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FORUM





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LETTERS

AIA HQ.

FORUM: I am writing to congratulate you and Suzanne Stephens for an excellent job on the article entitled "AIA Headquarters: Magnificent Intentions" which appeared in the October 1973 issue. The article brought up a number of things that seem quite important in understanding current office design practice.

A student of mine, David Lung, spent last summer on an AIA summer student fellowship working on a detailed evaluation of the building along with another student. While their work is still incomplete, it becomes increasingly clear that not only has Washington lost an opportunity to have an important example of the integration of a significant existing environment with a "new" one, but the people who have to work in the building have lost the opportunity to have a "supportive" environment. As they examine the data collected from interviews, observations and questionnaires, it is apparent that the most serious questions about the lack of user participation in design decision making begin to surface. Ms. Stephens' article was an excellent piece of reporting on the process of how the project developed. If we take it at face value, assuming it was fairly accurate, we have to ask what kinds of considerations and input came from staff people, secretaries, janitors, etc.

All the information they have collected suggests the most arrogant attitude toward the people who have to live in the building day by day by day by day. . . . The thing that is of most concern is not that it did happen to the AIA, but rather how widespread is this practice of disregard for people and their needs and aspirations as design decision makers, especially in office environments.

If the experience that has been documented concerning the AIA headquarters is representative of current design practice, then we desperately need new models of practice, models that insure and indeed guarantee the

continuing involvement of users in remaking their environment.

JERRY FINROW, *Director*
Center for Environmental Research
Associate Professor of Architecture
Eugene, Oregon

FORUM: Your October piece on the AIA Competition was certainly the most complete, in-depth reporting there has ever been on the subject. More than anything, it traces a complex path from altruism to realism and identifies the stumbling blocks along the way.

EHRMAN B. MITCHELL, JR., *FAIA*
Philadelphia, Pa.

Your article on the AIA building did a great job in describing a very complex and difficult issue. It certainly is not an easy task to maintain the fairness and objectivity which was apparent in the article.

Please accept my congratulations and encouragement toward further investigative reporting in the future.

Philadelphia, Pa. FRED L. FOOTE

STAPLES TO BLANCMANGE

FORUM: Ever since the October issue arrived, I have been trying to find out who was responsible for the layout which juxtaposed our house in Lincoln, Mass. with the Shaker barn complex in Hancock Village. What particularly moved me was not so much the photography (although that was superb in sensitivity and quality of reproduction) as the meanings conveyed.

Before this article, and despite the number of architectural journalists who have visited and written about our house, no one took the connection seriously between it and the Shaker culture. Yet I grew up in the midst of Shaker ruins, passing Hancock Village everyday on my way to school, picnicing by the old stone barn in the springs. Our farmhouse was furnished largely with Shaker things (then still commonly available at country auctions), and I remember one time going with my mother to visit the last two living Shaker ladies who supported themselves making cloaks and sewing baskets. Eventually my family and others in the area began to realize that, unless concerted action were undertaken, not only the Shakers themselves would be extinct but their culture, as well, effaced.

Accordingly, a systematic collection of their artifacts was begun for a future museum. Phelps

Clawson, a retired curator, took on the job of collating articles of farm machinery, household implements, clothing and furniture that were then stored in our neighbor's cattle barn. Unfortunately, the collection has remained there in Old Chatham and, though open to the public, is unlikely to be installed in a restored Shaker environment.

It was not until I was in college that the round barn was restored and even then, when I wrote a paper on it for a history of architecture course, my professor dismissed the whole subject area as being unimportant to American culture. At M.I.T., there was not much more interest in the Shaker culture until Walter Gropius propounded the classical Japanese architecture and Mies Van der Rohe's "less is more" edict became the by-word with the Seagram's.

But for me, the Shaker culture did not derive its importance from these alliances; rather, its validity rested securely on the foundations of our original democracy. I am not thinking of the Declaration of Independence and such documents, but of how these aspirations fired ordinary Americans to change the way they lived. The most common materials and indigenous methods of construction were turned by Shaker hands into things of the spirit. Yes, it was the experience of spirit which the Shakers impressed on my childhood.

It was only natural, then, that when my husband and I decided to design our own environment I approached it not only as shelter for our family but as the opportunity to express thoughts about American life today, especially the persistent dream of community.

That is why your article has made such an impression and I am writing you in appreciation. You said in two pages what others have failed to explain, not just about our particular architecture but the reason any time for innovating forms.

MARY OTIS STEVENS, *Architect*
Boston, Mass.
Kudos to Ivan Chermayeff—ED.

EXETER

FORUM: The October issue showing Louis Kahn's library is most humbling to us "ordinary" architects. I believe that Mr. Kahn is one of those architects whose work seems now to transcend the self-conscious product-mak-

ing that so many ego-oriented architects are pursuing as a goal. There is something about your issue that shows his library building to have existed for some time already—that is to say a landmark new building of sorts.

As I turned the pages, I felt that I had or should have seen the building before and yet it was new and refreshing. After turning the last page and upon reflection, there is only one comment that could be made . . . yes, this is the way it should be.
New York, N.Y. PETER SAMTON

CHRISTIAN SCIENCE CENTER

FORUM: Your September 1973 issue is without question the finest publication of its kind I have ever seen.

DR. CHARLES E. WEYMOUTH
West Medford, Mass.

ARCHETYPAL PLACES

FORUM: I read an article in The October FORUM which greatly impressed me. It had to do with behaviorally-defined archetypal places and fit in beautifully with the work I am doing in environmental design. I had been compiling a similar list, some in the form of notes and others in mental images and processes. It was nice to see some corresponding ideas.

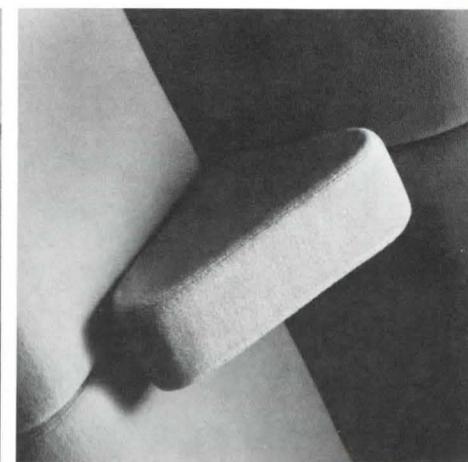
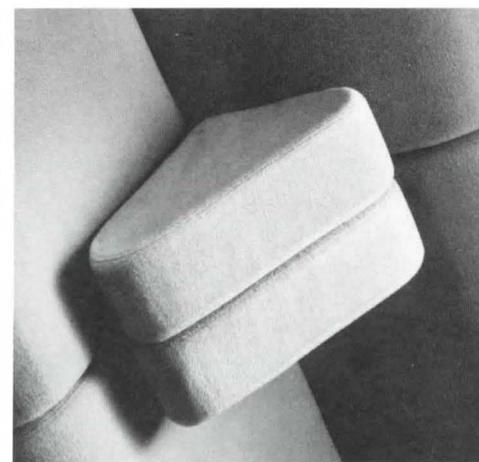
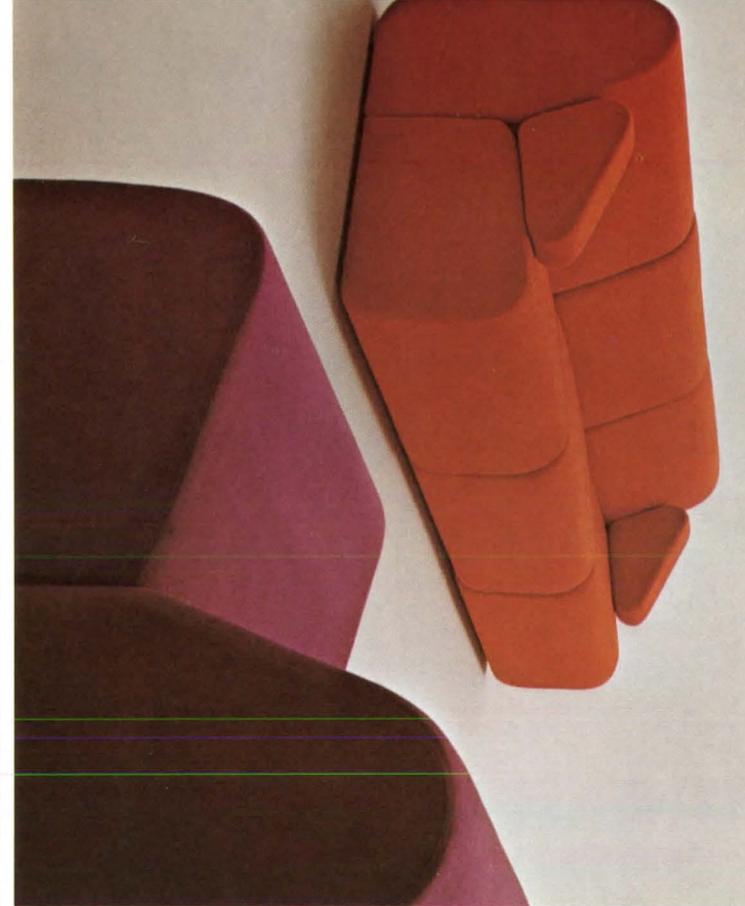
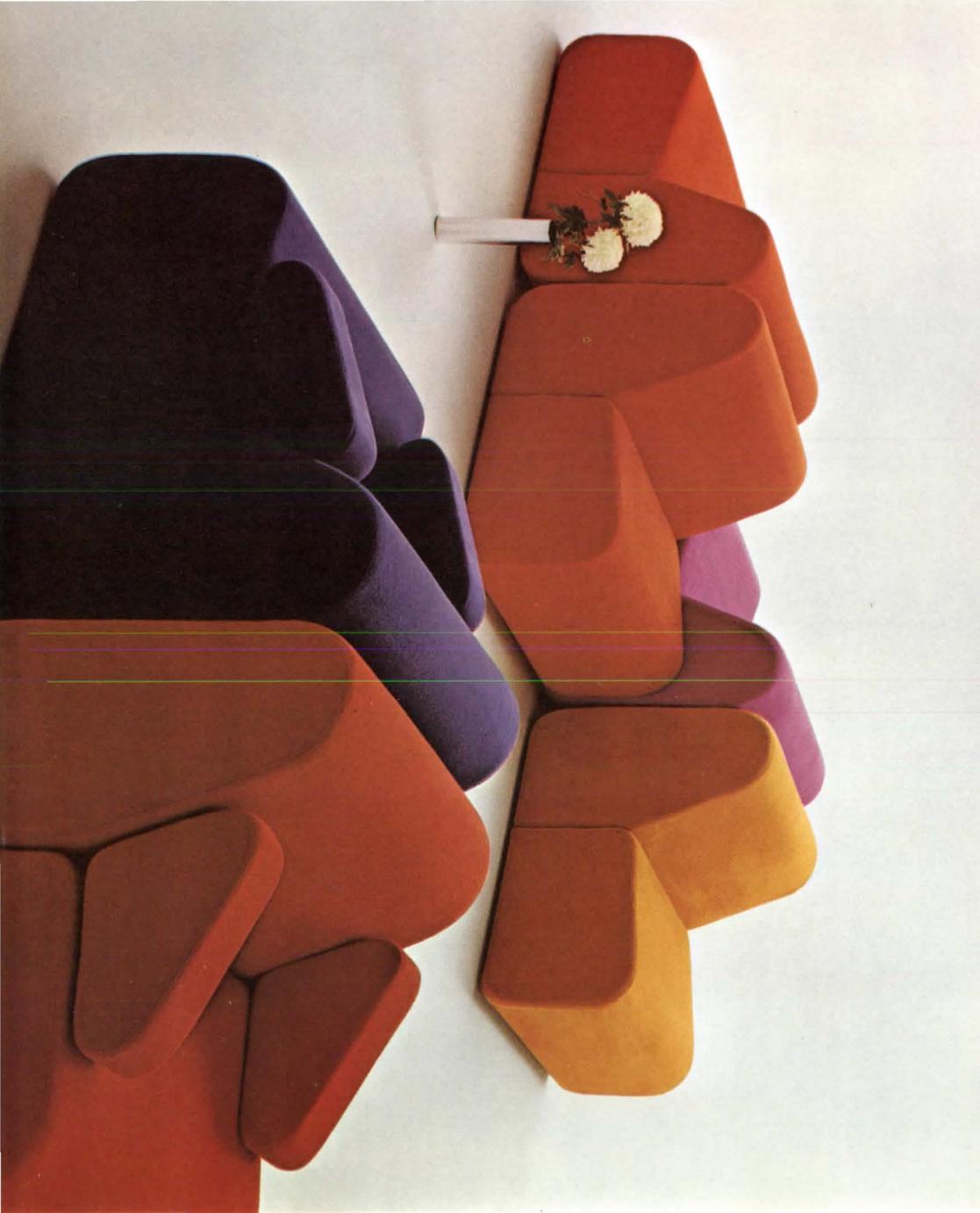
New York, N.Y. DAVID M. SOKOL

PIONEER COURTHOUSE

FORUM: I was indeed most interested in the October report on the Pioneer Courthouse in Portland, Oregon, and particularly impressed by the fact that it was the judges themselves who initiated the restoration of this building to its original use.

There can be few activities more important, in a democratic society, than the administration of justice, and few in which the quality of interior environment plays such an important role. A number of courthouses have been built in recent years in such a way that the architecture itself conveys some sense of the dignity of the proceedings, and the hierarchy of authority which is an essential part of our concept of law. But there are many others—of which the new courthouse in Montreal is an example—where the search for good acoustics, good illumination, and egalitarian intimacy, seems to have exhausted the architect's imagination, and where the courtrooms are so lacking in character that it would be unfair

(Continued on page 6)



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LETTERS

(Continued from page 4)

even to describe their insipidity as grotesque.

The FORUM is to be congratulated on drawing attention to this important initiative, and its successful results.

PETER COLLINS, LL. M., F.R.A.I.C.,
Professor of Architecture
McGill University
Montreal, Que., Canada

H.H. RICHARDSON

FORUM: I was pleased to see the recognition given to the work of H.H. Richardson in two articles in your November issue. Both of them, however, contained errors.

Trinity Church was designed more than ten years before the house for Robert Treat Paine. Richardson definitely impressed Paine, and thus the church led to the house, not vice versa as you have it.

Five, not four, of Richardson's stations survive. In addition to the ones you describe at North Easton and New London, they are at Framingham, Palmer, and Holyoke. Several groups in Framingham are working to preserve their station, but the Palmer one is nearly vacant, and the Holyoke one is in the proposed right-of-way for Interstate 391. None of these three as yet have the sometimes critical advantage of being on the National Register. With the New London station, these buildings present a major preservation challenge to people interested in our architectural heritage.

ESLEY HAMILTON
University City, Mo.

STATE OF THE ART

FORUM: May I humbly share my thoughts on the state of the art of architectural magazines?

From where I sit in all the chairs of a small architectural office, architectural magazines serve only to remind me of the paucity of our practice. We never have a budget which allows us to solve new problems. We rarely have a project which allows us to have impact on old problems. We always have to use old methods and standard procedures to achieve the wonder of a completed building which serves the limited needs and requirements of our clients.

In a larger sense we are always working on immense proj-

ects. We are designing from various limiting criteria in hopes of achieving another corner of our environment which will serve the client and society for years to come. From our perspective we are designing a stairway in the Christian Science Center covered in this issue. Yet if we design that comparative stairway as a stairway, it would be of no interest to your magazine. It might serve well as a stairway. It might even be a moderately interesting stairway. If we hold the stairway in proper perspective, however, we will never see it treated in perspective in a magazine.

I cannot bring myself to use the world's resources in such reckless abandon as the Koo residence exhibited in your "Focus" feature. Because we work on primarily marginal projects, I cannot freely expend the client's money on more conservative jobs. Fads and fancies are changing so rapidly that I notice myself beginning to ignore the more outrageous solutions exhibited in your pages because so many of them have proven to be shallow. I'm sure that this attitude will find me lost down some dark esthetic alley some day.

I would so enjoy seeing an article on a simple building as a solution to a simple problem on a simple site with a simple budget. (Not so much as a learning experience but as reinforcement to an idea which is the basis to our everyday practice.) I still have faith that the world's problems must be solved at a much smaller scale and with much greater simplicity than our current synergistic, energetic, computerized response to the basic problem that people are going bananas.

I still find your magazine to be an occasional refuge from glossy plunges down the environmental sink.

TOM E. MORRIS, Architect
Denver, Col.

OUT OF FOCUS

FORUM: In regard to your "Focus" section of October, it should be noticed that the riverfront plaza noted on page 9 is located in Louisville, Kentucky, rather than in St. Louis as stated in your article. This plaza has done wonders for the morale of the citizens of Louisville and the city should be given recognition.

GRETCHEN TREITZ
Jefferson City, Mo.

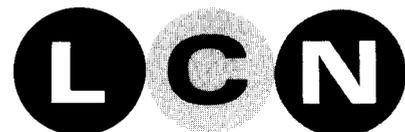
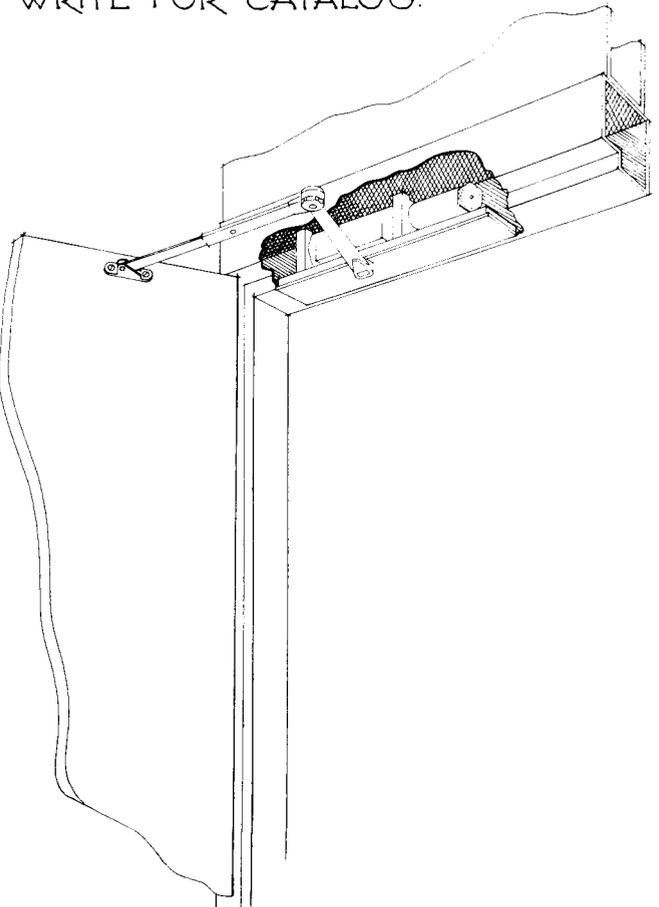
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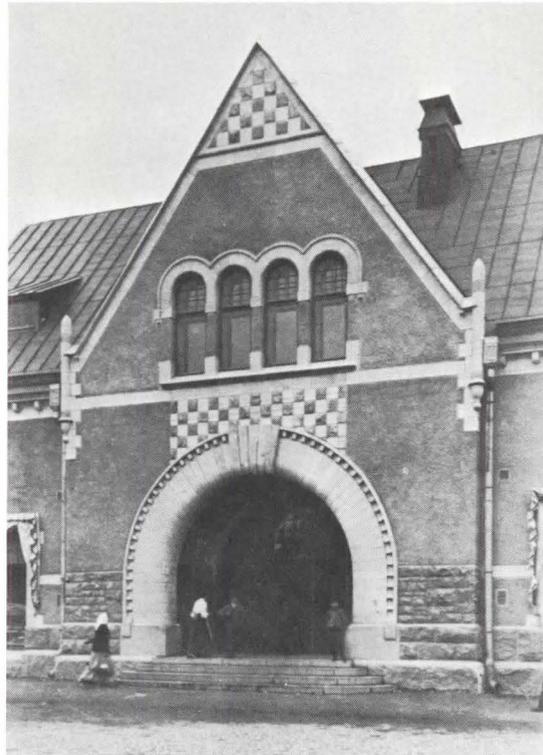
AMERICAN ARCHITECTURE COMES OF AGE: EUROPEAN REACTION TO H. H. RICHARDSON AND LOUIS SULLIVAN by Leonard K. Eaton. 242 pp. Cambridge, Massachusetts: The MIT Press. \$14.95.

BY CARTER RATCLIFF

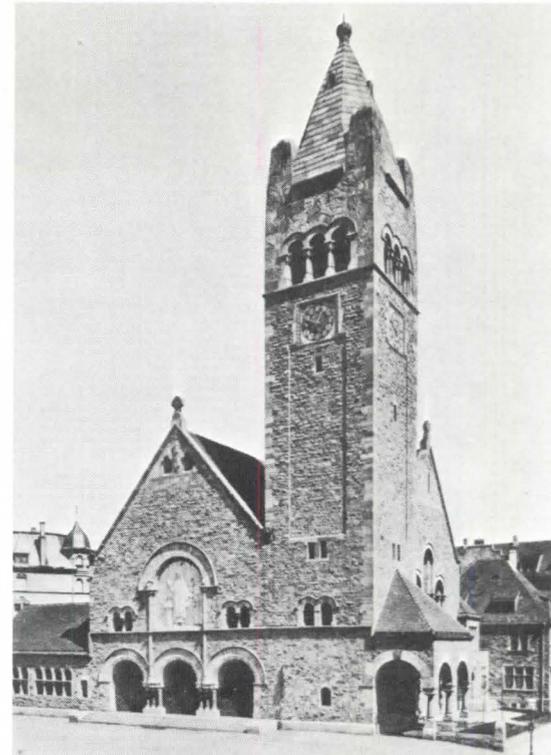
The events Mr. Eaton talks about in *American Architecture Comes of Age* are part of the process Van Wyck Brooks called *America's Coming-of-Age*. It appeared to Brooks, writing in 1915, that American culture had defined itself into polarities—highbrow and lowbrow, idealistic and practical. Maturity would be to find a middle way. Eaton sees it differently. For Brooks's image of an adolescent culture groping toward self-awareness, he substitutes the image of a maturity won by attracting the parent culture's respectful attention. As he points out in his first chapter, this occurred at different times in different fields. American painting had to wait until after World War II to have any impact in Europe. By contrast, Edgar Allan Poe was considered a major writer by the French in the 1850's.

American architecture's moment is widely assumed to have come in 1910 with the German publication of Frank Lloyd Wright's work. In their own comments, Mies, Gropius and Oud give currency to this assumption, as do American historians. Mumford wrote in 1931 that "with the development of Wright's architecture the last stage in the transition [from Richardson and Sullivan] had been made: modern architecture in America was born. From that point on the Chicago School entered into the general stream of a world movement." (*The Brown Decades*; p. 75 of the 1971 edition.) Eaton's point in *American Architecture Comes of Age* is that Richardson and Sullivan themselves had a direct influence on European ar-

Mr. Ratcliff is the author of *Pop Art* (Landschoff Productions, Amsterdam). Based in New York, he is a poet as well as an art and architecture critic.



Karl Hard af Segerstadt, Market Hall, Viipuri, Finland, 1906.



St. Johannes Kirche, Mannheim 1900-1901, by Curjel and Moser.

chitecture between 1890-1910.

Van Wyck Brooks's image of America's cultural coming-of-age generates an attractive rhetoric. Eaton's image generates an effective method of investigating historical materials. His book is largely a presentation of the evidence that European architects did, indeed, pay attention to Richardson and Sullivan before they paid it to Wright. Brooks is worth mentioning, however, and not only because Eaton's title is a play on his. *America's Coming-of-Age* shows a rich sensitivity to cultural issues on a very large scale. Though Eaton's attention is focused sharply on his investigation, he appears to be guided by a historical judgment learned at least in part from Brooks and other inventors of American "cultural criticism."

Eaton is not a critic, however. He is concerned with discovering and ordering the kind of evidence created when working architects pay significant attention to each other—evidence to be found in personal memoirs and papers, in architects' published writings, in the photo files of architectural offices, in architectural reporting, and—most importantly—in buildings. The author has visited most of the significant sites and appears to have illustrated all of them.

His conclusions are detailed and complete. He makes his point, which is, as he says, "a contribution to the geography of art rather than to its history." It turns out that Richardson had an important influence in Great Britain, Germany, Vienna, Scandinavia and Finland; Sullivan in Great Britain, Scandinavia and Holland. Neither had any influence in France, Italy or Spain. Some familiar figures reappear—Adolf Loos, Hendrik Berlage and Eliel Saarinen among them. Their careers get fleshed out in interesting ways. Even more valuable is the attention brought to European architects who haven't received much attention here—the Scandinavians Ferdinand Boberg and Anton Rosen, the Finns Lars Sonck and Karl Hard, among others.

Eaton places Richardson's and Sullivan's European influence against its background. The nearly chaotic conflict of architectural styles in turn-of-the-century Great Britain is summarized in the discussion of the impact of Sullivan's structural innovations. In tracing Richardson's influence in Germany, Eaton carefully distinguishes the Richardsonian Romanesque from the "archeological" variety employed in support of the Kaiser's imperial ambitions. Eaton doesn't make this distinction

critically. He simply asserts it in establishing the categories required by his historical—or "geographical"—argument. The illustrations, of course, forestall the need for critical discussion; they are very convincing. But Eaton does very well when he ventures onto the critic's ground, as in his remarks on the stylistic and symbolic content of Finnish architecture. One wishes he had relaxed his investigator's strictness more often.

American Architecture Comes of Age revises the record. Eaton's revisionism is the most difficult kind, for it answers no ideological demands. It simply sets the record straight. One of Wright's chief honors is taken away from him and awarded to his most important predecessors. Eaton doesn't try to diminish Wright's importance. The tone and precision of his claim can be seen at the end of chapter 3: "It must be emphasized, however, that in turning to Wright, Mies and Gropius were not the first German architects to go to American work for inspiration. They were, in fact, merely resuming a custom that had dropped out of use for a few years." In thoroughly documenting the way this custom was observed before 1910, Eaton has written an indispensable book.

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FACETS

PRESERVATION

HAS MARQUETTE A PRAYER?

Alderman Fifielski of the Chicago City Council, poor soul, is sitting on the fate of the Marquette Building. His Committee on Cultural and Economic Development could recommend landmark status, following the lead of the federal government which has placed it on the National Register. Developers, looking to large-scale assembly, think Chicago really needs a plaza on the block the Marquette is on—a plaza north of the Federal Center Plaza, and just south of the plaza of The First National Bank.

Sir Nikolas Pevsner has called the Marquette "Holabird & Roche's classic moment." The Landmark Preservation Service sees it as "the first steel-frame skyscraper to give direct, simple and forceful expression to its skeleton frame." The Chicago Tribune and the Chicago

Daily News are advocating its preservation as a functioning office building. But such accolades and cries will probably be thrust aside in the name of, well, "public benefit."

What gets our goat, this time around, is the cultural and social slant being mouthed by developers and, not so incidentally, their financial backers. Ten years ago, a parking lot was good for the city, and Chicago got lots of parking lots. Now a plaza is good for the city, an amenity which zoning bonuses reward, and so much better, we're assured, than some charming clunker.

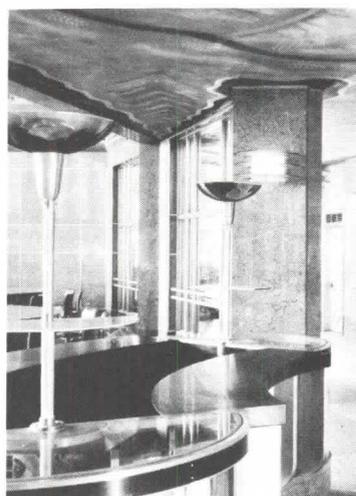
But is it? Chicago's financial guardians, many of them art buffs, apparently believe they have the right to strip-mine every land parcel in sight as long as they insist that the developers involved insert a voluptuous spatial void and, naturally, announce (with fanfare) that a fine piece of modern sculpture will be commissioned. It is their obligation, such well-meaning men assert, in return for the privilege of building big. Altruism is so *moral*; and the Marquette, such a cruel imposition on their desire to do something good for downtown.



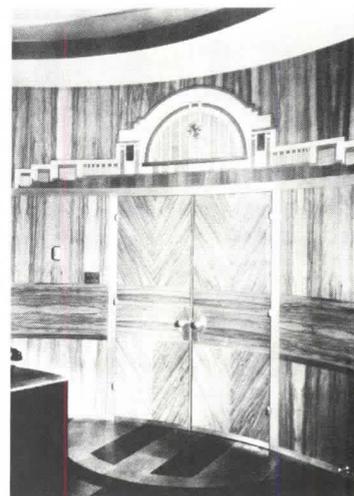
Marquette Building.



Cincinnati Union Terminal.



The restaurant corridor.



Entrance to the President's office.

COUNT DOWN FOR ART DECO

That's the ultimatum of the Cincinnati Union Terminal Co., owners of the greatest Art Deco west of Rockefeller Center. The Concourse is gone, but its fourteen murals have been preserved for installation in the Greater Cincinnati Airport.

The vast Rotunda with its half-dome spanning 180 ft. and a height of 106 ft., is still standing, but not for long. The Terminal Co. gives preservation groups 120 days from Nov. 29, 1973 to come up with a cool million. Otherwise down she comes: Winold Reiss's 25 ft. by 105 ft. mosaic depicting Cincinnati before the jet age along with Pierre Bourdelle's extravagantly sensuous carved linoleum reliefs and inlaid wood paneling—all of it!

What do you do with a vast ceremonial entrance to Cincinnati constructed during the sunset of railroad passenger service in the Depression? An open-plan school, a museum of science and technology have been put

forward as uses. A few muddled eccentrics have suggested that it could be a combined terminal facility for Amtrak, Greyhound and Trailways. Amtrak experienced a 100 percent increase in reservations in November '73, so we might give the idea a fling. But the trains moved a year ago to a new smaller terminal in Cincinnati.

There is talk of transforming the 800-car garage under the Rotunda into a city bus maintenance facility, which can be done for \$2 million as compared to \$8-10 million for a new one. Cincinnati has to have some place to put all those used buses it is buying from Atlanta to cope with our fuel crisis.

FURNISH REFURBISHED

The Pennsylvania Academy of Fine Arts by Frank Furness is being restored as part of the Bicentennial in Philadelphia. \$7.7 million will be expended under the direction of Architects Hyman Myers and Marc-Antoine Lombardini, from the firm of
(Continued on page 13)



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FACETS

(Continued from page 10)



The staircase to the Galleries.

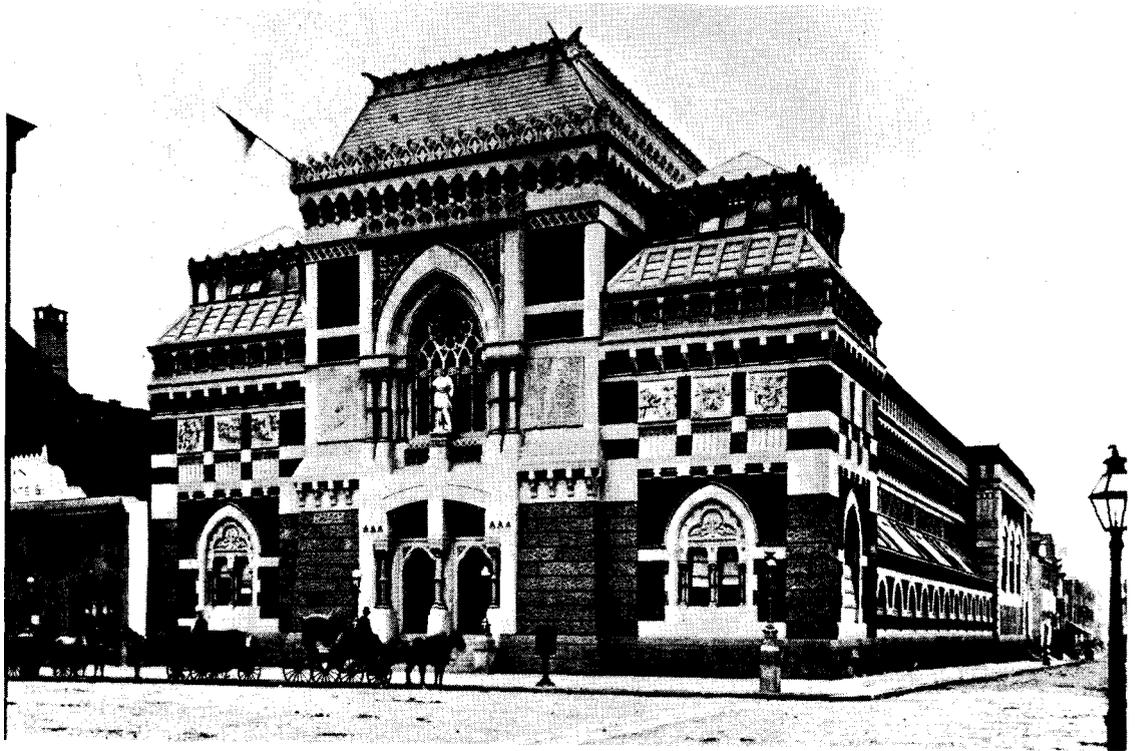
Day and Zimmerman.

This will entail reconstructing the clerestories of the wings and restoring the interiors including the opulent grand staircase. A centrally controlled environmental and security system will be installed. Little structural wall work will have to be done because the original building is in such excellent shape. Some high spaces will be divided for a library, offices and locker rooms for the school. One rub in this restoration, to begin in April or May, is to find a suitable replacement for the sculpture of Ceres, above the main entrance, which all but dissolved over the years.

ENERGY

WHAT PRICE?

Save 35 percent to 50 percent of the average annual energy expenditure for a six story office building? Alfred S. Dubin, President of Dubin, Mendel and Bloom, engineering consultants to the General Services Administration, believes they have done it in a projected Federal Office



The Architectural hit of the 1876 Centennial.

Building for Manchester, N. H., to be started in spring. Dubin has made this possible through careful site analysis, meteorological data, building orientation and scrutiny of the glass to wall surface ratio. This data was fed into the computer of the National Bureau of Standards in Washington to determine the most efficient thermal design for the building envelope including the heating, ventilation and mechanical systems.

Dubin established that best control over solar heat gain and loss could be achieved by reducing the area of glass in the exterior walls from 50 percent to 10 percent. Moreover, considerable savings could be made if the north wall were without windows, 12 inches thick, and externally dark in color. Internally along the north side of the

building are to be corridors or mechanical areas which do not require natural light and can be kept at lower temperatures. On the south, the most energy conserving side of the building, will be large amounts of glass to receive the winter sun, but with louvers to control solar gain. On the east and west sides, the worst for the summer, there will be total solar control. All windows in the building will be double glazed and can be opened to have optimum control of solar loss and gain and flexibility in the heating and ventilation system. In addition, Dubin has introduced external vertical solid louvers (shutters) which will control the light and heat load on the windows during the day and be closed at night to cut heat radiation.

Rather than a high velocity air system or terminal heating at points of diffusion into the interior spaces, individual work spaces will have variable volume control. Heat generated by lighting will be transferred to the exterior walls during the day and stored overnight in tanks.

Similarly, air conditioning will be made 50 percent more effective by using a chilled water system which will operate at night when condensation temperatures are lower, and the chilled water will be stored in tanks for use the next day. A

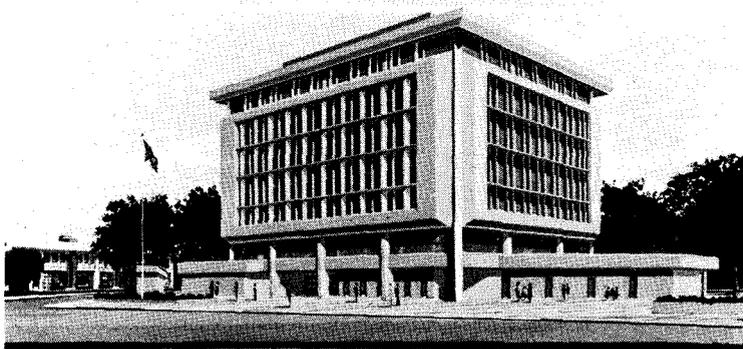
heat pump will assist the mechanical and ventilation systems in four of the six floors. By lowering the intake of air from the outside it will be easier to maintain a relative humidity of between 20 percent and 60 percent which is less energy consuming than a constant humidity. Charcoal filters will scrub the air as it passes at the rate of 20,000 cubic ft. per second through the ventilation system.

Dubin believes that most office buildings are grossly overlighted without regard to the kinds of tasks performed in different areas. In the Manchester building he has been able to lower the customary three and a half watts per sq. ft. to one and a half per sq. ft. Plug-in luminaires will be used wherever possible. To further lessen redundant lighting, there are as few interior walls as possible.

The only radical departure from standard off-the-shelf hardware and materials in the building will be four 15,000-sq.-ft. solar collectors on the roof which will supply 50 per cent of the energy needs, exclusive of electricity.

Dubin's energy budgeted design approach is one of common sense use of existing techniques and materials which he believes can be duplicated in any of the seven climate zones in the United States.

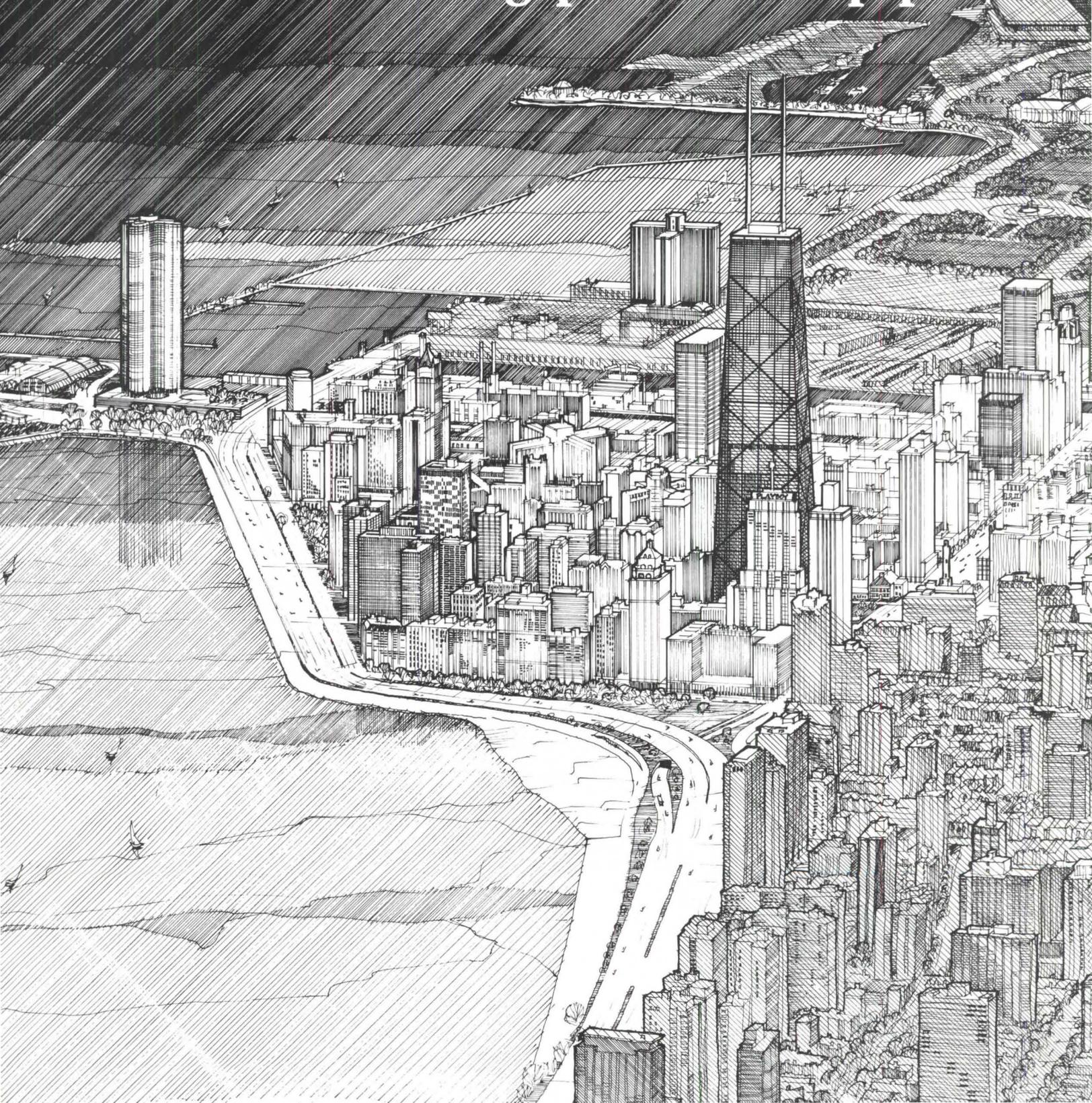
(Continued on page 16)



Federal Office Building for Manchester, N. H.

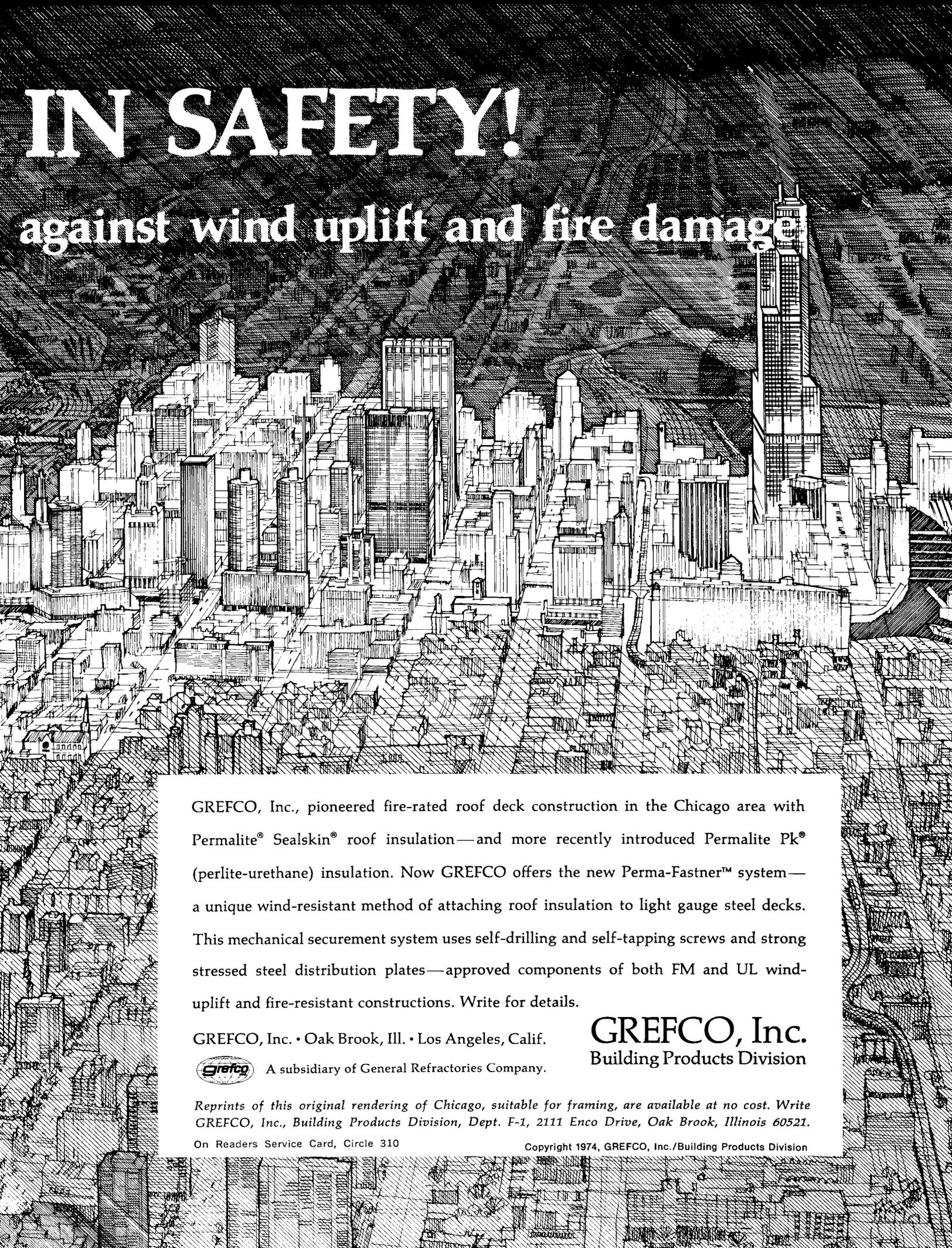
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FACETS

(Continued from page 13)

VEGAS DIMS ITS LIGHTS

In token recognition of the fuel shortage Las Vegas's Strip and downtown Casino Center are in relative darkness. Since November 14 casino owners have voluntarily doused most of their outside lights. Las Vegas is doing its bit, and its bit is not a small one. Though the signs are thought to consume only one percent of Las Vegas's total power, it is enough to power 5,000 average American homes. And perhaps not so strangely the effect on the industry that keeps Vegas rolling is almost nothing at all. Inside, still brightly lit, crap tables and roulette wheels are busy.

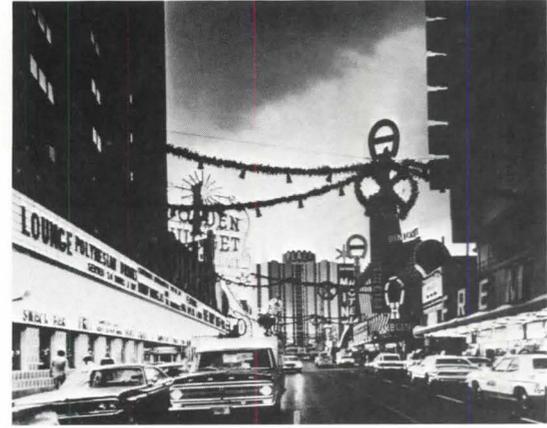
Located a mere 30 miles from Hoover Dam, Las Vegas relies instead for its electric power on coal, natural gas, and fuel oil. Only six percent of its electricity comes from the dam. Most of the hydroelectric power from the dam goes instead to the West Coast because when the dam was completed, in the 1930's, Las Vegas was a desert community of 7,000. No one foresaw its post-war boom to its present 310,000.

The real test of Las Vegas's electricity generating capacity will come next summer. Air conditioning takes 25 percent of power output, though the big hotels take only about one-sixth of the total.

Still, if the signs have come to symbolize Las Vegas and, with it, a 20th Century way of life, their darkness may well symbolize the problems we all face in the next decade.

PYROLYSIS

With fossil fuel getting scarce, electric companies are casting about for something else to burn. One of the most obvious materials available is garbage, and processes are being perfected to separate solid waste such as bottles and cans, then burn the rest at very high temperatures. This incineration, which takes place in a vacuum, is called pyrolysis, and it leaves a residue, depending on the particular process used, of either oil or gas. These residues are,



Before and after views of Las Vegas' Fremont Street.

in turn, burned to generate steam or electricity.

Throughout the U.S., several cities are arranging with local utilities to try variations of operating, at least initially, on a fairly small scale. The benefits, of course, are not just a new source of energy. Pyrolysis does a very thorough, non-polluting job of doing away with garbage, and the solid wastes, which are not burned, can be recycled—turned back into basic materials such as paper, steel, or glass. Here is a sampling of what municipalities are doing:

- St. Louis. A pyrolysis plant burns 300 tons of the city's daily garbage collection, one twentieth of the total, using it to produce steam. The steam generates enough electricity to satisfy about three percent of St. Louis's peak electrical consumption.
- Nashville. In operation this winter will be a plant to use energy gained from burning 700 daily tons of the city's garbage to heat and cool 27 office buildings.
- The Chicago's Northwest Incinerator, one of the largest in the U.S., handles 1,800 tons of garbage a day. Heat generated helps warm buildings in the area.
- Under construction in Baltimore is a plant to process 1,000 tons of the city's daily refuse. Gases from the process will be recycled and used to burn more garbage. Steam generated by the heat will be used by the Baltimore Gas and Electric Co.
- San Diego. A 200-ton per day plant will recover a barrel of oil from each ton of garbage burned. The oil will be used by the local Gas and Electric Co. to generate electricity.

Impetus may be given to

these efforts by the increasing costs of fossil fuels as well as their scarcity. Garbage, unlike oil, is cheap. The systems for turning refuse into oil and gas are, on the other hand, complex and, at this point, fairly expensive. But their very existence shows a possible solution to a multitude of urban ills.

HEAT PIPE

With fuel costs skyrocketing, that gas or oil heater in the utility room or the basement is eyed with increasing suspicion and with good reason. Is it really doing the job? Probably not, since a good part of the heat is going up the chimney. By inserting a heat pipe in the chimney or the flue pipe leading to it from the heater, 10 to 30 percent of that lost heat can be saved.

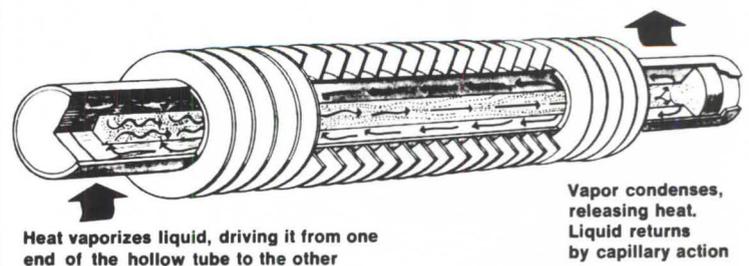
What is a heat pipe? It is a self-contained, closed system capable of transporting large quantities of heat from a source to a sink with little temperature drop. It has no moving parts, requires no energy input other than the heat it transfers, and is lined with a fluid which does the primary transfer work. The wick may be metal screens, perforated metal sheets or a non-metallic material like felt, cloth or fibrous glass. Water, am-

monia, acetone fluorocarbons, alcohols and various liquid metals have been used as the working fluid. As in a steam boiler, when heat is applied to the pipe the liquid will boil. However, due to the vacuum inside it will boil at a very low temperature. Boiling turns the liquid to vapor which expands and travels to the other end of the tube. Here the vapor condenses and gives off its heat. The condensate is then pumped back to the evaporator section by capillary action of the wick. The cycle is repeated continuously without use of pumps.

By inserting a heat pipe into a flue or chimney, previously lost heat is captured and recycled to a chosen room. The concept, like so many lately, first was developed by NASA and is being manufactured for commercial, industrial and residential installations.

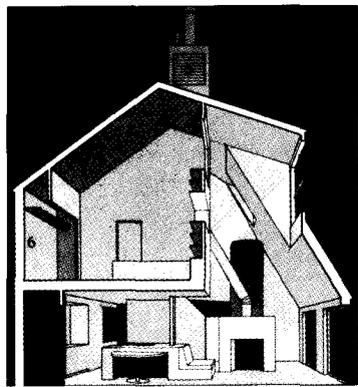
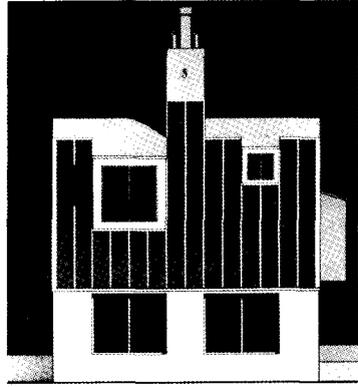
SOLAR THERMOS HOUSE

Charles Moore Associates and Ev. Barber, solar heating expert on the architecture faculty of Yale, have begun construction of a unique house for a family of four in Guilford, Conn. The south-facing roof of the house is covered by a solar collector designed by Barber which he



A way to cut wasted heat.

intends to mass produce. Heated water from the collector is stored in a wooden cylindrical water tank and the rock fireplace of the living room. More of a surprise is using the walls of the house as a reverse thermos bottle. Heated water is stored in the perimeter walls which are constructed of concrete block filled with iron slag insulated with a three inch coating



1 solar collector; 2 cylindrical storage tank for heated water; 3 water storage around fireplace; 4 oil-fired heater; 5 belvedere for hot weather; 6 perimeter wall storage of heated water.

of polyurethane foam. When the sun isn't shining in the winter an oil-fired water system takes over. In the summer the system superheats a belvedere in the chimney, sucking air through the walls and cooling the interior. A windmill will provide electricity.

Barber's water tank in the living room, an enlarged cracker barrel, and the exposed angled chimney pipe of the fireplace bring back the great old days of the country store. We can imagine the family sitting around on cold winter nights, listening to the tide sloshing through the walls. And we can imagine a few questions—like will they need anti-freeze?

GENTLE ARCHITECTURE

Architecture has rarely been accused of *that*. But in the proposed solar-heated administration and research building of the New York Botanical Gardens, to be constructed at the Mary Flagley Carey Arboretum, the complement might fit.

Designed by Dubin, Mendel and Bloom, engineers, (see page 13) and Malcom B. Wells, architect, it is a radical break with the present design conception of a solar building. Partially surrounded by a high berm, lessening its visual impact, collectors will unfurl like sails above its sod garden roofs. The 30,000-square-foot structure will serve primarily as a laboratory and office for the staff of scientists and administrators of the Arboretum. There will also be indoor and outdoor seminar rooms and displays, plus a gift shop and bookstore.

Emphasis on task lighting rather than conventional space lighting will cut both the lighting and air conditioning loads. Water use will be 50 percent below normal because rain water will be used for chores like toilet flushing. Additional energy conserving design elements will be operable windows with gaskets and sliding insulated panels to control heat loss through the windows at night.

Fred Dubin estimates the annual total energy load will be only 50,000 BTU's per square foot instead of the 125,000 used by a conventional building.

SCULPTURE

VARIATION ON A THEME

Brooklyn sculptor, Samuel E. Gallo, produced a large wall sculpture for the offices of the chairman of the U.S. Gypsum Co. about ten years ago, and it seemed only right that they called him in recently for a special commission. When Louis



Panel designed by Louis Sullivan.

Sullivan's Auditorium Theater in Chicago was renovated a few years ago, parts were tossed out, decorative panel from one section was saved, cleaned and sent to U.S. Gypsum. Gallo was asked to produce a wall sculpture based on the panel. Taking its motif, he combined portions of it—repeating, dividing, combining it—as if syncopating Sullivan's original.

Using latex molds, Gallo worked in Hydrocal, a company product, and a specially strong form of plaster. The result seen here is in the U.S. Gypsum Board Room.

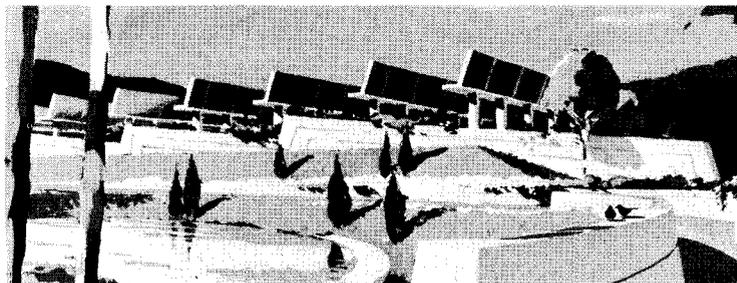
SUBURBIA

XEROX REDUPLICATES

When the Xerox Corporation moved its world headquarters from Rochester, N. Y. to Stamford, Conn. in 1969, there was

both joy and despair. Most of the joy was in Stamford, which was glad to have Xerox and its employees on the tax rolls. Most of the despair was in Rochester, which was losing a prestigious tenant to the lure of the New York City area's communication and transportation facilities.

Xerox, it turns out, wanted to be even closer to these facilities. In 1970 it purchased a 104-acre site in Greenwich, Conn., not far from the Westchester County Airport, for a reported \$4.5-million. But there was little joy in Greenwich. When Xerox told the Greenwich Planning and Zoning Commission its plans for a headquarters complex there, the Commission turned them down. Greenwich's reasons are ones that anyone wanting to build is likely to run up against today. They wanted to control growth. The city, largely a bedroom community for New York, is not eager for the type of industrial and commercial growth that the Xerox headquarters might spearhead. More specifically they wanted to keep the heavily wooded area near the Westchester airport intact. Just what Xerox will now do with its 104 Greenwich acres is not clear, although they will definitely stay in Stamford. Despite almost immediate enthusiasm in other communities such as Rye and

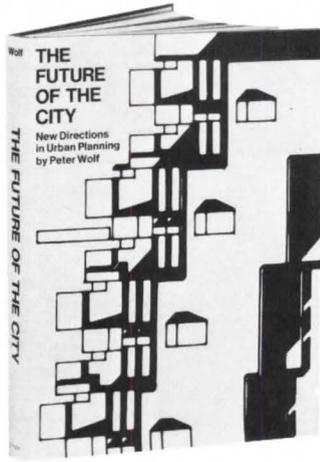


Solar-heated building proposed for New York's Botanical Gardens.

(Continued on page 94)

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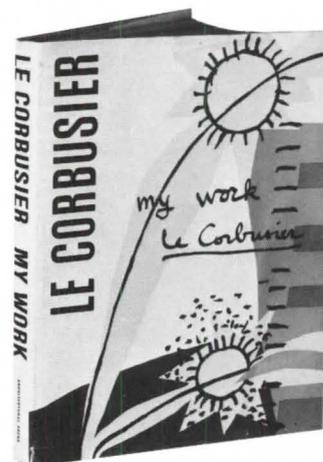


THE FUTURE OF THE CITY New Directions in Urban Planning

BY PETER WOLF. *The Future of the City* identifies the major trends that are transforming the shape of American cities. Written for everyone concerned with how cities are changing—not only architects and city planners but also concerned citizens, public officials, social scientists, and students—this is the first book that surveys American city planning and analyzes the interlocking social, economic, administrative, and design issues which critically affect the survival of cities. The author believes that the city will, in fact, survive and he explores recent urban history, describing significant urban planning ventures to identify urban problems and potential solutions for the strengthening of American cities over the next several decades. The author takes into account changes in social structure, changing urban and suburban population balances, shifting national policies and priorities, economic trends, and new methods of building. He stresses the critical role of transportation, particularly automobile traffic, in the redevelopment of city spaces and structures. Traffic and pedestrian circulation in cities are discussed in the chapters "Downtown" and "The Street." Following chapters deal with "The Urban Highway," "Public Transportation," "Housing," "The Urban Environment," "Historic Preservation/Urban Conservation," "Land Use Regulation," and "New Directions in Planning." The author presents over 80 American and European projects and proposals, past and present, to show possible directions for cities in the future. Projects include Norman Bel Geddes' *Metropolis City of 1960*, conceived in 1936; Louis Kahn's *Toward a Plan for Midtown Philadelphia*; Alison and Peter Smithson's *Golden Lane Project*; Shadrach Wood's *Stem*; Lawrence Halprin & Associates and Barton-Aschman Associates' *Nicollet Mall*, Minneapolis; Ulrich Franzen's *Proposed Redevelopment of the Upper East of Manhattan*; Paul Rudolph's *Lower Manhattan Expressway Design Proposal*; Brian Richards' *Proposed Central Area Development*; Frank Williams and Rai Okamoto's *The Access Tree*; Vincent Ponte's *Plan of Montreal*; Peter Cook's *Plug-In City*; Le Corbusier's *Voisin Plan for Paris*; Hellmuth, Obata & Kassabaum's *Galleria Complex*, Houston; John Portman & Associates' *Proposed Hotel*, Times Square. The author also discusses conceptual proposals and recent research by more theoretical planners and architects such as Christopher Alexander, Robert Venturi, and Denise Scott Brown. *The Future of the City* was commissioned by the American Federation of Arts under a grant from The Ford Foundation.

