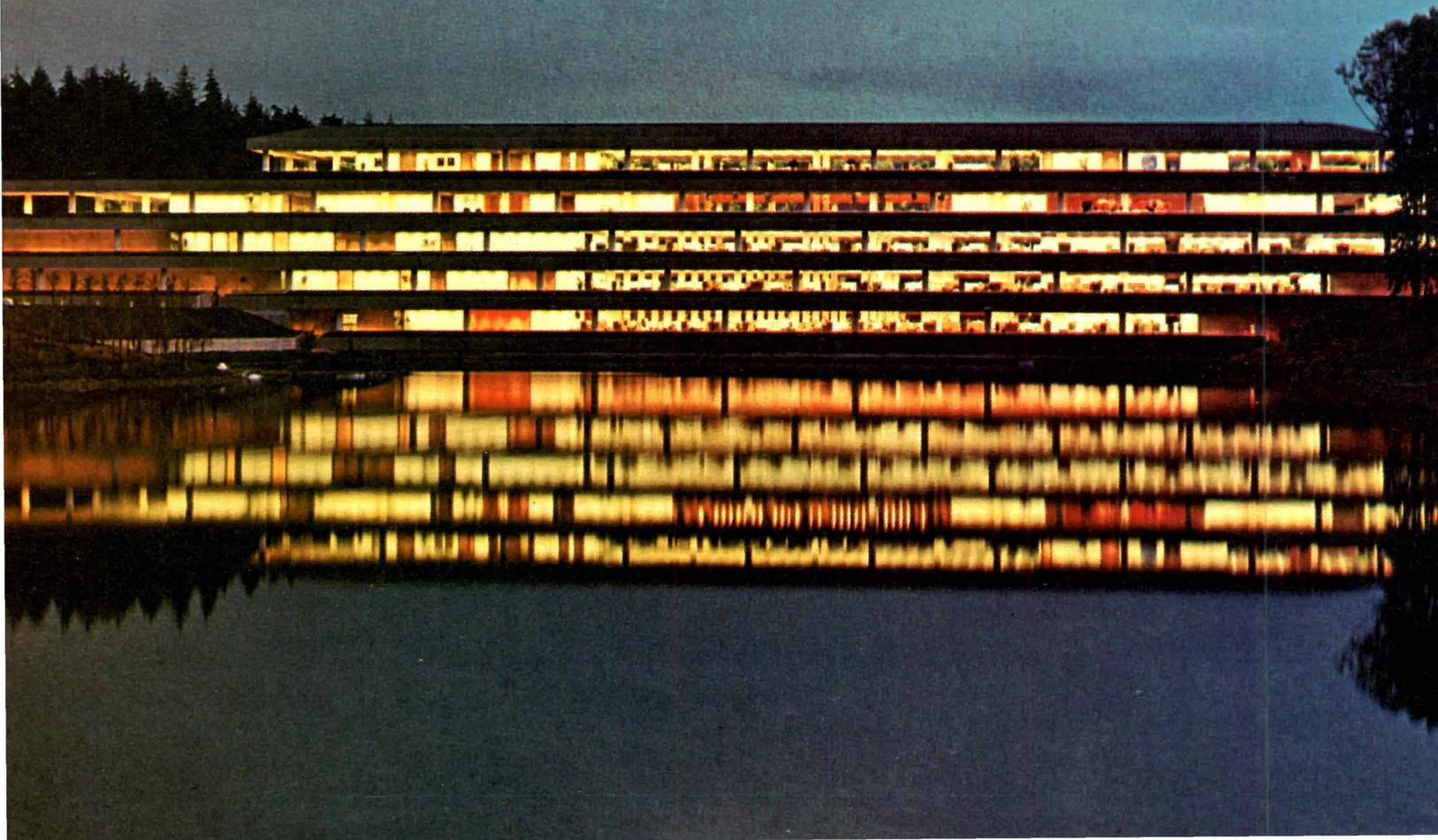


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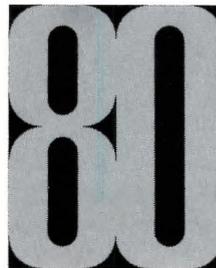
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YEAR
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PUBLISHING
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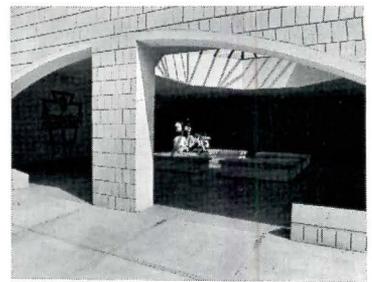
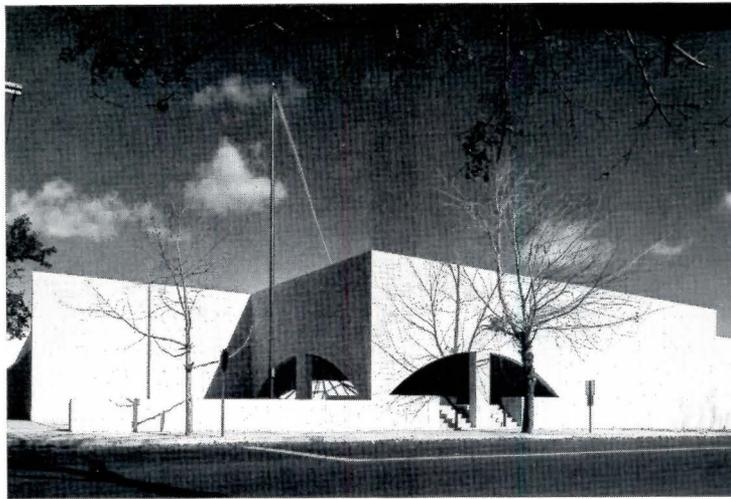
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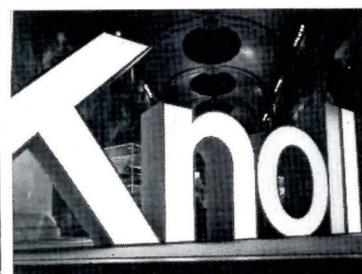
MOSTLY FOR BOYS

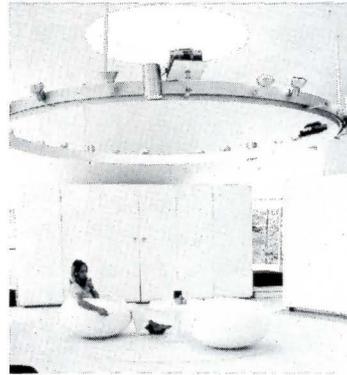
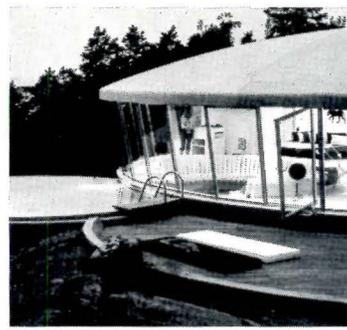
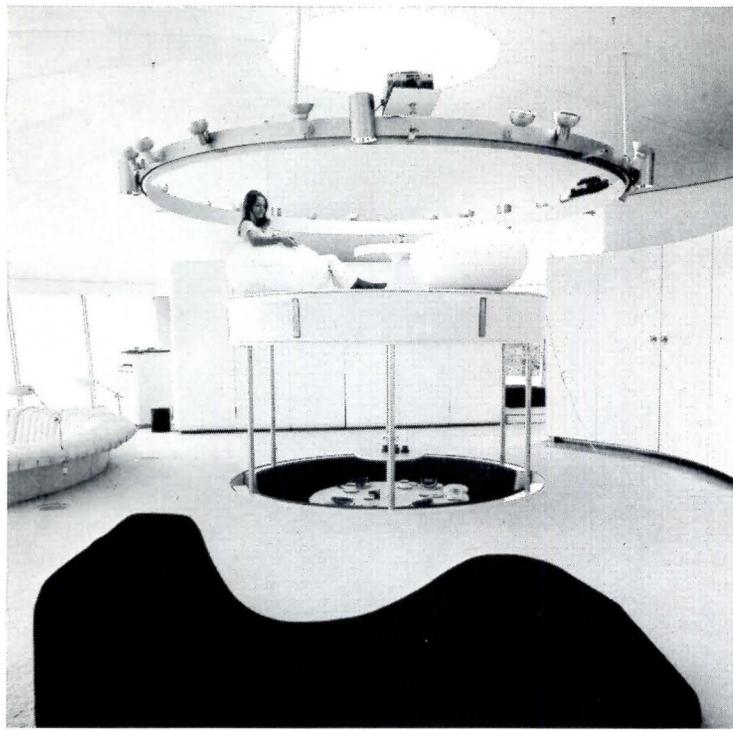
The Albie Booth Memorial Boys Club, in New Haven, is dominated on the exterior by a crescent opening that leads to an interior court and staircase up to a skylit reception lobby. The club, which is designed to national, as well as local club standards, will be used by member boys and by outside neighborhood groups, including girls and women at certain times. The architects were Davis, Cochran, Miller, Baerman, Noyes. Facilities include a swimming pool, gym, game and meeting areas, library, woodworking and craft shops, and administrative offices. Exterior openings are minimized, but the interior is bright and accented by supergraphics.



MODERNIZING ANTIQUITY

Knoll International, the first American company invited to exhibit in the Louvre's Musée des Arts Décoratifs, came up with a dramatic scheme, impressive in its simplicity. The space in the Second Empire building was stripped and the major Knoll designs of the past were exhibited in 8-ft. cubes of clear plastic or polished steel lined with white plastic, mounted on large, white, industrial casters. The exhibit, which included audio-visual presentations, was designed by Lella and Massimo Vignelli. Entrance to the exhibit was through the arch of the "n" in the 12-ft. high block-lettered Knoll, a construction using diffused white light. The exhibits contained past and present Knoll designs in furniture, fabrics, and displays, by many prominent designers.





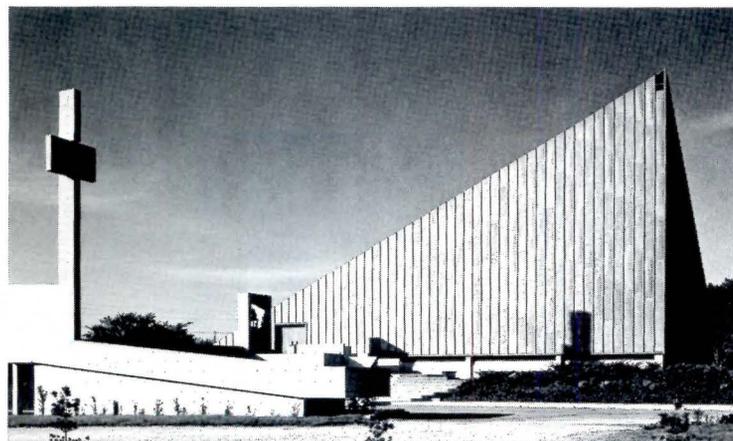
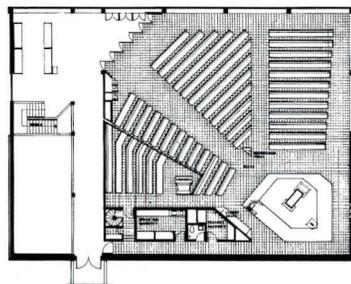
KINETICS AT HOME

A dining room that lowers out of view when not in use is only one surprise in a new summer home on Sweden's eastern skyline. Designed by Architect Stafon Berglund for Simon Spies, a client with the means to indulge creative whim, Berglund started with a round plan and swimming pool and a 50-ft. living room dominated by a curved couch for 30 persons. A circular portion of the living room layout is actually the canopy of the dining room. When the button is pushed, the persons lounging in that part of the living room are raised to a skylight dome above, and the dining room is brought up from the lower level to become flush with the living room floor. Guests may enjoy dinner below, while the reclining lady (pictured) can have privacy, relaxation, and a spectacular view of the Baltic.



SIMPLE STRENGTH

A building theologically conceived to express the centrality of Lutheran worship, the Our Savior Lutheran Church, in Louisville, was recipient of the 1969 Honor Award for Excellence of Design offered by the Kentucky Society of Architects and the AIA. The church's peaked form has become a street landmark in its middle-class suburb. The walls are clad in zinc, with vertical striations that enhance the upward momentum of the design. Inside, the church provides seating for about 400 persons, including the choir, and educational facilities for 450 (expected to grow to 625) persons. There are also kindergarten, administration, fellowship and recreational facilities. The Design Environment Group Architects, Inc. were the designers.



MEMORABLE

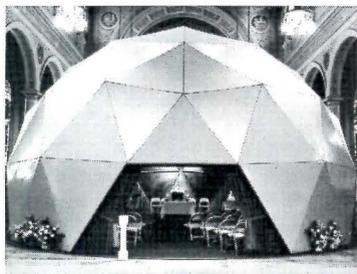
A new building has appeared on the Philadelphia skyline that is reminiscent of the pioneering Philadelphia Savings Fund Society tower, designed by Howe & Lescaze in the 1930's and one of the world's first "modern"

skyscrapers. The newer building, the headquarters for the Philadelphia Electric Co., is a 29-story aluminum curtain wall structure that has end walls that cantilever beyond the exposed column supports. Its architects: Harbeson, Hough, Livingston & Larson.



RELIGIOUS NOVELTY

A Bucky Fuller dome plopped right down in the middle of a cathedral in the grand tradition sounds improbable, but here it

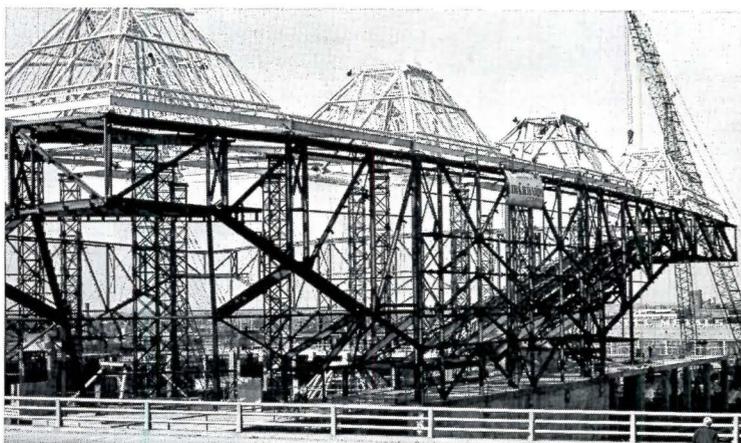
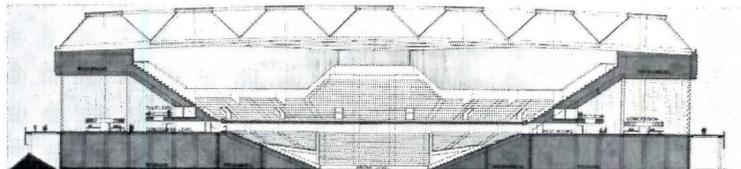


is. The dome was erected inside the St. Charles Borromeo Catholic Church in Louisville, after Architect Jasper Ward was asked to divide the interior space so that it could be used for worship and social activities simultaneously. The geodesic dome solution, known as the worship dome, was also economical, costing about \$10,000. It is made of fiberglass triangles and was put together by volunteers over six Saturdays. The structure has since been used for worship in the midst of concerts, fashion shows and kindergarten recess.

SKYLIT SPORTS

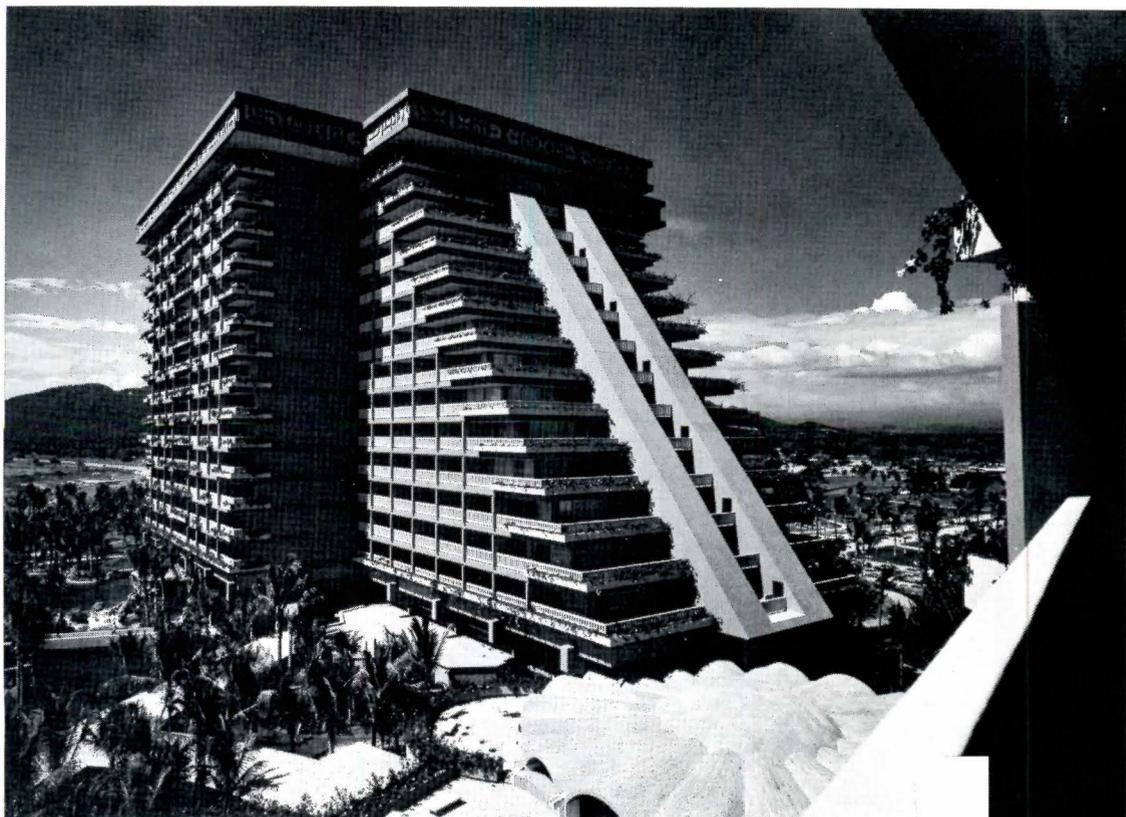
The new Atlanta arena, now under construction and designed by Architects Thompson, Ventulett & Stainback, Inc., gives new shape to the sports scene. The \$16.6-million project will seat about 15,000 persons (depending on the sport) and features a unique structural system that makes it adaptable to most sports and spectacles. It contains about seven acres in the equivalent of a three-story building,

with the design based on placing the seating bowl on the diagonal axis to the square. The steel roof is an ortho-quad truss system that spans the entire area (about 490 ft. diagonally), with the 50-ft-square pods filled as skylights. The trusses bear on four great wall trusses, which are shaped according to their relationship to the seating bowl. In the corners, beneath the cantilevered wall truss ends, are four glass-enclosed lobbies.



ACAPULCO PRINCESS

Fantastico is one description for the new Acapulco Princess Hotel and Golf Club, which rises 16 stories over an otherwise deserted beach like a modernized Aztec pyramid. The new complex, designed by Architects William Rudolph, Leonides Guadarrama and Melvin Grossman, contains 777 rooms, and is based on the philosophy that interior design should be "motivationally linked with security, happiness and a sense of well being." Aiding this cause are three cocktail lounges, one with a waterfall planned so that guests can swim beneath it, then surface for refreshments. Other facilities include air-conditioned tennis courts, an open-air lobby with a lagoon, underwater music for the pool, and a million-gallon water purification plant.



PHOTOGRAPHS: Top: Bent Rej, Courtesy House Beautiful, ©The Hearst Corporation 1972.

LETTERS

TO ZONE OR NOT TO ZONE

FORUM: I was frankly dismayed on reading the piece "Zoning Laws.—The Case For Repeal", in the December issue; the more so because the author, one David Mandel, is listed as "a practicing lawyer" and "policy consultant" to a notorious "think tank", neither of which seem to be qualifications for someone writing about so important a matter to people in FORUM's field as is zoning.

I was much more surprised than pleased that you not only ran such an article—which in my opinion is largely drivel—but that you did not couple it, in the same issue, with a piece stating the case for zoning by someone actually qualified to explain why, no matter how zoning may be misused on some occasions, and in certain localities, it is the only legal tool that has been developed in this country, after long and arduous efforts, over the decades, to guide and control land use and building bulk in the interests of the public welfare. I do not want to take the space in your letter column to present this matter in further detail since I am confident that you will commission an article by a qualified planner, in refutation to this Mr. Mandel's really harmful piece, in a forthcoming issue of FORUM. I say "harmful", because harm has already been done, and will probably continue to be done, as a result of publication of Mr. Mandel's article.

If you have followed the newspapers in this region and noted, as I did, that his viewpoint is being quoted as supporting testimony (in public hearings and other gatherings) by unscrupulous real estate developers, on the one hand, who cannot be kept in check except by adequate zoning measures and, on the other hand, by well-

intentioned but misdirected, eager-beaver, political activists who, while properly concerned with the difficulties of obtaining housing for minorities and the economically deprived, in open areas, do not know that breaking down the very concept and basic principle of good zoning procedures—as opposed to their obvious misuse in certain instances—would "throw out the baby with the bath" if they were to follow Mr. Mandel's ideas and achieve their otherwise commendable ends by such totally retrogressive measures as they are advocating.

ROBERT C. WEINBERG, AIP, FAIA
*Professor of Planning, NYU
Architecture Critic, station WNYC*

FORUM: Mr. Mandel has totally failed in his analysis of zoning (Dec. '71 issue). Zoning is but one of the enforcing tools of planning and is required by law in most states to be based on and reflect an adopted documented Comprehensive Plan. A Comprehensive Plan provides for the controlled growth and development of a community. If Mr. Mandel is serious he should be criticizing the Comprehensive Plan.

In planning for future community development the Comprehensive Plan provides for adequate land for all uses. The placing of restrictions on one parcel of land to exclude the development of apartments, does not keep apartments out of the entire community nor does it cost jobs or create a shortage of living units. In reality, if the demand exists, land zoned for apartments will be used for the purpose.

... for regulating apartments and commercial development ... it is necessary to provide land for homes of all types, schools, parks and industrial and commercial land for jobs and services. By designating and reserving land for all uses it is possible to insure that if the demand exists a service or facility or home can be provided. In order to insure that schools are not overcrowded and that they are properly located it is necessary to plan for and control development. If a school is built and the undeveloped neighborhood is developed with apartments, the school becomes overcrowded, busing is required and education can suffer.

With respect to uncontrolled commercial development, in many instances a serious health and safety problem can result. Commercial establishments generate traffic, which, if located in a neighborhood surrounded by residential development can increase the chance of children and automobiles coming into conflict . . . Apparently Mr. Mandel suggests it is permissible to make your neighbors uncomfortable and reduce their property values because it doesn't affect the entire community. The entire community is affected because it could happen to their homes and because the creation of slums does cost the community.

The statement "there certainly is no evidence that the introduction of comprehensive zoning has improved the amenities of cities and substantial evidence that it has reduced them", is completely without support and contrary to a large body of knowledge on the subject. One can look at almost any community and tell which development came after zoning and which problem was created because of no zoning. Anyone who has had a factory built next to their home or school and have experienced a great loss in home investment or had a child run over by an employee of the plant driving down a local street knows the value of zoning and planning.

In all probability Mr. Mandel either lives in an area where there are protective covenants and he is wealthy enough to enforce them in courts or he is a transient living in an apartment and can move if a factory locates across the street.

With respect to requiring industrial uses to be concentrated in a remote area where traffic problems are created this is totally untrue. In reality only by planning for industrial development is it possible to insure that proper and adequate roads are available. If it is known an area will be industrially developed then roads can be designed and built to take into account the expected heavy traffic flow. Transportation problems and traffic hazards are created when it is not possible to plan for future developments.

And finally, it appears that Mr. Mandel's ideas, not planning and zoning laws, are a

thing of the past. The time when the momentary ownership of land will allow an individual to permanently destroy a valuable public resource or create health and safety problems for his neighbors and for the community is also past.

LEO J. BELANGER
Director
Butte, Montana
BRUCE W. McCLENDON
Assistant Director
Butte City-County Planning Board

MORE ON VENTURI'S DUCK

FORUM: Reading the Venturi's articles in the last two issues of FORUM I am reminded of an amusing incident which occurred in, I believe, 1949 or 1950 when I was a student and, along with many of my schoolmates, was attending a symposium on monumentality in architecture (or some such topic) at the Museum of Modern Art in New York.

My friend, Vincent Scully, then still a graduate student but already a fabulous lecturer whose fame was rapidly spreading, was on the stage with many notables from the Architectural World.

At a point late in the proceedings, Vince raised his hand, was recognized by the moderator and proceeded to speak eloquently and animatedly for several minutes. He retook his seat amidst heavy applause from the students present in the audience.

Whereupon Marcel Breuer raised his hand, was recognized, took the podium and very simply, in his heavy accent said, "I do not understand", and sat down.

That was that.
SEYMOUR AUERBACH
Washington, D.C.

FORUM: In reference to "U & O" vs. "H & O", I agree that fire stations shouldn't be heroic. Just because they shouldn't be heroic, why should they be funky? Funk is cynical, and if we have to choose between misguided heroic and funky, I'll take ducks any day.

But we don't have to choose between two extremes. We see lots of contemporary architecture which is neither funky nor misapplied heroic, but is simply "appropriate" in the best sense of the word.

Architects have always learned from vernacular building. Thankfully, most have applied the lessons in a more positive way.
Huntsville, Ala. HARVIE P. JONES

BOOKS

THE IDEAL COMMUNIST CITY. By Alexi Gutnov, A. Baburov, G. Djumenton, S. Kharitonova, I. Lezava, S. Sadovskij of Moscow University. Translated by R. N. Watkins. "i press" series on the human environment. Published by George Braziller, New York. \$6.95.

REVIEWED BY KENNETH FRAMPTON

Pathetic as propaganda, unconvincing as postulations based on data, Utopian yet neither polemical nor particularly militant, the intended audience of this work defies identification. The authors on the other hand are revealed on the title page as being Alexi Gutnov and six other "young" Soviet architects, planners and sociologists, whose relative status, compared to Gutnov, apparently only merits an initial before the name. Of this unknown group, the Italian Architect Giancarlo de Carlo attempts to enlighten us, in his preface of May 1970, wherein he writes:

"The authors have based their architectural and urban proposals on the analysis of life in the existing Soviet society and the directions of change within it. While the models and formal solutions are only sketched and presented, hypothetically, they build upon the rich heritage left by Soviet architecture and urbanism of the twenties. Unlike Western architectural 'revivals', which consistently turn towards the past and are pseudo-innovative, the Soviet heritage suggests the idea of a 'revolutionary tra-

Mr. Frampton is an associate professor at the School of Architecture at Princeton University. He practices architecture in the London firm of Douglas Stephen & Partners.

dition' to serve as an example for future-oriented planning".

In this uncritical introduction, *Idee per la Citta Comunista* is seen, in comparison with the theoretical urbanism of the Neocapitalistic West, to be both anti-formalist and anti-historicist. Such an appraisal could surely only come from one who had himself been involved in recent "historicist" episodes. A more detached view stands to reveal this work as a pseudo-event *par excellence*; eminently formalistic in theoretical terms and pathetically empty and assiduously noncommittal in respect of a true revolutionary tradition, be it Soviet or otherwise.

Despite the era of Khrushchev, in which a work such as this must surely have had its origins, this is a typical product of the "cold thaw", over which until today, the spirit of Stalinism still lingers. How can one think, let alone write clearly in such a climate? The answer is that one cannot. The "meta-message" of this final text is so filtered out, as it were, that one seriously doubts the respective authors would recognize all this as their own work. What comes through are only the faint reverberations of bold initial intentions. The rest amounts to platitudes, dubious scientific assessments, a whole shoal of acceptable or unacceptable generalities, depending on one's point of view, and finally the postulation of a number of utterly banal Utopian aspirations; "prospects" that seem to be taken almost directly from the pages of Zamiatin's ironic novel *We*. As we proceed we find that the "models" of the twenties, to which de Carlo alludes are never once mentioned by name nor unequivocally identified. They are *none-theless critically implied* as some sort of a vestigial common memory; the "whatever happened to what's his name", who we all know, but who none of us dare mention. As a specific example, one may cite the Soviet linear planning theorist N.A. Miliutin whose book *Sotzgorod* (The Socialist Town) of 1930 was a far more militant, critical and revolutionary text on socialist urbanism.

It was Miliutin and the Soviet Architect Moses Ginzburg who put forward some of those

remarkable "models" for new socialist patterns in the 30's to which Giancarlo de Carlo refers. Unfortunately such men are discredited and the "discredited", even for their failures are never to be mentioned; at least not in these circles. Architectural history judging from the recent work of the Moscow Institute for Architectural History and Theory, is another matter; here the "black sheep" in strict *past historic* tense, may be safely mentioned.

Regrettably *The Ideal Communist City* amounts to the conscious mystification of a potential model for some future socialist town; to an end that remains obscure. A single example of such obscurantism will suffice to make the point. Thus under the section entitled, "Organization of Daily Life" we read:

"The largest desirable size of a group of children must be experimentally determined. The findings of experimental psychology indicate that an individual adult is capable of giving his attention to and controlling simultaneously up to fifty-seven objects. Therefore with such complex objects as children to supervise, an educator should be assigned probably no more than six children at once".

What kind of pseudo-science is this? let alone the magical arithmetic which becomes even more cryptic as one reads on. (Bruno Taut at his most Utopian was never so elusive.) Perhaps this numerical smoke screen is necessary lest the informed reader should become uneasy, with the 1600 to 1700 souls postulated as the appropriate size of a residential complex; the same size, it just so happens, as LeCorbusier's *Unite* at Marseille or the 19th-century Utopian Socialist phalanstery.

Section Five, entitled "Leisure Time", introduces the old heroic 20's idea of the worker's club as "the social condenser". This phrase is of course not used but the message is more or less the same. The club paradigm brings the authors to present finally, their new "urban building block," referred to by them as the New Unit of Settlement or the NUS; comprising 100,000 to 150,000 people. Based on easy pedestrian access both to socio-cultural elements and to

nature, the NUS is the old Western "neighborhood unit" in a new guise. For the Gutnov team it is a square unit planned around the centroid of a community center, with high-density residential sectors symmetrically disposed on each of the four orthogonal axes leading to the center. This settlement is to be completed by educational and sports facilities on the diagonal axes; circumferentially linked by monorail.

Apart from this one ideogram, there is little else of substance to be found in this rhetorical text that has not been plagiarized, in a rather stupid fashion, from the technocratic fantasies of the West. At the same time some of the most cherished Western architectural icons are here evoked; while masquerading as radio-photographs from some remote socialist city; from Saarinen's *General Motors* complex to LeCorbusier's *La Tourette*. Naturally these images remain uncredited. God forbid that we should acknowledge our secret aspirations and God alone must know why young Soviet designers should choose to aspire to them.

The naivete of all concerned in this book, from author to publisher, is disturbing, to put it mildly; for this is not the enlightening naivete of the truly creative. Such "dumbness" as this can hardly serve the international socialist cause if that is what *i press* have in mind. *The Ideal Communist City* does nothing but reveal the "ten days that shook the world" as now having finally evolved into a total cultural farce; a farce which would be laughable were it not for the profound human loss and tragedy that lies beneath its surface. As I write these words, the faces of those lost to the cause of "socialism in one country", hang with pathetic and moving irony, on the walls of New York's Cultural Center. Brik, Ginzburg, Leonidov, Vertov, Mayakovsky, Meyerhold, Eisenstein, Lissitky, Stepanova, etc. . . . the list is long and many are absent. Touchingly captured by the camera at the height of their energy and commitment to the left, their images should remind all those whose cause is socialism with a human face, that they should determine their public and intellectual acts more judiciously.



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(continued from page 13)

A PROPOSAL TO CHANGE THE STRUCTURE OF CITY PLANNING: Case Study of New York City. By Beverly Moss Spatt. Published by Praeger Publishers, New York, Washington and London, 115 pp., 9½ x 6¼ in.

REVIEWED BY DAVID K. SHIPLER

The urban planning process in the nation's largest city is so ineffective and frustrating that two or three times a decade someone turns out a thoughtful volume suggesting that the job of planning be transferred from this branch of government to that, or be "restructured" or be done away with entirely.

The last serious proposal was made in 1966 by Edward J. Logue, who directed urban renewal in Boston and New Haven, and is now head of New York State's powerful Urban Development Corporation. In a report for John Lindsay, then a brand-new mayor, Logue suggested dismantling the New York City Planning Commission and giving its powers to the city's housing agency, which is directly under the Mayor's control. Lindsay never embraced the idea.

Now that notion, with certain variations, has been revived in a slim book by Beverly Moss Spatt, who spent five years as one of New York's eight planning commissioners before her term expired last December and the Mayor did not reappoint her.

Her critics will certainly be infuriated by her book, for its strength lies less in the one chapter devoted to a warmed-over proposal for "restructuring" city planning than in the seven chapters outlining what is wrong with the City Planning Commission now. Mrs. Spatt contends that while the commission is designed to function somewhat independently of the Mayor, its members' authority has in practice been siphoned off by an expedient commission chairman who, as a close associate of John Lindsay, tends to view the commission as a tool of, rather than a check on, the Mayor's office.

"The commission meets only every Monday afternoon for an

executive session," Mrs. Spatt writes, "every other Wednesday for a public hearing, and at occasional special sessions. Attendance is poor and a quorum may be lacking. Commission site inspections are rare . . . presentations and discussions are superficial. Recommendations are brought before the commission with very little background material and seldom with any delineation of alternative possibilities . . . Approval is requested, is forthcoming, but is uninformed."

This is the theme that runs through Mrs. Spatt's entire sad chronicle of planning in New York: impotent and ignorant commissioners succumbing to a ruthless system that stresses "political" planning over "professional" planning. The "professional" staff members are ignored, the "political" considerations are always paramount. Never, in deciding where to put public housing in a middle-class neighborhood, was traffic circulation, density or the host of other purely "professional" planning factors considered, Mrs. Spatt argues. "The vacant site was the common denominator of all the proposals."

So it has been with the formulation of the city's Master Plan ("a synthesis of much traveled ideas and vague, glib generalities"), with the annual drafting of the budget to finance capital construction projects ("decision-making on purely political basis"), with zoning ("in the absence of firm guidelines, the door is ajar for private deals"), with housing ("the present planning agency has produced no housing plan").

The trouble is that Mrs. Spatt gives us no insight into why this is happening, and she provides no prescription for change except a disjointed proposal for direct mayoral control of the planning process.

Unfortunately, the book falls short of scholarship or journalism or even analysis; it remains a list of grievances. And some of those raise profound questions—about the role of government *vis-a-vis* private enterprise, about the sufficiency of the planners' tools, about the nature of zoning and the relationship between politics and professionalism in planning—that one can only wish Mrs. Spatt had been inclined to explore.

Mr. Shipler is a reporter on the New York Times metropolitan staff, specializing in urban affairs.



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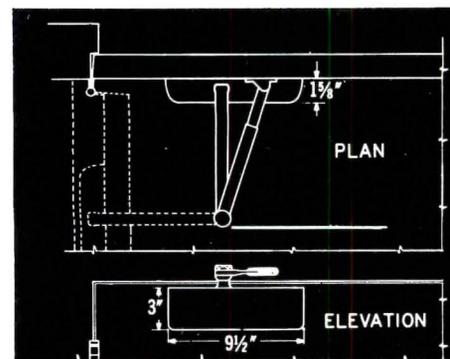
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FORUM

New York State, under Nelson Rockefeller, has been appropriating truly astonishing sums each year for the support of the visual and performing arts. In fact, the appropriation for 1970 (\$20.5 million) was \$4.5 million more than Nancy Hanks got for her *National* Endowment which, of course, endows the whole country; and last year, when even Nelson Rockefeller was fairly broke, the N. Y. State Council on the Arts received \$14.4 million—much, much more than any such Council in any of the other 49 States.

It now turns out that this is not merely good public policy, but also very good business. Somebody figured out recently that the new space program proposed by President Nixon will create 50,000 jobs at a cost of \$100,000 per job created; whereas the N. Y. State Council, with its 1971 appropriation, created 2,000 new jobs at a unit cost of only \$7,000 per job.

I am not suggesting (at least, not yet) that the space program be turned over to a N. Y. State artist—though the prospect of having Bob Rauschenberg, rather than NASA Director James C. Fletcher, explore outer space is exhilarating. What I *am* suggesting is that massive infusions of dollars in the general direction of the visual and performing arts may be one way of making the recession recede. The sums disbursed by Arts Councils not only support artists (who sometimes pay taxes, like everybody else), but also electricians, carpenters, stagehands, ticket takers and popcorn sellers—all of whom pay taxes also. And even tent-makers: the lowest grant granted by the N. Y. State Council last year was \$155 to the Pomona/Palmyra Grange for the rental of a tent under which to put a crafts exhibit; and there have been other, adventurous investments in structures, new and old, as well.

Not every state in the Union is blessed with a governor who is also a patron of the arts. (California, for example, appropriated a mere \$168,000 last year to its Arts Council—and California has more inhabitants and probably more artists than N. Y. State.) But every state has its contingent of architects; and since most of us architects are hooked on at least one of the other arts, we should, perhaps, pressure our various legislatures to match Rocky's state per capita—and, hopefully, per talent. The ammunition provided by the N. Y. State Council—the make-work ammunition, at a cut-rate price of \$7,000 per job—should make our lobbying a cinch.

—PETER BLAKE

BIG PLANS

BICENTENNIAL BLISS

Last month, as it eventually must to all men, the glimmer of a good idea came to those who run what is known as the American Revolution Bicentennial Commission. It came none too soon, for we are going to

be celebrating, relentlessly, less than four years from now, regardless of whether or not the ARBC decides to throw the party.

The idea: to create a nationwide network of Bicentennial Parks, one in each of the 50 states. The "Parks" might vary in character from an urban enclave (like Manhattan's re-

stored historic South Street Seaport) to a giant igloo in Alaska; from an ecological paradise in Florida, to a redwood forest in California. The "Parks" would have four things in common:

- First, they would all be on land that is presently owned by the Feds and located close to major centers of population; this land would then be donated to the states by the Federal Government.

- Second, each state would be given a sum of somewhere between \$15 and \$25 million (depending on Congress) to turn the gift of raw land into a "Park" that would best express the state's image of itself, its history, and its ambitions for the future. Much of the effort would be devoted to the reclamation of land (including waterfronts) previously despoiled.

