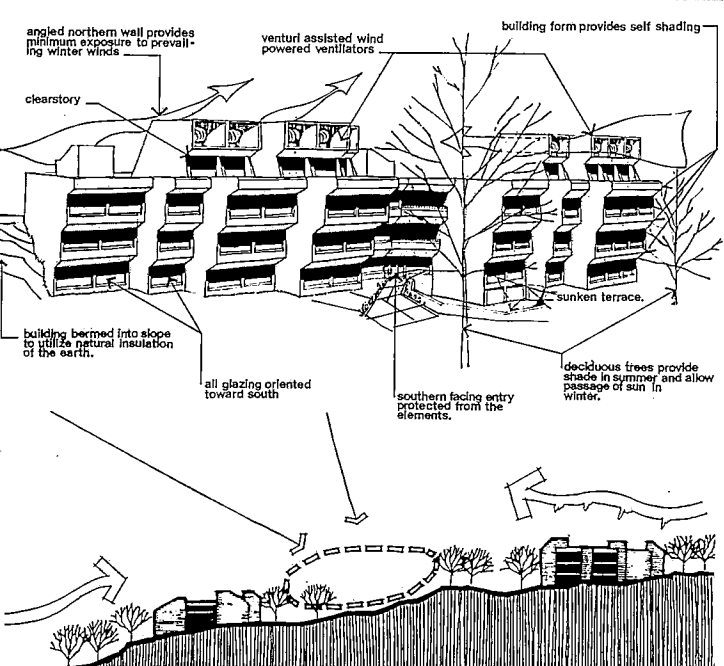
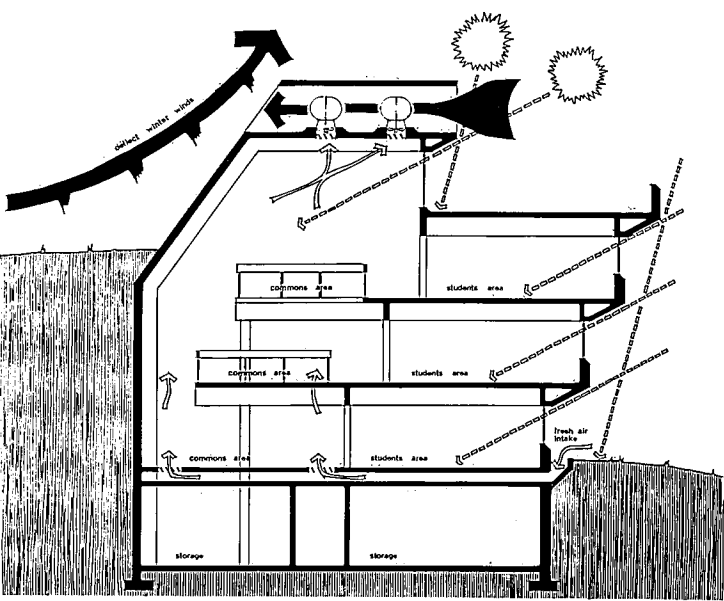
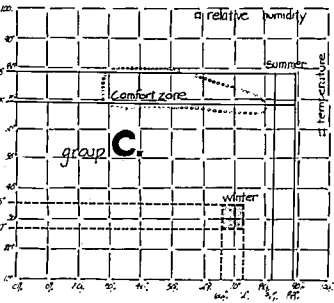
**TURBINE EXHAUSTERS  
GET AN ASSIST  
FROM VENTURI EFFECT TO  
VENTILATE DORMITORY  
IN WARM WEATHER**

Architects doing redesigns in the AIA Research Corporation performance-standards project were urged to take cognizance of, and exploit, microclimatic conditions—and this building reflects the advice. Because this dormitory was to be on a sloping site, it was bermed into the slope to utilize the insulating value of the earth and to block winter winds. Vertical louvers in front of the rear wall would be open in summer to expose the cool surface, but shut in winter to preclude a cold radiant effect.

All glazing is on the south side shielded by overhangs from summer sun. Natural ventilation is achieved by turbine-type ventilators on the roof, with air-foil shapes within the enclosure to encourage Venturi action so as to increase air speed.

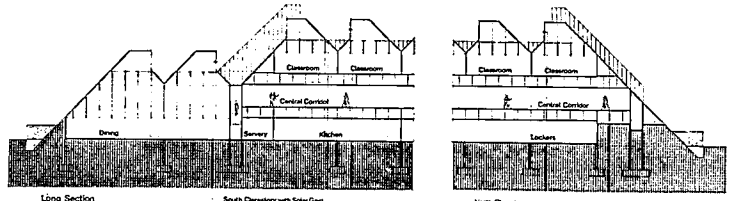
The architects and their engineer also considered energy usage vis-a-vis hours of occupancy and concurrent outdoor air temperature and humidity conditions, and required occupant comfort.

DORMITORY, Washington, D.C. Architects: *HTB, Inc.* Engineer: *Alphatec, P.C.*



Typical Cross Section

- Shaded Form Does Contained Natural Lighting to All Long Occupancy Spaces
- Three Storey Form Reduces Surface Area Per Unit Volume
- Low Occupancy Spaces Located Heavily
- Central Corridor Plan Reduces Area
- Berm
- South Facing Classroom with Solar Gain Controlled by Shading
- Sloping Profile Reduces Surface Area
- North Facing Classroom Justic Solar Gain to High Occupancy Common Spaces
- Low Thermal Capacity for Intermediate Occupancy
- Controlled Mechanical Plant



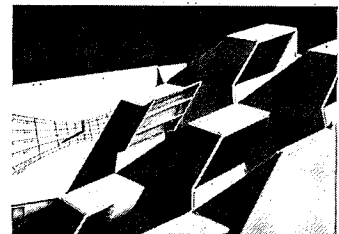
Long Section

South Dormitory with Solar Gain Controlled by Shading

North Dormitory

- Backward Thermal Barrier Reflects Heat from Louvers and Provides Shaded Faculty
- Reduction of External Surface
- Surface Profiled to Prevent Unwanted Solar Penetration into Occupancy but Maintain Reflective Characteristics

**PYRAMIDAL MONITORS  
ON ELEMENTARY SCHOOL  
FACE NORTH OR SOUTH  
FOR DAYLIGHT OR  
BOTH SUN AND DAYLIGHT**



The very unusual pyramidal massing of this school derived from the architects' desire to exploit daylighting and the sun's heat for a site that is basically oriented north-south. In order to have light/solar scoops for classrooms and gym and utilize either north or south light, the architects created the series of volumes shown. For high-occupancy spaces, with a higher heat load from people, glass faces north. For medium- and low-occupancy areas, glass faces south, but it has upward-tilting louvers to shut out sun in warmer weather. The louvers were given an inward slope to prevent entrapment of hot air under them; at the highest altitude of the sun in summer, the angle of the louvers prevents entry of sun, but daylight is allowed in.

A thick double-window arrangement at the clerestories provides for use of a Beadwall system in which polystyrene beads are vacuum-pumped at night from storage to between the glass to reduce nighttime heat loss. Solar studies were conducted to verify the performance of the shading provided by building forms and louvers.

SECONDARY SCHOOL, Detroit, Michigan. Architects: *Sims Varner & Assoc. Inc.* Engineers: *Detroit Public Schools T.P.D.; Sidney Dorb, P.E.*

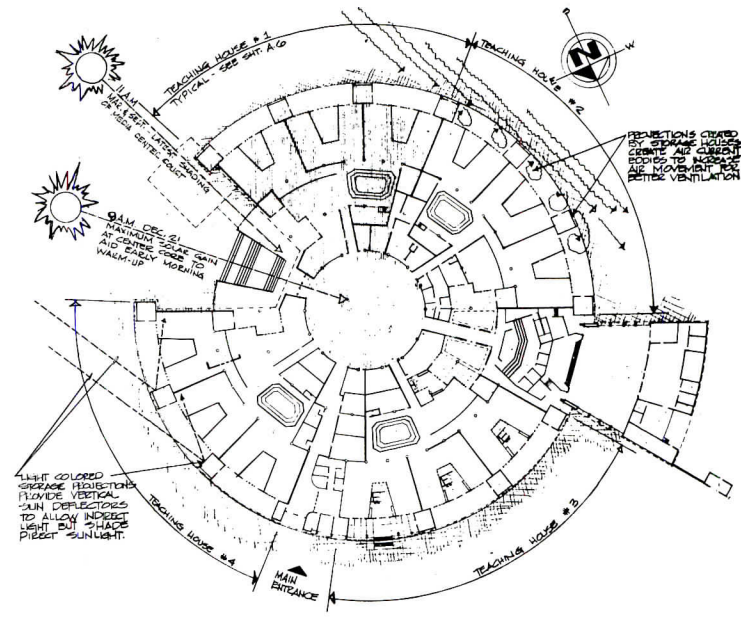
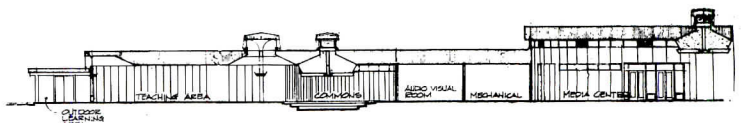
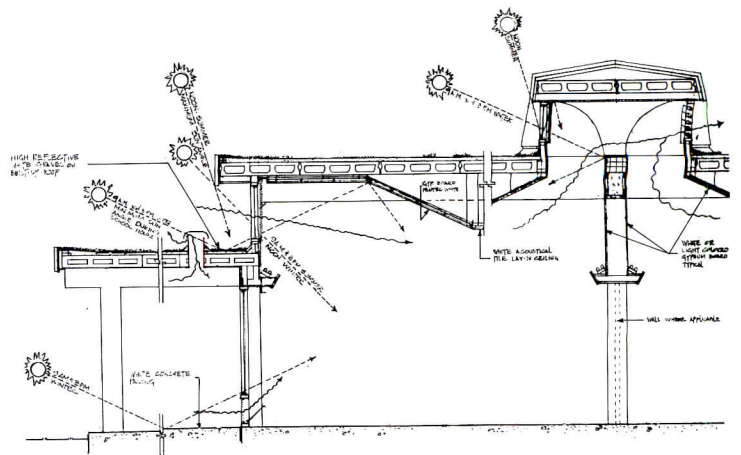
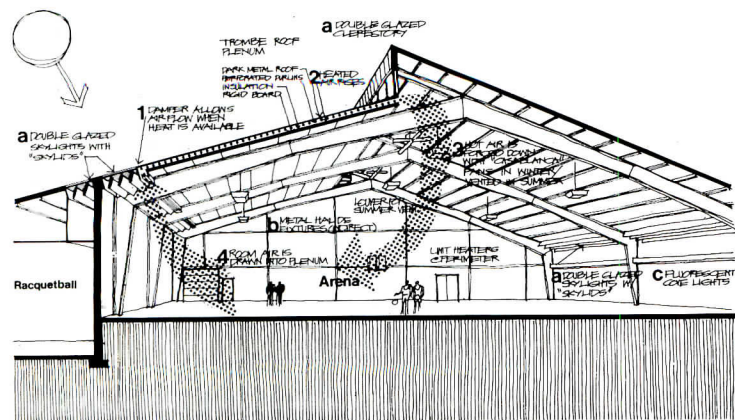
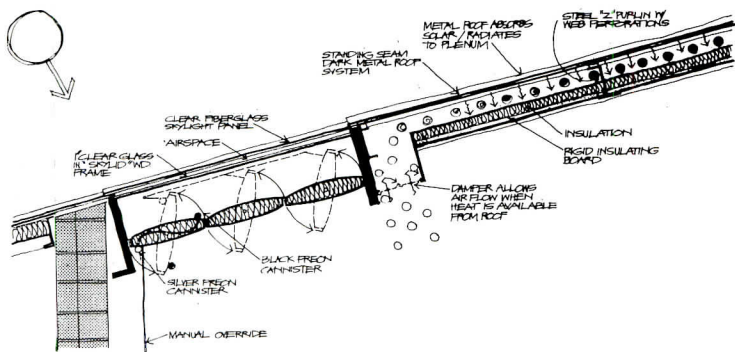
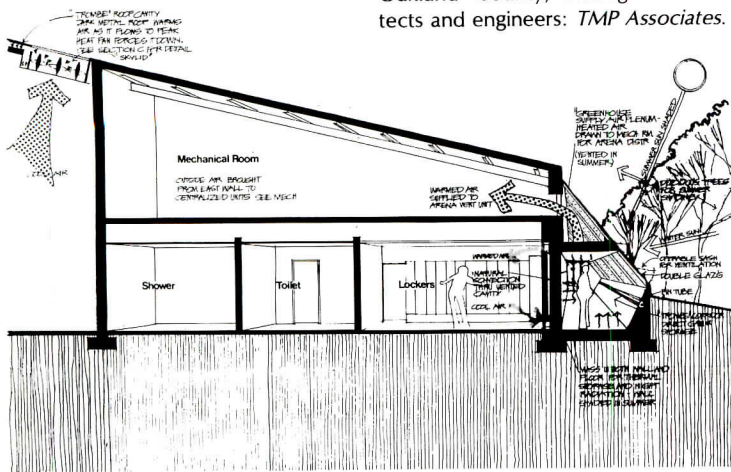