208 pages. 9 x 12. 146 black and white illustrations. Appendix. Index. ISBN 0-8230-7182-0. **April. \$18.50**

Contents: Downtown. The Street. The Urban Highway. Public Transportation. Housing. The Urban Environment. Historic Preservation/Urban Conservation. Land Use Regulation. New Directions in Planning. Conclusion. Recent Projects: Evolution and Application of Ideas.



LE CORBUSIER: MY WORK

TRANSLATED BY JAMES PALMES. INTRODUCTION BY MAURICE JARDOT. This book is not merely by and about Le Corbusier, it is Le Corbusier—written, designed, and supervised by him. Le Corbusier surveys his development from his early days as a student to the completion of his last building, the Priory at La Tourette, including the many and varied facets of his work. This is a complete, graphic self-portrait of the man and his work—describing the total creative process. Included are excerpts from his notes and sketchbooks; a wide range of photographs of his buildings, models, plans and paintings—highlighted by closeups of significant detail, covering all his major projects. To record and develop his ideas, the author expresses himself through drawing, and a wide selection of these drawings—each a work of art in itself—further enhance the text. In addition, he explains and illustrates the principals which determine his work and establishes the premise of his philosophy: that architecture, if it is to keep vitality, must be integrated with advances in all other fields of art.

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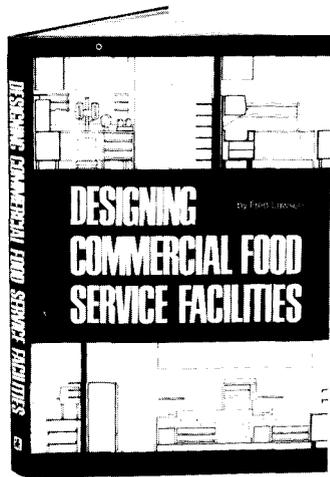
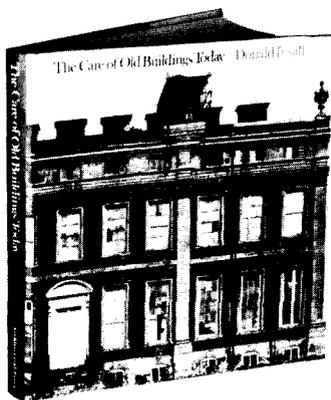
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275 pages. 8 x 12. Over 330 black and white photographs. Over 230 diagrams. 45 tables. 10 charts. Index. ISBN 0-8230-7265-7. **March. \$24.95**

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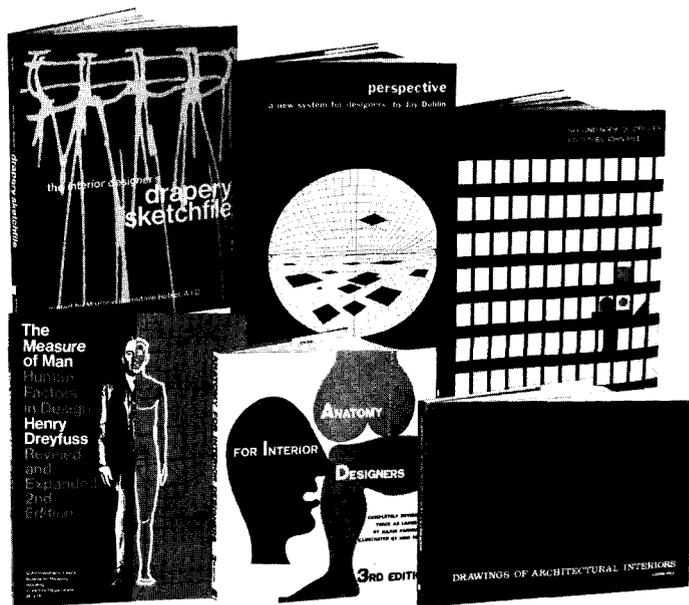
BY DONALD INSALL. Old buildings are as vulnerable as the people who built and used them and as liable to the process of decay and death. The developer's bulldozer is their most publicized enemy, but far more damage is done simply by neglect and ignorance. Thus, this book shows owners and architects how to dispel these threats. Although originally published in England, much of the material in this text is universally applicable, providing pointers particularly useful to the American architect. It provides sound administrative advice: the owner, architect, and contractor; the preservation plans; preservation and the public; new uses for old buildings; cost control; etc. The second part of this book deals with specific restoration techniques: repair or renewal; sheet roof coverings; timber structures, fungi and pests; stonework decay and repair; glass in old buildings; etc. The final section is devoted to a series of major restoration jobs done by the author and his associates, and provides a revealing picture of what can be achieved.

197 pages. 8 1/2 x 8. Over 210 black and white photographs. 17 diagrams. Bibliography. ISBN 0-8230-7120-0. **March. \$13.95**

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148 pages. 8 1/4 x 11 1/4. 90 black and white illustrations. 75 diagrams. Index. ISBN 0-8230-7146-4. **February. \$24.95**



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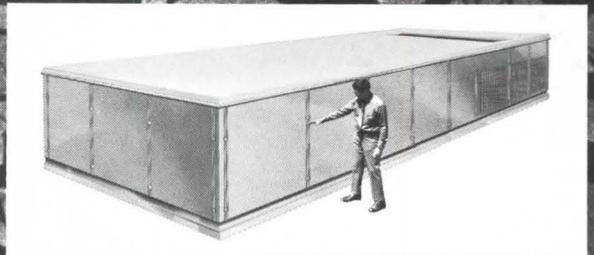
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A loveable kind of Loki, John Entenza has been rummaging around Chicago in recent months, poking under conceptual rocks for some sign of mischief. The rocks, he confides, are hard to pry loose but, with his legendary wit and will-power, they are beginning to yield.

Franz Schulze, the art critic, points out, "Since architecture is the art Chicago practices with the greatest self-assurance, there is a tendency among people in the field here to be a little smug and insular. John is a good antidote for that."

He has been, for about 14 years. Moving to Chicago in 1960 to become Director of The Graham Foundation for Advanced Study in the Fine Arts, John set about rapping knuckles—especially those of people he wanted to encourage. His highly cultivated irreverence for artistic and architectural axioms kept dozens of bright young men hopping.

George Danforth, Director of the School of Architecture and Planning at the Illinois Institute of Technology, says, "The years since he came have been good ones for all—professionals and intimates. That seemingly formidable mask of slight disdain and elegant aloofness dissolves before a wave of saucy wit tempered by an amused outlook on the world around him. In his favorite role of host and chef, he becomes the Don Juan at home. Here accolades are welcome and, if not forthcoming, he might, as he often threatens, perform the golden touch of having 'a bunny lay an Easter egg on your head'."

In between threats, John tosses together the best omelette around, puts on some Mozart, talks about contemporary painting, and doesn't at all come off like the gray eminence some admirers insist on calling him. "I'm no tin-pan god-head," he said recently, after I had made the fateful error of feigning affection. "Although," he admitted, "if I ever have a well-turned phrase in mind, I'll *destroy* you if you don't let me finish it."

George Dudley, Chairman of the New York State Council on Architecture, notes, "It is almost symbolic that John moved to Chicago—in a sense, the geographic center of architectural activity of this continent. No one has had his antennae out as effectively to the great range of individuals, especially the younger ones, and those strong enough to want to explore, who in our various fields have been at the edge of insights about where we are going from here."

One reason for John Entenza's effectiveness is, simply, that his antennae have been out longer than most. He moved from California where, for 22 years, he was editor and publisher of *Arts & Architecture*. Starting out in 1938 with a modest builders magazine he had bought, John's publication became, in Dudley's words, "an influence felt worldwide from its apparently limited regional preoccupation. Note that it was a vehicle for all the arts, for innovative research in architecture—take the nine Case Study Houses which were built, and for indicating environmental concerns as part and parcel of design."

Los Angeles Architect Craig Ellwood recalls, "A few months following my first meeting with John in 1947—when I felt that perhaps my third house was worthy of publication—I visited him at his office. Considering the ordered architecture he championed, the disorganization was paradoxical. Chaos. Stacks and stacks and stacks of dust-covered published and unpublished drawings—of cuts and plates and cover designs, and answered and unanswered mail, and books and architectural magazines. The room, the desk, all was clutter except John (impeccable) and his ashtray—the cigarette butts neatly aligned, row upon row."

Ellwood also remembers, somewhat regretfully, that he had



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been asked, during a teaching stint at Yale in 1959-60, to approach John regarding the Graham Foundation job. "His giving up *Arts & Architecture* ended a very special era in Southern California design and architecture. An era he had a prominent role in creating."

The magazine had a deep impact because its editor dared deal in *ideas*, and he dared deal with them in embryo as well as in full bloom. "Any fool can recognize an idea that is already formed," he once advised me, "but I tried to give impetus, through publication, to the potential in people—and to link up the people who had ideas with the people who *needed* them." A lot of architects whom we now think of as having made it, first had this kind of impetus in John's magazine.

All of which makes it hardly surprising that the Loki is at it again, but this time in the academic arena of the University of Illinois at Chicago Circle. As a professor of architecture and an advisor to the chancellor, he may have come precariously close to making himself a gray eminence on this campus of, well, gray eminences. Bertrand Berenson, Dean of the College of Architecture and Art, expects that "another generation will be properly infused with the descriptions and definitions of the risks and consequences, the richness and rewards, of engaging in the art of changing the physical world." Professor Entenza, so reports have it, moves around Walter Netsch's field-theory building, dropping in on classes, peeking over shoulders, picking on pedants and carrying, of all things, a big ball of unraveling string—"to find my way out of here, naturally."

It is going to be fascinating to watch, this Goyaesque countenance, with the inquisitorial leer, leaning on commuter collegiates. They will do well to lean back. For he promises not to take himself too seriously (if they promise not to).

A good friend of mine, and now John's, told me about their first encounter in the early sixties. My friend, who had been making a lot of annoying noise in Chicago about all his fine ideas, was introduced. And this sage of Spanish descent said, "So you're the *noble* young man." Several years later, after a lot of rapped knuckles and hard knocks, John told him, "You said something once, in passing, which convinced me you were *really serious* about things. But don't count on me to tell you what it is you said, because I know you'd go and use it!"

John had the boy figured out. Pow!—William Marlin



CHICAGO

The Great Grey City, brooking no rival, imposed its dominion upon a reach of country larger than many a kingdom of the Old World. . . . It was Empire, the resistless subjugation of all this central world of the lakes and the prairies. . . . Here throbbed the true life—the true power and spirit of America; gigantic, crude with the crudity of youth, disdainful rivalry; sane and healthy and vigorous; brutal in its ambition, arrogant in the new-found knowledge of its giant strength, prodigal of its wealth, infinite in its desires.

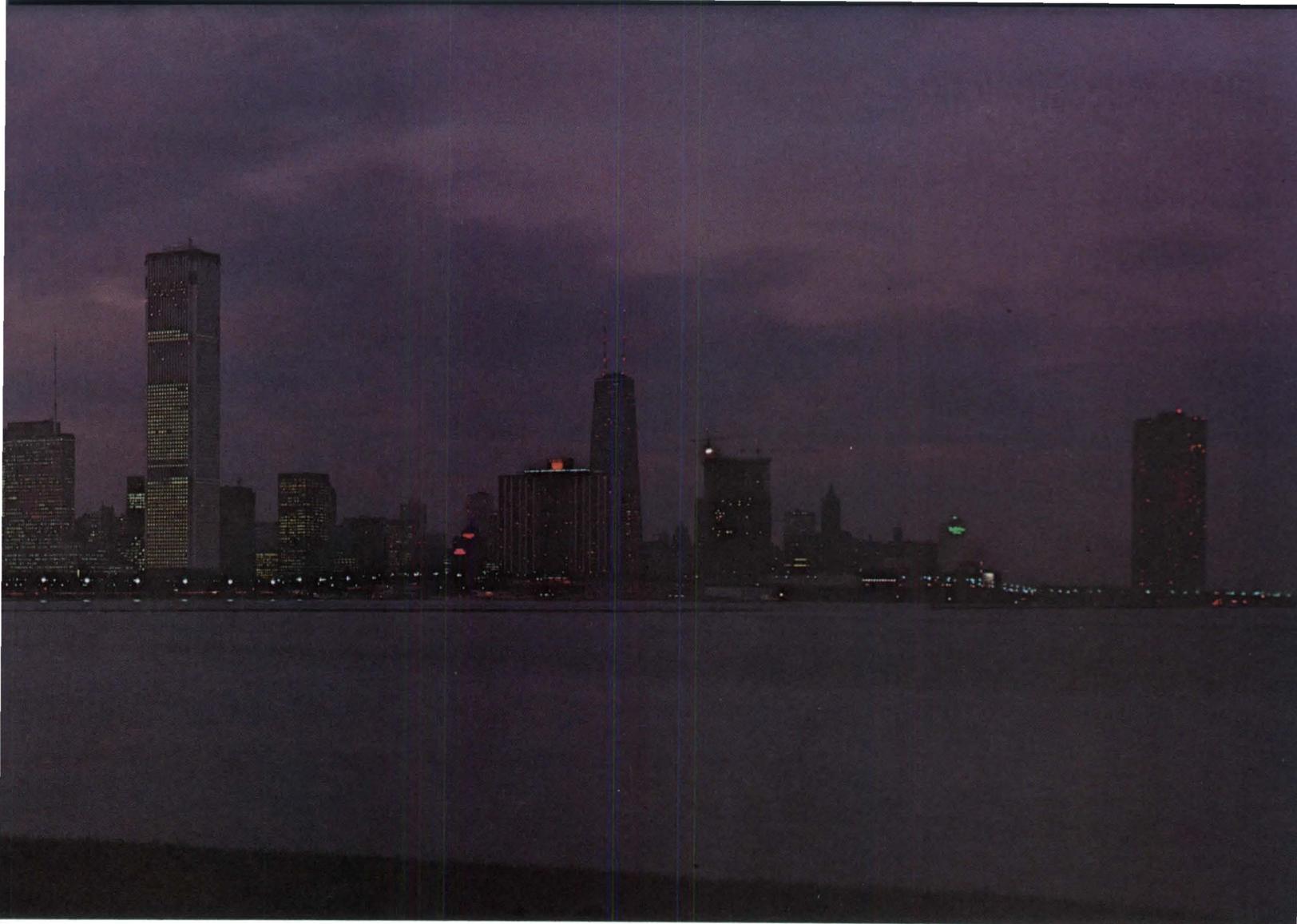
From *The Pit* by Frank Norris

Exactly 300 years ago, this winter, Father Jacques Marquette portaged over the site of Chicago with his sidekick, Louis Joliet. The good Father was rightfully impressed with its strategic location and suggested, to the Canadian fur company he worked for, that some sort of canal be dug to connect the lakes to the east with the rivers to the west. Though the idea was ditched for 160 years, it does go to show that, even for the clergy, Chicago would forever be dreamed of and developed as a *secular city*—a portage for commercial clout.

Getting the goods on itself, Chicago would also be designed that way. The opening of the Erie Canal in 1825 spurred Marquette's vision, and the Illinois legislature. A canal commission was appointed and, in 1830, it hired one James Thompson to draw up the first plan of Chicago, three-eighths of a mile square, straddling a sluggish river—a simple, convenient grid which has ingratiated real estate speculators ever since.

Land fever set in at once, as the town built up a head of steam for the canal workers to come. One of the first to contract it was John H. Kinzie, who had been trading firewater for furs there since 1804 and would, by 1836 when canal construction began, have Chicago's future pretty well figured out. He was an astute speculator, the village president before its incorporation as a city in 1837, tried to get a charter for a Chicago-based railroad even before canal ground was broken and, when it was finally finished (1848), became a chief toll collector. He also pioneered as the great-great-grandfather of Buckminster Fuller who, in the 1920's, would arrive in Chicago a spendthrift and, the wiser for hard knocks, leave it a seer.

Kinzie personifies the allure which money and commerce have always had in Chicago—motivations which made it, by the mid-



19th Century, *the* fastest growing (and building) city in America, the focus of rail traffic as well as water traffic, and the assembly-line for such ubiquitous elements as the nail and two-by-four.

In fact, Chicago's first contribution to the art of building had little to do with art. The workers who migrated there didn't do so for adventure, but for wages—canal wages. And thousands, mostly Irish at first, needed houses—lots of them. Nail-making machines had been perfected, and lumber mills built—the result, a lightweight composite of wooden sticks and iron pins called the “balloon frame”. Built this way, in a week or two, they were cheap, expedient and flexible: When the South branch of the River flooded, the Irishmen would just tie their houses to trees and ride it out. As historian Thomas Tallmadge said, “The forests died in giving birth to the city.”

The origins of the legendary and, as few need to be told, influential Chicago School of Architecture are, really, not much more assuming. There was this fire, you probably remember hearing about, in 1871. And it burned a whole lot of the burgeoning metropolis down. In less than 40 years, it had grown from a handful of pioneering profiteers to over 300,000. It had become the country's train depot, stockyard, grain elevator, tannery, buzz saw and, even, the center of its first prefabricated housing industry—with the means of mailing components clear to Kansas. It had a historical society, university, library association, commuter trains to trim little suburbs, horsedrawn “mass transit” downtown, splendid stores, hotels and, located near the transit lines for easy access, good parks. But unlike London's fire of 1666, Chicago had more than one Wren around to undo the damage—it also had (Bessemer be blessed) steel technology.

As was the case 40 years before, the people building Chicago

needed floor area fast—no time to wait. Real estate investors, not architects—like Peter Brooks of Boston—would advise: “Tall buildings will pay well hereafter.” He meant it. For it was his firm which commissioned Daniel Burnham and John Root to do the Montauk and Monadnock. They, William Le Baron Jenney, Holabird & Roche, Adler & Sullivan, others—all took to the impetus, taking up new materials (like steel) and modes (like the elevator), raising the first “cloud-scrappers” (as they were called), transforming—as a *result*, not necessarily an aim—the look and outlook of just about every town and city since. There was art in this and, notwithstanding the stalwart secularity of it all, something very sacred. For tilted upward, filled in with glass, the 1830's Chicago grid became the 1880's Chicago frame—not mere reform but, fundamentally, new form. “Look,” Sullivan told the young Frank Wright, “*tall!*”

The Chicago tradition, its masterworks threatened by the same speculation which spawned them, is still showering rivets, and architects, developers and investors are still reaching out to catch them. The catch is, melted down and reapplied to contemporary needs, the tradition is being taxed by a preoccupation with isolated structural packages which, however pristine, offer a rent-per-square-foot approach to creating, overall, a functionally coherent and socially vigorous city environment.

Brokers pick the spots, call the shots—bringing to mind Chicago's old-time preachers who, pulling their wagons from corner to corner, hoarsed out salvation, crowd or not: “Believe in me, brethren.” Building big and tall, the city's architects are, as one has intoned, “deciding the fate of cities.” True to form, that intention—and scary. The Irish had trees to hold on to. Us? We'll have to take Chicago's word.



SEARS TOWER

The mail-order approach to urban form

Ever since the Pottawattomies went over to John Kinzie's place to sell furs and get soused, Chicago has been a trading post. And Sears, now doing \$12 billion a year in business, has put up the biggest trading post around—four and a half million square feet (101 acres) in area, 1,450 feet (110 stories) in height.

In short, Sears has put up the world's tallest building—and it has the Pottawattomies cringing and crooning:

She's the tallest rock . . .

built from the smallest rock.

She's not a hand-made rock . . .

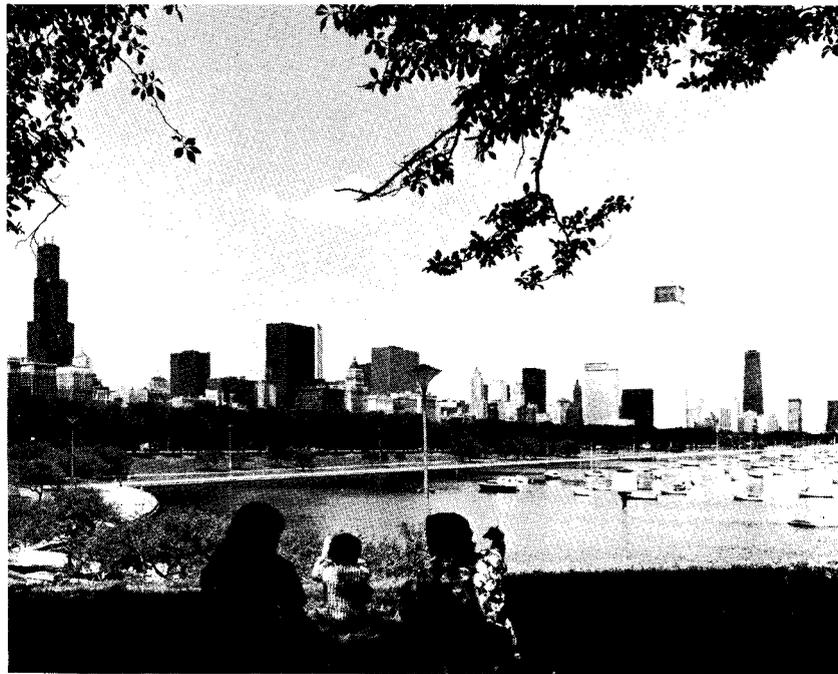
though she's a man-made rock.

All of which was the lyrical response, last year, when four electricians chimed in to celebrate the building's completion in preparation for initial occupancy last August. They had taken time off from installing about 1,500 miles of wiring.

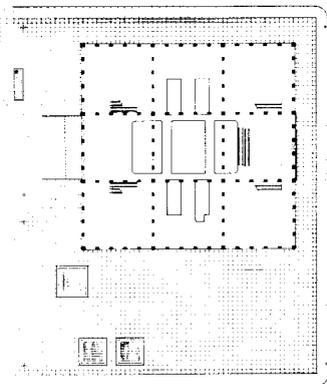
There is nothing small about Sears Tower. For this visceral bundle of structural tubes—nine 75-foot squares within one 225-foot megatube—contains 76,000 tons of structural steel, 73,000 cubic yards of concrete, 17,200 tons of refrigerating equipment, 102 high-speed elevators (14 of those double-deckers), 16,000 bronze-tint windows, 80 miles of elevator cable, 145,000 light fixtures, 25 miles of plumbing, and an all-electric, independent power supply based on the reclamation of 44 million Btu's of heat, every winter, from its lighting and occupants.

The Sears saga began about 1967. Scattered around nine different locations, former chairman Gordon Metcalf (since succeeded by Arthur Wood) got to thinking that things would, really, run much better were they all bundled together—all 7,000 employees. Sound enough notion. But where to move?

Sears began cataloging everything it had ever done, every dollar it had ever made, for some indication of growth patterns in the future. It combed employee files and statistics for some projection of how many people the company had needed to make past millions and how many it would need to make millions more. And it took a hard look at its employees on hand, where they lived, how much they made, whether they had children or not, and what kind of transportation they used. All this information was drawn together, put on big flip-charts,

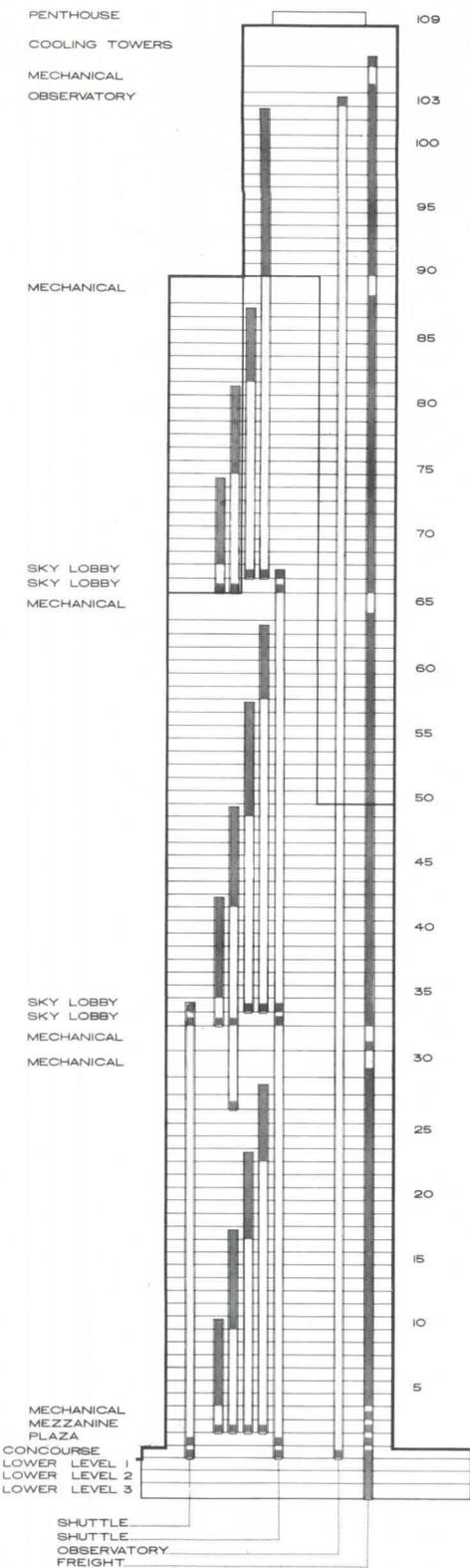


WEST ADAMS STREET



WEST JACKSON BOULEVARD

Sears Tower, designed and engineered by Skidmore, Owings & Merrill looms 1,450 ft. (110 stories)—a bundle of nine structural tubes, held together by external belt trusses and internal diaphragms. Highly visible for many miles, it holds up a possible system for creating high-density, highrise urban concentrations. Views (opposite page) are taken from the lakefront (top), the South Loop area along the Chicago River earmarked for new town development (middle), and from the University of Illinois, Chicago Circle Campus on the near west side of the city (bottom).



Section (above) shows Sears' transportation system, dividing structure into three zones. 102 elevators, 14 of them double-deckers, interconnect various levels with express and local service. Two-level sky lobbies, together with main lobby, concourse and mezzanine, help expedite movement of building's 16,000 occupants. Plans (opposite page) illustrate morphology of structure and space, showing how bundled-tube concept generates variations in floor pattern and allows variations in function.

run through computers to find out whether to move and, if so, to the suburbs or into town.

The chairman decided to move into town for several reasons. The main one was those 7,000 employees, many of whom lived in the city or, if not, at least near efficient commuter and rapid transit lines. Moving to the suburbs would have resulted in the loss of employees and, for those who made the move, added expense. There was also the intangible but no less significant factor of Sears' identification as a Chicago company—one with long-term, intown ties to workers and housewives.

Concurrent with this decision, projections of company growth, in terms of business and manpower volume, were made, exhaustively studying some 90 departments. Taking Sears to the end of this century, it was estimated that by 1973, about 7,120 employees would be moving into whatever new building was created; that by 1978, there would have to be room for 8,050; by 1983, room for 9,180; by 1988, for 10,220; by 1993, for 11,300; and by 1998, room for something over 13,000. All this was on computers as well and, as put by Robert Davey, Sears' space planning and interior design manager, "the print-outs became our Bible, while the real low-down on human relationships came from interviewing our office managers."

It was clear that if the chairman were serious, and if the projections were accurate, Chicago was going to get, one way or another, a heck of a building.

William Toombs, a Sears veteran assigned to manage the project, got hold of the big New York real estate consulting firm of Cushman & Wakefield which, in short order, was handling just about everything.

Cushman & Wakefield, casting around for a downtown site, clinched about three acres on the west side of the Loop—a block bounded by Adams, South Wacker Drive, Jackson and Franklin; close to the Elevated, buses, parking garages; close to the Union Station and the Chicago & Northwestern Railway.

A local outfit called Fleetwood Realty had been trying to market the south half of the site for some time. Armour & Company had considered it. So had IBM—which soon after had Mies do its regional headquarters

just north of the Chicago River between State and Wabash. So had the Greyhound Corporation which moved to Phoenix.

Thing is, this three-acre block had a little east-west street called Quincy running through it. And while Fleetwood had taken over everything south of Quincy toward Jackson, the north parcel toward Adams was still in the hands of three different owners. Given six months by Sears to make or break the sell, Fleetwood worked out a now-notorious deal with the city to close Quincy, got an escrow arrangement together with the three owners, cancelled hundreds of leases and, in February 1969, sold the site.

While this was going on, Cushman & Wakefield were busy interviewing architects—nine in all, settling on the Chicago office of Skidmore, Owings & Merrill, with Bruce Graham as partner in charge of design, and Fazlur Khan as chief structural engineer. The New York-based firm of Saphier, Lerner, Schindler (SLS) was also hired to translate Bill Toombs' growth and occupancy statistics into recommendations for space planning and office layout. While these space cadets were analyzing their print-outs, Bruce Graham's team went right to work, doing some translating of its own. By mid-1969, the options, structurally and esthetically, began pouring out of the Inland Steel Building studio across town. These were continually bounced off the budgetary and planning constraints of the company, the findings of SLS and the construction managers, Deisel Construction, a division of Carl Morse.

Mr. Morse and Cushman & Wakefield's Anthony Peters, in constant consultation with Bill Toombs and SOM, began reining in the options.

The earliest one was to build a 50-story building with 80,000-square-foot floors, even though Sears had concluded, before taking on SOM, that 110,000-square-foot floors would be ideal for their buying and merchandising needs. SOM, however, pointed out that such floors take a lot of time to walk across and, besides, how could Sears, expecting to occupy only two or so million square feet, ever lease such big floors to other tenants?

Even with the 80,000-square-foot version, Tony Peters ad-

vised, Sears would have mammoth marketing problems. And from the standpoint of scale and proportion, this stubby solution was, at best, ungainly. Though still in the running, the building team labeled it "the Lump."

The lump gave way to other variations: a 60-story building with 70,000-square-foot floors; a 70 story building with 60,000-square-foot floors; and so on. Then a twin-tower scheme was tried—with a 60-story tower for Sears, and a 40-story one for Sears to lease out. Too tight a solution, it was concluded, for an already tight site.

Recalls Tony Peters, "Sears didn't need floors with 80,000 square feet, or 60,000. We couldn't rent them!"

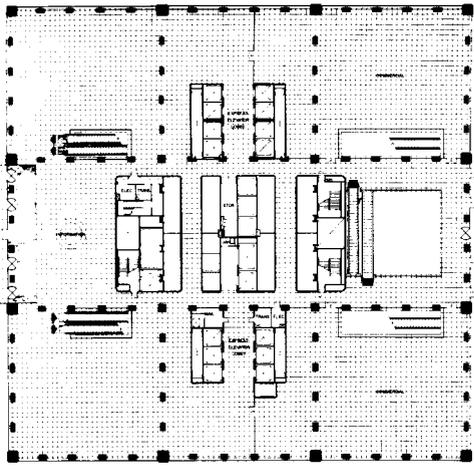
So, as Bill Toombs tells it, bringing his hands gradually together, "We pushed the building model like this, and what Sears didn't need for itself sort of shot skyward."

It shot to 104 Stories. And somebody (no one can quite remember who) asked why it couldn't be just a little higher to top the world record. After all, only a few stories were at stake, and what's a few stories? Taking the design to 1,450 feet, they reached the limit set by the Federal Aviation Administration, that's what.

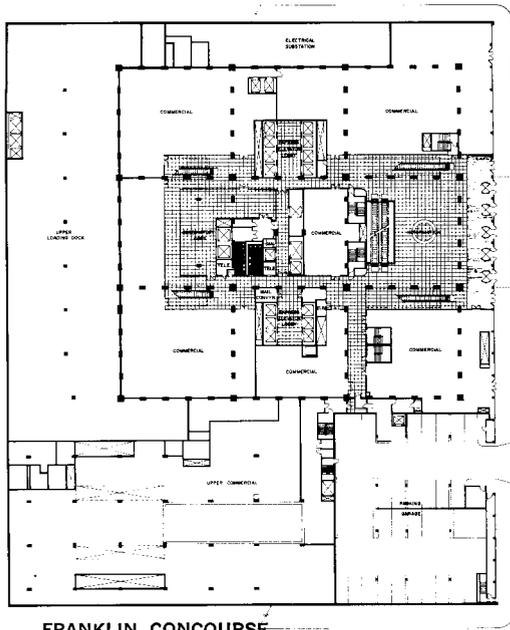
This design, looking not unlike staggered stacks of catalogs, was announced in July 1970, fulfilling the codename which someone at Cushman & Wakefield had, in the planning stages, coined: Q.U.E.E.N.I.—which means (but of course) quality, utility, economy, efficiency, no nonsense, and image. For SOM had not given Sears just one structure, or two. Within the framework of these staggered stacks, SOM had really created nine, essentially independent but contiguous structures—a cozily bundled cluster of structural tubes.

This principle is the latest to emerge in a town given to impressive engineering firsts. But its real significance, Faz points out, is not just its application in Sears but—as a principle—its morphology as an urban form, applicable in many sizes.

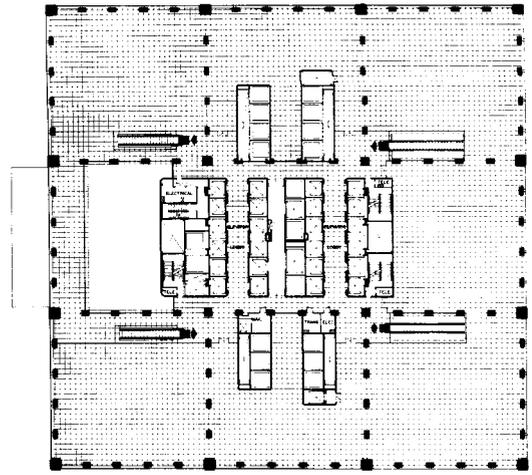
The built-up, wide-flange columns are on 15-foot centers, inside and out, connected by 40-inch-deep steel beams. In addition, deep diagonal-member trusses, two stories in height, belt each tube at mechanical



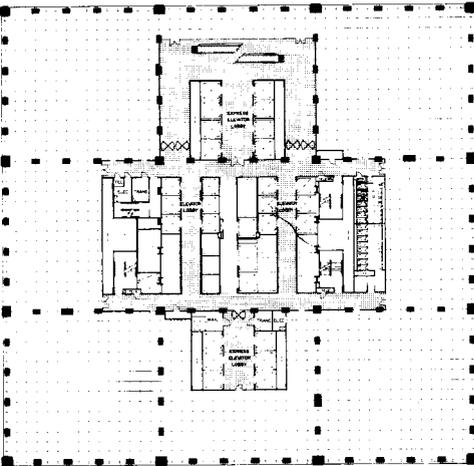
PLAZA LEVEL



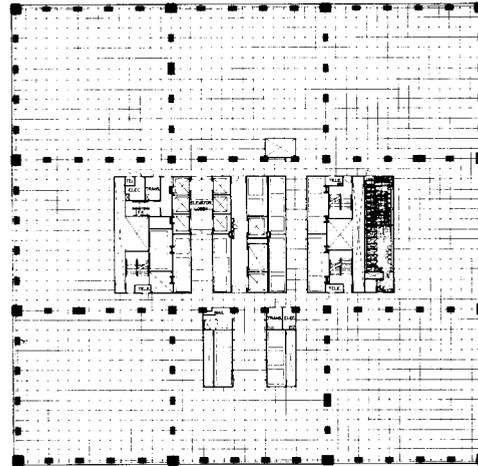
FRANKLIN CONCOURSE



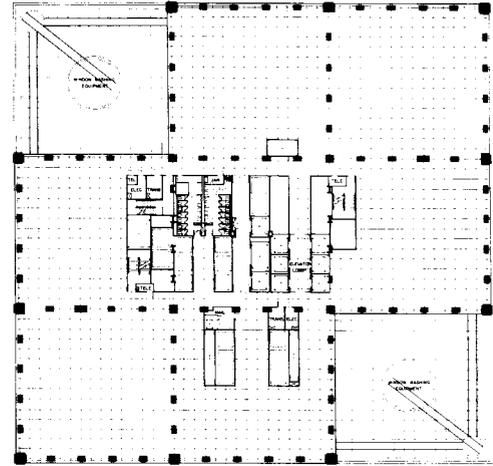
MEZZANINE



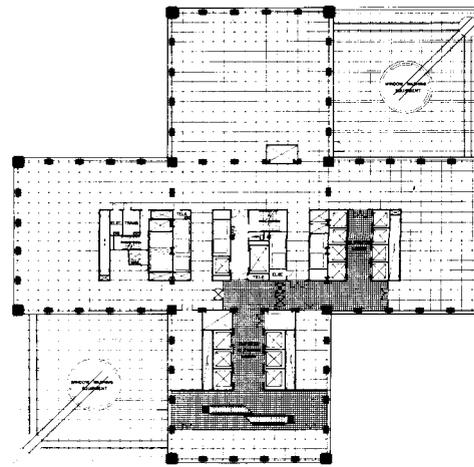
SKY LOBBY 33RD FLOOR



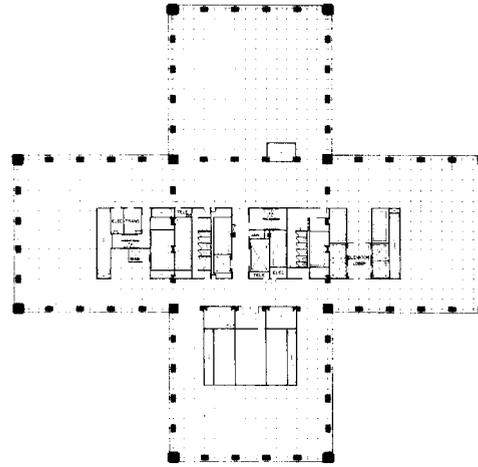
FLOORS 35 THRU 42



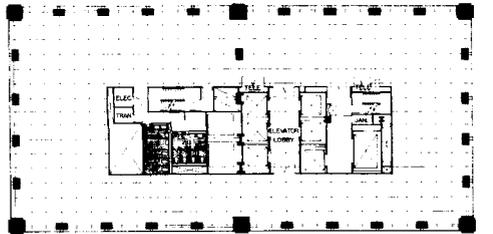
50TH FLOOR



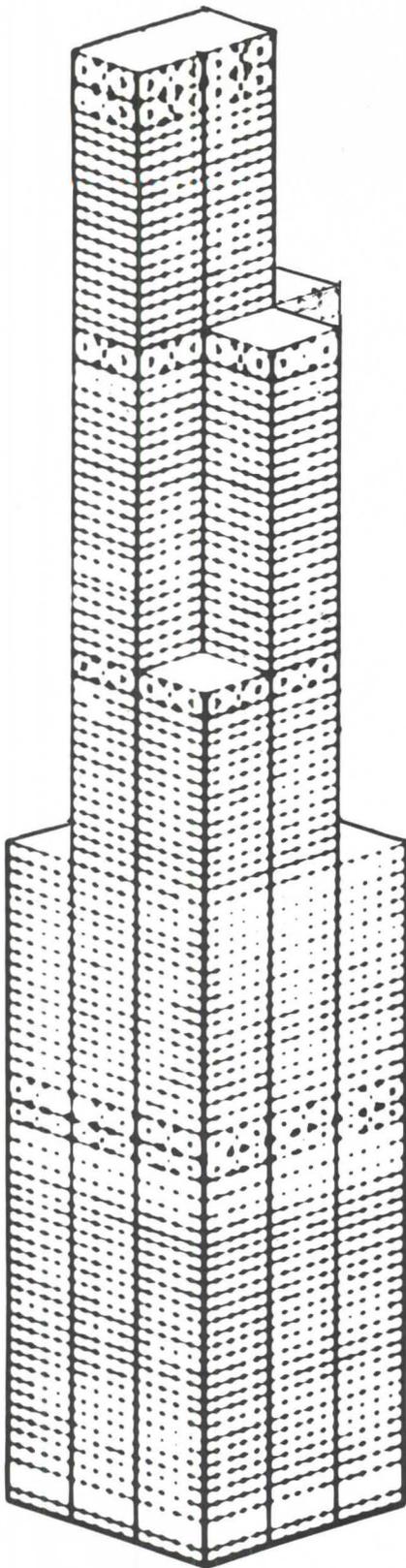
SKY LOBBY 66TH FLOOR



FLOORS 68 THRU 90



FLOORS 91 THRU 101



FRAMED TUBULAR STRUCTURE

levels on the 29th to 31st, 66th and 89th floors. The columns create a cross-stiffening, double diaphragm, trisecting the building in two directions. Hal Iyengar, SOM project engineer, says the effect, like a tic-tac-toe game of statics and dynamics is to smooth out the enormous shear brought on by wind and gravity loads.

Two corner tubes drop off at the 50th floor, where there is no truss due to proportionally less stress relative to the structure; two more drop off at the 66th floor; and three drop off at the 90th—leaving just two rising to the full 1,450 feet. This dropping off of tubes, generating heavy loads on the upper, smaller floors, is resolved by the vertical and lateral forces set up by the interconnected columns and by the trusses. Overall, the composite reads out rather like a cantilever, coming out of the earth, its constituents woven together like the sinews in an outstretched arm.

This strengthening is enhanced by the flooring composite. The 40-inch trusses run in one direction for six floors, and then shift direction thus distributing gravity forces. Shear studs, four and a half inches long, are welded down through the three-inch corrugated decking to the trusses, distributing wind loads.

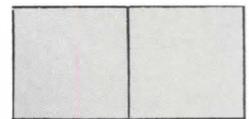
Evangelizing the bundled tube principle at Sears, which originally had a much shorter building in mind, Bruce and Faz were able to convince the company that it could have varied floor areas to accommodate varied tenant requirements, that it could have height, and that it could have both without paying a premium. For besides tackling the turbulence problem—those 75-foot-square tubes have an optimum structural efficiency of 88 percent—the structural steel weighs in at 33 pounds per square foot. The typical traditional frame averages 50 pounds.

The tube has been on Faz's mind and SOM's boards for over ten years now. The DeWitt-Chestnut Apartments (1963) had five-and-a-half-foot column centers, eliminating interior columns, dispensing with the curtain wall, placing all loads on the tube itself. This application is efficient up to 400 or so feet, at which point the tube is subjected to inordinate shear and the corner columns must assume disproportionate burdens. This

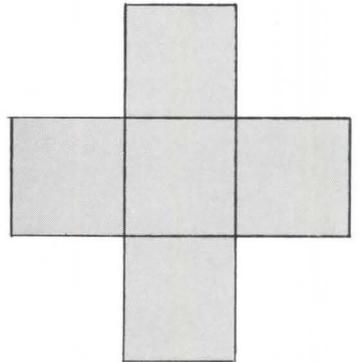
experience taught Faz that the tube, *per se*, is no bearer of structural salvation—that the configuration of a tube or *between* a bundle of them must be geared to variations in height requirements, to the nature of materials, and to the nature of the functions to be accommodated. Accordingly, the experience engendered the Hancock Center (1965)—a 100-story tube in which the widely-spaced columns struttled skyward, braced by shear-resisting diagonals.

The next mutation came with Houston's 52-story One Shell Plaza (1971)—a tube within a tube, the inside one of steel for rapid erection and dead-load strength, the outside one of flaring, closely spaced concrete columns to handle wind loads. This application yields a flexible core—good for developer Gerald Hines' rental picture—and, outside, it yields a suave, undulating facade as the column depths are increased, at eight different points, to receive (and express) the gravitational field. Poised yet plastic, built at the unit price of a typical 35-story job, Faz's high-strength, lightweight concrete (6,000 pounds per square inch) downdrafts to a massive plinth where the forces are finally compacted.

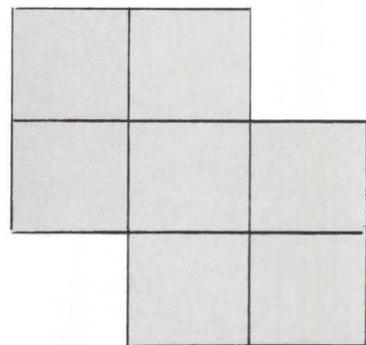
Sears is a synthesis of these and other SOM precedents. The company neither wanted nor needed diagonal bracing, though (as at Hancock) this supplies optimum rigidity. Sears' tandem diaphragms, trisecting the structure, supply it here, working in concert with the columns. Figuring out how to space them was crucial to stability and economy. In a tube, closer spacing means, the higher you go, higher and higher costs. Computer analysis produced the optimum 15-foot spacing which was used and which, in turn, kept the integrity of the tube intact while allowing economies. The 15-foot figure also dovetailed well with the structural efficiency of the 75-foot-square dimension of each of the nine tubes. The shear lag which tends to wreak havoc in single-tube structures above 400 feet is, at Sears, absorbed incrementally rather than all at once, at just a few points. Forces are dissipated throughout and down into the major mass of the building as each tube, acting independently, assumes that portion of shear proximate to it. The dividend,



FLOORS 91 TO 110

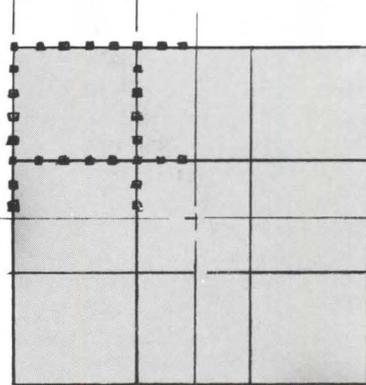


FLOORS 67 TO 90

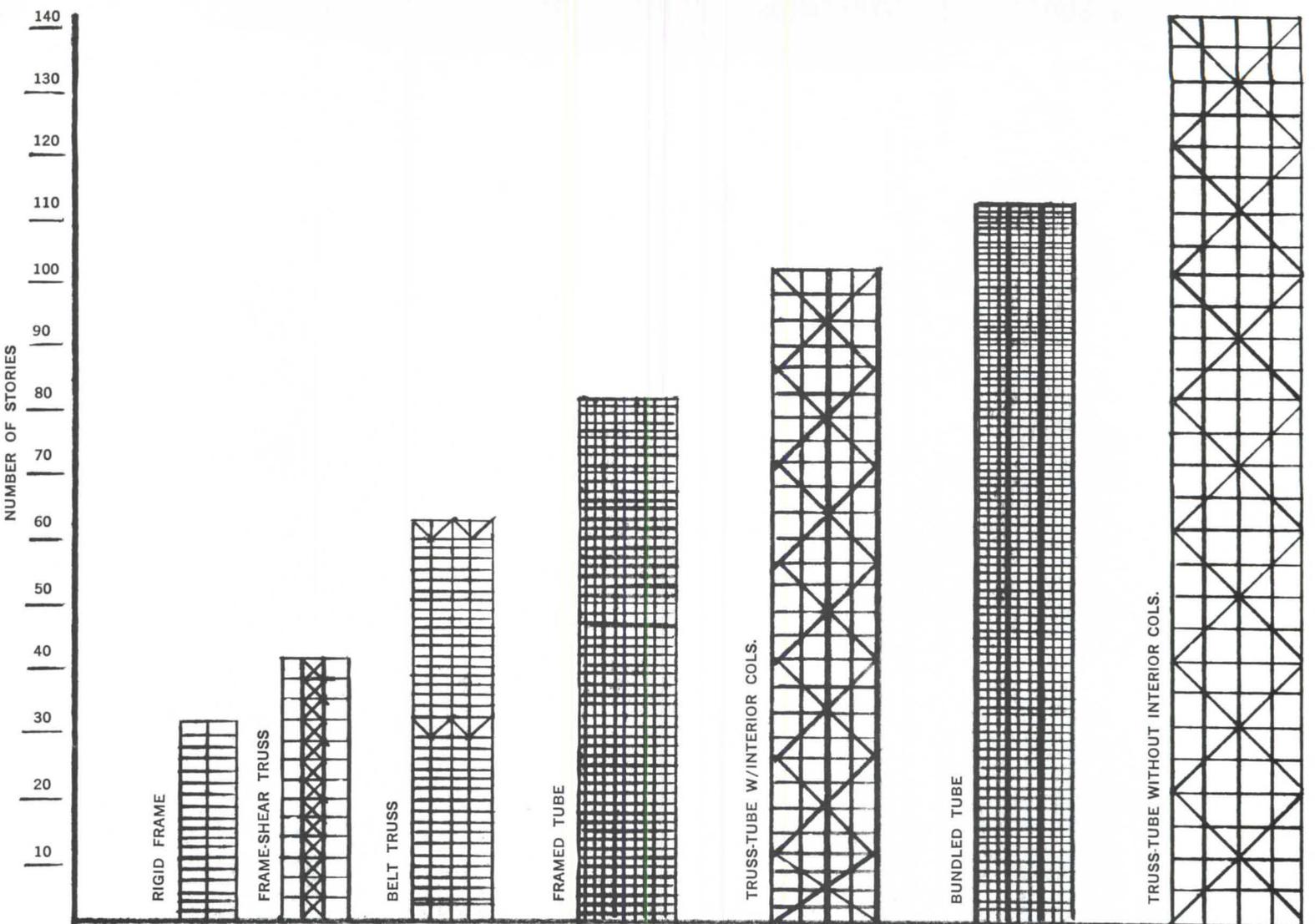


FLOORS 51 TO 66

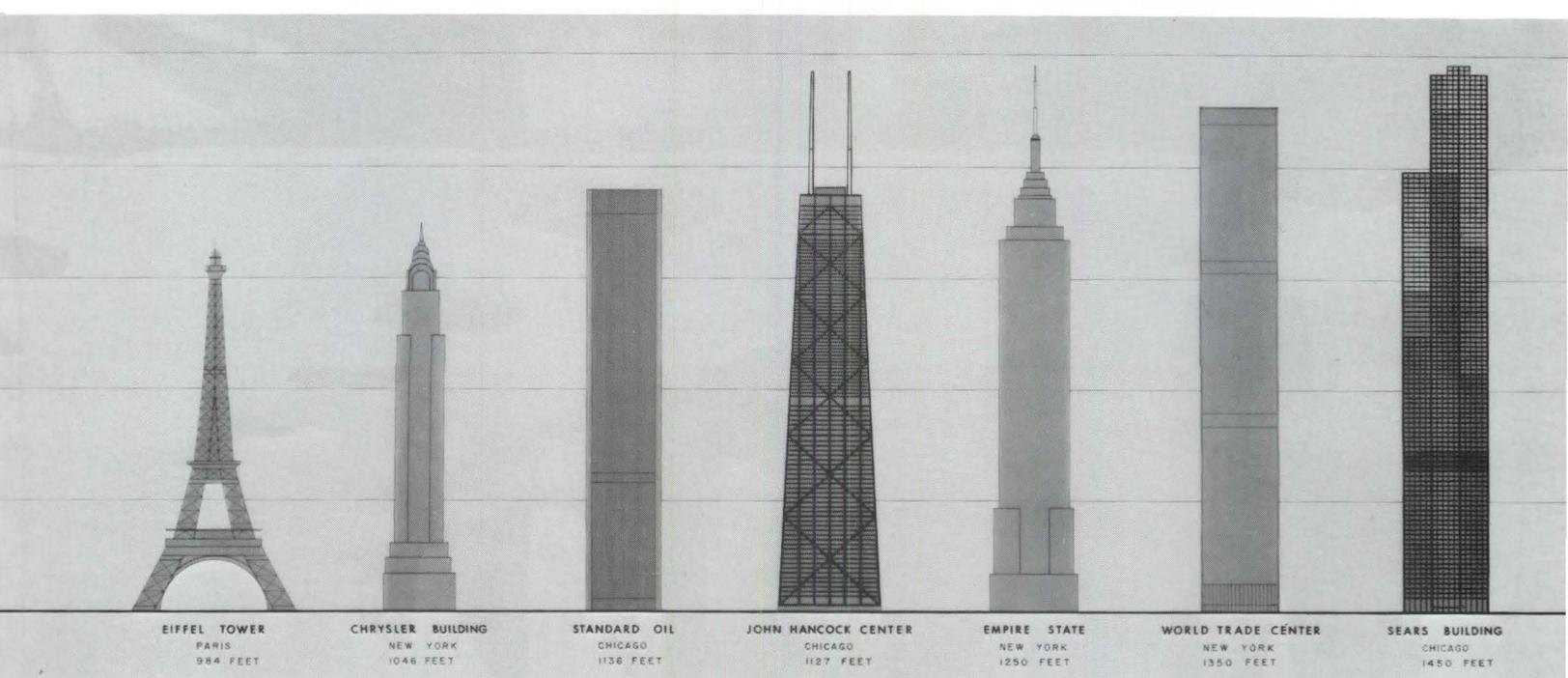
5 BAYS @
15'-0" = 75'-0"



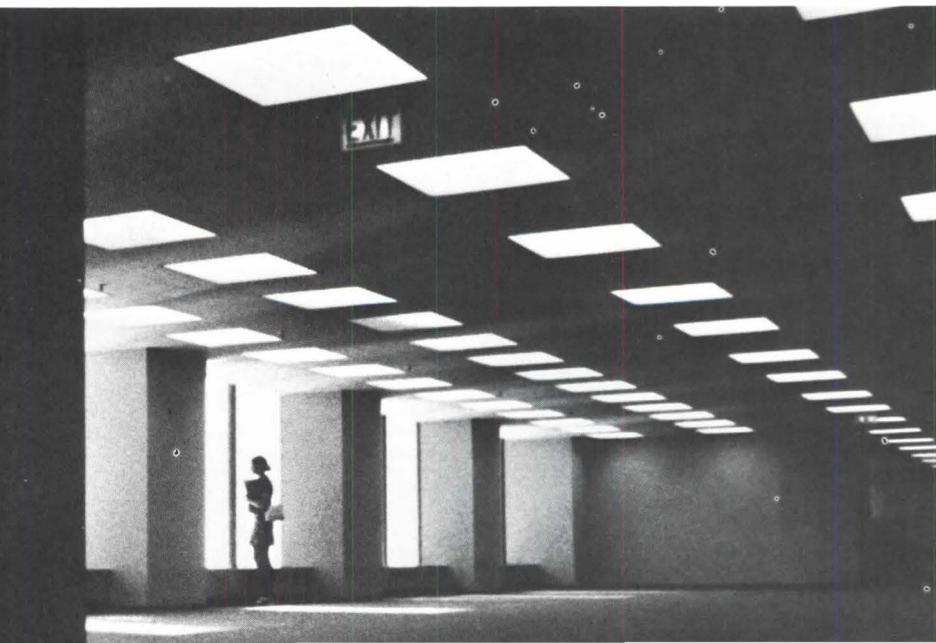
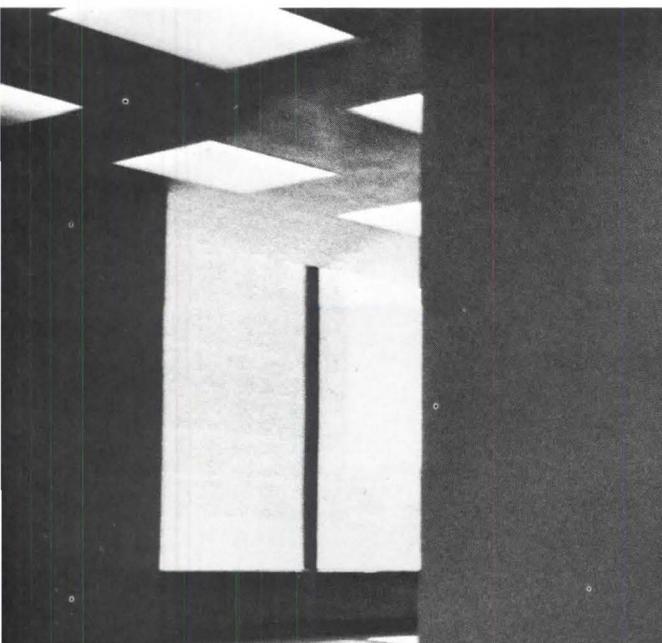
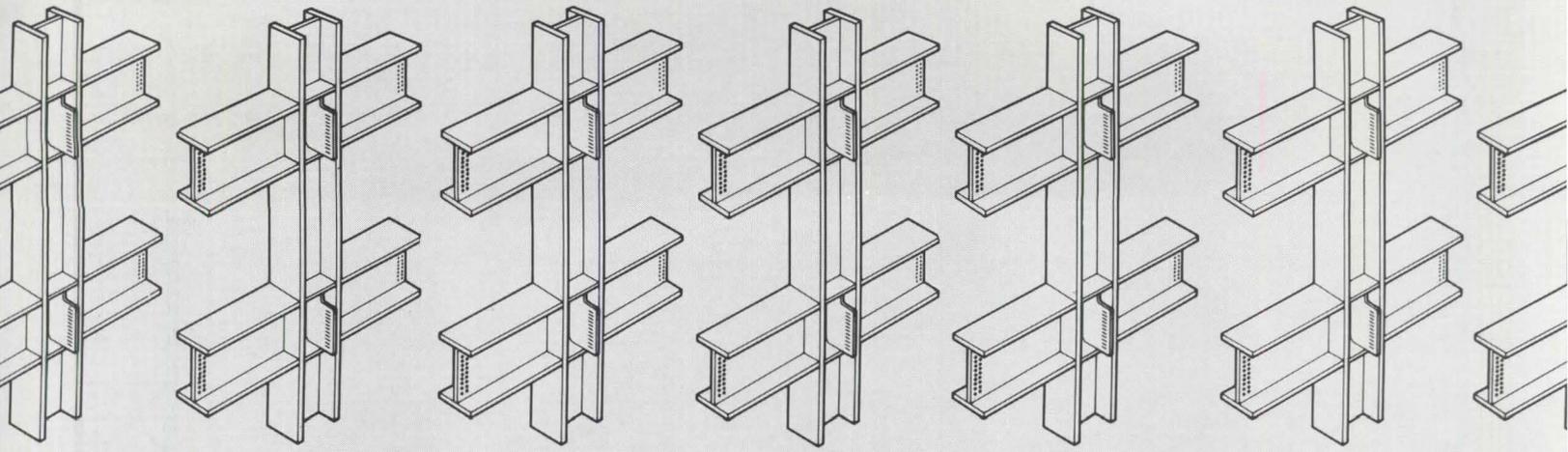
FLOORS 1 TO 50



TYPE OF STEEL STRUCTURE



A COMPARISON OF THE WORLDS TALLEST STRUCTURES



in terms of occupancy and rentability, is that the tubular configuration, gradually dropping off tubes as the building rises, makes possible various kinds of tenant space. Of the 1.7 million square feet Sears isn't using for itself, over 80 percent has already been spoken for.