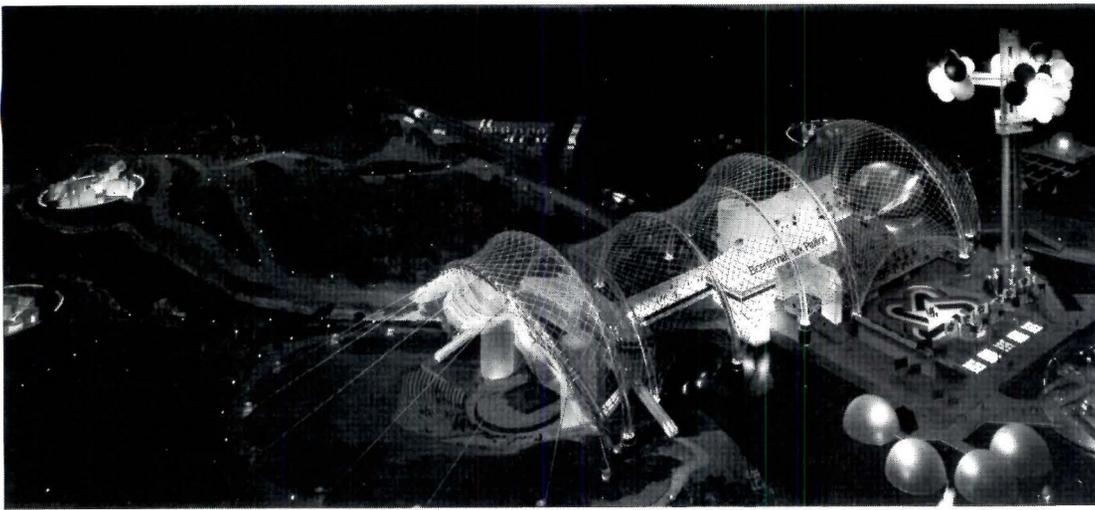
- Third, each "Park" would have to meet certain basic design criteria: no pollution, mass-transit connections to nearest urban centers (or nearest satellite parking lots), facilities for the performing and visual arts, facilities to house packaged, possibly unfolding traveling exhibits to be circulated among the 50 "Parks," and conceivably originating in every corner of the earth.

- And, fourth, each state then would have to commit itself to cleaning up the mess after the party is over, and turning this grant of land and physical plant into a permanent public asset.

The basic idea emerged from many discussions among many participants, but the diagrammatic form of one such "Bicentennial Park" is the work of Architects Davis/Brody who were responsible for the sensational U.S. Pavilion at Expo 70, in Osaka, Japan (Apr. and Sept. '70 issues). Their design is

Prototype of Bicentennial Park plaza





Bicentennial Park with central pavilion, plaza, and satellite exhibit areas at left

really an elegant, physical abstraction of a good idea: it suggests that one such "Bicentennial Park" might incorporate an arena theater, a multi-screen projection area, an area in which trailer-contained travel shows might be displayed, and so on. The pictures shown here suggest what this abstract scheme is all about.

It is a nice scheme, and a nice idea, with just the right balance between the best of all possible worlds, and the best of all possible political expectations. The proposal has everything—political savvy, technological innovation, broad local participation. For example:

- Politically, a network of 50 "Bicentennial Parks," on land supplied by the Feds and made visible with congressionally appropriated funds, is sure to catch the imagination of each member of the Senate and the House, and catch his or her vote as well.

- Technologically, this network of "Bicentennial Parks" will encourage the development of experimental mass-transit systems that will link the respective state's park to its major population centers. Many different systems may be developed—earth, air, or water-borne systems are being considered. And the exhibition areas—some temporary, others permanent—may become housed in experimental structures varying from the air-supported to the underground.

- And in terms of local participation, the scheme is full of promise as well. Participation means involvement, and each of the 50 states will be involved.

There may be architectural competitions to develop both program and form for each of the 50 "Bicentennial Parks." And there will certainly be 50 separate booster efforts, locally sparked, to make each state's "Bicentennial Park" the best in the nation.

One problem, of course, will be to keep local ebullience within limits; and the Bicentennial Commission will, undoubtedly, lay down certain guidelines to control commercialism and to assure that certain levels of design maturity are maintained. The design direction that will be exercised by the Commission—judging by what has been done to date—is not likely to be inhibiting; on the other hand, it won't be *laissez faire*, either: after all, Venturi or not, it seems hardly necessary to display the sleazier aspects of the American Dream, 200 years after the fairly inspiring fact.

One of the many things that make the Bicentennial Commission's proposal so interesting is that it had to take a physical, designed form to become at all convincing. Admittedly, the form is still abstract; but it is considerably less abstract than the thousands of well-chosen words produced heretofore—a tribute, one feels, to the power of ideas expressed through architecture and design.

ART

MUSEUMS

The U.S. Art Establishment was trying to adjust itself this winter to new missions and new problems. Among the outward

manifestations of inner turmoil were these:

- John B. Hightower, 38, director of New York's Museum of Modern Art for 17 months, was asked by his trustees to resign. One of them, David Rockefeller, said "A year ago we expressed doubts to him."

MOMA's directorship is thought by many to be an impossible post to occupy—the previous tenant, Bates Lowry, managed ten months—due to the confusion in the minds of the trustees as to what the director of the MOMA is supposed to be. Hightower, who came to the museum from the New York State Council on the Arts where he earned a brilliant reputation as an administrator, said, "Of the various cross-currents of emotion coursing through me, the dominant one is relief. I'm not really the gold-watch-testimonial-dinner type, and I didn't think I was the man for the long haul." One former MOMA director, who claims to be very fond of Hightower, felt that it was not a question of administrative shortcomings, but of lack of expertise in the world of modern art.

- Charles C. Cunningham, director of the Art Institute of Chicago since 1966, will resign in August of this year. Suggesting the Institute look for a younger man, the 62-year-old director said, "The museum is no longer a cloistered hall. It's becoming more and more involved . . . with social problems . . . putting tremendous pressure on the director and staff. It used to be that the director was first an art historian and then an administrator. Now we're dealing with all sorts

of other things and only ten percent art."

- The Museum of the City of New York is celebrating its 40th anniversary with a tacit acknowledgement of that fact: a party for the public in its handsome five-story Georgian Colonial building designed by Joseph H. Freedlander. A unique feature of the interior of this popular museum is a magnificent self-supporting curved staircase of Alabama cream marble—the only one of its kind in the U.S.



One-of-a-kind staircase

Director Joseph Veach Noble's first major exhibit there was *Drug Scene*, a realistic approach to the narcotics problem, the first of its kind ever mounted in a museum. This exhibit broke all attendance records.

ART BELONGS TO THE PEOPLE

Two thousand pieces of Russian arts and crafts were installed at the Corcoran in Washington, D. C. a couple of months ago, and the gallery floors were splendidly covered with scarlet carpeting as befits the occasion. Set on silver and red bases and pedestals (made in Alexandria, Va.) were emeralds and rubies fit for a czar, Vologda lace, painted clay toys, and possibly best of all, 14th-century icons worked in egg tempera on wood.



Factory worker's house in Briansk

It was a wonderful show for the sight-seer who is equally happy in Leningrad's Hermitage Museum and in the airport knick-knack kiosk, because there was

a carefree mix of kitsch and *corn with the ancient* and elegant. The show was certainly more fun than the U. S. exhibit now touring the Soviet Union, with its hair dryer, Lincoln Continental, princess phone and electric toothbrush.

As one neared the top of the Corcoran's main entrance staircase, a large bust of Lenin (borrowed from the Soviet U. N. Mission) awaited, and an overhead banner proclaimed "Art Belongs To The People."

The show, "Soviet Union—Arts & Crafts in Ancient Times & Today," left the Corcoran on February 8, to travel to Los Angeles, Minneapolis/St. Paul, Chicago, Boston, arriving at the Metropolitan Museum in New York on September 26.

TRANSIT

BUT NO PASSENGERS

The hovertrain is the world's first all-electric tracked air-cushion vehicle (TACV), and its recent test run near Cambridge, England, has been judged a success by its British pioneers, though it ran only half a mile, at 20 mph and carried no people.

Tracked Hovercraft Ltd. was created in 1967 with allocations (to date) of \$12 million. The developers hope for commercial use in 5 to 7 years, but say a 40-ton 100-seat driverless hovertrain could be in operation in three years. (The test train weighs only 22 tons.) A series of these 100-passenger vehicles could service city-to-airport

routes, operating under automatic control, as close as two minutes apart, virtually a no-waiting-time means of transport, at an average speed of 250 mph.

The train glides along on an air cushion, sitting astride a box-shaped track, and is a form of high-speed travel based on two inventions: the peripheral jet air cushion, which guides the train, and the linear electric motor, for propulsion and braking.

The U.S. Department of Transportation has acknowledged that the British system is significantly less expensive to build than the French system (T-shaped tracks) or the American one (U-shaped tracks.)

TURNABOUT IN AUTOLAND

It turns out that free enterprise can be *cooperative* enterprise, even among automobile manufacturers.

There's a group called Detroit Renaissance, better known as "About Time." Its members are business and civic leaders who realize there will be no market left unless something is done to keep people living in and caring about the center city.

Renaissance has decided to support Michigan legislation to divert a portion of gasoline revenues to the development of public mass transit systems. Signing the agreement were Richard Gerstenberg, Chairman of General Motors; Henry Ford II, Chairman of Ford Motor Company; Roy Chapin, Chairman of American Motors; and Virgil Boyd, Chairman of Chrysler. The bill they are supporting

would increase the gasoline tax by two cents, one-half cent of that going to mass transit.

Why the change? Detroit needs efficient rapid transit if it is to rise above its present level of urban subsistence. As in most cities, there is rising opposition to cars downtown. And, as one might expect or, at least, hope, the auto makers are planning to market their own transit systems in the near future.

Last January, Henry Ford bravely suggested that part of the \$6-billion annually put in the federal highway trust fund be spent on rapid transit. If that should happen, there just might be a Detroit-style Renaissance for *all* American cities. Ford really does have a better idea after all.

LABOR

BIRTH OF A UNION

A group of Bay Area architects, dissatisfied with working conditions in the design field, have joined forces to form the Organization of Architectural Employees (OAE). They feel the most important issue involved is the concept of the architect as a professional—as opposed to a technician.

In March 1971 OAE filed a petition with the NLRB for recognition as a union. This was granted. By the end of 1971, it was plain to see that the union had made solid gains (limited, to be sure—three offices are now organized), the first ever scored by a unionization movement in the history of the architectural profession. OAE has an office, a telephone, and publishes a monthly newsletter, OAE News.

The union is open to anyone capable of performing architectural duties, not just graduates and licensed architects.

One of the major points in the opening dialogue between employee and employer is the portability clause, where fringe benefits — pensions, medical plans, vacation and sick leave, profit sharing, etc.—can be carried to the new office. A union survey showed that Bay Area architects change jobs every one and a half years. Five major California architectural offices were approached on the subject of a general portability clause. Only one, DMJM, was interested in further discussion.

Employees feel there is am-

(continued on page 61)



English hovertrain glides on its box-shaped track



A BUILDING THAT MAKES ITS OWN LANDSCAPE

Corporate headquarters in the sylvan Pacific Northwest are a lasting contribution to 20th century architecture

BY ROGER MONTGOMERY



Bird's-eye view of the new headquarters building, as seen from the northwest, shows its five, stepped-up levels forming a dam that turns an existing creek into a lovely lake. The main level of the building—the fourth, or entrance floor—is 1,300 feet long. Opposite: view from this main floor toward the man-made lake.

Mr. Montgomery is professor of urban design at the University of California, Berkeley, and is a member of the Forum's Board of Contributors.

No one could mistake the new Weyerhaeuser Company headquarters near Tacoma for anything but an exurban center of corporate power, the kind of architecture Skidmore, Owings & Merrill, its designers, have come to symbolize. Yet it differs fundamentally from all of the others. It stands not so much as an elegant building in a carefully tended landscape as an elegantly made part of the landscape itself. Simultaneously, from the inside, landscape in a different sense of the word, as *burolandschaft* or office landscape, helped generate the design. This last fact, that it is the most ambitious American effort at a totally partition-free office interior, will doubtless dominate interest in the project. But the two facts taken together, the integral realization of landscape in its twin meanings, will give Weyerhaeuser its lasting architectural value.

Sasaki, Walker Associates, the Sausalito, California-based landscape architects, worked with the architects from the beginning. Together they helped Weyerhaeuser select and assemble the land. In addition to the conventional considerations of access and expansion room, they sought a site with environmental unity and easy public exposure. They chose gentle Hylebos Creek valley from its source in North Lake south to where it flows under State 18 freeway, a site which abuts Interstate 5 which goes north from Tacoma to Seattle.

Seizing the unique opportunity for immensely deep office floors made possible by the decision to use office landscape interior design principles, the designers built a landscape rather than a building in the conventional sense. They cut back the second-growth Douglas fir and red alder forest to open an hour-glass-shaped clearing along the sides of the shallow creek valley and make room for the structure at its narrowest point. The ends of the clearing open to the two freeways. There the headquarters sits in the land like a great stepped dam forming a lake to the north. The creek flows below the structure and continues underground to the edge of the property thus opening a broad grassy meadow to the south.

Three great enclosed office

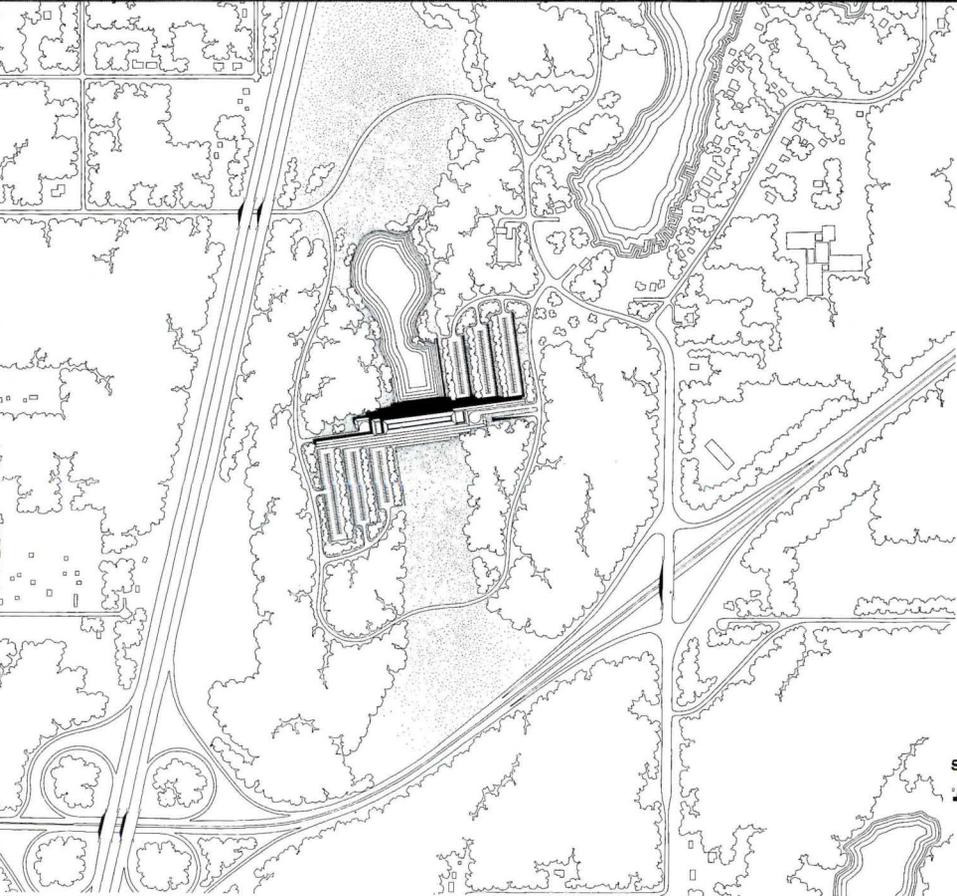
levels contain all the main working spaces, most of the building's 360,000 square feet. As the levels go up they get narrower north and south on the axis of the valley, and wider east and west as the valley walls slope back: precisely the form of an earth gravity dam. At each end parking areas terraced into the ground pinwheel off the working floors. A fourth level stretches well over 1,300 feet from one rim of the valley to the other. It provides grand entrances from east and west, reception, meeting, cafeteria, and lounge spaces. A fifth level stepped back again, but also cut short the other way, forms a pavilion on top for the executive offices. All of the stepped-back terraces have luxuriant plantings which strengthen the overall landscape image. Architecture and landscape design meld into one. They become so "mutually dependent," in the words of SOM design partner Chuck Bassett, "that the contours of the site each travel across the site, through the building, and come back out again."

Comparison of Weyerhaeuser with Saarinen's John Deere building (July '64 issue) seems unavoidable and instructive on just this point. Superficially they appear similar. Each houses an independent corporation headquarters in a carefully studied structure spanning and damming a gentle stream valley. But the differences point up the special qualities of Weyerhaeuser. The intricate, purple-brown steel rust and mirrored glass prism in Moline stands free against the landscape in a clear figure-ground relationship. Despite the simpler architectonics in Tacoma, the blurring of figure and ground relationships adds a new dimension of complexity, perhaps ambiguity. Even at night Weyerhaeuser looks unbuilt-like. Its doubly stepped form becomes a series of illuminated terraces in the land rather than a striped rectangle on the land.

A parallel difference appears in the site design. At Deere the land has become a garden, but Weyerhaeuser appears to be in a forest clearing. Landscape Architect Pete Walker calls it "forest management" more than "landscape design."

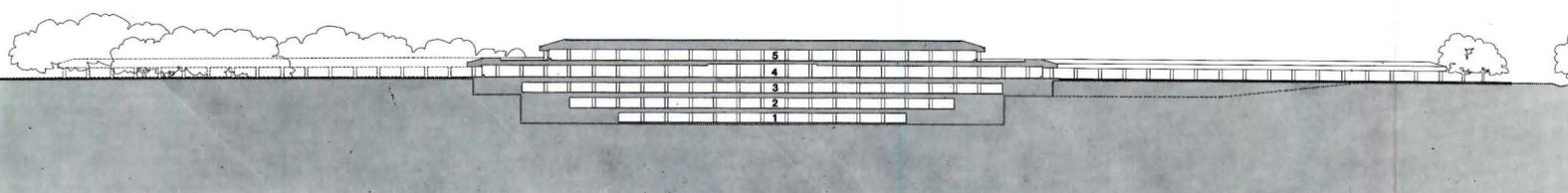
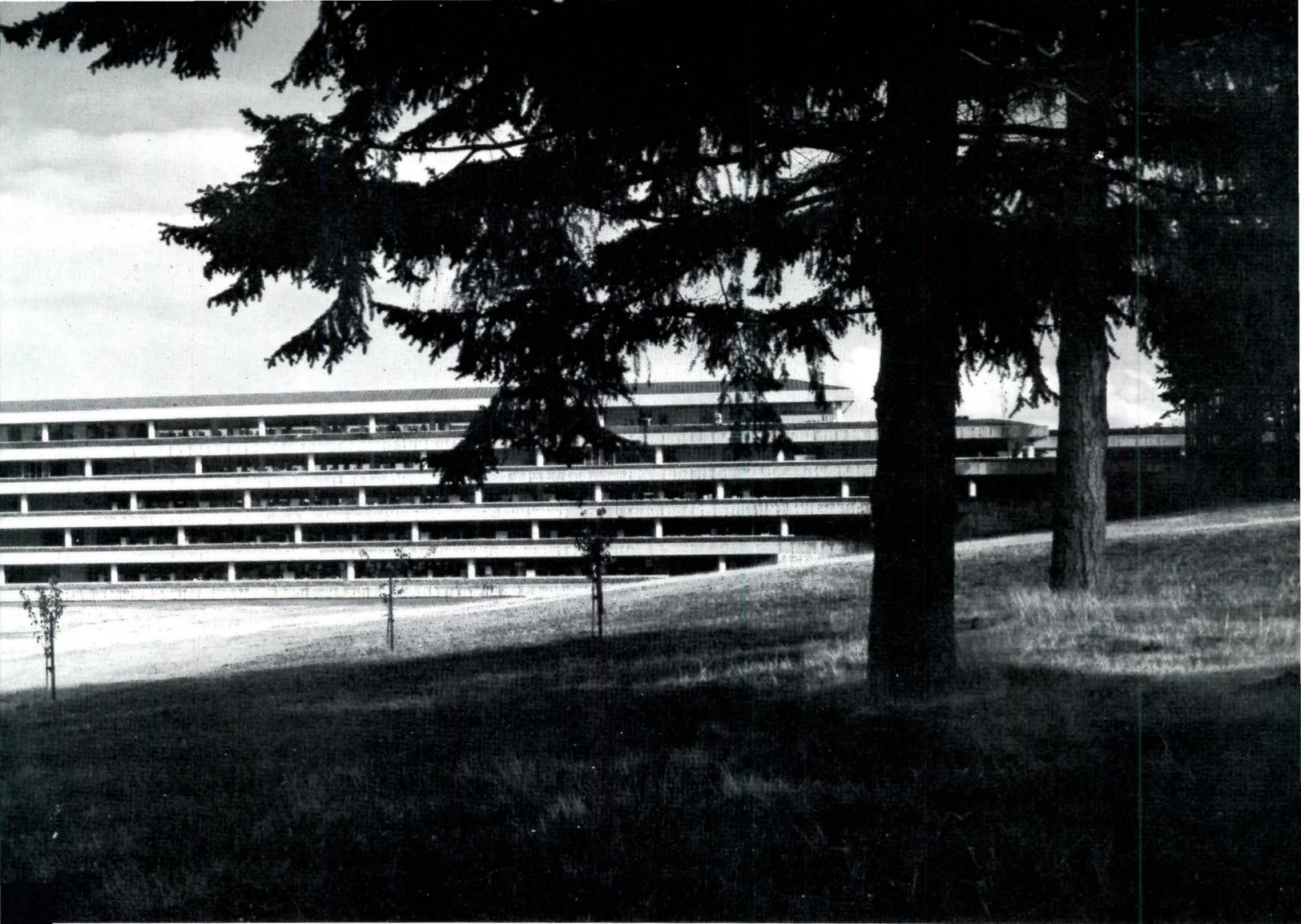
How neatly the circle closes when, moving inside the struc-



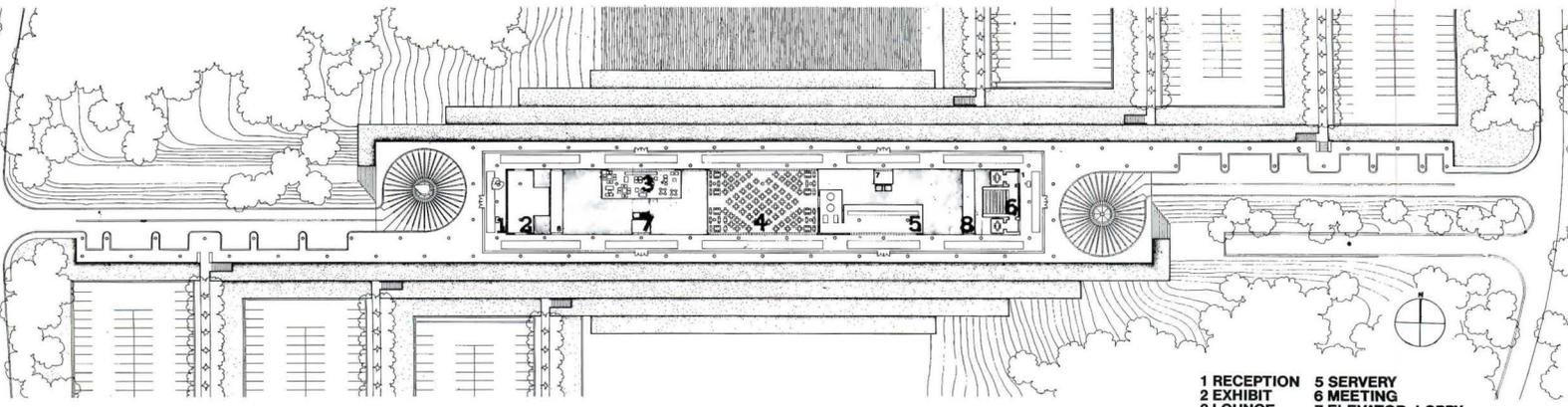


SITE PLAN

On the south side (above), the building faces a broad meadow that is a clearing in the forest. The site plan at left shows the hourglass-shaped clearing and its relation to Interstate 5, the highway linking Tacoma and Seattle. The plan at right is of the fourth or entrance floor (see also the section above it), and it shows the graceful, pinwheel terracing of the building as it meets its site.



LONGITUDINAL SECTION



FOURTH FLOOR PLAN

0 50 100'

- 1 RECEPTION
- 2 EXHIBIT
- 3 LOUNGE
- 4 CAFETERIA
- 5 SERVERY
- 6 MEETING
- 7 ELEVATOR LOBBY
- 8 CROSS CORRIDOR

ture, the building as landscape transforms the world outdoors into a supporting work of art. It does this at the same time it maintains a traditional modern movement — concern with dissolving barriers between indoors and out. Entering any of the main working levels from the vertical cores in the northeast and southwest corners gives an unforgettable impression. The eye moves diagonally for more than 200 feet across a space unbroken by any partition, by anything above eye level, and out through the immense open slit to the trees and flowers beyond. The effect is totally unprecedented. The great depth of the interior landscape provides a rich foreground which tends to merge with the outdoors and transforms it into a living, mural-like part of the inside world. The extreme horizontality of the space slice contributes to the same end. So does the mullionless glazing detail. The silicone-sealed butt joints between the twelve-foot plate glass panels simply disappear from a little way back. Outside, the treatment of the forest edge, nearly touching the structure at the corners, then peeling back along the sides of the valley to the north and south, completes the extraordinary effect.

The decision to use office landscape lay with the client and their space planners, Sidney Rodgers Associates. (See also this month's *Interiors* and *Industrial Design*.) With the architects they toured European examples such as the Volvo headquarters in Sweden before making a final commitment. Given the decision, interior design became a matter mainly of developing a set of parts, furniture, work station units, acoustically isolating dividers, etc. No layout is permanent. In fact, a full-time, in-house interiors man continues to arrange and rearrange things as work groups form and reform. Knoll Associates worked with the architects on the kit of parts. The result is the expected tasteful product, excepting only the too-bright carpets on the main work floors—a choice reportedly made by others. Weyerhaeuser itself crafted much of the woodwork for the furniture and work stations.

In the daily life of those who use the building more social, less

esthetic aspects of the interior design dominate experience. Even a quick visit discloses some of the problems accompanying the openness. People who have been used to private spaces for years keep struggling in all sorts of ways to enclose their work stations and make offices of them. Already on one level someone has moved high bookshelves toward one corner to make a protective bastion. Occasionally voices rise above the carefully controlled background noise level and float over the dividers destroying acoustic privacy. A vertically organized committee, representing various strata from top management down, plans to police violations and encourage the space-use discipline necessary to maintain the design concept.

The radical break with tradition caused by the use of office landscape, and the special efforts needed to control it, highlight perhaps the most intriguing facet of the project. In writing about their new headquarters a company publication says, "The building is not a goldfish bowl because 'open landscape' deals not so much with visibility as with access. . . Someone we've meant to contact passes by, and we contact him. And a decision is made in minutes that used to wait days. Within our departments, closed doors give way to a constant flow that groups here, then there. In the corners of the building, we meet others and ideas are exchanged."

This reflects a relatively new emphasis on open communication and modern management styles. These changes developed as the new headquarters project developed. Naturally the structure came to symbolize all the other changes. The architects helped to crystallize the sense of change and deposit it on the architecture as a special meaning. The structure has become a powerful symbol for all that is new and progressive in the company. To talk about the building with Weyerhaeuser's management people gives powerful evidence of this process. When asked about the physical layout of the place they tend to answer in terms that describe its social and institutional organization. When asked about management they may reply with descriptions of its design. The architecture and the manage-



Interiors are very open under wide spans. Above is the executive penthouse, on the fifth level, with one of two extraordinary trompe l'oeil tapestries by Helena Hernmarck. At right is a portion of the "office landscape" arrangement used throughout the building. Below are aspects of the fourth floor cafeteria: servery at left, and dining room at right, with its pinpoint light ceiling.





ment changes seen inextricably mingled. Weyerhaeuser offers an extraordinary insight into the function of built form as symbol.

Social dimensions of the project have many sides. For instance, lunchtime at Weyerhaeuser is quite a sight: middle management in sweat suits jogging their two miles a day around the south meadow and the lake; some young folk hanging out in the park-like parking lots listening to rock on their car radios; a group of ladies feeding the swans which SOM's Bassett donated to improve the looks of the lake; lots of people eating in the cafeteria on the fourth level.

When the company left Tacoma they left downtown. They had to build back some of it in their new park setting. They needed things like a place to eat and socialize, even a small store. That is what the fourth level is; a kind a special purpose, part-time, company-town main street that unlike those of olden days does not seem in the least oppressive. It seems almost liberating. What company sales executive or accountant would feel at ease throwing a frisbee during noon hour on the streets in the real downtown? The fourth level looks different from the main working levels. It has wood floors. It has no work stations. Great wide circulation galleries run along the windows on both sides (sidewalks?). Special furniture, art work, the intricate chrome-plated geometric maze of the cafeteria light-fixture ceiling, all contribute to making it look special.

The fifth level executive pent-house returns to the office landscape motive. Inside, it has been densely planted with a collection of exotic greenery. This and the terrace planting outside pretty completely dissolve the glass so that the inside merges easily with the green world beyond. It feels more like a garden house than the nerve center of a giant corporation.

Among the special delights of the top floor, the standout is the pair of breathtaking *trompe l'oeil* tapestries by Helena Hernmarck. These adorn the core walls at either end of the space. They are based on color photographs taken in old-growth Pacific Northwest forests, but they have a special life of their own,

alternating between superreal landscape scene and psychedelic pointillism as one moves towards and away from them. A few other major art works have been installed as befits a serious, mid-20th-century corporate headquarters. The employees' lounge on the fourth level sports a 35-ft.-long Mark Adams tapestry. J. B. Blunk's chainsaw-sculpted redwood root decorates the reception area at the west end of the same level. Outside this entrance, in the center of the turnaround, stands a great rock megalith. Sculptor Gordon Newell found it near Fresno, California and lovingly placed it and patina-ed it with chemicals to encourage moss and lichen to grow on it. With all its overtones of druids, Zen gardens, and wet west coast woodlands, it forms a perfect sign for the intentions behind this remarkable marriage of landscape art and architecture.

Structurally the building holds no surprises except possibly the unavoidable question: why a steel frame, concrete-clad building for a leading manufacturer of wood products? The answers from both client and architect match and have to do with problems of durability, safety, weathering, economy and appropriateness in this class of construction. Inside, lots of wood appears in the finishes. The heroically proportioned base detail and crown molding must surely rank among the most masterful workmanship in any modern building. Weyerhaeuser made this woodwork for itself in its Marshfield, Wisconsin hardwood mill. It is perfectly finished, book-matched and end-to-end matched American White Oak. Who said craftsmanship was dead?

Lighting and the heating-ventilating-air conditioning systems depend upon the properties of the office landscape. Heating, for instance, is all-electric using electric boilers and blast coils, and depending largely upon recycling the heat generated in the workspaces by the lights, the office machines and the people. (Such extracted heat is transferred to water in a heat-exchanger and used in turn to heat the fresh supply air.)

Good architecture as applied in this building has a way of circularly and cumulatively relating various elements so each

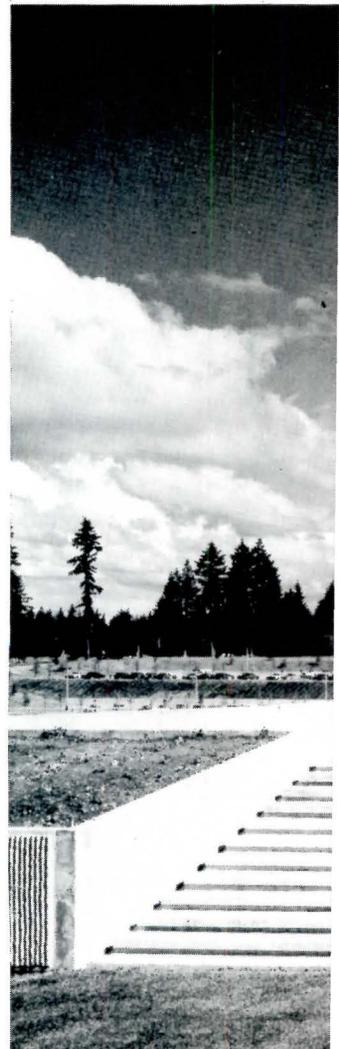
reinforces the other in multiple ways. Take the column grid system used in this structure. In order to maintain reasonably wide-span structural bays, and at the same time position a line of columns at each of the setback glass lines, the architects developed a diamond-shaped grid turned at an angle to the basic building rectangle. This choice stunningly solved two major visual problems. The staggered pattern of sharp white columns between the dull grays and greens of the terraces and fascias signals that the wall planes are not stacked vertically but set back. This works even when looking in straight elevation on a typically cloudy northwest day which produces no modeling of the form. Inside, the diagrid column system pays off another way. Its lines emphasize the vast diagonal dimensions of the office landscape interiors and thus add one more emphasis to the intensity of the space quality.

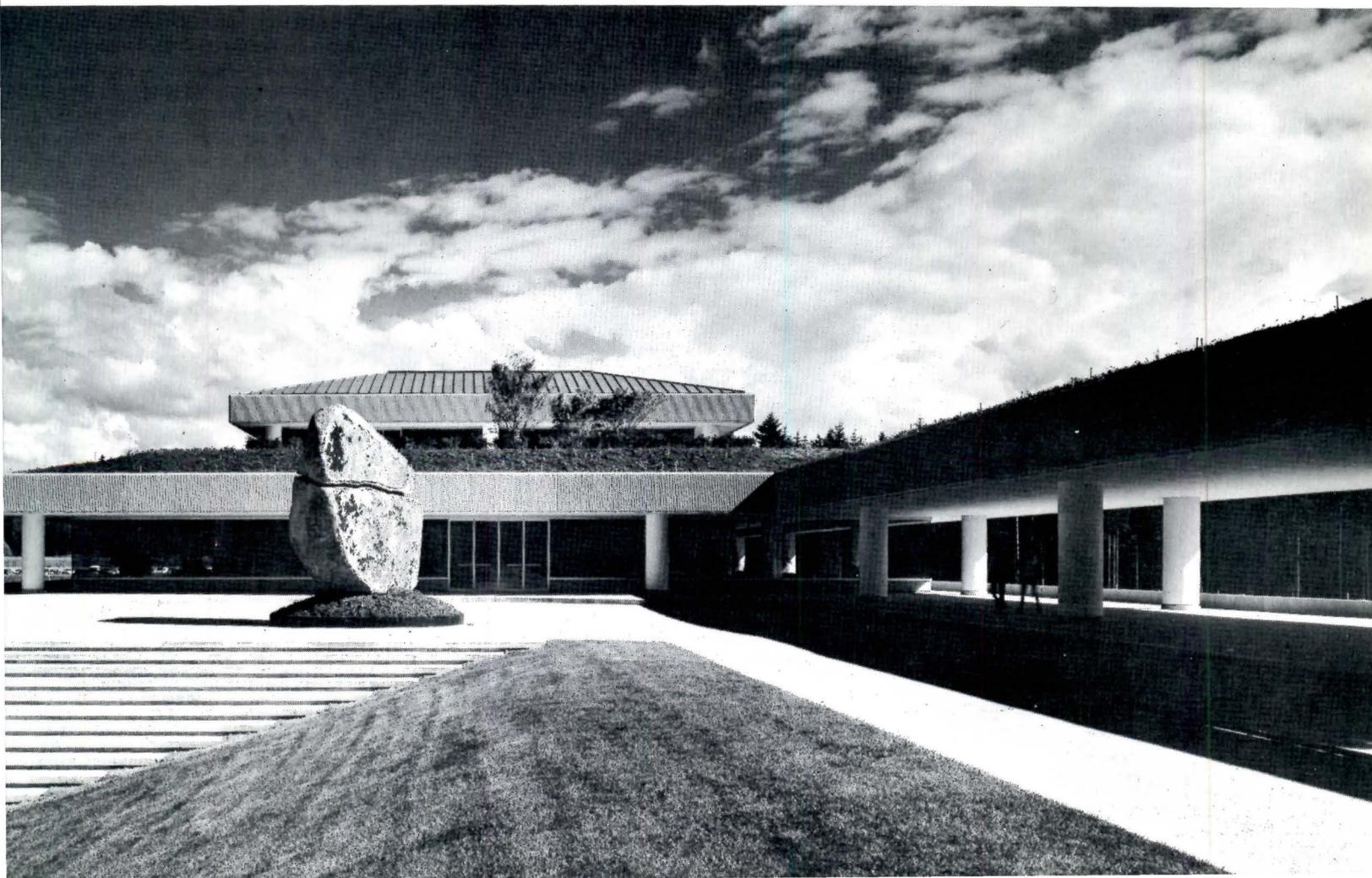
Though corporate offices in open land outside cities has been an SOM specialty since the New York office and Gordon Bunshaft did Connecticut General in 1956 (Sept. '57 issue), Weyerhaeuser represents SOM San Francisco's first major essay in the type. That office's strictures against any identification of individual creative roles only whets the appetite to get into the sociology of the partnership. No mind. Let teamwork reign unchallenged for now. Leave delicate questions of authorship for future architectural historians. It is safe to predict they will study it. Weyerhaeuser will rank among the lasting contributors to an American architecture from that remarkable giant partnership, Skidmore, Owings & Merrill.

FACTS AND FIGURES

Weyerhaeuser Headquarters Office Building, Tacoma, Washington. Architects and Engineers: Skidmore, Owings & Merrill—San Francisco. Landscape Architect: Sasaki, Walker Associates, Inc. Interior Designer: Skidmore, Owings & Merrill—San Francisco and Sidney Rodgers Associates. General Contractor: Swinerton and Walberg. Landscape Contractor: Landscaping, Inc. Building Area: 360,000 sq. ft. Construction Cost: \$15,000,000. (For a listing of key products used in this building, see p. 73.) PHOTOGRAPHS: Ezra Stoller © ESTO, except p. 20 Phil Gearhart, Weyerhaeuser Co.

The main entrance to the building is marked by a great rock megalith found by sculptor Gordon Newell and placed there and treated by him. The view of the lobby, at top right, shows how interior and exterior landscape have been made "mutually dependent." The mullionless glass walls have butt joints sealed with silicone. The view of the approach to the building shows one of the long entrance canopies that link the parking lots to the main floor. The top floor is the executive penthouse. Its roof is clad in copper, but roofs of lower floors have been planted with shrubs to permit them to merge with the landscape beyond.