# ROOF AS WELL AS WALLS ARE HEAT ABSORBERS FOR A COLLEGE SPORTS FACILITY

The words "passive solar techniques" bring to mind images of sun scoops, skylights, clerestories, and Trombe walls. Here the architects have applied The Trombe principle not just to masonry walls, but to the roof as well. The metal roof is dark to absorb solar radiation. When heat is needed and is available from the roof, a damper at the bottom of the roof cavity is opened so that air moves by convection through the cavity to an opening at the top of the ceiling, whence "Casablanca" fans (the architect's terminology) push the air down to occupancy level. A Trombe wall on the inside face of the corridor, on the other hand, provides convected and radiated heat to locker rooms and racquetball courts.

Daylighting from narrow skylights and from a clerestory are relied on for much of the illumination. Suspended HID luminaires provide nighttime illumination, and the south row can be switched on during the day to supplement daylight on the south.

COMMUNITY ACTIVITIES BUILDING, Oakland County, Michigan. Architects and engineers: *TMP Associates.*

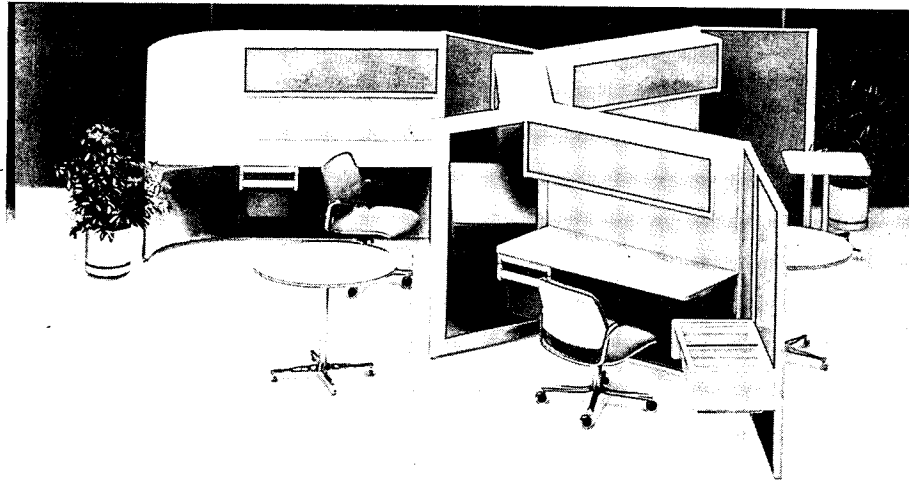


## CLERESTORIES LET IN DAYLIGHT AND ALSO VENTILATE THE INTERIOR VIA OPERABLE LOUVERS

Clerestories for daylighting for natural ventilation are the main energy-conserving features of this elementary school. Operable louvers behind the glass control the amount of sun and daylight admitted. The interior light well has operable, insulated louvers for relieving warm air that gathers at the cupola. Vent windows at the floor level admit outdoor air for ventilation. A 1/8-in. scale model of a pie-shape section of the building was used for daylighting studies. Light-meter readings were taken in teaching areas, the commons, and the media center for March 21 and December 21 at different times of day. Fluorescent lighting is provided in the area between the clerestories. Heating and cooling of the building is by a reciprocating-compressor heat pump with double-bundle condenser for building heating and cooling-tower circuits.

ELEMENTARY SCHOOL, Raleigh, North Carolina. Architect: *Owen F. Smith.* Engineer: *Shelton Y. Adcock.*

For more information, circle item numbers on Reader Service Inquiry Card, pages 201-202



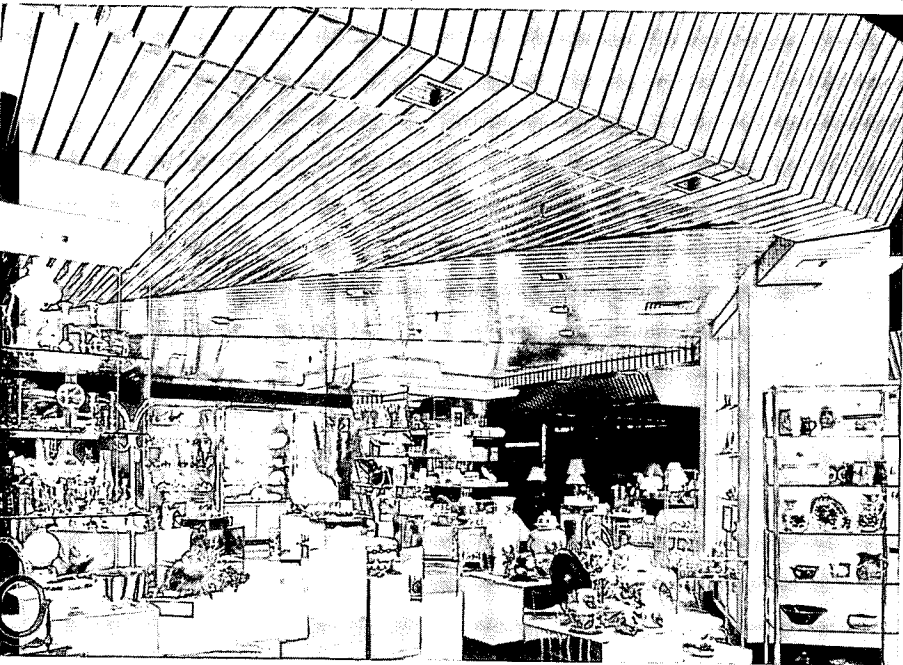
## Another new design for open office furniture

Rosemount Office Systems has announced an all-acoustical furniture system for open offices. The acoustical nature includes more than just sound-proof divider panels; the system has a mounting apparatus

which eliminates surface slots and gaps cutting off noise from station to station, and sound-absorbing panels are available on the storage units to further deaden sound. Each panel contains a hidden race-

way for power cables. A variety of component options, colors, facing material, trims and laminates are available. ■ Rosemount Office Systems, Inc., Lakeville, MN.

*circle 301 on inquiry card*



## Sparkling ceiling system for high use areas

A new ceiling system called "Ecol-O-Vane" consists of lightweight aluminum linear louvers. Each louver is individually removable to simplify access to service ducts, piping and cables. Available in three

designs, it is easily mountable on the ceiling, either with space between the louvers or solid. The louvers are available in a wide range of colors (each color baked on for easy maintenance). Suggested applica-

tions are high use interior areas including airports, cafeterias, stores and shops, and subways. ■ Levolor Lorentzen, Inc., Hoboken, NJ.