Another aspect of Sears Tower is how the 16,000 or so people will use it, and get around it. Earliest on, circulation was a crucial consideration with the result that there are essentially seven places to "bivouac" people, as Tony Peters puts it. Meaning, essentially, that there are seven lobbies. One is a concourse on Franklin Street, which edges right out to the sidewalk beneath the Sears Plaza overhead; another is the main lobby on Wacker Drive, up from the sidewalk by way of a stately sweep of stairs which manage (barely) to connect the enormous mass you are entering with the street you are coming from. A third bivouac is a cavernous mezzanine which will have, before long, a Sears Bank and embellishment by Alexander Calder. At the 33rd and 34th floors and, again, at the 66th and 67th are two sky-lobbies with express, double-deck elevator service to the mezzanine "jumping off" point which is itself reachable from both the concourse and main entrance by a wall of escalators.

Down at streetside is a barber, beauty shop, drugstore, men's and women's boutiques, a 1,200-seat cafeteria, a fairly plush restaurant, a coffee shop, a take-out counter and a pub. Up on the 66th floor is a businessmen's club and, on the 103rd floor, there is, naturally, an observation deck. "Except to go home and sleep, people won't have to leave," says Tony Peters.

While one is hard put to spoil Tony's fun, this is one of Sears' most serious problems—people will never have to leave. The building's morphology, unquestionably adroit in an engineering and rentability sense, nevertheless leaves something to be desired in the way it relates to the surrounding city. Granted the fact that it is *in situ*, and granted the fact that several valid factors conspired to create its present height and configuration, it is still smug.

Critics are dead-wrong to say that Sears hits the ground with a thud: It hits the ground with

a clank and 2,000 tons of aluminum. But, no. That isn't enough to make it uncivil. Perhaps there was no choice. The site had a three-percent slope toward Franklin. And so the open space and plaza which Bruce Graham rightly urged are taken straight eastward from the Wacker Drive side, giving enough leeway at Franklin to accommodate its entrance and concourse and all those goodies which people will never have to leave. What happens, however, is that this ledge of open space creates, along Adams and Jackson, a kind of Maginot Line in granite. And this tends to discourage people. The plaza itself, soon to be lushly landscaped and benched, is not going to be such a bad place to be, once you get into it—but the question remains whether that many people will want to. SOM, in urging many things, also took a hard look at what could be done to animate the plaza by means of various stepped accesses, including one from Franklin. And there was, at one point, some consideration of making room for shops and so forth—directly accessible from the plaza itself. In the end, however, Sears officials explain that they wanted an expansive plaza for use mostly by people working in the Tower and not a gathering place for the whole Loop. The traffic and maintenance problems would have been, they feel, too much of a hassle—hence the building's arms-length ambiance at the base.

This presents a dilemma for anyone trying to get a handle on Sears' significance. If, in fact, cities are to implode and be vigorous, those cities are going to have to choose between having high-density "Lumps" of lowrise construction or, better, high-density highrises. If we mandate the latter course, the form and fabric of Sears are a prototype to be reckoned with. At the same time, if the purpose is to create a richer mix of commercial, corporate, cultural and community functions, then it will also be necessary to give much more careful attention to how such highrises interrelate with each other.

Bruce Graham says, "I think it's bad to generalize on the fate of cities, and I get sore as hell when articles do it." Valid thought. But can it not also be

asked of buildings? Including his? For Sears is simply so immense and unavoidable, and in a great many respects, so superb, that Bruce has himself made about the most generalized statement on the fate of cities since Lot's wife was turned into a pillar of salt for having seen more than she was supposed to. Sears sees a lot.

But Bruce Graham explains, "If our cities are going to survive, and they must, we must realize that all this megalopolis talk is disaster. And it follows then that we have to figure out how to create concentration which can be, on one hand, congenial to people and, on the other, optimize all these resources, like energy.

Again, a valid thought. High buildings use less ground, and the ground we don't use for them can be turned into many more people places, like parks. High buildings can also more easily tie into transit lines: "You simply couldn't rent Sears unless you could count on having a subway near," says Bruce. The thousands of people who work in such buildings, he goes on, will infuse the city with economic strength. And thinking about Chicago's proposed new towns intown, to the south of Sears and over toward the lakeshore, that strength will translate into population gains for the city, not losses. "This is the real fibre of a city," he asserts, "and it must be thought of as one building. I'm not talking about a solid, immovable structure but about building as a tool of transition—one for carrying out the tasks and activities and objectives of a city's people. Don't kid yourself. Architects don't make history. History is made by people—by people taking up the tools which architects, among others, create. Sears is something useful, by itself—but it is even more useful as a tool for perceiving and getting to other goals." Unlike one of his client's catalogs, Sears Tower is not a volume you can merely flip through. It has foisted on us an array of concerns which, brilliantly packaged, must be dealt with. It is at once an enthralling and exasperating structure which, in demanding response, gets it. Defiant and endearing, it will sell—as the tradesmen say. Old Chicago at it again.

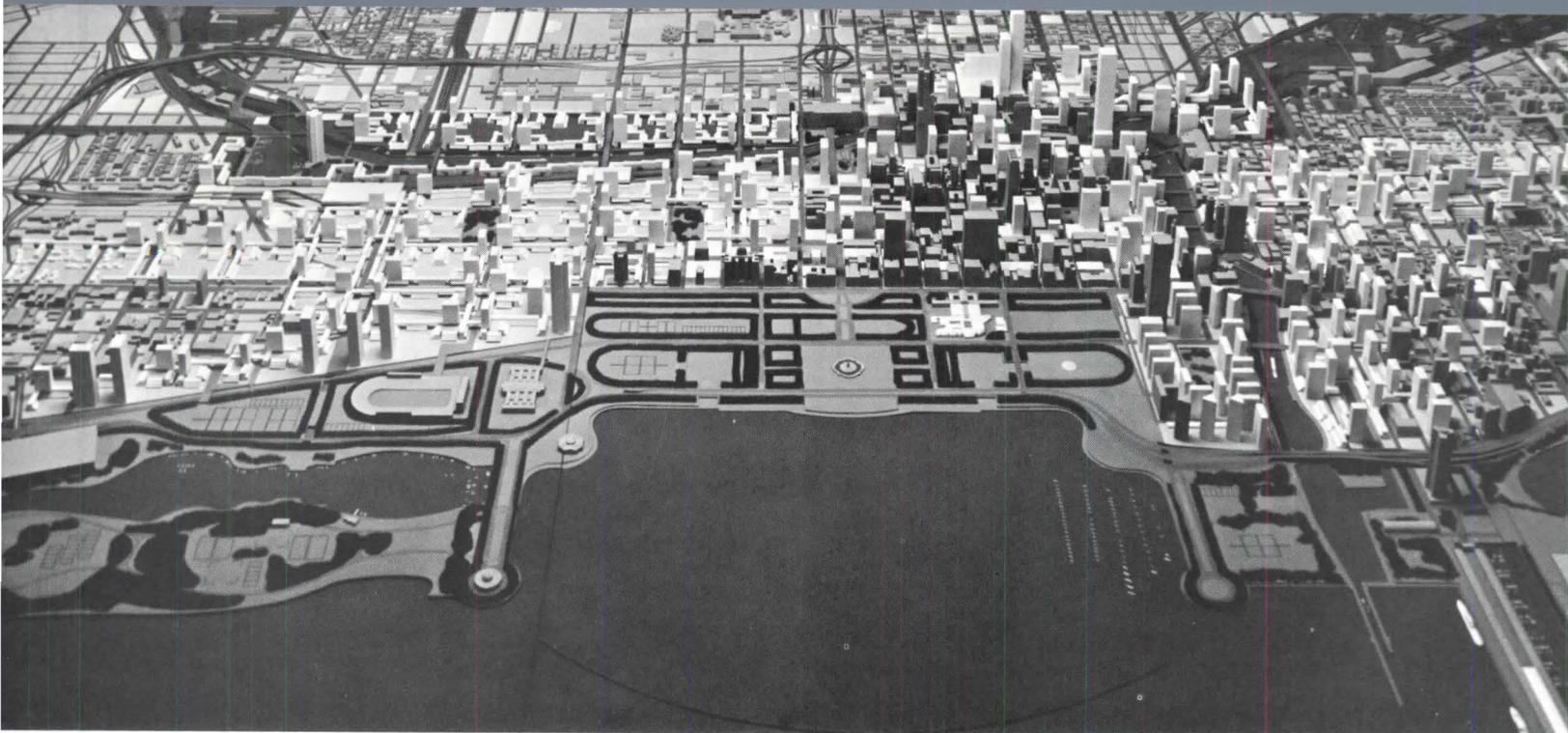
—WILLIAM MARLIN



FACTS AND FIGURES

Sears Tower, Chicago, Illinois. Owner: Sears Roebuck & Co. Architect: Skidmore, Owings & Merrill (Chicago Office); Bruce Graham, partner in charge of design; Fazlur Khan, Chief Structural Engineer; Richard Kreutz, associate in charge; Ferd Scheeler, job captain. Engineers: SOM (structural), Hal Iyengar, project manager; Jaros, Baum & Bolles (electrical and mechanical). Interiors: Saphier, Lerner, Schindler, Inc. Contractor: Deisel Construction, Division of Carl A. Morse. Building area: 4.5 million square feet (gross). Cost: \$160 million (approximate). (For a listing of key products used in this building, see page 104.)

PHOTOGRAPHS: Hedrich-Blessing, pp. 22-24; The Chicago Association of Commerce & Industry, by Kee T. Chang, p. 25; all others, Sears Roebuck & Co.



CHICAGO 21

BY PAUL GAPP

In a city renowned for ambitious plans, the kind that Daniel Burnham said are needed to stir men's souls, *Chicago 21* is one of the most ambitious to date. Certainly this is so in terms of its price tag—\$15-billion. Conceived to rejuvenate a declining inner city, it offers alternatives to the economic, social and cultural rigor mortis now overtaking the legendary Loop and its fringe areas.

The plan's target areas, the Loop as a core, cover 11 square miles, or 7,000 acres. That is, roughly, the area ravaged by the Great Fire of 1871.

How *Chicago 21* came about illustrates the weakness of the City Planning Department and demonstrates the vigor—yes, the fear—within the downtown business establishment.

In 1966, Chicago produced a long-delayed, 118-page Comprehensive Plan for itself—the first since Mr. Burnham's of 1909. For reasons no one can (or will) explain, City Council has never approved the 1966 document which thus, in turn, lacks official status.

The cautiously-conceived, often ambiguous Comprehensive

Plan pledged that the city would be divided into 16 areas and that detailed sub-plans would be produced for each. All these were later drafted except for the most difficult—the central area plan. Lewis W. Hill, who doubles as city planning commissioner and chief of urban renewal, insists his people turned out "preliminary drafts" for one. But whatever they did was kept under wraps.

Despairing of the Planning Department's lethargy and apprehensive about what was happening in and around the Loop, the Chicago Central Area Committee—a group of powerful downtown businessmen—finally decided to tackle the job, raised \$300,000 for expenses, and commissioned the Chicago office of Skidmore, Owings & Merrill to produce the plan. An eight-man team headed by Roger Seitz, an SOM associate partner, developed *Chicago 21*, which was announced last June in the office of Mayor Richard J. Daley.

For more than ten years after World War II, Chicago's downtown seemed doomed to stagnation. Citizens stared at their only new high-rise office structure, the 41-story Prudential Building, and wondered why the city was standing still.

Then came the first big ripple

of development, which manifested itself mostly in such institutional buildings as banks and corporate headquarters. By 1962, a respectable building boom was on, but some business leaders were saying Chicago was still inhibited by a conservatism born in the depression.

"Chicago is a lethargic city," real estate developer Arthur Rubloff said at the time. "About 80 percent of the buildings in the Loop are obsolete and should be demolished, but nobody has the courage to go ahead and start it."

Land Economist James C. Downs Jr. joined in and suggested that the city did not attract enough dollars from speculative builders. "Entrepreneurs don't find any kindred souls here," he said. "There are no gamblers. And the city needs this kind of dynamism. It could use a few Yellow Kid Weils—with honest intent." (Mr. Downs, then head of the Chicago-based Real Estate Research Corp., is today president of the organization of businessmen who bankrolled *Chicago 21*.)

The "gamblers" materialized not long afterward. So did still more institutional builders. They were joined by the federal government, which constructed two huge office buildings, and the

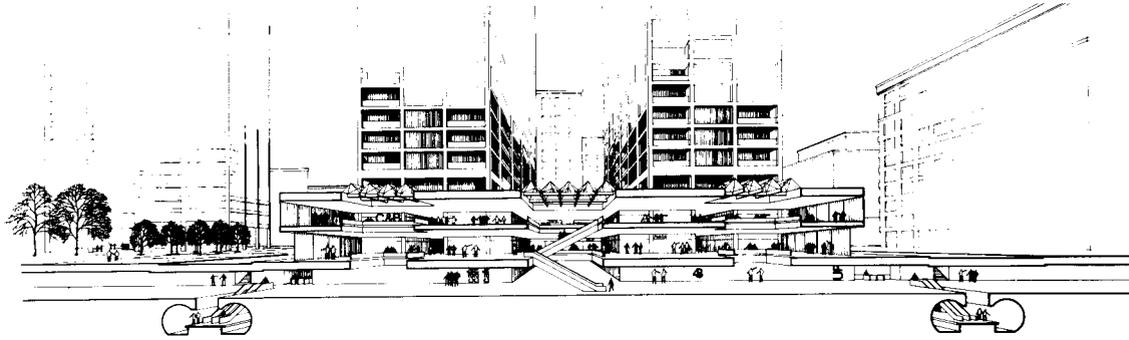
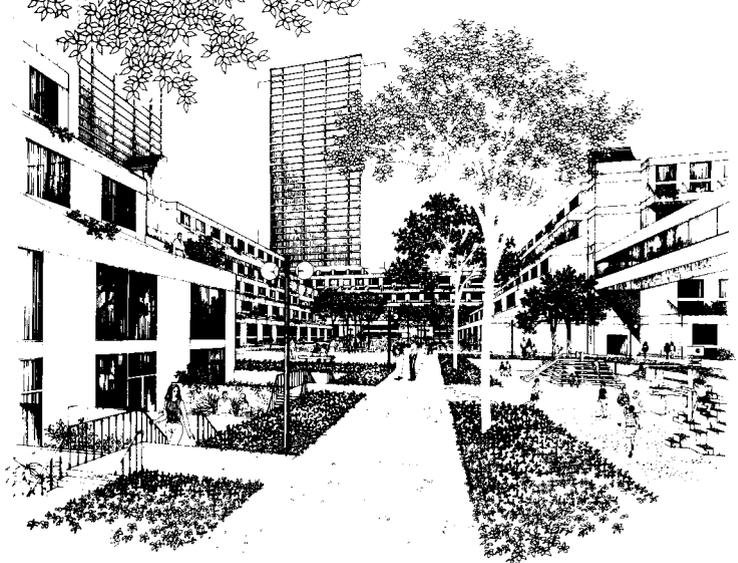
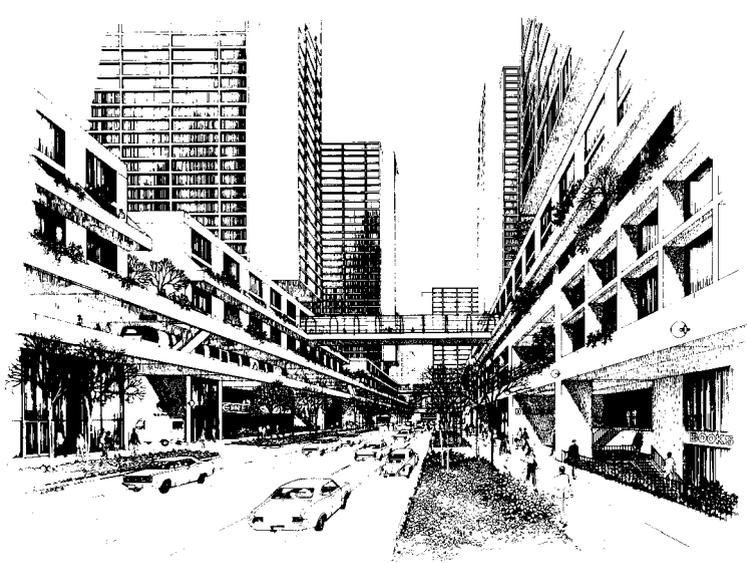
local government, which razed a full square block to build a Civic Center. Everywhere in and around the Loop, it seemed, old buildings were coming down and new ones rising. And on air rights over the Illinois Central Gulf Railroad, flanking the eastern edge of the Loop, there began construction of a vast complex of office, hotel, and residential structures—Illinois Center (see page 74).

The once-dominant Prudential Building is now dwarfed by Sears Tower, the Standard Oil Building, John Hancock Center, and other colossi approaching or exceeding the 100-story mark. In 16 years, downtown office space has increased by 32 million square feet, or 40 percent, and there's much more to come.

Why, then, is the downtown area declining at the very time when some segments of growth are at a new peak?

The character of the growth is one factor. New construction has wiped out a sizable number of old attractions. In only the last three years, the number of street level retail establishments has decreased by more than ten percent. Famous restaurants like Fritzel's have gone broke and large hotels like the Morrison and the Sherman have gone under. New retailing and ho-

Mr. Gapp is urban affairs editor and architecture critic of The Chicago Tribune.



The overview (opposite page) covers the central communities between North Avenue and Lake Michigan. Enclosed walks and transit are planned for the South Loop New Town (upper left) with its multi-level apartments (above). The walkway and subway system (left) would include shops and restaurants.

tel activity has shifted north of the Loop to Michigan Avenue's "Miracle Mile," where even Marshall Field & Company, the monarch of downtown State Street, is hedging its bets by building a new store.

Clearly, the Loop has taken on a monolithic quality, particularly after 5 p.m. when its rows of office slabs and towers are empty and many of its streets remind one of Ottumwa, Iowa, say on a Sunday.

While the office building boom has proceeded, there has been an exodus of central area residents. Despite substantial high-rise construction (now shifting to condominiums), the area has lost 21,000 persons in the last ten years.

Racial change is another major factor in the decline of downtown. The last few years, blacks in increasing numbers have been coming to the Loop, where whites formerly predominated. Old ghetto shopping strips have disappeared, black spending power is rising, and big Loop movie houses book almost nothing but films aimed at black audiences. And so blacks come downtown to shop, to be entertained, to promenade.

Meanwhile, a number of small businesses catering largely to blacks have sprung up along

Randolph and State Streets at the north end of the Loop, where most of the black action is centered. The steamy little fast-food restaurants and stores selling cheap jewelry, transistor radios and fake Swiss watches have not exactly enhanced what was once the sparkling center of downtown nightlife.

A third factor in the decline of the central area is Chicago's losing battle with the suburbs, which are outpacing the city in such crucial growth categories as industry and retailing. Most significantly, the suburbs are producing new jobs even faster than Chicago is losing them. They have exchanged their satellite status for independence. They have their own shopping centers and get along with a minimum of cultural and entertainment resources. The inescapable truth is that in many respects they really don't need Chicago any more.

All three factors in the central area's critical illness are tightly, formidably interlocked. The vitality of the entire city, in turn, depends to a considerable degree on what happens to its core. The central area encompasses property yielding about a third of the city's assessed tax valuation and provides 43 percent of its employment.

And so the urgent need existed for a coordinated, far-ranging package of solutions, a massive plan: *Chicago 21*.

Set down in a lavishly illustrated book of 125 pages, it carries SOM's name, and those of three consultants who made important contributions. Real Estate Research Corp., sometimes in the person of James Downs, opened its data bank on Chicago and contributed tough, pragmatic, economically-oriented insights on what will work in the city and what won't. Alan M. Vorhees and Associates, Inc., fed in facts on traffic and transportation. Professor Morris Janowitz, a distinguished University of Chicago sociologist, offered sophisticated but gutsy advice on how to create a new kind of inner city environment that potential residents supposedly won't be able to resist.

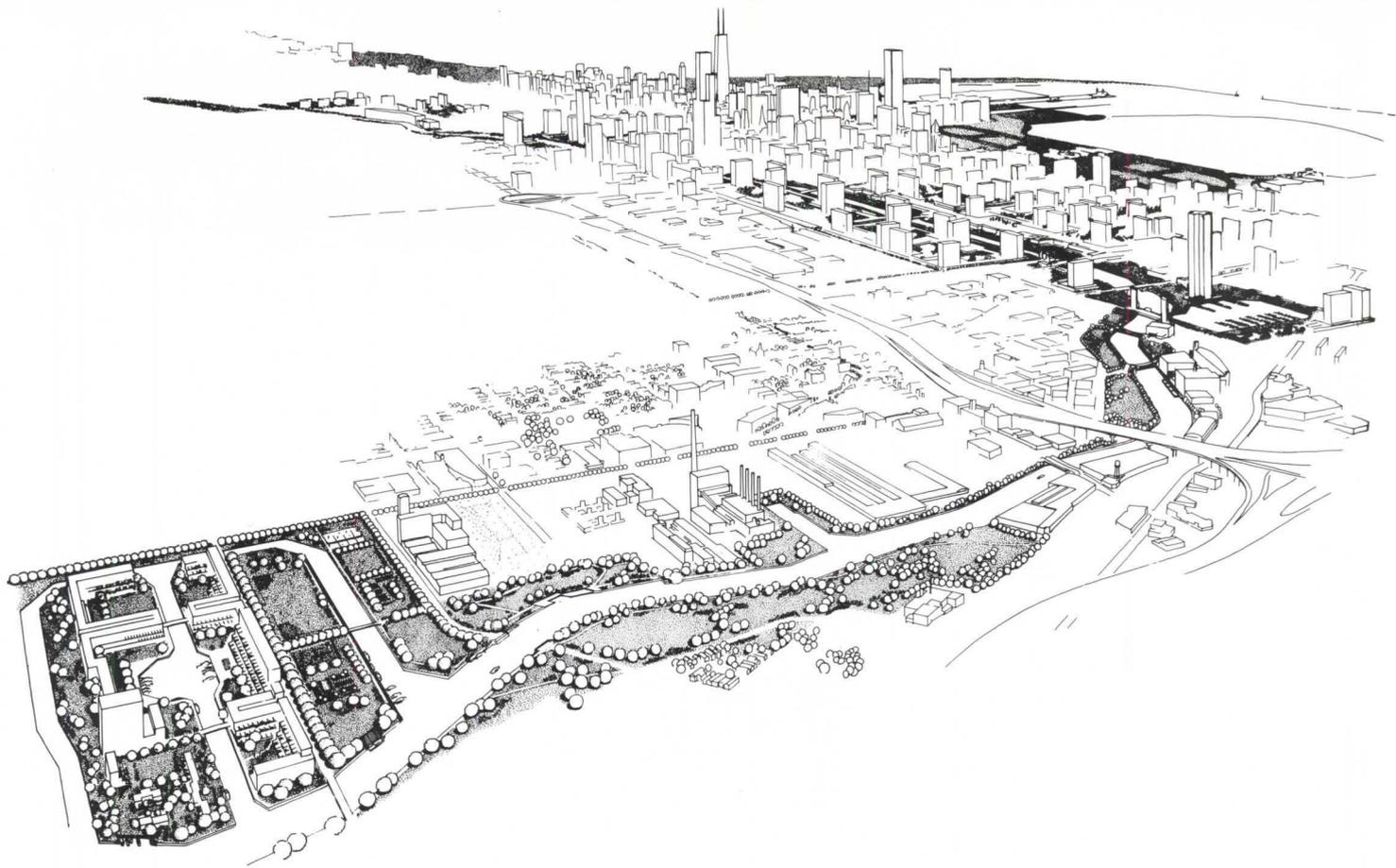
What the SOM-directed team has produced is a sensitively conceived program for improving and expanding housing, recreation, open space, people-moving systems, shopping facilities, public services, employment opportunities, landmark preservation, land use controls, and an assortment of amenities which would give central Chicago charm, grace, beauty, convenience, economic stability.

Chicago 21 divides the area into four sections: central (downtown), north, south, and west. Without buttressing on all sides, a renewed Loop would simply be an island surrounded by areas struggling with the same old problems.

The single most important element calls for a "new-town-in-town", just south of the Loop, to house 120,000 persons on 600 acres much of it covered by unused railroad yards.

The new town design is based on a series of super blocks, nine to 16 acres in size. Each would be the equivalent of four to eight standard city blocks and would accommodate 1,000 to 3,000 dwelling units. On each super block, six or seven levels of terraced apartments would rise above grade, stepped back so that the roof of one becomes the patio or yard of the one above. These stacked town houses or maisonettes would be, as described by SOM partner William E. Hartmann, "much like Montreal's Habitat." Shared open space within the perimeters of the terraced structures would provide recreation areas.

Integrated within the low-rise apartment structures would be space for indoor tenant parking, small community schools, shops, and small offices. The service



and commercial spaces would face outward and provide lively, linear street environments. The scheme is partly derivative of the old "living over the store" concept and would provide some of the same feeling of community—of "neighborhood."

SOM has added a number of innovations. A system of enclosed pedestrian walkways above grade would separate foot from auto traffic and provide pleasant access between super block neighborhoods. A mini-transit system would whisk residents to and from the Loop in minutes. Proximity to Lake Michigan and the Chicago River would provide an opportunity for water-oriented amenities.

Unfortunately, an undetermined number of high-rise apartment towers would be spotted around the new town and tied in with the same facilities serving low-rise residents. The economic feasibility of creating such a huge development perhaps dictates such additional density. But if the plan becomes reality, one wonders whether developers will not allow an overabundance of towers to so dominate that the essence of the neighborhood concept will be destroyed.

Chicago 21's sponsors and just about everybody who has

spoken out about the plan agree that the new town cannot succeed unless it lures a substantial number of families with children. And that means the town must have good schools.

Sociologist Janowitz believes a hand-crafted (but not elitist) school program will be essential to the new town. "We'll need several educational learning tracks," he said. "There should be parochial as well as public schools. This will all have to be centralized so far as local control is concerned, with a high degree of parental involvement. We won't want one big school, but small units which can be put into use on the day the first families move in, and perhaps swung over to different uses later, depending on the situation. Magnet schools offer us an opportunity in this direction. There is a great deal of rigidity in our public school administrators here. But they'll just have to be sold on this idea—the interplay between education and housing."

Chicago 21 proposes several other means of strengthening areas adjoining and fanning out from the new town. The existing Chinatown area would be given room to expand (young married Chinese are running to the suburbs, too, partly because

there is a housing shortage in the neighborhood). The nearby, ethnically-mixed Pilsen neighborhood would be rehabilitated, without bulldozing. New light industries would be encouraged to locate in appropriate areas.

Along the South Side's once-magnificent Prairie Avenue, historical and architectural landmarks including H.H. Richardson's Glessner House, are to become elements in a commemorative park, recently announced by the mayor. The new town would also be coordinated with portions of the nearby Illinois Central air rights development, which will extend southward along the lakefront from its present downtown anchor point.

A locally controlled, privately financed development corporation, structured along limited-dividend lines, is being set up as a means by which a number of developers can share the risk and cost of building the new town. In the language of the plan, "It could assemble or lease land, prepare overall plans for its development, install the necessary infrastructure, develop portions of the community itself, or sell or lease parcels of land to other developers."

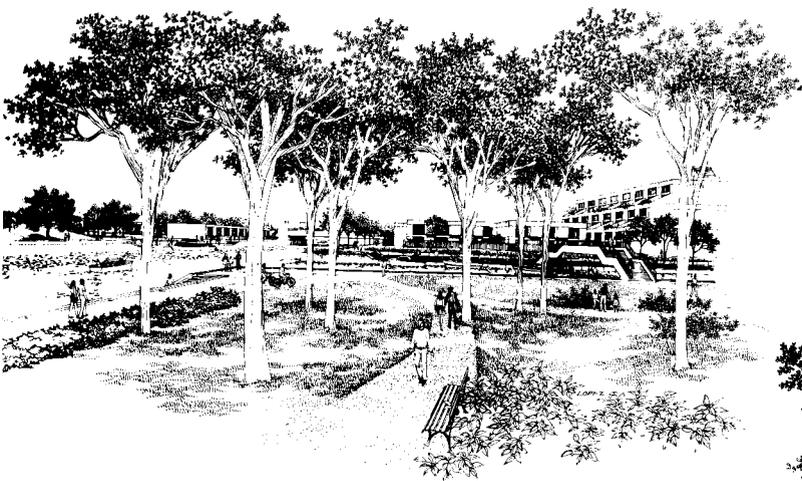
If most of the attention paid to Chicago 21 thus far has been concentrated on the new town

proposal, it is simply because the plan cannot succeed without it. In an implementation analysis, the planners themselves assigned priorities to 32 elements of their proposal. Five are rated "critical," and the new town is at the top of the list.

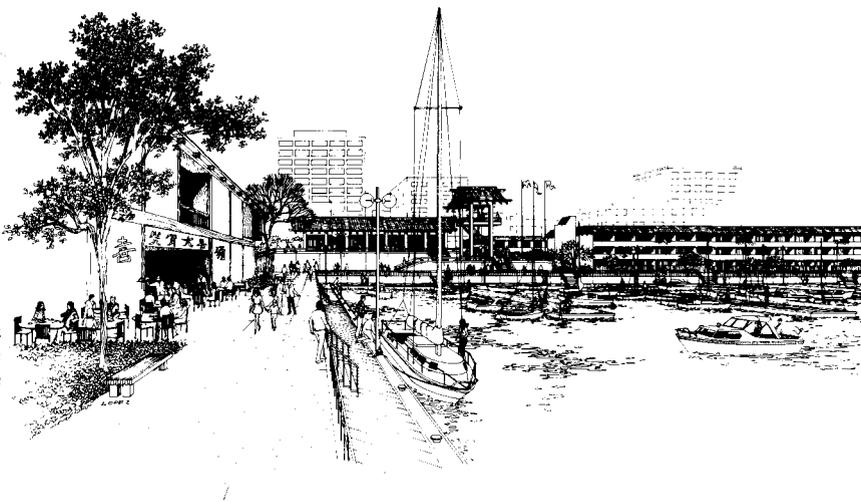
The huge housing complex, if successful, would theoretically slow down the outward flight of middle class white families and perhaps serve as a model for similar developments. It would pump new daytime shoppers and nighttime entertainment seekers into the Loop. It would infuse the city's tax base with fresh dollars and prove it is possible to raise a family in town.

So goes the dream, and it is a noble one. But can the new town scheme succeed in its present form? Can enough private money be found to carry it forward without sacrificing the quality of conception built into it by SOM, and while coping with the gritty realities of land and housing prices, the school system, and racial harmony?

Janowitz is dead right about schools, but whether Chicago's Board of Education can be educated about the realities of making the new town work is quite another matter. And if childless couples and singles were



Public access to the river would increase with the development of a green belt (left) along both sides of the river. The Pilsen River Community (above) proposed as a 70-acre site south of Cermak Road—would house 8,000 residents. At right, the boat basin planned for Chinatown.



to be left as the only marketing targets, how would one talk them into living on the South Side, when it is so much more fashionable and fun to live near the lake in the burgeoning high-rise neighborhoods north of the Loop?

Chicago 21 supporters would quickly answer that the new town's feasibility cannot be evaluated without considering the planning package for the entire central area. This would be a rational response, but it raises a still more fundamental question: Can enough of the plan's other goals be reached quickly enough, in a logical progression, to make the central area stick together until all of its physical, social, and economic interstices have been plugged?

The fact is that some of Chicago 21's other proposals were originally conceived 10, 15, or 20 years ago, but remain unfulfilled because government has either failed to act on its own or team up with private enterprise. City Hall pays lip service to planning and land use controls, but has long followed a laissez-faire policy out of fear that any strings it attaches to development may impede the building boom. The powerful downtown business establishment simply coasted along until

it suddenly realized that the Loop was turning into an arid beehive of office workers.

SOM's packaging of old proposals (an expanded subway, lakefront improvements, and green belts along the Chicago River for example with new ideas cannot be faulted. Its mission was to create a genuinely comprehensive plan, and it succeeded.

Transportation receives major attention in Chicago 21. The new subway would permit removal of the old Loop elevated tracks and uncover attractive new growth areas along streets now cursed by the shabbiness of the "El" structure and the nerve-grating noise of its trains. Subway tubes would connect directly with suburban commuter train stations and offer rapid service to office, commercial, and residential points both within the Loop and to the north, south, and west.

Only one short, new, and uncontroversial expressway is advocated, and it has long been needed to connect downtown with the South Side's highway network. The plan urges action on a series of street extensions, interchanges, and a new bridge over the river to reduce congestion, separate through traffic from local, and accommo-

date new auto movement patterns to be generated by the air rights construction. One goal is to divert traffic from Lake Shore Drive and turn its downtown section, at least, into a landscaped "grand boulevard."

A zone system is proposed to discourage long-term parkers in the heart of downtown and encourage auto commuters to leave their cars in low-cost lots at the edge of the business district. Rapid transit lines would shuttle them to the Loop.

Chicago 21's open space proposals are generally a reiteration of what city planners have been talking about for years, namely protecting and enhancing the lakefront park system and expanding it with landfill (not a single major lakefront improvement has been made for 30 years). One new proposal is to scrap Meigs Field, the city's little downtown airport, and convert it to a grassy, landscaped recreation area. Nothing could make more sense, particularly since small aircraft could be served at Midway Airport, which has gone begging for business since most commercial flights were shifted to O'Hare International years ago. But city officials have reacted coolly to the idea. Meigs would remain intact under the city's official new

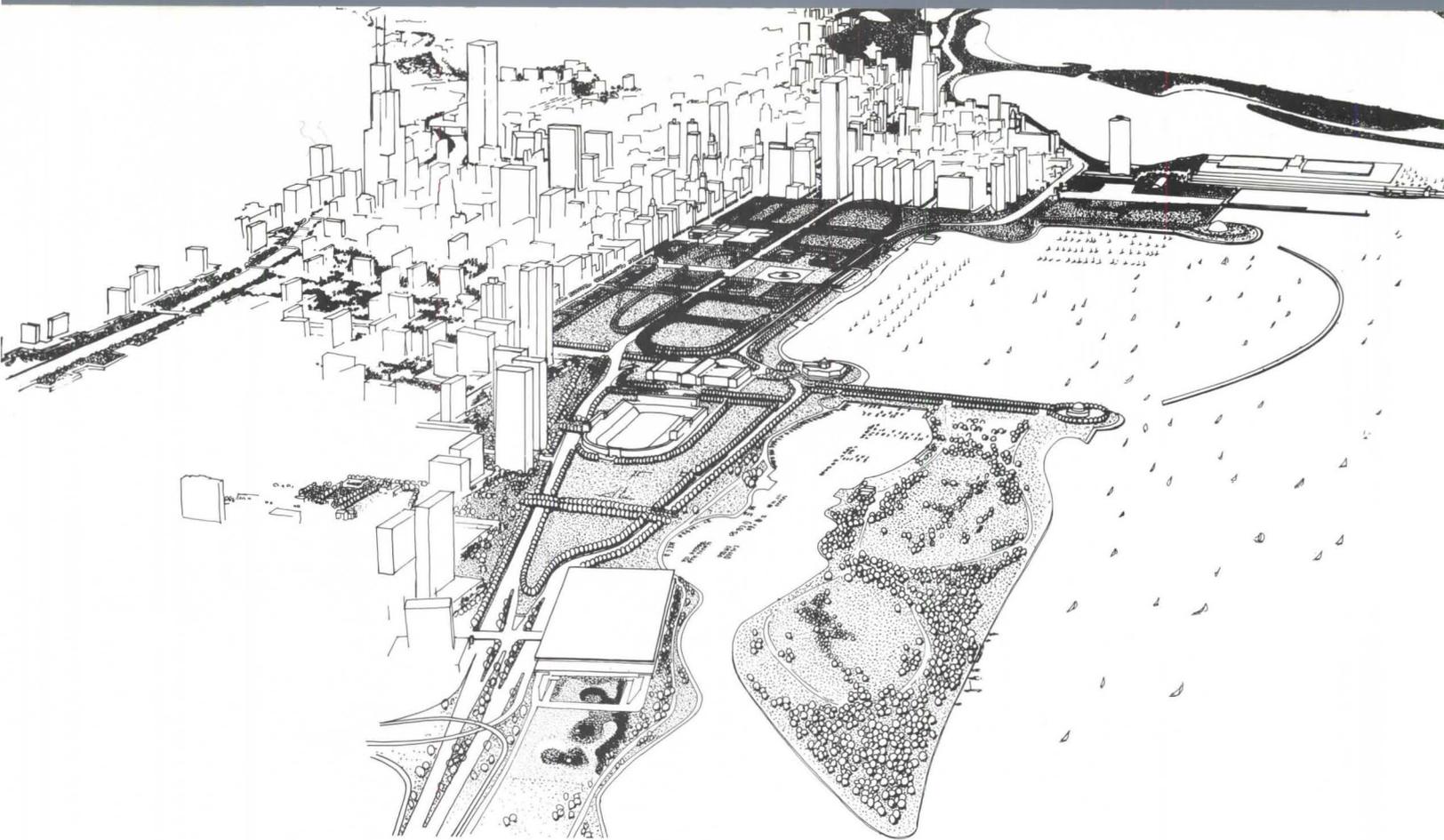
lakefront plan, which was announced in 1973 and revived a number of old schemes for recreational islands in the lake.

Also revived and embellished in Chicago 21 is the old idea of lining the Chicago River with green belts, esplanades, and pleasure boat basins which would beautify downtown, the new town, and other sections of the central area. But the river cannot become a Seine or an Arno until it is cleansed of pollution.

For downtown proper, Chicago 21 proposes dethronement of the automobile, elevation of the pedestrian, more over-the-store (or office) housing, protection against the city's ghastly winter weather, and a constellation of amenities ranging from new theaters to shopping malls.

Under the transportation and parking plan, private vehicular traffic would be reduced by 20 percent. State Street, with its big department stores, would be closed to private autos. Wide, landscaped pedestrian malls on State (and later on other streets) would flank "transitways" for buses and taxis.

Downtown already has an extensive system of pedestrian tunnels interconnecting with major buildings and subway stations. This network would be



expanded and supplemented by enclosed walkways linking buildings two stories above grade. The walkways could easily be incorporated into new structures and would eventually be extended to older buildings as well. Galleries and other enclosed spaces would be created at or above grade and strollers through the Loop would encounter a lively new array of shops, restaurants, and entertainment centers at all three levels. Ultimately, it would be possible to walk almost anywhere without ever going outdoors.

Mixed-use buildings including apartments would provide a built-in market for the Loop's new hoped-for attractions and an after-dark population to enliven the now largely deserted streets.

SOM, following already established land use trends, proposes three downtown development corridors. One, flanking both sides of the river at the west edge of the Loop, would be reserved for office buildings. Another, bordering the river at the north, would be view-oriented and best used for residential and open space development. The third would have State Street as its spine and offer a blend of office, residential,

and entertainment.

Chicago 21 proclaims the need for preservation of architectural and historic landmarks, lists 31 of them in the central business district, and suggests in a rather backhand way that a development rights transfer plan deserves to be explored and tested as a means of saving them. It also endorses zoning bonuses for developers who build theaters, restaurants, and roof gardens into their projects.

On balance, the plan for downtown appears to be more than sound and in concert with many of the general goals articulated earlier, but in far less detail, by city planners. The single downtown elements to which *Chicago 21* assigns "critical" priority is the new subway and concomitant razing of the "El," a project which is already three years late.

The plan's rather dry prose tends to almost conceal the excitement and vitality which would be pumped into the area if even a few of the major proposals were realized. And some things are left unsaid, but illustrated. Nowhere in the text, for example, is it suggested that merchants tear down the blindingly bright and impossibly ugly fluorescent street lights they installed at their own expense

on State Street not many years ago. But if you look closely at SOM's renderings of the Street's pedestrian malls, the lights have disappeared and in their place are poles and lamp housings of impeccable design.

One thing missing from the downtown plan is a means of coping with the dilemma of whites avoiding the north side of the Loop favored by blacks. Only a few months after *Chicago 21* was announced, however, the city came up with a surprising proposal for urban-renewing the black area. Strangely, the plan provoked hardly a ripple of public reaction, but its significance is immense. It is no less than an official admission by City Hall that the Loop is in grave trouble.

The urban renewal area covers six full blocks covered by 52 buildings, about half of which will probably be demolished. Seven large movie theaters catering largely to black audiences are in the area, along with a number of retailing, loft, and office structures, many of them at least 50 years old (but none considered a landmark).

Demolition targets are not final, but clearance will provide tracts of considerable size for private redevelopment and construction of a new main library.

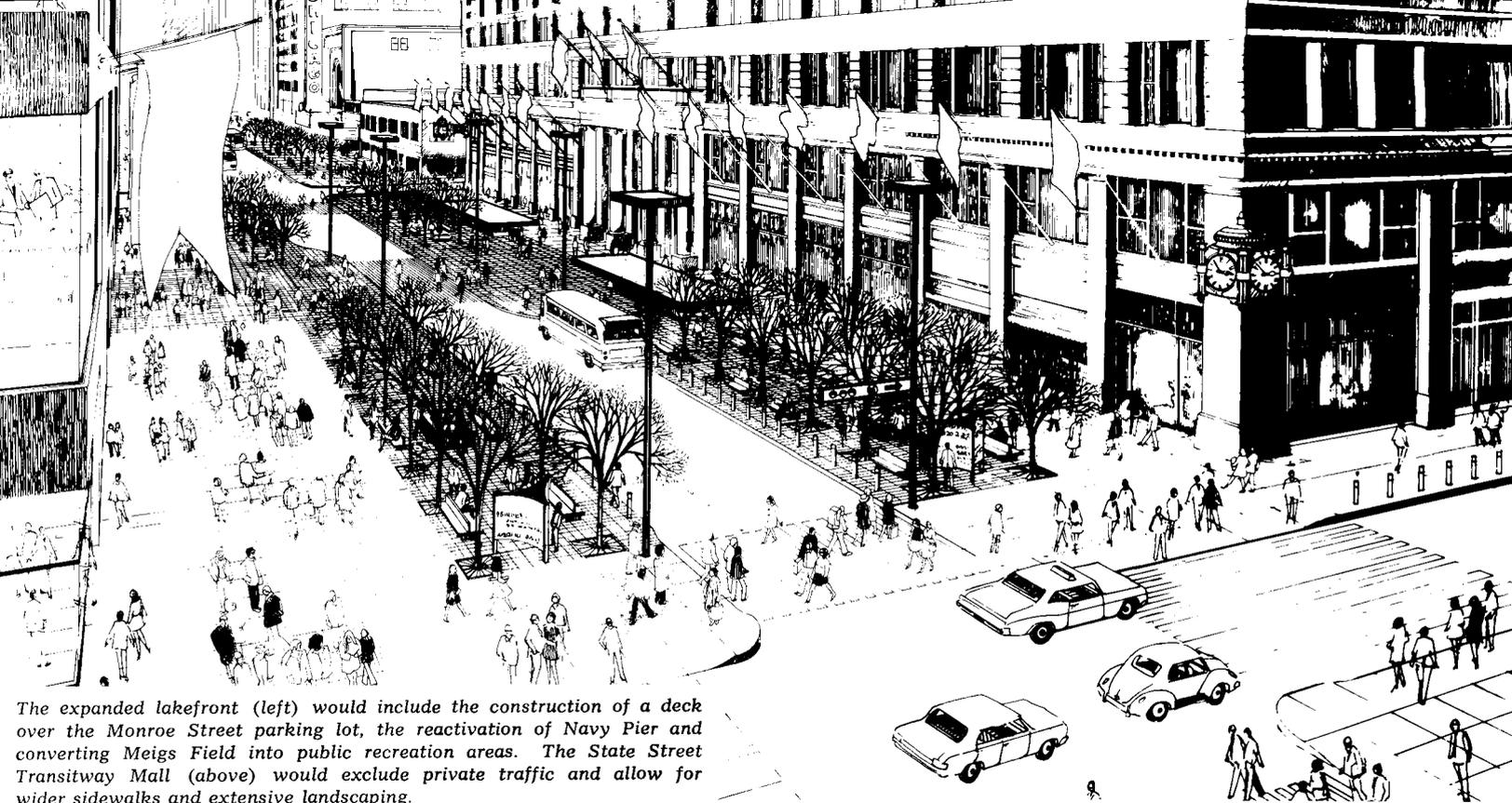
Realtor Rubloff, long critical of the city's timidity about renewing downtown, has expressed interest in the area. One possibility: a huge complex of inter-related office and apartment buildings, hotels, retail stores, and theaters. How soon the city will begin clearance is unknown, but it is in this area that rejuvenation is likely to begin.

Chicago 21 also devotes major attention to the north side of the central area, which embraces everything from the Gold Coast along the lake to industrial land and some blighted western neighborhoods.

The plan singles out the huge Cabrini-Green public housing project for immediate attention and gives it "critical" priority. Cabrini is the most dangerous and squalid of Chicago's high-rise public housing mistakes—a black ghetto where every resident either lives in terror or is himself a terrorist. Housing officials are running an expensive study on better security.

Cabrini also rests against one of Chicago's sharpest lines of demarcation between poverty and wealth. It is but a short walk from Cabrini to the lakefront's Astor Street neighborhood, where condominium apartments are selling for \$250,000.

Chicago 21 proposes that



The expanded lakefront (left) would include the construction of a deck over the Monroe Street parking lot, the reactivation of Navy Pier and converting Meigs Field into public recreation areas. The State Street Transitway Mall (above) would exclude private traffic and allow for wider sidewalks and extensive landscaping.

Cabrini's residents be given better job training and placement opportunities and improved health, education, and other services. Most importantly, it advocates occupant ownership of the rental units: "Residents should become more directly involved in the operation and administration of their community, even to the extent of owning a share of it."

The whole planning scenario in Chicago has become so complicated and befogged in recent years that it is difficult to predict how much support *Chicago 21* will receive from local government, which must put up an estimated \$1 for every \$5 spent by private enterprise if the new plan is to succeed.

At present, *Chicago 21* has a kind of hazy, semi-official status which is impossible to pin down. Mayor Daley and other city leaders have praised it, but declined to give it their imprimatur, or comment on its details. Their guarded public utterances about it boil down to something like, "There are a lot of great ideas here, and we hope many of them can be made to work."

It appears likely that zoning and other land use reforms integral to the plan's realization stand little chance of attainment. The old laissez-faire posture per-

sists. Last year, for example, city planning commissioner Hill proposed an ordinance which would expand mandatory application of the planned unit development procedure under which large single buildings or complexes are judged on their over-all merits instead of a strict adherence to zoning regulations. The PUD ordinance would have given the Plan Commission and City Council veto rights on virtually any ill-conceived high-rise proposal for any area of the city.

When real estate developers turned out at public hearings and condemned the proposal, Hill quickly pulled back and came up with a watered-down revision of the ordinance. Many wondered why he suggested the tough PUD ordinance in the first place, since it was so out of character with City Hall's no-control policy. Quite probably, it was to temporarily reduce the heat generated by North Side residents who have been complaining about over-densification of their neighborhoods.

One top policy maker who has expressed himself clearly on *Chicago 21* is Julian H. Levi, chairman of the Plan Commission, whose unpaid members are appointed by the mayor. "I have no enthusiasm whatsoever

for a group of businessmen who come marching in with a big development plan that doesn't have any cost-benefit analysis," said Levi, a University of Chicago professor of urban studies. "I've been around too long and seen too many other plans presented and then shelved. The question in my mind is whether these people are really convinced they want to spend the money to save the Loop."

Levi has cut through to the heart of the matter. In Chicago, the entrepreneurs—the Yellow Kid Weils—take the lead, and the city follows. Ad hoc planning has a way of usurping the big-picture plans with which Chicago has become over-laden.

In the end, the money men will, indeed, have to decide whether they wish to take on this high-stakes gamble. Only they can make the new urban renewal scheme successful by investing millions in the seamy north end of the Loop. Only they can assume the risks which go with the new town proposal.

Chicago 21 is thus more than an intelligently conceived and slickly packaged plan. It is also a sort of final call for action. Final, perhaps, because Chicago is losing its battle with the suburbs, white flight, and the loss of inner city attractions.

Perhaps it is already too late. Maybe it is too much to expect the city, with its deteriorating tax base, to come up with the billions in public works necessary for the functioning of a totally rejuvenated central area, no matter what the developers do. *Chicago 21*, after all, is a plan for only five percent of the city's total area, and there are problems of critical magnitude in the other 95 percent.

While the city and the money-men ponder over making commitments, the paradox of growth keeping pace with decay continues, as does the deception that any kind of new growth means things are getting somewhat better.

But the nature of the growth points to a day when the last middle class white family has fled the city—when only the wealthy remain within their fortified apartment towers along the lake and the rest of Chicago is populated by the poor. This is no doomsday fantasy. You can, in fact, find such predictions in studies commissioned by the city and stuffed away in the backs of file drawers. Chicago, which keeps telling itself to "make no little plans," continues to move toward the time when it will have little left to plan for.



CITIES WITHIN A CITY

The Origins of three
multi-use structures
in Chicago

BY BLAINE A. BROWNELL
AND CLIFFORD C. PETERSEN

When the 100-story John Hancock Center was topped out on May 7, 1968, Mayor Daley proudly claimed it would draw new downtown residents from the spacious "conformity" of the suburbs. Indeed, from the moment it was announced in 1965, "Big John"—with its 48 floors of apartments capping 44 floors of offices and commercial space—was heralded as a landmark of the "vertical city" of the future, a structure that, as *Popular Science* magazine put it, "will serve a resident's needs so completely that, if he chose, he'd never have to leave."

The concepts of multi-use and "self-containment" seemed to capture the public imagination even more than the Hancock Center's innovative structural design: even the leasing ads ballyhooed that those who lived and worked there could commute by elevator in less than a minute. With its restaurants, shops, health club, commissary, swimming pool, and coin-laundry, "Big John" had the appearance of a self-sufficient community.

Though *Time* magazine hailed the Hancock as a "promising new concept for modern metropolis dwellers and real estate operators," this multi-purpose structure (FORUM, July-Aug. '70) was actually a veteran of American urbanization. The squat brick or frame buildings of the 19th Century, with a small shop below and the proprietor's apartment above, and the elegant apartment houses of the late 19th and early 20th Century, with fancy shops and some offices on the first several floors, were traditional urban features.

And "cities within a city" were not new to Chicago. Marina City, completed in 1963, joined a conventional 16-story office building with two circular high-rise residential towers of 65 stories in a complex that also includes shops, a health club, an ice-skating rink, motion-picture theaters, restaurants, and an elaborate marina on the Chicago River. Water Tower Place (page 44) will fea-

ture seven stories of shopping and 74 stories of offices, condominiums, a hotel, and assorted restaurants. The key words here are "multi-use" or "multi-purpose," indicating the effective combination of residential and commercial components with supporting services under one design "roof."

The Hancock Center, Marina City, Water Tower Place and similar high-rise, multi-functional, "self-contained" buildings that increasingly shape the skylines of modern American cities are unique in scale, if not in character. They are currently touted as means of reviving central business districts and the varied functions of urban life that got separated and decentralized under the zoning laws which prevailed in most American cities after the 1920's. Perhaps most important in assessing their significance, apart from esthetic and engineering aspects, are a number of questions concerning conceptualization and the decision-making process leading to construction.

What were the principal motivations for these buildings? How did the owners or investors and the architects influence planning and design? What types of information were required at each phase of planning? Why were multi-use complexes decided on? How did those participating in initial planning perceive the social and economic significance of such buildings?

The answers would tell us a great deal about multi-use structures, and also about the varied relationships between clients and architects and between "social function" and financing methods.

In some respects, the three Chicago structures are dissimilar. Marina City places the greatest relative emphasis on residential space, the Hancock on office space, and Water Tower Place on commercial space. "Big John" currently ranks as the fourth tallest skyscraper in the world, and Water Tower Place's 74 stories qualify it as a very tall building. Marina City, however, even with its television antennae, is dwarfed by the Windy City's most recent crop of structural giants. The Hancock Center and Water Tower Place are roughly similar in the markets which they serve, in their "ur-

ban role": Both complexes include luxury condominiums as their residential components (the Hancock Center converted its rental apartments to condominiums in 1972), and Water Tower Place contains the elaborate, expensive Ritz-Carleton Hotel. Both structures are well adapted to their locations along Chicago's "Magnificent Mile" high-fashion shopping strip, and near the "Gold Coast" residential area—one of the most affluent pockets in all of urban America. Marina City, while only a few blocks away on State Street, seems to occupy a very different urban landscape. Its rental apartments appeal to middle-income tenants, and its shops, offices, and marina, while hardly unimpressive, serve a less rarefied clientele.

These three were shaped to some degree by different economic imperatives; but they are also the products of varying origins, conceptions, and contrasting financing methods. The details behind the acquisition and utilization of sites, as well as financing, will be quite familiar to most architects. They are, indeed, not very different from those involved in other large projects, multi-functional or conventional. But the similarities and differences in planning and decision-making cast in some relief the realities and potential of the multi-functional, "self-contained" building.

Site Procurement

When developer Jerry Wolman visited Chicago in the summer of 1964, he already knew that the John Hancock Mutual Life Insurance Company was interested in building "something prestigious" in the area. When he was shown an 85,000-square-foot site on North Michigan Avenue, Wolman concluded almost immediately that it met his basic criteria in assessing property: It could take a large structure, the price was fair, and he believed he could sell the land for a profit even without developing it. In November, he signed an agreement to purchase the site for approximately \$60 per square foot, making a \$500,000 deposit.

From his previous experience with the insurance company, Wolman knew that Hancock was interested in any sound real estate investment, especially one

that promised a degree of prestige and publicity. Beyond that, Wolman suspected that the Hancock people were piqued because the Prudential Insurance Company had constructed a taller building than their own in Boston. Wolman had no specific idea of what would be erected on the property in the beginning, though it was clear that the location and the cost of the land demanded something ambitious. Prior to the purchase of the site, Wolman approached the Chicago office of Skidmore, Owings, and Merrill for a preliminary design for the property. He was confident that the site could be developed—if not with Hancock money, then with somebody else's.

Site procurement for Water Tower Place began five years later. When one and a quarter acres fronting on the avenue just south of the Hancock Center became available, Philip M. Klutznick was immediately interested. Developer of Park Forest, Illinois and a number of Chicago area shopping centers, and former U.S. Ambassador to the United Nations, Klutznick was exceptionally experienced and qualified when it came to matters of construction and real estate. He merged several private firms which he headed into the Urban Investment and Development Company, which entered into a 50/50 joint venture with Marshall Field and Company to buy and develop the site. In 1970, Urban Investment became a subsidiary of the Aetna Life and Casualty Company—insuring substantial credit—and commissioned Loeb, Schlossman, Bennett and Dart.

Though Urban Investment is currently engaged in a number of joint ventures with Marshall Field and the Sears, Roebuck and Company—new towns near Aurora, Vernon Hills, Calumet City, and Orland Park, Illinois—the property was acquired specifically for a "merchandising center" of some sort. Marshall Field had been interested in a branch department store along the "Magnificent Mile" for some time, and the proximity to other high-fashion shops, including those in the Hancock, strongly suggested a commercial building. The present scheme, however, evolved only after the initial site had been purchased and the architects commissioned.

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Six years before the Hancock Center was on the drawing boards, the first steps leading to Marina City were taken. A perceptive president of the Building Service Employees International Union, William L. McFetridge, found a way to deal with two of his union's problems: alleviating the loss of janitorial jobs created by the flow of middle- and upper-income citizens to the suburbs, and securing a good return on the investment of union pension funds. Extremely savvy in financial matters and real estate investments, McFetridge asked Chicago architect Bertrand Goldberg—who had designed the Union's Chicago headquarters—to investigate potential sites for a substantial downtown building.

After examining eight or nine, Goldberg suggested one on the north bank of the Chicago River between State and Dearborn Streets, then covered with railroad tracks, which he had been eyeing since the early Fifties. McFetridge immediately saw the potential and—with advice from Charles F. Swibel, then a member, and now head, of the Chicago Housing Authority—purchased it for almost \$3 million. Though McFetridge had no particular type of structure in mind, Goldberg had been long interested in the possibilities of multi-use designs.

In the case of the Hancock Center and Water Tower Place properties, prominent and successful land developers had quickly recognized the economic possibilities involved, and com-

missioned architectural firms to come up with designs conforming to those possibilities. In the case of Marina City, the architect was heavily involved in the acquisition of the site, and the project's purpose was not only to secure a return on investment, but also, as McFetridge said, to hold middle-class families in the heart of the city—and preserve union jobs.

Site Utilization

As every developer knows, site selection, while a most crucial factor in the success or failure of a project, is often the easiest of the major decisions. The most grueling phase is site utilization, since it involves not only esthetics and engineering but also decisions relating to financing, markets, transportation, zoning, and construction. While there were sharp contrasts among these three projects in terms of site acquisition, the contrasts become even more pronounced in the second, more difficult phase of decision-making.

In response to Wolman's request, SOM initiated market, land, and rental studies, carefully considering the economic possibilities of the location. The firm's preliminary design was for two buildings, one of 45 stories for offices, the other 70 stories for apartments, to cost \$49 million not including the site. This plan met with the approval of local municipal authorities, and also the Hancock company, which okayed a \$49 million loan to Wolman in January, 1965. Wolman sold the site to Hancock and received, in turn, a 99-year lease.

How the Hancock Center evolved from the two conventional towers into its present form is unclear. Representatives of the insurance company apparently expressed anxieties in January that the site might be too "crowded." The decision to combine office and residential into a single tall structure was made soon after.

Bruce Graham, SOM's man-in-charge, reportedly examined a number of alternative plans and finally arrived at the idea of "stacking one building on top of the other." Wolman claims, however, that he first suggested, at a luncheon, that they consider such a concept—a point he illustrated by stacking the salt and pepper shakers. However the

idea originated, SOM's computer studies showed that such a design was not only feasible, but actually increased the square footage of the project with a minimal rise in cost—then estimated for the single structure at \$50.38 million.