HOW TO HAVE YOUR CAKE AND EAT IT TOO

A new tax proposal that helps the cities yet costs the local taxpayers virtually nothing

BY PETER MARCUSE

McKinsey & Co., management consultants, have just come up with one of those beautiful ideas that is so obvious and simple that there will surely be hundreds of "experts" all over the country kicking themselves for not having thought of it first. It appears in a relatively short report prepared by McKinsey for the Bureau of the Budget of New York City as part of a contract under which McKinsey was to suggest to the city ways of increasing tax revenues.

The idea is simply this: Drop the real estate tax on landlords, assess the same tax instead against tenants, and provide that the landlord shall collect it from the tenant and pay it to the city. The landlord and the city are in the same position as before, but as if by magic tenants have picked up a deduction from their income taxes worth anywhere from \$107 per year for an average four-person family with a \$7,000 a year income in New York City, \$231 a year for a \$17,500-family, and \$480 to a \$27,500-family,—and these are all after-tax savings, not before-tax. The larger the family, and thus generally the higher its rent, the greater the savings; for example, for a tenant earning \$12,500 the savings are \$108 for a one-person household, but \$174 for a six-person household, if they each pay typical rents for uncontrolled units.

Now add one more wrinkle, since McKinsey is working for the City of New York, not the National Tenants Organization: impose a city tax (they call it a "recoupment" tax) on the savings that each tenant gets on his Federal income tax. The simplest plan, of course, is to make the City recoupment tax directly proportional to the federal tax savings; McKinsey estimates that if New York City were to tax 80 percent of the savings, it would make \$131.2 million a year on the plan!

A more painless way of increasing city tax revenues could not be imagined by the most beleaguered mayor. The city passes a simple ordinance, which provides a direct and tangible benefit to a large group of its citizens, and it recoups part of that benefit by a new tax; simple, reliable, and incontrovertibly fair. And it leaves everyone better off than they were before—with the (locally irrelevant) exception of the federal government.

What is really going on here, to produce this magical result? Simply the correction of a feature of the Federal Income Tax system that many have long considered a serious inequity.

The Federal tax system permits a homeowner to deduct local real estate taxes from his Federal income tax return. Such a deduction is not inherently required by logic or justice; it simply arises out of a congressional policy favoring homeownership and helping local governments. From the taxpayer's point of view, it is simply a personal deduction much like medical expenses. The fact that it happens to attach to a real estate tax payment is, from the individual's point of view, simply a coincidence: for the homeowner it is as if 20 percent (or whatever proportion his real estate taxes come to) of his annual housing expense were automatically allowed as a deduction to him. A tenant is permitted no such deduction, although he indirectly pays the same tax as part of his rent. The landlord, who does

get the deduction, has it anyway as a business expense, so it really doesn't help him. It helps local governments a little because it makes the impact of their real estate taxes on homeowners a little easier to bear.

What McKinsey is suggesting is simple equality between homeowner and tenant, with the city sharing in the new benefit to the tenant. They don't explicitly make the argument, but students of housing have long felt that the deductibility of real estate taxes by the private homeowner was government favoritism to ownership over tenancy, and was in some part responsible for the acceleration of suburban sprawl. Big-city dwellers rarely got any benefit from such a policy. The recent growth of condominiums and cooperatives has been one response of the private housing market to this problem. McKinsey is simply advocating the tax benefit of condominium ownership across the board for all New York City apartment dwellers.

There are, of course, some minor flies in this inspired ointment for sick cities, but they can be pulled out without too much difficulty. The idea of directly taxing the actual amount of the Federal income tax savings received by each tenant was originally rejected by McKinsey as administratively unworkable and delaying payment of the tax excessively. As a realistic alternative, they suggest taxing 6 percent of rent payments of all families earning \$6,000 or more, and welfare families under \$6,000 (since the state and federal governments pay most of welfare families' rents anyway). This tax is much easier to collect and results in almost as much the same tax revenue for the city, estimated at \$107 million for New York in 1971-1972. But such a flat tax could actually increase total payments being made by some middle-income families in the \$6,000 to \$15,000 income range. After some hesitation, McKinsey finally recommended that the recoupment tax be directly on Federal income tax savings, thus ensuring the fairness of the tax, perhaps at 80%. Tax anticipation notes can handle the delays; and administrative problems, McKinsey believes, can be worked out satisfactorily.

Other details would have to be worked out. First, there is some question as to whether the Internal Revenue Service would go along with this unilateral form of revenue sharing. Payments under California and Hawaii laws imposing real property taxes on lessees rather than owners of real property have been ruled deductible by the Service. The situations may be "distinguished" and perhaps an advanced ruling should be required. Actually, Representative Koch (D-NY) has introduced a bill in Congress to permit tenants to deduct real property taxes even if such taxes are not formally imposed on them, but its likelihood of passage is slim.

Some allocation formula has to be worked out for determining how much of the landlord's former real property taxes each tenant would pay in a multi-family building. McKinsey suggests making it proportional to the gross rent paid, not necessarily the fairest but certainly a simple method of handling the problem. The city should not assume any increased burden of collection, or risk of noncollectability, by shifting

Mr. Marcuse is presently teaching at UCLA's School of Architecture and Urban Planning. He is a lawyer in Connecticut, where he has practiced for the past twenty years, and is also a member of the City Planning Commission in Waterbury, Connecticut.

the tax from the landlord to the tenant; McKinsey suggests leaving the landlord secondarily liable for taxes. As a matter of fact, they whisper the suggestion that the landlord could be considered an agent or trustee for the state in collecting real property taxes from tenants, and be made criminally liable if he breached his trust by not remitting to the city taxes he had collected from tenants, thus strengthening rather than weakening existing enforcement procedures! The possible effect of such a procedure in slowing down the abandonment process is also hinted at.

The right to contest taxes would theoretically be given to a much larger number of people under the plan, and this could cause administrative problems. The report suggests that 50 percent of tenants in a building might be required to file a tax appeal, but that once such an appeal has been initiated, costs and benefits would be shared equally among all tenants.

Some problems the report does not spell out. There is some danger that landlords might take advantage of the imposition of the new tax to raise rents. The plan itself neither justifies nor impedes such a rent increase. As long as rent control in some form exists, increases presumably could not be justified, since there is no real additional cost to the landlord. Apart from rent control, whatever forces produce the existing rent structure would have to be relied upon to avoid any additional burden on tenants.

Other effects of the plan are not dealt with in the McKinsey report. Clearly, as among tenants, its immediate impact is regressive. The deduction made available to high income taxpayers is greater than that to lower income ones. Since the recoupment tax only takes a percentage of the savings, it too will be regressive.

On the other hand, the plan is progressive in three ways. First, it makes available to rent payers some of the deduction already available to homeowners (only some, since the recoupment tax takes back 80% of it). It thus reduces a form of invidious discrimination in favor of homeownership which we have gotten to take for granted, but which in the net favors upper-income taxpayers. More important, the plan really constitutes a form of unilateral revenue sharing between cities, now heavily dependent on regressive real property taxes, and the Federal government, the major beneficiary of the more progressive income taxes. If we assume the Federal government will raise tax rates enough to compensate for its loss, and cities will not raise real estate taxes to the extent they benefit from the recoupment tax, the net result is a shift from a less to a more progressive tax. Finally, the distribution of the benefit will be disproportionate among cities, favoring those with a high level of multi-family occupancy. The overwhelming odds are that the cities with the largest number of poor will be the ones most benefited by the plan.

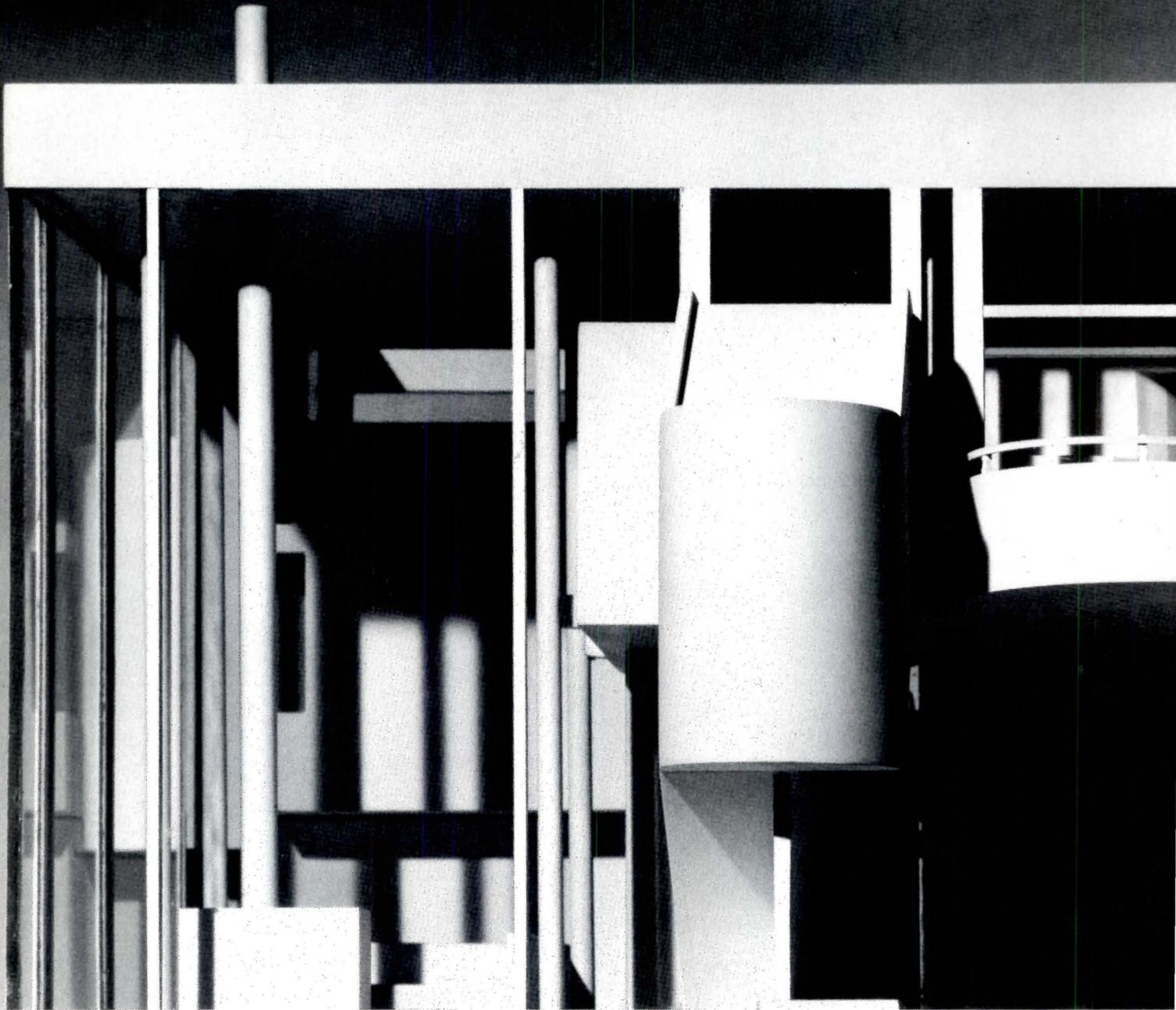
There is one final wrinkle in the McKinsey plan. If the recoupment tax, by which the city recovers from the tenant part of what he saves by deducting his real property tax from his Federal income tax, is itself deductible on his income tax return, the benefit to the tenant and the possible level of recoupment might be even

higher. In other words, the city by the simple shift in the incidence of the real property tax could (to take the New York City example) do the Federal government out of \$164 million of taxes a year; it could then levy a tax of \$131.2 million on the \$164 million that those benefiting from the plan had retained; and then those beneficiaries could again deduct that \$131.2 million payment to the city from their Federal tax, even further increasing the loss to the national treasury, and even further increasing the amount that that city could justifiably corral!

The plan may or may not require a change in the Internal Revenue Code; the report suggests that it does, although if the tax is properly formulated it should be held deductible under Section 164 of the Internal Revenue Code. At some point, however, the outrage of Congress at being so neatly hung by the logic of its own favoritism for homeowners may find expression, and such a cannibalistic interpretation of the Internal Revenue Code may not be countenanced for long by our lawmakers. As far as the New York State income tax goes, the authors of the plan simply take it for granted that the state legislature will prohibit any cavalier deductions for state income tax purposes at the same time that it passes the enabling legislation needed to get the Federal deductions.

Other tax advantages of ownership over tenancy are not touched; the owner-occupant can still deduct the interest paid on his mortgage, while the tenant gets no benefit from the interest his landlord pays. Even more, the exemption from tax of the imputed income on the homeowner's investment in his home remains untouched. And perhaps there should be a local recoupment tax on the homeowner's real estate tax deduction too? But there is a limited number of sores one can cure with one ointment. The report does argue that the inner-city may be assisted as a whole compared with the suburbs, although a negative effect on the attractiveness of cooperative and condominium ownership might also be expected. The deductibility of real estate taxes has always been one of their most touted advantages.

So the McKinsey plan essentially has two quite separate components. The first is the simple extension of the deduction from income taxes for local real property taxes, now afforded to owners, to tenants also, by having them pay real property taxes directly rather than as part of their rent. It is hard to argue with the logic of that suggestion; if all of the administrative problems could be ironed out as easily as the McKinsey report seems to suggest, no obstacle would appear to such a plan. Having given this tremendous new benefit to a select group of taxpayers, it is hard to deny the city the right to share in the benefits it has itself created for them. And finally, if one assumes that the loss of the Federal treasury will be made up by an increase in the progressive income tax, even with the caveats noted above, the tax should have a net economic benefit and a net equitable result on a national level with which only the most conservative or the very wealthy could quarrel. The McKinsey plan is one of the most esthetically pleasing tax schemes that have come down the pipeline in a long time!



THE VERY PERSONAL WORK OF RICHARD MEIER & ASSOCIATES

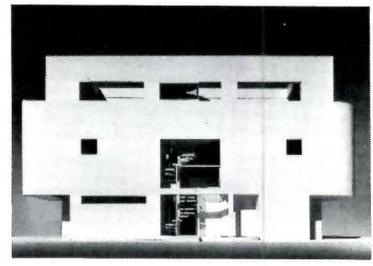
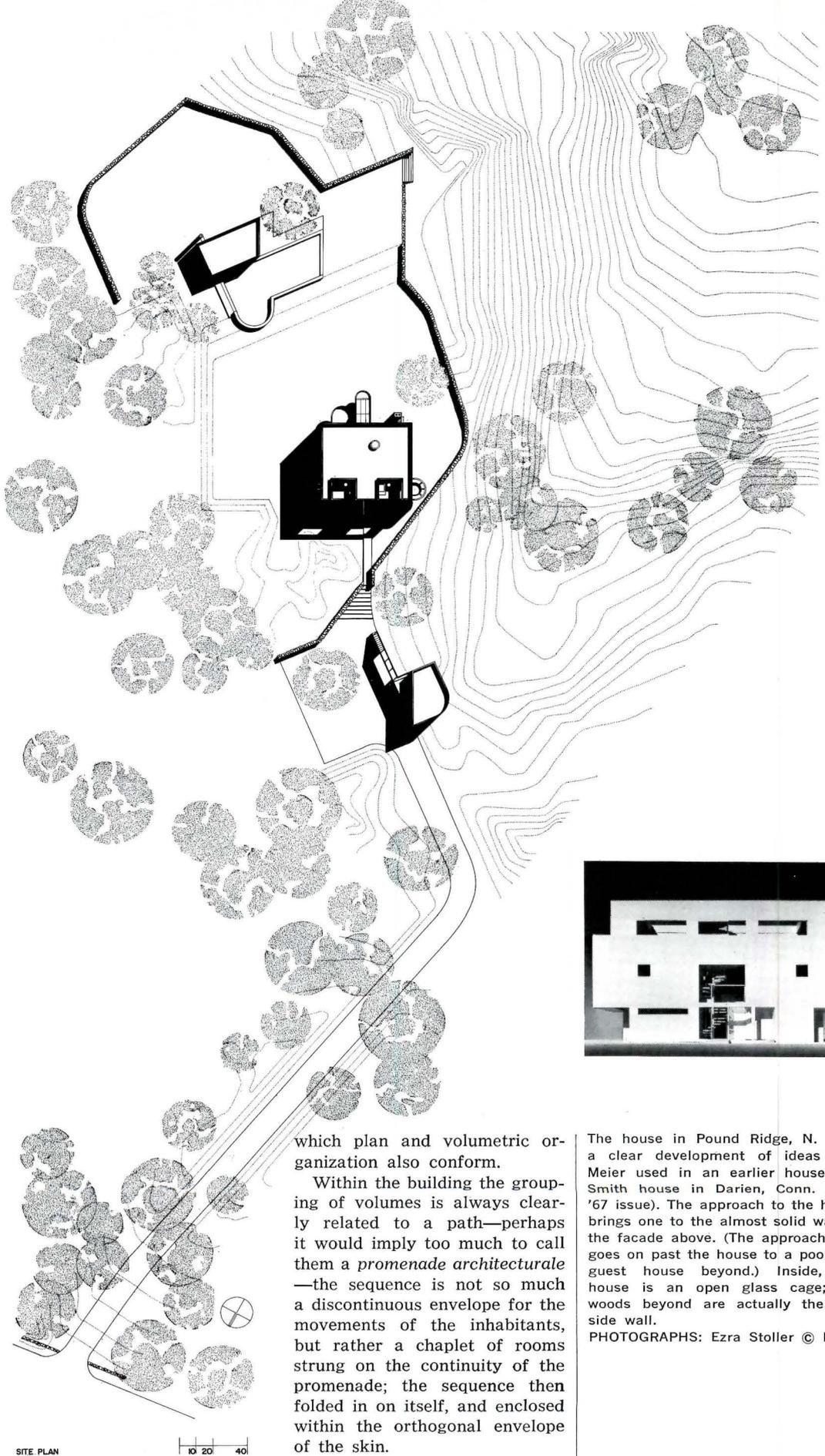
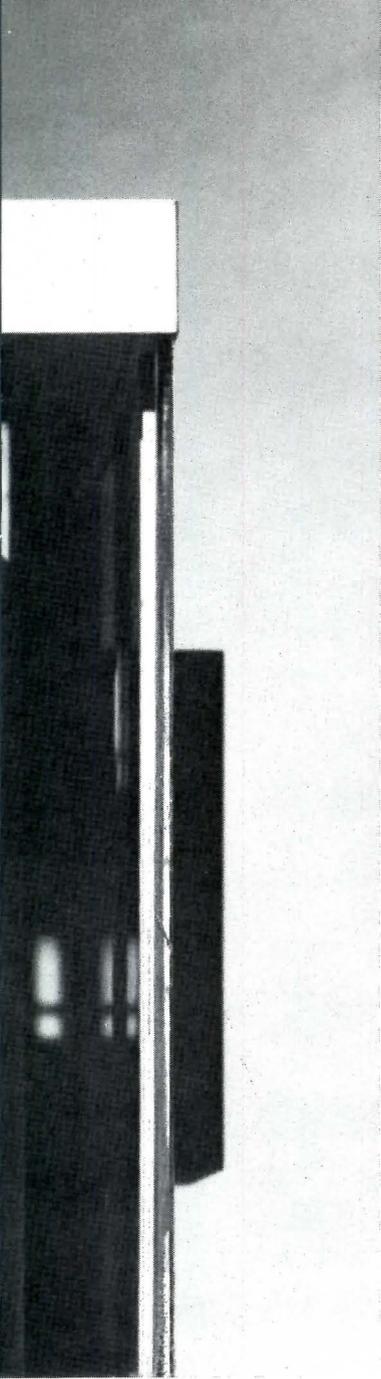
A house, a school and two industrial buildings, with a commentary by British architecture critic Joseph Rykwert

The fifth decade of an architect's life is usually the first of his mature career. Richard Meier is therefore a beginner. And yet the work shown here already represents not only a substantial achievement in terms of sheer volume, but also an individual, an assured style.

It is not, of course—nor should it be—an idiosyncratic style: Meier is consciously a member of what might be called the New York School. The qualities of the school are evident in his work. It is elegant to the point of being mannered; it is deliberately historicizing; and it is for-

malist, in the sense that it never attempts to tailor the outward shapes to a presumed "function" but rather aims to exalt the everyday actions performed in the building by providing a setting of an intensely regulated surface and purposively molded volume.

While Meier shares these concerns with a group of contemporaries he stands apart from them. More than some of his colleagues (perhaps because he is more prolific, the most experienced builder among them), he is conscious of making buildings which are individual objects,



which are self-contained and self-reliant "things."

The isolation of each of his "architectural objects" is emphasized by its whiteness: Meier has a strong predilection for white as a color for buildings. Whiteness operates as an isolant, so that each building is seen intensely on its own, whether its context is urban or rural. The surface of the building is always articulated, both inside and out, sometimes in apparent defiance of the construction, into a harmonious, but always somewhat *mouvemente* composition, a composition to

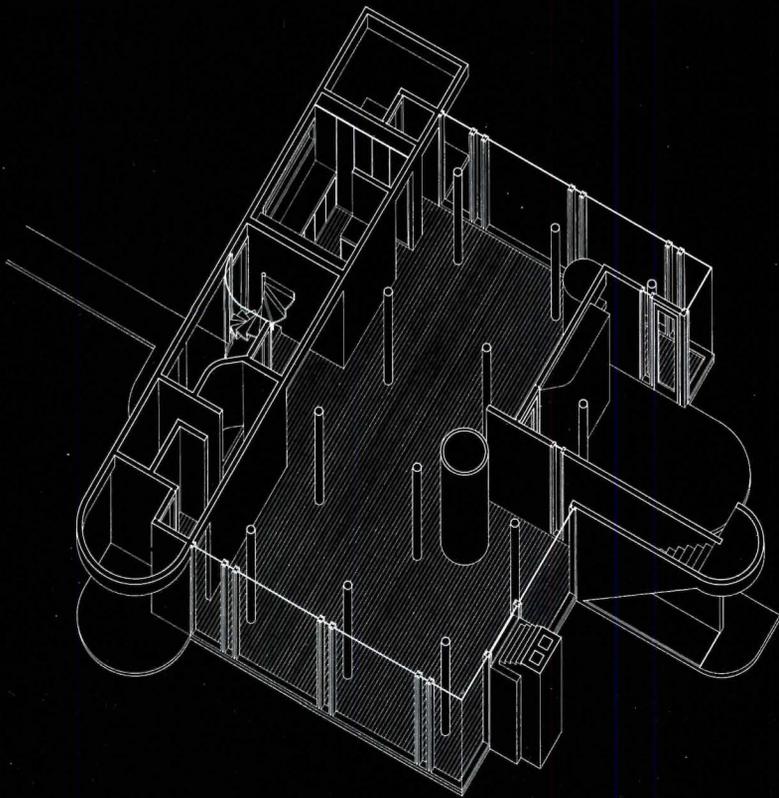
which plan and volumetric organization also conform.

Within the building the grouping of volumes is always clearly related to a path—perhaps it would imply too much to call them a *promenade architecturale*—the sequence is not so much a discontinuous envelope for the movements of the inhabitants, but rather a chaplet of rooms strung on the continuity of the promenade; the sequence then folded in on itself, and enclosed within the orthogonal envelope of the skin.

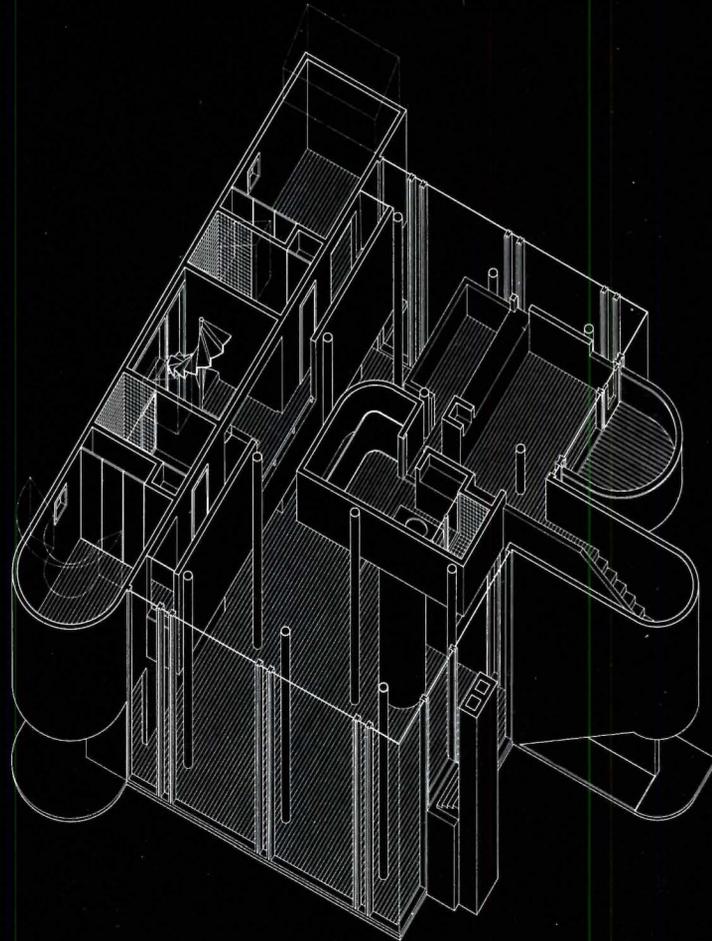
The house in Pound Ridge, N. Y. (see pages 32-33) is more

The house in Pound Ridge, N. Y. is a clear development of ideas that Meier used in an earlier house, the Smith house in Darien, Conn. (Dec. '67 issue). The approach to the house brings one to the almost solid wall of the facade above. (The approach axis goes on past the house to a pool and guest house beyond.) Inside, the house is an open glass cage; the woods beyond are actually the outside wall.

PHOTOGRAPHS: Ezra Stoller © ESTO



LOWER LEVEL



SECOND LEVEL

compact, less evidently "strung" than some of Meier's work. But the promenade is emphatic. The house is subdivided into a solid pavilion, which forms a kind of gate or rather entry; in the opening of its two floors, a circular staircase figures prominently. The solid element contains a kitchen and utility space on the ground floor, two bedrooms with their own bathrooms above, and two half-enclosed terraces on the top floor. Beyond this pavilion is the main volume of living-dining space, entirely glazed, in which the main bedroom suite forms a kind

of reverse or negative solid space; the fireplace forms almost an independent building on its own.

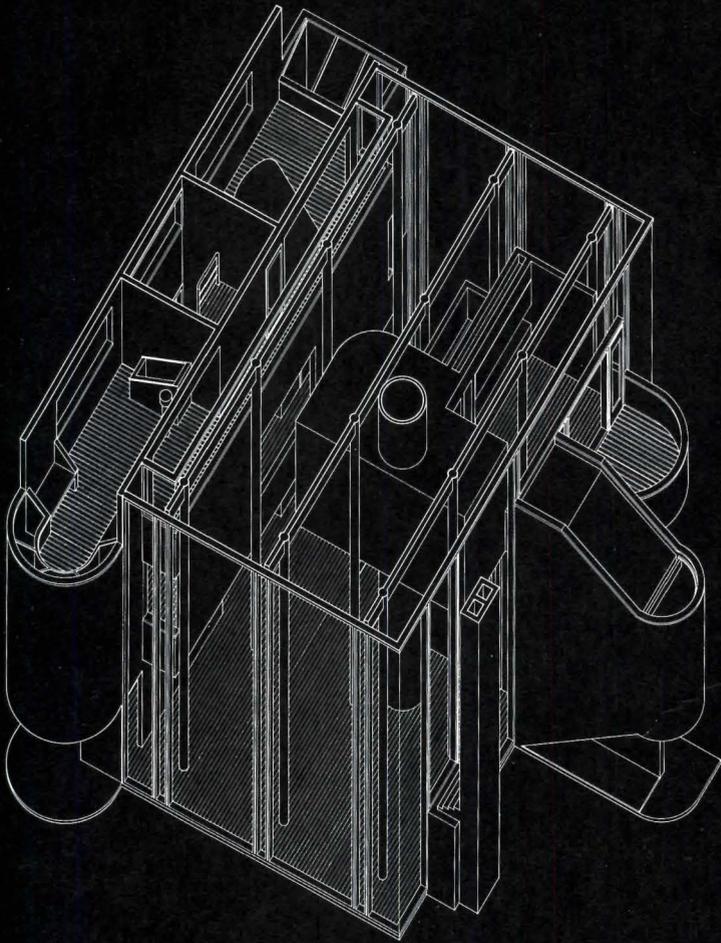
The main space may be read also as generating from the central glazed volume, punctuated by three rows of four circular columns. These are spliced at the top to receive the beams, which run lengthwise along the roof. The glazing is composed of twin mullions which run from the ground and end on either side of the beam. The "structural" nature of this feature is evident since it is not echoed on the "short" sides of the build-

ing, where the beam does not pierce the glass skin.

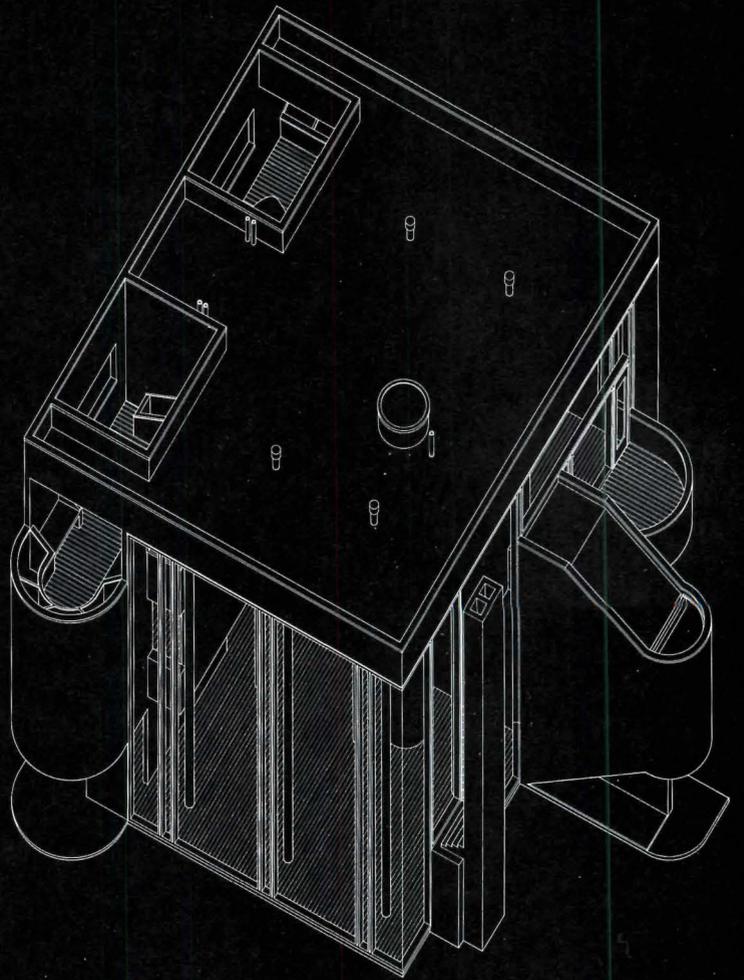
Another evident formal device is the use of semi-circles; one projects as the central story of what I have called the entrance pavilion, making a kind of bay window (although any light it admits is from above). On the south glazed face there are two such features: the landing of the staircase, which leads to the main bedroom, and—wider but thinner—its balcony. These semi-circular billowings of the south and west faces, however, are less important as a formal game than the em-

phasis given to the semi-circular staircase as an entrance feature of the building, and the access to the main bedroom suite across the living room and on the south face; the house is "played" between these two paths, with the main living space (its aedicular fireplace acting as a focus) off this path.

In a larger building this approach is transformed: in the Bronx State School for 750 retarded children (see pages 34-35), there were quite different problems. While the house is quite sharply isolated in a friendly and cultivated nature, the

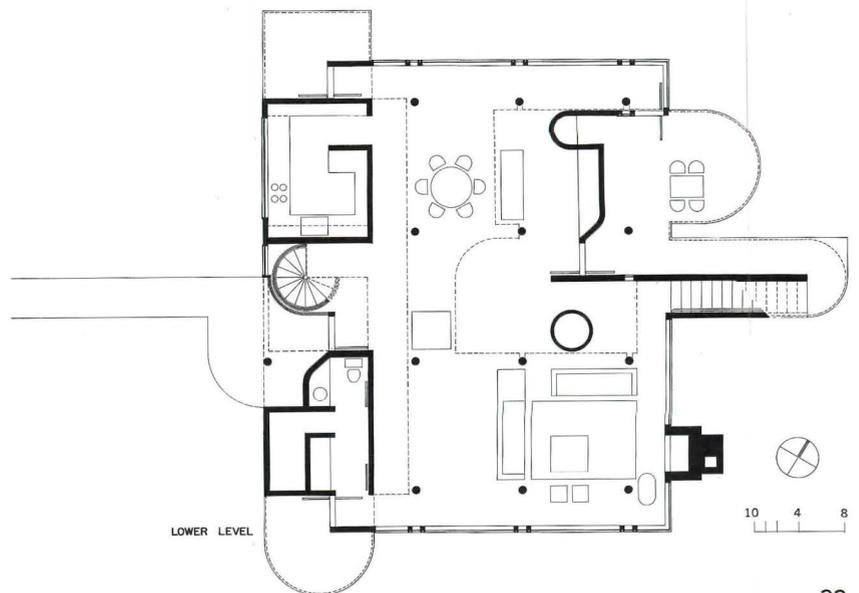


THIRD LEVEL

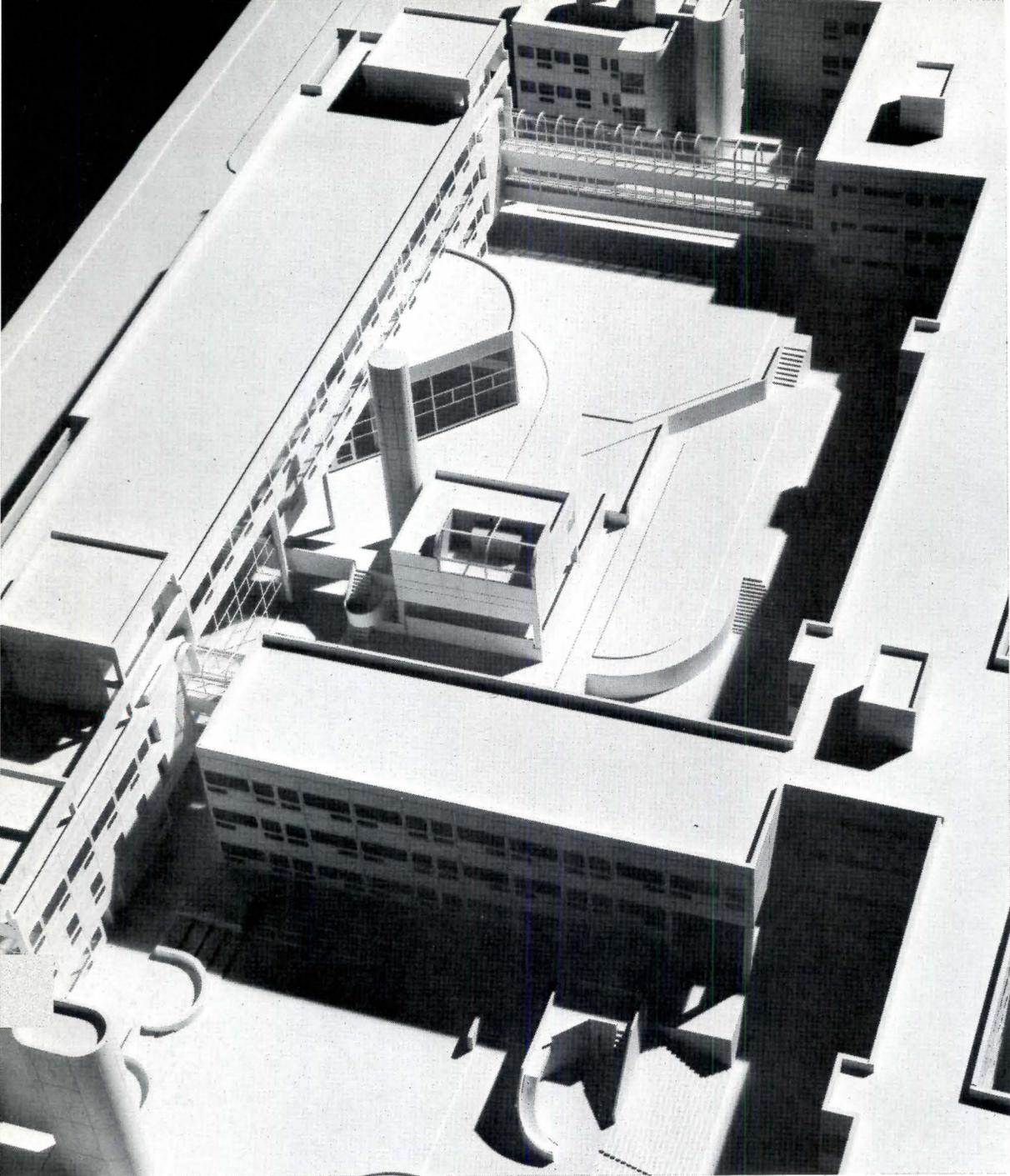


FOURTH LEVEL

Bronx school stands in the middle of urban blight, bordered on one side by the Penn Central railway, on the other by the Hutchinson River Parkway. The site is triangular, between these two converging thoroughways, and its narrow southern end is closed by the State Hospital. The building is an introspective one. It is planned around an eastern spine block, and a range of western residential pavilions overlooking the tree-lined parkway. The approach, and the main parking space, is at a lower level beyond the spine block; and the main entrance from the



LOWER LEVEL



parking is also at this level. The cafeteria, which appears to be a segment of a circle (but is in fact made up of a quadrant which joins a square bisected by its diagonal), opens onto the first of the two public squares. Beyond a bridging element is the second square with its open-air theater; this square is closed by the most southerly building of the complex, the gymnasium.

Like the house, the use of geometrical forms is very spare—rectangles, sections of the circle, occasionally a 45-degree angle—the forms always arranged in such a way that they

almost make a rhyme scheme. The staircases and ramps—as may be expected—play a particularly important part as punctuation marks of the whole scheme. The two “squares,” although they would seem to be courtyards on the plan, are clearly much more than that; their scale alone makes them almost urban elements. Their use by cafeteria, stores and open-air theater makes them into the squares of a small town.