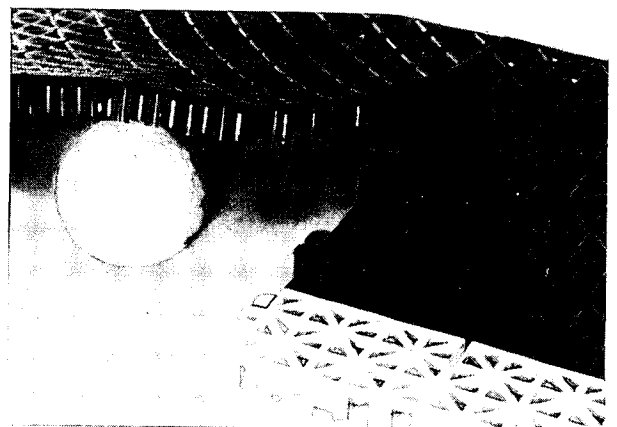
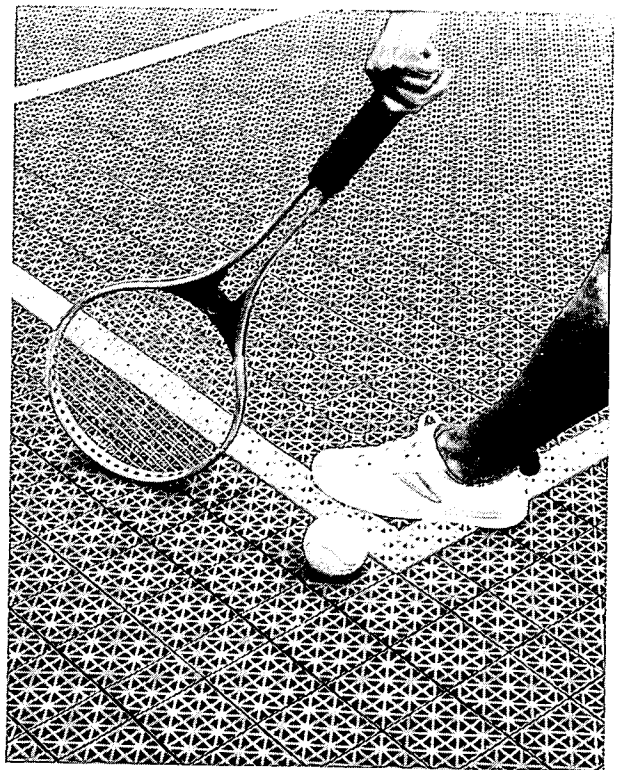
*circle 302 on inquiry card  
more products on page 141*

## A new tennis court surface available

Swiss-Flex is a tough, molded tennis court surface that is claimed to need no maintenance and is less tiring to play on. The surface consists of a series of modules interconnected by studs that plug into oval-shaped lugs. Each module has supporting prongs underneath of slightly different lengths to assure sturdy support, and is of a close-web design that allows water to

drain through. Slight ridges throughout are claimed to assure good footing, and fast starts and stops. Modules are available in red or green for court and surrounding areas, and white for lines. The Swiss-Flex system can be spread on top of any flat sub-surface including hard courts. The cost is \$1.45 per sq ft. ■ Swiss-Flex, St. Johnsbury, VT.

*circle 300 on inquiry card*





# SAVE MILLIONS OF BTU'S



**ROHM  
AND  
HAAS**  
PHILADELPHIA, PA 19105

Plexiglas is a registered trademark which identifies only the product of Rohm and Haas Company

Plexiglas acrylic plastic is a combustible thermoplastic. Observe fire precautions appropriate for comparable forms of wood. For building uses, check code approvals. Impact resistance a factor of thickness. Avoid exposure to heat or aromatic solvents. Clean with soap and water. Avoid abrasives.

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With the S-U-N program, we evaluate all the energy variables associated with installation of domed Plexiglas skylights in your planned or existing buildings — then provide you with a free technical analysis of the energy-conserving characteristics of these skylights. The analysis details how you could save millions of BTU's annually with properly designed domed Plexiglas skylights. And, the analysis can help you comply with the

energy conservation requirements established by state and municipal building codes.

S-U-N is really on the beam—the program is so effective that AAMA has adopted it as a voluntary standard procedure for calculating skylight annual energy balance (AAMA Standard 1602.1—1976).

Given the urgent necessity to reduce energy consumption, can you afford *not* to assess the use of Plexiglas skylights as an energy-saving measure for new construction?

**Write for a free illustrated brochure on the S-U-N computer program for energy conservation.**

## Follow the S-U-N with skylights of Plexiglas®—use our free computer service

For more data, circle 56 on inquiry card

For more information, circle item numbers on Reader Service Inquiry Card, pages 201-202

**PERLITE PLASTER AGGREGATE** / Perlite aggregate for use in general plastering with portland cement and gypsum-based plasters is discussed in a 12-page technical brochure. The publication details fire-rated constructions, typical curtain and spandrel wall constructions, and mix proportions for each type of plaster. Fire ratings for structural steel columns, walls and partitions, floors, roofs, and ceilings are given. ■ Perlite Institute, Inc., New York City.

circle 400 on inquiry card

**FIBERGLASS WALL PANELS** / Maximum design flexibility and minimum cost are two advantages of Fiberglas wall panels, according to a product brochure, which also includes acoustical performance and fire hazard data on the fabric-covered panels. ■ Owens/Corning Fiberglas, Los Angeles, Calif.

circle 401 on inquiry card

**LINED RUBBISH CHUTES** / UL-listed refractory-lined rubbish chutes that do not require fire enclosures, sprinklers and chute termination closure are illustrated and described in a two-color brochure. Components included are chute sections constructed of an aluminized steel jacket with four-in. refractory lining, floor support systems, roof termination, sanitizing units, UL-listed intake doors, flashing and counter flashing. Drawings show construction and installation details. ■ Van-Packer Co., Beach Haven, N.J.

circle 402 on inquiry card

**OSHA COMPLIANCE MANUAL** / Step-by-step information on requirements for OSHA inspections is featured in the "OSHA Reference Manual," part of a subscription service, which includes detailed self-inspection check lists, bi-monthly update supplements and a newsletter. The 600-page manual functions as a procedural guide and records system for operating companies, and suggests action and safety programs to ensure compliance from management and employees. The "Manual" and initial subscription cost \$112; subsequent renewals are \$75. ■ The Merritt Co., Santa Monica, Calif.

circle 403 on inquiry card

**ELECTRODE WATER BOILER** / Suitable for potable water as well as heating and general supply water service, providing stable control of temperature under changing load conditions, the "Series EW-2000 Modumatic" boiler heats water by passing electric current directly through it. A product specification brochure explains the unit's low maintenance and energy efficient features, and describes the temperature modulating controls, principles of operation, and system accessories. ■ Aerco International, Inc., Northvale, N.J.

circle 404 on inquiry card

**HEAT EXCHANGERS** / Cut-away drawings are used to show the internal construction and operating principles of the *Helitherm* Series C heat exchangers; a product data sheet also describes the exchanger's accurate temperature control, rapid recovery and self-descaling features. ■ Aerco International, Inc., Northvale, N.J.

circle 405 on inquiry card

**WINDOW BLINDS** / A color brochure explains how to use 1-in. *Ball* blinds imaginatively throughout the house. Detailed instructions are given for measuring windows for blinds, and a chart lists 76 available colors. ■ Marathon Carey-McFall Co., Montoursville, Pa.

circle 406 on inquiry card

**PRINTER/PLOTTER** / Computer-aided design, CRT hard copy, mapping, planning and research are some of the applications of the 47 printers, plotters and printer/plotters described in a 28-page color brochure. There are 12 full-page print/plot samples; diagrams show range of input sources and outputs available, interfacing schemes, software organization, and remote and off-line systems. New products shown include the "I/O" multiplexer series, which allows a single computer to snare multiple printer/plotters, or two computers to share a single output unit. ■ Versatec, A Xerox Co., Santa Clara, Calif.

circle 407 on inquiry card

**COPPER SPRINKLER SYSTEMS** / Published by the Copper Development Association, "Fire sprinkler Systems" is a 40-page handbook on the design, fabrication and installation of an automatic fire sprinkler system using copper tube and copper fittings. The manual identifies and explains those areas where the design parameters and installation practices for engineered copper fire sprinklers are different from traditional systems. The literature discusses the hydraulic efficiencies and maintenance benefits of copper sprinklers, which are intended to react sufficiently quickly and effectively so as to suppress and contain fire in the room of origin, preventing the spread of fire and affording occupants sufficient time to react. ■ Copper Development Assn., Inc., New York City.

circle 408 on inquiry card

**AIR HANDLING BIBLIOGRAPHY** / The Air Movement and Control Association has revised its Publications List, which contains brief descriptions and prices of 27 technical brochures, standards and application guides for fans, louvers, dampers, unit heaters, etc. ■ Air Movement and Control Assn., Arlington Heights, Ill.

circle 409 on inquiry card

**TRANSLUCENT WINDOW SYSTEMS** / The substantial insulation and maintenance benefits claimed for *Kalwall* fiberglass/aluminum grid panels are outlined in a four-page replacement window brochure. The translucent units offer U-factors between .15 and .40, with light transmission options of between 3 and 83 per cent. Standard fixed or operating sash can be incorporated in the pre-assembled panels for view or ventilation. ■ Kalwall Corp., Manchester, N.H.

circle 410 on inquiry card

**OVERLAY DRAFTING** / Principles of overlay drafting, which produces composite drawings by the use of pinbar registration and a series of overlays, are explained in a brochure. The material describes in detail the benefits of overlay drafting to architects and engineers: reduced cost and time for higher-quality complex design drawings. ■ Industrial Photosystems Div., Photo Products Dept., Du Pont Co., Wilmington, Del.

circle 411 on inquiry card

**STEAM BOILER BLOWDOWN SYSTEM** / Designed to maximize energy savings, solids control and equipment payback, the "XC" blowdown system described in a product brochure will recover 90 per cent of the energy normally lost during blowdown. Manufactured as a complete package system ready for installation, models are available for boilers of all sizes, including multiple boiler installations. ■ Sentry Equipment Corp., Oconomowoc, Wis.

circle 412 on inquiry card

more literature on page 151

# AZTEC

RADIANT HEATING FOR HOMES

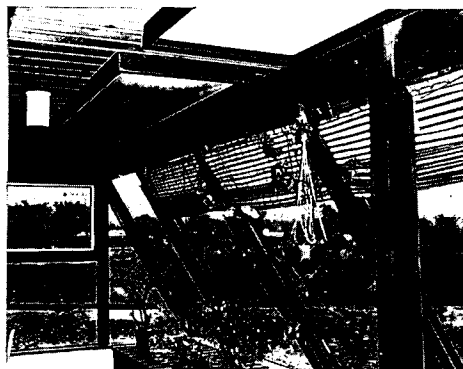
Send for new brochure on an alternative way to increase comfort and cut energy costs in architecturally designed homes.



Aztec panels above kitchen counter

Total heat. Supplemental heat. Remodel. Add on. Back up for solar. Why turn on a central system to heat one room?

Aztec low temperature electric radiant heating panels can be surface mounted on ceilings, recessed between 16" or 24" joists, or placed in suspended ceilings, can give you absolute zone control and substantial energy savings. No air movement. No moving parts. 10 year warranty. UL.