But the new design demanded additional land because of zoning. In mid-January 1965, Wolman signed an option for an adjacent parcel of 20,000 square feet in the south-east corner of the block. He also asked for, and received, an increase in the Hancock company loan, to \$63 million. The insurance company conducted rather extensive economic and leasing studies, and determined that the project was well worth the additional investment.

Shortly after they had been approached to design Water Tower Place, Loeb, Schlossman, Bennett and Dart entered into a joint venture with C. F. Murphy Associates, an engineering firm with considerable experience in tall building construction. Together, they would plan and build the project for a percentage of the construction costs. Their first design for the property was for a seven or eight story merchandising building—along the lines suggested by the owners.

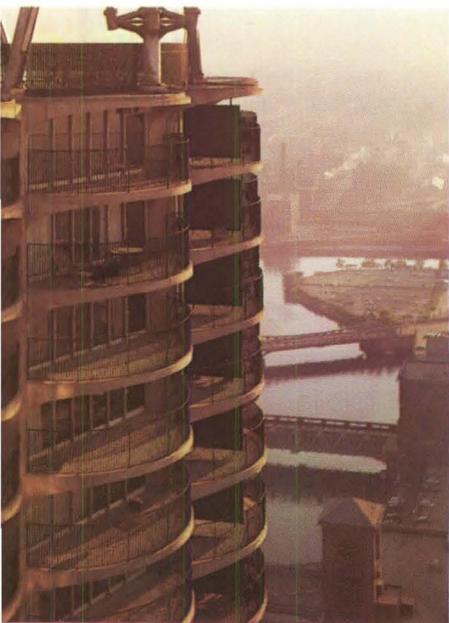
But the architects encountered some difficulties in providing for adequate parking. An adjacent plot (about a quarter of the present site) was purchased from the Hancock company, which imposed a 559-foot height restriction. The owners then asked for an investigation of adding office space to defray the extra land cost. At the beginning of 1972, however, Chicago had an over-abundance of office space (to which the Hancock Center and the new Sears Tower are major contributors). Thus, a few offices and 800,000 square feet of residential space were added to the design—40 stories with 450 apartments.

Full site utilization required even more land, so another adjacent parcel—the old Pearson Hotel site—was purchased, bringing the total land cost to \$20 million. The plan was again revised, this time to include the Ritz-Carleton Hotel. The new acquisition enabled the architects to operate beyond the height restriction imposed on the former Hancock plot, and the

74-story hotel and residential tower emerged. One of the final changes, made primarily on economic grounds, was the conversion of the rental apartments to 260 plush condominiums, selling for as much as \$225,000 each.

The specific location of the site, according to William Donnell of Urban Investment and Development, in a downtown area of upper-class residences, fancy shopping, and extensive offices dictated the design. The property was close to other offices, making it a prime location for office tenants; but devoting the entire structure to offices seemed unwise in view of the local leasing situation and, in any event, the bulk of the mass transportation used by office workers was still located to the south in the Loop. To use all of the permitted 2.5 million square feet of space for apartments would have meant some 2,700 residences—far too dense for this function alone. And it would obviously have been difficult or impossible to devote this amount of floor space to shopping; indeed, building a seven- or eight-story merchandising complex was risky enough. Consequently, the design of the building was largely a response to the pattern of available markets in the area: The building was carefully adjusted to the economic realities of its location. Offices and residences were added to defray the cost of the land and to diminish the owners' risk by, in Donnell's words, "targeting different pieces to different markets in amounts that those markets could bear."

Site utilization for Marina City was relatively uncomplicated. No land was added to the original site, and Goldberg was determined from the outset to build a "self-supporting urban center." But design changes did occur. When the project was announced in October 1959, Goldberg envisioned a single, principal structure, resting on a four-story, landscaped "roof-deck" and rising 40 stories. The complex would contain 1,200 apartments and about 190,000 square-feet of office and commercial space. The final design, of course, provided for twin 65-story residential and parking towers containing 896 apartments, and an office build-



Marina City.



ing—all rising from a single base of shops and recreational facilities. But the substance of the conception remained intact.

A major barrier for Marina City was, according to Goldberg, the prevailing local zoning regulations and the policies of the Federal Housing Administration (particularly FHA Title 207), both of which inhibited multi-use structures in the central city. FHA support was required to guarantee the basic financial arrangements. McFetridge, who was one of Mayor Daley's principal advisors on union matters, contacted FHA through the Department of Labor. In a meeting arranged with FHA by McFetridge, Goldberg managed to persuade the agency to alter their policies concerning multifunctional designs, and he was also successful in having Marina City designated a Planned Development Area, exempting it from some zoning restrictions.

Since 1960, however, zoning regulations have posed far less of a threat to multi-use structures—at least in Chicago. Water Tower Place required a special exemption to provide more than the designated amount of parking space, and the Hancock Center was designed from the outset to meet all existing zoning requirements. Zoning regulations did help to shape all of these projects, primarily in the mandated ratios of building floor area to total land area; but the recent policy of the Chicago Department of Planning and Development has been to encourage the construction of multi-use buildings in the city.

Financing

Financing such immense projects doubtless seems, to the layman at least, a strange and complex realm of credit lines, purchase agreements, primary lenders, construction loans, and leases. But it is an all-too-familiar process to the majority of architects, who also realize the influence of financing in determining the success or failure, and even the dimensions and substance, of their designs. The methods of financing the Hancock Center, Water Tower Place, and Marina City varied significantly, and reveal much about the projects themselves.

The John Hancock Center was by far the most ambitious undertaking of Jerry Wolman's re-

markable career as a land developer and entrepreneur. In December, 1964, he was reportedly worth about \$25 million, a majority stockholder in the Philadelphia Eagles professional football team, with a number of successful development projects in the Washington, D. C. area. Wolman located and purchased the site; the John Hancock company agreed to be the permanent lender, providing money on a first mortgage when the project was complete and after a certain percentage of the space was rented; and Wolman sought an interim lender (a local bank or group of banks) to furnish short-term construction loans, to be repaid with the insurance company's funds when the building was up. Wolman would receive, according to the terms of the agreement with Hancock, a 99-year lease on the project with all the attendant profits. Wolman estimated that the cash flow from the building would run about \$4 million annually, and would be almost tax free because of depreciation.

Wolman was able to secure a promise of \$63 million from Hancock for the single building design in January, 1965; and in August, 1966 the Continental Illinois National Bank and Trust Company announced a \$72.5 million loan for construction of the Center, largely on the strength of the John Hancock Insurance Company agreement to be permanent lender. (Continental provided the largest single amount, but the other lenders included the John Hancock company, the First National Bank of Boston, the Harris Trust and Savings company, and Northern Trust Company.)

At this point a number of problems developed that eventually led to Wolman's undoing. The general contractor, Tishman Realty and Construction Company, complained that the plans drawn by the architect were not sufficiently specific to allow a firm cost estimate. Skidmore, Owings, and Merrill—according to Wolman—maintained that the plans were quite adequate for this purpose. Unable to secure a firm estimate, Wolman decided to proceed with construction, relying on the sufficiency of a ten percent cushion in his financing. In 1966, after the first two stories of the Hancock Center had been erected, workmen

suddenly discovered that the structure was settling. Investigation revealed that the massive caissons contained voids as large as 10 to 15 feet. The work was torn down, the caissons removed, and a fresh start made. The considerable cost of this rebuilding, the resulting year's delay in construction, and the lack of a firm cost estimate from the contractor made it impossible for Wolman to secure additional interim financing. And the escalating cost of the building (from an original estimate of \$50.38 million to an actual final cost of about \$100 million) naturally deterred local banks from advancing money on a project whose likely pricetag exceeded the Hancock company mortgage commitment.

In December, 1966, Wolman sold his interest to the John Hancock company for \$5 million. He was also forced to sell his stock in the Philadelphia Eagles and to declare bankrupt-

cy. The project that had appeared to be the highest achievement of Jerry Wolman's career had resulted in economic disaster. The John Hancock Insurance Company, after unsuccessful attempts to locate another developer, finally completed the structure on its own, with consulting assistance.

Water Tower Place was financially supported in its early stages by the Urban Investment and Development Company (a subsidiary of Aetna Life and Casualty) and by Marshall Field and Company. Unquestionably, the financial resources, and local influence, which these Chicago firms represented far outweighed those of any single entrepreneur. Subcontracts for initial construction were financed by the owners with their own funds, and Inland-Robbins Construction Company, a subsidiary of Urban Investment, is the principal contractor. As of this writing, the structure is

well along and—as in the case of the Hancock Center—construction proceeds while the latter planning phases are still underway.

The case of Marina City presents a different and far more unusual story. Rather than securing a mortgage from a bank or large permanent lender, Marina City was organized as a corporation and financed through the issue of five percent debentures guaranteed by the Federal Housing Administration. All of the 500 locals of the Building Service Employees Union were invited to purchase debentures with monies from their pension or welfare funds. As Goldberg pointed out in 1959, the Marina City debentures yielded a larger return than the government or government-insured securities in which the vast majority of union investments were usually made. At the same time, union members could help protect their jobs.

Because of FHA support, Marina City has always operated under a system of economic controls. FHA limited construction costs, controls rents, insists on two-year leases, regulates what the corporation spends, and requires that the complex operate "in the black." Thus, Marina City apartment rentals have always been moderate by Chicago standards and far below the costs of apartments or condominiums in the Hancock Center and Water Tower Place. Efficiencies started at \$115 a month ten years ago; they currently begin at \$165.

Motivations

It is hardly possible to compare these structures in terms of their "success" or consequences since the Hancock Center is relatively new and Water Tower Place is still under construction. But certain tentative conclusions are possible concerning the various degrees of "self-containment" which these buildings demonstrate, and the possible relationships between the motives behind them and the social consequences they have had, or are likely to have. All three projects reflect actual or potential economic success. All reflect certain demonstrable efficiencies due to the "diversification factor" possible in multi-use designs—the spreading-out of power require-

ments, traffic demands, and utility usage, so that the peak capacity is not vastly greater than average utilization. And all three designs allow for synergism, in which the several functions interrelate and reinforce one another. Thus, shopping areas, restaurants, and recreational facilities benefit from their proximity to residential components, and vice-versa.

The principal motives behind the Hancock Center and Water Tower Place, regardless of the differences in financing, were basically the same: maximization of return on investment. The John Hancock Insurance Company undoubtedly desired a prestigious structure in the Midwest to bolster its corporate image, and Marshall Field and Company obviously sought an impressive location for its North Michigan Avenue store—but the return on the investment in the structures themselves remained the major priority. At each stage in the planning process decisions concerning site utilization and design were made with an eye towards economic consequences. Clearly, both these projects became increasingly ambitious as the financial possibilities escalated.

But the motives behind Marina City were somewhat different; and indications are that it has derived the greatest benefits from self-containment and multi-use design. The rents charged in the residential components have always been oriented to "middle-income" tenants, by far a larger group than the upper-income residents in the Michigan Avenue buildings. Such comparatively reasonable rents were made possible, in part, by a system of "internal taxation" developed by Goldberg: higher rates are charged commercial tenants (50 percent of the rents in the complex, in fact), thereby keeping apartment rents low, and desirable activities like the marina, health club, and skating rink are subsidized through very low rental charges. In both the Hancock Center and Water Tower Place, rental schedules (and condominium prices) for all components are set at whatever rates the existing markets will bear.

Marina City has also made a conscious effort to encourage persons who work in the complex to live there. According

MAJOR EVENTS AND DECISIONS

John Hancock Center

Background: JH Mutual and J. Wolman had previously worked together. JH Mutual stated they were interested in a prestigious development in Chicago. Wolman normally sought profitable land purchases for development.

Wolman buys 85K sq. ft. site.

SOM is engaged to make preliminary utilization study (2 building plan).

Wolman offers prospectus to JH Mutual and makes financial deal.

Design revised (single tower); site expanded.

Construction started in spite of lack of firm bids.

Caisson problems and rising costs freeze Wolman out as developer.

JH Mutual takes over and completes building.

Water Tower Place

Background: Sudler and Co. had been urging Field's management to open a large store on N. Michigan Ave., and Field's indicates an interest. P. Klutznick (of Urban), being interested in new developments, is alert to new sites becoming available in this area.

Bronfman (founder of Seagrams) puts 55K sq. ft. site on N. Michigan Avenue on the market.

Klutznick considers site and forms partnership with Fields.

Site purchased as a joint venture.

Preliminary design of merchandising structure; site enlarged to provide for adequate parking.

Office space added to plan to help defray cost of added land.

More adjacent land becomes available; purchased to bring total area to 110K square feet.

Hotel tenant included in plan, replacing much of office space because of oversupply in Chicago.

Construction starts with partnership funds.

Financing arranged.

Marina City

Background: Wm. McFetridge wants to invest janitor union funds to build downtown residential building to attract people to city center and to create more jobs for union. B. Goldberg had previously designed union's headquarters building and was imbued with idea of multi-function structures being used "around the clock."

McFetridge engages Goldberg to search for suitable site.

Site selected among numerous candidates.

FHA persuaded to change regulations to permit guaranteeing loans for multi-use structures.

Site purchased with union funds.

Design for "city within a city" created by Goldberg, with economies attractive to middle-income people.

FHA commitment formalized.

Design changed from 40 to 65 stories.

Constructed; operated under FHA rent control.

to Goldberg, 200 apartments are reserved for Marina City workers, and many businesses apparently give preference in hiring to those persons who live in the residential towers. Though only about two percent of the residential tenants also work in Marina City, about 80 percent are within walking distance (a mile or less) of their places of employment. This, in turn, cuts down on the rate of automobile ownership among Marina City residents, and tends to ease the burden of local street traffic. Only about a third of Marina City residents own automobiles, whereas the great majority of Hancock Center tenants own cars and keep them in the adjoining garage (though this difference is also, of course, a function of the varying income of the two tenant groups).

Two-thirds of Marina City's residents are single, and average in age from 35-38. Few children have ever lived in the building, however, and the great majority of apartments are either efficiencies (256) or one-bedrooms (576). There are only 64 two-bedroom apartments in the complex. According to Morris Swibel of the Marina City Management Corporation, the rate of tenant turnover averages about eight or nine per month, considered quite low, and the building has always been fully occupied, with a four-month waiting list. A relatively high degree of synergism pertains, particularly with respect to the health club, which about 35 percent of the tenants use. (On the other hand, only about five percent of the residents use the ice skating rink, though the facility is self-supporting on the basis of outside patronage.)

Goldberg brought to the planning of Marina City a philosophical interest in "what made cities come alive" and a conviction that "24-hour a day, seven-day a week activity" was essential to restore the vitality of American central business districts. He had originally planned a live theater for the complex, and had made arrangements with producer Michael Todd to send Broadway shows to the facility. The theater would bring about 1,200 people into Marina City in the evenings, and part of the proceeds would be used for subsidizing apartment rentals. But

Goldberg was unable to get adequate financing for this aspect of the project, and the theater is currently occupied by television studios. (Marina City does include a small theater.)

None of this would suggest that the Hancock Center and Water Tower Place are poorly designed or unsuccessful. The demand for space in the Hancock has certainly been high, and its architecture and engineering has been often praised. But even Fazlur Kahn of SOM maintains that the Hancock Center is not an especially good example of a "self-contained" building—it is, more accurately, the combination of separate structures. He also suggests that the design of the complex stemmed from zoning considerations and "back-of-the-envelope" financial calculations, and that the allocation of space within the building was premised primarily on the proportion of office to residential space in the North Michigan Avenue area. Diversification of facility usage and synergism were considered marginal benefits rather than major purposes by Hancock and Water Tower Place planners, and commercial space seems clearly the first priority in both.

Obviously, buildings are intended to serve different purposes, and judgment should perhaps be rendered only on their degree of success in achieving their respective purposes. But the point is that some purposes are more desirable from the standpoint of society at large than others. This determination is probably inherently subjective, and social and architectural critics have, like economists, rarely agreed on such matters. But it seems fairly clear that while all three structures considered here are multi-functional, Marina City reflects by far the greatest degree of "self-containment." As Bertrand Goldberg—admittedly a biased observer—has said: The Hancock Center is a "mixture of flour, milk, and an egg," while Marina City achieved "bread."

Conclusions

Decisions leading to the construction of these projects were hardly textbook models, especially with respect to the Hancock Center. Decisions were neither completely optimizing nor satisfying, though they more

COMPARATIVE DESCRIPTIVE DATA

	John Hancock Center	Water Tower Place	Marina City
Site:			
Area, 1000-sq. ft.	105	110	135
Cost, millions of dollars	6.0	20.0	2.7
Year purchased	1964	1969	1959
Overall structure and site:			
Cost, millions of dollars	100	150	40
Height (less antennas), feet	1107	850	588
Height, stories	100	74	65 (twin towers)
Functional mix:			
Number of apartments/condominiums	705	260	896
Number of hotel rooms	—	540	—
Office space, 1000-sq. ft.	815	228	180
Commercial space, 1000-sq. ft.	200	720 (mall)	200
Parking, number of cars	1000	640 (below ground)	900
Total floor area above ground, 1000-sq. ft.	2800	2500	1000

closely resembled opportunism and a satisfying mode. Prior to some of the major decisions, various studies were undertaken to provide adequate information and reveal more fully the range of available alternatives. But with some crucial decisions—like Jerry Wolman's determination to go ahead with construction on the Hancock Center even without a firm cost estimate from the contractor—experience and intuition seemed to be the principal factors involved. And many outcomes seemed to be more a fortuitous conjoining of separately occurring events or a gradual coalescence of differing views than a clear-cut, progressive evolution. The decision-making process did not appear to differ significantly from that involved for any tall building or major project, except in the nature of decisions relating specifically to multi-use design. And, except in the case of Wolman's troubles, adequate information seems to have been available on which to base most of the larger decisions. A summary of the major decisions for the projects is in Table 2.

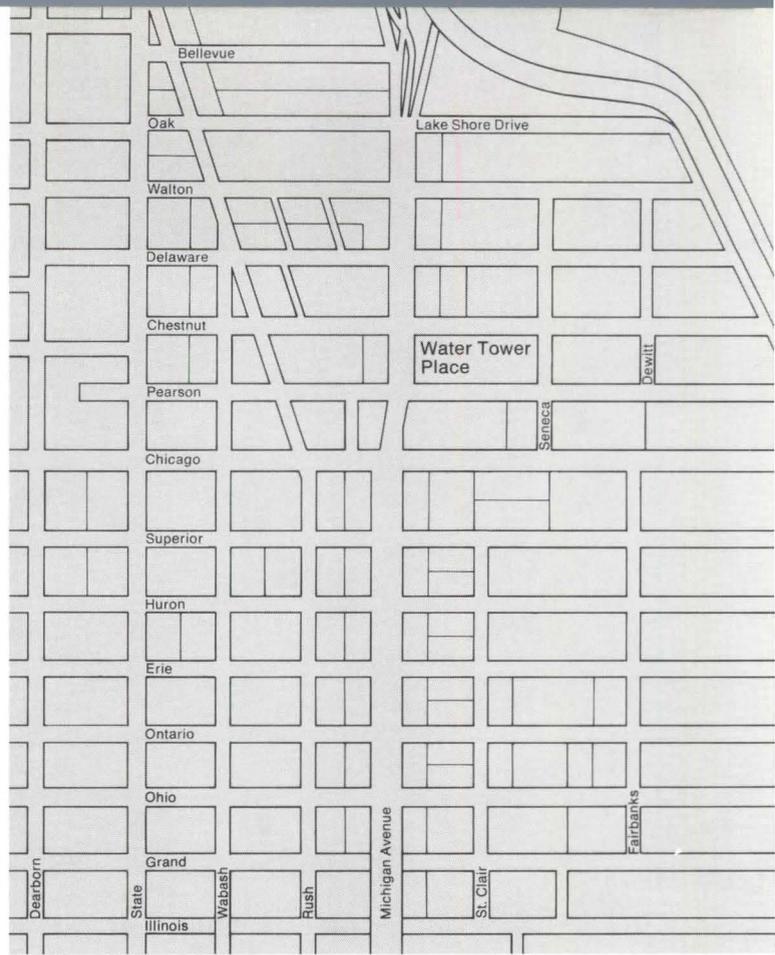
The financial backers and initiators of these structures were clearly the most influential in determining the character and overall purposes of their projects. SOM provided essential data and architectural advice—as did Loeb, Schlossman, Bennett, and Dart—but on the whole these architects arrived at their designs within the limits imposed by client demands. This was also true, to an extent, of Marina City, though Goldberg obviously played a much more pronounced role in the formative stages. He not

only helped select the site, but he influenced McFetridge and later the FHA on the desirability of multi-use, "self-contained" design. Regardless of its comparative success or impact, Goldberg's architectural vision was the most clearly focused and consistently expressed of all three projects, and the most directly concerned with multi-use and self-containment.

Certainly, multi-functional, "self-contained" structures will be an increasingly familiar part of the American urban landscape. The Department of Planning and Development in Chicago encourages these new concepts, and New York zoning provisions have recently been revised to stimulate the construction of skyscrapers with apartments atop offices and also the construction of multi-tiered, enclosed arcades in new downtown buildings.

What "self-containment" and the combination of several functions in a single complex will ultimately mean for the American metropolis remains to be seen. But the experience of the John Hancock Center, Water Tower Place, and Marina City in Chicago suggests that the impact of such buildings will depend, in part, on the clarity and consistency of their conception, the motives behind them, and the methods of their financing. In the final analysis, it is not as crucial that a building is multi-functional as it is that the different functions are effectively joined and that they contribute constructively to the health of the now anemic American city.

PHOTOGRAPHS: Hedrich - Blessing pages 38, 40; Joseph Sterling, page 04. John Hancock Center.



MARBLE-CLAD CARNIVAL

A critique of Chicago's latest bid for the consumer buck

BY NORY MILLER

Never let it be said that Chicago has registered no glimmer of grace or style. Not at all. This robber baron-spawned, gangster-famed, street-wise town has seen a goodly share of elegance in its time. It's just that this city also has a tendency to steam-roll right over it. Especially when such flimsy intangibles get in the way of the big mucky-mucks and their lunge for big dollars.

For this is Nelson Algren's *Chicago: City on the Make*—the beefy, brawling bastion of the Midwest. A city not known for mild climes or historic battlefields but for business, big business—railroads, stockyards, bootlegging . . . and their more corporate though less colorful successors.

Chicago became *Chicago* during the Industrial Revolution and has remained so steadfastly loyal to its origins that it is unaware of the passing of that oft-grisly era. As the rest of America prepares for the "slow-down age," Chicago plunges ahead with the biggest or long-

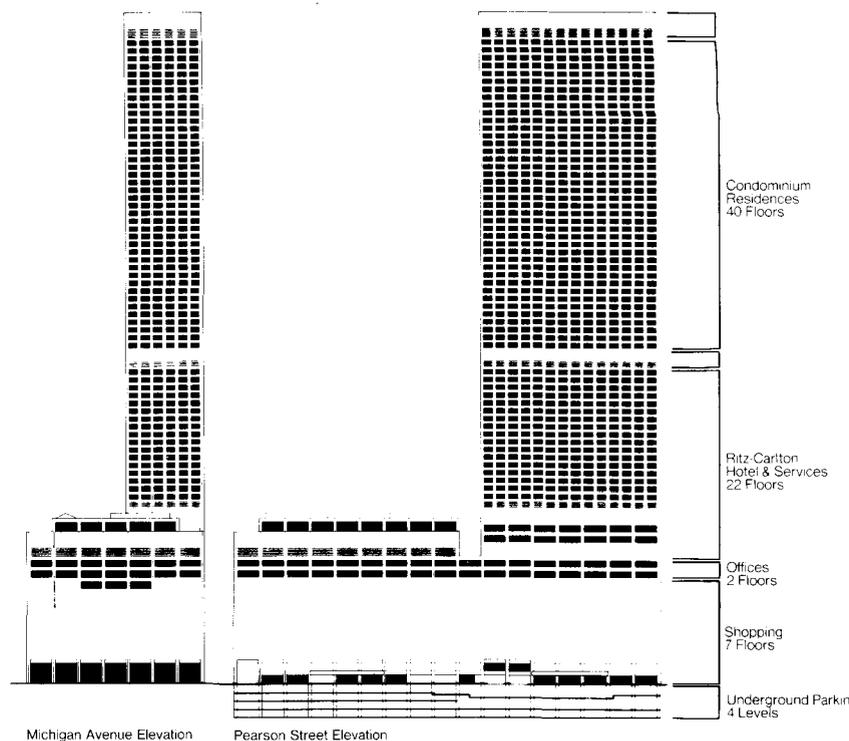
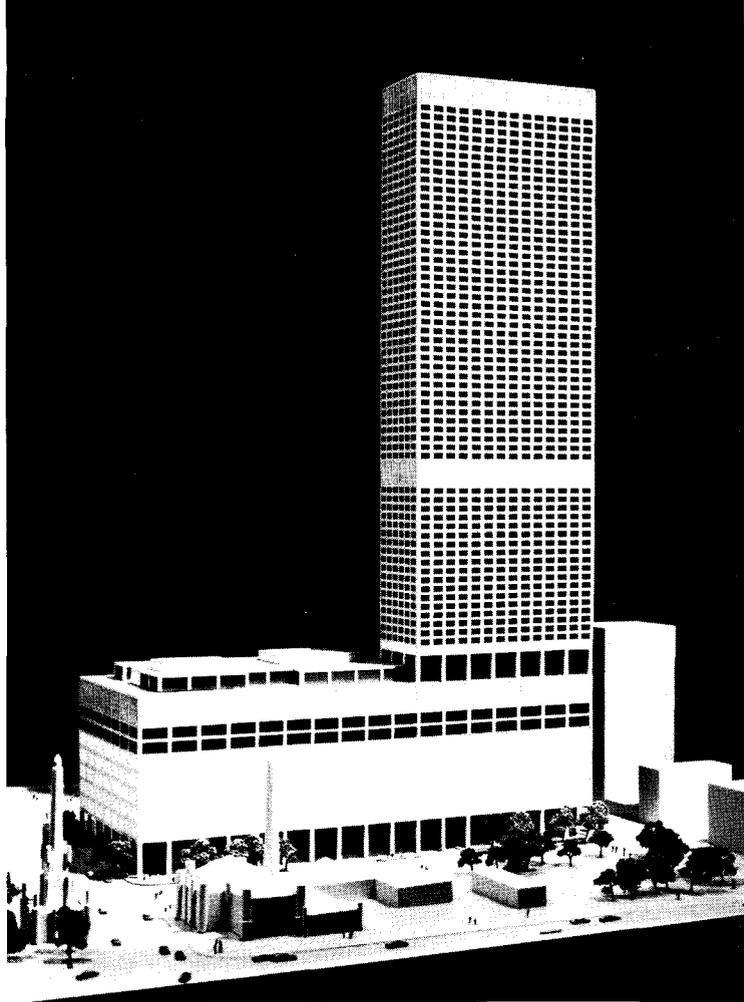
est or busiest or tallest, archaically equating measure with value. If other cities put profit before quality, then Chicago has yet to notice that there is a queue.

Nowhere does this *Weltanschauung* bear better witness than the new Water Tower Place, under construction on Chicago's Magnificent Mile (North Michigan Avenue as the street signs would have it)—but threatening to be more destruct than construct. Associated architects: Loeb Schlossman Bennett & Dart and C. F. Murphy Associates.

For Water Tower Place, costing about \$150-million, is going to be big. So big that it will capture the dubious title of "tallest reinforced concrete building in the world." So big that it will embrace 544 hotel rooms, 262 condominium apartments, two floors of offices, a 1,000-seat theater, four parking decks and 750,000 sq. ft. of shopping which alone will replicate all the fashionable stores on Michigan.

So big: one block long, two blocks deep, 854 ft. high and 2.9 million square feet large.

Ms. Miller is the managing editor of *Inland Architect*.



Michigan Avenue Elevation Pearson Street Elevation

Michigan Avenue ranges north from the Chicago River (opposite page, far left). Tall and low buildings of varied styles characterize this thoroughfare, but are unified by spacious promenades and uniform set backs from the street curb. In the distance, The Hancock tower looms, breaking not only height records on Michigan, but also encouraging, by its presence, a higher scale for this vulnerable district. Water Tower Place (map, model, elevations) seems to aspire to The Hancock precedent.

Ah, you say, but these days there are lots of big buildings. Yes. But how many of them are next to—that's right, *next to*—the 100-story John Hancock? Water Tower Place is. Across the street to the south. And the effect of this on Boul Mich can hardly be subtle.

You see, North Michigan Avenue is a rather special street. It is an eleven-block, tree-lined boulevard just north of the Loop offering a banquet of smart shops, art galleries, book emporiums, posh hotels, haute restaurants and the offices for such creative endeavor as advertising, publishing and newspapering. Surrounded by a most exclusive in-city residential district, it is also a sort of Main Street for this Gold Coast.

It is the home of Hood & Howell's flying-butressed Tribune Tower, outcome of that famous international competition; Boyington's old Water Tower, a neo-Gothic cover-up for an iron standpipe dear to Chicagoans for surviving the Great Fire but which Oscar Wilde called "a castellated monstrosity with pepper boxes stuck all over it"; and the Moorish,

white-tiled, flood-lit Wrigley.

In fact, the Wrigley was where it all started. Back in 1918, Mayor Big Bill Thompson (a.k.a. William Hale Thompson, a.k.a. Bill the Builder) wanted business to move north of the river onto Pine St., a gracious residential section past its prime. The city built an immense, double-deck bascule bridge, the gum king friend of the mayor relocated his headquarters, and the Magnificent Mile was born. From the beginning, it was envisioned as a "quality" street with enduring restrictions as to business types and signage.

A blue-ribbon committee of architects—including Holabird & Roche, A. N. Rebori and Howard Shaw—even recommended height ceilings and architectural standards. As it happened, even without these, Michigan evaded the Malthusian syndrome for decades what with Depression bread lines limiting speculation. But as the late-Fifties boom began its inroads The Avenue started changing.

Today there are ten new high-rises and innumerable additions; pedestrian traffic has doubled in the past five years and ve-

hicular traffic is at an all-time sludge. There is a hotel building boom which will add 4,000 new rooms in the next couple years. Realtors are beginning to gobble up property to the east and west. And the resulting traffic has set proprietors screaming for a subway link (which they're supposed to get sometime in 1978, dependent on federal funding) and more parking spaces.

What is more cruel is that Michigan Avenue is being flung from its unique ambiance into a frenzy no different from the din of downtown. And why? It bears no relation to rational planning—traffic, parking, population density. Chicago's population is steadily declining not growing; even metropolitan figures have leveled off.

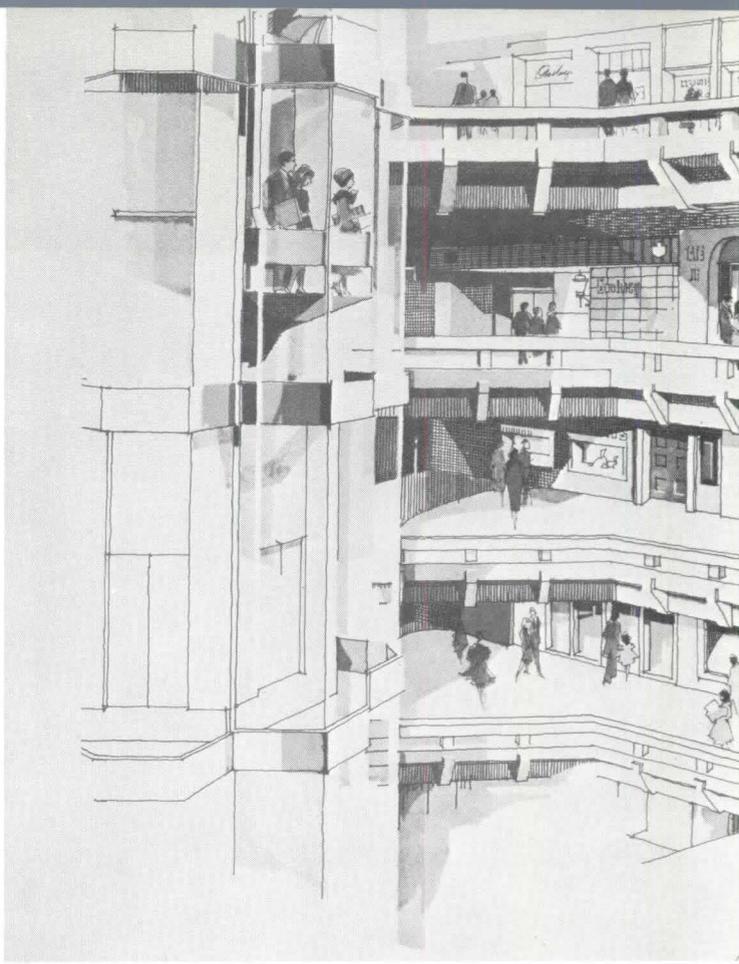
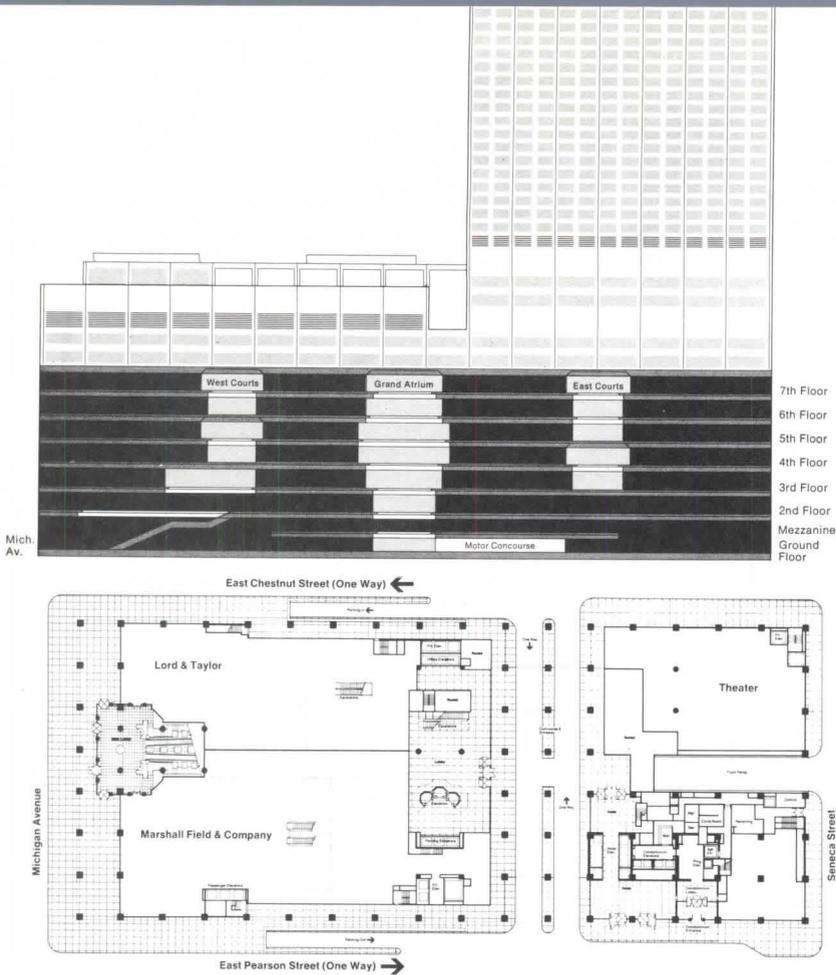
In 1967, Lawrence Halprin did a beautification study for the Avenue, and the report included this interesting observation: "It should be noted at this time that the continued proliferation of very tall buildings, such as the John Hancock, handsome as it is, will completely destroy what remains of the human scale of the street, and that

such buildings should be regarded as landmarks, much as the Water Tower, and should not ever be allowed to appear continuously along the street."

Significantly, this is exactly what is happening with Water Tower Place. The rationale for the leviathan is that the land is the last open site of such size on the Avenue. Thus the cost (\$200 per sq. ft.) encouraged co-developers Mafco, Inc. (a subsidiary of Marshall Field & Co., a major Chicago department store) and Urban Investment and Development Co. to "build the whole thing out."

Actually, when the Field subsidiary first proposed the project only a shopping center was envisioned. But as more parcels became available, the project grew. Zoning, perennially permissive in Chicago, allowed three million sq. ft. of building—leading to the present multi-use program.

The first seven stories will become the first vertical shopping center ever, intended to be so exclusive that it will draw customers from all over the city and suburbs. Using the established concept of polarization,



Marshall Field's will occupy the west side of all floors and Lord & Taylor the east side. These magnets are expected to generate a people wash, whereby customers hurrying from one to the other will be tempted by the specialty shops in between.

The rest of the 11-story, two block-deep base will be filled in with subterranean parking decks, a movie theater, two floors of offices and mechanical floors. On its east end will rise a 63-story tower housing 23 floors of Ritz-Carlton hotel (with ballrooms and restaurants spilling over the adjacent 12th level roof) and 40 floors of luxury condominiums. Completion is scheduled for November, 1975.

The design of the structure—under the direction of Edward D. Dart, FAIA, a man of great sensitivity and talent—is unfortunately as disappointing as the beast's location. Vitruvius' formula has been tinkered with, perhaps beyond Mr. Dart's control, and firmness and delight have taken a distinct back seat to commodity.

The location of the tower, for instance. Despite the rhetoric, the solution is aimed merely at

solving vertical transportation and entrance requirements while fulfilling the edicts of a restrictive covenant enforced by the Hancock people. It seems they were a bit perturbed by the announcement of a 74-story ex-crescence right next door and, as they conveniently owned one of the land parcels Water Tower Place needed, they negotiated sale terms to protect their tenants' views.

A plaza was never seriously considered, and this justifiably. After all, the Hancock has a large plaza which is actually reinforced by the Field structure's north facade. And as Dart observes, "You can over-plaza a city."

A delicate task was to distinguish visually between the various functions on the exterior and yet maintain some sort of unity. Dart has employed mechanical floors and changing fenestration patterns to separate the four activities. For instance, the shopping center has no windows; the offices above do. The base has 30-ft. bays, the tower 15-ft. bays. Mechanical floors separate base from tower and hotel from condo-

minium. On the other hand, these features stem from functional grounds alone; i.e., the merchants' preference for blank walls for storage, the differing needs of commercial and residential structures, the most efficient method for air-conditioning a building.

And, however adequately the parts are visually expressed, little has been accomplished in the name of overall unity. Water Tower Place will be no inspiring silhouette on Chicago's skyline. The design is an awkward, shapeless montage. An arbitrary splicing from the cutting room floor.

Add to that the problem of the Michigan Avenue facade. For this will be blank wall—no windows—so the merchants can use it for storage. While the ground floor will have recessed showcase windows to attract customers, the next six floors will be featureless monolith. White marble will be used as cladding, aping Edward Durell Stone's almost complete Standard Oil Building, and dismally inappropriate in the city of Sullivan and Mies. Attempts to use Texas "sunset red" gran-

ite or to articulate the facade in, at least, a grid pattern failed. (Perhaps, at this point, muralist Juan O'Gorman should be called in as a consultant.)

In contrast to the faceless sterility of the exterior, the inside of the shopping mall will be energized with a machine age interpretation of the Villa Borghese, contributed by Warren Platner Associates. Renderings show a complex interplay of geometry—hexagons, octagons, rectangles—with much ornament springing from the classical orders.

Platner is creating a theatrical setting for shopping where the players are moved along or detained, lured to one store, inveigled by another. It is the old hard shell in shiny new wrapping.

Platner's conception centers on two elements: the entryway and the central mall. The entryway will front the street in glass, holding within a greenery-bedecked transport system of stairs and escalators. Space will be opened wide at the doorway, beckoning the passerby, then narrowed at the approach to the escalators to thrust cus-



The walls of Water Tower Place, combined with arcades, create a hard structural edge, identifying the streets it borders. The spatial and social ambiance of Michigan Avenue (above) is simulated on the interior of Water Tower Place by use of multi-level atria (near left). A festive, multifaceted vertical shopping center, the project is deliberately conceived to attract and entertain people from both the Magnificent Mile and middle and upper-middle class suburbs.

tomers upward toward the spacious shopping mall. The schema will be paralleled by the lighting, held dim at ground level and released generously above (on the theory that people are moths?).

To compel even the reticent shopper to a poorer but package laden future, escalators will be splayed, thus foreshortening the distance and making the climb more palatable.

In case wealthy matrons don't take to such brutish pushing and shoving, the set will be softened with lush plantings and cascading waterfalls daintily composed in a shell of granite and marble. To complete the illusion, the lighting beneath the waterfall will be masked to cast patterns akin to leafy foliage on the ceiling. One is not shopping, one is floating blissfully through a sunlit forest.

The mall proper will run from Marshall Field's on one side to Lord & Taylor on the other. In the middle will be the grand atrium, a Japanese lantern of space open all the way to the seventh floor. It will be widest at the fifth level, narrowing asymmetrically toward each end.

This particular configuration was chosen because it provided the longest view possible from each floor. Glass-sheathed elevators will travel up and down one edge of it, pick-ups from John Portman. Always the customer is invited to look around, in the hope that he might buy just one more thing.

Earlier in the project a proposal was made to locate the mall and elevators on a glass-curtained or slotted Michigan frontage. The plan had the advantages of presenting an engaging view from the street and a more unified interior-exterior concept. But the plan was rejected because the developers felt compelled to rivet the attention of shoppers to the task at hand—buying.

Caveat emptor! For this architecture is reminiscent of the subliminal suggestion scare of the Fifties. And that is the key to this eclectic frippery. It is not a design which derives from structure—indeed, it continually contradicts it. The brackets on Platner's balconies will carry no loads, the recessed ceilings will serve no functional purpose.

Quite the contrary, Platner's performance takes its cue from the communication function of the shopping center. Like the baroque architects, he is selling something and using theatrical chicanery to do so. But where Borromini was promoting the counter-reformation, Platner (or his client?) is peddling sable coats and diamond brooches and (thrown in to soothe) the "re-birth" of Michigan Avenue.

So in the end, it comes down to business. But not the exuberant fanfare of the 1890's which produced Carson, Pirie, Scott & Co.; nor the sleek sophistication of the Twenties, which bore the Palmolive Building. This is Seventies business: gray-hatted, ivy-league-suited, train-scheduled, efficient in appearance. In short—corporate on the outside. And inside—the fulcrum of American business today . . . salesmanship.

Its architecture is deceptively euphoric, as indifferent to the visitor as is a carnival barker to some sucker trying to knock down his moving ducks. And while it is not indifferent to the line of the street—coming, as it does, right up to the sidewalk,

it is indifferent to the lower profile scale of that pulsing promenade. It's not that Chicago didn't appreciate Michigan Avenue, it is just that business always comes first. And, come to think of it, how different is that really from anywhere else?

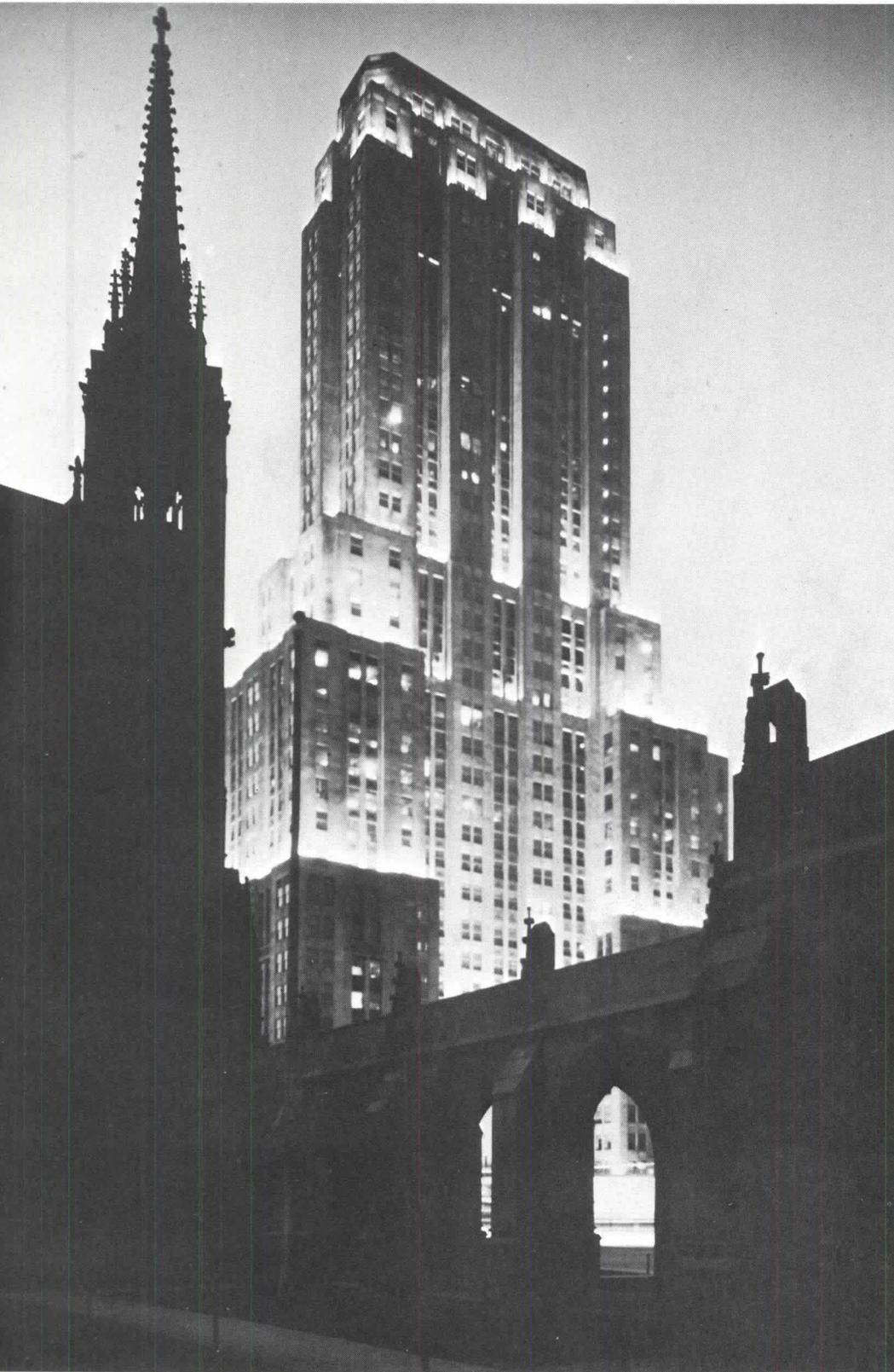
FACTS AND FIGURES

Water Tower Place, 845 North Michigan Avenue, Chicago, Illinois, main address (other addresses not yet established). Owners: Marban, joint venture of Urban Investment & Development Co., a wholly owned subsidiary of Aetna Life & Casualty Co.; Mafco, Inc., a wholly owned subsidiary of Marshall Field & Co. Engineers: Loeb, Schlossman, Bennett & Dart; C. F. Murphy Associates, a joint venture (Structural, Mechanical and Electrical). Partner-in-Charge: Donald J. Hackl. Overall Project Designer: Edward Dart. Landscape Architect: Dan Kiley. Interior Designer: Warren Platner (Commercial portion only). Contractors: Inland-Robbins Construction Co. (General); Advance Heating & Air Conditioning (Refrigeration); Thomas Litvin Plumbing Co. (Plumbing and Fire Protection); Tri Venture of Climatemp, Inc., The Zack Co., Admiral Heating & Ventilating Co. (Ventilating); joint venture of Continental Electric Inc. and Corplex International (Electrical). Gross Building Area: 2,900,000 sq. ft. Total Cost: \$150,000,000.00.

PHOTOGRAPHS: Duro Test Photo by Al Howard.

SOARING TWENTIES

BY M.W. NEWMAN



The Palmolive Building (Holabird and Root, 1929) seen from the Fourth Presbyterian Church. Opposite page: The Wrigley Building (Graham, Anderson, Probst, and White, 1921).

Everybody knows about the gin-stained, bullet-spattered Chicago of the Prohibition Twenties. Capone machine-gun fire spraying the steps of Holy Name Cathedral. The ineffable mayor, Big Bill Thompson, threatening to bust King George in the snout. Hemingway clearing out for Paris, but Louis Armstrong blowing up a jazz storm in the gangster-ridden dens of the South Side.

Frank Lloyd Wright in exile, Sullivan dead in 1924 and buried in what was then an unmarked grave in Graceland Cemetery. Chicago's architects turning their backs on both, opting for (we have been taught) embarrassingly glossy packages.

The Dempsey-Tunney fight in that super-Twenties monument, mock-imperial Soldier Field, a lakefront colossus seemingly designed to accommodate chariot-racing and lion-baiting. (The Chicago Bears now rumple its turf—artificial, like Soldier Field's classicism.)

And utilities tycoon Sam Insull, jerry-building a premature conglomerate—and incidentally moving the Chicago Opera into his own ponderous Civic Opera House (“that bowling alley,” in Wright’s scorching phrase), abandoning Adler & Sullivan’s peerless Auditorium.

Then 1929: Crash. Diagnosis: Swollen ego, starved soul. Prescription: Haul the beast away.

Yes, yes, the 1920s . . . and for years afterward, the Second City, cowering in its massive insecurity blanket, turned nervously away from those ten years of turmoil. Only now and then has it dared to look back at all. What a blotting out there has been!

Now at last, a safe 50 years away, we’ve embraced the 1920s (nostalgia, nostalgia). And it turns out to have been worth the return trip. If we can’t go forward, and right now this is one country that isn’t, one city that surely isn’t, let’s go back because it wasn’t so bad after all.

Forget, for the moment, Capone and Big Bill and Insull, and Wright muttering imprecations, and the sourly tragic last years of Sullivan. The city was doing more than waiting for Mies.

For that much-abused, much-neglected decade gave Chicago, among other things an architectural treasure vein only now getting its due. Indeed, Chicago has begun paying its highest traditional honor to Twenties architecture by mutilating and razing it—a tribute generally reserved for the earlier masterpieces of Sullivan and Root. The Twenties have made it.

Fortunately, despite the ominous vandalizing, the riches remain all around us, outcroppings of both a stripped-down modernism and an ornamental revivalism, merged with home-grown Art Deco craftsmanship of a very high order.

History may insist that the Twenties in Chicago were merely a diversion between the first Chicago School and the Mies-in-

Mr. Newman, a Correspondent of The Forum, is editor of Panorama Magazine of The Chicago Daily News and of Inland Architect.





Field Building corridor.



A view of the lobby when it was first built.



Field Building facade (Graham, Anderson, Probst and White, 1934).

spired Second, but actually these selfsame buildings, to this day, signify Chicago architecture in many minds. And (let's confess) many of us always have managed to like and even enjoy them (on the sly, to be sure).

Every day on my way to work, for example, I go by that white, extravagant Iberian wedding cake, the Wrigley Building, and invariably get a lift from its aspiring self-assurance, its elaborate charm, its so-rightly canted siting along Michigan Avenue, its ceremonial glazed screen linking the two parts of the building and leading into a small garden court.

Indeed, what a crashing sight is the whole complex around the Michigan Avenue bridge. Skyscrapers, boulevards, bridges and water slam together in a burst of ceremony—high urban hedonism. The Wrigley, the Tribune Tower, the soaring and slender 333 North

Michigan Avenue Building, the sculptural old London Guaranty and all the others work together gloriously. "This is it—this is Chicago," is the message I get from them.

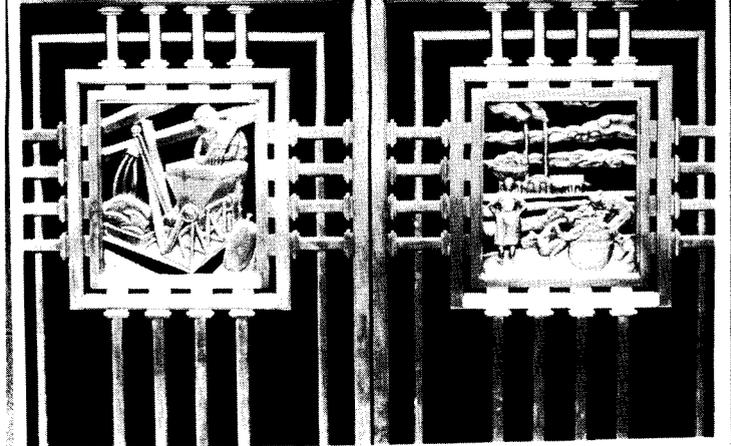
Farther north on Boul Mich there is the Palmolive (now Playboy) with its wrap-around setbacks so gracefully crafted by Holabird & Root and its swiveling, night-piercing beacon. (That beam in the night, carefully stop-timed so as not to glare into the midriff of its beetling neighbor, the 100-story John Hancock Center, has now been turned off due to the energy crisis.)

And there's the handsomely massed old Daily News Building west of the Loop, a 1928 ornament that was the first in Chicago over railroad air rights. And the Furniture Mart, and the towering Board of Trade with its setbacks and bas-reliefs and dazzling,

galleried upper lobby and stylized topside statue of Ceres. The Board of Trade, all 526 feet of it, climaxes the LaSalle Street business canyon like an exclamation point.

And of course Union Station (what is left of it)—grandiosely pillared, a masterpiece of urban planning and yet a vulnerable work of Twenties culture. Now butchered, its concourse wiped out, its eloquent commuter spaces shrunken meanly underground and bedizened with bazaars, the whole place seems to squawk, "Unwelcome travelers, buy something and move on."

And, yes, old Insull's colonnaded Opera House—stiffish, true, and now defaced with ugly air-conditioning sheds and a frantic rooftop sign . . . but munificent, enduring, ceremonial, no stinting on quality of materials, structurally progressive. "The best that the age of Scott Fitzgerald produced," in



Grillwork on the Trading Floor entrance doors.



The Trading Floor.



Board of Trade Building (Holabird and Root, 1929).

the words of the architectural historian, Carl W. Condit.

And yes, yes, even the "orgiastic baroque" (again to quote Condit) of those Balaban, Byzantine & Katz movie palaces, with their floating-cloud and twinkling-star ceilings and superheterodyne hedonism are vanishing at an alarming rate.

Yes, all those *do* tend to be pleasure palaces, and thank heaven for it. Walking through the Loop, amid glassy imitation-Mies slabs that bare their sterility along with their bones, we see that the Twenties don't look bad at all.

We have sorely undervalued that period. It was the last age of American innocence, of a breezy assurance now faded even from chronically chest-beating Chicago. The 1920s buildings spired into the sky ornamentally; they were opulent, generous, stately. If there

was about them an evident glossiness, a certain lack of struggle, that was all part of the period too.

They were not so much regional as the localized version of a national manner. The Woolworth Building rather than the Carson Pirie Scott Building gave them inspiration. The Paris Exhibition of 1925 supplied a decorative impulse. They are a damned sight easier to deride than to improve upon.

I remember standing some time ago with a Mies-trained architect and looking at the Palmolive. "The windows are too small," he said disapprovingly. But why couldn't he see the handsome setbacks, the building's rightness for its lakefront boulevard site?

And just the other day, a Chicago artist of long standing scoffed at the 333 building as "kitsch," the putdown primal. Actually, 333 soars splendidly, aristocratically, and fits

its setting beautifully.

And why has it taken us so long to give a pass to Colonel McCormick's Tribune Tower, that oft-derided proliferation of Business Gothic? Admittedly, the building is pretentious, and there is the absurdity of its lower extremities studded with relics from, I guess, Stonehenge on.

For another, we had Sullivan's memorable last words on the design and its topside flying buttresses ("the monster on top with its great long legs reaching far below to the ground"). But Sullivan, in Condit's opinion, failed to see that the tower, the pier-like bands, the buttresses "are elements in a purely aesthetic program" that, after all, works.

I mention Condit because he, more than anyone else, has liberated the 1920s buildings. He is Chicago's foremost architectural



Ceres on the Board of Trade.



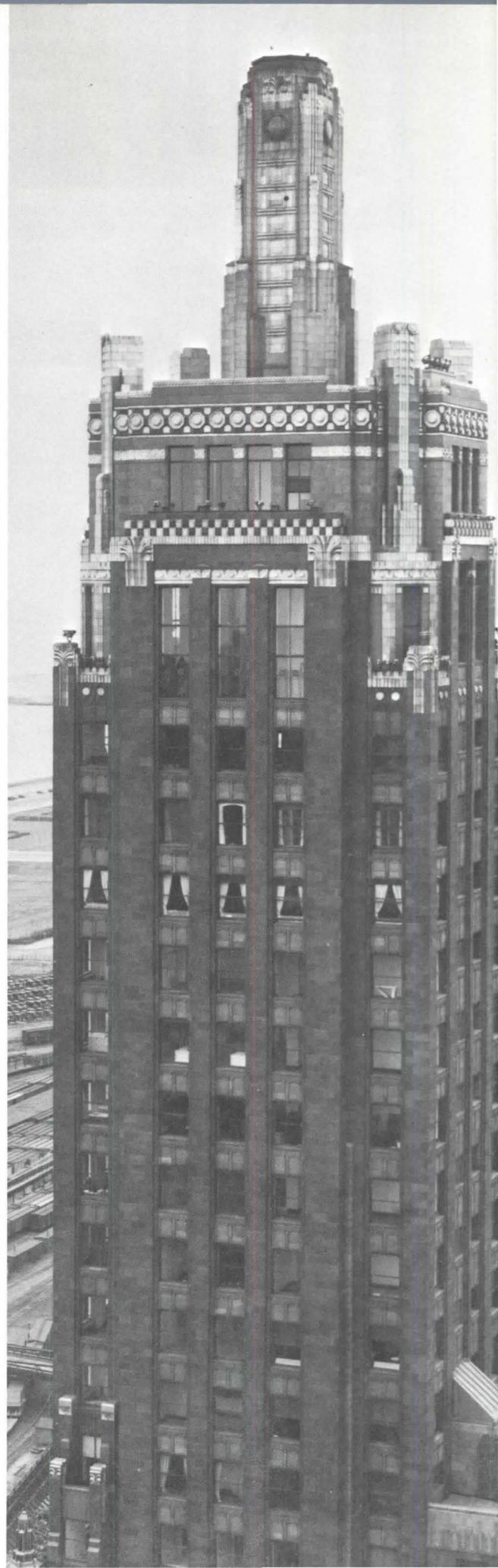
Sheraton Hotel (Walter W. Ahlschlager, 1929).



The Stone Container Building formerly the London Guarantee (A. S. Alschuler, 1923)



North American Life Building, formerly the Jewelers Building, (Giaver and Dinkelberg, 1926)



and the Carbine and Carbon Building (right).

critic and historian, and his *The Chicago School of Architecture* remains the definitive study of the art of the skyscraper and other urban elements as they flowered in the hands of Jenney, Burnham, Root, Sullivan, Holabird & Roche, the rest.