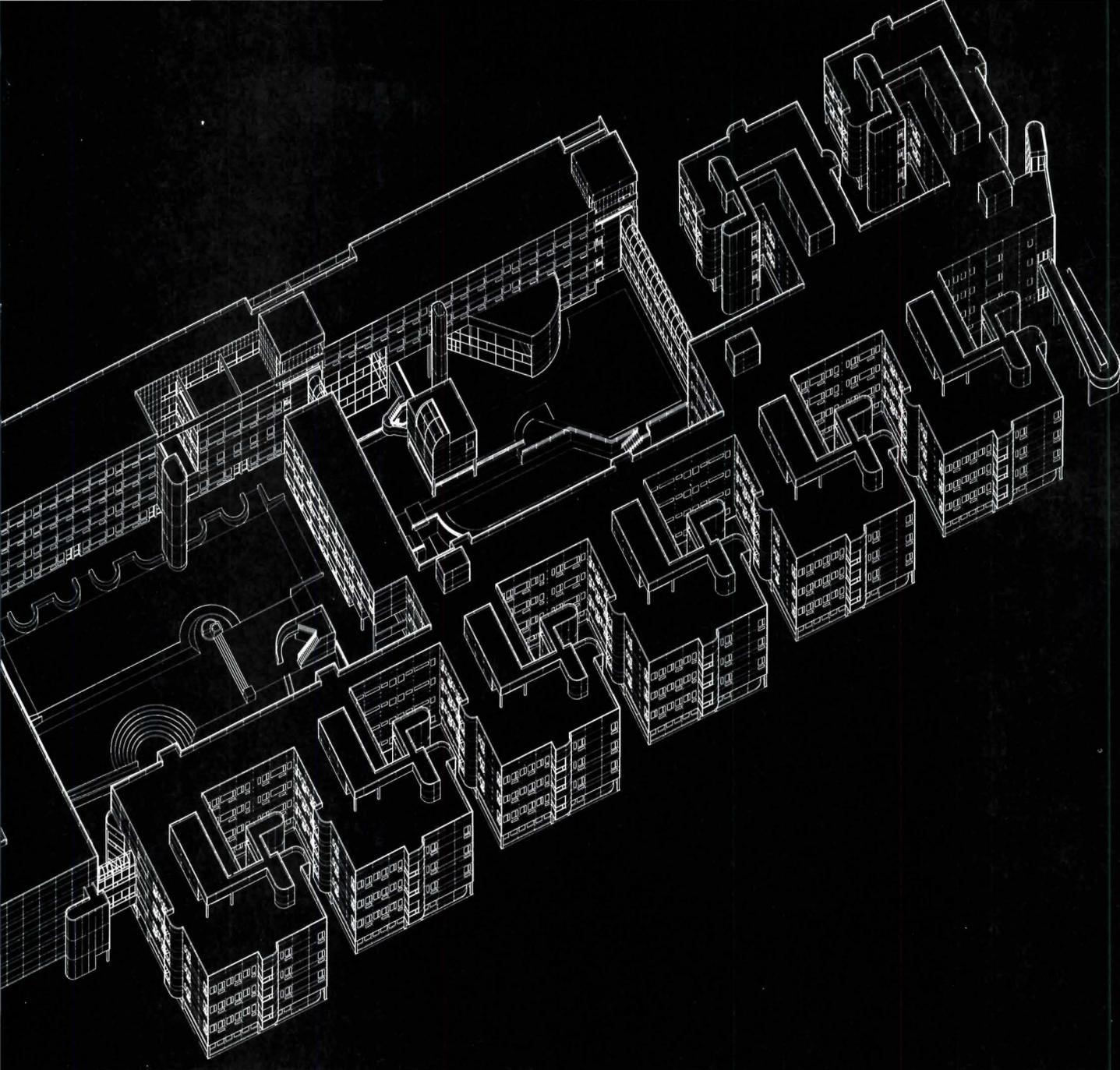
In the Bronx State School the formal method which so strongly marked Meier’s private houses as a formal device becomes a

programmatic feature. It is clearly part of the program of the school to establish itself as a miniature, independent town, quite isolated from the wasteland of blight around it, and to turn it in upon itself; the facades of the building, if one may put it that way, are clearly those which turn in on the courtyard: they are much more complex, much more interesting than the external faces of the building—indeed, the southern face is almost entirely blank.

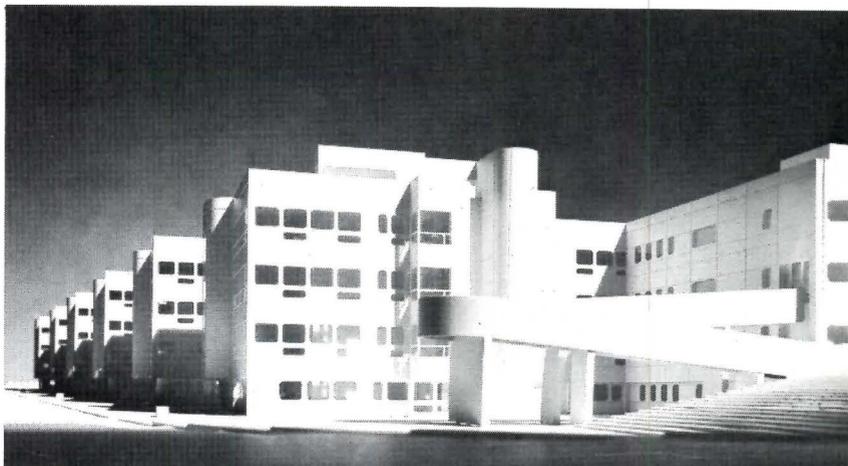
The buildings are faced, throughout, with a paneled skin, in which the windows set up a

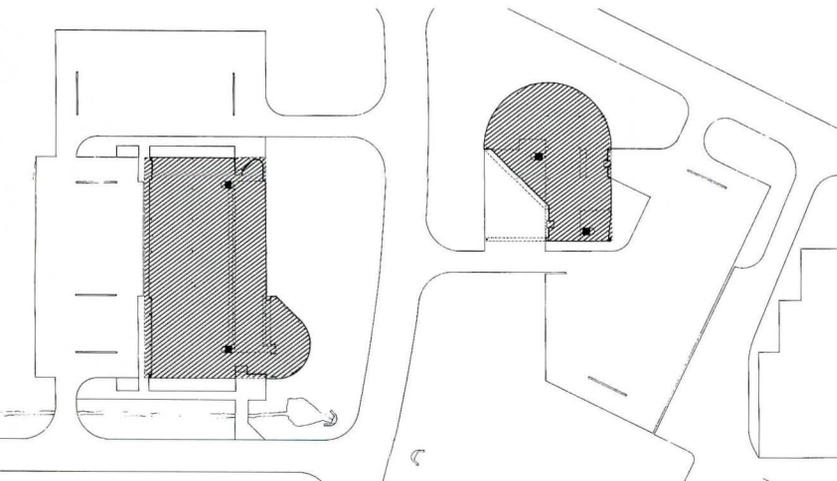
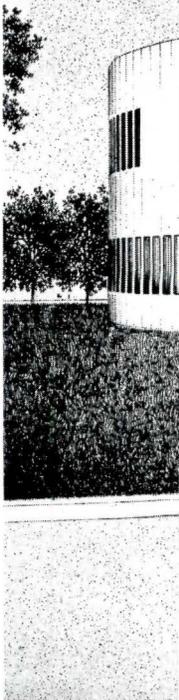
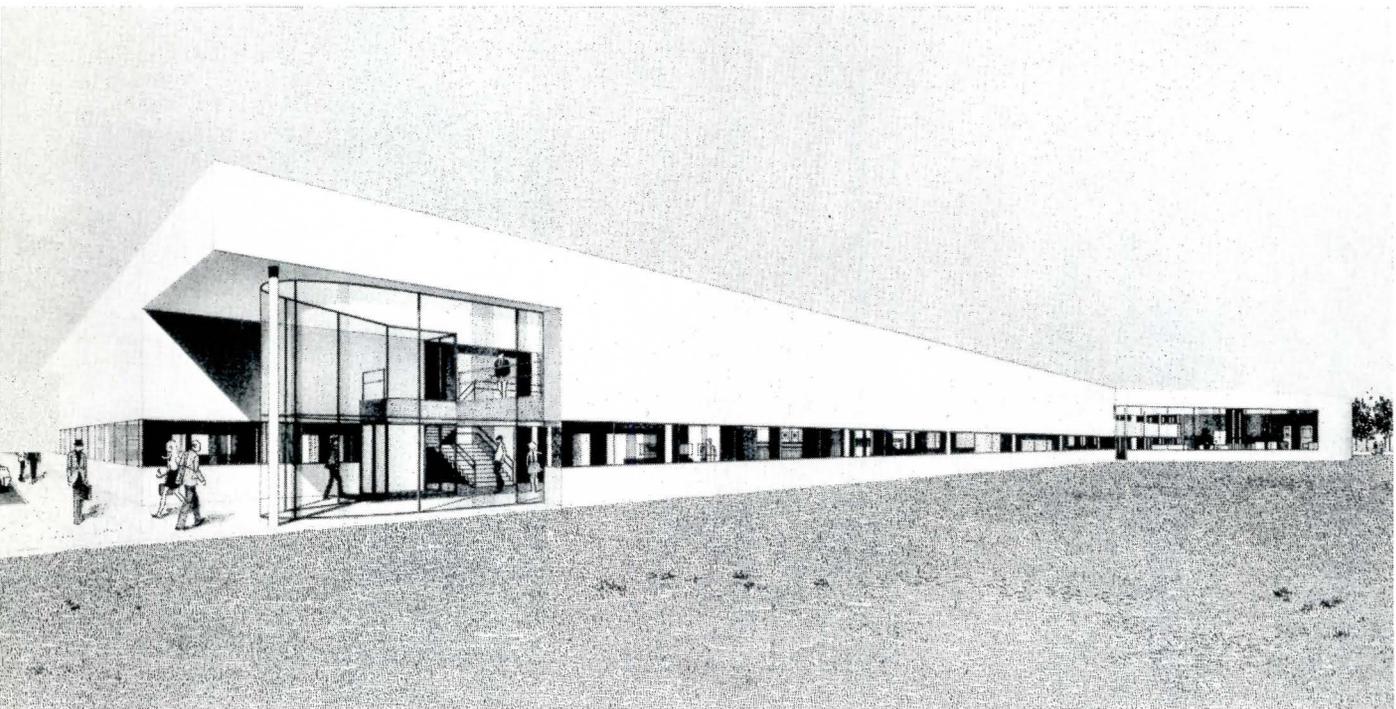
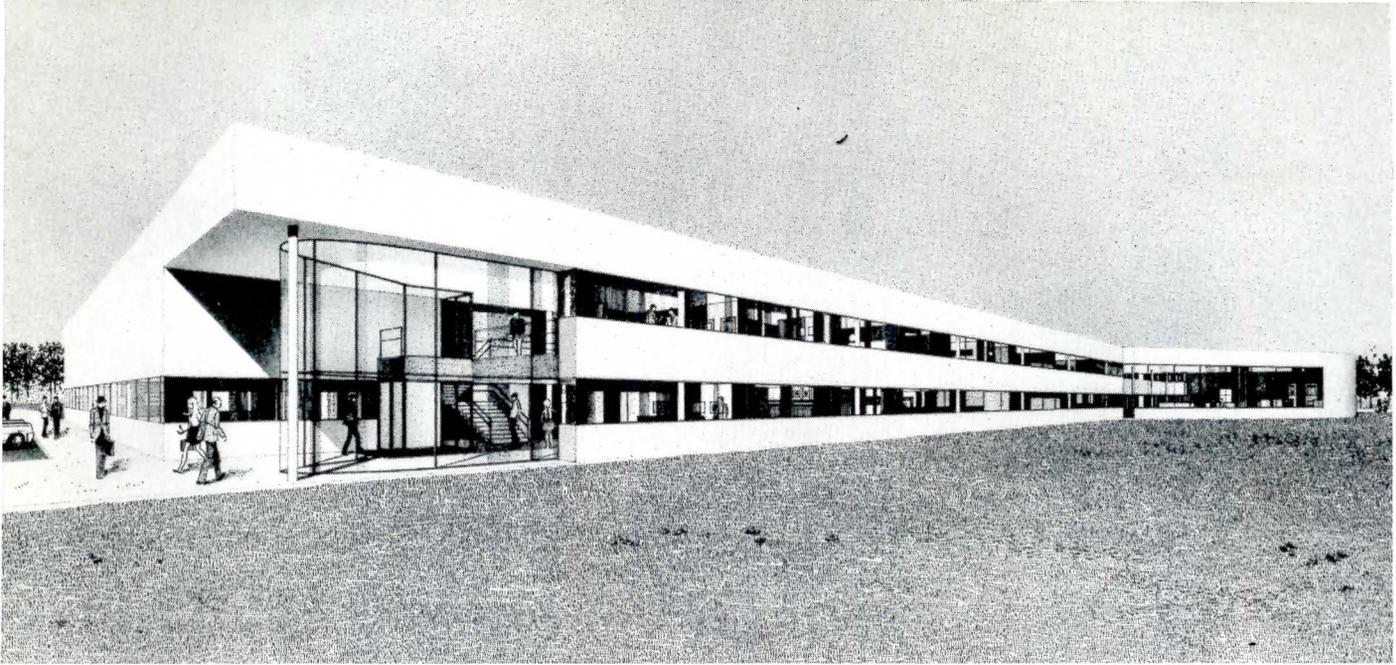
gently syncopated rhythm. But while the pavilions of the housing reach out into the surrounding terrain, setting up minor courtyards between them, it is the two urban squares on which the building is focused. The elaboration of the interior, its formal richness, all help to emphasize the inward-turning character, almost as part of the building’s therapeutic function.

Meier’s method is put to a much more trying test when he comes to design a prefabricated, standardized light industrial building for erection in industrial parks alongside main roads and



The Bronx State School for the retarded has an introverted focus, its nonresidential areas built around two courtyards. The upper square has a pie-shaped cafeteria and a small "house" used in training retarded persons; the lower and larger square, 170 x 225, is bounded by the gym. Staff offices divide the two squares. Living arrangements are in eight clusters, three groups of eight persons on each floor. Floors are differentiated according to the level of retardation. The building is enclosed by 300,000 sq. ft. of aluminum wall panels; the panel system has one large window at the major spaces, otherwise has two smaller windows (with room at the bottom for a unit ventilator). The neoprene jointing of the panels relates to the columns and floor slab behind.



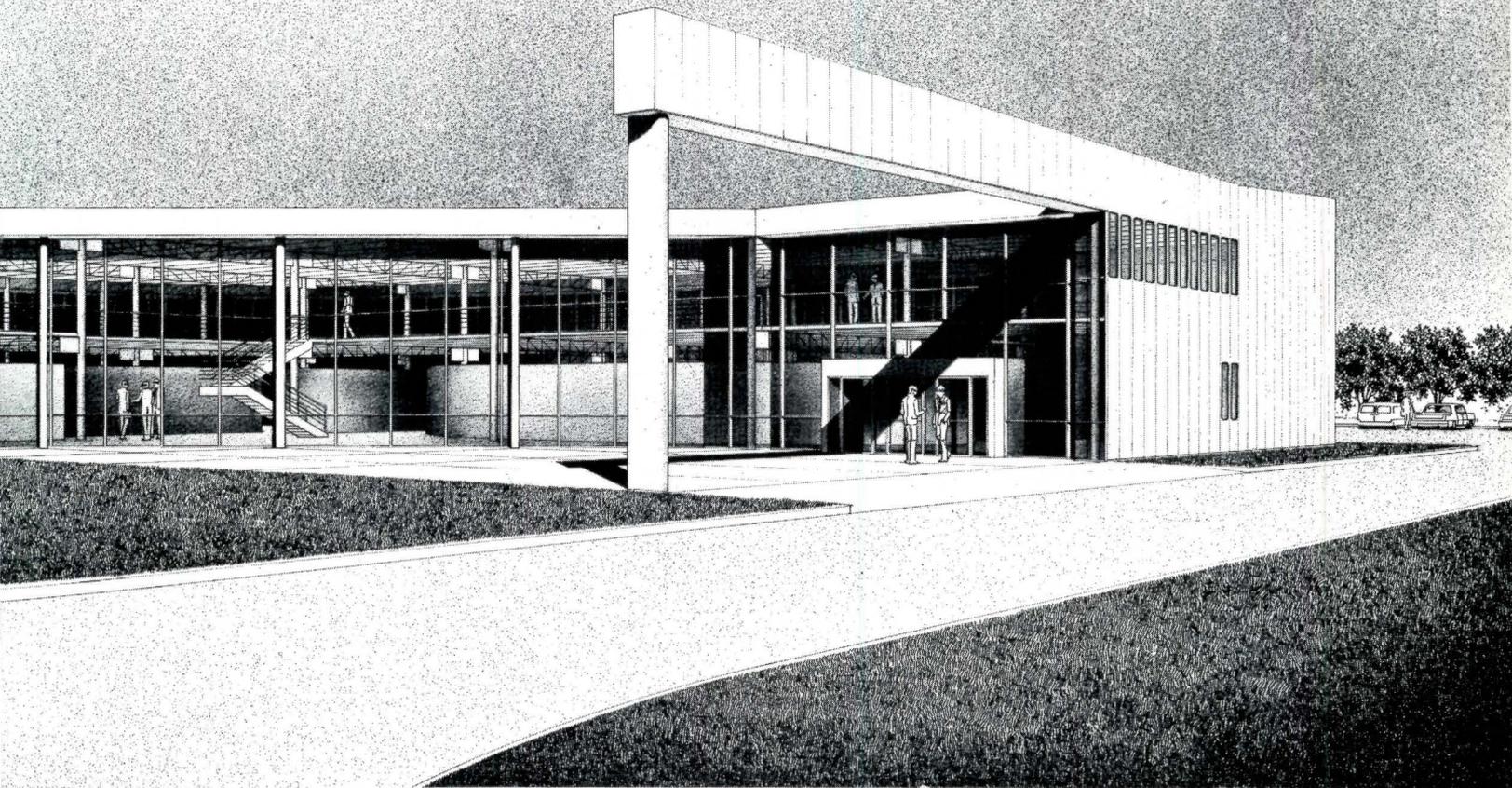


highways. Since the buildings are inevitably clad in a light skin of standardized panels, the graphic-exercise aspect of the design is almost too easy for Meier, and he concentrates his attention on the problems of entry, on the molding of the volume: again, the formal vocabulary is deliberately restricted to the rectangle, the 45-degree diagonal, and the segment of the circle. With these elements Meier assembles an extraordinarily cool and elegant group of buildings, almost assertive in their understatement.

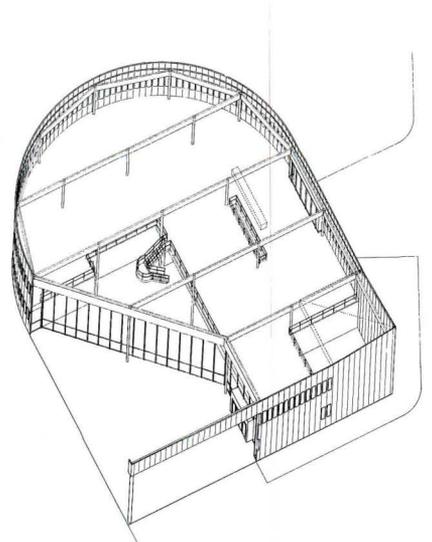
Meier's architecture is al-

ways understated, and yet always assertive through its insistently complex geometry, which he somehow always reduces to appearing absolutely inevitable. That is his strength: the assertion of an inevitable order, which exalts the functional patterns of the occupation. Meier is a maker of objects whose power is in the obsessive elegance of their cut, in their cool though exemplary and somehow didactic detachment from their surroundings.

—Joseph Rykwert



These two industrial buildings are prototypes for flexible inexpensive space alongside a highway. They each use an aluminum wall system, but where the panels for the Bronx State School are horizontal, tying into floor and ceiling slabs, these panels go from floor to roof in narrow two-foot widths. Interior space is flexible, able to be partitioned for office, display or storage space as needed (two different arrangements for one building are shown, opposite). Site plan shows one arrangement of the buildings (building at left is flopped for best location of primary entrance).



CREDITS: The following persons contributed to the design of projects Gerald Gurland and Tod Williams, Assocs.; and Michael Schwarting, Sherman Kung, and J. Mantel.

PRESERVATION OF URBAN LANDMARKS

The Chicago Plan:
a proposal
for safeguarding the
architectural heritage
of American cities

BY JOHN J. COSTONIS

Along with the ocelot and the snow leopard, urban landmarks are an imperiled species. Over half the 12,000 buildings in the Historic American Buildings Survey (started in 1933) have been razed. The threat to the remainder continues unabated.

A case in point is Chicago's Old Stock Exchange building. In spite of the best efforts of the city's Landmarks Commission and of local and national preservation groups, the Exchange is now shrouded in scaffolding. It will soon be a mere footnote to Chicago's distinguished architectural heritage.

What accounts for its loss? Without doubt, the economics of landmark ownership in a vigorous real estate market is the dominant factor. At a height of 13 stories, the Exchange was well below the 45 stories authorized by present zoning for this site, and realized only one-third of the rental income that a modern office tower would return. A near octogenarian, the Exchange had suffered physical and functional obsolescence. Even with repairs and refurbishing, its maintenance costs would probably exceed those of newer buildings. And typical of the office buildings of its day, its interior space was carved up with courts and columns, decreasing its appeal for large corporate tenants.

Ironically, the city's zoning bonus system considerably aggravated the situation. Intended to encourage plazas, arcades and other amenities, the system gives bonus floor area to developers furnishing these amenities at their own expense. The result is that developers are gobbling up small holdings at a frenzied pace in order to take advantage of the huge floor area premiums that can be realized on lots of a half-block or more. The losers: the Exchange and other landmarks that stand on relatively small lots. The winners: the 100-story John Hancock building and the proposed 110-story Sears building (neither of which exhausts its authorized zoning envelope, thanks to the size of its site and the ill-conceived generosity of the bonus system).

Also landmark status for the Exchange would have been costly for the city. Chicago will receive an additional estimated \$750,000 in annual real estate taxes from the 45-story office tower. Further, the city's planning commissioner claims that La Salle Street urgently needs the tower to maintain its position as the Midwest's prime financial district. Finally, if the Exchange had received landmark status, Chicago's preservation ordinance would have required the city to buy the building to prevent the owners from razing it. The costs of acquisition and rehabilitation were variously estimated at between six and sixteen million dollars.

Neither the owners nor the city was willing to absorb these costs. The owners demanded that the city immediately issue a demolition permit or buy the building. Lacking funds, the city scurried about in a quixotic eleventh hour search for a developer *ex machina*. Predictably, its efforts were futile.

Pondering this familiar scenario, *Time* magazine opined that it pitted the "practical necessities of change" against "impractical, even sentimental preservation."

For all its slick symmetry, however, this cleavage between the practical and the sentimental distorts the problem. Whether or not a civic

undertaking such as preservation is "practical" depends upon the rules of the game. New York City has recognized this fact, and has changed the rules of its zoning game to create meaningful financial incentives for landmark owners: in partial compensation for their losses, it permits them to sell the authorized but unused floor area to owners of adjacent lots.

At the height of the Exchange controversy, the Chicago Chapter Foundation of the AIA and the National Trust for Historic Preservation jointly commissioned a study of the New York transfer concept as a basis for safeguarding Chicago's Loop landmarks. The study's authors, Jared Shlaes and this writer, concluded with the more comprehensive proposal presented here, which differs from the New York initiative in certain important respects.

The plight of the Exchange touches upon four characteristics common among U.S. urban landmarks. First, they utilize only a fraction of the floor area authorized for their sites. Advances in building technology that made the skyscraper possible were unknown when most landmarks were built. Second, increases in the value of their land have so far outstripped the value of the landmark that the laws of the marketplace virtually demand their replacement. They are *not* generally imperiled because of structural unsoundness or failure to generate sufficient income. Third, landmarks tend to be centrally located, in the city's principal commercial and service area. (This fact, of course, accounts for the skyrocketing land value.) Finally, municipal facilities and supportive services are also most heavily concentrated in these areas. The network of facilities and services enables large numbers of people to be absorbed without any undue congestion.

Given these factors, a comprehensive and effective municipal preservation effort should be entirely feasible. Briefly, the transfer proposal would operate as follows: the city council would fix the boundaries of a *development rights transfer district*, an area containing most of the community's landmarks. Owners of landmarks would be entitled to transfer development rights to other lots within the district, and to receive real estate tax reductions reflecting the reduced value of their property. (Transfers could benefit other property of the landmark owner or property of third persons.) In return, owners would convey to the city a "preservation restriction"—also called a "facade easement"—binding themselves and future owners from demolishing or altering the building, and requiring its maintenance in accordance with reasonable standards.

Should a landmark owner reject the transfer option, the city would step in and condemn a *preservation restriction* in the property. Acquisition costs and other expenses of the program would be funded through a municipal *development rights bank* which would be credited with development rights condemned from recalcitrant owners, donated by owners of other landmarks, and transferred from publicly-owned landmarks. The city would sell these pooled development rights as necessary to meet program costs, but would be subject to the same planning controls applying to owners of private landmarks.

The transfer proposal redistributes the costs

Mr. Costonis is Visiting Associate Professor of Law at the University of Illinois College of Law at Champaign. This proposal comes from a study commissioned by the Chicago Chapter Foundation of the AIA and the National Trust for Historic Preservation, and conducted by Mr. Costonis with the assistance of Jared Shlaes, a Chicago real estate consultant. A more comprehensive discussion of this proposal by the author appears in the January 1972 *Harvard Law Review*.

of preservation equitably and realistically. Transfer authorizations—or cash awards—and tax relief compensate the landmark owner for his loss of the property's development potential. Landmarks remain in private hands as vital commercial or office buildings instead of undergoing mummification as museums. The city avoids outlays for acquisition, rehabilitation and maintenance, and may continue to tax the building, and the city's tax losses are more than offset by taxes from the larger buildings that incorporate the transferred floor area.

The proposal carries two advantages beyond landmark preservation. First, it will expedite downtown development by easing the difficulties of land assembly. Developers who have assembled all but a small fraction of a unified tract would be permitted to fill out the remainder by purchasing development rights (either from landmark owners or from the municipal development rights bank). This privilege would be subject, of course, to appropriate safeguards concerning light, air and other design features of these projects. Second, it will help alleviate the urban space shortage by encouraging concentrations of density in areas of the city that can best absorb them. Other responses to this problem have included the use of air rights above railroad facilities and the trend to "the multi-purpose use" of public facilities. Development rights transfers promise even more favorable results because they avoid the many troublesome legal and architectural problems inherent in these alternatives.

Elements of the Proposal

Five aspects of the proposal merit further attention. The first is the development rights concept itself. What precisely are development rights, and how are they transferred? The second is the proposal's rejection of the New York adjacency limitation in favor of the transfer of development rights on an area-wide basis. What are the advantages and drawbacks of these two alternatives? The third is the tax reduction-transfer authorization package held out as a carrot to landmark owners. How is it put together, and what is the likelihood that it will offer effective compensation?

Fourth, what are the alternatives open to the city if an owner declines the package in favor of demolition? In particular, to what extent does the development rights bank increase the city's leverage in dealing with such owners? Finally, the fact must be considered that commercial buildings may eventually become unprofitable to operate. How can this problem be dealt with?

Development Rights.

The development rights concept is a quantitative one that measures the amount of floor area a property owner may include on his own site under local zoning. What will be "transferred" in cities using the floor area ratio system is the area of the landmark lot. Development rights purchasers simply add this transferred lot area to their actual lot area in calculating the total floor area they may build. The mechanics will differ, of course, in cities authorizing floor area on a basis other than the floor area ratio.

Development Rights Transfer Districts.

New York limits transfers to lots that are adjacent to (or across a street or intersection from)

the landmark. A special provision, adopted when a second Pan-Am type building over Grand Central Station was contemplated, also permits transfers to any lot included in a chain in single ownership connecting with the landmark lot. Transfers are restricted to adjacent locations because, it is thought, the additional bulk of the oversize building will be offset or "digested" by the nearby landmark.

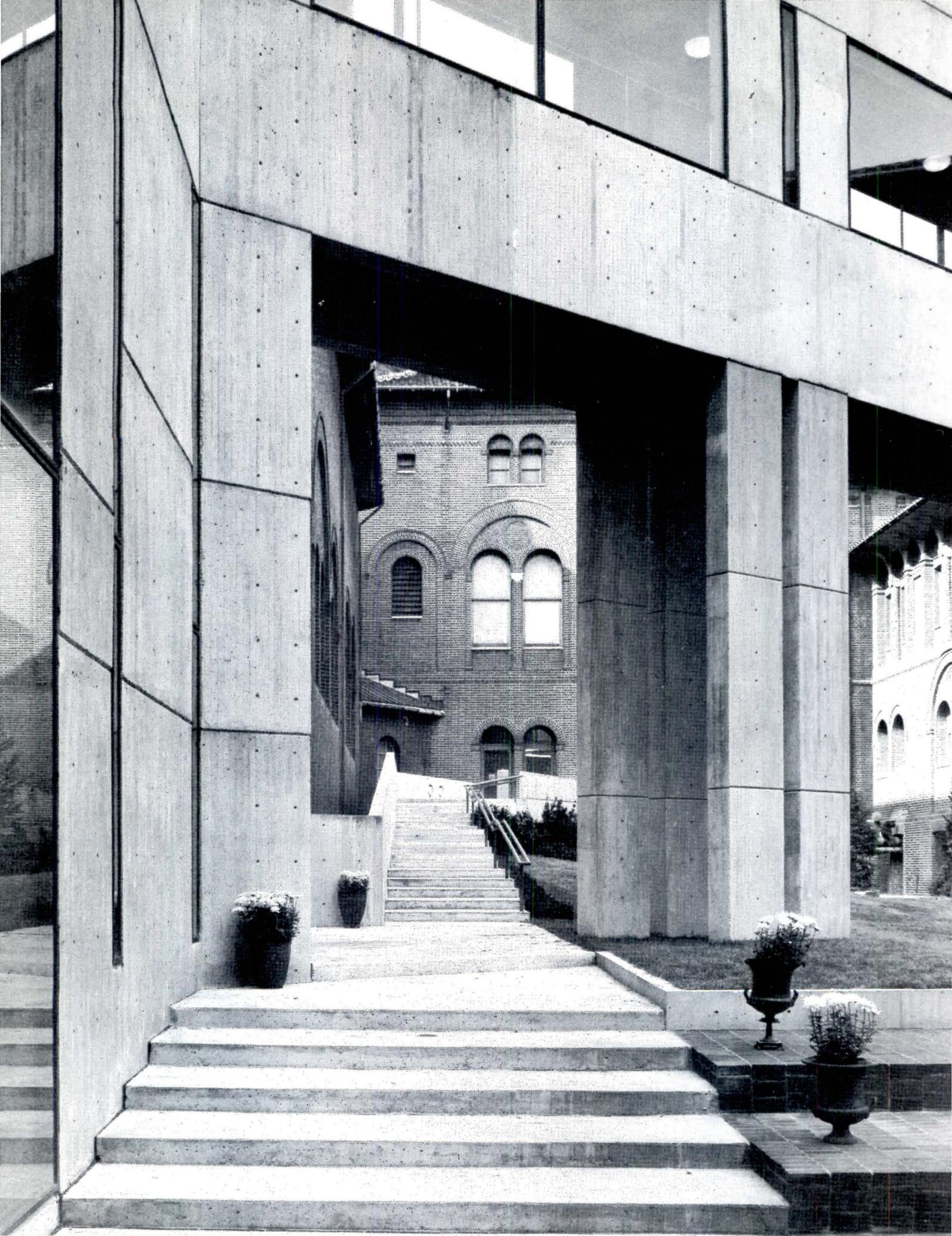
The adjacency limitation, however, has crippled the transfer initiative as an effective preservation tool, and goes far toward explaining why it has yet to figure in an executed transaction. It is deficient in at least three major respects. First, the New York zoning code already permits developers to acquire unused floor area of adjacent lots by means of long-term leasehold. (Such transfers are routine in numerous cities.) Second, the marketability of development rights is severely impaired by restricting their sale to a handful of surrounding lots. Third, their salability is also hindered by burdensome design review procedures intended to make the new project compatible with the landmark.

The Chicago proposal, however, permits transfers on an area-wide basis throughout the development rights transfer districts. Since the districts will include areas of high land value, the market for development rights should prove lucrative. Area-wide transfers will also dispense with the need for elaborate design review procedures except in the few instances when development rights find their way to lots adjacent to landmarks.

But will area-wide transfers overload the district's public facilities and services? The proposal envisages a variety of controls that should meet this concern. One of the most important is the requirement that the local planning commission evaluate the likely impact of the proposed transfer district, and pass upon its compatibility with the city's plan for the area. Negative findings will be communicated to the city council, which may then decline to designate the proposed district.

Transfers may be made, moreover, only from designated landmarks within the district to other sites within the same district. A limited number of buildings—perhaps 30 or so in the Loop, for example—will be found in any district. Of these, not all will incur substantial depreciation upon designation. The transfer of only about 300,000 square feet of lot area within the Greater Loop, coupled with appropriate tax reductions, should be sufficient to preserve the landmark buildings there.

Two further factors merit attention. First, the proposal, for the most part, envisages the redistribution of floor area that has already been authorized, not its creation *ex nihilo*, as in the case of zoning bonuses. Little or no net increase in authorized density will therefore occur within any transfer district. Second, the American cityscape will not be distorted by the transfers. With the advent of the skyscraper and the absence of stringent height limitations, the cityscape has assumed a distinctly irregular form. Sprinkling several additional stories on lots throughout the transfer district will make little difference. (It would be otherwise, of course, in European cities, with their stringent height limitations and uniform cornice lines.) (continued on page 64)



EXCAVAT THE P RESENT

A museum
of anthropology
builds
its missing link

Aldo Giurgola's New York office is near Columbia University, where he is a professor of architecture. Students say he is about the best lecturer on the Renaissance around.

His Philadelphia office is not far from the University of Pennsylvania, where he once studied. Years ago he discovered University Museum on the south edge of the campus, where it is now surrounded by Franklin Field House, the city's Commercial Museum, an elevated railroad, the precast concrete parking garage he did in 1965, and (so it looks) a new Hilton hotel before long.

University Museum was built in the 1890's for the collections of what was then the Department of Archaeology and Paleontology. It was to have been the first phase of a grandiose scheme by architects Wilson Eyre, Jr., Walter Cope, Emlyn Stewardson and Frank Miles Day.

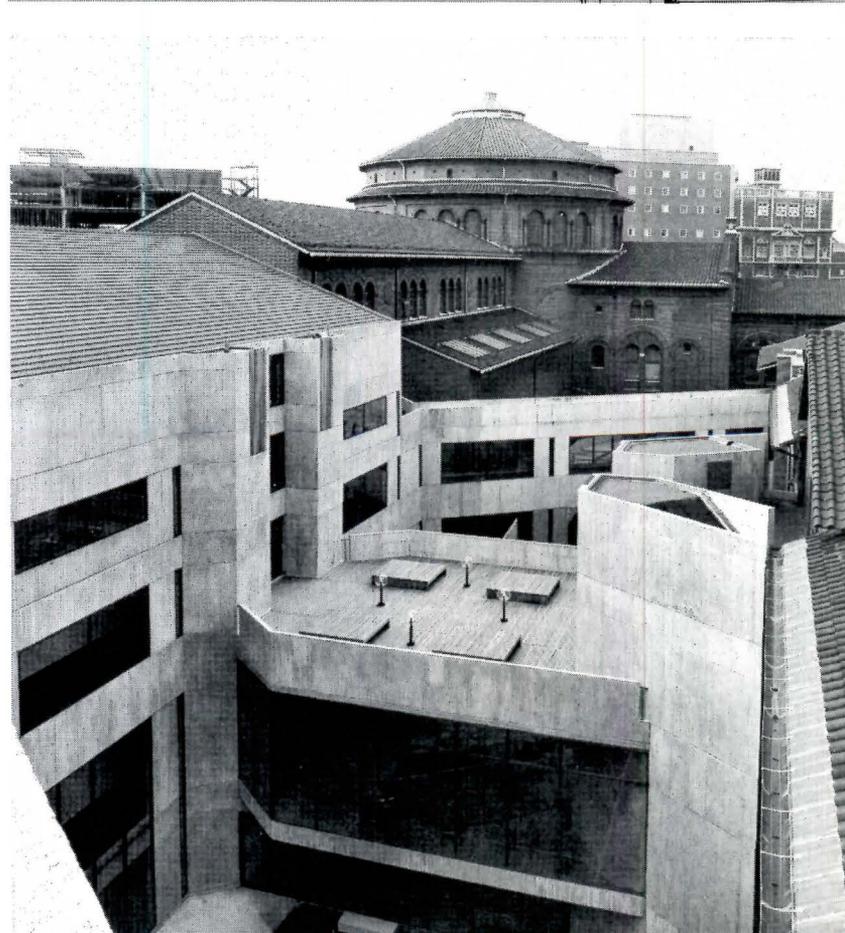
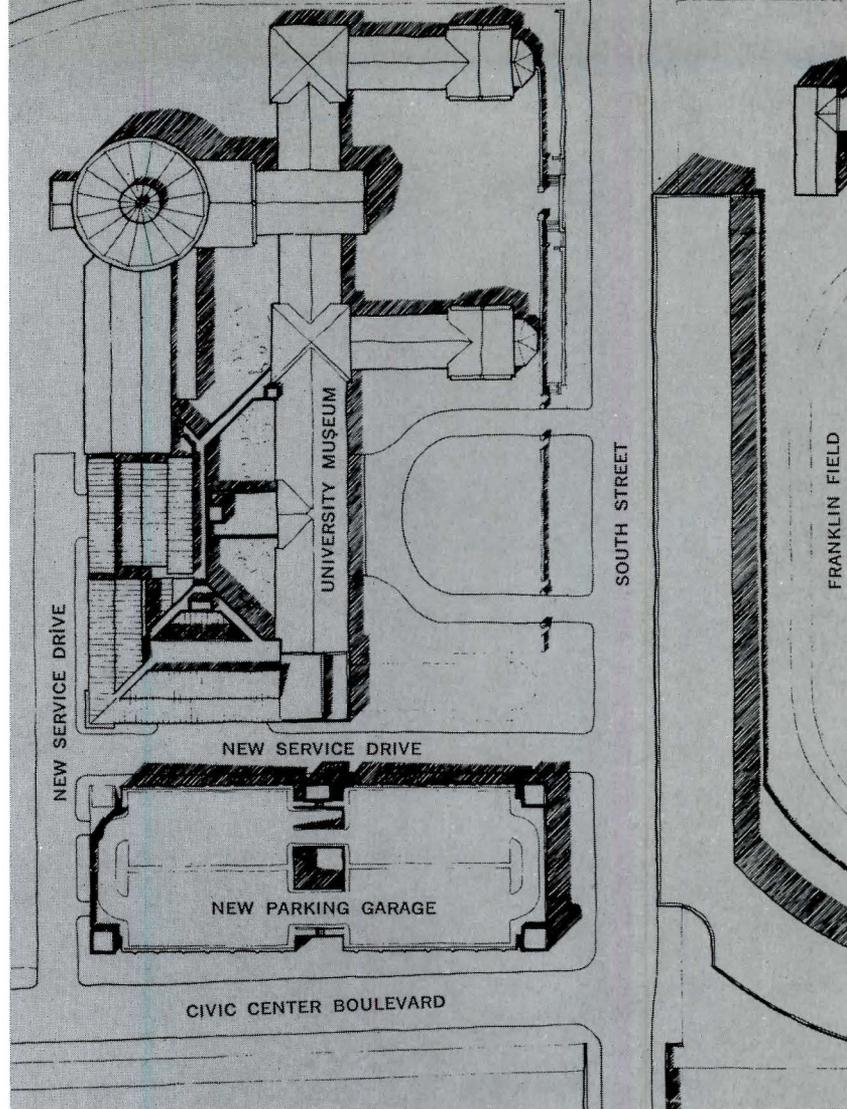
Giurgola marvels, "Those men designed a structure of tremendous scope, still operable today. Despite the most elaborate programming, modern buildings are, more often than not, inadequate when they open. Firm proof of impoverished aspirations!"