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# "Ceco helped us finish this job five months ahead of schedule ...they're pros"

The new Mutual Benefit Life and IBM Plaza: 28 stories over Kansas City, Missouri. Constructed on a "fast track" basis, the entire concrete structure took only fourteen months to complete.

"On a fast track job, the concrete forming can make or break you. That's why we went with Ceco," said Bill Roach, project manager. "Ceco completely formed a twenty thousand square foot floor every six working days. And they not only did it fast, they did it right. Our savings on labor and equipment costs were substantial. What's more, tenants were moving in five months ahead of schedule."

Ceco formwork specialists are professionals. They give you solid cost information — then stick to it. In the planning stage Ceco can provide structural design assistance; and make practical forming recommendations based on 64 years of experience.

When you're ready to build, Ceco can provide complete forming services coast-to-coast. Experienced crews. Ready-to-use forming equipment. And standardized forming systems for the most sophisticated architectural designs. All on a lump sum basis.

Contact your local Ceco office for complete details.

Architects: Mies van der Rohe, Inc.  
General Contractors: Paschen, Inc. and Eldridge, Inc.  
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Structural Engineers:  
Jack D. Gillum and Associates



Ceco forming specialists formed a total of 834,000 square feet of flooring and averaged one completed 20,000 square foot floor every six working days.



**The performance pros in concrete forming**



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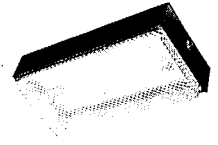


**ELECTRONIC LOCK /** *Cypher Lock* is an electronic combination lock, which can be used to activate all types of electric door strikes and operators. By pressing the four-digit combination, the door will unlock for a predetermined period. The system has the capability to activate a holdup alarm if entry is made under duress, and an error alarm is available if an incorrect entry is made at the pushbutton panel. Other options include weatherproof equipment, automatic battery standby, and decorative panels. ■ Continental Instruments Corp., Hicksville, N.Y.



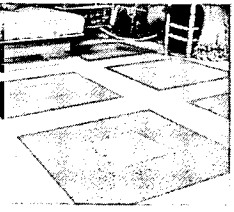
circle 303 on inquiry card

**EMERGENCY LIGHTING /** A wrap-around prismatic lens produces light patterns of more than 200 deg for effective area illumination with this 250-lumen fluorescent emergency lighting fixture. The 10<sup>3</sup>/<sub>8</sub>- by 5<sup>1</sup>/<sub>4</sub>- by 2<sup>7</sup>/<sub>8</sub>-in. unit is available in a choice of colors, and has been designed for simple screwdriver installation. Nickel-cadmium batteries provide 90 minutes of operation; leads are supplied for either 120V or 277V input. Optional *Lexan* lens and tamperproof screw are available. ■ Siltron Illumination, Inc., Gardena, Calif.

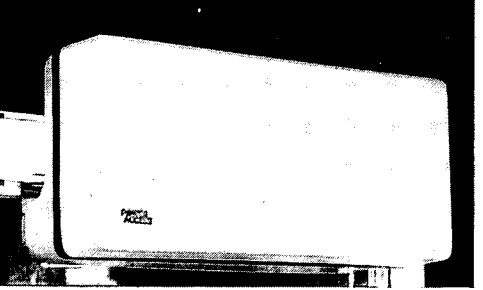


circle 304 on inquiry card

**VINYL TILE /** For residential applications on, above, or below grade over concrete or wood subfloors, "Shine-Ease" no-wax vinyl composition tile has a textured surface which extends the wear life of the shine. It is available in .80 gauge, 12-by-12-in. self-stick or dryback tiles; "Shine-Ease" is greaseproof, alkali- and stain-resistant, and easy to maintain. Pictured is "Meridian," a stone-chip pattern offered in five colorways. ■ Azrock Floor Products, San Antonio, Texas.

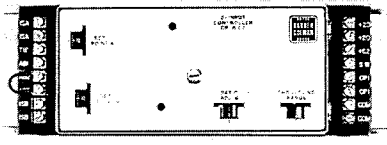


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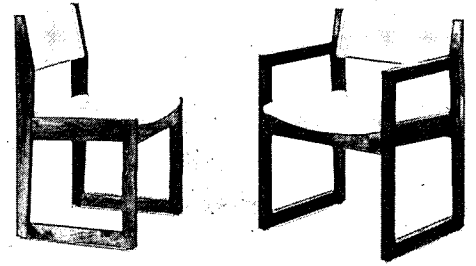
**AUTOMATIC DOOR OPENER /** Manufactured specifically to assist hospitals, schools and other institutions in complying with Section 504 of the Federal Rehabilitation Act, the "Model 4300" automatic door opener converts existing doors to power operation. Operating sensors include wall-mounted switches, floor mats, and radio control; the door can be manually opened and closed at all times. A jam-detecting circuit stops the operating cycle if the door is blocked. Said to be easy to install with standard equipment, "Model 4300" is priced under \$400. ■ Power Access Corp., Eatontown, N.J.

circle 306 on inquiry card



**TEMPERATURE/HUMIDITY CONTROLLER /** A solid-state dual input controller, model "CP-9102" is said to provide easy switching from summer to winter modes, outdoor reset, and similar control functions for maintaining occupant comfort. The setpoint is adjustable from 20 to 120F. The controller accepts 1000 ohm sensing input signals, and is powered by 20 Vdc supply producing 1-15 Vdc drive outputs, to operate more controlled devices from a single controller. ■ Barber-Colman Co., Environmental Systems Div., Rockford, Ill.

circle 307 on inquiry card



**WOOD-FRAMED CHAIRS /** Suggested for libraries, lounges and other heavy use public seating areas, this square-cut chair is available in arm and armless versions, framed in walnut or oak. The padded back is angled for proper support; upholstery may be vinyl or fabric. ■ Marden Mfg. Inc., Chicago, Ill.

circle 308 on inquiry card

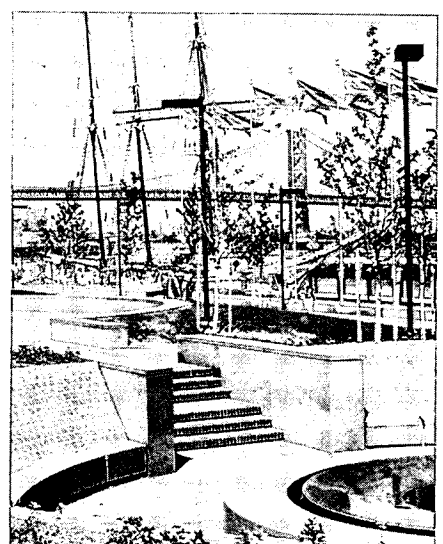
more products on page 143

# Granite.

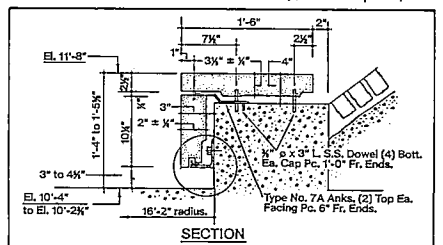
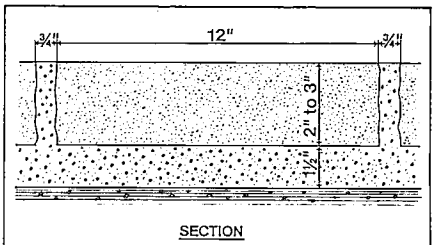
## Not-so-pedestrian plazas for pedestrians.



Architect: Joe Karr & Associates, Chicago, IL  
Sturr Young, Associate Architect, Oak Park, IL



Architect: Murphy Levy Wurman, Philadelphia, PA  
Project Architect: Vincent Maiello, Philadelphia, PA



Granite is the elite paving material for plazas, walkways and mall areas where a combination of beauty, durability and ease of maintenance is required.

Granite is a natural building material and it naturally complements the landscaping portions of your architectural design. A wide selection of features including fountains and seating areas are available to enhance the overall appearance of your project. For more information, plus a packet of full color literature illustrating our products in use, call toll free 800-328-7038. In Minnesota, call (612) 685-3621 or write to the address below.



**Cold Spring Granite Company**, Dept. AR-10A 202 South 3rd Avenue, Cold Spring, MN 56320  
For more data, circle 59 on inquiry card



# Bally created the state of the art

...backing your judgement all the way when you specify  
Bally Prefab Walk-In Coolers/Freezers and Refrigerated Buildings

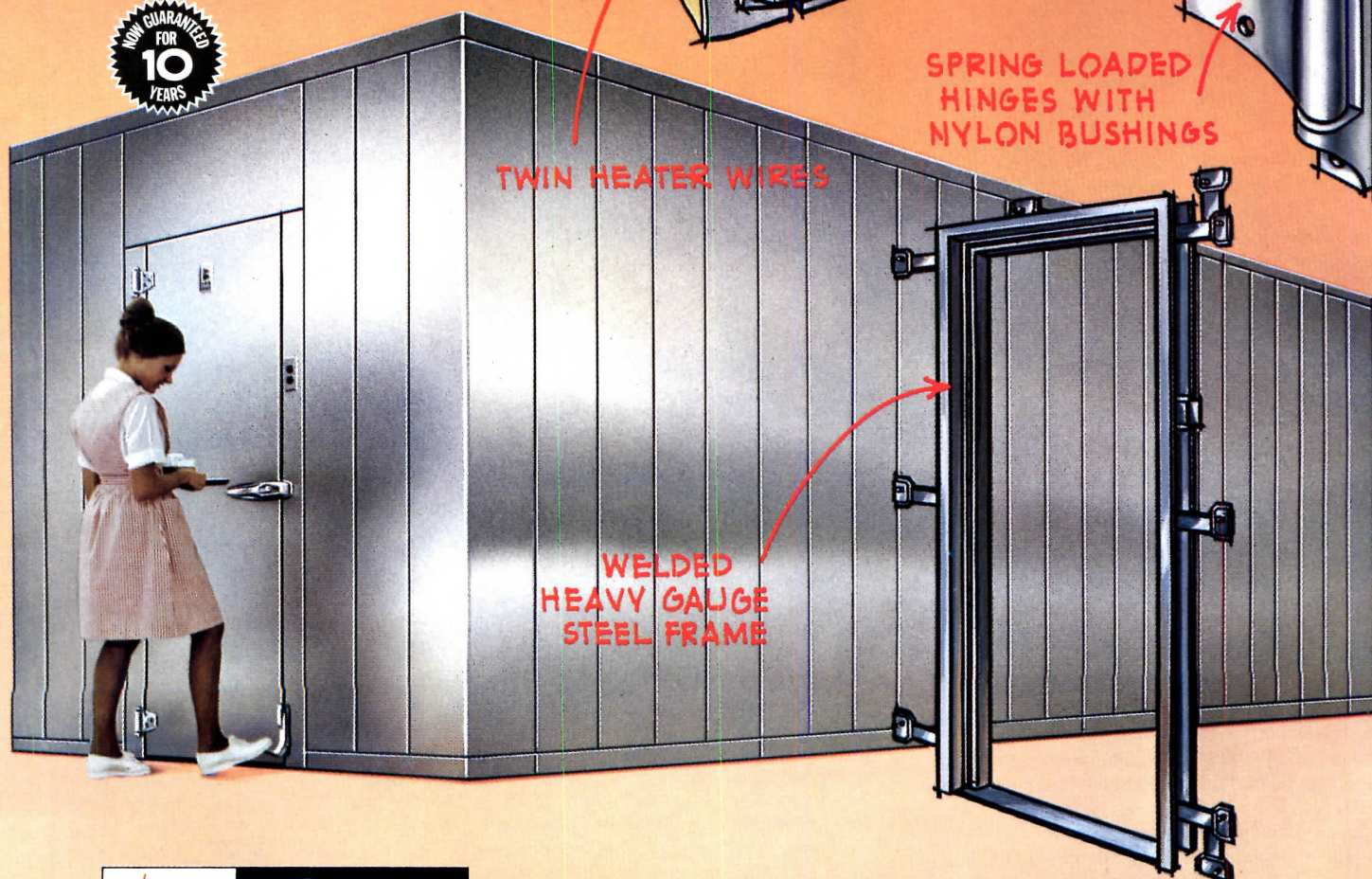
## CLASSIC EXAMPLE: WHAT WE DO WITH DOORS