Of course it's tragic that the phenomenal creativity of that age was cut off so soon, that the Chicago School had closed down by 1915. But for Chicago itself it was not the end. True, the Twenties buildings are not really Chicago School buildings, and there was no Sullivan, no Mies to give that decade aesthetic supremacy, philosophic rigor, a moral urgency.

But the 1920s cannot be put down, as Condit demonstrates in a significant new work, *Chicago 1910-1929: Building, Planning, and Urban Technology* (University of Chicago Press). That was the time—the last time, apparently—when the city built generously, more or less following its guiding Burnham Plan.

They built hotels in that day (the Palmer House and the Stevens, now Conrad Hilton), not jumped-up motels. They built apartments and generally they built them rather decently (36,000 in 1937, many of them moderate-income, compared with only 6,700 in 1970, many of them upper-income).

They built civic and cultural institutions, climaxed by Graham, Anderson, Probst & White's striking Shedd Aquarium (1929) and Ernest A. Grunsfeld Jr.'s masterpiece, the Adler Planetarium (1931).

Of all those Chicago blue-ribbon firms of the Twenties, Holabird & Root perhaps went furthest in developing what seemed to be a recognizable ensemble: The Palmolive, Board of Trade, Daily News Building, 333 North Michigan, and the now-destroyed Michigan Square Building at 540 North Michigan Avenue share a distinct family resemblance.

Michigan Square, completed in 1930, was variously known as Diana Court and the Time & Life Building. It was eight stories high, somewhat slickly but pleasantly packaged in its limestone exterior. It was a genuinely boulevard-oriented building and what made it unique was its superbly theatrical, multi-level, semi-circular main court, where thousands of Chicagoans shopped and dined over the years.

Flying staircases, huge striped columns, angle turns, decorative glass panels, stunning use of light, a Carl Milles sculptured fountain—these were some of its charms, all designed for function as well as delight.

The sculpture fountain and a number of the glass panels have been saved, but the rest fell to the headache ball in 1973. What remains now, awaiting construction of a high-rise hotel, is part of the steelwork and a grotesque, two-story front hunk of the building . . . just enough for a Dunhill store to survive in, holding onto its lease.

But if Michigan Square has gone down in smoke . . . and if the Palmolive's paneled lobby and handsome first-floor facade have been centerfolded into a Playboy fun-and-drink emporium, we still have some tremendous Twenties spaces. The Board of Trade



The Time and Life Building (above) and Diana Court (below).





An old photograph of the Tribune Tower (Hood and Howells, 1925) viewed from across the bow of a submarine in the Chicago River.



The Merchandise Mart (Graham, Anderson, Probst, and White, 1930).

lobby, for examples, boasts two tiers of galleries, beautiful stonework and terrazzo floors.

However, this ultimate in Chicago commerce, the 50-ft-high grain trading pit, is to be cut in half and double-decked as a space-making device. The great room will retain its frantic, arm-waving, yowling traders—but it will sacrifice its six ton Art Deco light fixture and its painting of Ceres. Call it “The Triumph of Commerce over Art.”

The Continental Illinois Bank, wrapped in classical drapery, has a tremendous, sweeping bank floor adorned with striking white marble lamps, ornamental carving and murals. The Daily News building’s columned arcade has been exploited to the utmost with shops, but the ceiling mural glorifying the newspaper is still there. This is a building full of decorative touches, as is the carefully maintained entry space of the One North LaSalle skyscraper—with its crafted elevator doors, bronze wall lights, elaborate plasterwork.

The Pittsfield Building in the Loop has a high galleried lobby and handsome bronze-work. The Palmer House lobby and Empire Room are lavishly stylized, the Carbide and Carbon Building on Michigan Avenue is a gilded Twenties object with delicate bronze portal tracery.

Even the elephantine Merchandise Mart has a decorative entrance—although recent additions like the front canopy and bronze busts of merchant princes are “klutzy Mussolini,” as the art critic Dennis Adrian noted aptly in *The Chicago Daily News*.

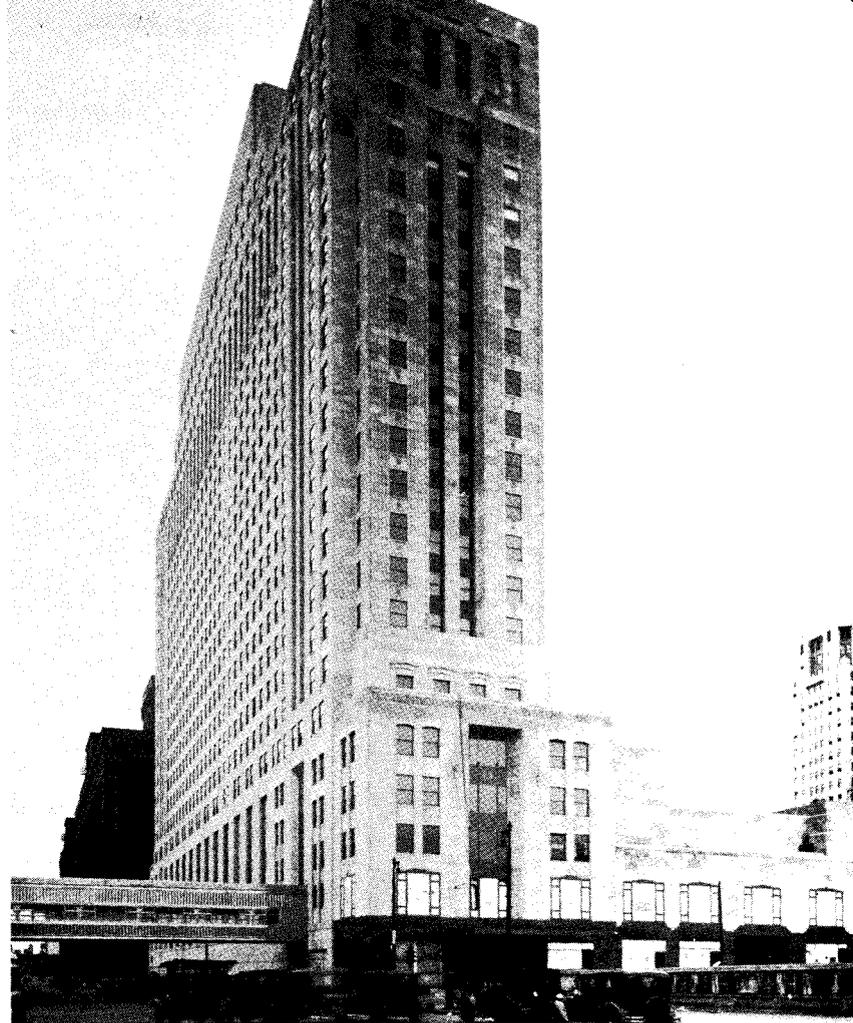
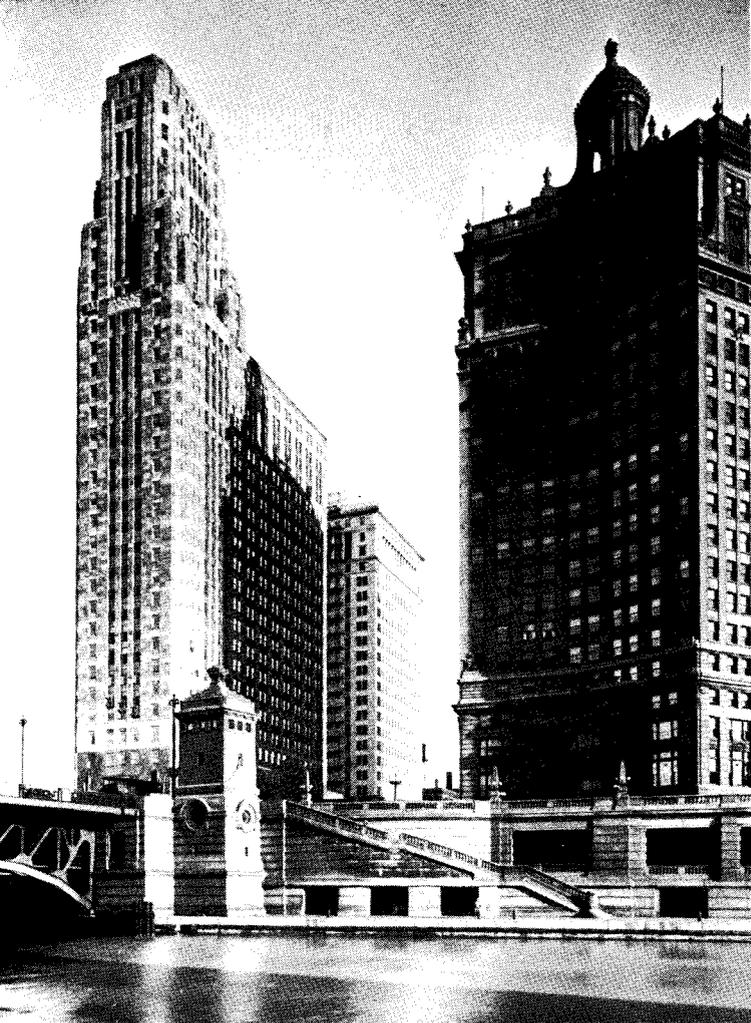
One comes, finally, to the 221 North LaSalle Building at Wacker Drive. Its lobby underwent “modernization” and, along with it, went much of the aluminum paneling, smoked mirrors, shop fronts and striped terrazzo that made the space so memorable.

Naturally the elevator men were replaced by buttons. I was in the lobby once with Studs Terkel, that all-around chronicler of the Chicagoesque. An automated elevator door closed on him abruptly, indifferently. And Studs fought it off, crying, “Bring back the men! Bring back the men!”

The Twenties were, after all, a time of men. When the men went, when the machines took their place, a certain style went too. Let’s face it. We’re not going to bring back the Twenties, for we must inch ahead (and have). But the measure of how far we’ve moved will be in bringing back man’s measure to the scale of our structures and streets.

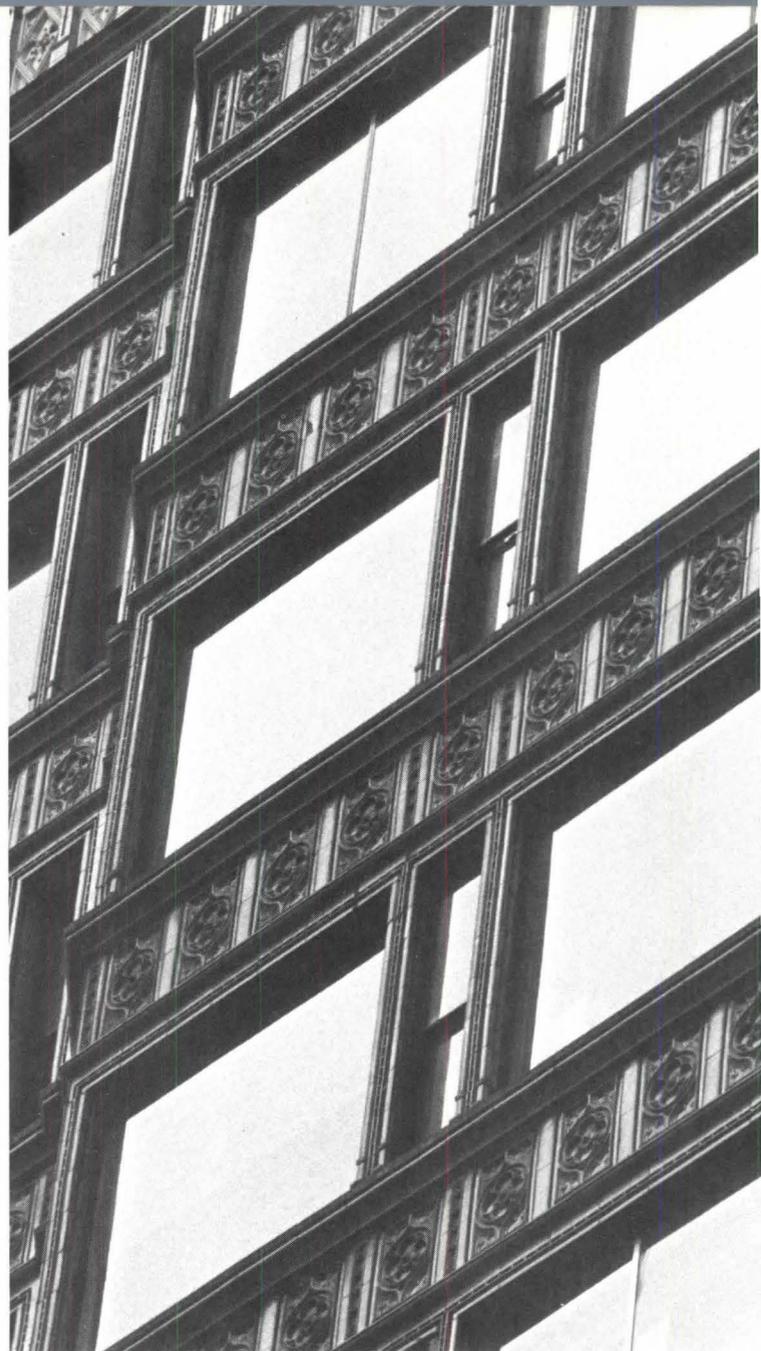
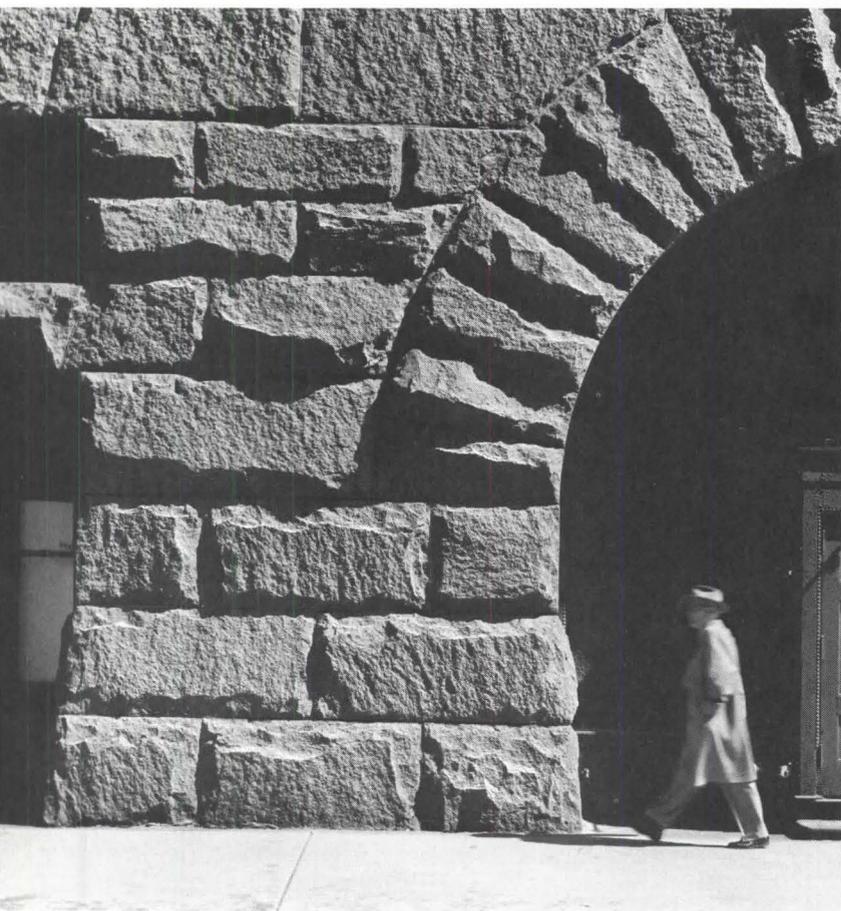
That concern was very evident in the emblematic buildings of the now-liberated Twenties, a decade whose muscular emotions have rushed forward to fill the void of our own empty affluence.

PHOTOGRAPHS: page 48 Underwood and Underwood; 49 Jack Lenahan, with permission from *The Chicago Sun-Times*; 50 Harold Nelson (top left); all others by Hedrich-Blessing.



333 North Michigan Avenue (Holabird and Roche, 1928) and the London Guarantee Building (left), the Daily News Building (Holabird and Root, 1929) at right and below is Michigan Avenue with the Wrigley Building (left), the Tribune Tower (near right) and the Sheraton (far right).





PUTTING LANDMARKS ON A FIRMER FOOTING

BY LINDA LEGNER

Our roots remain shallow. Like those of the wild onion Chicago's named after.

Retrospect, heritage and preservation, even prospect are antithetical to economics, such values belonging in museums it seems, not on the streets.

Past architectural achievements, regardless of their cultural significance to yesterday or tomorrow, are callously blown away—just so much dust on some appraiser's roll-top desk.

Nowhere is this as tragic as

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Chicago where, late in the 19th Century, giants like Jenny, Adler and Sullivan, Burnham and Root, Holabird and Roche generated structural and esthetic prototypes which changed, for all time, the pattern of city life.

You know them: The Home Insurance building, Leiter I and Leiter II, the Stock Exchange, the Garrick and Auditorium Theatres, the Carson Pirie Scott Store, the Rookery, Monadnock, Reliance, that collection which writer Rune Bobert called "Kapitalistick Konst"—to most, the Chicago School of Architecture.

Because Chicago bore such architectural bounty, its inabilities to protect it loom magnified. The Home Insurance, the

Garrick, Leiter I and the Stock Exchange are gone now (FORUM, Nov. 1972).

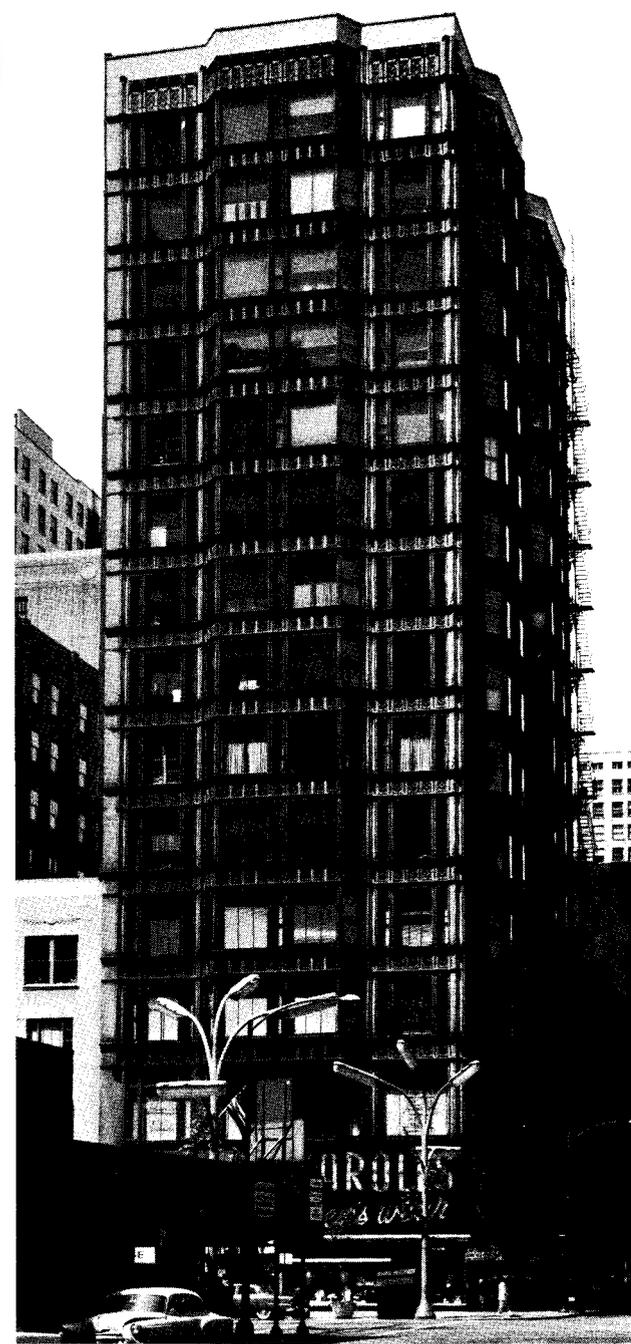
The earliest demolition wave struck in the Twenties and early Thirties, an architecturally bittersweet era. While this period produced those soaring art modern towers (page 50), it quietly removed some towering (if shorter) precedents.

Little new Loop construction occurred for nearly 25 years. Then Skidmore, Owings & Merrill's Inland Steel Building went up in 1958, the same year the city chartered its first Landmarks Commission, signaling a building boom which continues to rock downtown and pulverize the past.

But it wasn't until owners made good their threat to demolish Adler & Sullivan's Garrick Theatre (1961) that preservation forces really began to mobilize. Gallingly, the garage which replaced it hung itself with precast take-offs on the Irishman's ornament, the first example of the Chicago School of Parking Lots.

In 1966, H. H. Richardson's John Glessner House (FORUM, Nov. '72) was slated for a similar "highest and best use." Four young architects organized the Chicago School of Architecture Foundation (CSAF) to buy it, raising monies from leading Chicago architectural firms and a few outside admirers, like Philip

Adler and Sullivan's Auditorium Building 1889, left, and the Reliance



m and Root, 1895, above and right.

Johnson of New York.

Partly in response to the Garrick, the Chicago Landmarks Commission was revamped in 1968, equipped with an ordinance lauded as "the best in the country." Sullivan's Stock Exchange was the first test. The ensuing battle made it painfully clear that the document was ineffective.

The Commission *did* recommend the Stock Exchange twice. The first time City Council refused; the second time, the designation never got out of committee.

By ignoring the issue, the city declared its exit from the battlefield. Pitted against unsympathetic owners, the preservation-

ists regrouped and the Landmarks Preservation Council (LPC), first established by the Metropolitan Housing and Planning Council, surfaced as a coalition fire-fighter. Exhausting every avenue, LPC took the city to court to force Council designation. A demolition permit was issued not long thereafter.

In approach and interest, preservation did emerge far more sophisticated than before. But the real lesson of the Stock Exchange read like a preservation primer: Moralistic breast-beating will not save landmarks. Only cash can.

Economic entanglements were underscored in the first-draft development rights transfer

study, prepared with the Exchange in mind, by Attorney John Costonis and real estate analyst Jared Shales (FORUM, March '72).

Costonis put it straight: "Economics has been the weak suit of preservationists. Legitimately concerned with the cultural significance of landmark destruction, they have tended to skip over what is, after all, the key question—who should pay? Until the cost allocation issue is realistically addressed, the Exchange scenario will recur with distressing monotony."

But maybe not. With the notable exception of Jenny's Leiter I, which came down concurrently with the Stock Ex-

change (no one was looking), not one major landmark has disappeared in two years.

LPC has settled down to long-range legislation and planning. CSAF continues an educational campaign by way of popular tours and, to protect Glessner House and its few remaining neighbors, introduced a Prairie Avenue Heritage District which, early last December, the city endorsed.

The National Trust for Historic Preservation opened a Midwest field office at Glessner House. The state has extended funding for the Illinois Historic Structures Survey. And after being shelved for seven years, the Chicago Theme Study, ad-



Burnham and Root's Rookery, 1888.



Home Insurance Building, William Le Baron Jenney, 1884.



Leiter Building I, William Le Baron Jenney, 1879.

vocating a National Cultural Park in the Chicago region, was released by the Department of the Interior at the instance of Secretary Rogers C. B. Morton.

Yet all this has not dented downtown denizens where it counts. The city has not hesitated to acknowledge landmarks—except when they interfered with Loop redevelopment. The landmark ordinance allows the designation process to be interrupted on behalf of a politically connected owner (and has). The Commissioner of Development and Planning can delay a recommendation (and has). A City Council committee can bury it, thereby avoiding an embarrassing vote (and has).

That final designation rests with City Council at all, a legislative body, is an impropriety even the courts have noticed. And with little to inspire it, the Landmarks Commission has become less aggressive and resourceful. In five years the city has designated only 19 landmarks. Only three of them—the Rookery, Monadnock and Carson Pierie Scott—in the Loop.

Four other Loop buildings await action by City Council, including the Reliance (in committee since early 1972) and the Marquette, the next landmark headed for redevelopment collision or, as seems the case, collusion.

Developers are hustling an as-

sembly which would remake the entire block. At least one sure scheme suggests replacing the Marquette with a plaza—a bankrupt solution from the standpoints of preservation, urban design and, dare we say so, economics. With the Mies-inspired Federal Center plaza to the south of the Marquette, with the more ebullient plaza of The First National Bank to the north, the Marquette's block needs a plaza like a hole in the head—it needs, certainly, solid street frontage, defining the neighboring plazas with, possibly, a court in the middle of the block, similar to Philip Johnson's approach at the IDS Center in Minneapolis. If the de-

velopers do not act with requisite sensitivity, architects should.

In *Space Adrift: Landmark Preservation and the Marketplace*, recently released as a refinement of his earlier study, John Costonis examines the economic incentives encouraging demolition, among them inflationary land values, the “underscaled” stature of the buildings themselves, and their physical or functional obsolescence.

“Landmarks are typically located on small parcels,” he observes. “This factor would hardly bear notice were it not for the so-called zoning bonus system. A zoning bonus permits a developer to erect a larger building in return for providing an



Carson Pierie Scott Building, Richard Sullivan, 1900.

open space amenity, such as a plaza or arcade, at his own expense. Owners of small parcels, however, cannot effectively utilize bonuses because they are left with insufficient land area on which to build an economic structure.

"The introduction of zoning bonuses has brought a development of small lots to a standstill and hastened the amalgamation of smaller holdings into land assemblies of sufficient size—usually a quarter-block or more—to exploit the bonuses. It is an unfortunate paradox that bonuses, which were intended to enhance one type of urban amenity, have had such a destructive impact upon

another."

Urban landmarks, you might say, are in the right place at the wrong time. One opportunity to relieve insistent redevelopment tension is what Costonis calls the Chicago Plan. In it he reinterprets the conventional property definition. Instead of controlling a plot of ground, an owner is asked to recognize that he actually controls a cubic development package, part of which can be sold as readily and perhaps as profitably as his land alone.

Through a development rights transfer mechanism, an owner would subtract the volume of his landmark building from the total development envelope of his

site. What remains would be available for sale or transfer to another owner who might wish to build higher than zoning routinely allows.

All transfers would be carried out within a specified area, much like current zoning districts. In return for the prerogative to sell his rights, an owner would convey a preservation restriction to the city, prohibiting redevelopment, requiring present and future owners to maintain the building.

Because he "decreased" the value of his property, the landmark owner would get a tax break. The buyer would pay proportionately more since he significantly increases his site's

inherent worth. The city wouldn't lose a penny.

But what if a landmark owner rejects the transfer option? Costonis suggests a development rights bank, owned and operated by the city, holding rights over city-owned landmarks, condemned rights and those donated by sympathetic owners. The city could sell parts of the pool to various developers building a cash reserve. If an owner were to declare his intention to demolish, the city would have the money for purchase.

The strength of the Plan: "Development rights transfer largely shifts preservation costs from the city and the landmark owner to the downtown devel-

opment process itself." As long as the city officially refrains from granting variances, making unofficial deals, transfers are marketable, the Plan's thesis credible. As for constitutionality, Costonis is confident the Plan can survive any court ordeal. But whether it will work is a counter condition to whether it will be accepted.

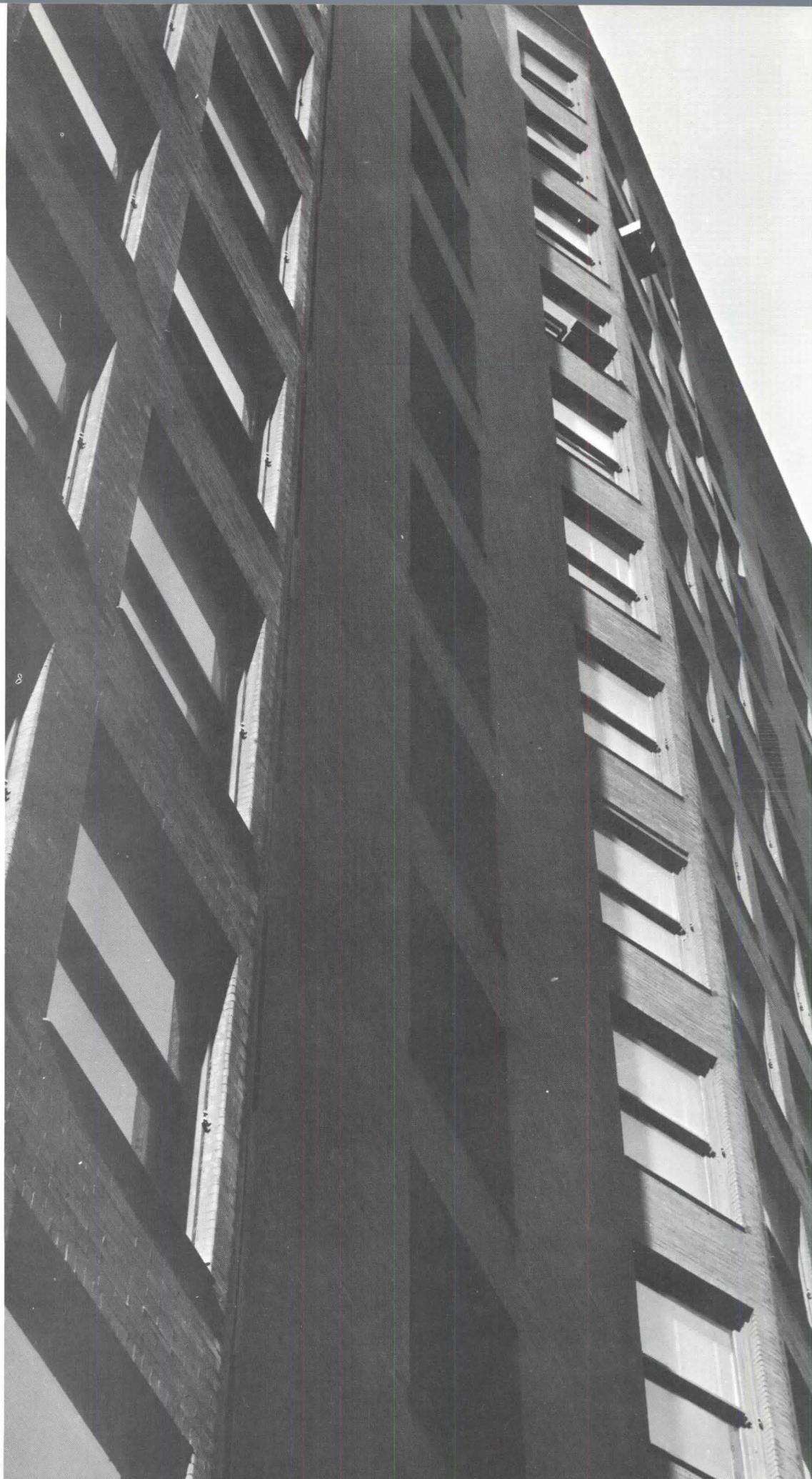
Costonis again: "The posture of the property system vis-a-vis development rights transfer at the present time is much as it was when the concepts underlying condominium ownership, air rights sales, and discretionary zoning techniques, mentioned earlier, were being fashioned. In each sense, a prolonged period of trial and error was necessary during which legislatures, courts, the real estate community, and the marketplace all made their contribution." Similar cooperation must be accorded development rights transfers and, in a couple important ways, groundwork for such cooperation has been laid.

Chicago 21 (page 32)SOM's new plan for the Central Area, recognizes development rights transfer as a possible tool and calls for three legally designated preservation districts — one of them, the heart of the Loop. Indirectly, it lays the framework for a transfer district by encouraging new construction in development corridors located primarily on the perimeter of the Loop, not inside it.

Also, in its Chicago Theme Study, the Interior Department not only endorsed the Chicago Plan but made federal assistance for the National Cultural Park contingent upon it. In return for seed money toward the development rights bank, the Department asked the city to express equal commitment by legislating the transfer system.

Clearly, the preservation failures go deeper than the inability of good guys to prevail over bad. What preservationists are really fighting is, in the long run, an attitudinal deficiency prevalent throughout the larger community, be it Chicago or elsewhere—and in the short run, an economic deadlock. Who will pay?

PHOTOGRAPHS: Hedrich-Blessing p. 58 (top left); Chicago Architectural Photo Co. p. 59; Art Institute of Chicago, p. 58 (right); Richard Nickel p. 56 (middle and right), p. 57 & 60. The Monadnock, Burnham and Root.



THE COSTS OF PRESERVATION

The Chicago Plan and the economics of keeping landmarks in the marketplace

BY JOHN J. COSTONIS

The Chicago Plan looks to development rights transfers rather than to general tax revenues to fund the municipal preservation program. Crucial to its success from an economic viewpoint, therefore, is whether it enables the city to offset the costs of its preservation program with income generated from development rights sales. That question in turn breaks down into the three issues that lie at the heart of the Plan's economic feasibility:

1. What losses do landmark owners incur when their landmark properties are encumbered with preservation restrictions?
2. Will the sale of the development rights associated with these restrictions return amounts sufficient to cover these losses?
3. What losses, if any, will the city sustain as a result either of any deficits in these transactions or of the impact of the Plan upon municipal property tax collections?

FOUR CHICAGO SCHOOL LANDMARKS AND THE CHICAGO LOOP: A CASE STUDY

These issues are addressed in this inquiry by means of an actual case study. Four classic structures serve as the models for determining the type and amounts of costs that result from the acquisition of preservation restrictions on landmark properties. Major works of the Chicago School, each is a diminutive, vintage office building located on a prime downtown site in Chicago's burgeoning Loop. The Loop itself is hypothesized as the development rights transfer district in the study.

A four-stage procedure is used to establish a price tag for preservation restrictions. It begins with a general companion of the four sample properties with their modern competitors in terms of the factors that affect the overall profitability of multi-tenant office structures. It then sets forth an appraisal technique and an algebraic formula for measuring the losses that income-producing structures are likely to sustain when the restrictions are imposed. The technique's operation is then illustrated on a step-by-step basis. Its results for all four buildings are summarized in tabular form, but one of the four buildings is singled out for specific discussion. Finally, these results are em-

Mr. Costonis is professor of law at the University of Illinois, Urbana, where he teaches courses in urban planning and land development law. This article is excerpted, with permission, from his book, *Space Adrift: Landmark Preservation and the Marketplace*, Copyright 1974 The University of Illinois Press, which will be published this April. The book was supported by a grant from the Department of Housing and Urban Development, with funds distributed under the auspices of the National Trust for Historic Preservation.

ployed as the basis for a more general inventory of the economic variables that appear to govern the question of preservation costs.

The marketability of development rights and the cost implications of the Plan for the city are examined. The first step in probing the question of marketability is devising a methodology for valuing development rights. The methodology is applied to determine the incremental increases in land value that a hypothetical Loop parcel would experience if structures incorporating stated amounts of development rights were constructed upon it. These increases in land value are then translated into a development rights value equivalent. Again, the resulting conclusions provide a foundation for fixing the general conditions that appear to determine whether or not the income from development rights sales will prove roughly equivalent to the costs of acquiring preservation restrictions.

The following also probes the cost implications of the Plan for the city by reviewing two matters. First, it examines the extent to which the increased property taxes returned by the larger structures built on transferee sites are likely to offset the reduced taxes returned by landmark structures. Second, it addresses the likely capacity of the municipal development rights bank to cover any remaining net losses that the city might sustain under the Plan. And it closes with a general summary of the conditions that appear to govern the Plan's overall economic feasibility.

THE COSTS OF DESIGNATION

Landmarks and Their Modern Competitors: A Comparison

Prior to discussing the cost question in detail, it is useful to compare the four sample landmarks with modern office structures in terms of the factors that determine their respective profitability. The following paragraphs summarize the major points of comparison between these two groups of properties.

SIZE

The four Chicago School buildings contain a total of 1,028,800 square feet of building area (Table 1). If redeveloped with modern office buildings under current zoning, the four sites could be expected to contain approximately 2,397,725 square feet. The difference between the potential and actual development on these sites, therefore, is 1,368,925 square feet. Table 1 also indicates the percentage of maximum zoning potential to which each of the four sites is presently developed.

VACANCY RATES

The four landmark structures match or exceed newer buildings in terms of occupancy rates. Because of their prestige addresses and central locations, the landmarks generally rent at or just below a full 100 percent rate. The anticipated vacancy rate for modern structures, on the other hand, is generally fixed in the five to ten percent range, but may vary from that range depending upon current demand for office space.

PHYSICAL OBSOLESCENCE

The landmarks have been periodically remodeled to make them reasonably competitive with newer office buildings. Remodeling has proven feasible for these properties because their owners have been able to receive the increased rentals (over and above inflationary increases) necessary to finance this work. Each of the landmarks is a sound, well-maintained building at the present time.

FUNCTIONAL OBSOLESCENCE

The landmarks typically have slow elevators, inefficient climate control systems, wasted space, and standard lighting. Some of these problems, such as outmoded floor plans resulting from the structures' interior courts, are difficult to cure at all. Others, such as inferior climate control, can be remedied but only at a cost that may not be justified by corresponding rental increases.

TABLE 1. Present and Potential Building Area on Four Landmark Sites

Landmark	Present Size (sq. ft.)	Potential Size (sq. ft.)	Landmark as Percent of Potential Building
A	295,000	625,000	47.2
B	368,000	854,000	43.1
C	65,800	111,725	58.9
D	300,000	807,000	37.2
Total	1,028,800	2,397,725	
Difference	1,368,925 sq. ft.		

Source: Real Estate Research Corporation, 1972.

RENT LEVELS

Rent levels tend to average 20 to 25 percent less for landmark buildings than for new buildings comparably located. The average rental of the landmark space is \$6 to \$7 per square foot. Newer buildings rent for \$8.50 to \$9 per square foot on the average.

OPERATING EXPENSES

Operating costs for the old buildings average 41 percent of gross income compared with 28 percent for new buildings. The latter are more easily maintained and experience fewer breakdowns with their modern equipment. More efficient heating and cooling systems also reduce their operating costs.

REAL ESTATE TAXES

Older buildings are not exempt from the pressure of rising taxes. About 19 percent of their income is absorbed by real estate taxes. New buildings pay a higher percentage of their gross income for taxes—about 24 percent after they achieve normal occupancy.

NET INCOME BEFORE RECAPTURE

Net income for the landmark buildings is about 35 percent of gross. The comparable figure for new buildings is 43 percent. Out of this amount must come financing charges, including interest and amortization of the outstanding mortgage debt.

DEPRECIATION

Under the federal income tax laws, depreciation on wasteable assets may be offset against net income. If annual depreciation is greater than net income, the excess depreciation can be used to shelter income the owner may receive from other sources. The depreciable base of landmark buildings, of course, falls well short of the corresponding figure for the more costly structures that could be erected on their sites.

SUMMARY

Chicago landmarks are often able to return sheltered cash flow to the ownership after expenses and capital charges. But the return on equity is not as great as it would be if the zoning potential were fully utilized at that site, and the tax shelter is far thinner. Under typical financing, it is estimated that landmark owners can obtain an annual cash return on equity of about seven and a half percent. The equity holders of new buildings, on the other hand, receive about nine and a half percent.

Valuation of the Preservation Restriction

AN APPRAISAL TECHNIQUE AND A FORMULA

The value of a preservation restriction equals the difference between the landmark property's value prior to and after acquisition of the restriction. Stated another way, it is determined by subtracting the property's present value from its fair market value, i.e., its value as determined by its "highest and best use." Fair market value

is fixed by correlating value estimates established under the three traditional value approaches: Reproduction Cost, Market Data, and Income.

While each of these approaches is useful in setting the value of the building that could be built on the landmark site under current zoning, the first two are not helpful in valuing the landmark building itself. The Reproduction Cost approach, which requires precise estimates of depreciation including physical decline and functional obsolescence, is extremely difficult to apply in the case of landmark buildings. The Market Data approach operates on the basis of the sale of properties comparable to the property being valued. Landmarks or buildings of equivalent age and character, however, are not actively traded on the market.

But the Income approach does provide a reliable estimate of the landmark building's value. It focuses upon the net annual income that the building is able to return to the ownership after deductions for real estate taxes and other operating expenses. Use of the Income approach, moreover, conforms with the practices of lending institutions, which gauge the ability of a property to meet mortgage payments upon its earning power.

The object of employing the Income approach is to establish the effect of the im-

position of a preservation restriction upon the landmark owner's equity. Its application requires an examination of typical financing practices in the market for similar buildings. Assuming that rational investors will seek through financial leverage to obtain the greatest possible return on equity, the owners of the "before and after" buildings will secure as much mortgage financing as possible. From the operating statement, then, it is necessary to calculate cash flow to equity both for the landmark and for its replacement. Since the owner will receive this cash flow over a period of time, the amounts are discounted at a reasonable rate of interest for an expected projection period to estimate the present value of the cash flow to equity. At the end of the projection period, a reversionary or salvage value will remain which must be estimated and discounted to present value.

The present value of the equity in each building, therefore, is the sum of present value of equity cash flow and present value of the reversion. The value of the preservation restriction approximates the difference between the present value of the equity position for the landmark and that of the potential building for its site.

Two additional factors must be considered in order to arrive at the final price tag for the restriction. The first is the expenses

TABLE 2. Calculation of the Value of Preservation Restrictions—Four Chicago Landmarks

Reference	Landmark A		Landmark B	
	Existing	Potential	Existing	Potential
1	Gross Building Size (sq. ft.)	295,000	368,000	854,000
	Efficiency Factor	.75	.75	.80
	Net Rentable Space (sq. ft.)	220,000	276,000	683,200
	Average Rental	\$ 6.50	\$ 6.00	\$ 8.50
2	Gross Income	\$ 1,430,000	\$ 1,656,000	\$ 5,807,200
	Vacancy and Credit Loss @ 5%	\$ 71,500	\$ 82,800	\$ 290,360
	Effective Gross Income	\$ 1,358,500	\$ 4,037,500	\$ 5,516,840
3	Real Estate Taxes	\$ 246,173	\$ 1,009,375	\$ 273,345
	Other Operating Expenses	\$ 611,325	\$ 1,211,250	\$ 707,940
4	Net Income before Recapture	\$ 501,002	\$ 1,816,875	\$ 591,915
5	Overall Capitalization Rate	.10	.09	.10
	Value Estimate—Income Approach	\$ 5,010,000	\$ 20,188,000	\$ 5,920,000
6	Loan-to-Value Ratio	.80	.90	.80
	Estimated Mortgage Amount	\$ 4,008,000	\$ 18,169,200	\$ 4,736,000
	Interest Rate	8.75%	8.50%	8.75%
	Mortgage Term—Years	20	35	20
7	Factor—Installment to Amortize \$1.00	.106080	.089616	.106080
	Annual Debt Service	\$ 425,168	\$ 1,628,251	\$ 502,394
	Cash Flow to Equity (NIBR—Debt Service)	\$ 75,823	\$ 188,624	\$ 89,521
	Discount Rate	6%	6%	6%
	Projection Period—Years	20	35	20
8	Factor—Present Value of Annuity of \$1.00	11.459921	14.498246	11.469921
	Present Value of Cash Flow to Equity	\$ 869,683	\$ 2,734,717	\$ 1,026,798
	Estimate of Reversionary Value	\$ 2,505,000	\$ 10,094,000	\$ 2,960,000
	Discount Rate	6%	6%	6%
	Projection Period—Years	20	35	20
9	Factor—Present Value of Reversion of \$1.00	.311805	.130105	.311805
	Present Value of Reversion	\$ 781,071	\$ 1,313,279	\$ 922,942
10	Present Value of Equity	\$ 1,650,754	\$ 4,047,996	\$ 1,949,740
	Difference in Equity Values	\$ 2,397,242	\$ 2,397,242	\$ 3,582,431
11	Demolition Costs		584,220	605,000
	Damages to Landmark Owner (without tax reduction)		\$ 1,813,022	\$ 2,977,431
12	Damages after 25% Tax Reduction		\$ 1,107,128	\$ 2,193,622

related to demolition and other activities necessary to get the redevelopment project under way. The second is the reduction in real estate taxes that the landmark owner should enjoy in consequence of the depreciation his property suffers when encumbered by the restriction. These factors decrease the amount represented by the difference between the equity positions of the landmark and replacement structures.

The foregoing technique can be expressed by the following formula:

$$\text{DAMAGES} = (\text{ECF}_{\text{PV}} + \text{REV}_{\text{PV}}) - (\text{ecf}_{\text{PV}} + \text{rev}_{\text{PV}}) - \text{D}$$

- Where: 1. DAMAGES represents the value of the preservation restriction.
 2. ECF_{PV} represents the present value of equity cash flow of the potential building.
 3. REV_{PV} represents the present value of reversionary value of the potential building.
 4. ecf_{PV} represents present value of equity cash flow of the landmark building after property tax reduction.
 5. rev_{PV} represents the present value of the landmark's reversionary value.
 6. D represents demolition and miscellaneous expenses of getting the new project under way.

This formula provides an accurate measure of the losses resulting from permanent landmark status. Assuming typical financing and stabilized income statements, and relying on the Income approach to value, it yields a reasonable assessment of the losses that the landmark owner suffers. The key to its accuracy lies in the close scrutiny of the marketplace to obtain the raw data required for analysis. Competent appraisers should experience little difficulty employing it in any city or for any income-producing property.

APPLICATION OF THE TECHNIQUE: A CASE STUDY

Applying the technique and related formula to particular cases is a two-phase process. The first phase requires a thorough examination of the proposed landmark to determine its present financial condition, its estimated present value, and, most important, the present value of the owner's equity in it. The second phase necessitates a similar evaluation of the replacement building. Table 2 summarizes the results of these calculations as applied to the four sample buildings and to their potential replacements.

To illustrate the methodology underlying the figures in Table 2, a step-by-step examination of its application to Landmark A follows. Landmark A occupies a corner lot, a prime commercial location. Presently used

as an office building, it contains approximately 295,000 square feet. The building is well managed, enjoys a low vacancy rate, and commands an average rental of \$6.50 per square foot of rentable space per year. The zoning for the site, with reasonable bonuses for setbacks, would allow construction of 625,000 gross square feet. Considering location and current demand for office space, a new building on this site could command an average rental of \$8.50 per square foot. Table 2 shows a standard pro forma operating statement of income and expenses. The following numbered paragraphs explain the rationale supporting each step of the analysis, and are keyed to the reference numbers appearing in the far left-hand column of Table 2.

1. The "efficiency factor" or ratio of net rentable square feet to gross square feet is approximately .80 in new buildings, but only .75 in landmarks. Given the same gross square footage, therefore, the former are more profitable because of larger percentage of their interior space figures in the building's income production. New building design accounts for the differential because it incorporates planning factors that minimize wasted or nonrentable space, of which interior courts and elevator shafts are examples, respectively.

2. The net rentable space is multiplied by the average rental to determine the estimated gross income, from which is deducted an amount for vacancy and credit losses to determine effective gross income.

3. From the effective gross income are deducted real estate taxes and other operating expenses. Depreciation—a non-cash expense—is not included in the latter figure because the purpose of the appraisal is to determine net income before recapture (NIBR). The percentage of gross income allocated to expenses and taxes varies between landmark and new buildings as reflected in Table 2.

4. Total expenses are deducted from effective gross income to derive NIBR, or, stated in the alternative, net income before depreciation and capital charges. NIBR is crucial to the entire analysis because it is this figure which, when capitalized, determines the value of the property (land and building).

5. NIBR is capitalized in accordance with the following formula:

$$\begin{aligned} \text{Where } V &= I/R \\ V &= \text{Value} \\ I &= \text{NIBR} \\ R &= \text{Capitalization Rate} \end{aligned}$$

Market practices must be examined in selecting R, the capitalization rate. While a variety of indexes may be used for this purpose, the Mortgage-Equity Split Rate has been selected in this analysis. That index determines the overall capitalization rate on the basis of the amount of value financed with mortgage money and the amount considered as equity. A survey of insurance companies in mid-1972 revealed that mortgage money was then available

Reference	Landmark C		Landmark D	
	Existing	Potential	Existing	Potential
	65,800	111,725	300,000	807,000
1	.75	.80	.75	.80
	49,350	89,380	225,000	645,600
	\$ 7.00	\$ 9.00	\$ 7.00	\$ 9.00
2	\$ 350,000	\$ 804,420	\$1,575,000	\$ 5,810,400
	\$ 17,000	\$ 40,220	\$ 78,750	\$ 290,520
	\$ 333,000	\$ 764,200	\$1,496,250	\$ 5,519,880
3	\$ 109,444	\$ 191,049	\$ 299,250	\$ 1,379,970
	\$ 149,850	\$ 229,259	\$ 673,312	\$ 1,655,964
4	\$ 73,706	\$ 343,889	\$ 523,687	\$ 2,483,946
5	.10	.09	.10	.09
	\$ 740,000	\$ 3,821,000	\$5,237,000	\$27,600,000
6	.80	.90	.80	.90
	\$ 592,000	\$ 3,438,900	\$4,189,600	\$24,840,000
	8.75%	8.50%	8.75%	8.50%
	20	35	20	35
7	.106080	.089616	.106080	.089616
	\$ 62,799	\$ 308,180	\$ 444,432	\$ 2,226,061
	\$ 10,907	\$ 35,709	\$ 79,255	\$ 257,885
	6%	6%	6%	6%
	20	35	20	35
8	11.469921	14.498246	11.469921	14.498246
	\$ 125,102	\$ 517,717	\$ 909,048	\$ 3,738,880
	\$ 370,000	\$ 1,910,000	\$2,618,500	\$13,800,000
	6%	6%	6%	6%
	20	35	20	35
9	.311805	.130105	.311805	.130105
	\$ 115,367	\$ 248,500	\$ 816,461	\$ 1,795,449
10	\$ 240,469	\$ 766,217	\$1,725,509	\$ 5,534,329
	\$ 525,748	\$ 525,748	\$ 3,808,820	\$ 3,808,820
11		123,000		270,000
		\$ 402,748		\$ 3,538,820
12		\$ 88,920		\$ 2,680,732

Source: Real Estate Research Corporation, 1972.

at eight and one half percent for new structures and eight and three quarters percent for older buildings. The equity component is less easily determined. Equity holders demand a yield on investment commensurate with risk. Current investors anticipate a return of at least ten percent. Since older buildings are considered to entail greater risk than modern ones, investors in landmark properties will probably seek a 14 percent return and those involved with newer buildings an 11 percent return. These data may be reflected in tabular form as follows:

6. The next task is to determine the amount and length of the mortgages that are likely to be available for landmark and newer properties. Loan to value ratios, interest rates, and amortization schedules will differ depending upon the character of the mortgaged property. In office building financing, lenders fix these elements on the basis of the property's earning expectations, viewed in terms both of annual return and the number of years over which this return can prudently be forecast. In consequence, owners of new buildings can obtain more favorable terms than landmark owners because the economic life of newer buildings will be expected to exceed that of landmarks. The quality of the newer buildings' income stream will also be more favorably regarded because of the risk element considered above.

Current lending practices confirm these judgments. At the present time, modern structures qualify for amortization periods of up to 35 years; the term for older buildings is about 20 years. Interest rates for the two types of buildings do not differ greatly, but lenders require a one-eighth to one quarter percent premium for taking a mortgage on older buildings. Hence, the interest rates used in preparing Table 2 are eight and one half percent and eight and three quarters percent for the new building and the landmark respectively.

The loan-to-value ratios for the two types of properties show a greater gap than the

interest rates. Base ratios are currently 66 and two-thirds percent of fair market value on an old building and 75 percent on a new building. Each property is evaluated on its own merits, however. If a good proposal is unlikely to get off the ground due to the lack of equity dollars, a lender may be willing to raise the loan-to-value ratio rather than have the developer pay higher interest rates to a secondary financing source. By "keeping the deal clean" of secondary financing, the lender is more likely to receive his payments promptly because the owner will not be squeezed by high financing costs. The 66 $\frac{2}{3}$ -75-percent loan-to-value ratios, therefore, serve as a floor from which to negotiate. On the basis of current financing practices, loan-to-value ratios of 80 and 90 percent have been selected for landmark and new buildings respectively.

7. The value estimates are multiplied by the loan-to-value ratios to determine the dollar amount of the mortgage. Then an annual constant factor is applied to fix the annual amount of the mortgage payment, or annual debt service requirement as indicated in Table 4. This payment covers the interest and principal due over the life of the loan. The factor is derived from standard tables that are calculated on the basis of interest rate and repayment period.

By deducting annual debt service requirements from NIBR, equity cash flow is determined. This amount represents the cash available to the equity owner, and is his annual return on his investment. Under the assumptions made in the study, this income would be fully sheltered from income taxes for both the landmark and the potential building.

8. A projection period must be selected in estimating the present value of the equity cash flow. In this case, that period has been chosen to coincide with the mortgage term. This choice acknowledges that the income expectations of the landmark building cannot be projected in perpetuity, but

must be viewed within a reasonable time frame.

The discount rate should be equivalent to the rate of interest that a prudent investor could expect to receive if the annuity (equity cash flow) were invested at a conservative rate each year. A six percent rate was selected because it represents the current yield on medium-term (eight to ten years) U.S. Treasury bonds.

9. The same rate and term must be used in discounting the reversionary value back to present value. The selection of a reversionary value must, by the nature of the task, be estimated. Nevertheless, reversionary values are used routinely in real estate investment analysis since, in considering his yield, the real estate investor must estimate what he expects annually, plus what he expects to receive in a lump sum at the end of the projection period.

10. Present value of equity is the sum of both present value of equity cash flow and present value of the reversion. The difference in these sums for each property represents the approximate cost of the preservation restriction.

11. The landmark property's "before and after" value differential must be reduced by demolition costs. This amount is estimated by multiplying the cost of demolition per cubic foot by the number of cubic feet in the structure. It varies with the degree of difficulty of removal, ranging from 11 to 18 cents per cubic foot in Chicago. Since the sample landmarks appear to pose no special demolition problems, their demolition costs were estimated at 12 to 13 cents per cubic foot.

12. Finally, the effect of a real estate tax reduction must be considered. Properties encumbered by preservation restrictions should be assessed at a correspondingly lower rate under the laws of most states. Table 5 indicates that the four landmarks suffer a weighted average loss in value of about 50 percent of present market value. Many assessors, however, are likely to contest this figure. Like lenders and appraisers, they tend to assess downtown properties essentially on the basis of income potential despite the usual statutory direction to use the "fair value" standard. The former approach, of course, would rule out a tax reduction for landmark buildings because their rental income is not likely to decline, at least over the short and mid-term. On the contrary, it may increase due to the building's heightened prestige and the protection that designation offers from forced relocation as a result of the building's demolition.

It is unlikely, therefore, that a 50 percent reduction in assessed valuation would be granted for the four landmark buildings. On the other hand, a reduction on the order of 25 percent might be acceptable to an assessor, especially if an intergovernmental agreement exists between the landmark commission and the assessor's office. A decrease of that magnitude will substantially increase the return on the landmark owner's

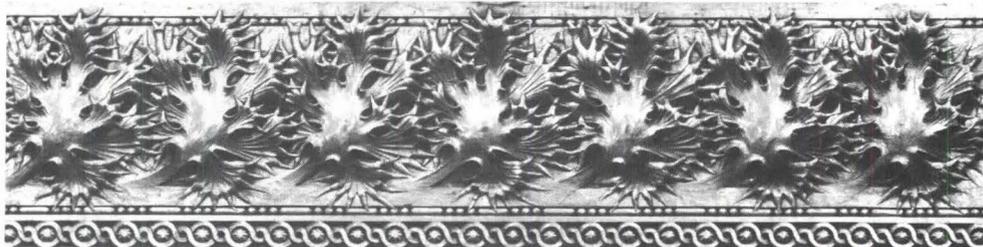
TABLE 3. Capitalization of NIBR

	Landmark			Potential		
	Percent	Rate	Total	Percent	Rate	Total
Mortgage	80	.0875	.0700	90	.085	.0765
Equity	20	.1400	.0280	10	.110	.0110
Capitalization Rate ^a			.0980			.0875
Rounded to			.10, or 10%			.09, or 9%

^a The capitalization rates are used in conjunction with NIBR to estimate value according to the formula $1/R = \text{Value}$.

Landmark A	—	\$ 501,002/.10	=	\$ 5,010,000
Potential	—	\$1,816,875/.09	=	\$20,188,000

Source: Real Estate Research Corporation, 1972.



investment by reducing the difference in present values between the landmark equity position and the possible equity in a larger building at the site. Table 6 reflects the relation of property taxes to the sample landmarks' effective gross income. Table 7 summarizes the reduction in damages that results from a 25 percent tax reduction on these properties.

THE IMPLICATIONS OF LONG-TERM OWNERSHIP

The Chicago Plan envisages that the preservation restriction acquired by the city in landmark properties will be a permanent interest. However, the finite economic and physical lives of landmark properties require that the city periodically reevaluate each property to determine whether its continued retention in private ownership remains feasible.

After designation of a building that is earning its own way, the following phenomena might be anticipated:

1. continuation of improvement in its occupancy and rental levels;
2. continuation of profitability due to reduced taxes;
3. decline in marketability;
4. decline in market price.

For the foreseeable future, it is reasonable to expect that landmarks will remain competitive in the marketplace. The two Chicago landmarks with virtually 100 percent occupancy, for example, are likely to continue to enjoy satisfactory occupancy levels. Owners of the remaining two landmarks can spend some of the funds provided by the property tax reduction for renovation, thereby increasing their buildings' appeal to potential tenants and increasing existing occupancy levels.

The marketability of the landmarks will decrease. The profit-motivated investor will look elsewhere since the landmarks' speculative value is diminished. In addition to the thin tax shelter and modest earnings that typify existing landmarks, little potential for capital gains attends ownership of these buildings. An important hedge against inflation, capital gains prospects figure prominently in the calculations of real estate investors.

The sales prices of designated landmarks will reflect their lack of development potential. The reduction in value should be approximately equal to damages calculated at the time of designation, less an adjustment for time. Purchasers of landmarks who acknowledge their limited speculative potential may find their investment quite satisfactory for a limited time because the income on these buildings may produce a high return on a low purchase price. But the price these buildings will bring upon resale will be low because they remain encumbered by preservation restrictions. Overall yield, therefore, which measures both income and reversionary value, probably would be nominal.