Although the museum's style is as ambiguous as the Sumerian clay tablets it was built to house, you almost have to believe Giurgola when he says the old shard is Lombard Renaissance. His emotions moored in respect for the past, he murmurs, "Minute in window; strong in wall. Do you see?"

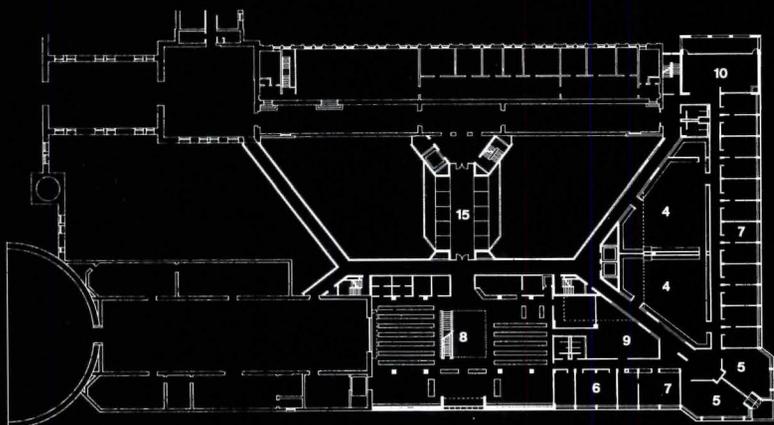
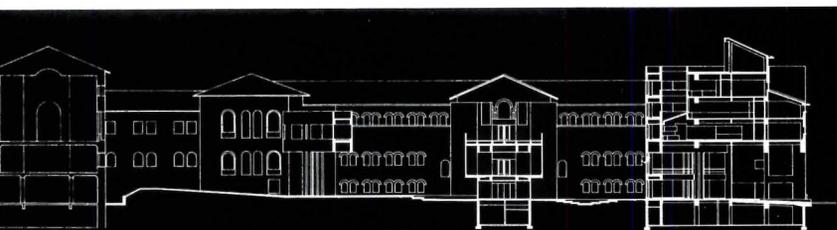
Actually, you *do* see. And the reason is the museum's new, five-story Academic Wing by Mitchell/Giurgola Associates.

This houses the museum's state-supported Education Section on the first two levels, and the University's respected Department of Anthropology and Archaeology on the upper three.

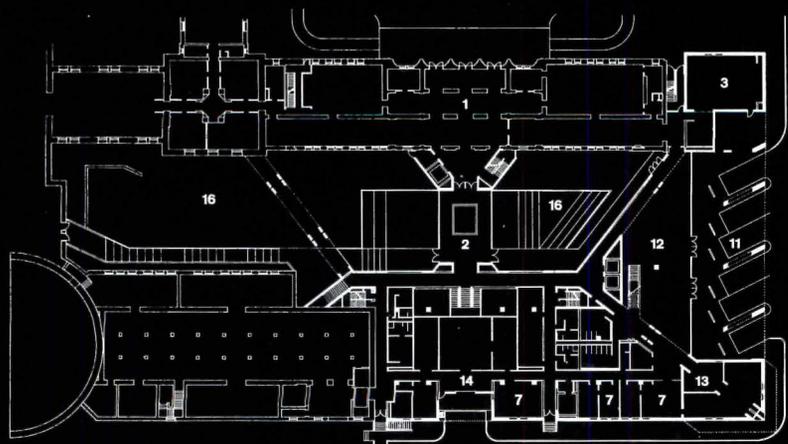
There are also exhibit and storage facilities for the collections, which badly needed more of both; eleven teaching laboratories with storage for artifacts; seminar rooms and offices for departmental faculty and graduate assistants; a three-story library for 100,000 volumes and room for as many more (not including those Sumerian tablets which have their own); and room for Loren Eiseley, renowned anthropologist and writer who



The site plan (upper right) shows how the L-shaped Academic Wing wraps around the end of a long inner court (left) where varied levels and perspectives offer a richly textured space for both encounter and contemplation. The roof pitch and red tiles of the old Lombard Renaissance structure have been carried over to the new wing (lower right). The old and new are visually linked by means of the court. And physically linked by means of two connectors; one, containing a restaurant, partially bisecting the court; the other, a sinewy bridge spanning it.



SECOND FLOOR



GROUND FLOOR

- 1 existing lobby
- 2 lobby/exhibit
- 3 classroom
- 4 laboratory
- 5 seminar
- 6 conference
- 7 office
- 8 library
- 9 special collections
- 10 lounge
- 11 bus loading
- 12 children's gallery
- 13 sales
- 14 service area
- 15 roof terrace
- 16 garden

The grandiose 19th-century scheme for University Museum was only partly built. The portion to the left of the broken line (rendering, top left) corresponds to that shown with the new Academic Wing (photo, middle left) which blends as sympathetically with the original as anything the earlier architects might have done. The section and plans illustrate the easy articulation of function and movement in and between the old and new.

spends as much time thinking about the future of civilization as he does its past.

You sense Eiseley's concern everywhere. For the educational and academic programs are postulated on the belief that a primary use of the past is to explain and enrich the present.

This is why 250 or so grade school youngsters visit everyday. There is a big, sheltered berth for their buses; just inside, the cavernous Kress Gallery, where they are received, lectured to, left to roam; a workshop for learning the crafts of ancient cultures; a 50-seat classroom and adjoining children's library; and a loft-like lunch area where they can munch sandwiches while looking over Senegalese battle shields or New Hebridean Milekulas.

A 250-seat hall on the ground floor is in constant use for lectures, films and meetings. Above the new foyer is a restaurant called the "Potlatch," where students rap, professors profess, museum officials plan the next "dig," and trustees toast the "relevance" of it all.

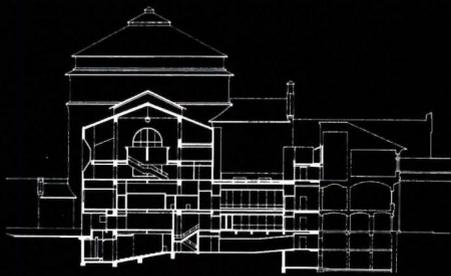
The Academic Wing is a model of tact. The old museum is dark brick. Pitched roofs of red tile. Colorful mosaics. And magnificently vaulted spaces. Outside, the brick, tile and roof pitch are carried over in a genteel, self-effacing gesture to the old building and to the streetscape. Inside, however, the architect's gesture is more assertive. Minute in wall; strong in window.

The architects note, "We had the choice of making an isolated new building. Or one which would completely blend with the old in some kind of cosmetized harmony. Or of making a building which would have its own presence within, stimulating encounter between the varied activities without undue interference between them."

They chose board-formed concrete, great expanses of glass, and wrapped the wing around the end of long inner court. This is bisected by a three-level connector between the old and new section, containing the ground-floor foyer, the restaurant above, and a roof garden discreetly detailed in wood. Spanning the west end of the court is a sinewy bridge linking the main entrance of



The interface with the original building is dramatically clear in the new library (above) where study in the stacks includes an arched view of one of the cavernous old exhibit halls. The section (near right) is taken through the library and the tri-level connector. The brick and Roman mosaic floor of the ground-level foyer (below) is a serene introduction to the lively activity in the "Potlatch" restaurant above it (far right).



the museum and the new library.

Giurgola notes, "The changing levels of the court correspond to the changing direction of the walls fronting on it. These continuous surfaces of concrete and glass make a large-scale background recalling the scope of the 19th century scheme, while also making a variety of interior and court spaces which seemingly flow together."

The inner court is not just esthetic indulgence; there is none of that in this building. It is, rather, one of those necessities which (only incidentally) becomes an amenity. The court is necessary as a visual tool by which people moving through the new wing, or between it and the old section, can orient themselves with the various levels.

Given the fact that only one of the new levels corresponds to the original building, such visual orientation was essential from the standpoint of easing circulation. The delightful and reassuring aspect of experiencing this complex is that it all turns out to be so simple. Every time you come upon a corridor, or walk from the old museum into part of the new wing, you encounter a view of the court and the old brick structure ranging around it. This organization not only turns out to be pleasant but it also serves to open up the formerly dead end spaces of the original exhibit halls. Elevators at the old south entrance have replaced a labyrinth of stairs, making it easy to get to the "Potlatch" or the two gallery floors while cutting down public traffic through administrative and academic areas.

There is now an easy rubbing of elbows, functions and space at University Museum. The venerable old pile is better used and appreciated precisely because of Mitchell/Giurgola's sensitive treatment.

Perhaps architecture is attained when basic needs are so thoroughly met, as they are here, that a building goes beyond what is merely necessary and makes it possible to reflect on deeper needs after the obvious ones have been taken care of.

Says Giurgola, "The museum's varied activities and spaces represent a search for those symbols of transformation that lie in the past and persist in our lives. Recovering the sacred is the first condition of architecture." That attitude is an artifact you should be able to take away from every museum. This one is for the dead cultures which somehow lost the sacred. And for the living cultures, which must not.

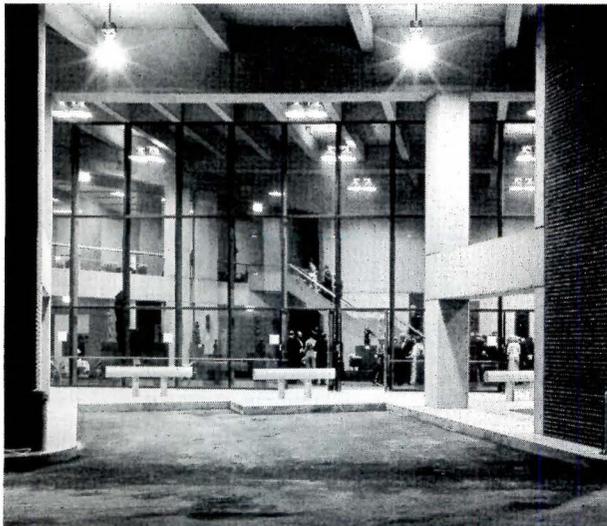
—WILLIAM MARLIN

FACTS AND FIGURES

New Academic Wing, The University Museum, University of Pennsylvania, Philadelphia. Architects: Mitchell/Giurgola Associates (Fred L. Foote, project architect). Engineers: Keast & Hood Co. (structural); Vinokur-Pace Engineering Services, Inc. (mechanical, electrical). Landscape Architect: John S. Kistler. Interior design: Dian Boone (with the architects). Consultants: Robert Hanson (acoustical). Contractors: Frank H. Wilson Co. (general); C. Kaufman, Inc. (mechanical); Morris Newmark & Brothers, Inc. (electrical). Building Area: 123,000 sq. ft. Cost: \$4,737,000 (construction, including demolition); \$280,000 (furnishings and equipment).

(For a listing of key products used in this building, see p. 73.)

PHOTOGRAPHS: Rollin R. La France.



Experiencing University Museum starts at curbside. A big sheltered berth for school buses (left) is barely separated by great sheets of glass from the new Kress Gallery (right) where people of all ages rub elbows with the past and each other.



A CLIENT AND HIS ARCHITECT

Many corporations pride themselves on having commissioned different architects to design their buildings. The Torin Corporation decided, 20 years ago, to commission Marcel Breuer to design his first building for them, and they have never regretted their decision. Here, Torin's Senior Vice President, Rufus Stillman, talks about a rare and lasting client-architect relationship.

In 1952 a vice president of a small Connecticut manufacturing company invited Marcel Breuer to design a little one-story, 12,000-sq.-ft. plant for its Canadian division.

That was a year before construction began on Breuer's Paris headquarters for UNESCO; yet the prospective client felt he should ask Breuer: "Will you be able to handle this?" Breuer thought he probably could manage.

And so began a 20-year architect-client relationship that has produced ten plants on two continents.

Torin Corporation, Torrington, Connecticut, a producer of air moving components, needed manufacturing plants at market centers—for example, to make blowers and fans for appliance manufacturers in the Midwest, or blower units for the computer industry in California. We developed the notion over a very short period of time that if the company was going to be responsible for building factories all over the world, we ought to do a quality job—not a very unique idea in 1972, but in 1952 as fresh as orange juice. That first interview with Breuer took place in the company's 1916 office building overlooking the banks of the Naugatuck River. His connection with Torin and that part of northwest Connecticut was then confined to having designed my house in Litchfield the year before. His ex-students from Harvard—John Johansen, Philip Johnson, Eliot Noyes, Ulrich Franzen, Ed Barnes—were just building their first houses, and Breuer too had yet to win a reputation for larger projects, though he had planned several before World War II.

In 1951 Torin had sales of \$8 million—and the Canadian sales were in the neighborhood of \$100,000. The program for that first 12,000-sq.-ft. building in Oakville, Ontario, was simple: 80 percent factory, 20 percent office space (both expandable to three times their original size); parking for employees and shipping docks for trucks; and a clear ceiling height of 14 feet. The factory should be designed for all-purpose light manufacturing—no frills and a tight budget. In July of 1953 we had our building, with glass sunshades protecting the office windows and a lovely clear win-



dow wall at the rear, spaced by heavy mullions.

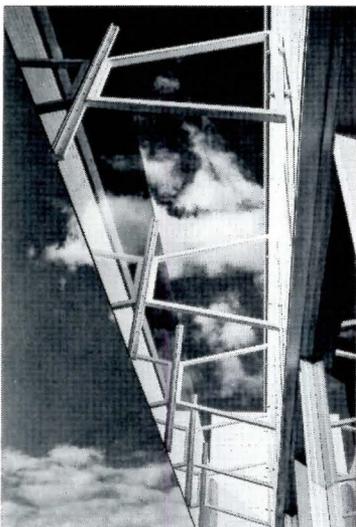
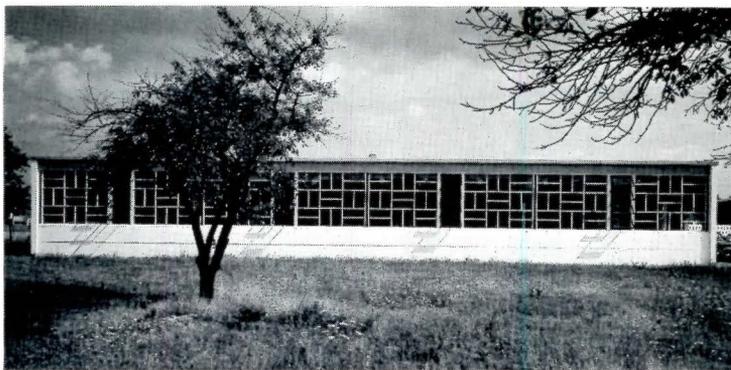
I remember Breuer pushing for those rear windows looking out on an orchard by saying two things: first, that when we decided to expand, the glass wall could be moved; and second, that it presented a good image of the company to the passengers of the Canadian National Railway 400 yards to the rear. He camouflaged the small size of the building with a long perforated wall that hides the parked cars from the road. The bright Chinese-red front door, with "Breuer-blue" entrance walls was an innovation in 1952. Primary colors were not then a part of the scene.

I've always taken particular pride that the sunshades in this Canadian building predated those at UNESCO in Paris—they give that little building some historical importance. We then had our first Breuer—clean, bright, white, beautiful detail, inexpensive, functional, few problems—and we have enlarged it from 10,000 to 40,000 square feet.

In 1954 the second Torin project, a 50,000-sq.-ft. plant in Van Nuys, California, was programmed. By then Andrew Gagarin had become Torin's president, and he and Breuer were intrigued by the possibility of utilizing a system of long-span hyperbolic paraboloids to minimize the number of columns on the factory floor.

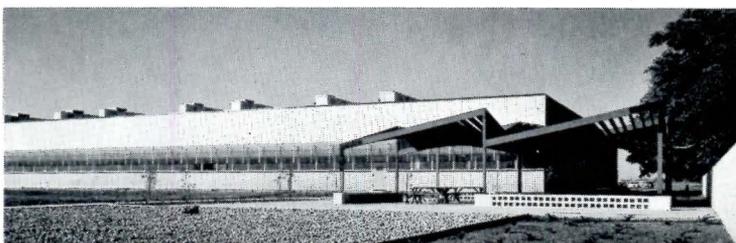
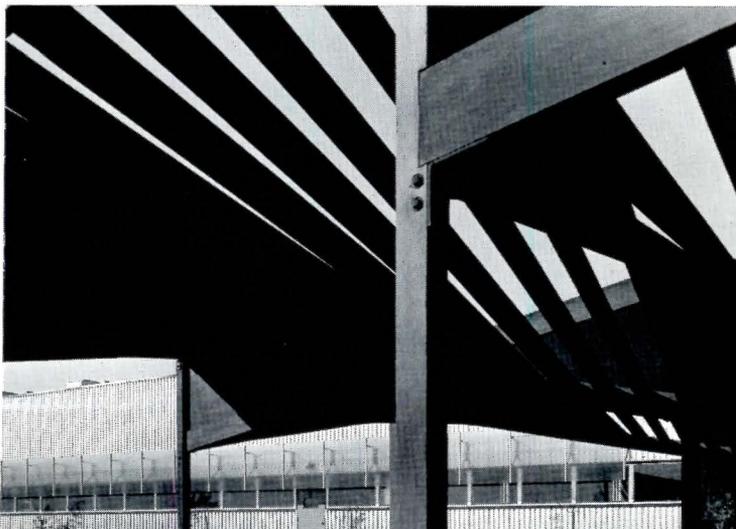
I have recollections of this being researched in the Princeton laboratories and recall Breuer saying, "What is the point? Every time you talk to the engineers they want another column support; what we save in the middle, we spend on the periphery." The combination of demand for earthquake-proof construction, and the limitation of the budget, reduced the use of hyperbolic paraboloids to an employee lunch area to the west of the building proper.

In spite of the fact that this plant had to function very similarly to the Canadian one, we did change some of our program demands. The ceiling height in Canada was too restrictive, so the California plant was given an 18-ft. clearance, which then allowed for a mezzanine over the lower-ceilinged office block. I am sure that you could get an argument on all sides on the question about ceiling heights—



Above: Oakville, Ontario building, with its large glass wall facing an existing orchard. Sunshades of solar glass, at left, were a significant innovation in 1952. Opposite page: Somewhat similar detail used at Van Nuys, Calif., plant in 1954.

Below: Van Nuys, Calif., plant, with its hyperbolic paraboloid structure shading the employees' lunch area at the west end of the building proper.



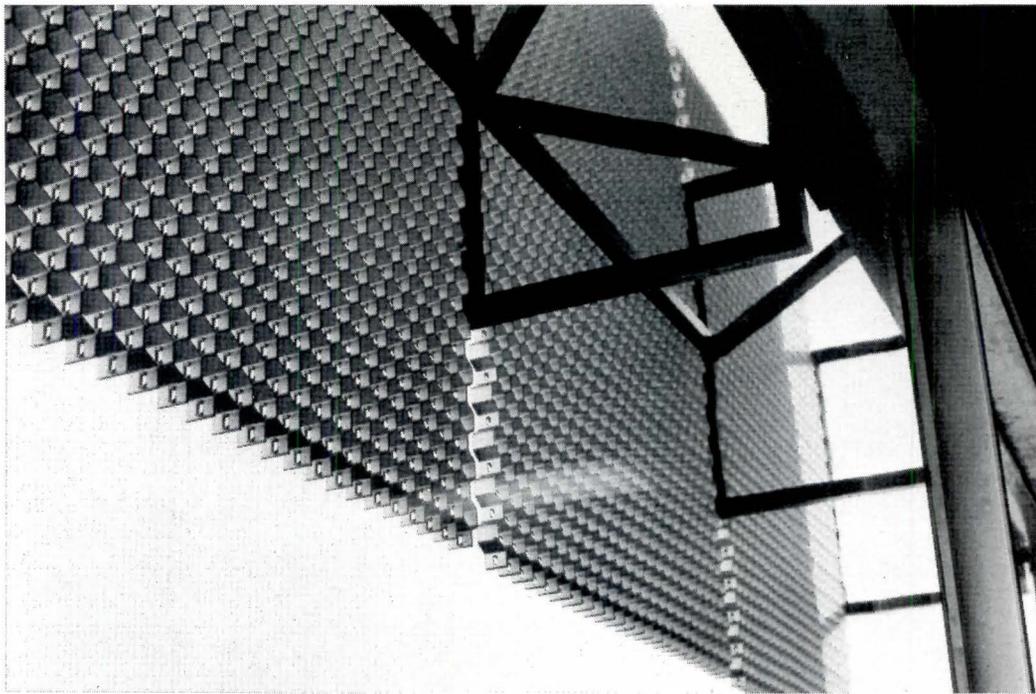
and for that matter about mezzanines and spaces proportioned between office and factory; and about the ideal modules, column spacing, windows (or no windows), light intensity, etc. We have had all those arguments within our company, and they will continue. The argument is somewhat similar to the arguments about automobiles—whether they should be compact, fast or economical. Breuer and his associates were always very willing to discuss these issues at length and to accommodate. I can't remember that any of them were ever adamant about any of our program points. Breuer, at times, would suggest that light was relative, while the engineers screamed for 140 foot-candles on the drafting surfaces. I can also remember his counseling over the years for more space, both horizontal and vertical—because he loved it, especially expanded vertical space. Working with Breuer I learned to listen carefully to his advice—he doesn't shout it out, and you may regret not having caught it.

With the development of the various buildings we raised and lowered roof levels; we included and eliminated mezzanines; we increased footcandles of light on several occasions; and we tried a variety of modules. But until the inflation of the past four years, one thing remained fairly constant—the per-square-foot building cost. Four years ago, when the president of another company asked me how much our plants cost I was able to say, "\$12". He asked, "where?" and I said, "Connecticut, Indiana, California or Belgium." He asked, "When?" and I said, "1952, 1956, 1968." When local building costs were low, we added a little extra; if some demand—such as earthquake-proof construction—pushed the costs up, we'd cut some of the niceties. For us, Breuer has always been extremely gifted at producing architecture—not at overproducing it.

Over the years we have refined our approach to building—we know our requirements better, and Breuer knows what form must follow. Here are some of the forms that followed—in the U. S. as well as in Europe—in our Indiana Division; in our Connecticut Machine Division; in Belgium, Britain, and again in Connecticut.

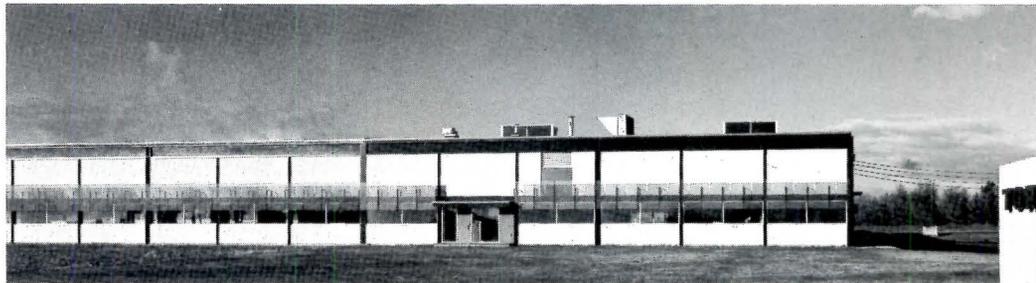
Torin's Indiana Division 1960

In the Fulton County seat of Rochester, Ind., there is a courthouse square with roads radiating from it in the four directions of the compass. Two miles out among the flat corn fields Torin has erected a Breuer factory of steel and concrete block measuring 351 feet wide by 451 feet long. Someone asked me once, "Why such a splendid building in all this empty space?" Why not? It cost \$12 per square foot built in three stages, starting in 1960 and finishing in 1968. Again we had our sunshades, but this time they were made out of the kind of grating that covers the subway air shafts in New York City. The single cavity block walls were painted for waterproofing, and the steel was painted black, making no secret of the construction.



Torin's Machine Division 1962

In Torrington, Conn., the Naugatuck River winds through the city and is edged by the usual turn-of-the-century construction. Torin housed its Machine Division in a multi-storied building of red brick of that period, dog-legged to fit the river contour, and of an elongated dimension, squeezed between road and river. In 1962 the decision was made to house this function on a single floor, and combine the factory with office space and laboratories. The constraints of land in the center of town forced us to higher ground; and Andrew Gagarin found acres of old woods and rocks where we could build a factory screened from the surrounding houses. The mayor wanted us to stay within the city limits. I can remember tramping those woods with Breuer seeking the right contours to save the trees. Amongst them, somehow, we plunked down a 70,000-sq.-ft. steel and metal-clad building, while protecting the large oaks from the bulldozer. It was our fourth Breuer building: again the endless discussions of heights, modules and mezzanine space (the mezzanine lost out). Breuer argued that roof connections between different-height buildings were difficult. He was right—they are. For the office areas, Breuer designed a ceiling grid to hold the lights and to allow for movable partitions. Even today these details are fresh.



Above: Indiana Division

Below: Machine Division, Torrington, Conn



Torin's Belgian Division 1963

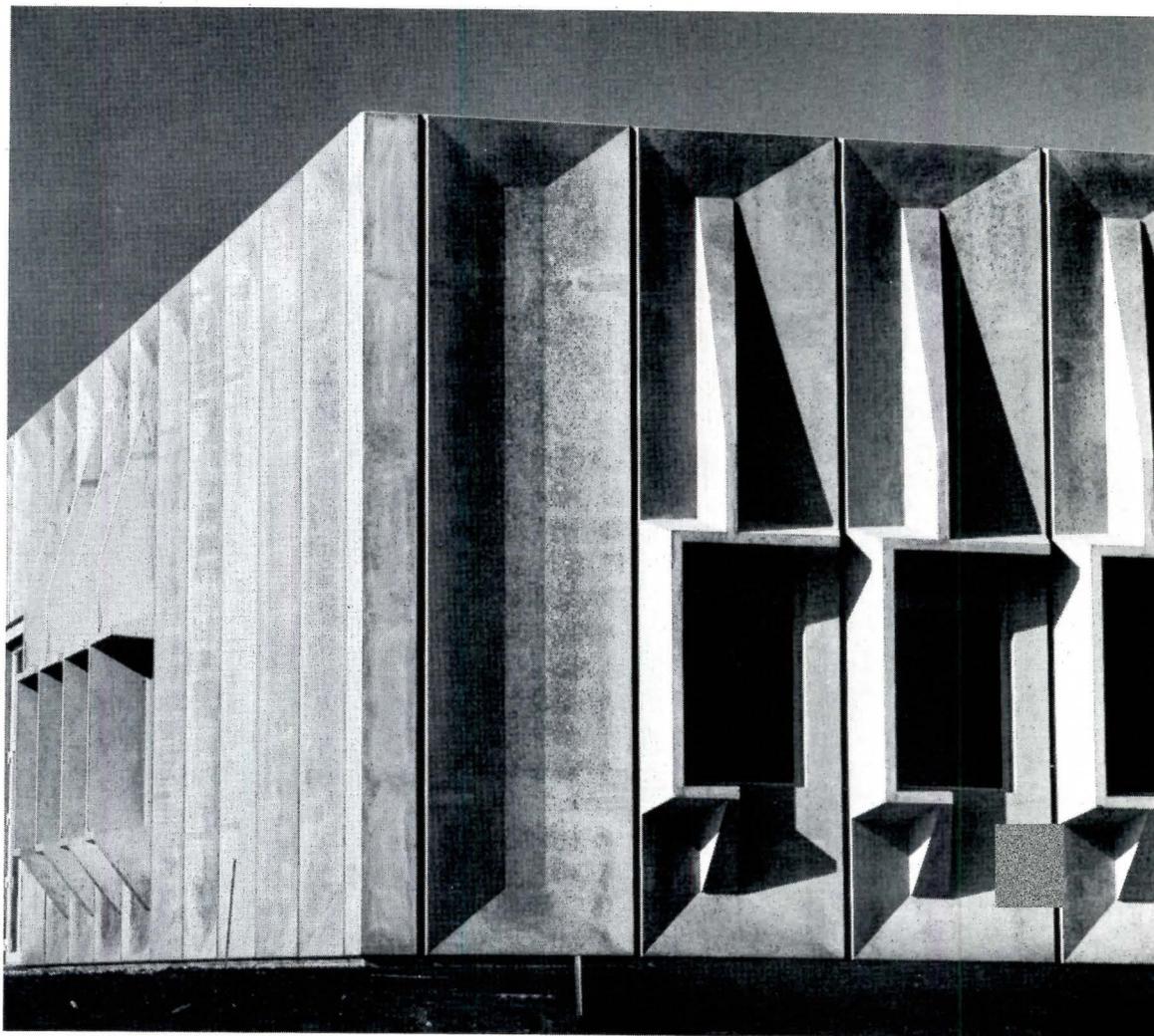
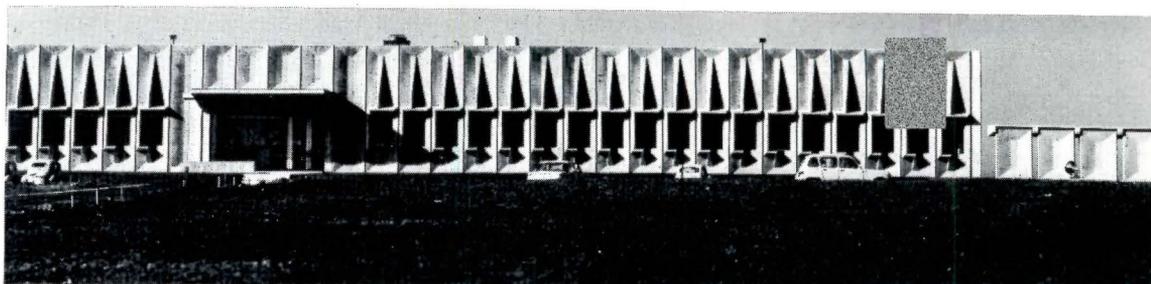
We found a hill in the flat, rolling country south of Brussels. Breuer said that it was there Torin should build its international headquarters. Only just before, he had developed his techniques of building with preformed concrete panels. Each panel, poured in Holland and shipped to Belgium, towered 22 feet. The sunshades, now asymmetrical projections of concrete, protect the windows from the southern and western sun. In the offices they are just at eye level to allow for a view; in the factory they were raised to 8 feet so as to let us have high window sills and precious wall areas. Again, Breuer designed for expansion. The entire structure (as well as the panels) was precast and prestressed in Holland. Here in our Belgian plant are housed, at the front elevation, offices below and laboratories with hung ceilings above; for we returned to the single roof line, dictated by the economics of concrete form fabrication.

Torin's British Division 1965

In Swindon, one of England's developing industrial cities west of London, we have built a brick and steel factory not unlike our Machine Division in Torrington, Conn. We found that the British building costs at that time would not permit pre-formed concrete. It was difficult to conform to the British quantity-survey system of building. We had been used to bidding and building U.S.-style, with complete responsibility for the cost and the quality being that of the general contractor. If we had to do it again we might go to a turn-key operation.

Painting the structural steel a bright red throughout was practically the only deviation from the Machine Division design of three years before. We used the same black brick front facade, the same details, the same white metal-clad wall surfaces. It is in character for Breuer to produce the same solution if there is no need for change. He once said to me, "Your house will be very much the same as my own." That is not what I expected as I embarked on that great voyage.

Our Swindon building is very much like our earlier ones: no stylish innovations—just a working tool of high quality.



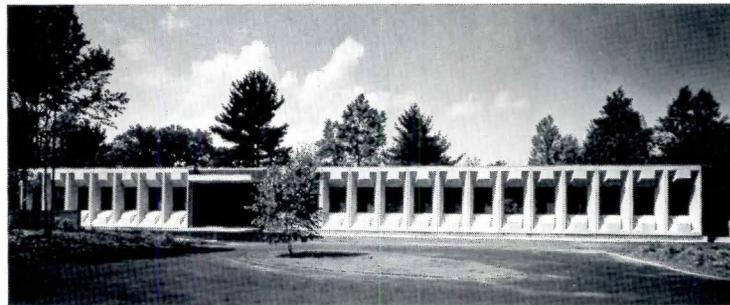
Above: Belgian Division

Below: British Division



Torin's Administration 1966

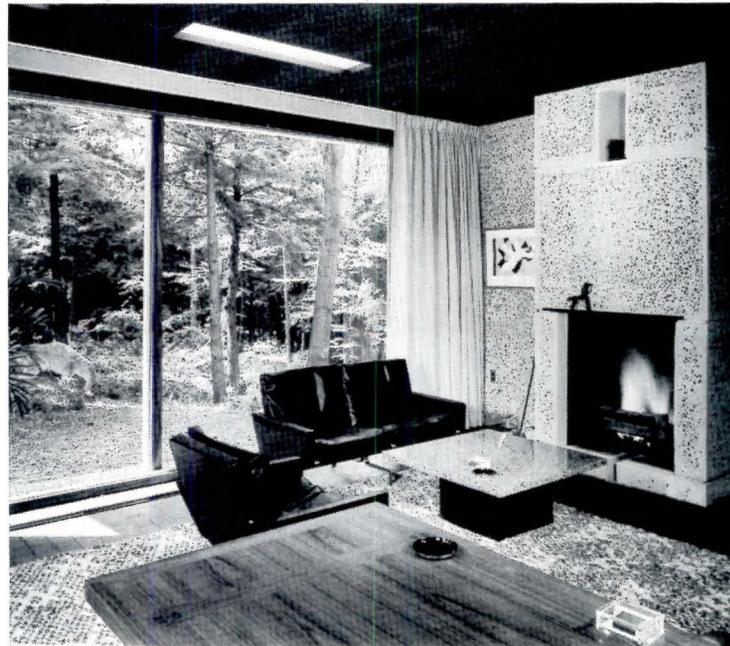
The Connecticut administrative office had to house the central corporate offices, the electronic data processing equipment, and also reflect an image of stability and separate the top management from division operations. Here we saw little need for growth — so the 15,000-sq.-ft. building was designed to its ultimate size, slashed into a hillside site with an entrance on the upper level, and the computers on the lower. Again we built in the same woods near our 1962 Machine Division, with the same concern for the preservation of trees and forest ground cover. We returned to Breuer's favorite building system of preformed concrete panels, each enclosing two windows and weighing 16 tons—the panels function as sunshades above and as housing for the fan coil units below. Their lightly acid-etched surfaces reveal the aggregate, but it remains essentially a white building against the dark forest. We have no lawn but have maintained low bush blueberry and ferns and mosses; we divided the parking into two areas to get away from acres of asphalt. Visitors from New York look out of my windows and continually remind me of my good luck.



Above and below: Administrative Offices, Torrington, Conn.

Opposite page: Torin's Technical Center.

Oakville, Ontario: Marcel Breuer, Architect. Photos: Ben Schnall.
Van Nuys, Calif.: Marcel Breuer, Architect; Craig Ellwood, Supervising Architect. Photos: Marvin Rand.
Indiana Division: Marcel Breuer and Robert F. Gatje, Architects. Photos: Hedrich-Blessing.
Machine Division: Marcel Breuer and Robert F. Gatje, Architects.
Belgian Division: Marcel Breuer and Hamilton Smith, Architects; Andre and Jean Polak, Architects, Coordinators. Photos: Yves Guillemaut.
British Division: Marcel Breuer and Robert F. Gatje, Architects; Frishman Spyer Associates, Supervising Architects.
Administrative Offices: Marcel Breuer and Herbert Beckhard, Architects. Photos: Ben Schnall.
Technical Center: Marcel Breuer and Herbert Beckhard, Architects. Photos: John T. Hill.



Torin's Technical Center 1971

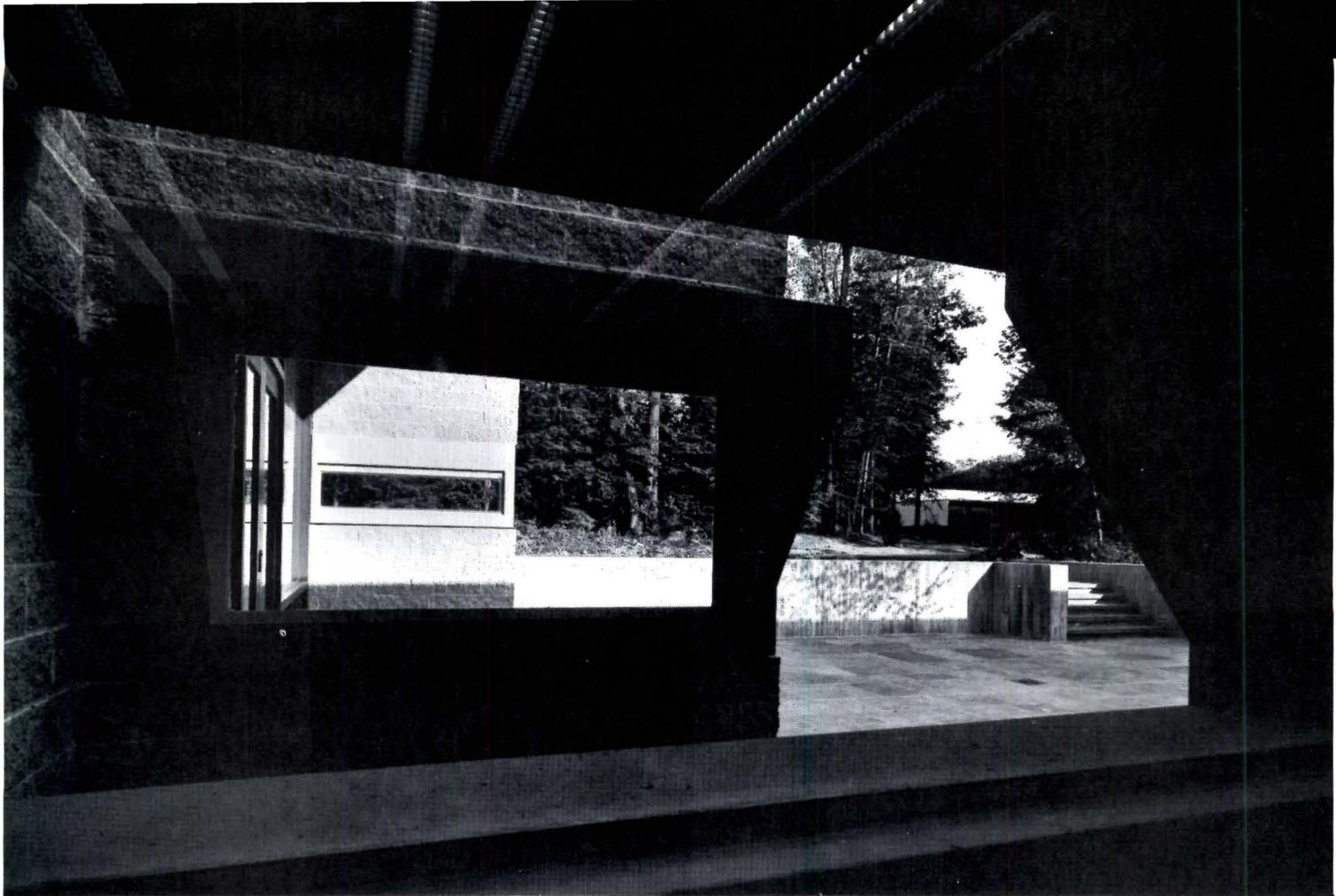
The most recent building we developed with Breuer is the Technical Center in Torrington, placed equidistant between the Administrative Offices and the Machine Division. Now we really have a mini-industrial park.