We make them so they won't sag . . . drag . . . twist . . . or warp ever . . . and that's a guarantee. Bally Walk-In Cooler/Freezer entrance doors open easily by hand or foot touch. Then, because of their spring loaded hinges with nylon bushings and their magnetic gasket, they close automatically and quickly with an absolutely tight seal that keeps cold air in . . . reduces energy waste. A Bally door provides longer life, less maintenance problems because of superior fit from the unique door design, and the welded heavy gauge steel double U-channel frame in which it is hung. A low intensity heater wire around the edge of the door and another on the jamb are guaranteed to prevent condensation and frost formation. Bally Prefabs can be assembled in any size for indoor or outdoor use . . . easy to enlarge or relocate.

Refrigeration systems from 50°F. cooling to minus 40°F. freezing. Subject to fast depreciation and investment tax credit (ask your accountant).

Write today on your letterhead for our 182-page Working Data Catalog or see your Sweet's Catalog 11.23b/Ba for immediate information.

Specify a Bally—it's something special.



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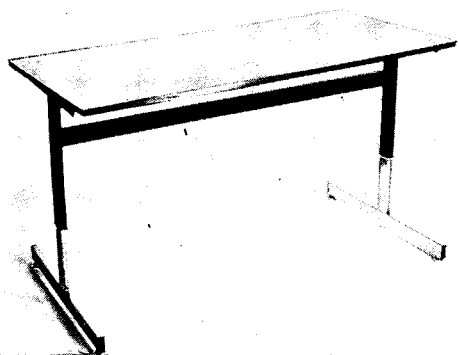
Bally Case & Cooler, Inc., Bally, PA 19503

Phone: (215) 845-2311

ADDRESS ALL CORRESPONDENCE TO AR-10

For more data, circle 60 on inquiry card





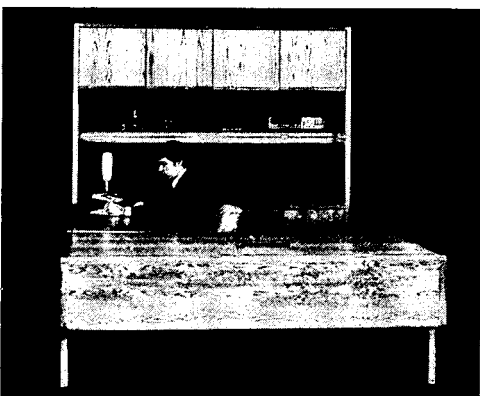
**STUDENT DESKS** / Mounted on fully braced pedestal legs, this line of student tables and desks is intended for heavy-duty use in classrooms, libraries, cafeterias and offices. Twenty shapes and sizes are offered, in a choice of wood grain or color plastic laminated tops. The chrome-plated lower leg elements telescope by set screw from 21-through 30-in. heights. Tables can be ordered with open-well bookboxes rigidly attached underneath. ■ Norco Mfg. Corp., Missoula, Mont.

*circle 309 on inquiry card*



**ERASABLE MARKER BOARDS** / Said to be extremely durable, these lightweight markerboards have a melamine surface mounted in an anodized aluminum frame. Marker writing erases completely with dry cloth or eraser; a full-length tray holds markers and erasers. Sizes range from 18- by 24-in. to 4- by 8-ft. ■ Choice Industries, Mason, Ohio.

*circle 310 on inquiry card*



**MODULAR OFFICE** / The high profile executive desk shown here is the nucleus of a complete private office environment: filing, storage, work surfaces, task and display lighting, a bar cabinet, and a combination safe unit may be selected to provide a personalized work area. The "Private Office System" has built-in 20 amp wiring that supplies power to all levels of the system. All units are available in American walnut and oak veneers; optional back panels can be ordered in a choice of fabrics. ■ Davis Furniture Industries Inc., High Point, N.C.

*circle 311 on inquiry card  
more products on page 149*

# Don't let water make its mark!

Joint sealant problems such as this are eliminated for the life of your building by Polytite-B when used as a backer for caulking.

Sandell's patented Polytite-B is a resilient, open-cell polyurethane foam strip. It is saturated with liquid sealant compound, and coated on one face with a release agent that acts as a bondbreaker for caulk.

Substitute Polytite-B for backer rod for a truly fail-safe system!

## Polytite®

The protection you  
should insist upon

**Sandell Manufacturing Company, Inc.**

824 Pindge Avenue  
Cambridge, Mass. 02140  
Telephone (617) 491-0540

*For more data, circle 312 on inquiry card*





# OUR BLOCKS FLOORED 'EM AT OCEAN SPRAY... BEAUTIFULLY.

As it happened, the people at Ocean Spray got bogged down when it came to choosing a floor for their new Cranberry Museum in Plymouth, Massachusetts. The floor had to be just right to correctly accent the long-renowned cranberry and it had to be natural, like the cranberry.

Jennison-Wright had the solution: Kreolite Wood Block Flooring, a natural wood product that combines warm beauty and excellent durability. First of all, the block was pressure treated with a colorless preservative that allowed the rich grain of the wood to show. Then, using a unique installation procedure, the block was installed with a



provision for expansion around each block in the floor and finished with a durable transparent surface material.

Kreolite Wood Block Floors fit anywhere: shopping centers, museums, fine restaurants, offices and malls. Kreolite Wood Block Floors are durable, incredibly strong and very luxurious to look at and walk on . . . for years to come and go, beautifully.

Please write us. We'd like to tell you more.



**The Jennison-Wright Corporation**  
P.O. Box 691 • Toledo, Ohio 43694

Also in Sweet's Catalog and your Yellow Pages

For more data, circle 62 on inquiry card

For more data, circle 63 on inquiry card





**CONTRACT SEATING** / This reception seating arrangement is based on the "4010 Bentwood" chair as the basic design unit. Different configurations can be adapted on site. Units are offered in oak or walnut finishes, and a choice of fabrics or COM. ■ Mueller Furniture Corp., Grand Rapids, Mich.

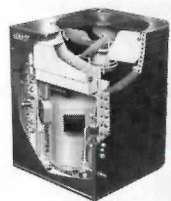
*circle 312 on inquiry card*



**STACKING CHAIRS** / The "Conference Center" stacking chair has a tubular steel frame finished in polished chrome. Designed for seating comfort over long periods, the chair has a foam padded seat over resilient rubber webbing; it may be stacked, ganged, or used alone. ■ Shelby Williams Industries, Inc., Chicago, Ill.

*circle 316 on inquiry card*

**TWO-SPEED CONDENSING UNIT** / Available in 4-



and 5-ton capacities for residential and light commercial applications, the "HS11" Landmark II air conditioning condenser features two-speed operation, which more closely matches system capacity to the cooling demand of

a structure. With Seasonal Energy Efficiency Ratio of up to 9.4, these units are said to offer substantial cost savings as well as an extended compressor service life. An indoor thermostat shows a green light during low speed (1750 rpm) operation, changing to yellow when load demand automatically calls for high speed (3500 rpm). ■ Lennox Industries Inc., Marshalltown, Iowa.

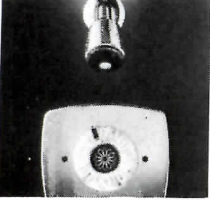
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**BIFOLD DOORS** / Bifold doors made of Western hemlock are shown here enclosing an apartment entry gallery, saving the cost of interior walls. Door panels are 1 1/8-in. thick, offered in two- and four-door units in five different designs. ■ E. A. Nord Co., Everett, Wash.

*circle 313 on inquiry card*

**TUB AND SHOWER** / This washerless single-



control tub and shower unit features a "Safety Stop" that prevents the user from dialing the valve into the scald range. A "Comfort Stop" acts as a preferred temperature preset beyond

which the valve may not be dialed without pushing the override button. Options include screwdriver stops, a volume control on the shower head, and back-to-back installation for multiple-unit construction. The escutcheon is chrome-finished ABS plastic. ■ Nibco Inc., Elkhart, Ind.

*circle 314 on inquiry card*

**CONTRACT SEATING** / A cantilevered seat provides resilience with this



sled-base side chair, contoured for shoulder and back support. The frame is oval tubular steel finished in polished chrome. The outer polypropylene shell is offered in four

colors; inner upholstered shell is available in a selection of fabrics, vinyls and leathers. ■ Steelcase Inc., Grand Rapids, Mich.