While these considerations may deter purchase or continued ownership of landmarks by speculators, they also suggest that non-



TABLE 4. Determination of Annual Cash Flow to Equity

	Value	Loan/ Value	Mortgage Amount	Factor	Debt Service	Annual Cash Flow to Equity
Landmark	\$ 5,010,000	80%	\$ 4,008,000	.106080	\$ 425,168	\$ 75,823
Potential	.20,188,000	90%	18,169,200	.089616	1,628,251	188,624

TABLE 5. Value of Preservation Restrictions for Four Chicago Landmarks

Landmark	Total Square Feet	Percent of Maximum FAR Developed	Present Market Value	Damages Incurred with Designation as Landmark	Damages as a Percent of Present Market Value
A	295,000	47.2	\$5,010,000	\$1,813,000	36.2
B	368,000	43.1	5,920,000	2,977,000	50.3
C	65,800	58.9	740,000	403,000	54.5
D	300,000	37.2	5,237,000	3,539,000	67.6

TABLE 6. Relationship of Property Taxes to Effective Gross Income

Landmark	Effective Gross Income	Real Estate Taxes	Real Estate Taxes as a Percent of Effective Gross Income
A	\$1,358,500	\$246,173	18.1
B	1,573,200	273,345	17.4
C	333,000	109,444	32.9
D	1,496,250	299,250	20.0

TABLE 7. Preservation Restriction Costs per Square Foot of Undeveloped Space

Landmark	Unused Potential (sq. ft.)	Costs Incurred with Designation as a Landmark		Costs as a Percent of Present Market Value	
		No Tax Reduction	25% Tax Reduction	No Property Tax Reduction	25% Property Tax Reduction
A	330,000	\$1,813,000	\$1,107,100	36.2	22.1
B	486,000	2,977,000	2,193,600	50.3	37.1
C	45,925	403,000	88,900	54.5	12.0
D	507,000	3,539,000	2,680,700	67.6	51.2
Total	1,368,925	\$8,732,000	\$6,070,300		

Source: Real Estate Research Corporation, 1972.

profit organizations may find landmark ownership entirely feasible. Two reasons prompt this comment. First, initial acquisition costs will be severely depressed by the preservation restrictions. Second, the lowered reversionary value of the properties is likely to play a less significant role in the calculations of these organizations.

CONCLUSIONS

The cost of a preservation restriction is essentially a function of two factors:

1. the relative size of the landmark and the replacement building;
2. the relative return on investment of the landmark and the replacement building.

Underlying these elements are four variables that are essential to the calculation of this cost: *market demand for space, zoning, lot size, and location.* Each influences the dif-

ferential in building size and in return on investment. In combination, they largely shape the market inputs, such as rental levels, vacancy rates, and the like, that are used in calculating preservation costs.

Market Demand for Space

Fundamental to the cost question is the existence of a healthy market demand for new construction in the general vicinity of the landmark buildings. Without such demand, economic pressure for their demolition would largely vanish. In fact, it is probably fair to conclude that preservation's best friend to date has been bad economic times.

Conversely, vigorous demand increases land values, thereby introducing the bane of preservation—the discrepancy between the inflated value of landmark sites and the minimum earning potential of landmark buildings. No better illustration of this unfortunate cycle can be cited than Chicago

itself. The loss of the Garrick Theater and Old Stock Exchange and the perilous state of its remaining Chicago School landmarks is directly attributable to the construction boom that Chicago has been experiencing since the mid-Fifties.

Zoning

Municipal zoning measures also play a key role. Given a healthy market for new construction, their effect can be simply stated: *the more generous their density allocations the greater the cost of the preservation restriction and vice versa.* This point is not well understood, least of all by the cities themselves when they ascribe the loss of their landmarks to the supposedly autonomous forces of the private market. The fact of the matter is that governmental decisions are at least as responsible for landmark attrition as the vicissitudes of the marketplace. Developers in Chicago and elsewhere do not destroy landmarks because they are unrelenting philistines. As rational investors seeking maximum return on the dollar, they do so because this course of action is virtually forced upon them by the zoning rules that the city itself fixes.

These rules, therefore, deserve close scrutiny from at least three perspectives. First, precisely how do generous zoning provisions drive up the costs that the landmark owner suffers? Second, what impact do these provisions have upon other development decisions that lead eventually to landmark attrition as well as to other unfortunate urban design consequences? Third, how may these rules be modified to facilitate rather than frustrate landmark preservation under incentive programs such as the Chicago Plan?

ALTERNATIVE TECHNIQUES FOR ALLOCATING DENSITY

The generosity of a city's zoning depends upon two factors: the technique by which it regulates density and the level at which it fixes that density. Most American cities regulate density in accordance with one or more of the following techniques: envelope zoning, tower coverage zoning, floor area ratio (FAR) zoning without bonuses, and FAR zoning with bonuses. Envelope zoning, the most traditional of these techniques, imposes precise restrictions both on the permissible bulk of a building and on its location on a zoning lot. Typically, it establishes minimum front, rear, and side yard setbacks, and limits the height of the building to a specified number of feet or stories. These restrictions in turn limit the number of square feet of building space that may be built on a lot.

Tower coverage zoning takes a second tack. Limiting neither height nor placement, it requires only that the building's coverage of the lot not exceed a stated maximum percentage of the lot. Its purpose is to insure that a specified amount of open space will be provided in conjunction with a building erected on the lot. A 40 percent tower coverage requirement, for example, leaves

a developer free to construct a building of any height anywhere on his lot provided that the building covers no more than 40 percent of the total site.

FAR zoning without bonuses directly regulates the number of square feet permitted in a building constructed on the lot, but normally allows more design flexibility by allowing a number of possible design configurations. For example, an FAR of ten means that a ten-story building can be built covering 100 percent of the site; a twenty-story building, using 50 percent of the site, or a forty-story building, using 25 percent of the site. In each of these instances, the total number of square feet that the building may contain remains constant.

FAR zoning with bonuses simply adds to the foregoing density allocation whatever amount of bonus space the developer earns by furnishing a specified amenity. If, for example, a developer agrees to provide an open plaza, thereby increasing public open space, he may be permitted to increase his FAR from ten (as cited above) to a higher figure, thus entitling him to include a greater number of square feet of building area in his project.

ZONING AND PRESERVATION COSTS: THE CHICAGO EXPERIENCE

The Chicago zoning ordinance, which employs the FAR-with-bonuses technique, represents the most detrimental type of zoning from the viewpoint of minimizing the value of preservation restrictions. It combines generous basic FARs with prodigal bonuses. The FAR of 16, which prevails in the Loop, is among the highest of any city in the United States. But the real excitement is found in the bonus space allocations. Under them it is theoretically possible for the owner of a half-block site to double this base FAR and build a seventy-four-story building containing about 2,500,000 square feet. More startling yet, they enable the owner of a full-block site to increase his FAR from 16 to 39.3, the latter permitting a 140-story building with close to 6,000,000 square feet. For comparison purposes, New York's Empire State Building is 102 stories tall, contains 2,120,836 square feet, occupies a site of 83,860 square feet, and has an FAR of 25.3.

So liberal is Chicago's zoning that it is virtually impossible to fix a precise theoretical maximum for the number of square feet that may be built on Loop parcels of a half-block or more, and quite difficult to do so for smaller lots. As a result, developer-owners of larger parcels in the Loop rarely build to the limits of the zoning ordinance. The cost per square foot for new construction rises in proportion to the height of the building, becoming impractical before those limits are reached. Further, to take advantage of the bonus provisions, developers would have to construct unusually tall buildings with a relatively small number of square feet per floor. The resulting structures would be inefficient because a disproportionate amount of their space would be

lost to elevator shafts, utility systems, and other non-rentable uses. Hence, in designing their projects, Chicago developers generally strike a balance between the maximum that zoning allows and the economics of large building construction.

Three consequences that impinge directly on the question of preservation restriction costs flow from Chicago-type zoning. First, that zoning drives these costs up inordinately by opening a huge gap between the size of the landmark buildings and the size of their potential replacements. For example, Landmark B sits on a 26,400-square-foot lot and contains 368,000 interior square feet for an effective FAR of 13.9. A replacement building taking full advantage of the basic bulk allocations and the bonus provisions of Chicago's ordinance could quite feasibly contain 854,000 square feet. Its FAR would more than double, from 13.9 to 32.3. The same point appears in considering the four sample landmarks collectively. At present, they contain 1,028,800 square feet; their replacement buildings, however, would contain an estimated 2,397,725 square feet. The difference of 1,368,925 square feet between these two figures largely accounts for the total gross damages tab for the four buildings of \$8,732,000.

Second, Chicago's bonuses both complicate the calculation of preservation restriction costs and further increase their amount. Consider, for example, the options open to a developer who owns a Loop corner lot 160 by 250 feet with a frontage on two streets in a "B6-7" bulk district. That district's base FAR of 16 could be escalated by the following bonuses, among others:

	Bonus
a. Setback of 20 feet or more on each of two streets for all stories above grade (bonus of 2.5 per street setback)	5.0
b. Setback at ground level—40 feet from two streets (bonus of 2.5 times open area at ground level divided by gross lot area)	1.0
c. Setback at upper floors above the ground floor—40 feet from two streets for (an illustrative) 30 stories (bonus of .4 times open area of each floor divided by gross lot area)	4.5
Total bonuses	10.5

Which, if any, of these bonuses the developer selects rests wholly within his discretion. But the courts might well find that he is entitled to any or all of them as a *matter of right* because Chicago's ordinance in no way conditions them upon prior approval by city officials. This conclusion would be extremely damaging to the city should it seek to acquire a preservation restriction through condemnation proceedings. Condemnation awards are measured by the condemned property's "highest and best use." In the case of Loop parcels, the lat-



ter would then be fixed not in relation to the parcel's base FAR alone but in terms of that FAR plus such additional bonus space as seems reasonable in light of current market demands for office space.

In consequence, the size of the replacement buildings for the four sample sites (or for any others in a district in which bonuses are applicable) may not be determinable simply by multiplying the square footage of the site by the base FAR of 16. Instead, a much larger size may have to be fixed on the basis of an estimate that considers the individual site's configuration as well as typical developer requirements as to overall building size, square feet of building space per floor, and total floor area. This technique was used in arriving at the size of the replacement buildings for the four sample sites.

Third, bonus zoning as practiced in Chicago may also increase costs by adding a substantial *assemblage* premium to the calculation in cases where speculators own both the landmark site and adjoining land at the time the restriction is acquired. These cases may not be infrequent because the relatively smaller size of many landmark sites makes them prime targets for inclusion in land assemblages. Bonus zoning encourages assemblage—and therefore landmark demolition—because bonuses can be employed to greater advantage on larger holdings. The number of square feet that can be built on a given parcel under the bonus system rises geometrically in proportion to lot size. In addition, large sites afford greater flexibility in providing the setbacks and open space required for the bonuses. Finally, enough lot area for efficient construction remains on these sites after deductions for setbacks and open space.

LAND ASSEMBLY AND THE LOW-DENSITY USE

Zoning ordinances that allocate density under the FAR-with-bonuses technique began to appear in American cities in the late 1950s and early 1960s. The results attributable to them since then have been mixed. In many instances, the plazas, arcades, and other facilities that they encouraged have enhanced the amenity levels of the urban downtown, particularly when the bonuses allotted for these facilities were held to reasonable levels. Regrettably, however, many cities have awarded premium space profligately. Worse still, they have been so dazzled by the prospect of open space amenities that they have ignored the havoc that an untamed bonus system can wreak upon other types of amenities deserving of equal or greater consideration.

The chief victim of this shortsightedness has been the low-density use located on the smaller downtown parcel. Landmarks are of course a prime illustration, but hardly the only one. Because generous space allocations can best be exploited only on larger parcels, the small parcel use is the first to go when the real estate market begins to heat up. As a result, bonuses have largely accounted for the frenzied land assembly maneuvers of downtown speculators whose concern for the buildings or uses occupying the parcels targeted for redevelopment goes no further than the expense of their demolition.

Accounts of the unhappy consequences of insensitively administered zoning bonus programs tell the story graphically. Writing of the impact of New York City's zoning bonus program upon that city's redeveloped Sixth Avenue, Ada Louise Huxtable grimaced: "The zoning is a failure in urbanistic terms—or how a city looks and works. The zoning, combined with the rising cost of land and building, has been the definitive factor in driving out the small enterprises, the shops, restaurants and services that make New York a decent and pleasurable place in which to live and work. In their place is a cold parade of standard business structures set back aimlessly from the street on blank plazas that ignore each other."

Predictably, Chicago's bonus system also gets poor marks. Its impact upon development within the Loop was described as follows in a study co-authored by the present writer:

It is from [the zoning bonus] provisions in [Chicago's zoning] ordinance that the pressure arises to merge properties in the Central Business District in order to create large lots with multiple street frontages which can benefit from them. This pressure in itself has imposed burdens on certain landmark structures and has driven from the Loop a host of small merchants and service businesses which are sorely missed. It has also tended to render uncompetitive the smaller office building and commercial structure which might otherwise have been built in the downtown area by pushing land values upward and by limiting the development potential of smaller sites as compared to larger ones. While many people in the real estate field prefer block-front structures for esthetic as well as for economic reasons, there is little question that these structures do tend to reduce the diversity and vitality of downtown streets and to reduce the general convenience and attractiveness of the ordinary office worker's day by reduc-

ing shopping opportunities and service facilities. The long range benefits of eliminating the small retailer, shoe repair man, tailor shop, book store and loft-type business from the Central Area economy also appear somewhat doubtful.

The point of these comments is not that bonuses should be banished from the municipal zoning ordinance. On the contrary, bonuses are a milestone in the struggle of cities to achieve greater leverage over private land use decisions that vitally affect community goals. There have been enough success stories in the use of bonuses to date, moreover, to render absurd the notion that bonuses are evil per se. Rather, the challenge is to see to it that bonuses are used more discerningly to insure that in the trade-off of space for amenity the city—and the public interest—will come out at least as well as the developer or perhaps, even better. The Chicago Plan affords a fertile device for achieving this result.

Lot Size

Because the three principal ways in which lot size affects the costs question have already been reviewed in the zoning discussion, its role need only be summarized here. First, lot size plays a key part in determining the permitted size of a project, whether under the envelope, tower coverage, or FAR bulk regulation techniques. Second, it strongly influences whether or not a given project will include bonus space (where bonuses are available), since the premiums granted for setbacks and other open space amenities are feasible only on lots of sufficient minimum size. Finally, it offers a useful index for gauging whether any given parcel is likely to come under pressure for inclusion in a land assemblage or whether the parcel will itself serve as the site for a new project.

Location

The value of real estate depends in large measure upon its location. The extremely high costs recorded for the preservation restrictions on the four sample landmarks reflect the location of these buildings in the central business district of a major metropolitan area. Even within a central business district, however, different locations have varying effects upon real estate values as determined by the local market. Thus, properties located only a block apart may have significantly different land values.

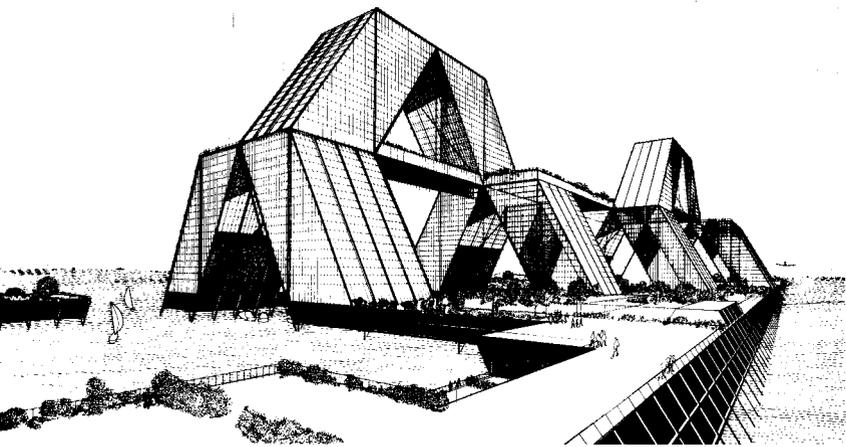
Other Variables

Other important variables include interest rates, mortgage terms, vacancy rates, and the expectations of equity holders. Because these variables are dependent upon normal fluctuations in the marketplace over time, however, their impact on the calculation of damages is relative to the point in time at which the calculation is made. At any one point in time, moreover, these variables will hold constant for the cost calculations on any landmark building.

PHOTOGRAPHS: Details of Adler and Sullivan's Auditorium Building by Richard Nickel.

SORTING OUT SOURCES

Stanley Tigerman's search for basics
in a city that thought it had them all



"Chicago is not a place. It is an idea. You build, you do not talk. You work in the privacy of your mind—an almost mystical thing. Chicago is not a communicative place. That's New York, where there's super-communication. That is why, I feel the need to exchange ideas, I go there."

The way Stan Tigerman talks here, you would think there are no more ideas left in Chicago to exchange—which is partly true. A lot of architects think they have the truth sewn up and, to prove it, shut up. Tigerman can't, even when he isn't saying anything. He sits at a regular drafting board, among a lot of other drafting boards, defiantly proud of his structural details—"I'm a draftsman, damn it." Looking out of a simple office in Two Illinois Center (by the Office of Mies van der Rohe) toward One Illinois Center (by the Office of Mies van der Rohe), he contemplates the structural discipline every Chicago architect is heir to—that "almost mystical thing."

Obviously, then, it is not either Chicago or New York. It is both. And he attempts to bridge the gulf between these architectural galaxies.

Over the years he has woven friendships, leading to a rapprochement within himself, at least between forces, locally and on the East Coast, the forces he has grappled with in seeking out a resolution.

The reasons he has assumed this mediative role are partly found in his architectural training. A native Chicagoan, he spent one abortive year at MIT, stubbornly opened an office at the age of 19, did a hitch in the Navy and various Chicago architectural offices (including SOM), became a licensed architect in Illinois, and then went brazenly to Paul Rudolph's Yale in 1959, announcing that he intended to wrap the whole thing up in a year. Actually, it took two. He got his B. Arch. in 1960, his M. Arch. in 1961, working in Rudolph's office while studying. Jacquelin Robertson was at Yale then and while a guest critic at Cornell, Tigerman came to know Colin Rowe and later Kenneth Frampton, Robert Slutsky and the New York Five. Thus he was exposed to a wide spectrum of theory—much of it seemingly

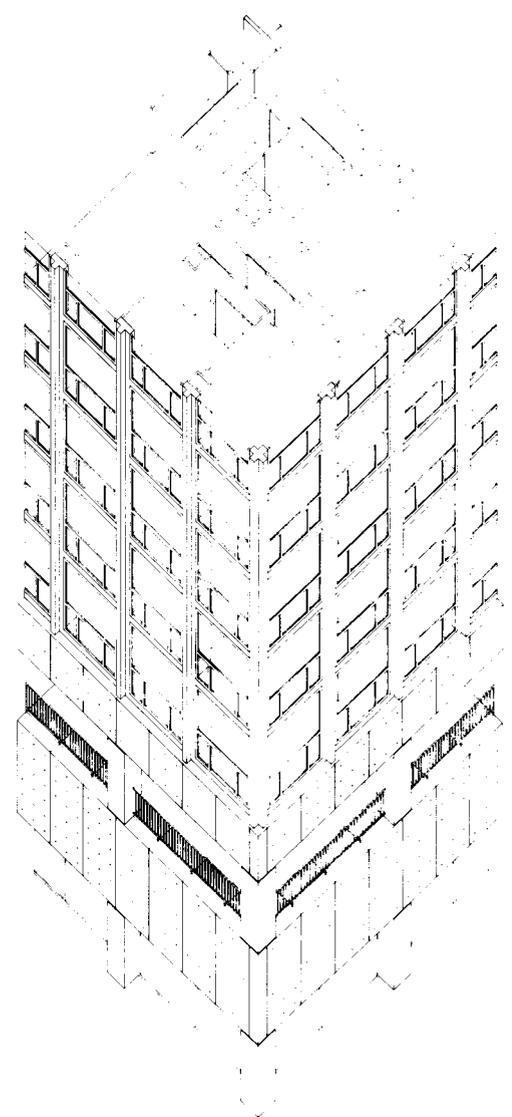
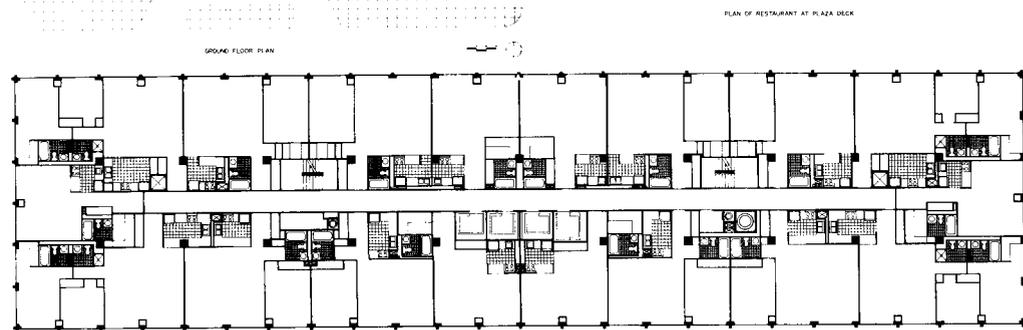
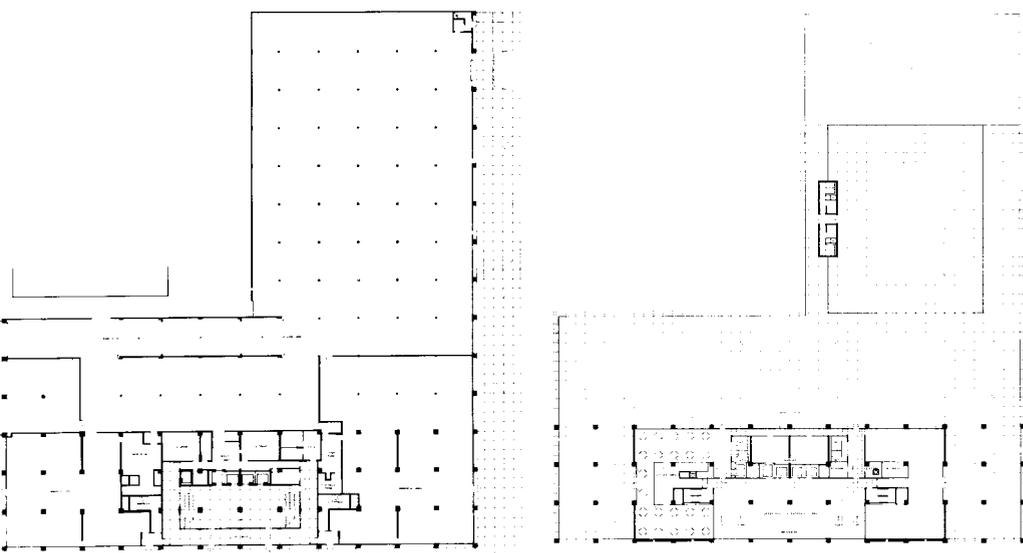
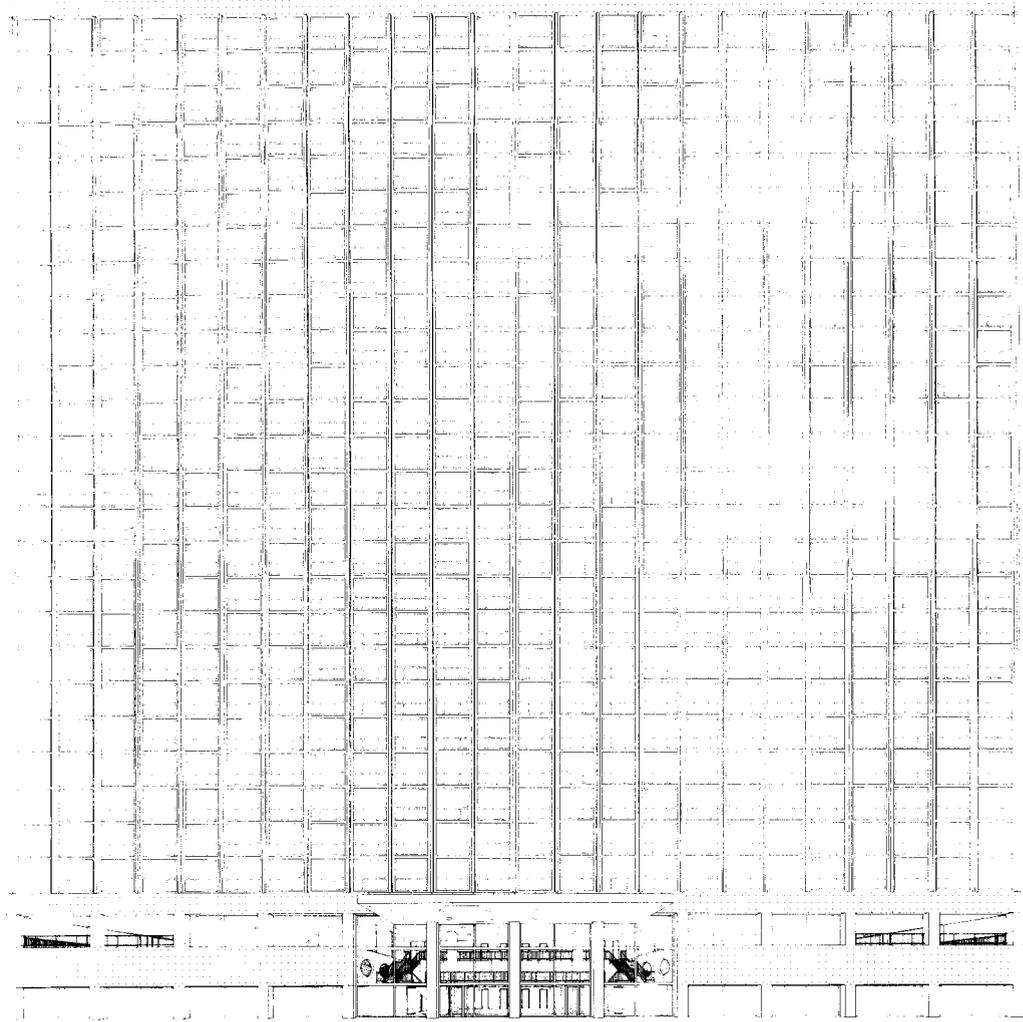
disruptive to the Miesian cosmos in which most Chicago architects move.

Tigerman doesn't mind when he is called an outsider by the Chicago architectural establishment. In fact, there are times when such attitudes can be charming. The wife of one prominent colleague once came up to him at a reception and looking a little perplexed, said, "You work in a Mies building, and you have Mies chairs but . . . but, you're not a Mies architect."

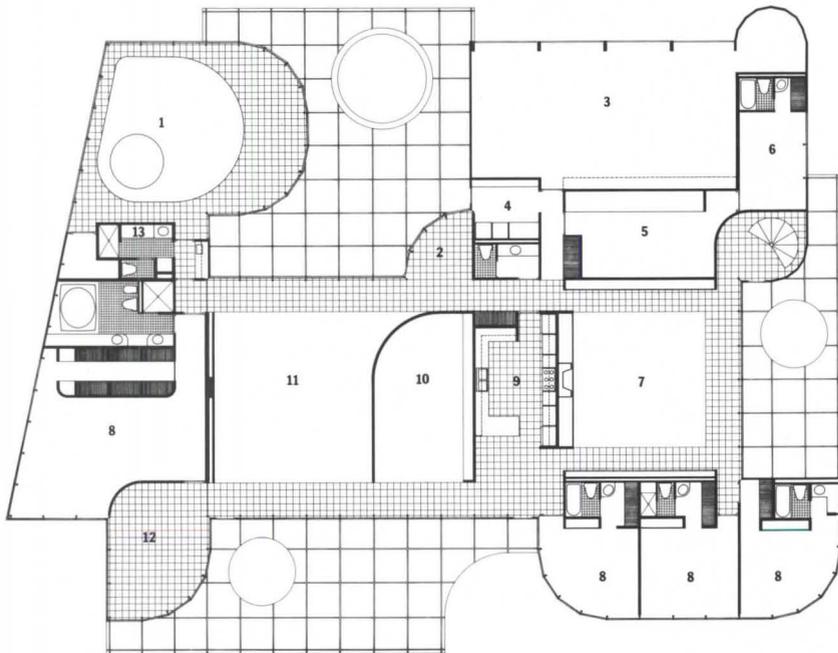
His reverence for the Chicago School is too strong for him to be called an iconoclast, which the lady fell just short of implying. And indeed he isn't. In small and medium size housing—projects such as Pickwick Village, Woodlawn Gardens in Chicago, the Ile des Soeurs townhouses in Montreal and the Vollen House in Wisconsin—he has created living environments which are well thought out and carefully detailed. To Tigerman, attention to the hidden details which make buildings endure is a characteristic of Chicago architects in general, a craftsmanlike approach and concern for well-made buildings which is almost 19th century in its scrupulous observance.

Instant Stadium, Instant City, Floating Resort Complex, Urban Matrix—grandiose megastructures are the other side of Tigerman's ordering of reality, and the side which is least local in spirit. Characteristic of the intellectual climate of the Sixties, these are partly the result of Tigerman's intense study of what he calls the "six most basic figures concerned with man's orthogonal pre-conceptions: the square, rectangle, cruciform, pin-wheel, linked figures and lozenge," which he discussed in an essay in *Leonardo*, Formal Generators of Structure.

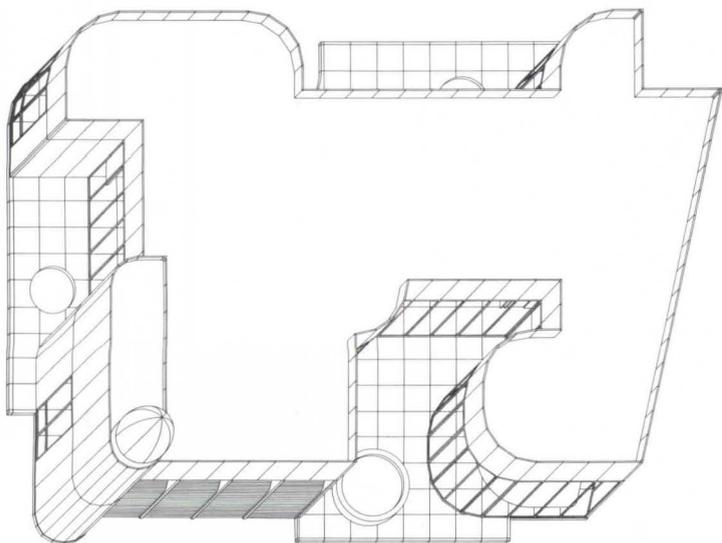
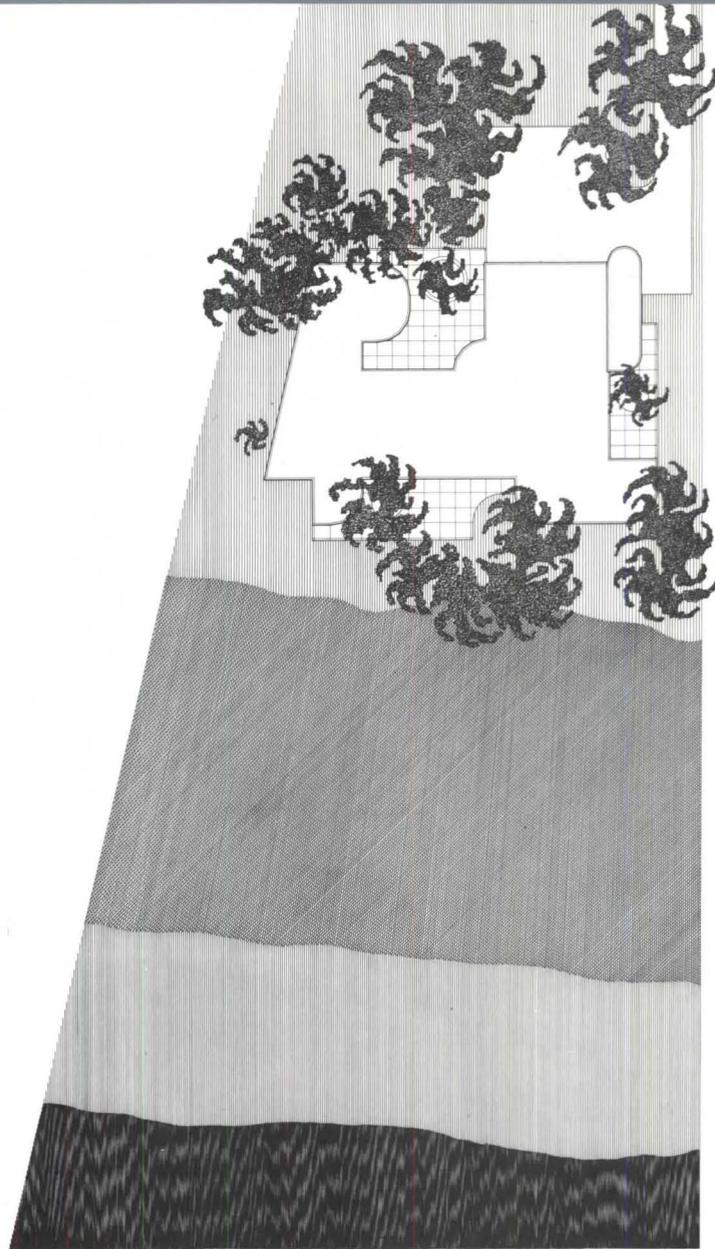
Tigerman visualizes these figures as symmetrical linear configurations. Progressively transformed into three-dimensional crystalline structures, he then translates separate or grouped crystalline formations into either sculptures or mixed-use megastructures. This megavision, as most architects', has something of Saul Steinberg's surrealist view of the world in which both microscopic and normal scales are gigantically enlarged to serve some purpose and, in the process, make a point.



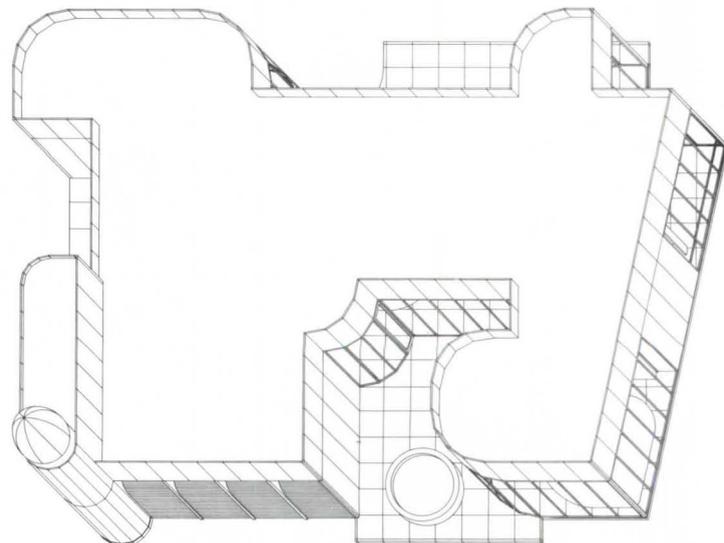
Boardwalk. Top left: perspective elevation of facade. At ground floor level commercial space flanks lobby which contains elevators and stairway to third floor plaza. Far left: ground floor plan. Middle left: plaza level containing restaurant, laundry and swimming pool. Bottom left: typical floor of apartments. Right: projected detail of facade structural grid and apartments.



HOUSE BY LAKE. Above: plan 1. indoor pool; 2 entrance; 3 garage; 4 laundry; 5 catch-all; 6 maid's room; 7 family room; 8 bedroom; 9 kitchen; 10 dining room; 11 living room; 12 study; 13 pool dressing room. Left: site plan, entrance at top lake at bottom.



Entrance side toward maid's room and observatory.



Entrance side toward indoor pool and master bedroom.

Will Tigerman's "Instants" remain fantasy products of the feverish Sixties, when Archigram Cities stalked the countryside and New York was to be domed by Bucky and then wrapped by Christo? Considering Tigerman's drive, the bet is that an "Instant" could be built somewhere. But having designed them, published them, and even promoted them, he can now ask *should* they be built and, apparently, he has.

For as he continued to explore these six constituents of form, a deeper maturity and morphology emerged—the understanding that big points are usually made slowly, not instantly, and that they are often best made by doing small things very well.

BOARDWALK: ARCHETYPES, VERTICAL CAPITALISM AND THE VENTURI GANG

Boardwalk is Tigerman's critique of the Chicago skeleton frame and a test of his theory of Vertical Capitalism. Reinforced concrete, 28-stories, moderate income, mixing commercial space, parking, 150 studios 200 one-bedroom apartments, Boardwalk came in at \$16 per gross square foot.

Tigerman defines the skeleton frame as both structure and space—a matrix emerging from grid plan of, he insists, the only true American city of the late 19th Century. The Chicago

frame was that grid raised vertically—flung into the sky.

"The skeleton frame is the best example of field theory architecture over and against the compositional theory," he notes.

In using the skeleton frame for Boardwalk, Tigerman is doing combat with the archetypal Chicago tradition—William Le Baron Jenney, to Mies van der Rohe, to their successors—questioning Mies' interpretation of the skeleton frame because, he feels, that Mies did not express the frame's inherent nature as both a structural and *spatial* matrix. Mies made the planar definers of space non-structural. His major divergence from a matrix interpretation was his articulation of the corners where he confirmed the two-dimensional skin of each facade. He further suppressed the essential character of the frame by emphasizing vertical members.

Tigerman has seized the opportunity in Boardwalk to make his own interpretation. The three lower floors of public and commercial services form a base for the 25 stories of apartments above. The shops of the ground floor are separated by a parking level from the third-level plaza deck with its restaurants, swimming pool and tennis courts. Tigerman's restrained exposition of the Chicago frame in the apartment floors stresses a visual equality between horizontal and vertical members. Though

emphasis is given to the vertical members by higher relief, the entablature at the top of the building affirms the structural continuum of the frame.

In the openings, Tigerman has played a minor key variation of the Chicago tripartite window. Internally, the focus of each apartment is Mies' 20 by 20 foot living-dining room. Formally, Boardwalk is a winnowing of elements from Mies and his predecessors' interpretations of the frame.

As an experiment in Vertical Capitalism, Boardwalk is a discount copy of those *nouveau riche* high-rises which make up that wall of conspicuous consumption pressing against Lake Michigan. Boardwalk is discreetly distant so the tenants of Sandburg Village will never have to know the awful truth: They could get much the same for less money.

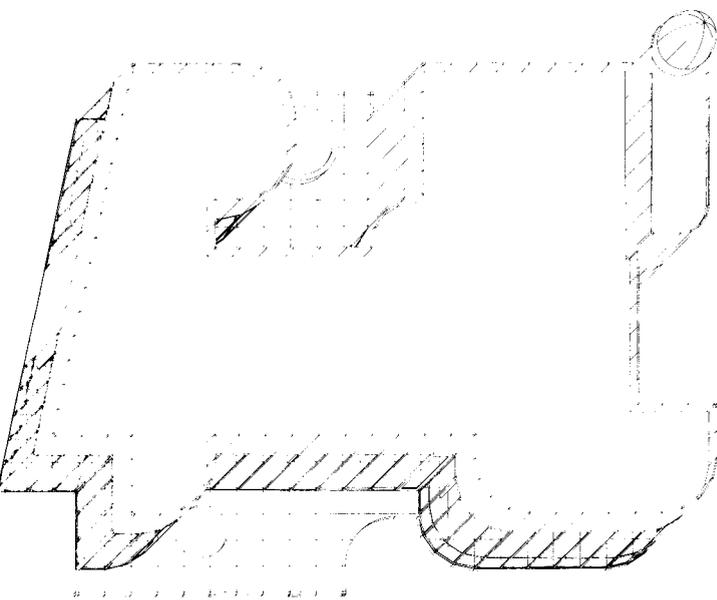
As Tigerman points out the vertical structure of American Capitalism requires that innovations in architecture be introduced at the top of the economic tree. Only after acceptance has been won there, will the middle and lower income groups successively accept these innovations in less expensive versions.

Prefabrication in American housing has been a victim of mis-reading or blind ignorance of this economic law according to Tigerman. When Operation Breakthrough began in the Sixties, the Washington bureaucrats

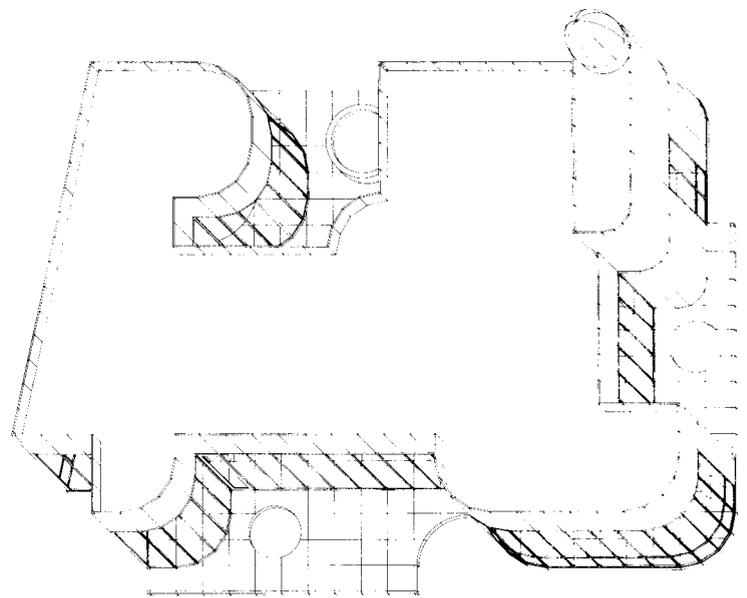
mistakenly tied prefabrication to mass housing for low-income groups, especially the Blacks. The Blacks would have none of it because of their experience with mobile classrooms and minimal FHA standards in welfare housing. Therefore prefabricated D-4 housing failed. If it had been constructed at \$60-\$70 per square foot on Lake Shore Drive in Chicago or East End in New York, Tigerman believes prefabrication would have acquired the prerequisite chic to be accepted by those lower on the financial tree.

The Venturi Gang, as Tigerman calls them, has been successful in having their ideas and concepts spread from Laguna Beach to Far Rockaway via the filter down system. Their pop vernacular architecture, a cross between *The Last Picture Show* and *American Graffiti*, at first expressed in luxury vacation houses and faculty clubs has turned up in discount shopping centers and low income housing.

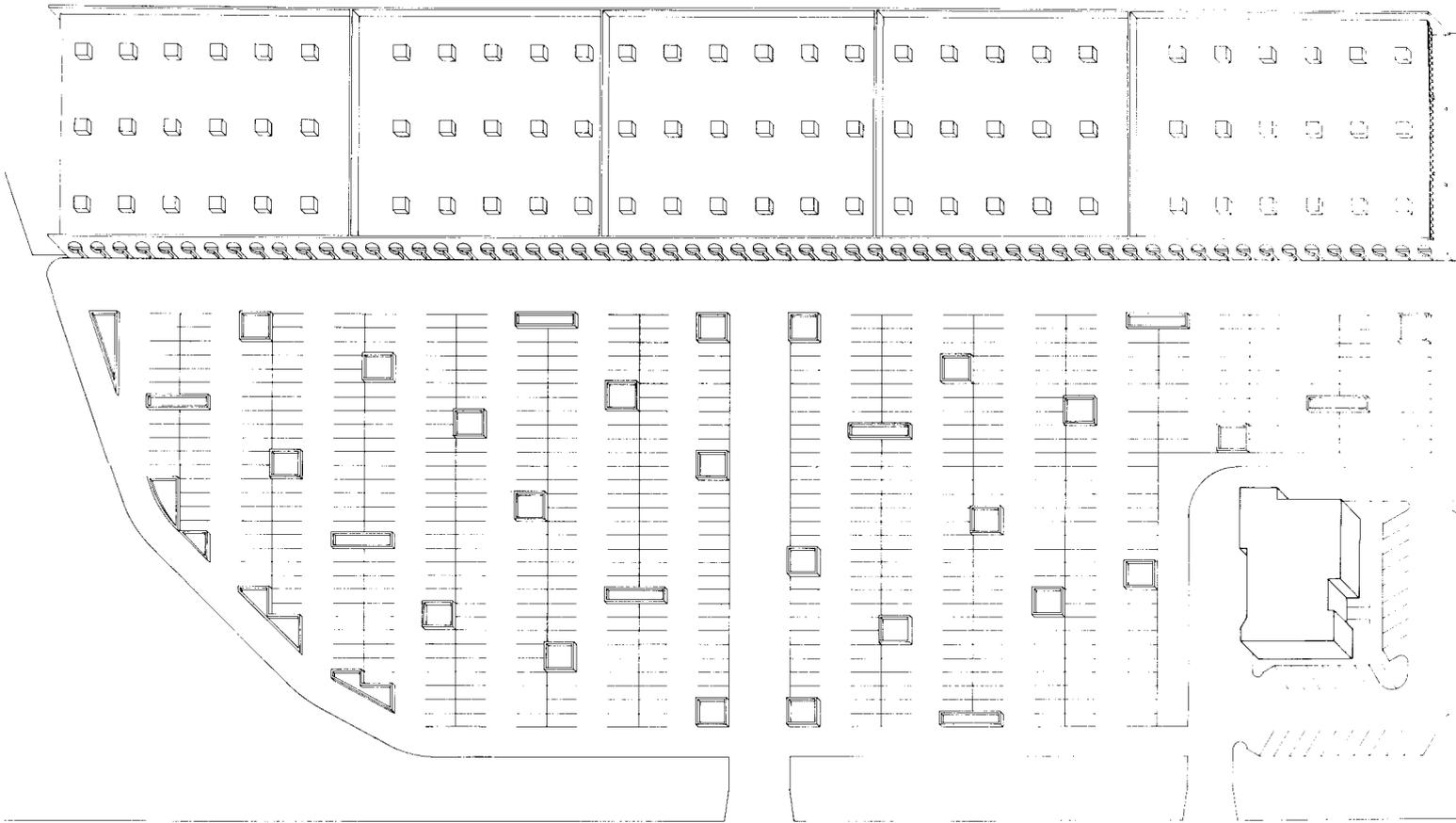
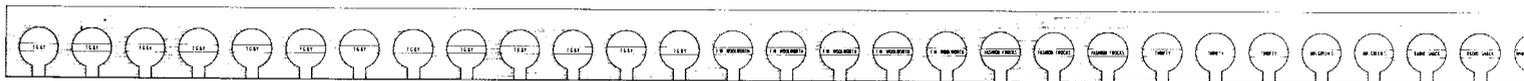
Tigerman criticizes the Gang for *nothing* egalitarianism while glorifying the slow and expensive ten-penny nail and gypsum board approach to housing. He does not begrudge the skilled construction man (the capitalist laborer in his parlance), or his \$10 to \$20 per hour for what he does. However this slow and cumbersome construction system, which has only minimal quality control, cannot respond quickly enough



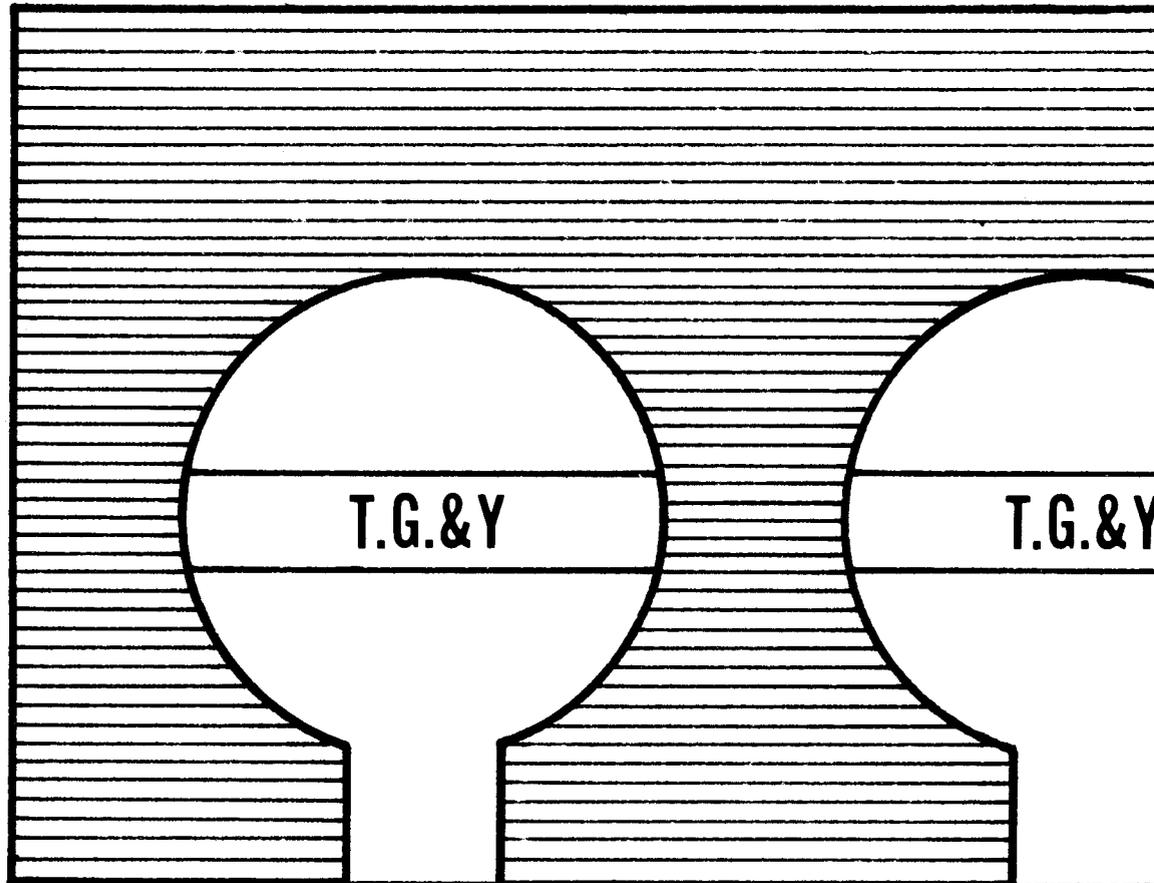
Lake side toward study and master bedroom.

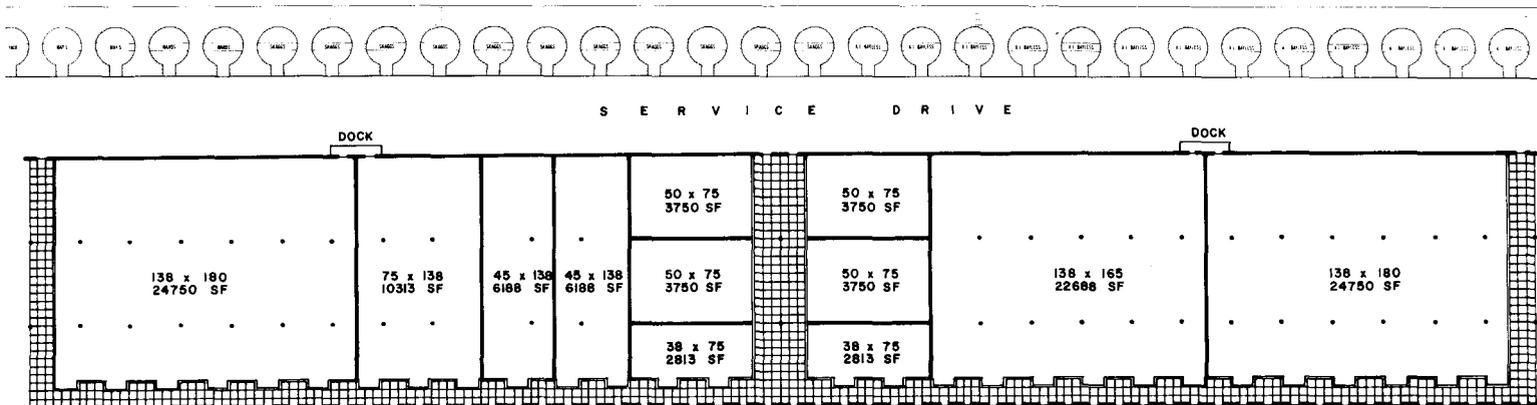


Lake side toward bedrooms.



KINO PLAZA. Top: elevation of facade. Above: projection of plaza with parking for 575 cars. Right: detail of facade showing placement of signs for retail stores. Page 73: plan of stores and arcade.





to the demands for housing, even if the government were willing to underwrite the effort. The fact that luxury vacation houses and mobile home production will probably be the only two sectors of the housing industry to rise in volume during 1974 suggests that Tigerman's theory of how prefabrication and Vertical Capitalism are related should be examined more closely.

Boardwalk is his effort to translate an architectural vocabulary previously reserved for luxury high-rises to quality middle-income housing.

HARLOW BY THE LAKE

Using off-the-shelf components, Tigerman has designed this glass and aluminum house for a site on Lake Michigan near Chicago. For \$30 per square foot he has brought in 7,600 square feet including five bedrooms, an indoor swimming pool and an astronomical observatory.

At first glance the house appears similar to the work of the New York Five, but a closer look reveals other input. Industrial materials are brought together with the taut economy and precision of airplane fabrication in the 1930's. Tigerman's use of sheet metal recalls Neutra's all-steel Von Sternberg house of 1936, though the curved compartments may be an oblique reference to the Chateau's Maison de Verre in Paris. Repetition of quarter- and half-arcs throughout the plan reinforces a sense of interchangeability of parts and imminent shift of interior spaces into new configurations. However, the different textures of

the interior floors and the exterior paving deny that flexibility and lock all elements into a Synthetic Cubist delineation.

When completed, the house will recall the cool, racy but metallic elegance of Jean Harlow. Tigerman's goal is to achieve prefabrication through available ready-made components. It is the same off-the-shelf philosophy which Charles Eames applied in his Santa Monica house, but Tigerman has chosen a different image, one associated with the Long Island houses of the Five. In one sense it is a literal translation of the phrase 'machine for living'—a Duchamp argument from a Corbusian premise.

KINO PLAZA: WALL IN THE DESERT

Mo-town strips call for a traffic stopping image in shopping centers as well as a flexible interior space that can be re-arranged according to changing needs. Kino Plaza, starting construction this June in Tucson, Arizona will do exactly that. 900 feet of wall facade and 90,000 square feet of interior space is a bargain at \$15 per square foot, exactly what the Haven Development Corp. paid for Kino.

Keyhole shaped two-story openings (Mexican Indian fertility symbols), spaced every 15 feet, give access to the gallery ala rue de Revoli which stands before the stores. Instead of large exterior signs, Tigerman has inserted repetitive signs in the upper part of the keyholes to achieve a flicker-fusion effect. These are apportioned according to the own-

ers' interior space. The wall gives no inkling of the interior space. It is an isolated element reminiscent of the Old West false front street, but it also refers to the Spanish-American vernacular architecture of the Southwest.

Its isolation beside the highway in the desert will give Kino Plaza a surreal, mirage-like character of a misplaced gigantic object like Hans Hollein's aircraft carrier in a field, although this project will be liberally sprinkled with lush tropical plants from the client's nursery. In the wall Tigerman has used a limited budget wisely—to get the biggest bang for the price, up front where it counts.

He once commented on the historicism of eastern eclectics, knowing full well that, in times past, many had ended up working in Chicago: "It's not so bad being an eclectic, if by that one means the logical extension of pragmatic ideas developed in sequence by man."

Tigerman is eclectic and a pragmatist. He is similar to the Chicago painters and sculptors (he is one) whom art critic Franz Schulz characterizes as anti-mainstream—except he is trying to divert the mainstream into more protean (if still pragmatic) channels.

This pluralistic approach may well be one of the more disciplined, in a town where "discipline," in other hands, has become a pat, predictable formula—often devoid of the mystery which Root, Sullivan and, indeed, Mies felt so strongly. While the patriarch's off-spring continue to produce, Tigerman's attitudes embody the subtle, significant stirring of values going

on in Chicago—a feeling reluctantly admitted by many of his colleagues that another mainstream is surfacing, that new forces are shifting the geography Mies mapped. Having saved himself a lot of theoretical back-filling, Stanley Tigerman should be able to keep his footing as the shifts begin.

—ROBERT COOMBS

FACTS AND FIGURES

Boardwalk (a 28 story, 450 D.U. FHA 221-d (4) Apt. Bldg.), 4333 North Clarendon Avenue, Chicago, Illinois. Owner: City Centrum Corporation (William P. Thompson, President). Architect: Stanley Tigerman & Associates. Job Captain: John Haley. Engineers: Cohen-Barretto-Marchertas (Structural); Wallace and Migdal, Inc. (Mechanical); Wallace & Migdal, Inc. (Electrical). Interior Designer: Stanley Tigerman & Associates. Contractors: L.B.C., Inc. (General); Nadolna Brothers and Midwest Enterprise (Mechanical); Climatemp, Inc. and Thomas Gibson, Inc. Other: Fred Teitelbaum Construction Co. (Concrete). Building Area: 526,045 sq. ft. Construction Cost: \$8,400,000. (For a listing of key products used in this building, see page 104.)

Kino Plaza (a one-story shopping center), Tucson, Arizona. Owner: Haven Development Corporation of Arizona (Bennet Greenwald, President). Job Captain: John Haley. Engineers: Ray Beebe (Structural); Wallace & Migdal (Mechanical & Electrical). Landscape Architect: Guy Greene. Contractors: Haven Development Corp. Building Area: 90,000 sq. ft. Construction Cost: \$1,350,000. (For a listing of key products used in this building, see page 104.)

Single Family House, Chicago, Illinois. (Name and address withheld at owner's request). Architect: Stanley Tigerman & Associates. Job Captain: Anthony Saifuku. Engineer: Ray Beebe. Landscape Architect: Joe Karr & Associates. Contractor: Midwest Architectural Metals (skin). Building Area: 7,600 sq. ft. Construction Cost: \$225,000. (For a listing of key products used in this building, see page 104.)



CHICAGO FRAME-UP

From the city that gave you stringent structures in the nineties and scheming swindlers in the thirties comes the synthesis of two styles in Illinois Center

New found "land" over railroad tracks, roads, and highways often offers undreamed of possibilities for multi-use developments in built-up urban centers. Because of their generous girth and convenient locations, these air rights properties hold out the hope to the design professions as potential physical embodiments of current planning and design ideals. Paradigms for posterity.

Such is the case with Illinois Center, the 83-acre parcel over the Illinois Central railroad beds between Chicago's Loop and Lake Michigan.

This waterfront site, bounded on the north by the Chicago River, the east by Michigan Avenue and the south by Randolph Street, could be developed with all the good intentions of the day, planners and architects have opined: A mixture of incomes and races could live there in low- and medium-rise structures and work there in offices near the downtown core. Retail, cultural and recreational facilities could tie the development together and to the waterfront. The clustering of functions, activities, building types and building heights would create a special urban milieu, while still allowing easy visual

and physical access to broad stretches of lakefront. And there would be no cars.

But naturally such dreams don't account for private ownership of air rights, profit motives, political clout. In the face of such measures, these utopian schemes are fated to suffer dusty deaths on library shelves.