Charles Hathaway, who is Torin's president today, was determined to pull the technical strength and capability of the company together into one building that would house functions as diverse as toolmaking and acoustics. Its laboratories, drafting rooms, test cells, tool rooms and sample shops are all under one roof—combining the craftsmanship of metal-shaping with the preoccupations of research. He knew that shortening the communication lines between these functions was crucial. Breuer translated this into one large space of masonry, split concrete block and preformed window units, ended with huge window walls to bring in the outdoors; the result is a *sol y sombra*—a solid and void. Attached to this central space are two miniature repetitions of the same volumes, housing the lobby, washrooms and conference room at the front, the shipping, receiving and utilities at rear.

The ceiling is of concrete T's into which are hung light strips; on the floor, a striped carpet to repeat the rhythm of the ceiling. There are no partitions; instead, we have simple industrial shelving, painted bright red and topped with butcher block to define the spaces—so all occupants share in the huge window walls.

Of all the buildings Marcel Breuer has built for us, this is my favorite, maybe because it is his most recent. I love its space and scale—and its multi-use and oneness. I love the openness of the end walls contrasted with fort-like masonry and its heavy-browed windows—the primitive texture of the concrete block against the sophisticated details of the black aluminum of windows and doors. The details, the ease or simplicity reflect Breuer's sense of form.

That all this was done by a small company over a period of 20 years is, I think, an inspiring story—an object lesson in the way a corporation of this sort, concerned with quality and receptive to talent, can add some things of beauty to this world.





Highrise fires alarm the building industry

It happens similarly in most cases. The victims are killed and injured largely by smoke inhalation and strangulation, a few by heat or flame directly. Except those who venture to call an elevator—many are the victims of elevators designed to respond to heat-activated call systems that summon a car to a fiery floor, where the doors open wide, trapping floor and elevator occupants alike in what may instantly become a wall of flame or dense smoke.

Highrise building fires are one of the newer causes of such human tragedy. Like the unsinkable Titanic, most of these are new buildings designed to be "fireproof," which generally means that they will withstand the ravages of an internal fire with their structural integrity intact. These mammoths of shining steel and glass, which more and more dominate the major city skylines of this country, are, in fact, so structurally sound that most can contain a fire almost indefinitely without collapsing. They are an excellent furnace, perhaps one of the most "perfect incinerators for people," says Richard Patton, president of Patton Fire Protection and Research, Inc.

Protecting the steel frames of these buildings is what we seem to do best. Building codes are administered in the name of health and safety, but it is the building and not its occupants that seems to be the primary concern of codes. For this reason exposed steel is coated with fireproof materials, then the building is filled with highly combustible furnishings, equipment—and people.

Not surprisingly, tragedy is often the initiator of action in such large-scale problems as fire control. New York, which has more skyscrapers than any other city, has suffered most. In 1969, a fire at 595 Fifth Avenue claimed ten victims. All were found in front of the elevator doors, while the staircase was only steps away.

The next year brought two more notable blazes. The first occurred August 5, 1970, at 6 pm; when it was over, two men had been killed, there was \$6 million damage to the structure, \$4 million loss on the building's contents, and untold business losses. The building was One New York Plaza, only partially occupied, and the fire took place in the new offices of a Wall St. financial firm, which had not even moved in yet. Employees were putting finishing touches on floors 31, 32 and 33. Three secretaries had only just left the offices when a company guard saw smoke issuing from a hole in the ceiling. He pulled the fire alarm on the floor and took an elevator to the lobby to inform the building guards. He, another guard, and a telephone installer then took an elevator to the 39th floor to warn other tenants, but the elevator stopped on the fire floor. The door opened, and a wall of flame and smoke leaped up, killing the two guards. The telephone installer was barely alive when the firemen found him two hours later.

In minutes after the fire was discovered, other floors in the building began to fill with smoke and burning irritants. Employees could see smoke coming out of the air-conditioning units. Smoke detectors in the duct system shut down the supply fans and sounded alarms, but not before the fans had already started to spread the fire. The fire department responded within three minutes, but by then the fire was a raging inferno. Led by Fire Chief John O'Hagen, almost 300 fire-

men were required to fight the blaze (how many cities would even have such manpower available, he has since asked). It took five hours to extinguish it; by that time, 30 more persons had been injured. Temperatures in the fire area reached 1500 deg.

Four months later, an office building at 919 Third Avenue provided a second deadly mandate for action. This 49-story structure caught fire on the fifth floor when the acetylene torch of a sheet metal worker (later found to be unlicensed) set off the area around him. According to city Fire Marshal Vincent M. Canty, the man had ignored several safety requirements, including setting up a hose to water down sparks, laying down asbestos mats, and stationing a helper on the other side of the partition. Occupants reported afterwards that no alarm sounded; that exit doors at the bottom of the fire stairs were chained shut; that the windows were sealed. And, in the end, three men were killed, 30 were injured, and hundreds had found themselves trapped for various periods of time. The building suffered \$2.5 million worth of damage.

Shocked by the fires and their disastrous results, New York hastened to act. Several commissions were formed to study the problem of highrise fires and to make reports.

One report on One New York Plaza was made for the N.Y. Board of Fire Underwriters by Robert Powers. He analyzed the fire and made the following preventive recommendations:

1. Avoid flammable foam cushioning.
2. Reduce the total fire load or add sprinklers.
3. Sheathe wiring in metal conduits or ducts.
4. Protect steel with non-removable materials.
5. Vertical flues between the building's skin and exterior walls should be cut off at each floor level by a horizontal barrier with fire resistance equal to that of the floor.
6. Air-conditioning ducts and other openings through floors and ceilings should go directly to noncombustible air handling units with no combustibles in the ducts, and with firestop seals.
7. Wiring connections between floors should have thermal insulation.
8. Air conditioning, etc., should serve only one floor or the return air plenum should be subdivided by firestops.
9. Unless the building is sprinklered, automatic fire detectors should be installed in each opening of the return air shaft.
10. The air supply to computer rooms and air conditioning supply and discharge should be remote from primary building systems.
11. There should be a means provided to vent a building during a fire. All air movement on the fire floors should be stopped unless under control of the fire department.
12. Elevator call buttons should not be subject to heat, smoke or flame activation.
13. Prefire plans should include procedures for notifying occupants, calling the fire department, routes of exit and protecting valuable equipment.
14. Special equipment should be provided for the fire department on operating windows, shutters, fans and elevators. There should be planned procedures for emergency operation of the air-conditioning system.

Powers' report and other analyses of city fires, including one by a special committee for the mayor, and another by the fire department, have be-

come the basis for a whole package of legislative proposals. Included are mandatory fire drills, the appointment of floor fire wardens, and a qualified full-time safety director for each building.

The package would apply to 600 existing buildings in the city, with compliance ranging from ten years for compartmentation, to three years for elevator, detection, alarm and communication systems, and one year for showroom sprinklers.

Chicago is also considering new fire prevention techniques for highrise buildings, prompted by two fires in one of its luxury apartment buildings on Lake Shore Drive. The first fire took place in the 38-story Hawthorne House in January, 1969, claiming four lives (three by smoke) and injuring 17 others. The fire started in a 36th-floor apartment and spread when the resident fled into the hall, leaving his apartment door open into the corridor. The same building was struck by fire again last summer. No one was killed this time, but ten persons were hospitalized, suffering from smoke inhalation.

In response the city introduced an ordinance requiring self-closing devices on apartment doors in buildings over three stories high. The city had no special code provisions for highrise buildings but now has also proposed automatic sprinkler systems for the corridors, stairways and lobbies of buildings ten stories or more and is considering auxiliary power systems for emergency operation of elevators and power pumps.

The city already required natural draft or mechanical smoke-proof stair towers for buildings over 264 ft., but is now considering lowering the height. Other possible requirements include smoke vents for each floor, differential pressure zones for stairwells and elevator shafts to prevent smoke from flowing onto different floor levels; and automatic means to shut down the mechanical air supply systems and open exhaust systems. Predictions on the cost of the new regulations, should they all be enforced, run as high as \$1.50 per sq. ft. on new construction.

San Francisco, also with a history of devastation by fire, was moved to recent code action by a fire in the 52-story Bank of America Building, which trapped 30 persons and took 15 hours to bring under control.

Today, San Francisco is enforcing new requirements, which include the installation of ventilating systems, smoke and combustion detectors and automatic smoke evacuators. Also recommended are sprinklers for each floor, elevators with override systems so that they can be manually operated by firemen during an emergency, and smoke barrier doors at elevator lobbies. The city also requires product tests for damageability over and above UL or other laboratory requirements and validation of the density of site-applied fireproofing.

The nation's insurance industry has obviously watched the mounting highrise building fire statistics with special interest. One result was that the New York Fire Insurance Rating Organization recommended to its 260 member insurance companies that they raise the minimum fire insurance rates for highrise buildings about 20 percent. On a building such as the Empire State Building, the basic insurance rate would in-

crease from 2½¢ per yr. per \$100 coverage to 3¢.

According to Arthur F. Sampson, Commissioner of GSA's Public Buildings Service, "Fire protection in highrise buildings is extremely difficult and, some say, nearly impossible." Most fire-fighting equipment cannot reach above the 13th-story level of a building; aerial fire ladders only reach the 8th floor level; the hoses can only throw water 500 ft. Evacuation of a highrise building could not only cause panic, with tragic consequences, but it is simply not practical in the time available. A study by the National Research Council of Canada reveals that it would take 2 hours 11 minutes to evacuate the occupants of a 50-story building using one stairway.

Few highrise buildings have communications centers. Often the elevator systems are no more than death traps. Landscaped offices offer no fire barriers in the form of partitions. Often the standpipe connection for a floor will be in the stairwell, so that when the fireman connects the hose, the door is left open, the stairwell fills with smoke and that route of escape is lost. Occupants are rarely trained.

Heat and flame are only a part of the problem; four out of five deaths in these instances are caused by smoke inhalation. How to avoid the spread of smoke, as well as flame and heat, is a major problem.

Smoke is the term used to describe all gaseous emissions caused by fire, not just the floating particulates of burned matter. These gases include killer gases. Some fire-resistant coatings, for example, may protect furniture and clothing, but they emit carbon monoxide (CO) in lieu of permitting combustion of the material they protect. CO kills rapidly. As little as 1/10 of one percent in the air will cause severe headache and nausea in one hour, a coma in two hours and death in four.

How little we really understand about these effects is perhaps demonstrated by the increasing demands that interior furnishings be fire-proofed. After a nursing home fire in Marietta (Ohio), in which 31 patients died when carpeting flared up, the Social Security Administration, properly concerned, established stringent flammability standards for carpeting in nursing homes (the Marietta variety is no longer produced). The Commerce Department is promulgating somewhat less rigid standards for buildings generally, particularly in lobby, office and other public areas. It is not possible to find fault with the motives behind these regulations, but more research must be done on the subject. The next tragedy could occur when elderly nursing care patients, unable to move away quickly, are poisoned by the toxic fumes of the mandated fire-resistant materials—perhaps while they are still relatively remote from the fire source itself.

The whole design and construction of the skyscraper requires more study in relation to the fire hazards it poses. The stacking effect of smoke is itself a serious subject. This effect is produced because a column of warm air weighs less than a cold air column. According to the Canadian National Research Council, this means that in a 20-story building, five minutes after the first floor is filled with smoke, it will reach undesirable levels in the next floor and in the elevator shafts; some smoke may also penetrate the stair shafts, jeopardizing avenues of escape.

Cities across the country have suffered similar disasters and are now ready to act

The problems are very rapidly becoming obvious, but the solutions come slowly

Says GSA's Sampson, noting such new construction methods as lightweight steel beams and columns without masonry cladding: "We build air-conditioned boxes." He reasons: "We hang panel walls from floor decks, leaving open spaces between the wall and the deck. We punch the entire system full of holes to contain our air-conditioning ducts, utility cables and other equipment. In place of the heavy mass of concrete and masonry that used to absorb the heat of a fire, we use highly effective insulating materials that tend to bottle the heat of a fire. On top of this we have fixed windows which prohibit emergency venting."

The systems approach is necessary; each part of the building must be considered

Codes are one avenue of remedy, provided the criteria for change and the standards of performance have been properly worked out. What too often happens is that a tragic occurrence prompts hasty, shotgun changes that may cause confusion, raise costs, and may or may not help solve the problem. "Building codes are written by the accretion of incidents," notes Bernard Spring, Dean of the School of Architecture at New York's City College.

Architects have been slow to act in this area. The American Institute of Architects only last May formed a Center for Codes and Regulations, yet the design implications of this area are profound. When he heard about the new center, GSA safety engineer Thomas Goonan was quoted as saying, "It's about time. We've been after them a long time to get with it." Arthur Sampson concludes simply that "the reeducation of architects would produce safer buildings."

Standards for sprinkler systems, as set forward in most codes, are based on systems designed for warehouse protection in the 19th century. This has little in common with highrise structures occupied by people and there is today a need for an economical and effective sprinkler system. And, if sprinklers are used, perhaps savings could be realized by the building owner in other areas: for example, fire wall ratings might be reduced if there were a fire department nearby. The Copper Development Association is among those working on new kinds of sprinkler systems adaptable for use in occupied highrise buildings. The Life Safety System CDA promotes has a 50-110 gpm delivery (compared to the conventional 500-750 gpm rate) and uses a 1¼-in. delivery pipe instead of 4-in. pipe. About half the cost of conventional versions, the system uses commercially available sprinkler heads. The system, which is designed to protect lives first, property second, says CDA, has already been installed in Tucson's Pioneer International Hotel, which earlier had caught fire (in December, 1970), killing 28 persons.

New developments in communications systems may include a portable communications equipment system that the fire department can carry with it and plug into the building's telephone system, suggests Fred Dubin, a consulting engineer on the faculty of Columbia University. The system could be designed somehow to cut into the existing system in the building and exercise emergency priority, he says.

Dubin also notes that in some places, the only buildings requiring emergency power are hospitals. He suggests that to assure adequate power for firefighting, the fire department might mount

300 kw generators on the fire trucks. This could be particularly useful with old buildings that are unlikely to have generating capacity; the owner need only make the building adaptable.

Elevators pose special problems and it is not unheard of for firemen to find themselves lugging equipment up staircases for 30 or 40 floors because they cannot use the elevators. Many elevator systems are simply deathtraps in a fire and inaccessible to the firemen and occupants who need them. With the cooperation of GSA, the National Bureau of Standards tested the elevators of 12 manufacturers and found few satisfactory.

The elevators with photo-electric cells for a call system, which is activated when a person walks across the electric eye's beam, proved disastrous because heavy smoke could also break the beam and cause the elevator to stall on a burning floor. Touch-type button systems, which have no moving parts but respond to a small electrical charge activated by a passenger's hand, proved equally dangerous. They too would stop at the fire floor, and stall with doors open.

One novel elevator product has appeared. The Sky Van, produced by Sky Van Ltd., is a rescue elevator system that includes a steel frame cab with fiberglass wall panels and a set of tracks that are mounted on the exterior of a building. The building owner can own a cab or simply install the tracks. The company hopes that local fire departments will buy a few cabs, which they can carry to the fire, and mount on the tracks "in four seconds." The system, which has been installed in Canada, travels at 400 fpm. Tracks for a 50- or 60-story building cost, \$175,000.

Even without such exotic elevator systems, there are ways to make existing elevators more effective in case of fire. Patton suggests an arrangement where two elevators are separated by a 2-hour fire partition. The partitions would serve to create an on-floor refuge area if fire broke out on just one side; they would also isolate the two elevator systems from the common influence of a single fire source.

The interaction and coordination of the mechanical systems of a building with smoke and/or combustion detection devices is to many fire experts the most important aspect of fire safety design in highrise buildings. Most of the new skyscrapers are air conditioned, with elaborate ductwork and sealed windows. (New York considered acrylic windows that would melt.)

The plenum (or air distribution space between a ceiling and the floor above it) and vertical sleeves in the building that may be used for mechanical ductwork are frequent sources of fire. If openings are not sealed or linear travel controlled by barrier systems, a fire could easily spread throughout a building. If the air conditioning or heating system does not shut down or become an exhaust system almost instantly, it will blow the fire throughout the building.

A smoke detector is an electrically operated device that will respond to individual combustion products (ionization type), to visible smoke (photoelectric type) or to the flame itself (infrared type). These types of detectors correspond to the four stages of fire, as described by the engineering firm, Syska & Hennessy, Inc. The first stage of combustion yields invisible products; there is no visible smoke and no perceptible heat release. The second stage is smoldering,

where there is smoke without actual flame. The third stage is flame and the fourth stage is when the fire generates uncontrolled heat and a rapidly expanding column of air. The first two stages are slow, perhaps 80 percent of a fire's duration.

Smoke detectors can catch a fire in the first stages and trigger a control and alarm system

Richard Roth, a senior partner of Emery Roth & Sons, engineers and architects, put forth his recommendations for an effective smoke detection system in the July 4, 1971, New York Times. In brief, he noted that a smoke detector should be cross-connected to shut off the return air-handling fans, alert the fire department, register the exact location of the fire on a central control board, return the elevator to the lobby and throw off the automatic control system, activate the fresh air fan at the top of each elevator shaft serving the fire floor and at the top of each stair.

Pressurization is often discussed as a way to control the spread of fire. Certain areas of a floor, shaft or building can be pressurized (automatically), so that the fire will not spread into it. Just as a negative pressure in the zone of fire will tend to retard the spread of smoke, pressurization of adjacent areas or elevator cabs, etc., will help keep that area clear of smoke. Pressurization can also facilitate venting.

Mechanical systems can be compartmentalized. The zones should conform with the normal divisions of the building. For example, the air-conditioning system shutoff can be made to apply only to one or several floors so that the rest of the building can operate normally—a psychological advantage to other occupants.

Structural integrity may be the easiest safety goal to attain; the building must be designed and erected so it will not fall down. The fireproofing of a building's structural system may be primarily a field problem. Frequently, spray fireproofing can be knocked off when walls and partitions are erected, exposing the steel. Dubin notes that fireproofing may scale off because of rust on the steel members, which destroys the bond of the fireproofing with the steel and results in flaking. Dubin proposes a prime coat on the steel that can be applied in the field before fireproofing.

The ways to fireproof steel construction vary; spray coats of asbestos, cementitious or other materials is common, and so is block insulation. Some buildings are using waterfilled hollow columns to control heat exposure. U.S. Steel has recently introduced another system on a 54-story office building in New York: flame shields. The shield is a cladding that is welded to the flanges of the roof and spandrel girders, with fire-resistant material filling the space between the flanges and the cladding. Spray fireproofing is used on the interior web surfaces, but the system eliminates the need to encase the exterior of the girders with fire-protective material.

Several new buildings demonstrate fire prevention systems that are models for future designs

Several new buildings will demonstrate the new fire consciousness. The new Sears Tower, under construction in Chicago, is a model for future commercial design in this respect. For an estimated overcost of about \$2 per sq. ft., this 1,450-ft. steel-frame highrise (the tallest in the world) is fully sprinklerized and equipped with smoke detection devices. The building is constructed like three 30-story buildings, stacked on one another, which creates natural smoke barriers. Within each of these zones, two elevator

cabs are designed to be commandeered by the fire department in case of fire and two are designed to run on emergency generator power, should electrical current fail. The building's entire mechanical, security, elevator, sprinkler, smoke detection, two-way communication and other basic systems are monitored by a central control center, which is manned around the clock and which can switch the elevators onto manual operation if necessary. The building also has water-storage tanks to feed its sprinkler and standpipe system.

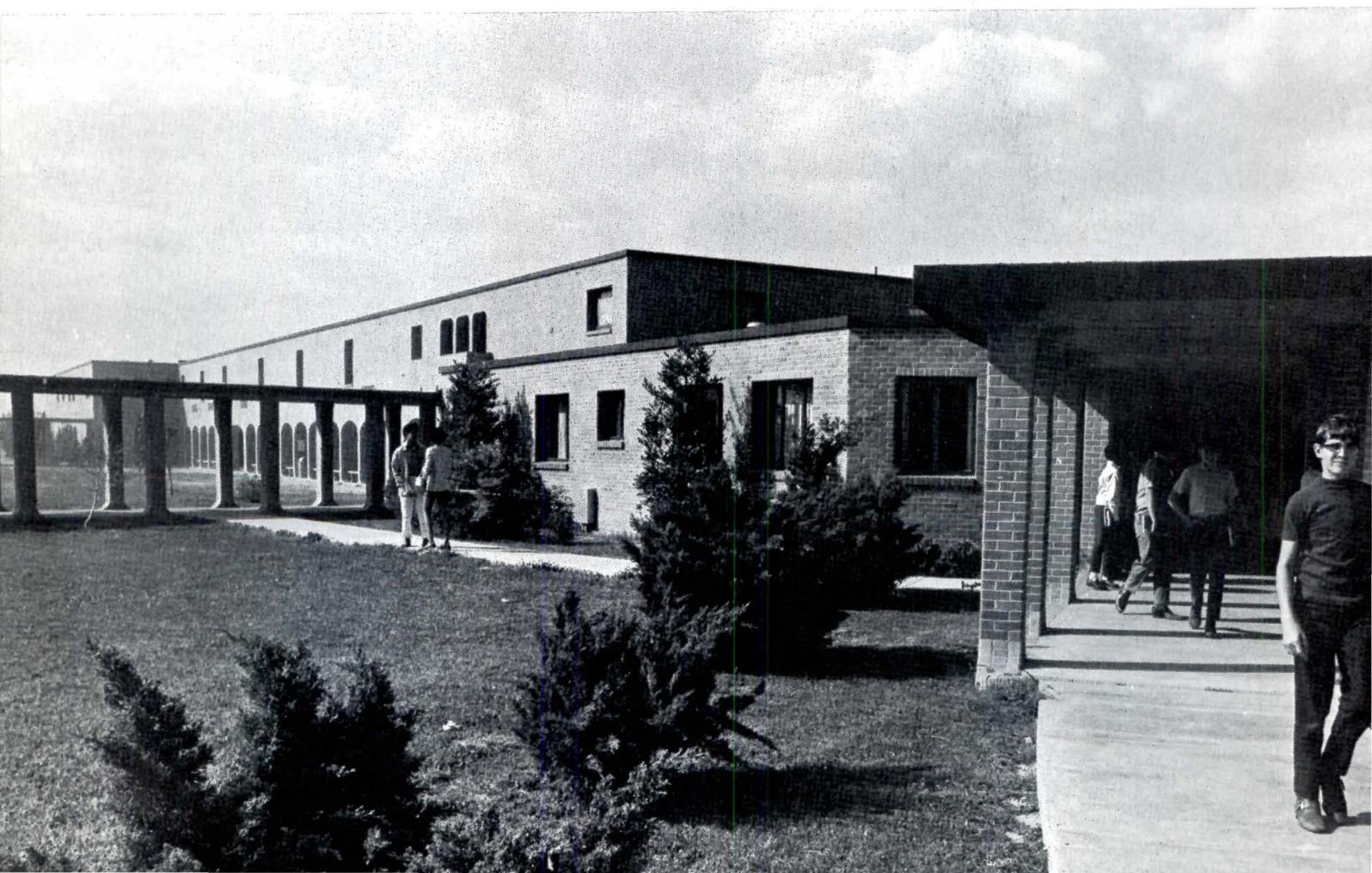
In San Francisco, the new and controversial Transamerica building promises to win plaudits for its fire protection systems, if not for its pyramidal form. Its precautions cost about one percent of the building's \$34-million price tag. They include a communications and command control center underground; a full sprinkler and central alarm system; pivoted windows; designated refuge areas; automatic elevator override systems for emergency operations; automatic smoke detection and ventilation systems, also with override features for fire department operation; double diesel pumps to assure adequate water pressure if the city's main supply were to fail; a diesel power system for the emergency operation of the lighting and elevator systems; and fire-resistant materials where possible. The concrete floors abut the tower's pre-cast curtain-wall panels to prevent the vertical flue effect common to some curtain-wall construction (required by the San Francisco code).

In New York, the twin 110-story towers of the World Trade Center are prepared for fire. They have tempered glass windows, which shatter in small pieces and minimize the danger to pedestrians below, among other safety systems.

Perhaps the greatest example among the new buildings demonstrating fire prevention systems is a federal building under construction in Seattle. When it is completed in 1974, the \$43.5-million, 36-story structure will be the model for all federal government highrise construction. The kind of systems demonstrated by the steel and concrete building are already mandatory, says GSA's Arthur Sampson. GSA, he says, now requires a complete fire-safety-systems analysis for all highrise construction under its jurisdiction, and he hopes that private builders will follow the government's example. The Seattle building was in fact redesigned to conform to the new standards. The process was negligible in terms of total cost, says Sampson. He estimates, however, that the cost of the total fire safety system, including a complete sprinkler system, is about \$485,000.

The GSA model includes four systems to prevent the spread of fire: the sprinkler system, a specially designed smoke-control system, automatic elevator controls and an emergency control center. The criteria for design was to counteract the statistical probability of 100 fires in the building over the next 50 years, with the one-percent probability that one fire will extend beyond the room where it originates.

Such new buildings provide real promise that fire prevention will be accorded the attention it deserves—and money and research. Instead of raising their rates as more fires occur, perhaps the insurance companies should try to provide incentives for safe design by lowering rates for building owners demonstrating true fire safety consciousness.—MARGUERITE VILLECCO



A CAD SC COL FORMS A CAMPUS

Inexpensive structure and imaginative layout were designed to fit into semi-tropical environment

This high school for about 1,000 students is interesting in two respects: in its loosely articulated campus plan, and in its tightly meshed structural system—and in the way that system relates to environmental requirements.

"I like the campus plan," says Neil Nehrbass, who was the principal designer of the school, "because it allows you to cluster various activities, giving each a sense of place and some degree of privacy." Many schools in this area—the Mississippi delta—have recently been built windowless and air-conditioned on the theory that the climate was too terrible to face head-on. "In his *Air-conditioned Nightmare*," Nehrbass recalls, "Henry Miller noted that in this part of the country the clouds are our mountains." He felt that local, natural phenomena were perhaps "the most constant source of rebirth, pleasure, inspiration, and plain battery recharging," and so he planned his school as a frame for the earth and the sky.

The plan is, substantially, a great big hexagon, almost 300 ft. wide at its widest. The sides of this hexagon are formed, alternately, by buildings and by arcaded walkways. (Annual rainfall, locally, is 60 inches!) The only departure from the hexagonal "quadrangle" is the gym complex, which is linked to the principal campus by another arcade. The arcades are, primarily, of brick set in flattened-out arches, covered with 8-ft. by 12-ft. precast slabs, 4 in. thick.

Structurally, this high school is intriguing as well: although faced with brick outside, and concrete block inside, the masonry is so heavily reinforced with steel rods that the building is, according to Nehrbass, "wrapped in a steel network that acts like rubber bands." Nehrbass had noticed that, in this humid climate, exposed steel in lintels, etc., tended to rust away rapidly, and so he reinforced his masonry so thoroughly as to be able to do away with exposed steel altogether.

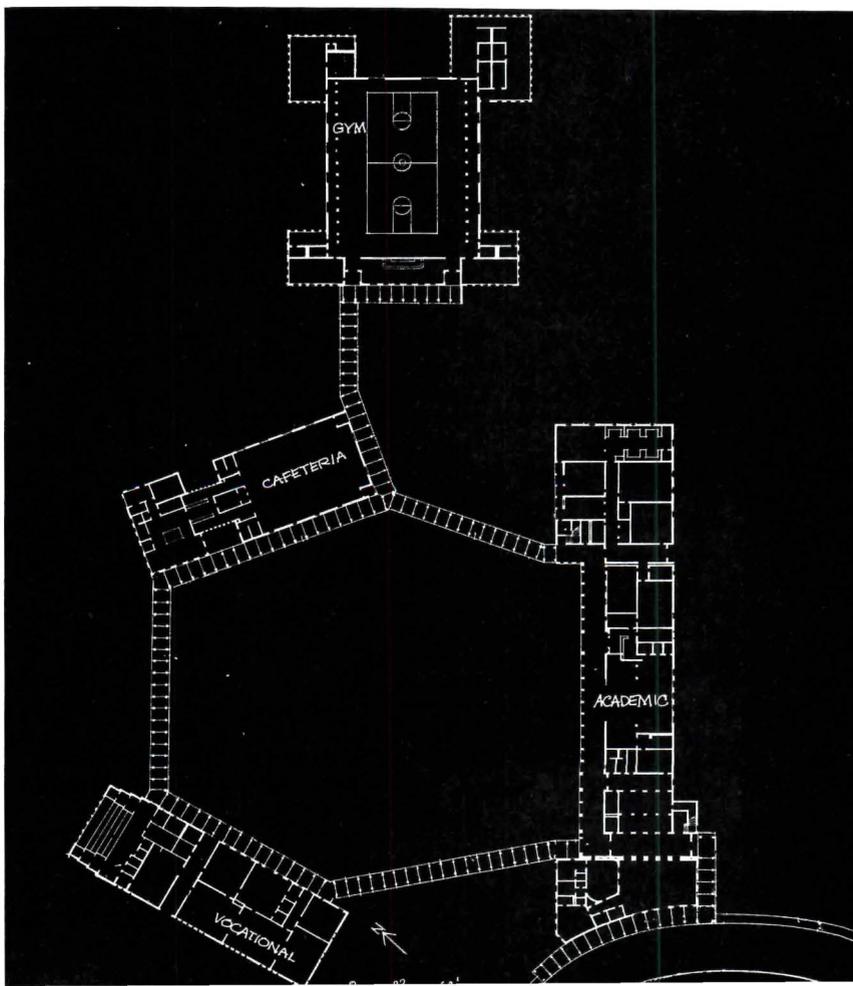
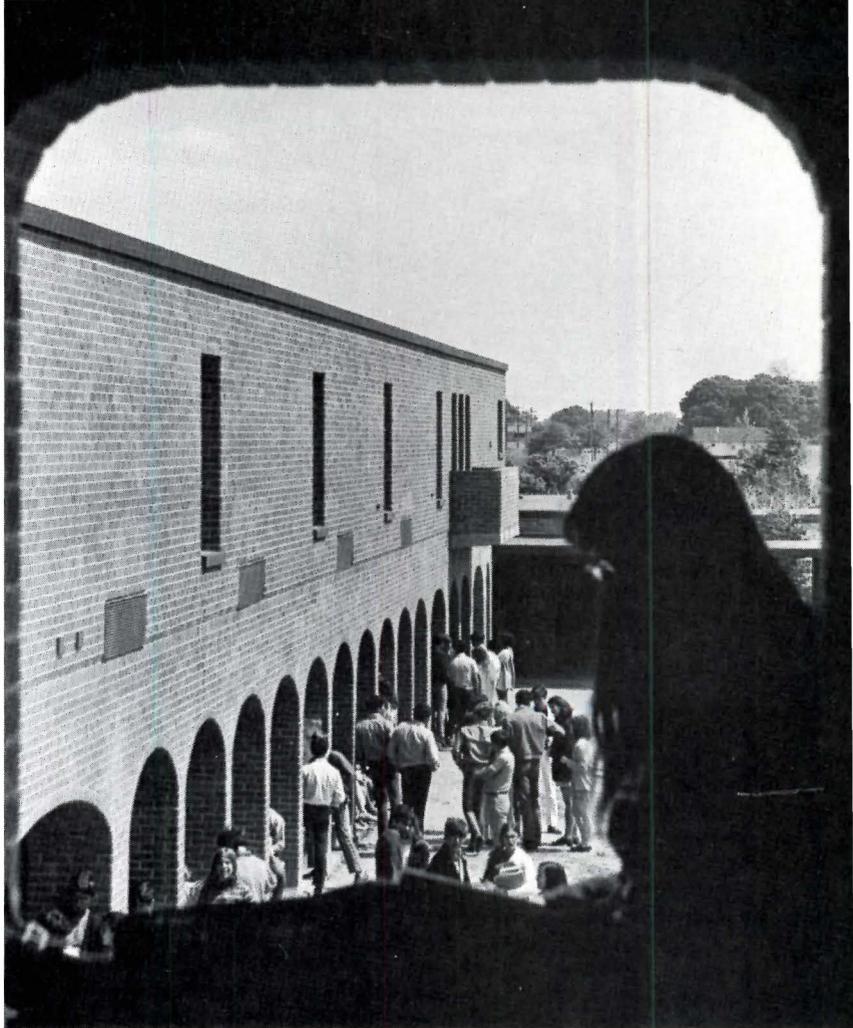
The reinforced brick arcades shade the window openings and thus reduce the air-conditioning load in this hot and humid part of the country. The incredibly low unit cost of the school—just a little more than \$17 a sq. ft.—suggests that the architect was really tuned in to local building practices and traditions.

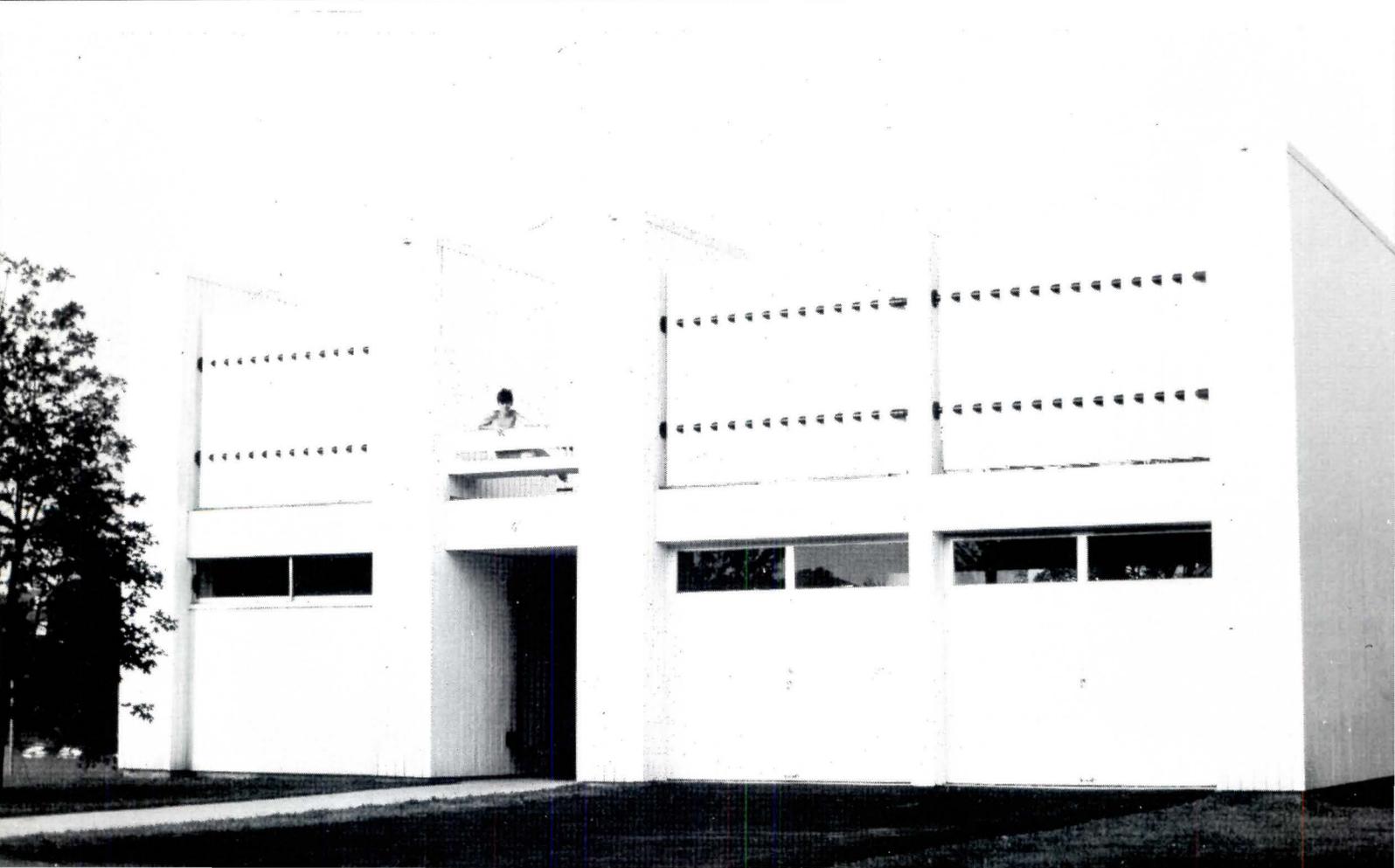
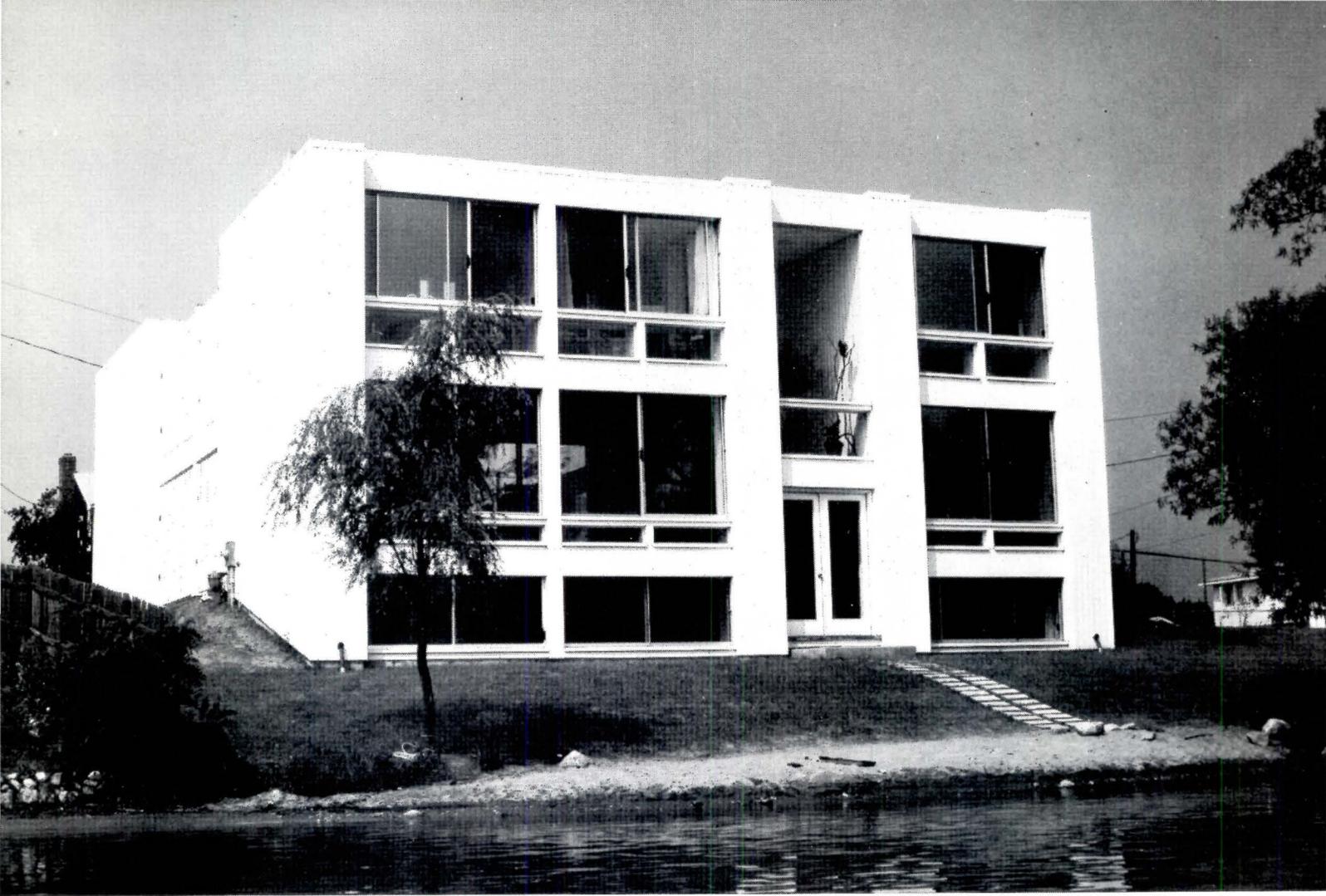
The arcaded walkways that characterize this school and connect the several parts of its campus plan were constructed of an ingeniously reinforced masonry system. The floors and roofs were made of precast concrete slabs, some of them prestressed. The reinforcing of the masonry made steel lintels unnecessary. View at bottom left shows the approach to the building.