*circle 315 on inquiry card*

**Outstanding protection for quality merchandise. All-weather Crete insulates the Neiman-Marcus store in Houston.**

Neiman-Marcus is truly a quality name in retail merchandising. Hellmuth, Obata & Kassabaum, Inc. have designed the new Houston store in keeping with this reputation. All-weather Crete insulation is used in the roof deck and offers not only the finest in thermal protection, but a real money-saving value in long range cost savings. All-weather Crete can be sloped to drains for positive water drainage. Its application by local licensed applicators assures experienced installation on every building. Dry application with no curing time speeds roofing and construction. These and many other unique features make All-weather Crete truly the quality name in insulation for roof decks, plazas and numerous other constructions. It's no wonder All-weather Crete was selected to protect an architectural achievement such as the Neiman-Marcus building. For complete information, contact Silbrico Corporation, 6300 River Road, Hodgkins, Illinois 60525, (312) 735-3322, or see Sweets for the address of your local applicator.



Neiman-Marcus Store, Houston • Hellmuth, Obata & Kassabaum, Inc., Architects • Photo, Ezra Stoller Associates, Inc.



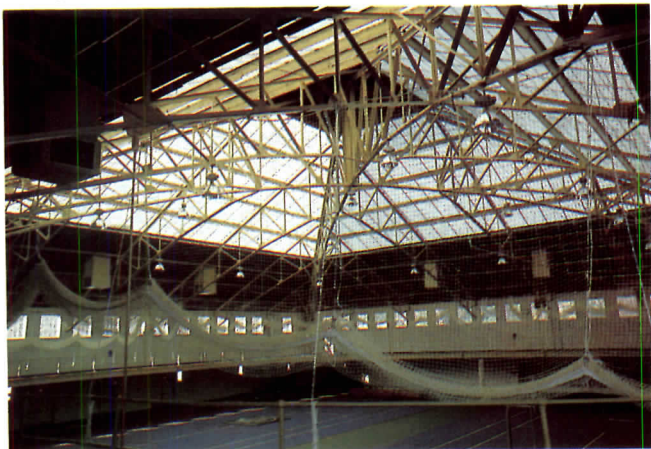
*For more data, circle 65 on inquiry card*



# THE WALL THE ROOF THE TOTAL ENVELOPE



St. Mary's College C. F. Murphy Associates, Architects



Phillips Andover Academy Johnson Hotvedt DiNisco & Associates, Inc., Architects

## KALWALL



Jackie Robinson Middle School Stull Associates, Architects

*The most highly insulated light transmitting material ... saving energy for 25 years*

**Kalwall Corporation, 1111 Candia Road, Manchester, NH 03103  
603-627-3866**

See Sweet's 8.14/Ka, 7.8/Ka, 13.25/Ka, 13.6/Stu.

*For more data, circle 66 on inquiry card*

**SWIMMING POOL HEATING** / "Solar Swimming Pool Heating System Hydraulics" is a 28-page guide for the layout and installation of piping and pump systems for all types of solar-heated pools. A step-by-step procedure with sample problems is used; charts, curves, tables and illustrations provide easy-to-understand hydraulics information for solar installers. The manual is available at \$4.95 each from Solar Industries, Inc., Monmouth Airport Industrial Park, Farmingdale, N.J. 07727.

**ACOUSTICAL WALL PANELS** / Fire-resistive *Soundsoak* wall panels are featured in a color brochure, which shows what the product looks like in an actual installation, lists the physical properties, and provides information and drawings on how they can be installed. Constructed of noncombustible mineral fiberboard with a modacrylic fabric surface, *Soundsoak* walls offer NRC levels of up to .80-.90. ■ Armstrong Cork Co., Lancaster, Pa.

*circle 413 on inquiry card*

**ARCHITECTURAL COPPER** / A 32-page handbook on architectural applications of copper, brass, and bronze is designed as a guide to selecting, installing, and maintaining the metals in specific use areas. Included is a chart showing the weathering cycle of ten architectural copper and copper alloys, with 30 full-color panels illustrating the various stages of a 10-year patination process. ■ Copper Development Association, Inc., New York City.

*circle 414 on inquiry card*

**CLEAR SPAN BRIDGES** / Constructed of either painted or *Cor-Ten* steel with fir decking, pre-engineered bridges span distances from 10 to 160 ft and can carry people, cattle, pickup trucks and golf carts. A color brochure shows several arch and flat-span installations, and lists deck and fencing options. ■ Continental Custom Bridge Co., Alexandria, Minn.

*circle 415 on inquiry card*

**WATER FILTERS** / The *Harvard Aqua-Aid* water filters and cartridges described in a four-page brochure are designed to remove sediment or taste and odor from domestic water supplies. Snap-lock filter installation and cartridge replacement is shown in pictures; *AquaAid* filters fit either 3/4- or 1/2-in. copper tubing water lines. ■ The American Granby Co., Liverpool, N.Y.

*circle 416 on inquiry card*

**INDUSTRIAL PUMPS** / A line of pumps for heating, air conditioning, intermittent or continuous duty, pilot plant or laboratory use, flood control, de-watering, waste removal, mixing and aeration is described in a 12-page brochure. Literature contains photographs, selection charts and performance curves. ■ LFE Fluids Control Div., Hamden, Conn.

*circle 417 on inquiry card*

**LAMINATED STRUCTURAL PANELING** / Structural laminates for panels, doors, housings, interior and exterior walls, etc., are briefly described in a four-page folder. Cut-away photos show typical composite and compound composite panels incorporating combinations of aluminum honeycomb, paper honeycomb, polyurethane or polystyrene foam, balsa, plywood, particle board and hardboard as cores. Surface and edge materials are also shown, and panel uses are illustrated. ■ Met-L-Wood Corp., Chicago, Ill.

*circle 418 on inquiry card*

*more literature on page 153*



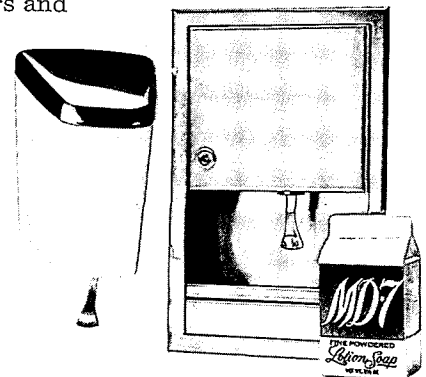
## "I went for design. He went for cost. We both went for powder dispensers."

As the designer of this building, I had two things to consider when I chose the soap dispensers for the washrooms. Cost and design. The building owner asked if there wasn't an alternative to liquid soap. He said the dispensers always clogged or leaked. He also mentioned there was more waste with liquid soap—and the dispensers always seemed to need refilling.

I suggested we try a fine-powdered soap. Specifically MD\*7®. It's not gritty like an industrial powdered soap, so it is perfect for the washrooms in an office building. Still MD\*7 gets hands really clean, is gentle, and won't irritate normal skin. We decided to go with powdered soap. And with all the different styles in soap dispensers I found one that was perfect for the design of the washrooms.

I'll be installing powder dispensers and MD\*7 in all the buildings I design. And for good reasons. They please my eye, the tenant's hands, and my client's budget. Who says you can't please everyone?

For further information see Sweet's Catalog 10.16 Un.

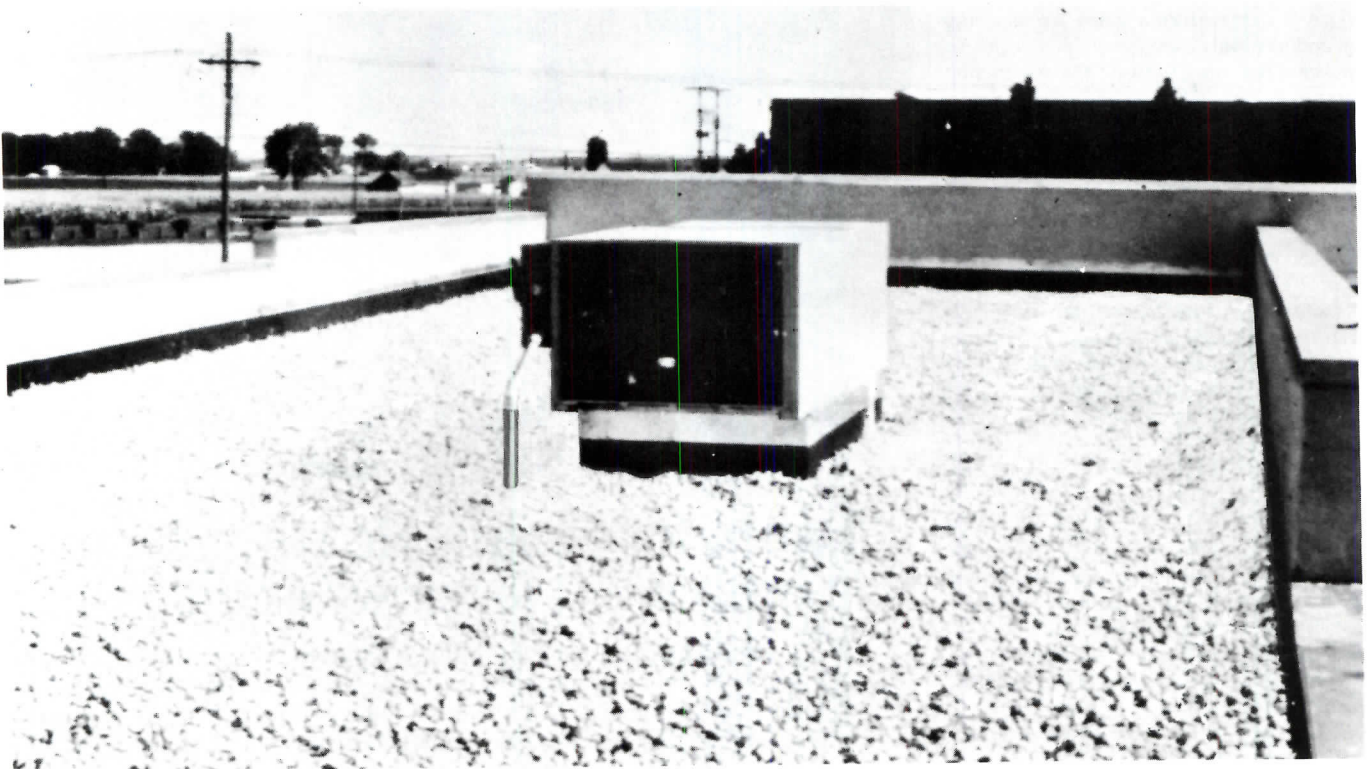


**U.S. BORAX**  
A MEMBER OF THE RTZ GROUP  
3075 Wilshire Blvd., Los Angeles, CA 90010.

*For more data, circle 67 on inquiry card*



# Will Carlisle roofs laid sixteen years ago last another sixteen years?



## We wouldn't be surprised.

They could last a lot longer than that. The earliest Sure-Seal installations are actually already thirty years old and still going strong. Sixteen years ago we laid our first Sure-Seal roofs, which show precious little giving in to broiling heat, bitter cold, pollution, whatever.