What is being built now on the site by joint developers Illinois Center Corp. (a subsidiary of Illinois Central Industries which owns Illinois Central Railroad) and Metropolitan Structures, is, true enough, a multi-use development. Because much of its future physiognomy is shrouded in secrecy (due to "open-ended" planning) the outcome of the development can only be postulated from the statistics released by the developers and from the first grouping of buildings going up. Utopia it ain't.

Nine million sq. ft. of office space, 17,500 unsubsidized dwelling units, 1,250,000 sq. ft. of retail space, 4,500 hotel rooms and 16,000 or more parking slots will be built over the tracks in three phases during a 15 to 20 year period. The buildings will sit on a multi-layered podium rising 53 feet above grade. The platform structure, made from poured-in-place concrete deck and col-

umns, will consist of three main vehicular levels: the lowest for service vehicles; the middle level for major through-traffic connecting to Lower Wacker Drive and Randolph Street; and the upper level for local traffic and building entrances. Intermediate levels in the podium accommodate parking and other services. For example, right below the plaza level, a major pedestrian arcade with retail facilities is projected.

Two open spaces are planned, a six-acre plaza on the top level of the platform, and a four-acre esplanade along the Chicago River, which will border the lowest level of the platform structure (eight feet above grade).

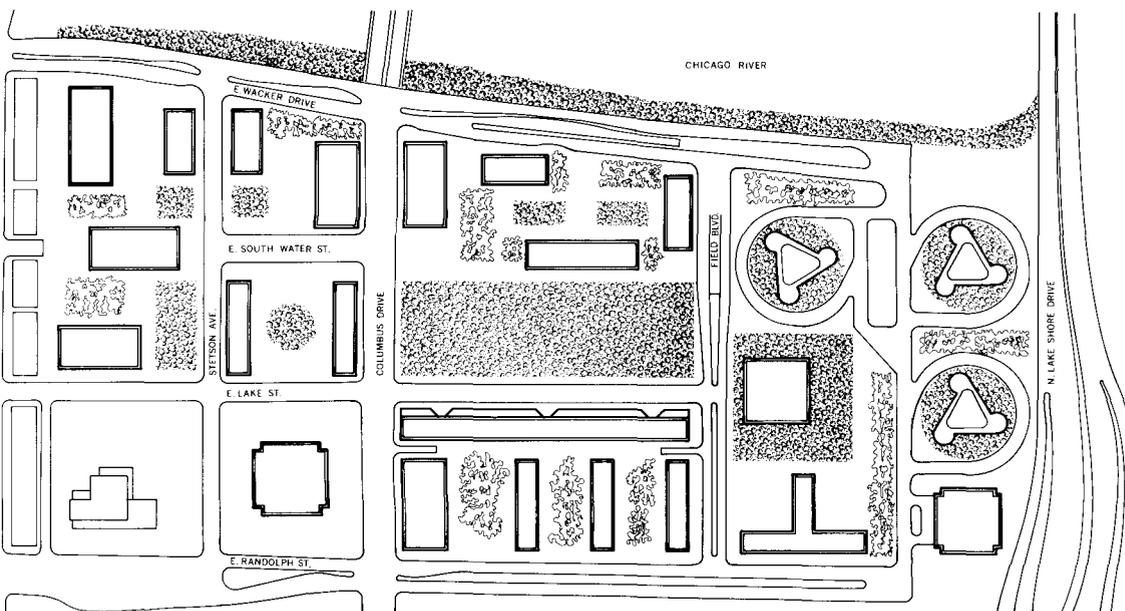
The Office of Mies van der Rohe and Solomon, Cordwell, Buenz & Associates have been selected as master planners for the development. They say there is no master plan. The developers too claim that no master plan truly exists, since they prefer flexible incremental planning instead. Yet from the buildings that are already standing on the site—the 30-story Illinois Center One and Two by the Office of Mies van der Rohe, the Hyatt Regency Chicago Hotel by A. E. Epstein and Sons, and the 54-story 742-unit Harbor Point con-

dominiums by Solomon, Cordwell, Buenz & Associates still under construction—one can see a familiar formula emerging: towers in a park, only this time, towers on a podium.

These buildings, along with the new 80-story Standard Oil tower, the 40-story Outer Drive East Apartments (built in 1964) and the Prudential Building dating from the 1950's, relate to each other in a too predictable grid arrangement.

Reinforcing this pattern is a zoning ordinance allowing the Floor Area Ratio of 14:1 (the ratio of the total square footage in a building to the square footage of the site) and a net development quota per acre of 40 to 45 percent. The FAR of 14 can be averaged out over the site, so that the apartment buildings are given an FAR of 12, and the office buildings 18. No wonder the critics cavil—a sense of déjà vu persists, but it's too early for nostalgia.

Whether Illinois Center will give Chicago the image it desires of city-as-mecca-of-urban-life remains to be seen. But it will no doubt bring in the expected dollars—\$37 million in property taxes annually, \$22 million in apartment and hotel rentals, \$26.5 million in retail sales and



The very obsolete site plan, left, designed in 1969, seems to be the nearest thing to an overall idea of the development that has been released. Changes have already taken place in the projected building configuration and will continue, judging from studies on page 79. Illinois Center has no fixed master plan say the developers and master planners (Office of Mies van der Rohe, Solomon, Cordwell, Buenz & Associates and Land Design Research). The first buildings finished (aerial photo, opposite) indicate, however that the basic grid scheme land use pattern, and tower on podium configuration has not altered. The photograph shows nearly finished Standard Oil tower, One and Two Illinois Center in close grouping with the Hyatt Regency Hotel at the rear, and the almost completed Harbor Point condominiums next to previously existing Outer Drive East apartments.

\$133,000 in city sales taxes.

If economic success overrides any other desired impressions, at least the resulting image will depict a true Chicago style—one based on profit, financial interest and economic gain, with a dash of owners' self-proclaimed good intentions.

In his article, "Chicago Frame," architectural critic and historian Colin Rowe argues that Chicago School architects, in developing their sparing, straightforward architecture, owed less to theory devised by themselves than to economic constraints dictated by the speculator. And as Rowe points out, "However rational their structure and however immaculate their form, it is hard to represent it as the response to any very adequately acceptable notion of society."

In peering from the present situation to Chicago's exemplary past, it would seem that besides economic constraints deciding the future of such grandiose schemes as Illinois Center, now there is an added element—historical context. The success of client-architect interactions in generating a specific and significant kind of architecture 70 years ago conceivably colors those interactions today.

And at present, the products of that interaction have as little to do with the notions of society as they did in the past. Yet of course there's a big difference between the commercial buildings of Chicago in the 1890's and a planned urban development in the 1970's. That dissimilarity can be measured in potential impact on its users at one level, and the city as a whole at another.

The dissimilarity is also architectural: Rowe commented that the Chicago School buildings were scarcely in any deliberate and overt sense cultural symbols."

This isn't so today. Glass and steel towers have long been appropriated as corporate symbols, aided and abetted by the flowering of the Second Chicago School. A Mies building has become very much a signifier of power and success. And over the years, the straightforwardness and honesty seen in the fusion of the architecture and technology of the Chicago School have slowly been subverted into structural mannerism and technologies of tall construction. Even so, corporate

clients may still turn to a neo-Beaux Arts esthetic from the east for their corporate symbols, much the way Chicago businessmen turned to East Coast Beaux Arts architects to design their exposition pavilions in 1893. How else could one explain Standard Oil of Indiana hiring Edward Durell Stone to design its 1,136-foot-high marble-clad monolith at the edge of Illinois Center?

But blaming the parties most directly involved—the developers out to maximize their dollar investment; the architects who comply with their economically based directives—doesn't really help any one to learn from the situation (it only makes you feel good). Indeed, Illinois Center, once the landscape of desire for visionary city planners, now the metaphor for unmitigated historical forces that helped shape the real landscape, can also be viewed as a learning model for future action. It is, after all, a microcosm of many of the larger planning issues now facing Chicago

Illinois Center's outcome has introduced questions about the kind of planning approach needed for a project of this size—open-ended or explicit and closed; the sort of development that should occur on a lakefront parcel adjoining downtown; the type of project that would best serve the city; and the kind of density justified by this site and its location. Related to these specific issues are broader questions concerning the process of land valuation, whether ownership of air rights should be publicly or privately controlled, and how much the public should be involved in decisions affecting large parcels of land in urban areas.

Open-ended planning can be rationalized by developers because of the number of years it takes for a project of this size to come to fruition. Anything can happen. One of the unforeseen circumstances that occurred since IC Industries first began planning this venture was the adjustment upward of taxes on large apartment projects. Speculation has it that one of the original developers, Jupiter Corp., backed out in 1971 because of the changes in taxes, along with high interest rates and the long lead time for a project of this size. Uncertainties in market conditions also

explain why Illinois Center Corp. and Metropolitan Structures formed a joint venture and decided to hang loose in terms of master planning. Then too, because of the high tax rate on developed property, ironically it is to the developer's interest to hold onto undeveloped land.

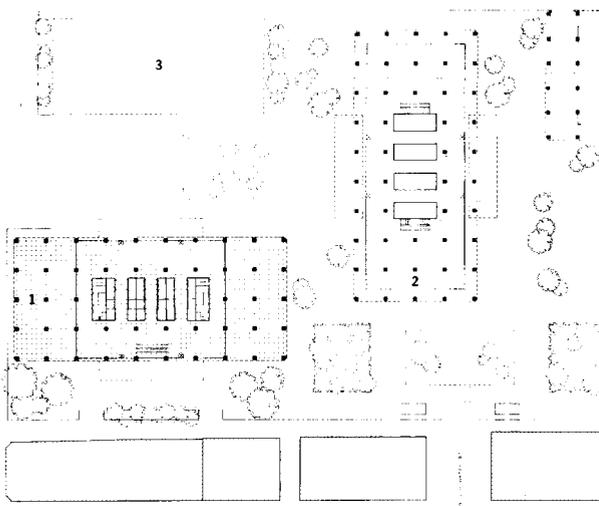
This inability to predict the future weakens the attractiveness of HUD's Title VII aid for "new town in town" schemes, asserts Anthony Downs, economist and the Chairman of the Real Estate Research Corporation. To apply for federal aid on public services grants and guaranteed loans, the developer has to present a detailed 20-year plan embracing economic factors such as potential market and type of ownership.

On the other hand, open-ended planning is still considered by many to hinder the marketability of a project. Paradoxically, back in 1965, Downs' own company, Real Estate Research Corp., presented this view in a report submitted to Skidmore, Owings & Merrill and C. F. Murphy Associates, who in turn were working on an air rights proposal for Jupiter, Metropolitan Structures, and Illinois Center Corp. (Their report, with some funding from the city of Chicago, was published as the "Lakefront Development Plan" by the Chicago Central Area Committee and the Chicago Community Trust in 1966.)

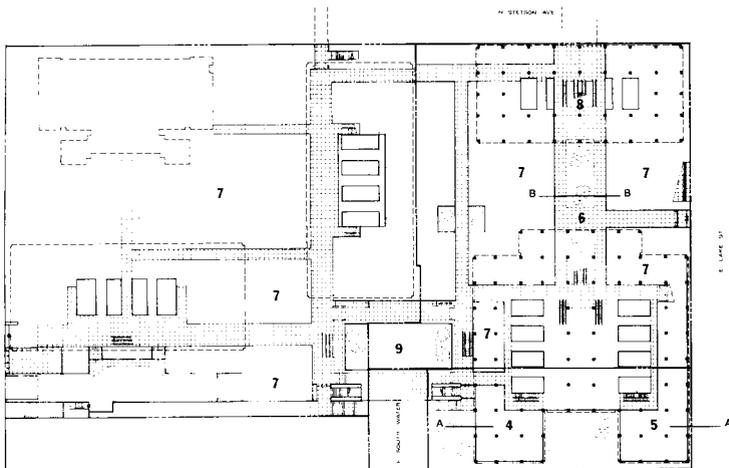
In this report, Real Estate Research argued that an open-ended high-density development would be more difficult to rent than a physically integrated scheme. They also asserted that the slow rate of absorption on a high-density project prolongs the period in which no income is received on portions of the land, thus affecting current market value. And because studies showed that, even when completed, a high density project would not have the same attraction as a lower density one, Real Estate Research recommended a density of 10 FAR, certainly lower than the 14 FAR density Illinois Central had been talking about. It is said, this lower density recommendation used by SOM and C. F. Murphy in their own tower-on-a-podium proposal effectively quashed any expectations—of which there were many—of being selected as master planners for the air rights. (After the report was



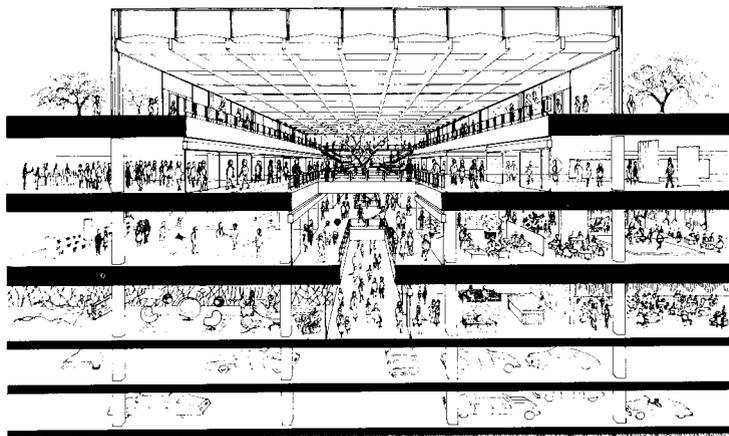
One Illinois Center, top, a 30-story building completed in 1970 by the Office of Mies van der Rohe is now closely flanked by Two Illinois Center by the same office and the Hyatt Regency Hotel, by A. Epstein and Sons (above).



A slightly outdated Plaza level site plan, top, shows general relationships of One Illinois Center (1) Two Illinois Center (2) and the Hyatt Regency House (3). The Concourse Plan (level below the plaza), below, shows Three and Four Illinois Center (4 and 5), the three-level pedestrian walkway (6) retail facilities (7) pedestrian bridge (8).



Michigan Avenue entry (section A-A, above) links to main pedestrian concourse (section B-B, below).



released, the developers talked as if they had never initiated the study in 1963.)

Nevertheless Anthony Downs today sides with the higher density development, owing to recent economic changes. Not only have taxes risen, along with interest rates, but so has the cost of construction and land values.

High land values result from two related problems of land economics, Downs explains—the outdated method of valuing land and the fragmented ownership of land parcels downtown. Every time a 100-story building goes up, the prices of the lots nearby go up accordingly—as if every prospective buyer is planning to build another 100 story building—even if the market can't absorb it.

Because the developer pays such a high premium for his land, any hint of sacrificing the density zoning allows, or a suggestion to change land use regulations, makes him catatonic. So planning procedures and needed zoning changes stay strapped into the system of land valuation and piecemeal ownership.

With high land values affecting the sort of construction economically viable on this 83-acre site, another issue glaringly emerges. Can and should this property be privately owned and sold? Obviously if this land, or at least its air rights, were considered city-owned, much of the problem of how to attract mixed income residents in varying densities would be solved.

When the Illinois Central Railroad first began selling its air rights in the Fifties, a taxpayer's group (later joined by the City of Chicago and the State of Illinois) filed a lawsuit in 1959 contesting the action.

Their case rested on the argument that the railroad had been given the rights in 1852 to use a certain stretch of the lake bottom for its tracks, providing it would construct a masonry breakwater along the edge of Lake Michigan.

Although the railroad had to fill in the land for its road bed, the breakwater naturally aided in the landfill operation. Normally land that naturally accrues to the owner is considered by rights his, but ownership of land artificially created is in doubt. At any rate in 1869, the State Legislature, despite heavy criticism, bestowed on the rail-

road full title to the landfill as well as adjoining properties it then occupied.

This statute, the Harbor Act of 1869, since then charged as being "bought" legislation, was eventually repealed in 1873. Nevertheless Illinois Central considered the 1869 legislation irrevocable and continued to build. And it was the 1869 statute that, in the last analysis, was upheld by the State Supreme Court in Illinois in 1966.

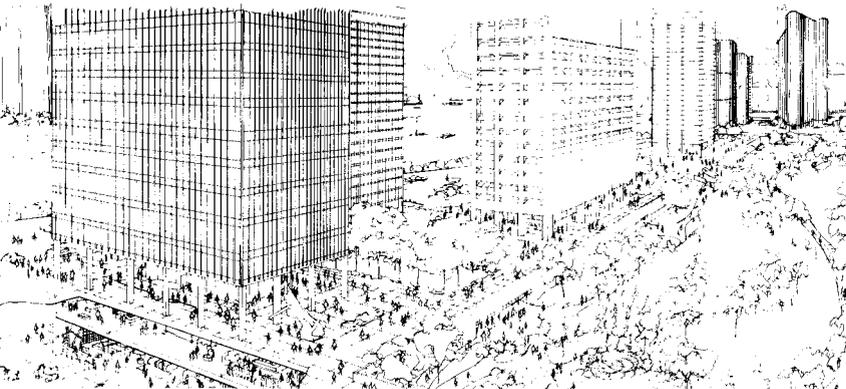
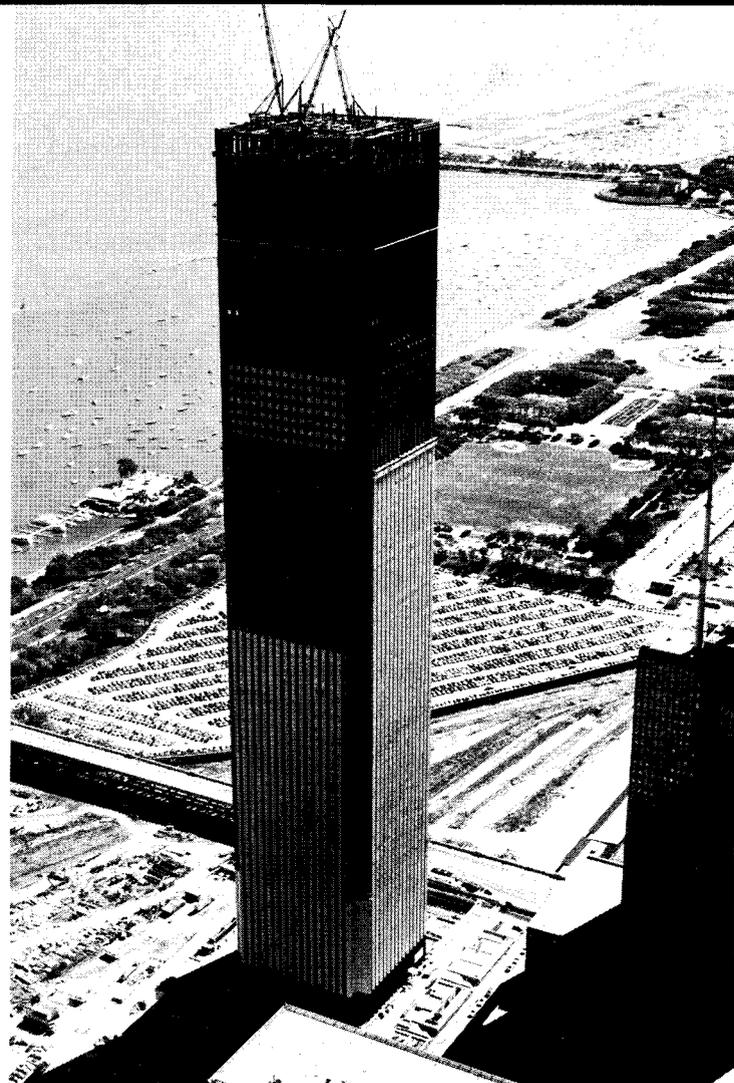
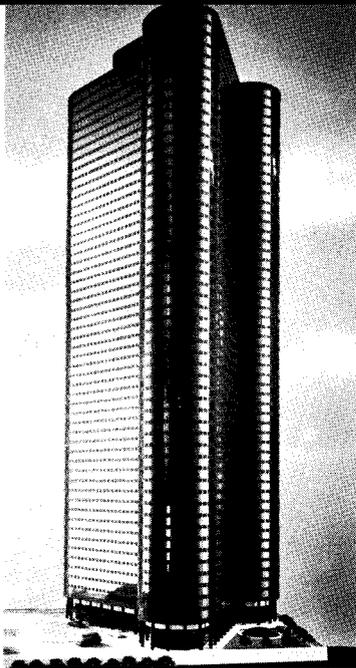
As far as the decision about who owned the air rights, the court argued for its part that the right of the sovereign (government) was automatically relinquished since they had not claimed use of the air rights over the past 50 years. Some lawyers involved in the case weren't very satisfied with this logic, and maintain that close personal ties again helped Illinois Central.

But if there were some deals made, it didn't end there. After the lawsuit was won by Illinois Central, the City's Department of Development and Planning began working with the developers to draw up guidelines for the air rights project. Under planned development resolutions of 1948 and 1958 any new development is subject to approval by the city's planning department. As of 1962, air rights properties qualify for these planned development laws that establish land uses, distances between buildings, allocation of open space, on-site parking, density per acre, periphery setback, floor area ratio, land coverage and land-use relationships to other nearby sites.

Yet, even after the lawsuit was filed, but before the air rights planned development legislation was enacted in 1962, Jupiter Corporation was able to buy land in fee simple and get a building permit to construct the Outer Drive East Apartments. During the formulation of guidelines, Illinois Central was able to sell three and a half acres of actual land, not air rights, to Standard Oil in fee simple, reportedly claiming because it had moved its tracks from the actual site that Standard Oil wanted to buy, it was no longer subject to the control of planned development legislation. Allegedly a variance allowing the sale was then eased through City Council.

According to the city, Stan-

Residential towers in a pinwheel form are beginning to loom up at the waterfront. Harbor Point condominiums (right) by Solomon, Cordwell Buenz & Associates nears completion. The perspective sketch (below) indicates an early visual conceptualization looking from the corner of Columbus Drive and Water Street toward the apartment towers. Meanwhile back at Stetson and Randolph Streets, Standard Oil of Indiana's \$100 million 80-story tower by Edward Durell Stone & Associates (far right) is nearly finished. The construction photos show the alpha-grey carrara marble cladding being attached to the steel frame of the hollow-tube construction. A special exterior support system of steel studs, brackets and shelf angles is meant to hold the marble panels better than mortar, though recent reports reveal problems.



Standard Oil was given an FAR of 19.9, with the proviso that it be averaged in with the overall Illinois Center FAR of 14. Standard Oil then had Stone design a tower 80 stories high (2.7 million sq ft on a 133,000 sq ft site) that was stretched to a height of 1136 feet so it could be the world's tallest. (But not for long). Normally that height could contain at least eight more rentable floors. All of which shows that FAR zoning can limit density in square footage, but just can't keep a tall building down.

"The Illinois Central Air Rights Development" guidelines, published in 1968, had everything in it except the verb "must." "Should" seemed to be the big favorite. So one learns that in the 17,500 dwelling units "Provision should be made to assure families of all sizes, income levels, nationalities and racial backgrounds" live there.

By the time the ordinance was passed in 1969, even the "shoulds" had disappeared and only the numbers remained. As architects Kenneth Halprin, Ro-

berto Brambilla, and Fernando Jimenez (collaborating with Michael Gelick) stated in *Urban Design Chicago*, the air rights site permits five times the residential densities recommended in Chicago's Comprehensive Plan of 1968 for downtown lakefront.

Built on 25 acres gross of the eastern portion of the site, Illinois Center's 17,500 residential units will command an estimated density of 2100 persons per acre, much higher than the recommended maximum of 278 per acre in the Chicago Plan.

Again, while over half of the dwelling units in the guidelines were to be two or more bedrooms, the ordinance only specified that 20 percent of the apartments needed to be efficiencies. Conceivably, the rest could be one-bedroom units—perfect for childless couples.

Obviously this kind of density still puts pressure on transportation facilities, already prompting the extension of Columbus Drive, a north-south thoroughfare through Illinois Center and over a new bridge across the Chicago River, the rerouting of

Lake Shore Drive to eliminate its curve, and the extension of Randolph Street and Wacker Drive east to the new Lake Shore Drive. Nevertheless, the added working population of 45,000 (in addition the 35,000 residents) is expected to affect traffic all over downtown.

Furthermore, while the Guidelines explained that a 140-acre park should be created from landfill to accommodate the residents' need for recreational space, the acreage wasn't mandatory in the 1969 Ordinance. At the moment, plans call for a landfill park under 40 acres.

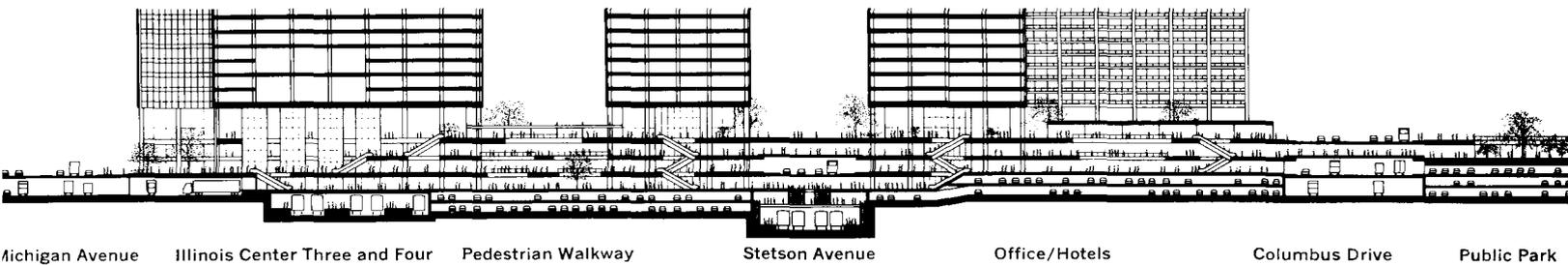
Architect Douglas Schroeder reports that the basic problem with ordinance decisions is that the City Council never numbers ordinances nor publishes them in advance. So there is no way for the public to learn about, much less participate in, their deliberations. And few aldermen in City Council side with the lakefront liberals.

The Chicago Chapter of the A.I.A. would like to foster a liaison with the Department of Planning and Development in

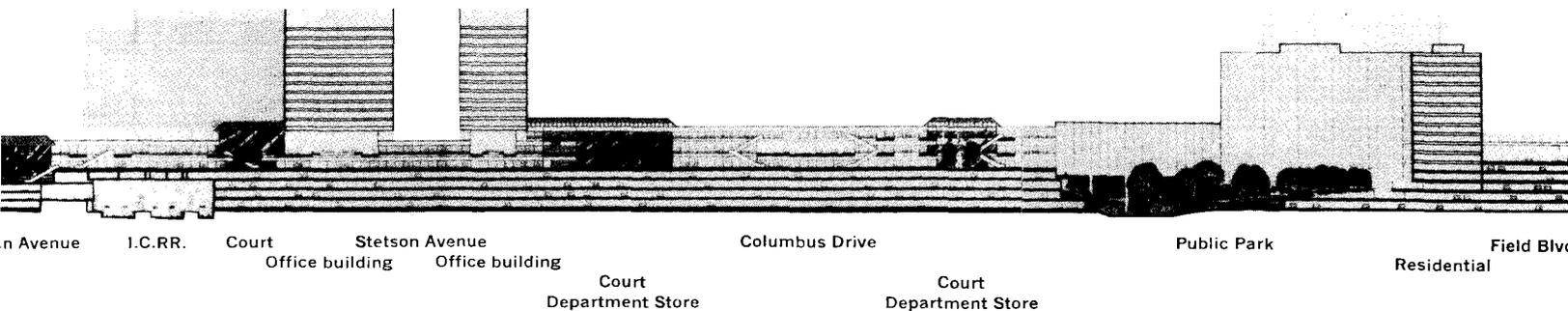
order to be able to participate more meaningfully in city planning decisions. In fact when Chicago architect Ralph Youngren headed the National A.I.A. Committee on Design, they issued a report on Illinois Center that urged a moratorium on construction until the Mayor could appoint a panel of architects and planners to advise the Department of Planning and Development on Illinois Center's implementation. The city first welcomed, then dropped the idea.

Nevertheless, the developers of Illinois Center, Bernard Weissbourd of Metropolitan Structures and Harold Jensen of Illinois Center Corp., talk of an architectural board of advisors now. The eight-to-ten member board, to be named in the next month, will be responsible for regular input in decisions affecting the project.

In fact, almost as if in response to the vehement criticism of the project, the developers plan extensive services and other improvements. For example, the six-acre plaza, which at first seemed as if it would be a flat



Partial longitudinal site section by the Office of Mies van der Rohe shows infrastructure with cutaway through the site at Illinois Center Three and Four.



A study section of part of the site by Land Design Research cuts through East South Water and the north edge of the park. Study section jogs to show how the park could be designed, and how glass-covered courts could be included in development.

open plain, is now being studied by landscape architects Land Design Research of Columbia, Md. for various kinds of multi-level treatment. Weissbourd talks about getting an arts and sciences school installed on the site in one of the apartment buildings, and wants a sophisticated health care system hooked up into cable TV so that doctors can monitor elderly patients in their apartments.

Yet despite these services, the elderly will have to be pretty wealthy to afford unsubsidized apartments—wealthy enough to afford nurses, anyway. And Weissbourd concedes there won't be too many families with school-age kids.

With costly luxury units in towers, not only won't there be many families or lower income households, there probably won't be many blacks. In fact the apparent encouragement this project has gotten from the city could be regarded as an effort to guarantee an affluent white stronghold at the edge of the CBD to keep white money invested there. Already concern

has mounted that because the Loop is black after dark, whites will be too afraid to venture downtown. As in many other cities facing the problem of allaying such fear in order to keep white investment downtown, the city will have to devise some strategy of peaceful coexistence. But that depends more on the development of a strong black middle class that can control the crime element, than it does on the creation of white upper class enclaves ringing the Loop.

So on many urban design and planning levels (probably all, except economic) the project could be a resounding failure. But rather than laying the entire blame on the developers (their rut is the rut we've helped dig) other directions need to be taken. Only a few have been revealed here: For example, specific legislation needs to be enacted to make it clear that ownership of significant fragile parcels, or air rights schemes, is a matter of public control. New ways of evaluating land for tax assessment purposes need

to be effected to lower land values and take the pressure off high density construction; more teeth need to be put into zoning legislation, particularly with regards to floor area ratios and mandatory residential densities.

In addition, full disclosure of prospective action on ordinances should be carried out by the Chicago City Council. And developers of "planned developments" ought to be required to make public a "master plan," even if that plan has to be modified as the project proceeds (also a matter of public knowledge) just to assure the public of their (good) intentions. Then these developers wouldn't have to spend so much time and effort changing their image after public criticism has reached cacophonous proportions. As M. W. Newman recently remarked, the "Image is Avarice," and finally there are the architects. A group at the Chicago A.I.A. Chapter is setting a remarkable example of professional concern, trying to influence a situation before they are compromised—or victimized—by it. These

architects know the real black-mailer is not avarice but apathy.

—SUZANNE STEPHENS

FACTS AND FIGURES

One Illinois Center, 111 East Wacker Drive, Chicago, Illinois. Owner: Metropolitan Structures. Architect: Mies van der Rohe, FAIA. Job Captain: Joseph Y. Fujikawa. Engineers: Farkas, Barron & Partners (Structural); Cosentini Associates (Mechanical). Consultants (agent for the owner): Tishman Construction. Contractors: Metropolitan Construction Corp. (General); William A. Pope & R. B. Hayward and Litzin Plumbing (Mechanical); Continental Electric Co. (Electrical). Building Area: 1,276,486 sq. ft. Cost: In excess of \$30,000,000.

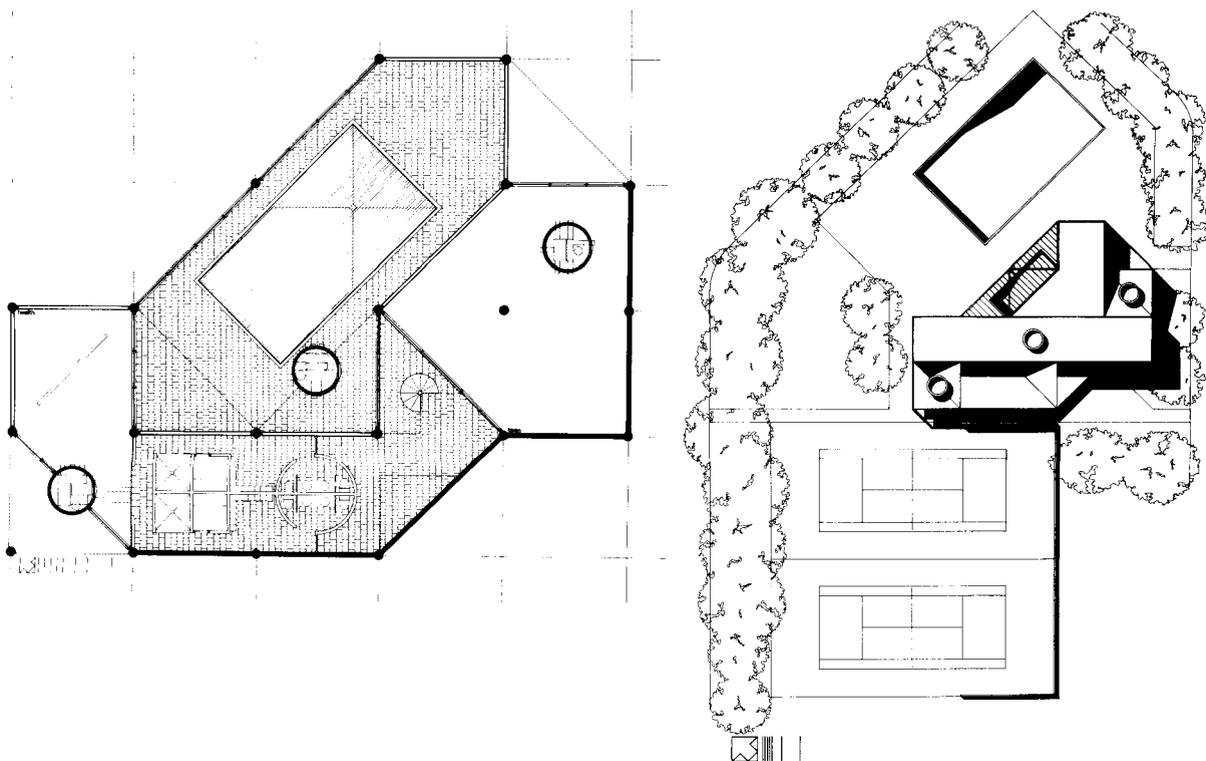
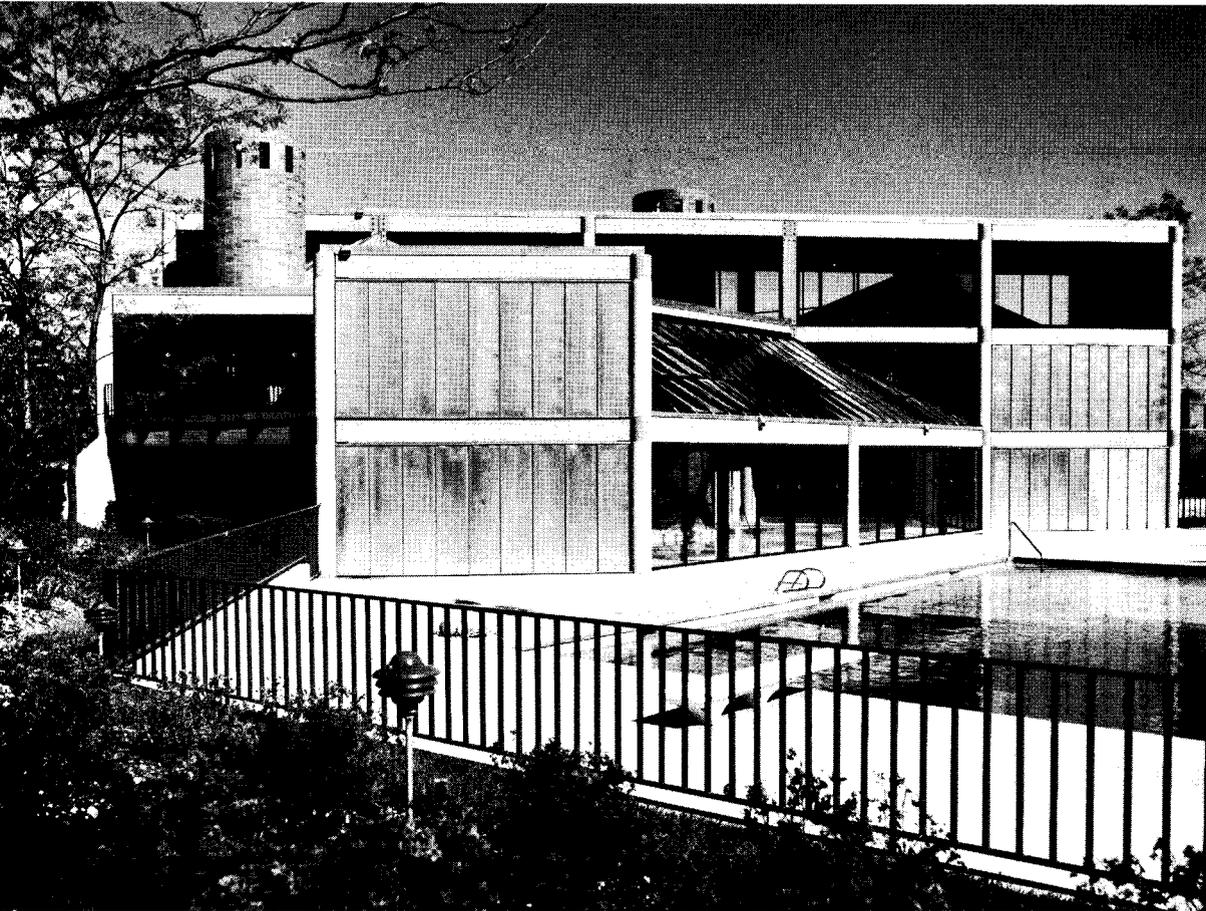
Two Illinois Center, 233 North Michigan Avenue, Chicago, Illinois. Owner: Metropolitan Structures. Architect: The Office of Mies van der Rohe. Job Captain: Joseph Y. Fujikawa. Engineers: Farkas, Barron & Partners (Structural); Cosentini Associates (Mechanical); Consultants (agent for the owner): Tishman Construction. Contractors: Two Illinois Center Construction Co. (General); William A. Pope, R. B. Hayward, and Litzin Plumbing (Mechanical); Building Area: 1,337,159 sq. ft. Cost: In excess of \$44,000,000. (For a listing of key products used in these buildings, see p. 105.)

PHOTOGRAPHS: Kee T. Chang, pp. 74, 79; Hedrich-Blessing, 74 (top). SITE PLAN: George Raustiala.

MODULES AT BAY

Booth & Nagle explore the organic nature of structural order

BY EDWARD K. CARPENTER



"Can you think of anything duller than designing the Sears building," asks Laurence O. Booth, and from his tone of voice you know you're not supposed to. Booth, 37, with James L. Nagle, 36, operates Booth & Nagle, a 12-man architectural and planning office in Chicago, where they have both watched the Sears tower rise story after story. Bureaucratic design they call it, and to them it symbolizes everything wrong with the profession today. At the very least it represents a wrong path.

"All that glass," says Jim Nagle. "What does it mean to the guy inside. That glass doesn't make it better for him. We should be looking at the guy inside."

That guy is exactly who Booth & Nagle focus on. And although today a lot of other firms do too, Booth & Nagle do it with special *elan*.

Not surprisingly, their architectural backgrounds are almost identical. Both went through Stamford in the late Fifties, where their work, they recall, echoed Wright's. From there Nagle went into the Navy, then to MIT where he caught up with Booth, who was finishing work on a Bachelor of Architecture degree after a year at Harvard. With the degree intact, Nagle went to Harvard's Graduate School of Design for a Master's; Booth went into the Army. Their paths crossed again in the mid-Sixties in the office of Stanley Tigerman (page 68) who, not surprisingly, also looks carefully at the guy behind the glass.

Back then, their way of dealing with architectural problems had yet to jell. "Our first projects after we opened our own office in 1966," recalls Jim Nagle, "seem rigid to us today. Our work now offers people more options and we pay more attention to siting, to things like the view and the wind."

Though their end results may seem to be looser, their palette is still essentially Miesian, narrowly defining the parameters of their designs, a discipline that goes back to Harvard and MIT. Most of their work today is still in houses or housing (they have six Planned Unit Developments currently on the boards) and understandably their con-

Mr. Carpenter is a correspondent-at-large for The Forum.



The Atrium Club is the focal point of a townhouse-condominium community in the Chicago suburb of Elmhurst. Interior spaces in the 8,000 sq. ft. building are open, flowing horizontally and vertically (up to three stories), giving an illusion of complexity. Actually, the design is composed of 20-foot cubic modules, which were stacked and angled to face tennis courts, a swimming pool and outside views. Inside there are showers, saunas, lavatories and another pool beneath a sloping plexiglas roof. Wood beam trusses help modulate the flow of space. And three cylindrical columns, containing mechanical equipment, functionally serve and symbolically express the major zones of activity.



cern with scale must be human.

Mixed in with the Miesian consciousness, which they acknowledge as conditions suggest, is a working reverence for Palladio, whom Booth calls the "greatest architect who ever lived." "Palladio's work shows no concern for circulation," he says. "Form handled it all. After 400 years, his houses are completely liveable."

So, one might add, are Booth & Nagle's. Probably a good deal of their success can be traced to the size of their office and the way they run it. Since they do a lot of houses, client relationships become overwhelmingly important; and, as a result, the man in the office who starts on a job follows it all the way through, doing everything from design to working drawings. However, regardless of who handles a job, it is thoroughly critiqued by everyone in the office. In one this small, this process of guidance and suggestion could be left to chance or individual bias. But it isn't. Instead, they gather for Friday afternoon crit sessions. Sometimes both partners work on the same project; more often, they handle their own.

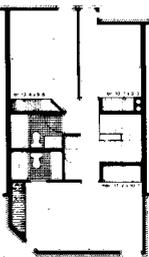
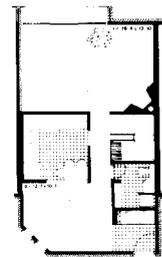
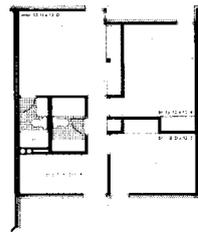
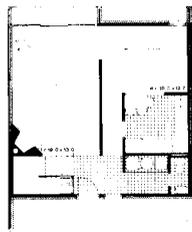
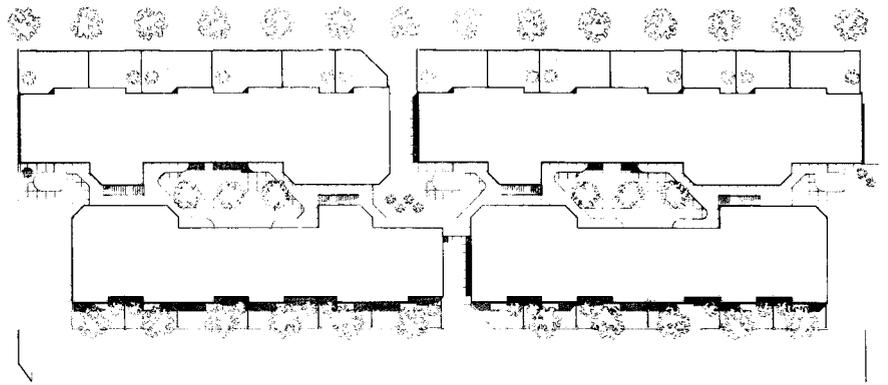
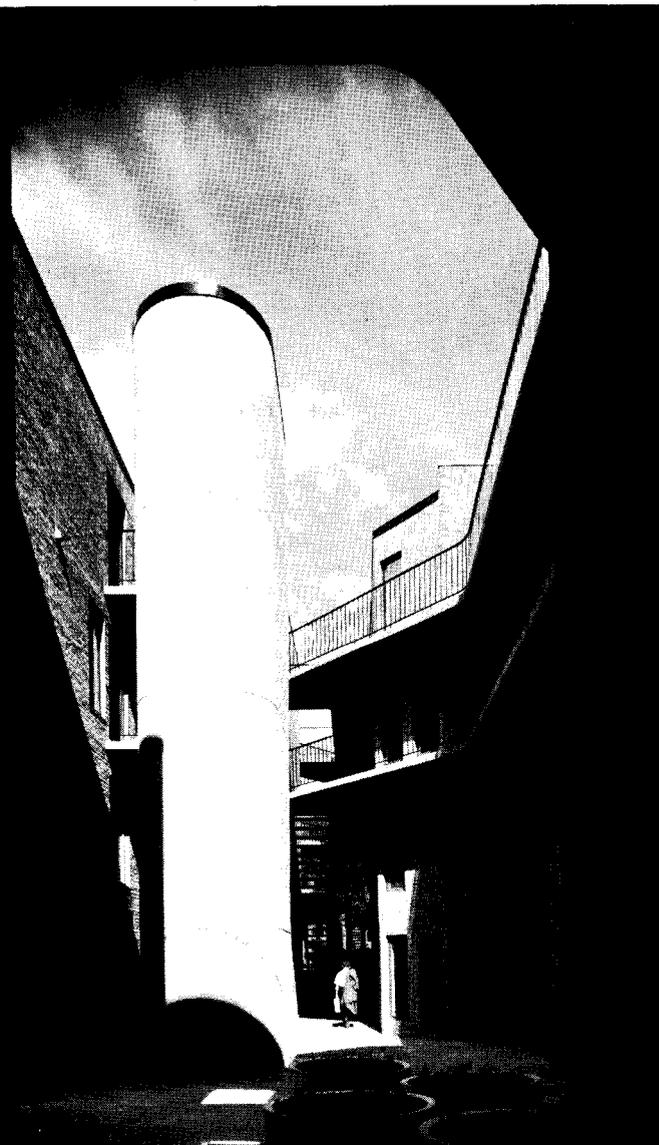
Their design method eschews renderings and perspective drawings. Instead they rely heavily on models, sometimes working through as many as six models on a single house.

Jim Nagle marks a 1970 review by Ada Louise Huxtable of Washington's Kennedy Center as a turning point in architectural concern. Her panning the building, he feels, was more than a tossed-off diatribe, a formal point, propagandizing a turn from the monumental to a concern for community and neighborhood structure—a structure to which the scale of individual buildings should adhere.

While this view reflects the attitude and the approach of both men, Larry Booth seriously questions what he calls "super-scale" building with vast city schemes of huge structures.

Instead of evangelizing the fate of whole cities, they do something simpler (and more valid): Design housing that either *creates* a neighborhood (Planned Unit Development) or houses that *fit* a neighborhood.

"It is important, of course, not only that housing suit a neighborhood, but that it also have a formal meaning of its



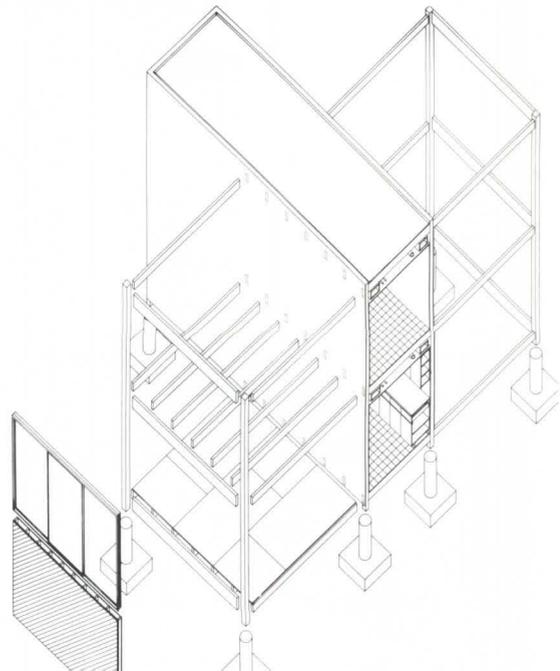
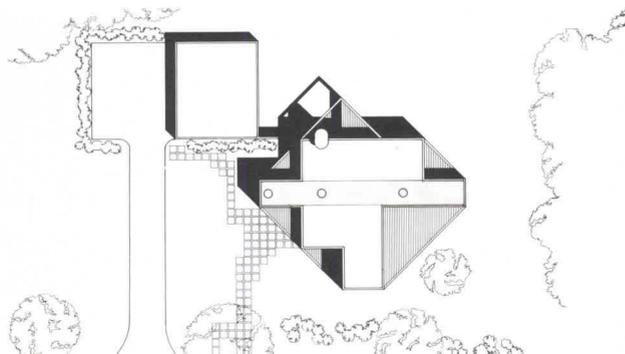
Unit A upper

Unit B upper

Fifty duplex apartments on Grant Place, in Chicago's northside Lincoln Park neighborhood, are set on an acre of land, a high density even for this tight-knit district of older Victorian homes. The alternative, allowed under original zoning, was a highrise tower over a parking garage. Four-story outer walls are set in two planes. Balconies are recessed. Private gardens, at grade, are shielded by a brick wall which helps hold the line of the street. An interior court, enclosed by the complex, has more lively and fluid scale which, appropriately, the streetside does not. Threading around the court are walkways at several levels. Enclosed stair towers, rising within the courtyard, give this off-street "street" a vertical lift.



The Kohler Centennial House in Kohler, Wisconsin, was designed in celebration of the Kohler Company's 100 years in the plumbing fixture business. Not surprisingly, the house is built around an inner core of bathrooms and kitchen facilities, demonstrating how these might be factory-built and shipped to a site, where the rest would be stick-built around it. Ideally, a potential owner could lay out his own house using the 8 ft. by 12 ft. core elements and the 12 ft. by 12 ft. loft elements. As elemental are the materials, redwood and glass. The Kohler job, like all of Booth and Nagle's work, takes clearly defined structural and spatial components which, as if expressing a field of force, unfold to view and experience, taking on varied arrangements within a set order. The result, as seen here, is an endogenous elegance, much in the Chicago tradition, and one which articulates not only the physical constituents of structure but also the dimensions of depth and time by which structure is perceived and used.



own," says Nagle. They produce this meaning by leaving their own stamp—composite parts which produce different readings depending on where you view them from.

Neighborhoods, they maintain on the other hand, don't need that kind of variety. "In the early Sixties," says Booth, "everyone was trying to put houses together like vegetables in a salad. It was the Jane Jacobs influence. Greenwich Village, which she wrote about, was a salad. But all neighborhoods are not. We have done as many as 50 units on one site, and they were all the same."

Despite these considerations, Nagle is quick to point out that the individual who will live in a house or use a building is the key to their design.

"Megalomania," he says, "was the key to the Fifties and Sixties. We have to learn to make some little plans."

By little he does not mean dependent on detail alone. He feels balance and contrast between the general and the particular is essential.

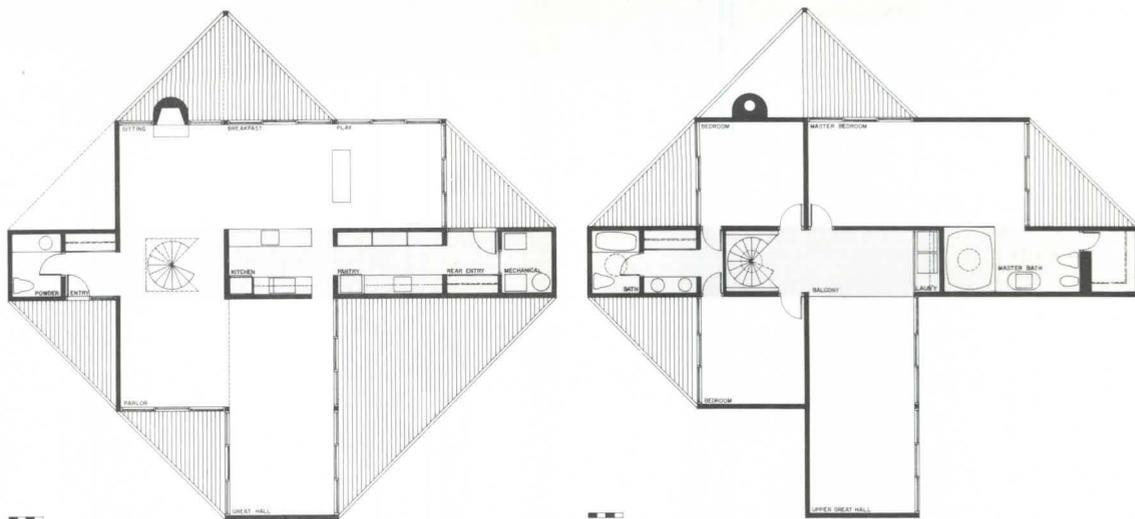
Booth agrees: "O'Hare airport is a site plan and a bunch of details with nothing in between. It comes from a bunch of guys in a big office sitting there working on details. The range in between is missing."

The two partners are convinced their approach produces architecture impossible to achieve on different terms.

Larry Booth talks a lot about freedom and order. Order he defines "as perceptible patterns, structures or relationships that create a unified whole from a number of parts." Freedom to him means the "possibility for parts to act independently of other parts in many diverse ways. The expression of order and its relationship to freedom in our visual world is the major concern of art today."

Though it is possible that freedom for the architect may be limited in coming years by a lack of energy and strict laws controlling the use of land, the Booth & Nagle approach is quintessentially that of the Seventies and, yes, beyond.

Booth has a simpler way of expressing that approach. In good architecture as in good theater, you begin "by remembering your lines and not bumping into people."



FACTS AND FIGURES

Community Center/Atrium, Atrium Residential Community, Elmhurst, Illinois. Owner: Atrium Community Association. Architects: Booth & Nagle. Job Captain: Steve Guerrant. Engineers: Wiesinger-Holland Ltd. (Structural); Gritschke & Cloke, Inc. (Mechanical & Electrical). Landscape Architect: Franz Lipp and Marvin Wehler. Contractors: Simon / R. G. Group, Inc. (General); Sunrise Heating (Mechanical); Other: Tim Con Sales; Glu-Lams. Land and Site Development Cost: \$215,000.00 + \$30,000 (tennis). Construction Cost: \$375,000. Furnishing and Equipment Cost: \$60,000. Fees: \$35,000.

PHOTOGRAPHS: Orlando Cabanban.

Portals at Grant Place, 415 W. Grant Place, Chicago, Illinois. Owner: I. Simon & Son, Inc. Architects: Booth & Nagle. Job Captain: Robert Lubotsky. Engineers: Wiesinger-Holland Ltd. (Structural); Wallace & Migdal, Inc. (Mechanical & Electrical). Landscape Architect: Joe Karr & Associates. Contractors: I. Simon & Son, Inc. (General); Sunrise Heating (Mechanical); Lincoln Electric (Electrical). Building Area: 75,000 sq. ft. Land and Site Development Cost: \$500,000 +. Construction Cost: \$181/sq. ft. (For a listing of key products used in these buildings, see page 105.)

PHOTOGRAPHS: Philip Turner.

Kohler Centennial House, Kohler, Wisconsin. Owner: Kohler Company. Architects: Booth & Nagle. Job Captain: Marvin Ullman & Rich Fair Associates. Engineers: Raymond B. Beebe & Associates (Structural); MNMT, Inc. (Mechanical & Electrical). Landscape Architect: Joe Karr & Associates. Interior Designer: Booth & Nagle. Contractors: Quasius Brothers, Inc. (General); Carl Aldag & Sons, Inc. (Mechanical); Ace Electric (Electrical). Other: General Cabinet Co. Building Area: 2,700 sq. ft. + decks. Construction Cost: \$80,000. Furnishing & Equipment Cost: \$40,000. Fees: \$10,000.

PHOTOGRAPHS: Hedrich-Blessing, p. 84, 85 (courtesy Better Homes and Gardens. © Meredith Corporation, 1973).

THE CORRIDOR

Chicago's progression of plazas between Dearborn and Clark Streets is a workaday lesson in urban design

BY CHARLES WILLIAM BRUBAKER, FAIA



The plaza of the First National Bank of Chicago (above and opposite) is a space of multiple levels and moods. Designed by C.F. Murphy & Assoc. and Perkins & Will, Architects, the plaza is a social success and, in urban design terms, defers to existing street scale as evidenced by the way in which the Inland Steel Building (1958), by Skidmore Owings & Merrill, has been opened up along Dearborn St., creating a hard edge for the bank's open space.

Last summer, an advance man for film producer Billy Wilder was snooping around Chicago, ferreting out real-life sets for (word has it) yet another version of "The Front Page." The advance man, Charles Eames, most certainly found some, given the Loop's lode of alternately seamy and smashing hang-outs, lobbies, back rooms—you know, the sources of front page stuff.

Only *this* time round, let me suggest, the "stuff" is going on outside. And the real-life "sets" at Mr. Wilder's disposal include one of the most important progressions of plaza space in America, running north and south between Dearborn and Clark Streets in what we call, in these parts, the corridor.

The corridor, I'm happy to say, includes something we worked on, in joint venture with C.F. Murphy Associates—the First National Bank and Plaza. I don't think you will mind if I tout the joint venture's horn because, first off, The FORUM said no one *should* mind and, second off, because every element in the corridor touts every other element in the corridor.

When the joint venture was commissioned to design The First National Bank of Chicago, at the exact center of the Loop, we gave lots of thought to designing, as well, a powerful magnet where people of all sorts could implode, interact and, in short, *be* the city.

The bell-bottomed bank building, per se, was opened several years ago and, just last year, the adjoining plaza where just about anything can occur, and has.

During good weather, you can brown-bag a lunch, buy popcorn or a taco, people-watch, see acrobats, a prep school chorus, Ella Fitzgerald and, I'm sure, your favorite checking account teller checking out, among other things, the fountain.

The best accolade I've heard: "Where were all these people before?"

I'll tell you where all these people were before. Holed up. And largely because they had no option to do otherwise. The plaza of the First National gives them one.

The corridor is a great place to walk. What with good rapid transit, commuter railroads and

highways, this central area swatch should become even more attractive than it already is to commerce, education, government and other activities that benefit from high accessibility and foot traffic.