FACTS AND FIGURES

Comeaux High School, Lafayette, Louisiana. Architects: Frederick Jay and Neil Martin Nehrbass (Neil Martin Nehrbass, associate-in-charge). Engineers: Frederick Jay Nehrbass (structural and mechanical); R. Whipple (electrical). General contractors: Bartley Inc. (phase one) and J. B. Mouton & Sons (phase two). Building area: 93,590 (phase one); 18,194 (phase two). Construction cost: \$1,147,776 (phase one); \$218,825 (phase two). (For a listing of key products used in this building, see p. 73.)

PHOTOGRAPHS: John Messina.





PROTOTYPE FOR URBAN PATTERN

Custom-designed house demonstrates principles of row house living

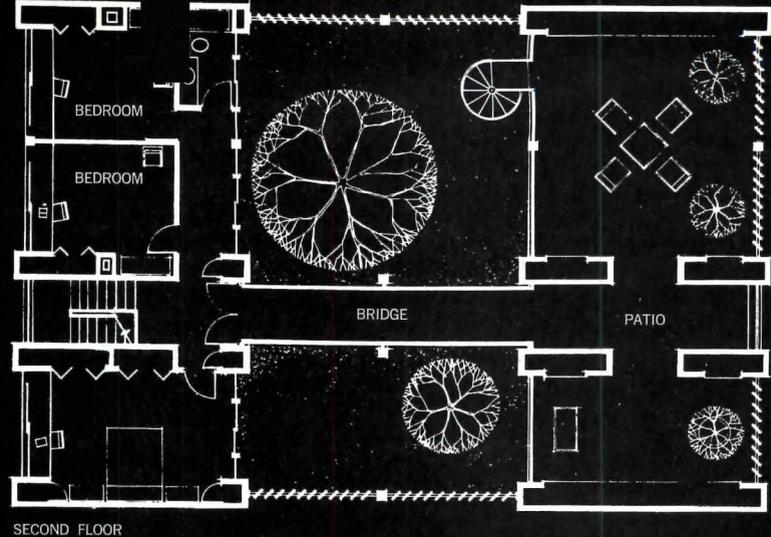
Most architect-designed houses tend to be special solutions of special problems. This house on a small suburban lot outside Cambridge, Mass., is unique in that it attempts to solve a number of general problems encountered in the design of housing throughout the country and beyond it. It is, in effect, a prototype of a very neat and workable row house.

Charles Hilgenhurst, its architect and owner, has long been concerned with problems of urban design—most recently in his capacity as Acting Chief Architect for the N.Y. State Urban Development Corporation. So when he decided to build this house for his family on a 9,000-sq.-ft. lot, he wanted to do more than make a personal, architectural "statement;" he wanted to make a demonstration of the advantages of a certain kind of row house — specifically, one that was patio-centered.

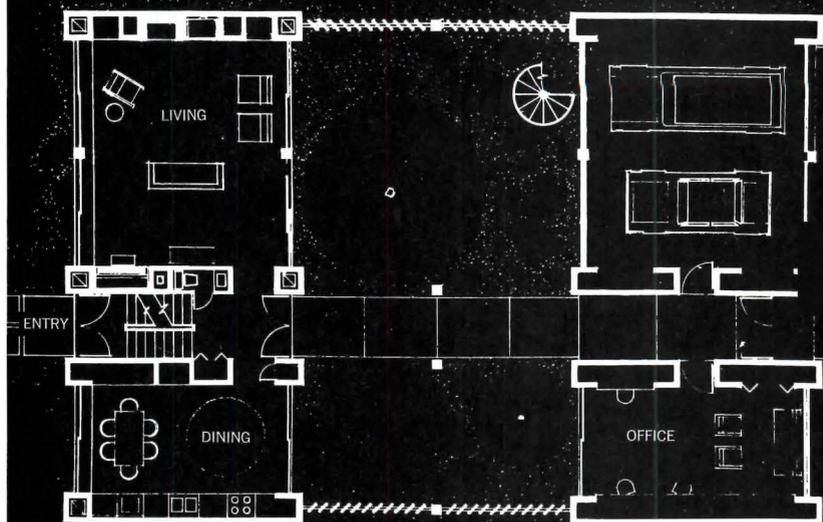
He had to accept certain limitations. The local zoning regulations demanded minimum side-yard setbacks of 10 feet and a minimum front yard setback of 25 feet. But within the remaining buildable area of the plot—about 50 ft. by 100 ft.—Hilgenhurst was able to create an extraordinary sense of privacy, and also take advantage of the nice views of a pond to the rear.

He did this by dividing his house in two, and creating a 1,200-sq.-ft. patio between the two parts. The part facing the street contains Hilgenhurst's private office, and a two-car garage—separated by a 6-ft.-wide entrance walk. Upstairs, there is a sun deck that is open to the sky but screened from the street and the neighbors. The second part of the house—the one facing the pond—contains a living room and a kitchen-dining area on the main floor, three bedrooms upstairs, and a playroom downstairs. (The site slopes down toward the pond, so that the playroom could be lit through high ribbon windows above grade, facing the water.) The views at left, and the plans and model photo at right, explain the concept.

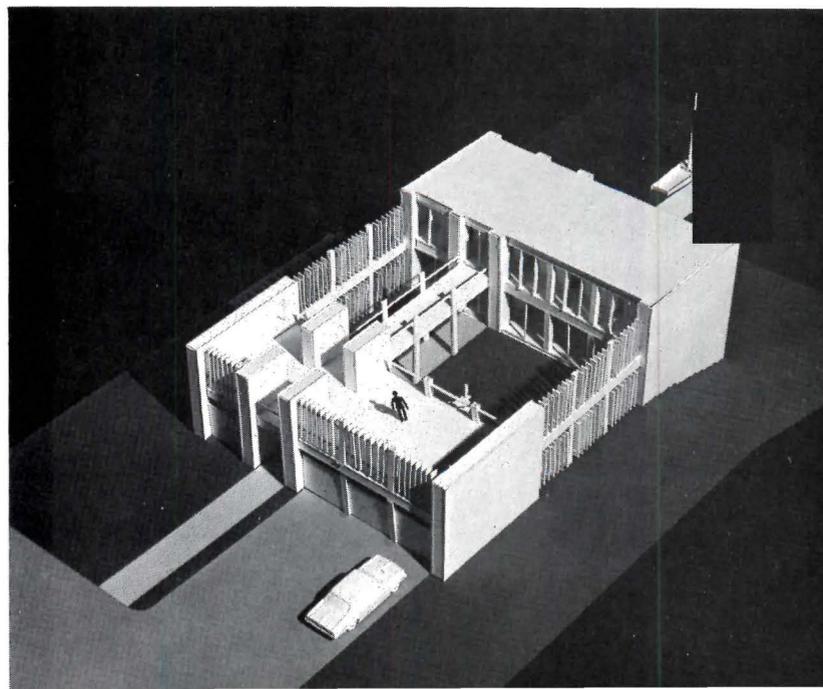
Although the main floor living areas and the bedrooms face the water, they also face west and "back" into the patio. The bedrooms, moreover, are linked to the deck on the one-story



SECOND FLOOR



FIRST FLOOR



Views at left show the three-level living portion of the house, with wide expanses of glass facing a nice pond to the east. Bottom photo is of the street side of the house, with a screened sun deck on the upper level. The entrance is through a hand-hammered, wrought iron gate salvaged from an old building demolished in Boston. At right are the plans of the two principal levels of the house (there is a playroom and utility room under the living/dining/kitchen floor). The model photo explains the organization of the house, and shows the bridge that connects the deck and the bedroom floor.

part of the house by a bridge that doubles as a cover for the walkway from the street; so that even those rooms have their own private outdoor space at their doorsteps.

It is a simple and convincing plan, clean in overall concept and in detail. (For example, rooms are insulated from each other by storage walls; and the louvers that screen the patio and the deck are angled for the best views.) But, as indicated earlier, this is more than a one-time solution to a one-time problem: the sketches at right show how well the plan lends itself to a repetitive row house pattern.

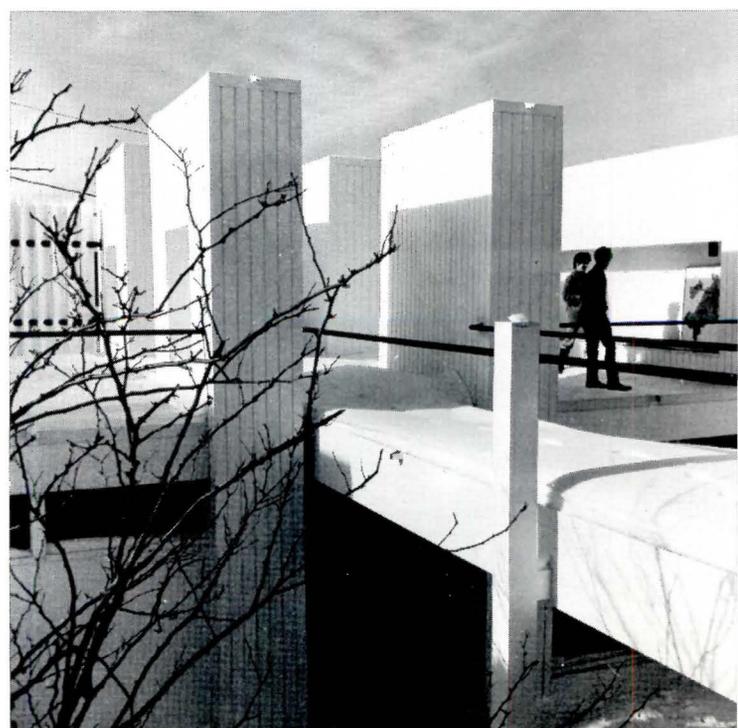
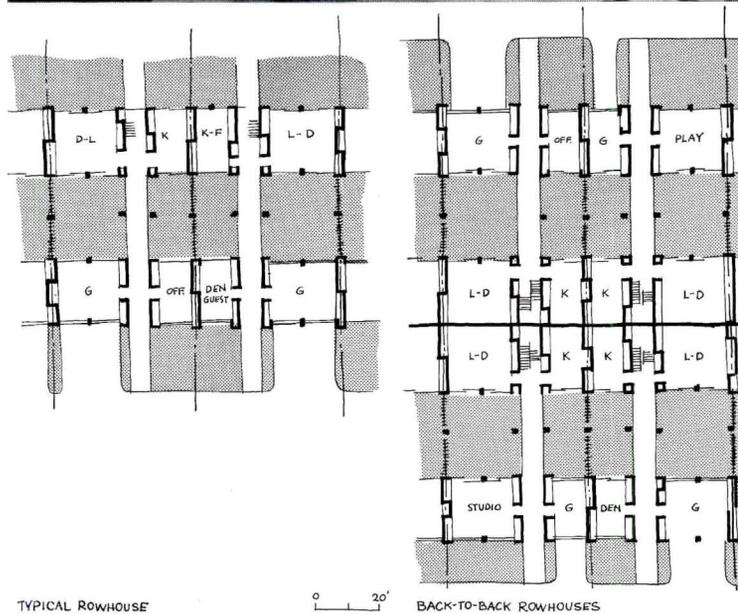
The first sketch suggests how the plan might work on lots about 50 ft. wide and deep enough to accommodate a rear yard as well. There would be no sideyard setbacks, of course, and the side walls, with their storage walls, would provide ample sound insulation between adjacent units. Conceivably, in such a scheme, the rear yards might be pooled to provide a spacious park for the use of all those whose row houses face onto it; while the 1,200-sq.-ft. interior patios (and the upstairs decks) would provide ample private outdoor space.

The second sketch shows the plan used in a denser, more urban context. Here the houses are back to back, and all the rooms face the patio and the deck, respectively. In such a scheme, the houses could be fitted onto 50 ft. by 70 ft. lots (if there were no front yard setbacks)—i.e., onto the equivalent, roughly, of two "brownstone" lots encountered in Eastern cities.

Architecture critics are fond of saying that the single, custom-designed modern house is of limited interest to them. They would be well advised to take another look at this prototype; for it demonstrates, convincingly, that a responsible architect, working within the limitations of existing suburban patterns, can make a significant contribution to the future of urban as well as suburban housing.

FACTS AND FIGURES

Hilgenhurst residence, Arlington, Mass.
 Architect: Charles G. Hilgenhurst & Assocs. Structural Engineers: Souza and True. General Contractor: Costa Limberakis. Building Area: 3300 sq. ft. Construction Cost: \$65,000.
 (For a listing of key products used in this building, see p. 73.)



Two sets of plans, sketched by the architect, show how the plan of this house might work in two possible row house situations described in the text at left. Photos at right are, top, the view from the living room into the central patio, with the wrought iron entrance gate visible at far right. The spiral stair links the sun deck and the patio. The bottom photo shows the deck above the wing facing the street. The connecting bridge doubles as a canopy that covers the walkway between the two portions of the house.

(continued from page 19)

ple room for improvement. One San Francisco firm does not allow use of the office bulletin board without first censoring the item to be posted. An employee requested standing permission to post Ada Louise Huxtable's *New York Times* articles; the request was denied. (At this writing, the NLRB is setting a date for a union election at this office.) One firm in San Francisco offers no life or medical insurance, no sick leave, no pension, no profit sharing, five paid holidays a year and four days of vacation. It does pay overtime.

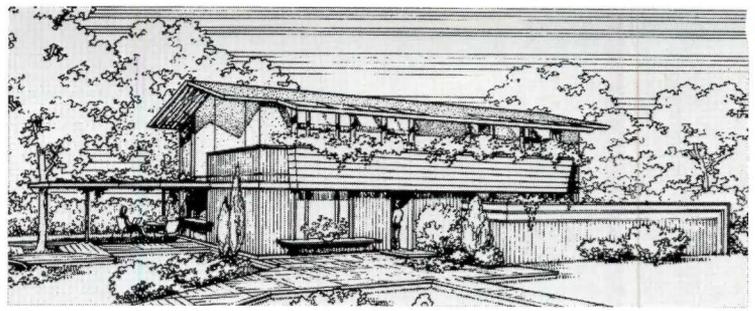
The AIA is aware of the growing discontent among design professionals, and in September 1970 published a statement by its Task Force on Employer/Employee Relations: "There is a growing need for the employee to identify with a group that gives him a feeling of power and influence within the profession. The AIA is looked upon as an employer-dominated group."

The growing move toward unionization is not confined to the West Coast. The Detroit-based AEE (Architectural-Engineering Employees) has over 100 dues-paying members and is growing. A most unusual clause in their contracts states that the employer shall grant employees two days a month within the work week for participation in environmental, political, and/or community affairs, at normal salary, and without jeopardy. This union was born of the "seemingly impenetrable indifference" of the typical architectural firm. In New York City the firm of Herman Jessor (designers of Co-op City in the Bronx) is organized as the Architects and Engineers Guild (AEG), local 66 of the parent union, AFTE (American Federation of Technical Engineers). OAE is a completely independent union; the AEE is an independent union with advisors from UAW; and the AFTE is tied to the AFL-CIO.

■ PREFABS

WRIGHTMOBILE

All those interested in spreading the gospel of Frank Lloyd Wright can now do so in a \$4,000 mobile home designed by his Taliesin-based disciples for the National Homes Corporation, which turned out \$175-million

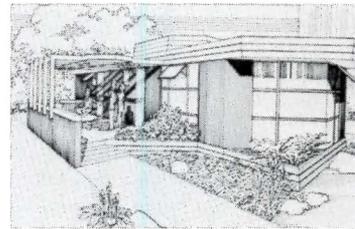


Duplex townhouse off the assembly line

worth of factory-built houses in 1971. This summer, it will begin full-scale production of a complete line of dwellings from the Taliesin drafting boards. Most of these will be in the \$20,000 to \$30,000 range, but a Coonley House-scale custom job will also be available for \$200,000.

One wonders what Wright would have come up with had he been given this opportunity. It was one he longed for. "Simply selling houses at less cost means nothing at all to me," he once said. "But selling beautiful houses at less cost means everything."

The thing is, of course, Wright's beautiful houses often cost twice as much as he planned on. Clients paid heav-



Mobile, but not a box

ily for the very innovations we now take for granted. But walking through the Taliesins, Robie House or Fallingwater is enough to put us back in touch with values which have all but been designed out of modern housing. As early as 1901, when Jane Addams invited him to talk on "The Art and Craft of the Machine" at Hull House, Wright was thinking about the emancipation born of assembly lines and actually worked out a system of manufactured housing shortly thereafter. As with so many other of his dreams, that one founded on inadequate technology. Now that we have it, the human dimensions of housing technology are still to be adequately measured. The latest Taliesin venture for National Homes is a good reminder that Wright, in this deeper sense, is still far ahead of the times.

■ CONFABS

EDRA 3/AR 8—SAUP, UCLA

This winter should go down as the best ever for design researchers. A crowd of them, twice as big as anybody expected, swamped the meeting site of EDRA 3/AR 8 at SAUP, UCLA—that's Environmental Design Research Association's third annual meeting jointly with AIA's eighth annual Architect/Researchers Conference held at the School of Architecture and Urban Planning, UCLA.

Four days of continuous paper presentations in multiple, simultaneous sessions, backstopped by a two-volume, NYC-telephone-book-sized set of pre-printed proceedings (though only pre-registrants got them), provided plenty of meat for the 700 researcher participants and several hundred student onlookers. Only a handful came from the world of architectural practice. The rest were academics who hailed from Canada, Great Britain, Australia and the USA.

Behavioral science themes dominated. Computers came next. Most of the practitioner-participants contributed papers in the computer applications field. Underneath the surface lay some expected stresses. Burgeoning EDRA with its psychological-sociological orientation dominated the older non-behavioral traditions in architectural research.

Overall the papers demonstrated the immense strides made recently in environmental design research. The conference represented a watershed. A new academy has risen. The pioneers could rest and that is just what one of them did. Symbolically Australian Architect-anthropologist Amos Rapoport sat on the south-facing front steps of SAUP, letting the scholarly bedlam go on inside, taking in the specially nice sun of that week in SoCal.

ACES

MISSION INN: POSSIBLE

In common with other grand hotels of the American *belle epoque*, Mission Inn at Riverside, California, begun in 1878, had seen better days. Meaning better business. Last summer, city officials refused to take over the \$2-million property, even for a buck. They forced its owners to close down and auction off the furniture and art. This followed a city study which reported the "impracticality" of turning it into a museum, which is the only thing the city could think to do with it.

The Urban Housing Company, which has a record of making preservation pay, purchased Mission Inn. They are recycling the opulent old place, which encrusts an entire downtown block, as moderate-cost apartments. The International Rotunda will



Inn of many splendors

become shops, galleries and art and crafts studios. The lushly planted Spanish Patio will have a restaurant and tearoom. There will even be a wine-tasting cellar.

Although no final action has been taken, Urban Housing expects HUD to approve its request for a historic preservation grant and a rehabilitation loan on the grounds that the restored Inn would provide low to moderate cost housing. It would do much more than that. Such a sensitive adaption to new and mixed uses would be socially sound in that it represents an around-the-clock commitment to staying in (and savoring) the center city. The Mission Inn tenants, at least, are enthusiastic

about the prospect, even though there will be electricians and plumbers to contend with during construction. And Riverside, generally, has come to see the wisdom of saving the old waystation. After all, Holiday Inns do not a city's culture make.

WINTER'S TALE

January ended with a wind storm that caused \$11 million damage in nine northeastern states, including New England, New York, New Jersey and Pennsylvania. Winds were reported at up to 93 mph during the storm, which originated in Montreal, but was felt as far south as Maryland.

Manhattan's new Gulf and Western Building, near Columbus Circle, suffered window blowouts, causing police to evacuate it. A decorative steel beam also blew out from the building and into the glass facade of a nearby restaurant.

Damage on such tall buildings is precipitated by the buildup of wind velocities along their vertical surfaces so that they may experience wind pressures far in excess of the reported storm velocities. These forces reportedly caused an aluminum curtain wall to default and the window came out with it.

At the north end of Manhattan, a vinyl-coated nylon "Bubble" collapsed, with damage estimated at \$100,000, or half its original cost. The structure had been used for athletic events by Columbia University.

Storms show the need for architects, engineers, building contractors and administration officials to develop and enforce safety measures. Construction sites in particular seem sadly lacking in such precautions.

PEOPLE

DACCA REPORT . . .

To most architects, the name of the Capital of Bangladesh conjures up visions of Louis Kahn's reportedly magnificent complex of government buildings. Our man on the Indian sub-continent, Patwant Singh, reports that there has been no serious damage to Kahn's buildings at Dacca, despite the nearby fighting during the India-Pakistan war. The aerial photograph by N. Thiagarajan, evidently taken by him for *The Hindustan Times* shortly before the smoke of bat-



Louis Kahn's government buildings in Dacca

tle had cleared completely, shows the Kahn-designed complex at left, with the massive, polygonal National Assembly at the center, and two wings of housing for government officials and representatives extending diagonally outward on two sides. The quarter-moon shape at right is an artificial lake, and the so-called "Citadel of the Institutions" is yet to be built to the right of it.

. . . AND REPORT FROM LONDON

Meanwhile, it was announced by the RIBA that Her Majesty The Queen has given her consent for the presentation of this year's Royal Gold Medal for Architecture to Louis Kahn. This shows excellent judgement on the part of Her Majesty—and good judgement on the part of the American Institute of Architects as well: for once, the AIA awarded its Gold Medal to an American architect before the RIBA did. (Kahn got the AIA plaque last year, in Detroit.)

DIED

San Francisco Architect Angus McDonald McSweeney died in December at the age of 71. He collaborated with Paul Ryan and Jack Lee on the design of St. Mary's Cathedral in San Francisco. Born in Pittsburgh, McSweeney came to San Francisco in 1924 as chief designer for Willis Polk, becoming a partner in Polk's firm in 1929. In 1949 he presented to Mayor Elmer Robinson his plans for a 440-story "San Francisco Tower", a structure with floor space of six square miles and a 16-sq.-block foundation. His firm, McSweeney and Schuppel, designed many office towers including Park Plaza Tower now

under construction near the State Capitol in Sacramento.

• Architect-inventor-educator-author Philip N. Youtz died in Walnut Creek, Calif., in January at 76 years of age. During his long and rich career, Youtz pursued many interests and received numerous honors. As director of the Brooklyn Museum from 1934 to 1938, he planned and executed a complete remodeling of that building, and began a training program for museum internships. In 1947 Youtz invented (and later further developed with Tom Slick) the Youtz-Slick Lift-Slab method, a technique involving the use of concrete slabs that are poured on the ground and then jacked up on supporting columns to form the different floors of a building—thus eliminating the need for shoring and forms. For this invention he received the Frank P. Brown medal from Franklin Institute in Philadelphia in 1968. Youtz taught architecture and philosophy at Columbia University in New York, and supervised art courses at the N. Y. People's Institute. He worked for five years in China, teaching and designing; and spent two years exploring in South America. From 1957 to 1965, Youtz was dean of the College of Architecture and Design at the University of Michigan, and later dean emeritus. He was president of the American Federation of Arts, a Fellow of both the Royal Society of Arts and the AIA.

PHOTOS: P. 17 and 18 (top) Louis Checkman; (upper right) Museum of the City of New York. P. 62 (left) National Trust for Historic Preservation; (top) N. Thiagarajan.

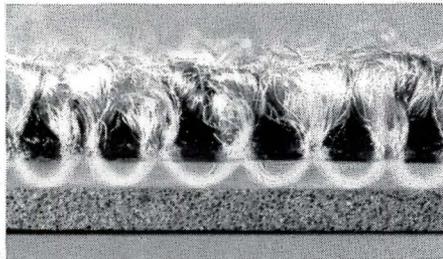
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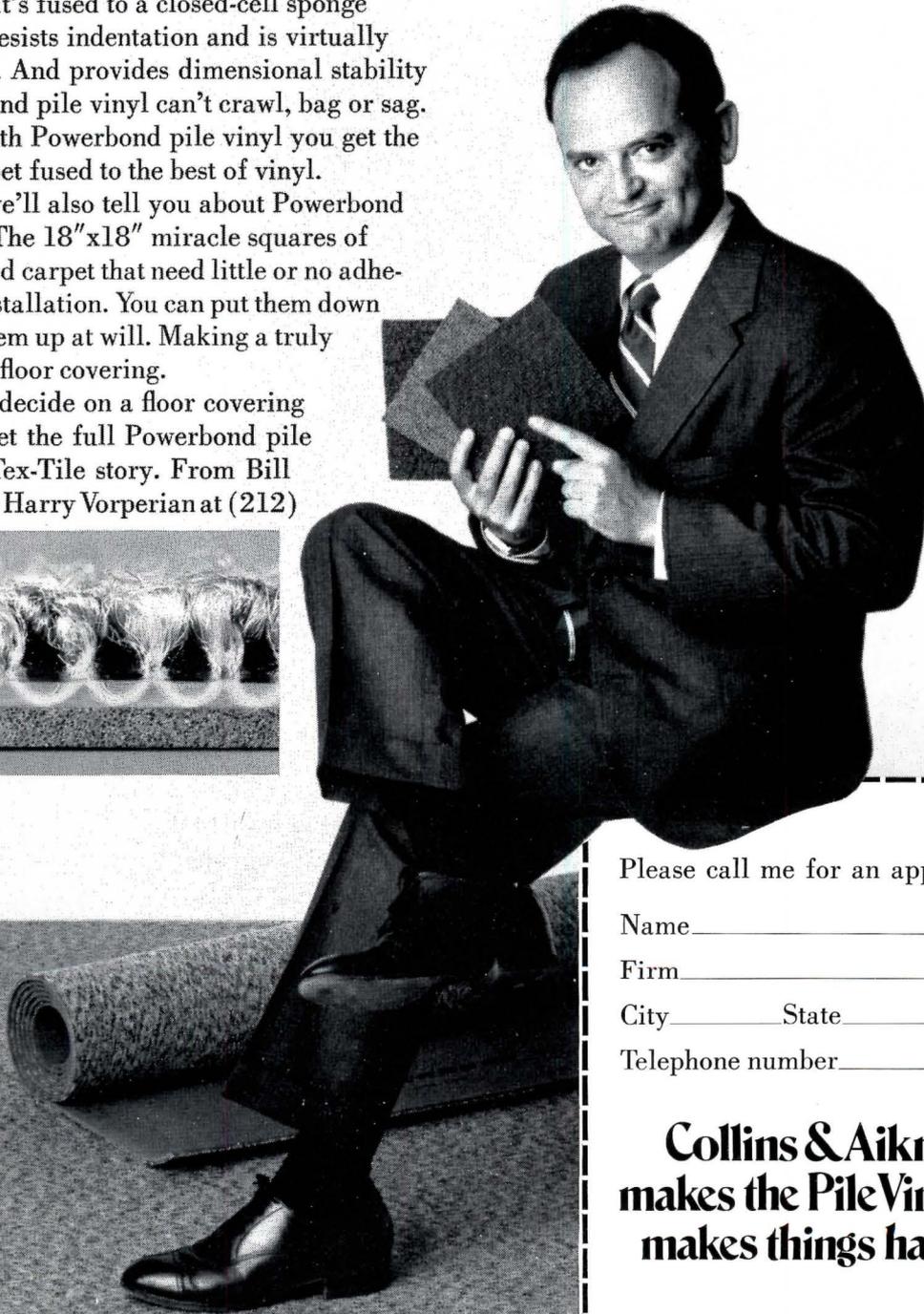
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PRESERVATION OF URBAN LANDMARKS

(continued from page 39)

The Incentive Package

Prior to proposing the designation of a landmark, the landmarks commission will obtain an appraisal that details the economic consequences of designation. The appraisal will also enumerate any structural defects, restoration or rehabilitation requirements and unique maintenance problems that intensify the burdens of private ownership. The commission will then devise a package to compensate the owner that will include an appropriate tax reduction and an authorization to transfer up to 100 percent of the landmark's lot area.

Receipts from the sale of lot area should largely offset losses from the site's unrealized development potential. Reduced real estate taxes should cover any remaining losses in most instances.

The Development Rights Bank

Some landmark owners may decline to accept the package and insist instead upon either a cash award or the right to proceed with demolition. They may doubt the legality of the program or the salability of development rights.

Or, as in the case of the Exchange, the owner may be a group of speculators whose only interest in the property is to exploit its unrealized potential.

The New York procedure is not helpful in such cases, because it depends on the voluntary participation of landmark owners. If that participation is not forthcoming, the prospects for preservation revert to their former, unhappy state.

Under the Chicago proposal, on the other hand, the city may step in and condemn a preservation restriction in threatened landmark properties. Funding for this purpose—the main stumbling block under the typical preservation ordinance and the New York initiative—will derive from sales of development rights that have been pooled in the municipal development rights bank. The most important source of these rights, of course, is the lot area of the threatened properties whose owners decline the transfer option. A second source will be landmark owners who donate lot area out of civic pride or, perhaps, for the very substantial federal and local tax advantages associated with such donations. The third source is the city itself which is likely to own a fair number of the community's landmarks. The bank would be credited in both of the latter instances with increments of lot area proportional to the authorized but unbuilt floor area of the landmarks.

The lion's share of the city's preservation costs would be covered from sales of condemned development rights. But additional funds will be necessary for subsidies (and for the relatively infrequent cases in which an authorization to transfer 100 percent of a landmark's lot area, and a generous tax reduction, fail to provide adequate compensation). Donated development rights and those transferred from city-owned landmarks will provide an ample cushion in such cases.

Duration

What is the life expectancy of a landmark? The answer depends upon whether physical life or economic life is being measured. Physical obsolescence, though troublesome, can be offset through an adequate maintenance and replacement allowance in a building's operating and expenses

statement. But the building's economic longevity is another matter. The day may come, sooner for some landmarks than for others, when it can no longer meet debt service and operating costs as a result of increasing costs and declining revenues. At that point, ownership for private profit obviously becomes impossible.

At least three possible approaches to this problem can be envisaged; all are now being examined in a HUD-financed study sponsored by the National Trust for Historic Preservation. One is to project the cost and income curves of individual landmarks into the future to arrive at a date when those curves are likely to intersect. The owner of a landmark could have the option at that date of continuing to operate the building or of turning it over to the city. (Acquisition costs then would be nominal because of the property's lack of development potential and its further age.) The second approach is to devise appropriate subsidies for landmark owners funded out of monies generated by the development rights bank. The third is to seek an institutional buyer to acquire the building after its development rights have been transferred. Developers and speculators will probably not wish to retain the building after that point, and the buyer will be in a position to acquire the building at a favorable price.

Other responses may also be possible. It perhaps bears emphasis that the Chicago proposal is not intended to limit municipal responses to the preservation puzzle. Rather, its object is to add a new tool to those already available so that cities may deal fairly and effectively with the problem.

Development rights transfers have been criticized as spot zoning that can only lead "to chaos." There is no doubt that the indiscriminate use of transfers and related incentive zoning can indeed have grave consequences for balanced urban development. Witness the adverse urban design consequences of Chicago's overly generous zoning bonuses.

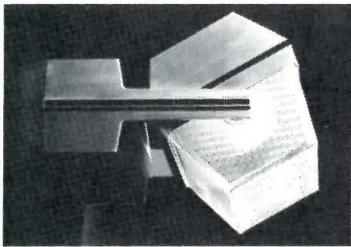
However, this criticism ignores the range of planning controls that can be used to minimize or prevent undue congestion. It also overlooks the fact that traditional zoning has reinforced development patterns basically destructive of environmental values, landmark preservation being only one of the casualties. Rather than subverting proper zoning and planning goals, a soundly administered transfer program promises to restrain the excesses of an imperfect system of land use control.

The criticism also fails to take account of the unprecedented leverage that these techniques accord to cities, not only to preserve urban landmarks but also to protect unique urban areas (such as New York's Broadway and Fifth Avenue districts), to encourage the production of low-income housing and to achieve a variety of other laudable development goals.

American cities, in brief, are now moving to the view that urban space is a precious asset to be properly allocated in the interests of sound community development. Rather than portending "chaos," therefore, this trend is more perceptively described by Ada Louise Huxtable as "one of the most dramatic and hopeful developments in urban America."

PRODUCT REVIEW

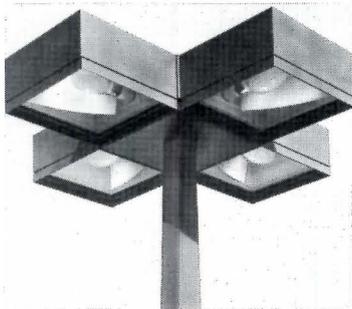
This month's Product Review concentrates on electrical equipment for the outdoors, the office, and the home.



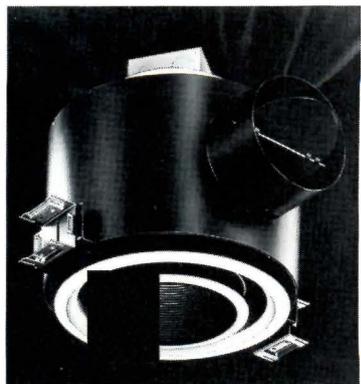
BRACKET
The Mercury Adjustable Outdoor Bracket, introduced by Art Metal Operation of the ITT Lighting Fixture Division, is a weather-tight fixture suitable for mount-

ing on a wall, ceiling or pad. There is a choice of painted aluminum or brushed duranotic bronze finish. Suitable for commercial, industrial and institutional structures, the brackets may be adjusted during installation. The lens is a protected Holophane Borosilicate glass refractor, which operates in conjunction with the reflector for precise control. There is a choice of eleven adjustments, to 124 deg. on either side of the axis of its optical housing.
On Readers Service Card, circle 101.

OUTDOOR LUMINAIRES
Rectilinear black, bronze and aluminum forms characterize a new line of area and roadway luminaires from Lightolier. The compound parabolic-elliptical Alzak reflector is adjustable so that it can direct light onto the road and away from the driver's line of sight. A cutoff is provided by the luminaire until the rooftop of the car blocks the luminaire from view, resulting in minimum glare and maximum safety, says the company. In area lighting, all light is directed downward, not horizontally.



Available in single, double or four-light units and supported on a tapered square pole of steel of aluminum.
On Readers Service Card, circle 102



AIR HANDLING FIXTURES
A new series of air-handling incandescent lighting fixtures is

being introduced by Halo Lighting Division, McGraw-Edison Co. Inconspicuous air vents for either supply or return are combined with three types of standard downlights: coilex baffle, multiplier and scoop trim wall wash. The air inlet is 5 in. in diameter for standard ductwork and the vent opening at the ceiling line is $\frac{7}{8}$ in. Trims are satin white, while interiors are finished in matte black. The fixture housing is easily removed from the air boot. Recommended lamps range from 75 watts, R 30, to 300 watts, R 40.
On Readers Service Card, Circle 103.