Sure-Seal is the flexible/elastomeric membrane your approved applicator just rolls out, cold seals and walks away from whistling. You might say you never look back—maintenance is that minimal. What say? You want it on your building? We wouldn't be surprised at that either!

**Carlisle Tire & Rubber**

**CARLISLE**



Construction Materials Department  
Carlisle Tire & Rubber Company  
Division of Carlisle Corporation  
P. O. Box 99  
Carlisle, PA 17013

*For more data, circle 68 on inquiry card*

# ABOUT MAILING LISTS...

## *an important notice to our subscribers.*

In recent years we have made the list of subscribers to McGraw-Hill publications (names and mailing addresses only) available to carefully screened companies whose products or services might be of interest to you.

These companies enter into an agreement that permits them to mail information to you without placing you under any obligation.

We have always considered such direct marketing activities to be legitimate and important in the American system of free trade—and we're confident that the majority of subscribers share this position.

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**LIGHTING PROGRAMS** / Computer programs that generate footcandle contour plots for entire lighting systems and integrated ceilings are available to assist the specifier in calculating life-cycle costs of individual installations. Another program can tabulate the Equivalent Sphere Illumination level delivered by a lighting system at any point in a specified room, allowing the designer to more easily evaluate ESI between alternative systems. These and other related calculative services are offered to architects and engineers by the manufacturer's Application Engineering Department. ■ Holophane Div., Johns-Manville Sales Corp., Denver, Colo.

*circle 419 on inquiry card*

**LOW VOLTAGE LIGHTING** / Individual catalog sheets give full lamping and price information for the "Designer Portfolio Product Group" of low-voltage lighting systems. Color installation photographs show the "Neolights" chandelier, "Shadow Chasers" ambience lighting and the "Innervision" reflective luminaires with bronze tint mirrors. ■ Neo-Ray Lighting Systems, Inc., Brooklyn, N.Y.

*circle 420 on inquiry card*

**CENTRIFUGAL PUMPS** / A line of non-clog centrifugal pumps designed for municipal waste, industrial and processing applications is described in a product bulletin. Cutaway and dimensional drawings are used to illustrate features of each pump; graphs plot performance curves. ■ Weinman Pump, LFE Fluids Control Div., Hamden, Conn.

*circle 421 on inquiry card*

**KITCHEN/BATH FAUCETS** / Faucets, tub/shower fittings, accessories, and "Imperial Marble" vanity tops are shown in a full color catalog. ■ Bradley Corp., Menomonee Falls, Wisc.

*circle 422 on inquiry card*

**OFFICE SEATING** / Eighteen new models in the "454 Series Comfort Chair" line are pictured in a color brochure. Included is a highback executive chair, and enclosed arm model for general use, and a sled base side-chair. Dimensional and upholstery information is given for each piece. ■ Steelcase Inc., Grand Rapids, Mich.

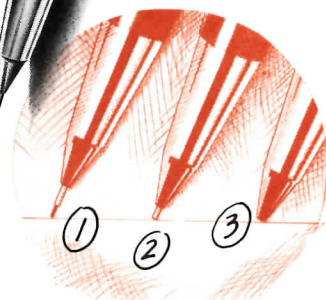
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**CASTERS AND CARPETS** / Extensive use testing provided data for a selection guide to assist those specifying casters for commercial carpet systems. An overall performance rating, from excellent to poor, was assigned to each carpet system in conjunction with tests and recommendations for eight types of casters, including resilient and hard tread models. Test methods, carpet installation and maintenance suggestions, and product photos are included in a 12-page brochure. ■ Shepherd Products U.S. Inc., St. Joseph, Mich.

*circle 424 on inquiry card*

**PREPRESSURIZED WATER TANK** / The Harvard "Mark II" hydropneumatic tank permits a 150 psi working pressure for high systems pressures up to 80-100 psi, and is available in six sizes from 21 to 120 gals. A data sheet explains how the permanent prepressurized air charge is totally separated from the water by non-permeable "Plasti-Flex Water Chamber," eliminating any contact between air and water. Air volume controls are not needed, and all "water logging" conditions are prevented. ■ The American Granby Co., Liverpool, N.Y.

*circle 425 on inquiry card*



*We had this original idea. Make an automatic pencil that uses lead so thin it can pass through the eye of a needle. Yet won't break while writing. We did this by ① surrounding the lead with a sliding sleeve ② that protects during writing and ③ fully retracts.*

**Sliding Sleeve™**

**Pentel**

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*For more data, circle 69 on inquiry card*



# The medical wall that's there when you need it.

## And not in the way when you don't.



Economical short medical walls from Square D Company offer general care service plus fingertip convenience without sacrificing a single square inch of floor space—an especially valuable consideration when planning renovation projects.

Square D short walls actually offer twofold economy. First, there's the unusually high quality hidden beneath the sturdy and attractive vinyl-clad steel surface—which we offer at unusually competitive prices, thanks to the latest manufacturing techniques.

Second, each wall is completely piped and wired at the factory to meet all existing codes for the combination of options you select, including medical gas outlets, bed and examination lights, and convenience outlets. Which means your contractor can install them in a few hours instead of several days. And move and reinstall them just as easily during future remodeling.

Square D short walls can be supplied to accommodate any ceiling height in either a single- or double-bed arrangement. And they're available in a teak or beige finish to complement your new construction or renovation design.

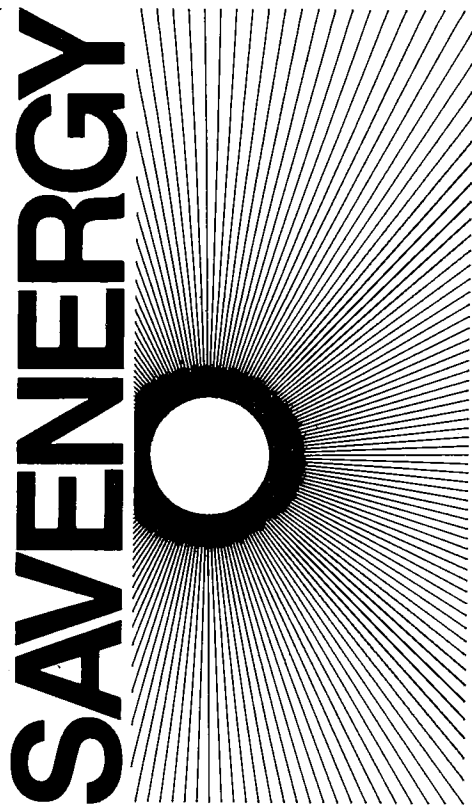
Your nearby Square D field office is there when you need it with complete information on medical short walls. Or write us. Square D Company, Dept. SA, 3300 Medalist Drive, Oshkosh, WI 54901. (414) 426-1330



**SQUARE D COMPANY**

*Wherever Electricity is Distributed and Controlled*





**Fact:** Metal lath/steel stud curtainwalls can offer dramatic reductions in heating-cooling energy consumption and operating costs.

**The U-value** for the lath/stud wall is .079 . . . As compared to .321 for a conventional masonry wall . . . Or .55 for double-plate glass . . . Or .741 for precast concrete.

**On an average summer day** with temperatures in the mid-80s, the heat gain through one square foot of the lath/stud wall will be 1 Btu an hour. Heat gain through a conventional masonry wall would be about 4 Btus an hour. Through a double-plate glass wall—7 Btus. And through a precast concrete wall—10 Btus.

**In other words,** the metal lath/steel stud wall is about 400% more efficient in reducing heat gain than the masonry wall. Roughly 700% more efficient than the glass wall. And over 900% more efficient than precast concrete.

**More facts:** Installed costs for metal lath/steel stud curtainwalls are about 50 percent less than comparable masonry or concrete installations. They are also easy to estimate . . . Go up fast . . . Weigh only about 20 pounds per square foot . . . And allow for shapes impossible with other materials.

**The proof?** These facts are borne out in existing projects—in all parts of the country.

**Write for our complete** Curtainwall Package. It's quite a story.



For more data, circle 71 on inquiry card

## Offices opened

The firm of Robert A. Ambrose, Architect announces that Michael V. McEnany has joined in partnership under the new firm name of Ambrose and McEnany, Architects.

Bruce P. Arneill and Gerald M. Kagan are pleased to announce the merging of their two firms and are now called Arneill-Kagan & Associates, P.C. with offices at 85 Church Street, New Haven, Connecticut.

J. Buchanan Blitch, Eduardo M. Camacho and Ronald Buchanan Blitch announce their new firm, Blitch Architects, Inc., dedicated to the practice of architecture, located at 1700 St. Charles Avenue, New Orleans, Louisiana.

Paul S. Devroux, AIA and Associates, Architects and Marshall E. Purnell have established the new partnership of Devroux & Purnell, Inc., Architects and Planners in Washington, D.C.

Facilities Research Inc. take pleasure in announcing the opening of their offices at 51 Madison Avenue, New York, New York.

Robbert F. Fox, Jr. and Bruce S. Fowle would like to announce their new partnership located at 192 Lexington Avenue, New York, New York.

Frank A. Inabinet has announced the establishment of Inabinet Associates for the practice of architecture and planning, with offices located at 917 Calhoun Street, Columbia, South Carolina.

David Lloyd Maron announces his new office for the practice of architecture, planning and interior design located at 58 West 40th Street, New York, New York.

## Firm changes

Angello-Vitiello-Associates have expanded their partnership to include two of the firm's associates—Herb Niiya and Chuck Ryan. The new name of the firm is Angello-Vitiello-Niiya-Ryan, Inc.

Bonsignore Brignati & Mazzotta, P.C. has announced the appointment of Peter S. Cacciola, and Joan R. Schulz to the positions of vice president and Peter Skujins and John H. Fleming as associates.

Robert E. Lamkin recently joined the firm of Briel-Rhame-Poynter & Houser as a registered architect.

Herbert K. Gallagher and M. Paul Brott have joined the firm of Daniel, Mann, Johnson & Mendenhall and have been elected vice presidents. The firm of Curtis and Davis Corporation is now part of Daniel, Mann, Johnson & Mendenhall. Arthur Q. Davis has been appointed a vice president for DMJM.

Paul Devroux and Associates take pleasure in announcing that Marshall E. Purnell has joined the firm as a participating principal under the firm name of Devroux & Purnell, Inc. located at 1506 19th Street, Northwest, Washington, D.C.

Gensler and Associates/Architect have appointed as new senior associates the following: Derek Claudius, Linda Groth, Gordon Johnson, Kathleen Parker, Terry Stephens, Michael Farley and Clyde Jackson. Appointed as new associates are: Gary Fitschen, James Kautz, Richard Maxwell, Wayne Trull and David Wyckoff.

O. Germany, Michigan architects-engineers has named John Casey as marketing director.

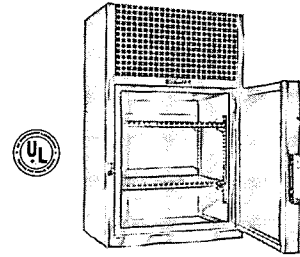
Kenneth M. Nuhn has joined the firm of Golemon and Rolfe, Architects as director medical facilities marketing and a partner in the firm.

Haines Lundberg Waehler has named Louis L. Marines to be director of business planning and development.

continued on page 197

# WE FIT IN

## STAINLESS STEEL WALL MOUNTED REFRIGERATORS, FREEZERS



**WM-CW\*** series eye-level, wall mounted refrigerators are offered in 4 sizes featuring cold wall cooling systems with push-button defrost and automatic reset. Two removable, adjustable stainless steel shelves are provided. Front mounted grille removes easily for servicing.

**WM-1-CW** Capacity—1.5 cu. ft. (45 ltr.)

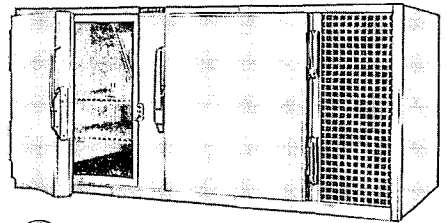
**WM-2-CW** Capacity—2.3 cu. ft. (65 ltr.)

**WM-3-CW** Capacity—3.2 cu. ft. (95 ltr.)

**WM-4-CW** Capacity—4.3 cu. ft. (125 ltr.)

**WM-3-F-CW** freezer is available only in a 3 cu. ft. (85 ltr.) capacity and has a manual hot gas defrost.

Capacity—3.0 cu. ft. (85 ltr.)



**WM-BC** series space saving, double-door, wall-mounted refrigerators are available in 2 sizes. Furnished with 4 stainless steel shelves, they have a blower-coil cooling system with automatic off-cycle defrost and a condensate evaporator. Condensing unit is easily serviced by removing front mounted clip-on grille.

**WM-7-BC** Capacity—6.6 cu. ft. (190 ltr.)

**WM-10-BC** Capacity—9.6 cu. ft. (275 ltr.)

\*With explosion proof interior.

Jewett also manufactures a complete line of blood bank, biological, and pharmaceutical refrigerators and freezers as well as morgue refrigerators and autopsy equipment for world wide distribution through its sales and service organization in over 100 countries.



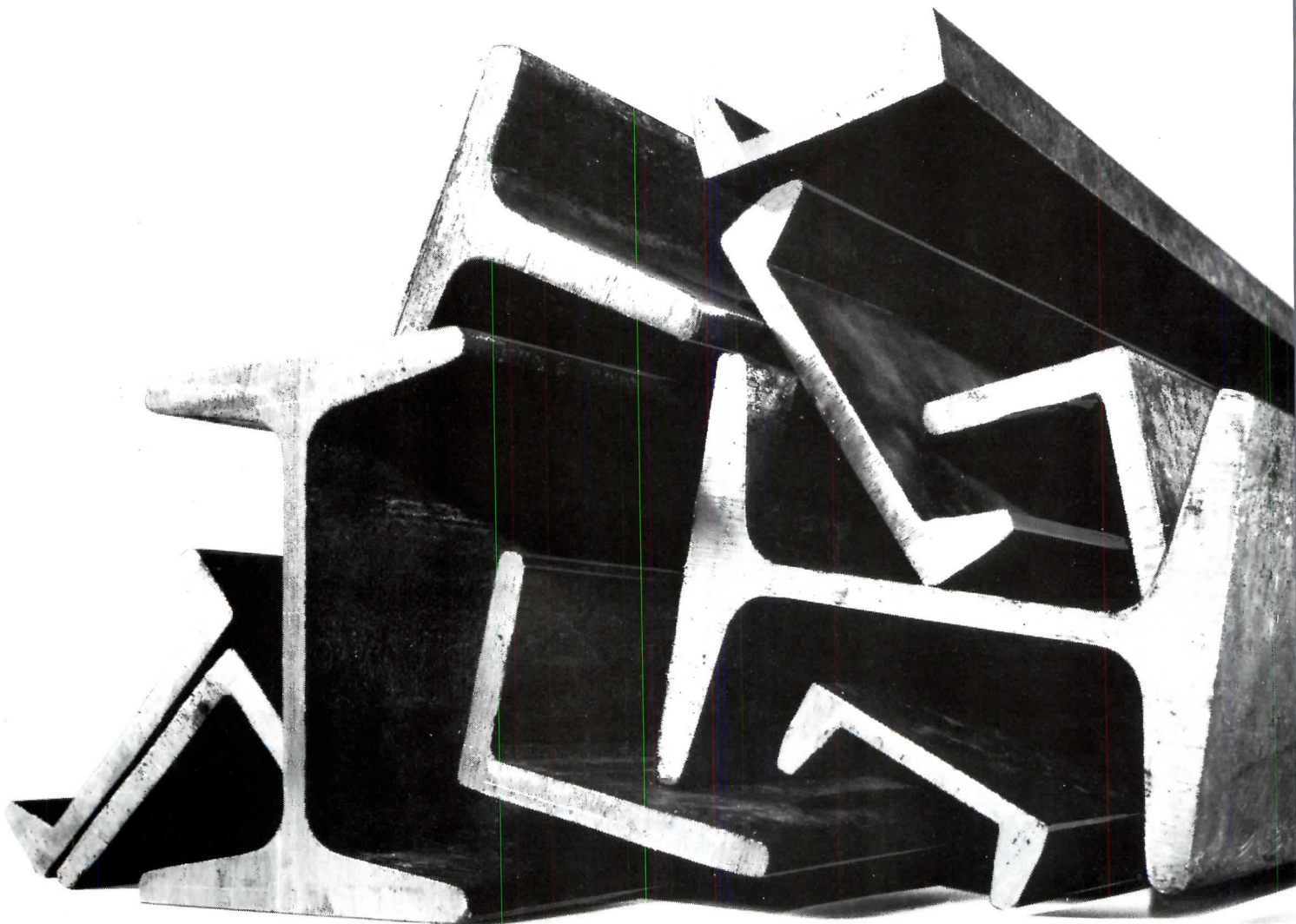
Refer to Sweet's Catalog 11.20/Je for quick reference.

For more data, circle 72 on inquiry card

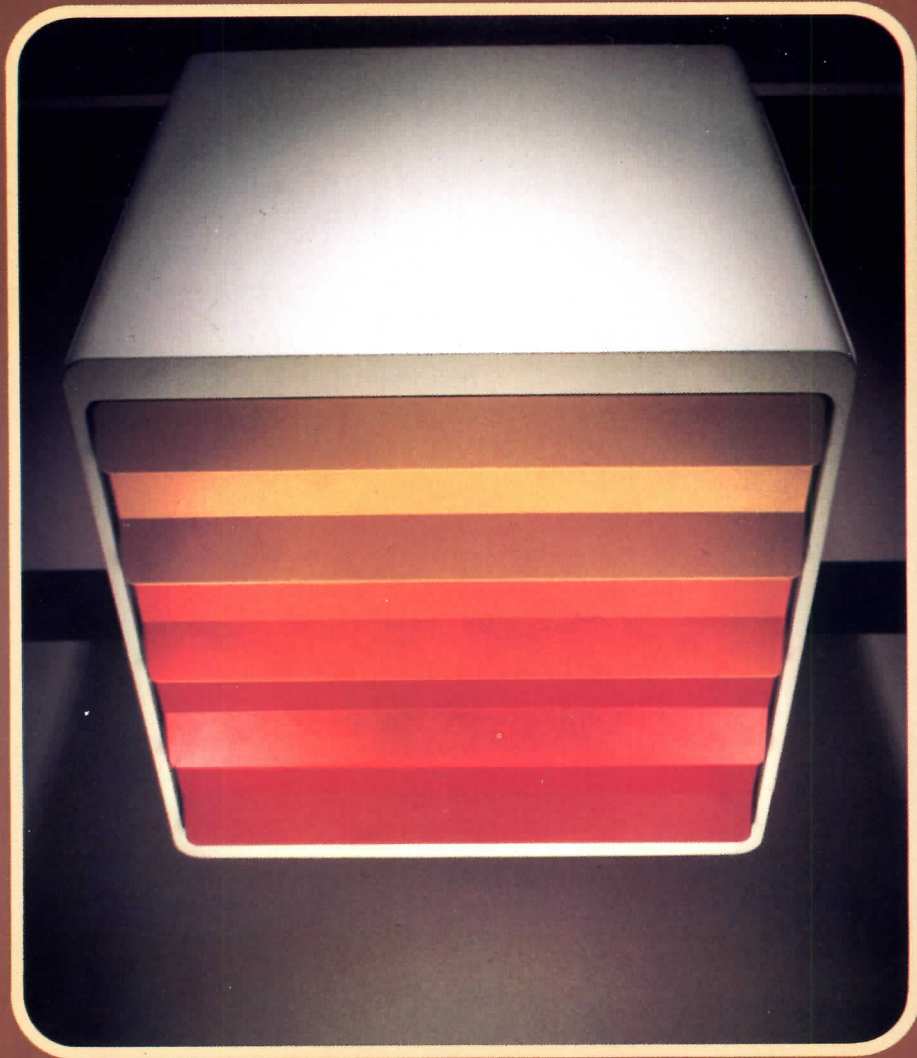


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\*Secural is the trade name for the railing system of Technal.

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