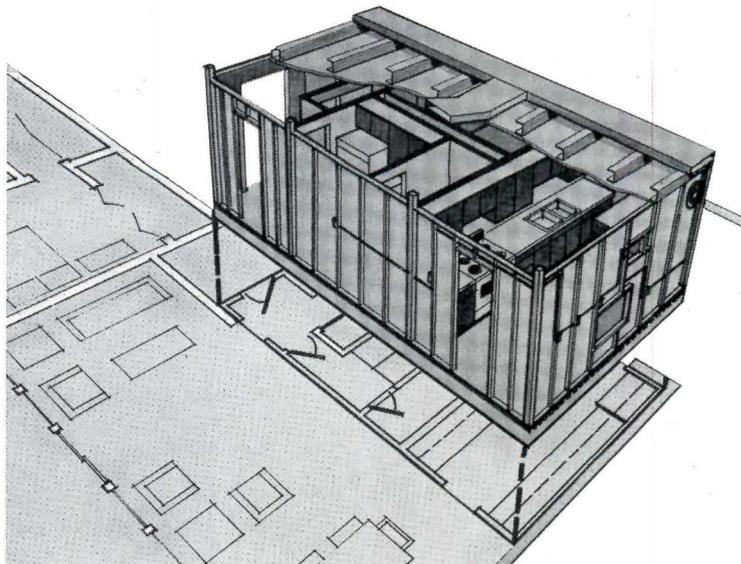
LUMINAIRE ENCLOSURES
The new SPCR/4 Series Luminaire Enclosures, announced by the Street Lighting Equipment Corp., are formed as a one-piece seamless acrylic, impact-resistant sphere. The line comes in 18-in. and 22-in. diameter models, with a 24-in. version scheduled to be available shortly. A wide range of mercury vapor wattages are offered, to a maximum of 250 watts.
On Readers Service Card, circle 104.

COUNTER LIGHTING
Matrix, a new ceiling system from Neo-Ray Lighting Systems, Inc., is a new concept in cellular illuminated ceilings and is flexible enough to adapt to almost any given design environment, says the company. Color, contour and optical effects are all variable, simply by adding accessories to the basic installation, before or after installation. Plastic pods, available in many colors, may be easily snapped onto the central louver cell of each group of nine cells for a complete transformation of appearance. Optical crystals of various lengths and colors may also be added.
On Readers Service Card, circle 105.



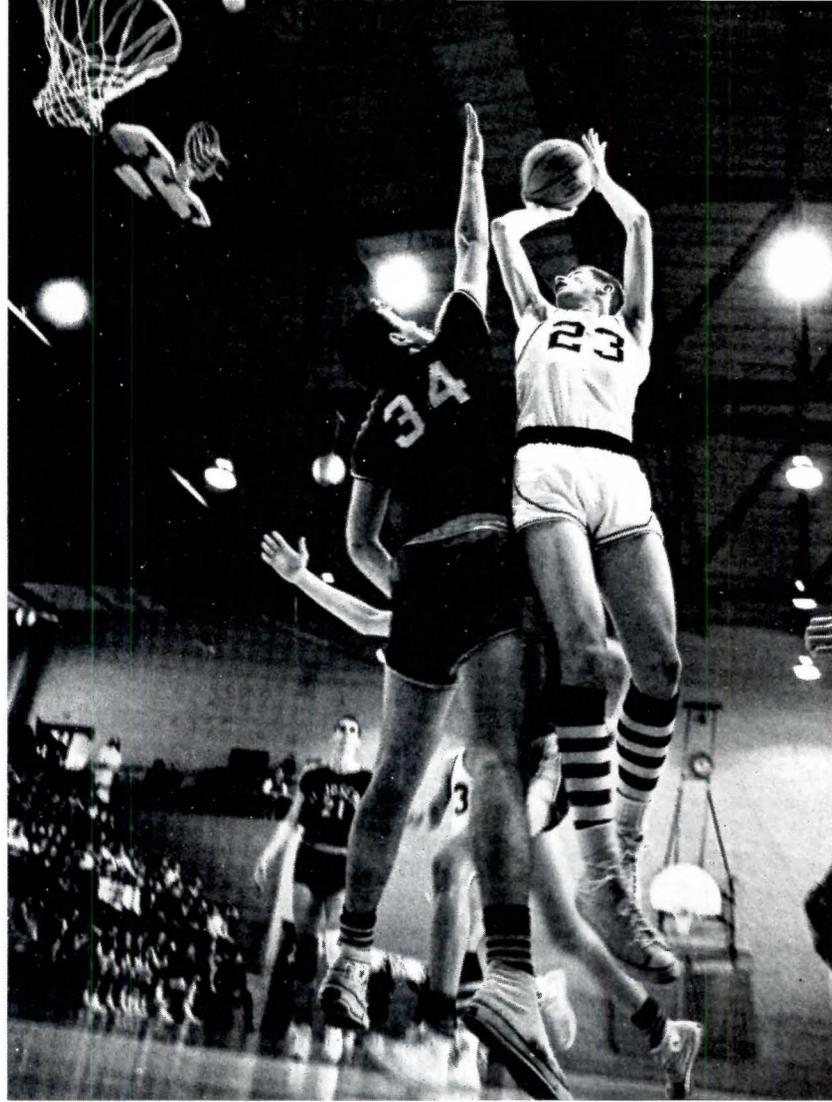
SERVICE MODULE
The Westinghouse Corp.'s new Service Support Module is an assembly of kitchen, bath and utility center with finished floors, walls and ceilings, completely plumbed, wired and lighted. The heating and electrical facilities will serve the entire structure. The unit is easily installed by a crane and may rest on either

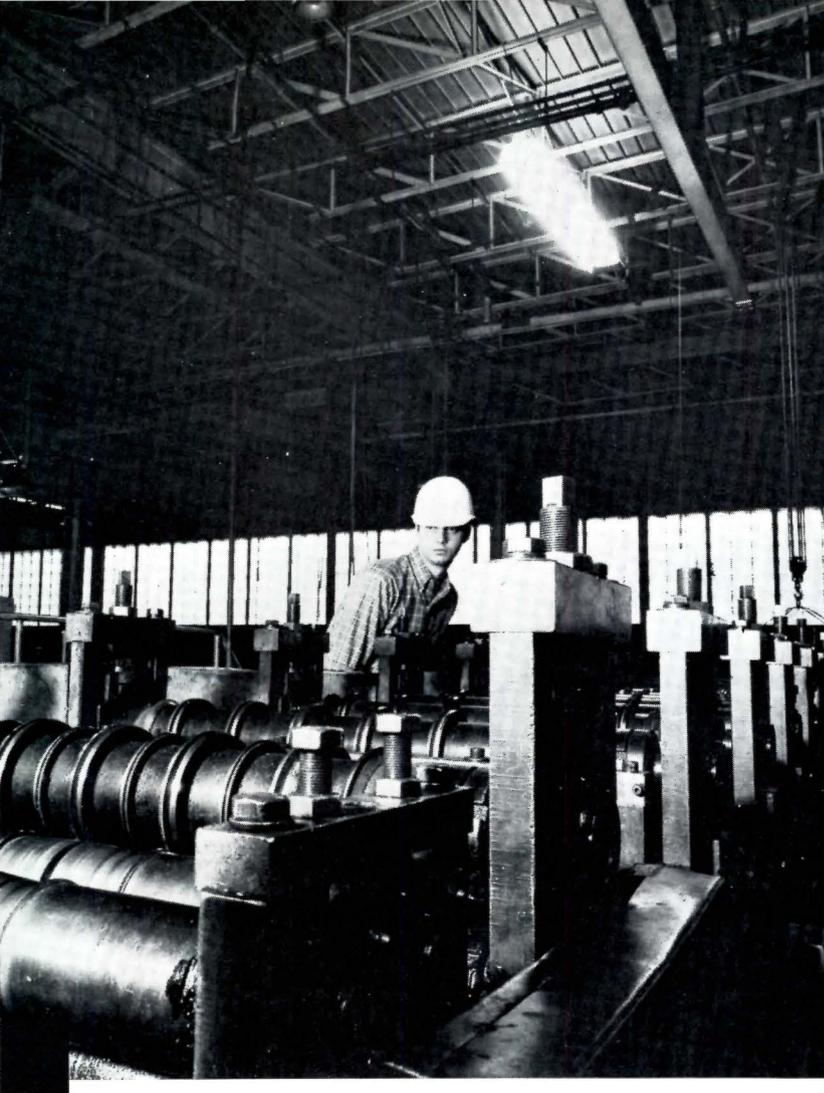
slab or basement, as well as stack ten high. It requires only three simple water, waste and electrical connections and comes in a waterproof pack that need not be removed until the rest of the unit has its walls and roof installed. It is available in six basic sizes, with various configurations of doors, windows.
On Readers Service Card, circle 106.



(continued on page 69)

**noise control
is important
here...**





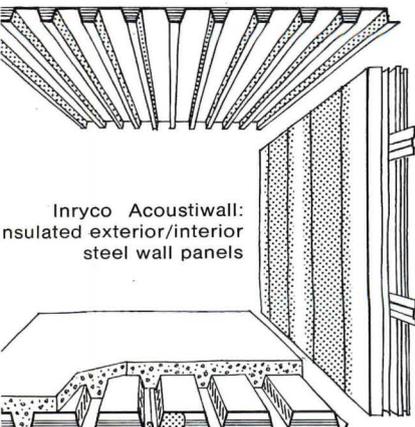
but here, it's required by law.

Excessive noise can be a federal offense. The U.S. Occupational Health & Safety Act limits noise levels in plants to 90 decibels. Most plants today exceed that... even though too much noise can affect employee health. Morale. Safety. Productivity. And therefore, profits.

The time to start an economical sound control program is at the blueprint stage. By designing in Inryco® Acoustideck®, Acoustiwall™ and Acoustiflor™. They absorb sound from all sources, and reduce reverberation. They provide a sound basis for all other elements in an effective noise control program. Yet they add only about 1% to total building costs. They all act as structural as well as acoustical materials.

On your next project discuss noise control with an Inryco engineer. Write for our free booklet, "Reducing Industrial Noise," Catalog 23-8, and for the address of our office nearest you. Inland-Ryerson Construction Products Company, 4031 West Burnham Street, Milwaukee, Wisconsin 53201.

Inryco Acoustideck:
combination roof deck
and acoustical ceiling



Inryco Acoustiwall:
insulated exterior/interior
steel wall panels



Inryco Acoustiflor:
combination structural floor
deck and acoustical ceiling.

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Rugged new Multiversity Oak group for dorms. Panels with oak edges; seating in solid oak. Lounge furniture in solid oak available. All built to demonstrate to students, year after year after year, how hard

it is to tear a good thing down. The new Multiversity Oak group. It's tough. For a color catalog and complete information, write or call Mr. Joe Schlackman, Multiversity Division.

InterRoyal Multiversity

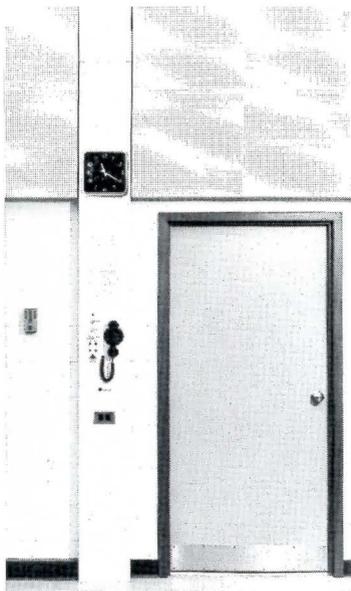
One Park Avenue, New York, N.Y. 10016 212 686-3500

DUCT VI W

(continued from page 65)

SERVICE COLUMN

A fully powered wall service channel containing electric and electronic service facilities, has been announced by Electro-Link Systems Ltd. Designed in a grouping arrangement, the channel contains the following flush-mounted devices: secondary clock, PA speakers and amplifier with jack panel, light switching, P.A.X., duplex outlet, TV outlet and provisions for other equipment. The unit is prewired and ready for hook-up on site; it is supplied with 10 ft. of wiring for all devices at



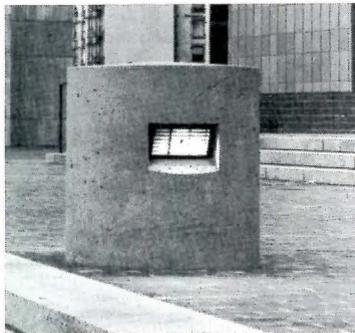
ceiling interface. Relocation is possible at any time.

On Readers Service Card, circle 107.

MERCURY LIGHTING FIXTURES

The Stonco Lighting Division of the Keene Corp. has introduced a new line of louvered recessed fixtures in cast aluminum or bronze for mercury vapor lamps up to 100 watts. Called the Phantom Series, the fixtures allow architects to achieve the long life and low wattage savings of using mercury vapor lamps in architectural settings.

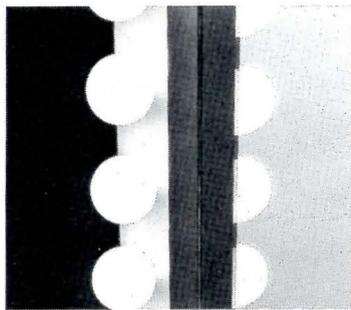
On Readers Service Card, circle 108



LINEAR LIGHTING

Lite String I is a crisp, linear, modular mirror lighting system composed of 16-in. to 48-in. standard lengths with candelabra base sockets on 4-in. centers. Offered by the Peerless Electric Co., the system is visually variable according to the size, color and wattage of the lamps used. Many small lamps are available.

On Readers Service Card, circle 109



normal power usage and for emergencies if the power should fail. The conversion is automatic, relying on self-contained power. Each fixture contains an a-c ballast, solid-state electronic ballast, transfer relay, battery, and battery charging unit. They are available in one- and two-light, 48-in. rapid start units, surface-mounted, with an injection-molded wraparound acrylic lens. The fixture will operate one lamp for up to three hours on emergency power.

On Readers Service Card, circle 110.

(continued on page 71)

On Readers Service Card, Circle 312→

the forberg chair

A total office seating system executed in mirror chrome tubing, ABS shells and urethane plastics. Available with or without arms. Offered in multiple function pedestals. Forberg by InterRoyal.



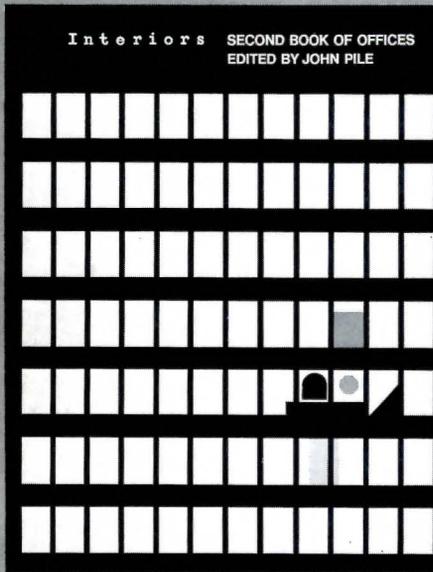
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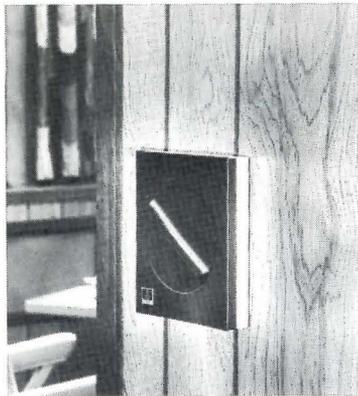
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Continued from page 69)

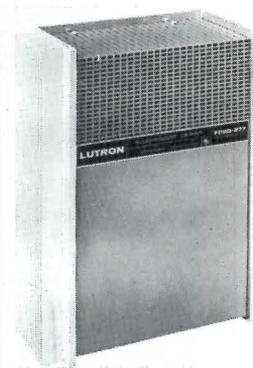
DIMMERS

A new line of Specifier Series incandescent wall-mounted dimmers for commercial and institutional buildings has been announced by General Electric's Lighting Device Business Department. The new black grain and textured 600, 1000, 1500, and 2000-watt dimmers are contemporary in appearance and have only two moving parts beneath the dimmer's face—a single pole switch and a long-life potenti-



ometer. The low operating temperature of each dimmer permits ganging without derating the units. A simple twist of the control knob changes the lighting level.

On Readers Service Card, circle 111.



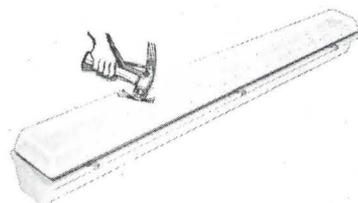
FLUORESCENT DIMMING

The Lutron Electronics Co. Inc. has introduced a new line of high-power fluorescent dimming systems. A primary feature of the dimmers is their ability to dim incandescent alone or in combination with fluorescent lighting. There are four models: 40- and 80-lamp capacities in 120 volts and 227 volts. Up to five modules can be dimmed for a total of 400 lamps per phase.

On Readers Service Card, circle 112.

LONG LUMINAIRES

A new series of indoor/outdoor fluorescent luminaires has been produced by Edwin F. Guth. The line is almost vandal-proof, with virtually indestructible Lexan polycarbonate diffusers. The fixtures are also ideal for laundromats, gym showers and other wet areas, such as building entrances, where moisture and dirt are a problem. The enclosure is gasketed and



also acid-resistant. The fixtures are available in two-lamp, 40- or 60-watt models, and in cast aluminum, square incandescent.

On Readers Service Card, circle 113.



FOOD SERVICE CENTER

The NuTone Division of Scoville has announced an improved food center for seven full-sized kitchen appliances. The concealed power unit has a new motor increased to 1/3 hp. The redesigned stainless steel counter plate has a new solid-state switching and speed control. The new beater head is combined with a large mixing bowl for small or large quantities. Other appliances include a knife sharpener, ice crusher, fruit juicer, shredder-slicer, blender, grinder.

On Readers Service Card, circle 114.

(continued on page 73)

On Readers Service Card, Circle 313→



NEW! BRONZE-TONE STAINLESS STEEL

Here is an exciting new line of water coolers and drinking fountains combining the rich, glowing beauty of bronze with the durability and easy-cleaning qualities of stainless steel.

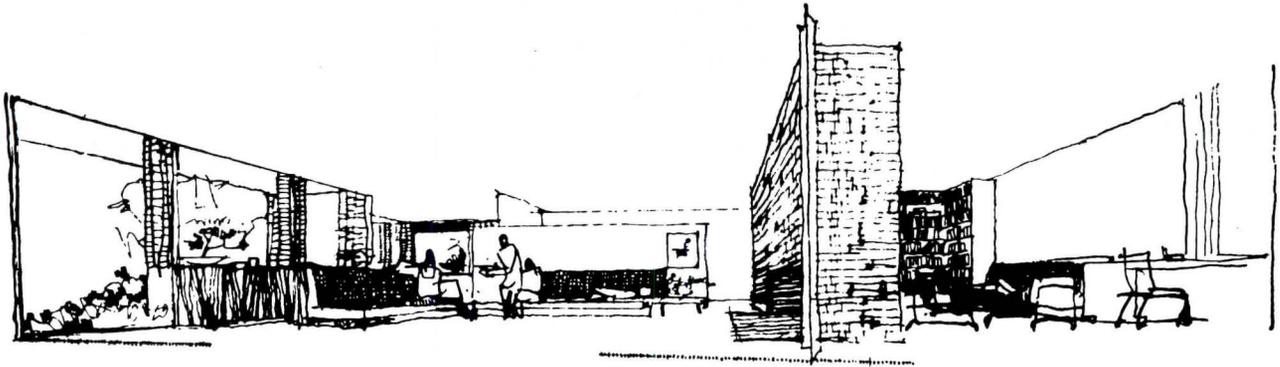
PATINA is not a surface coating. It is a bronze-colored metal developed by a special patented process after many years of research and field testing. All exposed surfaces, including matching bronze-tone trim, are wear and abrasion resistant. And PATINA wipes clean without scouring.

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DRAWINGS OF ARCHITECTURAL INTERIORS

Edited by John Pile

Good design is hard to come by—and often *even harder to explain to the client who invests in it.*

Only the realism of a sketch, perspective or “rendering” can bridge the communications gap between the designer and his client. Philip Johnson has been quoted as suggesting that clients like renderings even better than they like buildings.

That is why this handsome book, *Drawings of Architectural Interiors*, may be immensely valuable to you. When you face the formidable problems of visualizing your own design ideas, this book can give you an inspiring view of the visualizations that the great champions of modern design have created to present their most challenging proposals.

How did Le Corbusier’s proposal for a country home interior virtually set the style for modern architectural sketching? How did Florence Knoll Bassett propose her plan for a new office suite to the President of CBS? How did Frank Lloyd Wright sketch imagined interiors with such foresight that they correspond almost exactly to the photographs that were finally taken? What were the sketching techniques that Walter Gropius, Mies van der Rohe, Richard Neutra and I. M. Pei employed to make their inventive ideas clear and dramatic?

HOUSE GRELING
ASCOTIA RICHARD J. NEUTRA ARCH

You’ll find in this book a rare selection of sketches with rich commentary by John Pile, a man remarkably well-qualified for this undertaking. Architect, designer, teacher and writer, he has made architectural drawing his personal field of expertise. Pile began his book in an effort to assemble, coherently, a range of examples of the best interior renderings. In his final selection, he not only excluded mediocre renderings, but good renderings of mediocre architecture (which he found surprisingly common). He chose 146 drawings (29 of them in full color) representing the work of 83 outstanding designers and renderers.

Illustrations are accompanied by a fascinating text in which Pile traces the evolution of rendering techniques from historical origins through the 1950’s and 60’s. He traces the relationship between design trends and rendering techniques, and also explores the interaction between creative personalities and drawing styles.

Here you will not only see creative design through the eyes of the creator—but discover new ways to make your own visions visual, and present your ideas with clarity and graphic drama.

Since this edition is limited, we urge you to reserve your copy now via the attached coupon.

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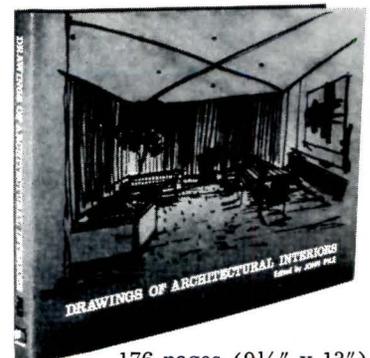
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176 pages (9½" x 13")
 146 drawings (29 in full color)
 by 83 architects and illustrators
 \$23.50 per copy.

(continued from page 71)

The following is a listing of the key products incorporated in some of the buildings featured in this issue:

WEYERHAEUSER HEADQUARTERS
ARCHITECTS: Skidmore, Owings & Merrill. (Materials & Manufacturers as submitted by the architects). WATER-PROOFING: Victor Otlans Roofing Co. CAISSONS: Western Bridge Co. CONCRETE & CEMENT: Glacier Sand & Gravel Co. BRICK, BLOCK & STONE: Beldon & Thompson, Northwest Marble & Terrazo Co. STRUCTURAL STEEL: Gate City Steel. WINDOW WALL & GLASS: Cobbledick-Kibbe Glass Co. SILICONE RUBBER SEALANT: Dow Corning. FLOOR & DECK SYSTEMS: H. H. Robertson Co. ROOF MATERIALS: Queen City Sheet Metal. THERMAL INSULATION: Armstrong Contracting & Supply Co. ACOUSTICAL & CEILING MATERIALS: Owens-Corning Fiberglas. ELEVATORS & ELECTRIC STAIRWAYS: Westinghouse Electric. DOORS: Weyerhaeuser Co. HARDWARE: Pacific Hardware. INTERIOR MATERIALS: Pacific Terrazo. PANELING: Coast Sash & Door Co. PAINT: H. B. Painters, Inc. ELEC-

TRICAL DUCTS & WIRING: Collins Electric Co. ELECTRICAL EQUIP: Westinghouse Electric. STANDBY EMERGENCY POWER: Kohler-King-Knight Co. PLUMBING FIXTURES, TOILET SEATS: Crane, Olsonite Seat. ELECTRIC HEATING BOILERS: Coates Electric Mfg. Co. INDUCTION UNITS: Carrier. HEATING VALVES, PIPING, CONTROLS: Jenkins Brothers, Johnson Service Co. AIR CONDITIONING COMPRESSOR, FAN UNIT: Chrysler Corp. UNIT AIR CONDITIONERS: Trane Co. DIFFUSERS, DUCTS, PUMPS: Tuttle & Bailey, Pacific Pumping Co. SPECIAL FANS & VENTILATORS: Barry Blower. BUILDING SECURITY SYSTEMS: Honeywell. SOUND MASKING SYSTEM: Goodbriend Ostergaard Associates. AUDIO EQUIP: Webster Electric Co. PNEUMATIC TUBES, CONVEYORS: Mosler Safe Co. SPRINKLER SYSTEM & FIRE PROTECTION EQUIP: Viking Automatic Sprinkler Co. WATER COOLERS: Halsey Taylor. KITCHEN EQUIP: Brodie Hotel Supply Co., Haskell Corp. FINISH FLOORING & CARPETING: Queen City Flooring, Ery Parent Co. FURNITURE, SEATING, UPHOLSTERY & DRAPERIES: Knoll.

THE UNIVERSITY MUSEUM
ARCHITECTS: Mitchell/Giurgola Associates. (Materials & Manufacturers as submitted by the architects). FOUNDATION WATERPROOFING: Ironite. CONCRETE & CEMENT: Warner Ready-Mix. BRICK: O.W. Ketcham. MORTAR: Medusa. CURTAIN-WALL: Architectural Products. ROOF MATERIALS: Ludowici Tile. ACOUSTICAL MATERIALS: Johns-Manville Acousti-Clad. FENESTRATION: Trio Industries. GLASS: Libbey-Owens-Ford. ELEVATORS:

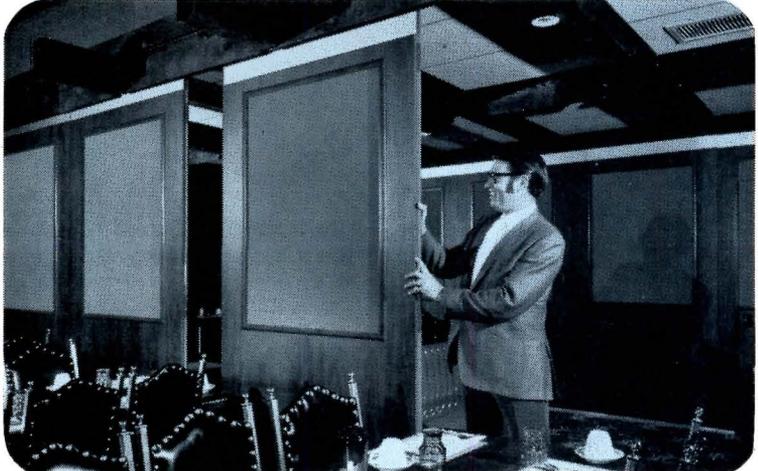
General Elevator Co. DOORS: Superior. HARDWARE: Russwin, Stanley, LCN. INTERIOR MATERIALS: American Olean Tile. PAINT: Pratt & Lambert. ELECTRICAL DUCTS & WIRING: Ric-Wil, J&L. ELECTRICAL EQUIP: Hubbell. LIGHTING FIXTURES, LAMPS: Lightolier, Prescolite. PLUMBING FIXTURES: American Standard. UNIT HEATERS, UNIT VENTILATORS, RADIATORS, CONVECTORS, AIR CONDITIONING COMPRESSOR, FAN UNIT, & UNIT AIR CONDITIONERS: Trane. HEATING VALVES, PIPING, CONTROLS: Honeywell. DIFFUSERS, DUCTS, PUMPS, ETC.: Weil McLain. SPRINKLER SYSTEM & FIRE PROTECTION EQUIP: Pyr-Alarm, Elkhart. CEILING MATERIALS: Soundlock, Pyrospray. WATER COOLERS: General Electric. MAIL BOXES: American Devices Co. VENETIAN BLINDS & SHADES: Levelor Lorentzen. KITCHEN & LABORATORY EQUIP: Southern Desk, Remington Rand. FINISH FLOORING & CARPETING: Niagara Carpet, Armstrong Tile. FIXED SEATING: American Seating. SKYLIGHTS: Supersky Products, Inc. QUARRY TILE: "Heatherbrown" Welsh. LOUNGE CHAIRS: Knoll, Atelier. SIDE CHAIRS: General Fireproofing. DESK CHAIRS: Knoll. COFFEE SHOP CHAIRS, LIBRARY TABLES & CARRELS: C.I. Designs. LIBRARY CHAIRS: Hanseatic. DESKS: Steelcase.

COMEAX HIGH SCHOOL
ARCHITECTS: Frederick Jay and Neil Martin Nehrbass. (Materials & Manufacturers as submitted by the architects). WATERPROOFING: Johns-Manville Corp. CONCRETE & CEMENT: Lone Star. BRICK, BLOCK & STONE:

Mike-Baker Brick, Elks Conc. ROOF MATERIALS: Johns-Manville Corp. THERMAL INSULATION: Celotex. FENESTRATION: Hope's Aluminum, Anderson Perma-Shield. DOORS: Perkins, Kawneer. HARDWARE: Corbin. PAINT: Glidden, Sonneborn, Martin Senour. ELECTRICAL EQUIP: Hubbell, Square D. LIGHTING FIXTURES, LAMPS: Daybrite, Prescolite. PLUMBING FIXTURES: Kohler. PIPING: Chase. UNIT HEATERS: Chromalox. WATER HEATERS: Day & Night. UNIT VENTILATORS, RADIATORS, CONVECTORS: American Metal Products. HEATING VALVES, PIPING, CONTROLS: Crane. AIR CONDITIONING COMPRESSOR, FAN UNIT: General Electric. UNIT AIR CONDITIONERS: Remington. DIFFUSERS, DUCTS, PUMPS, ETC: Tuttle & Bailey. SPECIAL FANS AND VENTILATORS: I.L.G. ACCESS PANELS: Milcor. CEILING MATERIALS: Louisiana Concrete Products. WATER COOLERS: Halsey-Taylor. CLEANOUTS: Josam. KITCHEN EQUIP: Hobart. FINISH FLOORING AND CARPETING: Misceramic, A Z Rock.

HILGENHURST RESIDENCE
ARCHITECTS: Charles G. Hilgenhurst & Associates. (Materials & Manufacturers as submitted by the architects). ROOF MATERIALS: General Electric-Traffic Deck. GLASS: Arcadia Sliding Doors & Windows. HARDWARE: Schlage. PAINT: Luminall. LIGHTING FIXTURES, LAMPS: Lightolier. PLUMBING FIXTURES: American Standard. HEATING BOILERS: Fedders, Honeywell. INTERCOM SYSTEMS: NuTone. KITCHEN, LAUNDRY EQUIP: Amana, Kitchen Aid, Waste King. FURNITURE & SEATING: Knoll.

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ADVERTISERS INDEX

PRODUCT LITERATURE

To order material described, circle indicated number on self-addressed Reader Service Card, facing page 72.

ASBESTOS-CEMENT BOARD

Philip Carey Company describes flexible asbestos-cement board for interior/exterior uses. On Readers Service Card, circle 200.

ACOUSTICAL CEILINGS

The Celotex Corporation, subsidiary of Jim Walter Corporation, gives complete descriptions of 1972 acoustical ceilings available in new catalog. On Readers Service Card, circle 201.

CEILING SYSTEMS

Armstrong Cork Company illustrates and describes three basic Luminaire Ceiling Systems in a new 16-page brochure. On Readers Service Card, circle 202.

CEMENTITIOUS DECKS

Perlite Institute, Inc. announces availability of new 4-page data sheet covering Perlite Insulating Concrete. On Readers Service Card, circle 203.

CERAMIC TILE

American Olean has available a 36-page catalog showing entire 1972 ceramic tile product line. On Readers Service Card, circle 204.

COATINGS FOR ALUMINUM

The Aluminum Association makes available the new edition of Standards for Decorative and Protective Anodic Coatings on Aluminum Alloys. On Readers Service Card, circle 205.

CONCRETE

Master Builders offers placard outlining six-step procedure for conducting a standard concrete slump test. On Readers Service Card, circle 206.

DECORATIVE METALS

U.S. Gypsum Company, Metal Products Division, offers comprehensive 20-page catalog detailing functions, technical data, and recommended uses for decorative meshes, grating, and expanded metals. On Readers Service Card, circle 207.

DOORS

Georgia-Pacific Corporation has a new 12-page catalog on institutional and residential hollow and solid cork plush doors. On Readers Service Card, circle 208.

Amweld offers 16-page catalog outlining doors & frames. On Readers Service Card, circle 209.

Clark Door Company, Inc. offers a bulletin describing Prest-O-Matic Air Operators for industrial and cold storage doors. On Readers Service Card, circle 210.

Rolscreen Company of Pella, Iowa now offers data on raised solid wood panel doors. Applications include accent of small openings, or dominant features when used as a divider. Available in heights to 12' 1", and any width. Brochure available from manufacturer. On Readers Service Card, circle 211.

ENGINEERED WOOD

Potlatch Forests, Inc. offers 12-page booklet on Engineered Structural Wood Products. On Readers Service Card, circle 212.

GLASS

ASG Industries, Inc. has available a quarterly review outlining creative ideas in glass. On Readers Service Card, circle 213.

Glaverbel (USA) Inc. offers a new 8-page brochure for 1972 glass lines. On Readers Service Card, circle 214.

Polacoat Incorporated offers 4-page brochure giving details on Glare-Check Glass, the main function of which is to control glare. On Readers Service Card, circle 215.

PPG Industries provides booklet to aid architect or engineer in glass alternatives via computerized cost analysis service. On Readers Service Card, circle 216.

HINGES

McKinney Manufacturing Company offers 4-page catalog detailing 3 basic hinges. On Readers Service Card, circle 217.

LAMINATED WOOD

Koppers Company, Inc. offers 16-page brochure illustrating various uses of laminated wood structural systems. On Readers Service Card, circle 218.

LATERAL FILES EQUIPMENT

Corry Jamestown, Business Furniture Division of The Singer Company, has available a 12-page booklet giving specifications for Series 58 Lateral Files. On Readers Service Card, circle 219.

LIGHTING

Lightolier has available brochure on accent and display lighting. On Readers Service Card, circle 220.

Guth Lighting makes available a 16-page catalog for Mercury Vapor, Lucalox, and Metal Halide Lamps. Data includes complete specifications, dimensional line drawings, and optional enclosures. On Readers Service Card, circle 221.

OFFICE FURNITURE

R-Way Furniture Company now has 12-page catalog available on a new line of desks, credenzas and seating, featuring face surfaces of high pressure laminate. On Readers Service Card, circle 222.

OPERABLE WALLS

Haws Operable Walls, Inc. has available 8-page catalog on complete line of operable walls. On Readers Service Card, circle 223.

PANELS

AllianceWall Corporation has new 16-page brochure giving specifications and technical drawings for their porcelain-on-steel panels. On Readers Service Card, circle 224.

PLYWOOD

American Plywood Association can now provide a 100-page booklet on Plywood Folded Plates, Laboratory Report 121, which includes most of information needed for the design of rectangular Plywood Folded Plates. On Readers Service Card, circle 225.

ROOFING

Johns-Manville booklet features fiber-glass roof shingles, mineral fiber slates, asphalt roof shingles, and fiber-glass roll roofing. On Readers Service Card, circle 226.

Armco Steel Corporation has a new 8-page brochure giving details on the standing seam roof. On Readers Service Card, circle 227.

The Celotex Corporation offers a comprehensive report on Barrett One-Ply Roofing Systems. Brochure describes basic differences between single-ply and built-up multiple systems. On Readers Service Card, circle 228.

Koppers Company, Inc. offers an 8-page catalog on Built-up Roofs and Systems Roof for consideration where-

ever water and/or corrosion are major elements. On Readers Service Card, circle 229.

SCULPTURE, TABLES, SIGNAGE

Armento Architectural Arts, Inc. offers 8-page catalog delineating architectural sculpture, directories, tables, signage. On Readers Service Card, circle 230.

STAINLESS STEEL

Republic Steel Corporation offers 20-page booklet on 400 Series, stainless steel capable of maintaining a brilliant reflective surface for decorative uses. On Readers Service Card, circle 231.

Steel Joint Institute now has available the 1972 edition of "Standard Specifications and Load Tables for Open Web Steel Joists and Longspan Steel Joists." On Readers Service Card, circle 232.

STRUCTURAL CLAY TILE

Facing Tile Institute makes available latest standards for structural clay facing tile. On Readers Service Card, circle 233.

TABLETS

Jas. H. Matthews & Co. offers new folder describing cast metal tablets for indoor and outdoor use. On Readers Service Card, circle 234.

THERMOSTAT

General Electric offers new 4-page bulletin on wall-mounted line-voltage thermostat. On Readers Service Card, circle 235.

VINYL-SURFACED WALLBOARD

Georgia-Pacific Corp. illustrates first vinyl-surfaced gypsum wallboard with UL labeled Class A flame-spread rating of 25 in new brochure. On Readers Service Card, circle 236.

WATERPROOFING

3M Company offers revised 4-page brochure on Scotch-Clad Brand Desk Coating Systems. On Readers Service Card, circle 237.

WINDOWS

William Bayley Company offers 8-page basic catalog covering entire window lines. On Readers Service Card, circle 238.

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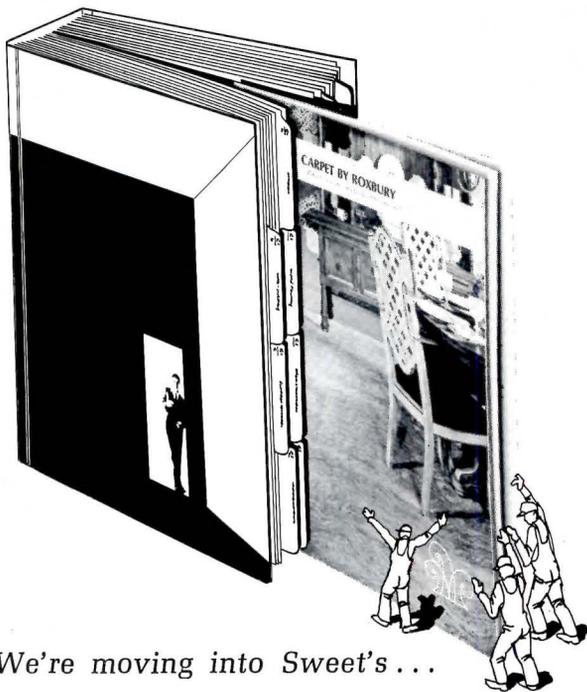


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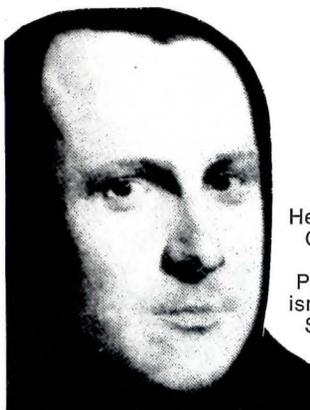
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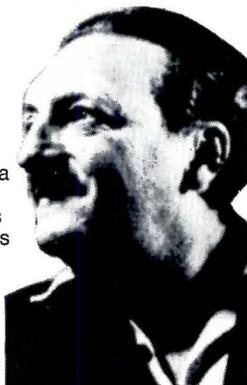
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