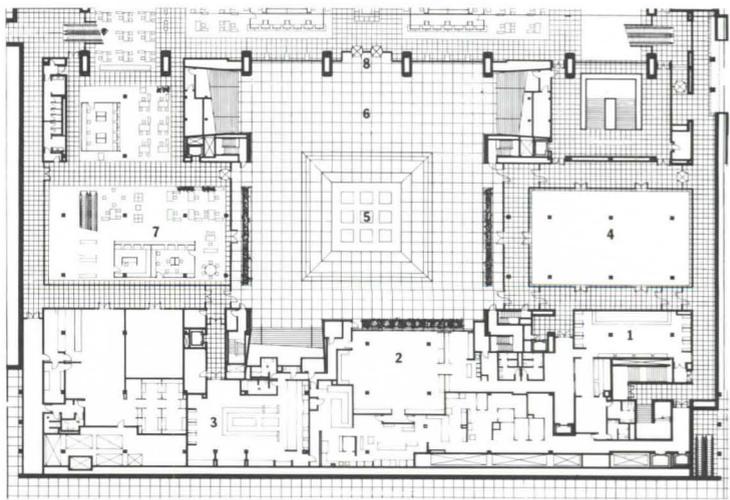
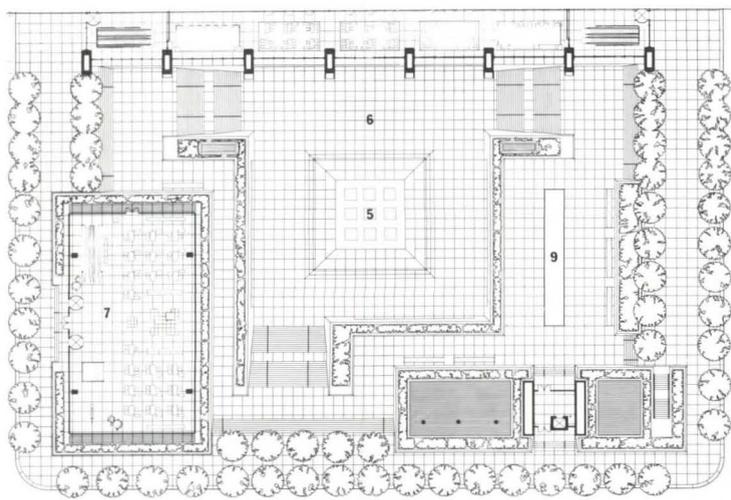
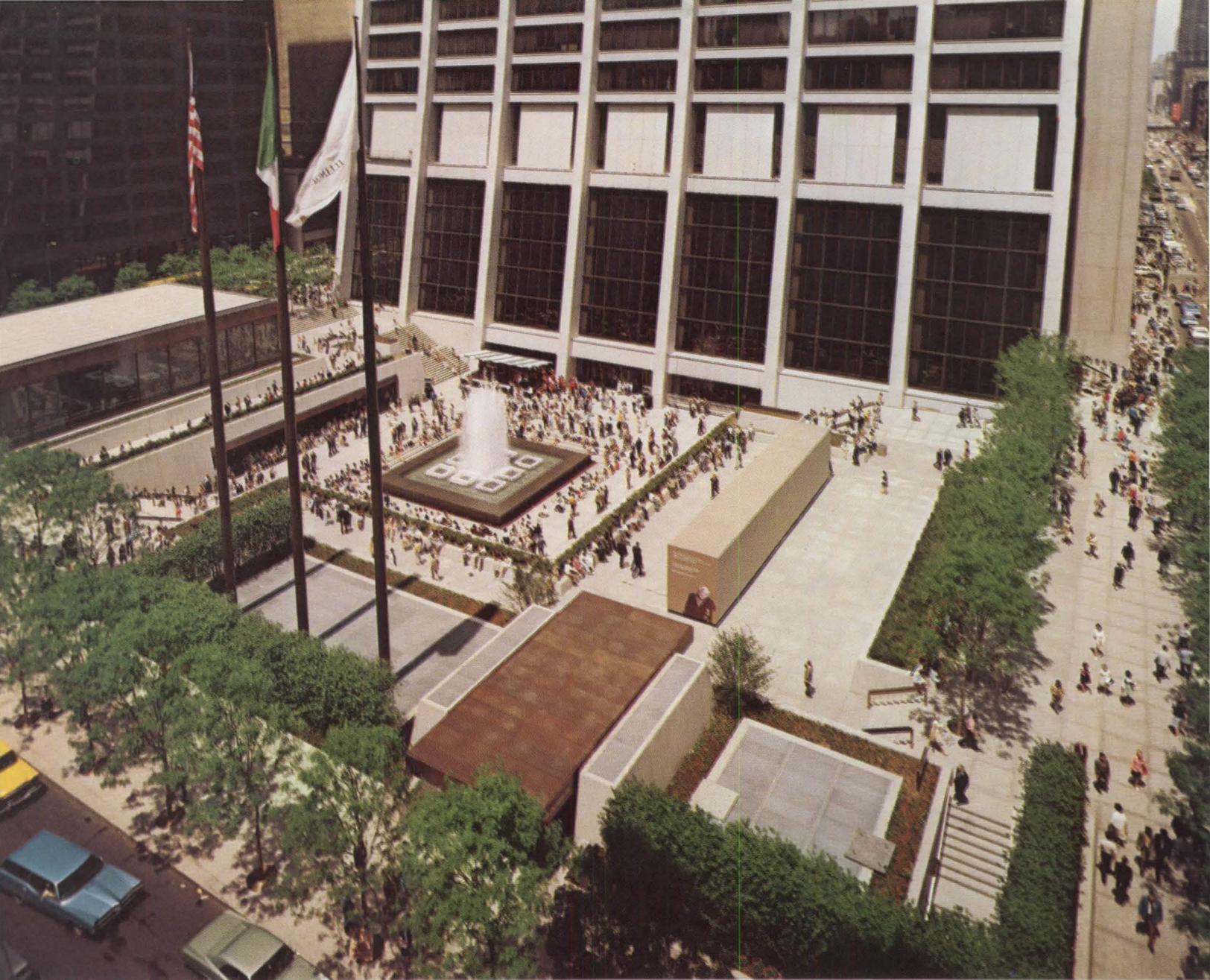
Loop streets, in general, have character and variety. For example, North and South Michigan Avenue faces Grant Park—the lakefront frontyard. Wabash Avenue, under the Elevated, is lined with interesting specialty shops. State Street is the wide "Great Street," with department stores and parades. Dearborn and Clark—the corridor—are tied together with three plazas. LaSalle Street is the "canyon," terminated at the south end by the Board of Trade. Wells, also under the Elevated, and Franklin provide opportunities for new development, perhaps taking some speculative pressure off the more cherished arteries mentioned before, and development which would be close to the rail stations. Then there is Wacker Drive, two levels, paralleling the Chicago River and exhibiting Sears Tower.

The corridor includes benchmark buildings of the 1890's—Jenny's Manhattan, Burnham & Root's Monadnock, Burnham's Fisher, Holabird and Roche's Marquette ((page 13)). It also includes distinguished office buildings of the 1950's and 1960's—by Skidmore, Owings and Merrill, Inland Steel, Brunswick, Harris Trust, Connecticut Mutual; by Perkins & Will and C.F. Murphy, the Two First National Plaza; by C.F. Murphy, the Blue Cross-Blue Shield Building; by Bertrand Goldberg, just north of the River, Marina City; and on the southern end of the corridor, by Harry Weese, the U.S. Courthouse Annex (under construction).

Dearborn and Clark are visually related streets. Continuous walls of buildings, old and new, define this corridor—on the east side of Dearborn and on the west side of Clark. Between these walls are the three major plazas and, in them, large free-standing structures—the Civic Center to the north, between Randolph and Washington; The First National, between Madison and Monroe; and the Federal Center, to the south, between Adams and Jackson.

The Civic Center is, simply, superb. Completed in the mid-Sixties, it expresses Chicago's

Mr. Brubaker, President of Perkins & Will, Architects, is a member of The Forum's Board of Contributors.



1 Pub dining room 2 Restaurant 3 Coffee shop 4 Retail stores 5 Fountain 6 Plaza 7 Banking pavilion 8 Entrance to main building 9 Chargall Mosaic



The Chicago Civic Center with its sculpture by Picasso provides a state-ly focus, for ceremonial and government affairs (above and opposite). The space is strongly defined by SOM's Brunswick Building immediately south and by the City-County Building, a classical revival mass to the west. Its location in the Clark-Dearborn corridor between Randolph and Washington Streets makes an interesting contrast with the turn-of-the century chaos as shown in this 1910 photograph of the Dearborn and Randolps intersection (near right).



bent for exposed steel structure, using Cor-Ten, 86-ft. spans and column-free, flexible space.

Its successful street-level plaza is formal and properly dignified for its primarily ceremonial and courthouse functions. With the rusty patina of the Picasso as its focus, complementing the building, the plaza is defined on the west by the old City-County Building (1907-11) by Holabird and Roche, a brooding bundle of Corinthian columns; on the south by Holabird and Roche's Gothic Revival Chicago Temple (1923) and, next to it, SOM's concrete bearing wall Brunswick Building (1964); on the east by miscellaneous old buildings which, inadequately defining the plaza, suggest the need for hard-edged development along that border.

The Federal Center, four blocks south, is a classic incantation of Mies, although several other firms worked with his: Schmidt, Garden and Erikson, C.F. Murphy, and A. Epstein & Sons. To be finished in a few months, with a large steel stable by Calder, it contains two tall buildings (their long axes at right angles) and a low post office equal in height, roughly, to the lobbies of the nearby towers. One of these, the Dirksen Building (completed several years ago), is right across Dearborn from the plaza—a definite boundary. The second tower, a newly-completed 45-story job, is actually in the plaza, on its southern edge, while the post office occupies the northwest quadrant of the block.

Holding in the plaza on the north, west and south are a lot of older buildings with heavily textured masonry surfaces, built from the 1890's to the early 1930's. On the north, on the corner of Dearborn and Adams, is Holabird and Roche's Marquette (1894)—a definite boundary for the plaza there, and one which Mies is said to have had in mind when he decided to place the second, taller Federal Center tower on the south side of the block. Going west, to the corner of Adams and Clark, is the Field Building (1934) by Graham, Anderson, Probst and White (page 49) whose massive Classic Revival, block-square Continental Bank is half a block south on Clark. On the south edge of the Center, as already mentioned, the plaza is

pretty much held by the new tower, as you look from the north. But just across Jackson Street, punctuating the plaza perimeter, is Burnham and Root's 16-story, 197-foot-high Monadnock (1891), a cliff of brick wall-bearing construction without peer until, say, Mies excelled its simplicity of expression. In deciding to build on the south part of the Federal Center block, along Jackson, the Mies-inspired team was not callously concealing the Monadnock but, with their glass and steel skin, holding a mirror up to and reflecting a noble neighbor, now on the National Register.

This juxtaposition of old and new around the Federal Center and Plaza is a reminder that the Miesian canon, though widely abused, has yielded something more than models for cribbing: a model for paying attention to existing ambiance and scale. Apart from questions which are frequently brought up about "all that glass," or about what some believe to be too uniform an order to meet varied conditions, this largest of his works says much about his sense of the urban order which must exist and, historically, has existed between the physical components of cities.

This brings me, finally, to the "event" midway between the Civic and Federal Centers—the First National Bank and Plaza.

When C.F. Murphy and Perkins & Will were commissioned in 1964, plans for the neighboring government complexes had been released. *Because* we admired them, we decided it would be wrong to duplicate the two, especially so when it came to finalizing the form of the plaza.

Our clients (headed first by chairman Homer Livingston and, later, by Gaylord Freeman) presented us with a whole block, 400 by 320 feet, served by excellent infrastructure—an efficient gridiron of utilities and streets, the existing Dearborn subway, a projected east-west distributor subway under Monroe and, as yet languishing, a proposed underground walkway system to link the announced Centers.

Illinois law doesn't allow branch banking. So it was necessary to create a large, easily accessible and, yes, visible space to do banking in.

The customary central core plan didn't seem right to provide

the kind of public spaces needed for one of the country's largest banks. That is why a twin-core plan evolved, with elevator cores expressed at the east and west ends of the 320-foot-long building. We got an open interior and spacious, unobstructed floors.

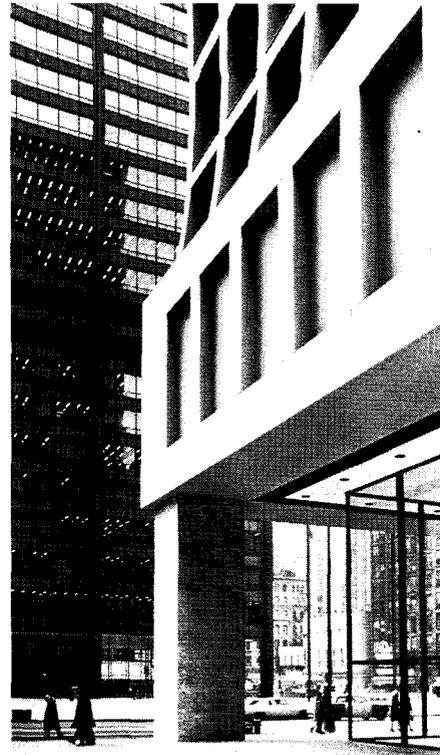
It was also clear to us that if, in fact, the public banking spaces needed great breadth near the ground, that the offices farther up didn't. That is why the now-familiar tapered form evolved—in response to the varying kinds of spaces the bank and its tenants would need. Further, this broad-based form, far from being conceived solely for flare, was structurally efficient—at least as efficient, really, as any setback solution we might have decided on.

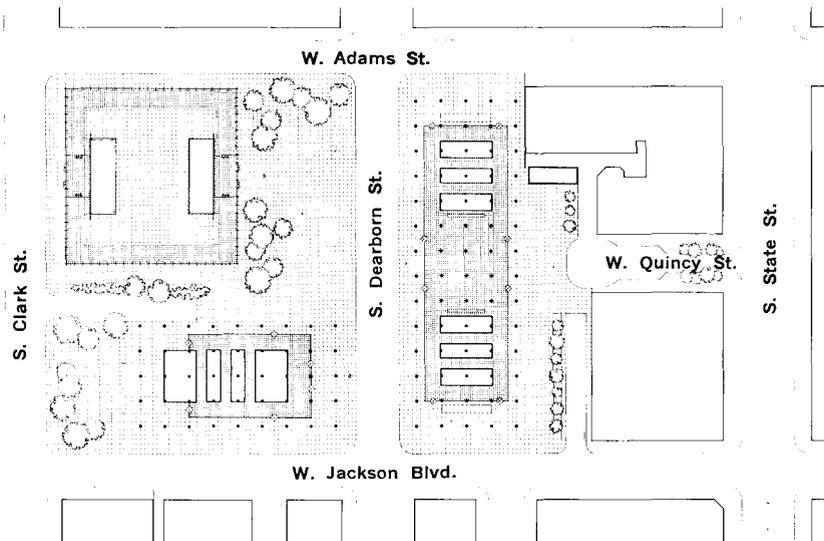
At any rate, the building itself, made way for the demolition of the old bank, on the south half of the block which, in turn, made way for the flare of a plaza we had designed concurrently. As it developed, the taper of the building, especially on the south side, suggested something more animated than a street-level space. What's more, the bankers were dead-serious in their concern by what had become, by then, a pretty dead downtown (even at noon), with loads of workers going from here to there and back with little or no reason to do anything in-between. The bankers also wanted a plaza where people could go after knocking off for the day, thus helping dispel the dullness of most so-called financial districts.

Given this, the job team didn't have much trouble agreeing that a lower level plaza would be best, with banking space, restaurants, bars, shops and subway entrances opening onto it at this lower level.

The result is what some wag called an "inhabited quarry" made up of sweeping stairs and promenades, and accessible from the three bordering streets.

It is complex and colorful, conscious contrast to the Civic and Federal plazas. That fountain you see in the pictures, nine squares within a square, has wind sensors and variable volumes of water. There are trees and shrubbery and flower beds which lace the space from street level on down into the plaza itself. A low transparent banking pavilion is perched slightly





The Federal Center and Plaza (model and plan), designed by Mies van der Rohe, is defined by hard-edged elements on the east and south, and graced by a low post office on the northwest quadrant of the block. Just north, at Dearborn and Adams, is the textured masonry of the Marquette Building (lower right). And just south, at Dearborn and Jackson, the ensemble is strengthened by the presence of the pylon-like Monadnock and its flared base (lower left). The two blocks south of the Federal Center, on the east edge of Dearborn (center, opposite), contain the Fisher Building (1896) by Daniel Burnham, the Old Colony (1893) by Holabird and Roche, and southernmost, the Manhattan (18990) by William LeBaron Jenny. The old Elevated, due to be demolished, is shown bridging Dearborn at Van Buren. A network of second-level promenades (sketches, opposite) might simulate the Elevated's animation, interconnecting old and new structures for efficient, enjoyable movement around the Chicago Loop.

above street level on the southwest corner, at Monroe and Clark. As you walk along Monroe toward Dearborn, there is a restaurant entrance at that corner, and one for the subway.

Those broad steps are good for skipping down and, amphitheater style, for sitting on. Scattered about are various activities scheduled by the bank, with a movable platform invariably left over (or ready for) some attraction or other.

Below the plaza, on four levels, are an auditorium, a computer center, services and parking. These last two are reached by ramps which wind under Clark from entrances across the street.

Withal, the building and plaza materials are restrained, using warm grey granite throughout.

Picking up the theme established by the Civic Center's Picasso and the Federal Center's Calder, the bank plaza will soon be enlivened by a colorful, tactile mosaic wall by Marc Chagall—actually a rectangular mass 70 ft. long, 10 ft. wide and, if memory serves, about 10 ft. high. Something to contemplate, lean against and touch, it will also be visible from the surrounding sidewalks and streets but, significantly contrasted to the other masterpieces in the corridor, Chagall's work will not be easily visible all at once. Like the plaza, it will be an element which, glimpsed during a downtown walk, will draw you into it.

The plaza is effectively enclosed and defined by the walls of surrounding structures. To the east, just across Dearborn at Monroe, is SOM's Inland Steel which, for the first time, can be taken in fully. Just across Monroe to the south, older masonry buildings, though generally nondescript, at least provide a hard edge in that direction. Then across Clark, as mentioned earlier on, is Two First National Plaza. These neighbors, noticed now as they never were before, help hold the identity of the bank plaza and prevent the kind of "leakage" so characteristic of downtown open spaces.

Having discussed three positive increments of Loop life, you have to wonder what, if anything, these suggest for the larger, long-range picture. Yielding to the prophet motive, let's take a look.

The Elevated structure will, more likely than not, be removed. And I, for one, will miss it. Admitting that it's a bit noisy and, in some places, a bit shabby, it has occurred to some people around here that, when the clanky trains are finally put underground, it might be painted up, planted and preserved as a people mover, combined, say, with an around-the-Loop promenade. Since the clanky trains are supposed to be underground by late in this decade, and since it would cost additional funds to tear the network down, and since we have some very pragmatic reasons (pollution, energy shortages) to tone down the use of private automobiles in central areas, why not?

The Old Elevated, approached in this way, might well become for Chicago what the cable cars have become for San Francisco.

And what about parking the cars which do come into town? New garages should be built, if at all, west of the Loop with pedestrian zones, like those in Europe, designated and designed within the Loop.

Chicago is in a good position to give the pedestrian a new deal—underground (as Montreal), at street level (as Munich), and above the street (as Minneapolis). And it is in a position to do this without first tearing itself to shreds.

For example, Chicago has all sorts of obsolete alleys, owned by the city. These could serve as rights-of-way for new upper level pedestrian walkways and gallerias, with shops (too many of which have been chased off the street by single-used "modern" buildings) readily reinstated on the second floors of both new and old structures.

A good place to begin is alley-like Quincy Street, running west from the Federal Center to the new elevated plaza of Sears Tower. In this way, major plazas, like the ones covered here, could send out "runners," so to speak—linking old and new buildings at different levels, evolving an organic, three-dimensional downtown and, not least of all, putting legs back in style.

Linkage is what Chicago must concern itself with—the interrelationship of its major spatial and architectural elements. The megastructure approach to city development is a tempting alternative, built all new at one time.

But something which is built all new at one time has certain problems—for instance, it ages all at the same time. And it can lock human, social and economic relationships into a frame that is not easily adjusted.

The richer-mix organism, emphasizing the links between a great variety of elements, can continually renew itself—adapting the best of the old, and rebuilding to accommodate changing conditions.

In this sense, the Clark-Dearborn corridor offers important clues about where Chicago should go from here. With its three plazas intact, and with Harry Weese's for the U.S. Courthouse Annex coming along, the corridor offers more than places for people to walk through. It offers a pattern of Loop growth which takes into account the basic fact that growth is an unfolding process.

Economic well-being cannot be sustained, nor the emotional and physical performance of ordinary human beings improved, until architects, as well as the clients we work for, realize that *moving around*—from building to building, from activity to activity—is a dimension which must be dealt with.

This will require looking at the famous Chicago Frame—from Jenny to Mies—as more than a configuration of structural elements.

It could be, brought to social maturity as well, a grid for enhancing the ways people move around and make use of the city.

FACTS AND FIGURES

First National Bank Plaza, One First National Plaza, Chicago, Illinois. Owner: The First Chicago Building Corporation. Architects & Engineers: C.F. Murphy Associates (Carter H. Manny, principal-in-charge); Perkins & Will (Albin B. Kisielius, principal-in-charge). Landscape Architect: Novak and Carlson. Interior Designer: C.F. Murphy Associates and The Perkins & Will Partnership. Contractors: Gust K. Newberg Construction Company (general); Robert Irsay Co. (mechanical); Gordon Electric Construction Co. (electrical); J. J. Corboy Co. (plumbing). Consultants: J.S. Hamel Engineering, Inc. (fountain consultant); Bolt, Baranek, & Newman (acoustics). Building Area: 317,657 sq. ft. Land and Site Development Cost: \$30,000,000.00.

Post Office Building (Chicago Federal Center), 21 South Clark Street, Chicago, Illinois. Owner: United States Government. Architects: Schmidt, Garden, Erikson; The Office of Mies van der Rohe; C.F. Murphy Associates; A.

Epstein Sons, Inc. (A Joint Venture). Partner-in-Charge: Bruno Conterato (The Office of Mies van der Rohe). Interior Designer: Interiors, Inc. Cafeteria Consultants: Fred Schmid Associates. Contractors: Paschen and Peter Kiewit (Sub-Structure); Paschen and Newberg (Super-Structure); L.E. Herbst (Kitchen); Pathman Construction Co. (Office Installation); Amelco Corporation (Electrical). Building Area: 39,204 sq. ft. above grade; 280,600 sq. ft. below grade. Construction Cost: \$110,000,000.00. Furnishing and Equipment Cost: \$2,220,000.00. Total Design Fees for all 3 Chicago Federal Center Buildings: \$2,717,960.00.

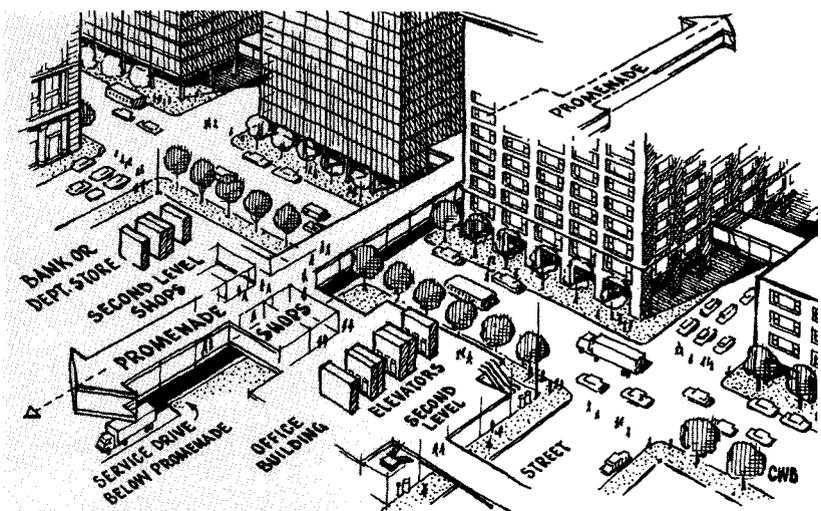
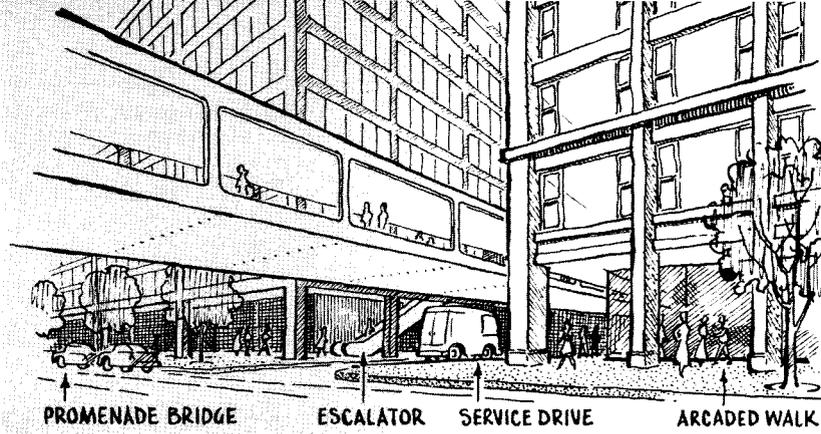
Everett McKinley Dirksen Building, 219 South Dearborn, Chicago, Illinois. Owner: U.S. Government. Architects: Schmidt, Garden, Erikson; Mies van der Rohe; C.F. Murphy Associates; and A. Epstein Sons, Inc. (A Joint Venture). Partner-in-Charge: Bruno Conterato (The Office of Mies van der Rohe). Acoustical Consultants: Bolt, Baranek & Newman. Cafeteria Consultants: Harding. Contractors: A.L. Jackson Co. (Sub-Structure); Paschen Contractor, Inc. and Peter Kiewit Sons Co. (Super-Structure); Commercial Light Co. & L.K. Comstock Co. (Electrical). Building Area: 1,365,000 sq. ft. above grade. Construction Cost: \$38,500,000.00. Total Design Fees: \$2,717,960.00 (for all 3 Chicago Federal Center Buildings).

Chicago Civic Center, Chicago, Illinois. Owner: Public Building Commission of Chicago. Architects: C.F. Murphy Associates, Supervising Architects; Skidmore, Owings & Merrill, Associate Architects; Loebli, Schlossman, Bennett & Dart, Associate Architects. Consulting Engineers: Severud-Elstad-Kreuger Associates (Structural); Bolt, Baranek & Newman (Acoustical); Edison Price (Lighting). General Contractor: Gust K. Newberg Construction Co. Gross Building area: 1,465,000 sq. ft. Cost: \$87,000,000 bond issue includes land acquisition, demolition, building complete with furnishings.

Federal Office Building, Chicago Federal Center, 230 South Dearborn, Chicago, Illinois. Owner: United States Government. Architects: Schmidt, Garden, Erikson; The Office of Mies van der Rohe; C.F. Murphy Associates; A. Epstein Sons, Inc. (A Joint Venture). Partner-in-Charge: Bruno Conterato (The Office of Mies van der Rohe). Interior Designer: Interiors, Inc. Cafeteria Consultants: Fred Schmid Associates. Contractors: Paschen and Peter Kiewit (Sub-Structure); Paschen and Newberg (Super-Structure); L.E. Herbst (Kitchen); Pathman Construction Co. (Office Installation); Amelco Corporation (Electrical). Building Area: 1,115,000 sq. ft. above grade; 280,600 sq. ft. below grade. Construction Cost: \$110,000,000.00. Furnishing and Equipment Cost: \$2,220,000.00. Total Design Fee: \$2,717,960.00 (for all 3 Chicago Federal Buildings). (For a listing of key products used in these buildings, see pages 104 and 107.)

PHOTOGRAPHS: Harold Nelson, 86 (top), 89 (bottom); Hedrich-Blessing, 87, 88 (top); Richard Nickel, 89 (top), 91, 90 (bottom left); John Dixon, 90 (right); Chicago Historical Society, 88 (bottom).

SKETCHING: Charles William Brubaker.





THE CHICAGO THAT NEVER WAS

Or how a century of notable architecture gave the town an undeserved reputation for being a satisfactory city

For almost exactly a century Chicago has enjoyed an international reputation as being a center of advanced architectural theory, technical innovation and *avant-garde* design. For two decades, beginning with Jenney's Home Insurance Building of 1885, she was the laboratory in which the skyscraper was perfected; and this culminated in Sullivan's Schlessinger and Meyer store, perhaps the most polished esthetic expression of the steel cage ever achieved. America's first and greatest international fair was staged there in 1893—an eclectic counter-revolution of such power that its reverberations were still felt half a century later. (It sired the City Beautiful Movement and the McMillan Plan for the rehabilitation of L'Enfant's Washington. It led to the Burnham Plan for Chicago in 1909, which sparked the great system of

parks and parkways that became a paradigm of urbanism in the decades before World War II.)

It was in a Chicago suburb that Frank Lloyd Wright, in the first decade of this century, invented and perfected the modern American home; and it was in a Chicago attic, during those same years, that Sullivan perfected the modern banking room. It was Chicago, in the Nineteen Twenties, which produced the Tribune Competition, with Gropius' astonishingly prescient proposal and Hood and Howell's astonishingly *retardataire* prize-winner. And it was Chicago which, in the midst of the nation's worst depression, generated the 1933 fair called "A Century of Progress." Here, in however diluted and distorted a form, the American people were introduced to the International Style which was to sweep everything before it.

Chicago's architectural pre-eminence was continued through the Thirties and Forties. From Europe came such advanced designers and theoreticians as Ludwig Hilberseimer, Serge Chermayeff and Laslo Moholy-Nagy. Finally, with a good fortune which few cities have enjoyed, Chicago became the base of operations for Ludwig Mies

van der Rohe. It would be impossible to cite a better case of serendipity, of the right man being in the right place at the right time. For Mies was uniquely the designer who could take the hard-edged rationality of the glass and steel which had made Chicago famous and carry it to new levels of monumentality and refinement. Mies was not only—like Jefferson at Charlottesville—the creator of a prototypical new campus; as dean of the school at IIT he was the creator of a new type of architectural education. He was finally, of course, an enormously successful practitioner. Thus the new skyline for which Chicago is once again famous is largely due to Mies' heroic presence there for thirty years.

The cumulative result of this century of widely-publicized architectural activity has been the creation of a myth—held not only by the cognoscenti of the world but by upper class Chicagoans themselves: the myth that it has resulted in a satisfactory city: that Chicago is a town beautiful to look at, easy to move around in, safe and comfortable to live in. Nothing could be further from experiential reality. Chicago's most famous new buildings (Marina

Towers, the Hancock, the First National) look best when viewed from miles away; become progressively less noteworthy as one approaches them; and seem downright ordinary once one enters them. There is scarcely a city block, even in the Loop or along the booming Miracle Mile, which offers continuous urbane amenity—which is not interrupted, that is, by an old building coming down or a new one going up. Some of these streetscapes are briefly photogenic although all of them are empty of street life: And even this enclave of the rich and well-to-do is only a narrow strip along the lakeshore. The real life-support system of the Near North Side is the wonderfully active, mixed-up and grubby triangle north of Chicago Avenue between Rush and Dearborn. And south and west of this lie miles of urban desolation such as one associates with Berlin after World War II.

Individually, the lush new high-rise apartments and hotels do not yield the optimal security and comfort which, visually, they seem to promise. (An entire lobby full of Miesian furniture was recently stolen in broad daylight from an elegant building not two blocks from the Water Tower. Windchill on

With this article, James Marston Fitch begins a regular column for The FORUM, which he once served as Technical Editor. Formerly architectural editor for House Beautiful when that magazine did its Climate Control project, and now a noted author, historian and critic, he is presently a Professor at Columbia University and Director of the Graduate Program in Restoration and Preservation of Historic Architecture.



any winter night makes it impossible to dawdle near uncurtained glass walls in these lake front towers. And 90th floor apartments in the Hancock Tower really look little different from—though they sway a good deal more—any ninth floor in a fin-de-siecle building further inland.) Although it was built smack in the center of one of the world's most difficult climates, neither Chicago's architecture nor her urban design has paid more than lip service to this environmental fact. Because she ignored such realities, she always managed to exacerbate them. Winds are more violent and idiosyncratic around her high buildings; snow drifts are deeper (and dirtier); summer temperatures are higher (and kept continuously higher) by unshaded masonry masses. Perhaps this consistent contempt for environmental reality was due to the fact that Chicago developed after Giedion's mechanization had already taken full command; when the transcontinental railway system guaranteed abundant meat and grain to maintain a high metabolic level in her citizens and her urban metabolism was supported by endless supplies of coal, gas and oil to heat, illuminate and

most recently cool her buildings. Perhaps because of this happy accident, she could be profligate in her use of energy and shortsighted in her application of it.

The new architecture of Chicago continues this tradition of extroverted, free-standing monoliths designed for the climate of Plato's Republic. Even the clustered buildings of the new campus at Chicago Circle are each a sealed monolith, exacerbating rather than ameliorating a climate of brutally cold winters and stupefyingly hot summers. And the 125-story Sears Roebuck Tower merely pushes this anti-environmental arrogance to new limits. All of which is doubly ironic because, for a decade or so, Chicago did experiment with the introverted, atrium-centered plan. The top-lighted, weather-controlled court appeared in The Rookery (1886), the Railroad Exchange Building (1904) and the Art Institute (1892). Sullivan used it in the Charnley House (1892). Of course, Richardson wrapped the Glessner House around a south-facing open court in 1886; and Wright used an open court yard in his Francisco Terrace apartments in 1895. (The only recent use of the interior court has been in Y. C. Wong's atrium

houses 1961.) Oddly enough, Chicago never developed the underground pedestrian concourse (a la Rockefeller Center) or the street-level arcade (a la Minneapolis) though both would be optimal for her winters.

Thus the city can never have been a truly satisfactory city in which to live, even for the chauffeured rich. For the poor, it must have always been sheer hell. This was already true in 1843, when Margaret Fuller was shocked by the diseased and drunken Indians stumbling down her muddy streets. It was true in the 1890's, when Jane Addams with her settlement houses tried to ameliorate the living conditions of Middle European workers in the stock yards. And it is most true of all today, when tens of thousands of blacks live not in old-fashioned slums (which seem almost comforting in retrospect) but in a landscape of roofless ruins, vacant land and vacated stores.

Just because of her vigorous and violent urbanistic development, Chicago has managed always to cancel out the potentials of her architecture. Only we critics, basing our comments on two-dimensional photographs of isolated buildings rather than four-dimensional experience with

the actual city, could have pasted together such a mosaic of make-believe. Except for the magically polished, planted and lighted vistas of the Columbian Exposition—a dreamscape which lasted only one long hot summer—the connective tissue of the town has always been in disarray. Abandoned buildings at one end of the street, inhabited ones in the middle, eviscerated prairies being prepared for buildings on the other end. Today, the connective tissue which surrounds the Loop is diseased to a degree which, to be believed, must be seen; and preferably from the El trains, since the streets, if not too dangerous, are simply too heartbreaking to walk along.

The Chicago lesson is clear. Great architecture never *hurt* a city; but individual buildings, no matter how great, are no guarantee whatever of a great city. One might almost say that, in human settlements, the interstices are more important than the cells. The life-support capacity of the connective tissue is more important than the architectural modules which it connects. This is the central fact which architects, of all people, can least afford to ignore.

FACETS

(Continued from page 17)

New Rochelle, and in Newark, New Jersey (which thought they might lure Xerox), the corporation bought a 25-acre site in Stamford for \$2.85 million, not far from its current rented quarters, where a new headquarters will go up. Charles Luckman Associates will be the architects.

Stamford is pleased: "We have been hoping all along they would plan to stay," said Stamford Mayor Frederick Lenz, Jr. Greenwich on the other hand has not lost everything. In December Xerox announced it was taking a 15-year lease on 240,000 sq. ft. of office space in three downtown Greenwich buildings to accommodate its educational and Latin American divisions.

FAIRS

SKID ROW TO EXPO BIG-TOP

Spokane's P. R. goes: "Where once society's outcasts lurched bleary-eyed and locomotives chuffed (chugged and puffed?) into two obsolete stations on a sprawl of tracks, an opera house, pavilions and a 100-acre city park are materializing."

The U.S. pavilion will be a glorious culturama covered by a 250,000 square foot vinyl tent stretched from a 145 foot center pole. Washington State's pavilion is a permanent structure

designed to be used as an opera house/convention center with a seating of 2,700. The Russians got an acre for themselves, and the Japanese and West Germans will put on a good show—oil shortages notwithstanding.

Beyond all of this hoop-la for the centenary of Spokane, several long term benefits will be derived from Expo '74. Most importantly the Spokane river is being cleaned up. An industry initiated companion program—the Spokane River Drainage Depollution Project—incorporates private and governmental efforts in an attempt to eliminate pollution throughout the entire river basin. The riverbank in Spokane is being spruced up and landscaped. Downtown will have new street lights, sidewalk furniture and hundreds of curbside trees will be planted.

\$76 million is a lot to spend on a party, but the clean river, the 100 acre park and all that curbside planting will remain after the big top has folded.

CITIES

Industry has been seeping away from the central cities, leaving the workers behind. Not the professional workers — the unskilled ones. And the results, as everyone knows, are inflated welfare roles, decaying housing, and despair. Does industry have to desert the cities? Is there an economic alternative? To find out the Urban Land Institute sponsored a study by economist James H. Boykin. His answers

—to oversimplify complicated responses—are "no" to the first question and "yes" to the second. But what he feels is really needed is a better understanding of land values, tax bases, and the delicate relationships between one industry and its supporting businesses and workers by people who make real estate, architectural, and political decisions in cities.

Dr. Boykin focused his study on Baltimore because, he explains, "Its stage of growth is similar to other older industrialized urban centers in the United States which are, or will be, experiencing land use problems."

The book, ULI Research Report 21 is called *Industrial Potential of the Central City*.

Basic to Dr. Boykin's thesis is the misuse or under-utilization of multistory buildings that are suitable for industrial plants within cities. Many of these, he maintains, could and should be fixed up and used. And they would be were people aware of the economic advantages of a city location.

Some of his more significant findings:

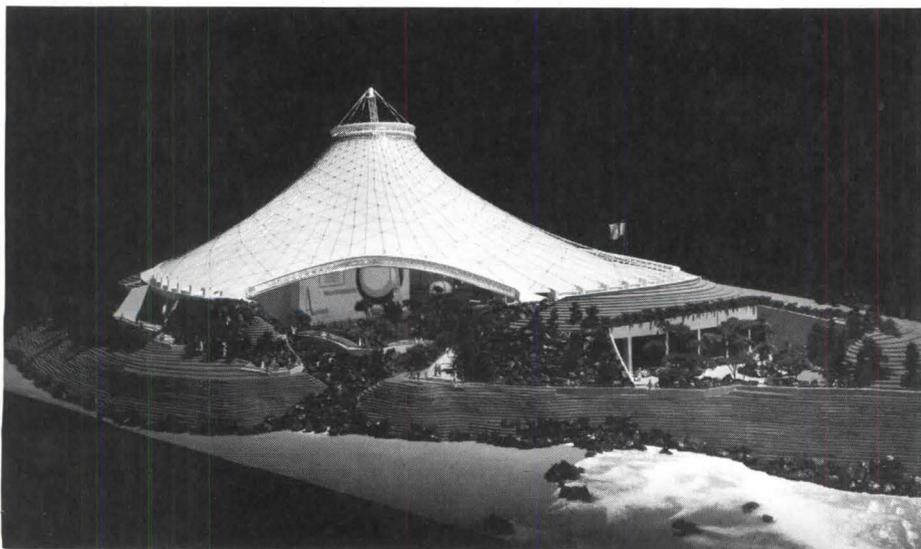
- Within the city of Baltimore, industries are marketing their wares primarily within the region. Industry located in the suburbs trade out of the region.
- Industries within Baltimore share their space with others. Almost three times as many do this in the city as do in the suburbs.
- City industry uses more of its space for warehousing than do suburban industries.
- Real estate taxes—figured on the basis of square feet of

building area—are less in the city than in the suburbs.

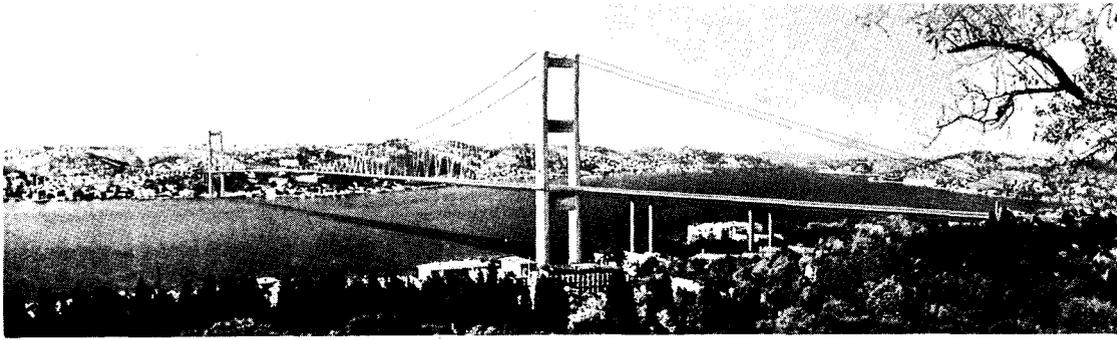
In the suburbs much of the advantage of cheaper suburban land is eaten up by parking lots, and a major recommendation of the study is that people be brought closer to their jobs to eliminate commuting. "Enforced 'open housing' in the suburbs for the lower-skilled members of minority groups, plus more attractive housing in central cities for skilled and professional industrial employees can alleviate the present wasteful cross-commuting between city and suburbs."

Another strong plea is made for the understanding of what happens when an industry leaves the city. What happens to suppliers who have depended on it for orders? To the shipping firms that have trucked its wares? To the advertising offices? In short to all the businesses that have been linked to it? The stronger may survive, the weaker may not.

"It is important for persons making or influencing these land use decisions to identify the linkages among central city establishments and strengthen them through proper use of existing buildings and by removal of barriers to efficient off-site economies," Boykin emphasizes. And he pleads for a balanced look at both suburban and urban industrial locations and structures. The two can be complementary, he points out, although he urges experts to remember that Baltimore has some peculiarities that may not be valid in considering problems in other places.



A model of the U.S. Pavillon and, at right, the Expo 74 site.



Europe's largest suspension bridge.

HIGHWAYS

GAS CUT TAKES ITS TOLL

The frenzy that has gripped the nation's roadbuilders for the past two decades may be running out of gas. At least that is the prognosis offered by experts who foresee between a five and a fifteen percent dip in gasoline tax revenues during 1974. What this would mean is a nationwide tax loss of between \$800 million and \$2.3 billion from gasoline sales, virtually all of which would ordinarily go for highway construction and maintenance. While officials in most states had projected a gain in gas tax revenues, early indications are that budgets will be buffeted by losses instead.

Such news may bring a glow of relief to anyone concerned with the environment, but the news is not all good. In some states, for instance, record revenues in the past few years have left highway funds swollen with surpluses. These can and probably will be used to maintain the present pace of road building. But road building materials also are becoming scarce. Even should funds be available, supplies of asphalt, steel and cement may be short.

Still another braking factor is the changing attitudes of politicians. In New Jersey late last year, Governor-Elect Brendan T. Byrne halted plans for an extension of the New Jersey Turnpike, slated to slash through the center of the state. The 38-mile extension was to cost \$315 million, an amount Byrne labeled "excessive in terms of benefits derived." Among his objections was the unpreparedness of Ocean County to cope with land development where officials are already having trouble supplying services for a population expanding too fast.

LINK TO ASIA

Over the centuries the greatest natural defense of Istanbul has been the Straits of the Bosphorus. The Byzantines stretched a great iron chain across to prevent enemy ships from entering the Black Sea.

The latest stretch turns out to be the longest suspension bridge in Europe and the fourth longest in the world. Completed last October, two 165-meter towers support the cables of the 1074-meter center span, giving it a clearance of 64 meters over the middle 400 meters. Six lanes of vehicular traffic and two pedestrian walks are carried on a deck constructed of hollow steel boxes of the type first used in the Severn Suspension Bridge in England. This construction is considerably cheaper and lighter than a truss deck and has the advantage of one-third less wind drag. Contractors of the Bosphorus bridge are Hochtief AG of Germany and The Cleveland Bridge and Engineering Co. Ltd. of England. Freeman, Fox and Partners of London are consulting engineers.

HOUSING

"THEY DON'T BUILD THEM LIKE THEY USED TO"

Recent tract housing developments in the Southwest have gone to great lengths to establish an imageful identity by means of an "entrance gate." However, none can really compare for just plain exuberance with this example recently seen by The FORUM's Houston Correspondent Peter Papademetriou in the office of designer Burdette Keeland. Once gracing the entrance to a post-World War I subdivision in El Paso, this gate combines a rich motif of Indian symbolism, swastikas, and left-over pieces from the developer's

building stock: he was a plumbing contractor and the pendants on the structure are, well, toilet ball floats.

THE GUARANTEED HOUSE

Starting early this year Americans will be able to purchase new homes guaranteed for ten years against defects of workmanship and materials. The Warranty Insurance Program, long discussed, was approved in late 1973 by the National Association of Home Builders. Although available initially only in certain regions, it is expected eventually to protect virtually all new home buyers from structural defects.

If a roof sags, a wall buckles, or a foundation gives way because of faulty workmanship or use of defective materials, buyers now have a direct course of action. The program should also be able to reduce grievances over cosmetic flaws such as peeling paint, and loose floor tiles by standardizing arbitration procedures.

Briefly the program will work this way: A buyer with a complaint about his new house sends the builder a formal claim in

writing. If within five business days the claim is not settled, either buyer or builder can ask the local warranty office for a conciliator. Should he fail to help the parties to an agreement within 15 business days, either disputant can start arbitration. Arbitration will be binding.

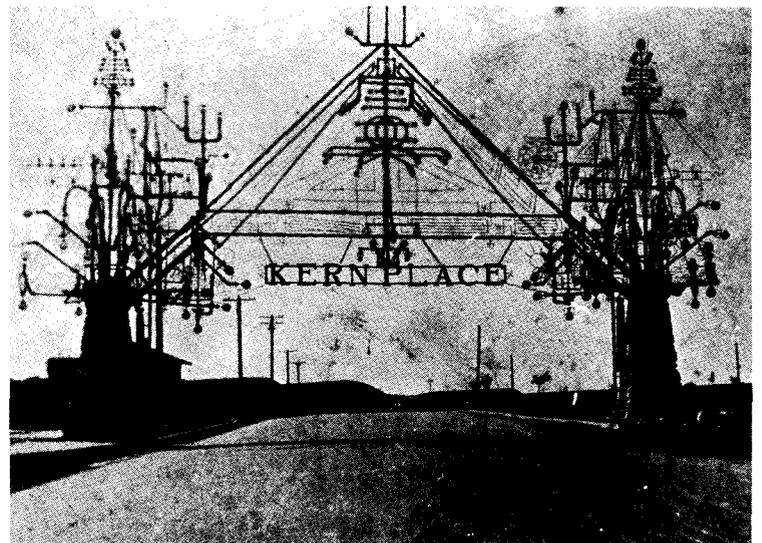
From the third to the 10th year of a house's life, the buyer who fails to get satisfaction from his builder about a late-surfacing problem can file a claim directly with the national warranty organization. It will investigate and offer insurance payments according to what it finds. If the buyer is not satisfied, he can still ask for arbitration.

To pay for the program the buyer of a new house will pay two tenths of one percent (.02) of the cost of his house. On a \$50,000 house the payment, for example, would be \$100.

To set standards for the program an Industry Standards Manual is being prepared, outlining defects that can show up in the first year of a house's existence, set yardsticks for measuring their severity, and suggest what the builder can do to correct them.

If for some reason a builder refuses to correct legitimate defects, he will be barred from the Warranty Insurance Program. Although such exclusion may not seem like severe punishment, it probably will be. It is expected that the Guaranteed House will become established throughout the country. Once that happens, non-participation in the program should become an effective way of indicating a sloppy builder.

Initially the program seems a



El Pase

FACETS

sound and needed one. Although a guarantee on something as complex as a house—a typical house is said to have more than 5,000 parts—may be difficult to sustain, builders have indicated their willingness to participate in the program. If allowed to evolve carefully the Guaranteed House program could ultimately give buyers protection against serious flaws in what is, for most people, the major purchase of a lifetime.

BLOOM OFF HOUSING BOOM

The housing market boom of 1972 and part of 1973 is now bust, at least partially for 1974.

In 1972 there were a record 2,378,500 housing starts—down to 2,046,000 in 1973. The expectation for 1974 is only 1,600,000.

"This will be the deepest housing recession we've ever had," says Michael Sumichast, chief economist for the National Association of Home Builders. "Unemployment in the industry could double and many small builders go under. The next six to eight months are going to be very tough."

The decline is having a ripple effect on the economy, from sales of lampshades to lawn mowers. Determining factors are the availability of capital and the rising cost of middle-income housing.

The two-bedroom house is making a comeback in popularity. This is attributed to rising costs and the energy shortages which are making homeowners' demands more modest.

"Most analysts believe that 1975 will be a good year for housing, but the energy situation casts a shadow over everything," says Alan Bomstein, project director of U.S. Home. "The time is rapidly approaching when the level of housing starts will be determined by the availability of energy and not the availability of capital."

Shifts in land desirability as well as design criteria in housing are resulting from the energy crisis. The gasoline shortage could affect the location of future housing says Gerar R.

Andlinger, chairman and president of Levitt & Sons, Inc. His company is buying land close to public transportation and closer to cities and even considering subsidizing bus transportation at some projects. Some think the energy crisis could reemphasize development in central cities and older suburbs.

Ironically, even in the lush early days of 1973, federally subsidized low and middle income housing starts fell to 200,000 units when President Nixon froze housing funds. But it was a great year for luxury vacation houses, which rose to 250,000 starts. It looks like both Mr. Blandings and his contractor may have to wait a bit for that dream house.

FINANCE

NEW CLIENTS

Female and male architects may find more women becoming clients for residential design due to recent developments in the mortgage policy. The Federal Home Loan Bank Board ruled in December that females—whether single or supporting a family—could no longer be discriminated against by savings and loan associations.

The Board realized that often "loan underwriting decisions" had more than a tinge of discrimination in them, and issued the policy statement. Although a policy is not technically a law, its content is accepted as binding for the institution under the Board's domain.

UPDATE

SECOND THOUGHTS

A group of New York City architects has persuaded the Guggenheim Museum to modify its plans for adding a restaurant and visitors' lobby to its facade on Fifth Avenue. The group, including Philip Johnson, Paul Rudolph, I.M. Pei, Romaldo Giurgola and Richard Meier, negotiated with Henry Berg, Deputy Director of the Museum, to achieve the change. Berg recently acknowledged: "I think we went into our original plans rather innocently. We thought that changing the front would not compromise the building, but when conscientious people

showed us we were making a mistake, we listened." The original scheme announced last winter raised many hackles.

Although the new plans are not yet public, they include a smaller restaurant than originally planned, placed on Mr. Wright's ground floor, L-shaped open space now used as a driveway and small parking area. New York Architect Donald Freed who did the original scheme, has done the current one. In it, the restaurant no longer protrudes beyond the building line at 89th Street, so that facade will still look the same. Only the Fifth Avenue front will be altered, and it just slightly. A wall of glass will enclose the ground floor space containing the restaurant and a lobby-salesroom. But instead of fitting at the front edge of the museum, the glass will run behind two heavy columns near the front door, leaving the front entrance unchanged. "We've lost some space," comments Berg, "but not Wright's angled entrance and the whole experience of entering the rotunda through a compressed, low space."

The museum plans to start work on the revision sometime this winter toward completion next spring.

EXHIBITS

BEYOND SAFDIE

During the last year an exhibit, "Moshe Safdie: For Everyone a Garden," has been touring the country. The almost evangelical extravaganza, which includes blow-ups of black and white photos, models, and even three different videotapes on the

architect and his work, opened at the Baltimore Museum of Art, traveled to the San Francisco Museum of Art in time for the AIA Convention in May, and is now at the Jewish Museum in New York.

Curiously the show, for all its visual material, text and interviews, lacks depth. Exception might be Safdie's "new-town-in-town" for Coldspring, Baltimore and to a lesser extent Habitat '67 in Montreal—which we all love and know too well at this point, particularly since the Museum of Modern Art showed it in much better detail in 1967 with a film on Habitat's construction. Here there is a film on Safdie's work in Jerusalem, including the Yeshivat Porat Joseph now under construction—but it's more evocative than informative.

One feature of this building, too briefly mentioned in the exhibit, is the array of large prisms by New York sculptor Charles Ross. Forming transparent domes in the roof, they will project a solar spectrum approximately 15 feet—on the interior walls. The rest of the projects in the show, most of which were designed in the late Sixties, are exhibited only in project form—with no mention made to the public of whether or not they were built (and if not, why not). Because of the way they are shown, these projects demand to be perceived only as formal variations on the theme of Habitat (cellular clusters of uniform shapes) and convey no sense of structural, economic or functional practicability. Thus they seem rather like frozen images in time to be enjoyed by an art-conscious public for their public



Safdie's Coldspring Cluster Housing model.

relations value.

Indeed, despite the show's emphasis on Safdie's commendable combination of technological innovations, a natural morphology of forms and vernacular architecture, it does seem to promote the man more than the architecture. It has the same ring to it as if Safdie were one of the venerable Modern Masters, being paid tribute after years of hard work and sacrifice. But the guy is only 34. It's a little early (or looking at it another way, a little late) for the Howard Roark treatment especially manifest in the videotapes.

Nevertheless it is to the credit of the Jewish Museum that they have recognized the importance of the Israel-born architect by giving the show an extensive run (through March 19) on its main floor. Architecture exhibits of this size are too rare, even if next time we might hope to see more in-depth architectural material.

Organized by the Baltimore Museum of Art, the exhibit received funding from the National Endowment on the Arts, and was designed by the Baltimore architectural firm of O'Malley and Associates in cooperation with Safdie. The show will travel next to the Des Moines Art Center and National Gallery of Canada.

ARCHIVES

KEEP THAT DRAWING!

An Ad Hoc Committee for the Preservation of Architectural Records, recently formed by members of the Architectural League of New York, has put forth the following suggestions on the issue of preserving documents: photographs, models, working drawings, conceptual sketches, client-architect letters.

The committee's consensus is there should be a loose and flexible national organization with a national center and responsible regional members. The main task of the center would be the registration and indexing of all known architectural documents in public and private collections; the setting up of workable research archives; and regional institutions advising in the definition of standards of selection and preservation.

The Committee hopes that

regional participants will draw on existing groups that already have a demonstrable interest in such problems—say the local divisions of the American Institute of Architects and Society of Architectural Historians. Though New York, Washington and Chicago were discussed as possible locations for a center, Washington became an obvious choice for creating an autonomous archive, independent of existing institutions, yet which drew on the expertise others had to offer.

The topic will be pursued when the Historic Resources Committee of the AIA meets on Jan. 28th in Washington, D. C. and at the annual meeting of the SAH in April, in New Orleans.

WOMEN'S ARCHIVE

The contribution of women architects to the profession has often been overlooked, if not just plain buried. Now the creation of an archive of architectural work by women in the profession should rectify this situation, and hopefully will cast considerable attention on their achievements both past and present. Under a seed money grant from the Architectural League of New York and further funding from the National Endowment for the Arts, the Archive has begun collecting material from women around the country. From these responses, the committee in charge of the Archive, of which New York architect Susana Torre is coordinator, hopes to mount a comprehensive exhibition that will travel nationwide.

The Archive will not only include "a national survey of projects covering the entire spectrum of the profession and related areas," but will accumulate professional and biographical data on women in the profession. All of the material will be made available to interested individuals and institutions.

DESIGN

INVITATIONS TO DAMAGE

If schools were designed with better attention to how pupils use them, there wouldn't be as much "vandalism," says Harvard sociologist John Zeisel. Zeisel, professor of sociology of design at Harvard University's Gradu-

ate School of Design has been researching the area of school vandalism and the design of schools during the last year for the Boston Public Facilities Department (FORUM, October 1972). Findings so far suggest that the reason for vandalism is not so much an expression of anger or hostility on the part of the youngsters, as simply trying to use the places for play. As much as 50 percent of the vandalism, Zeisel estimates, are damages due to poor planning and bad design of play facilities (or lack of design), such as the placement of a basketball court next to a school's glass wall.

The study of vandalism will be extended to a nationwide survey with additional money coming from the Educational Facilities Laboratories in New York. This is only one of the areas being investigated under the auspices of Harvard GSD's new Architecture Research Office, run by a Research Committee which Zeisel heads. Other projects being conducted by GSD faculty for the new Office include "Communications between Architects and Researchers," "Principles of Adaptive Design in Housing," and Diagnostic Evaluation of Gund Hall"—good luck on this last one, boys.

PEOPLE

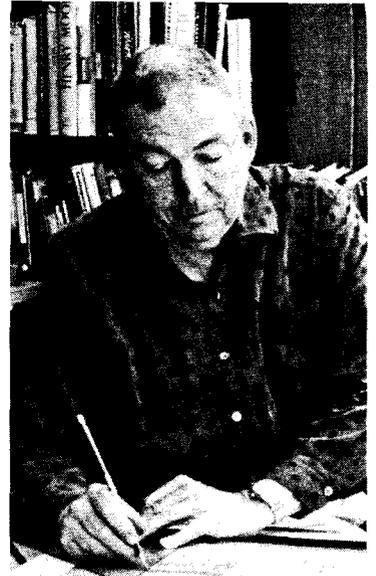
Louis Kahn has been elected to the 50-member American Academy of Arts and Letters. With Jack Levine, William Schuman, Babette Deutsch, John Cheever and E. B. White, Mr. Kahn will be installed in ceremonies on May 22, 1974 and will occupy Chair 13, last held by Jacques Lipschitz.

HARRIS ARMSTRONG

We've never forgotten the evening, early summer of 1972, when we met Harris Armstrong in St. Louis, where he had been front-runner in contemporary design since 1931.

He reminded us, with a trace of pride, that he had been friends with The FORUM staff long before most of the present staff were born—friends like Howard Myers, Douglas Haskell. When he passed on December 15, at age 74, architecture lost a great grassroots spokesman.

After a short period in the office of Raymond Hood in New York, Armstrong stayed in St.



Harris Armstrong.

Louis for good, maintaining a small office, where he was business-getter, designer and project supervisor.

He attracted early attention with a filling station design on a prominent Lindell Boulevard corner that departed dramatically from the usual shed idiom. This was followed by an International Style orthodontist's office that won him a medal from the French government when a photograph of it appeared with American designs at the Paris Fair of 1937. He also did the \$7-million engineering campus for McDonnell Aircraft Corp. (McDonnell-Douglas), the federal office building tower at Kansas City, Mo., two privately built St. Louis office buildings, several churches and the U.S. Consulate at Basra, Iraq. His one-man submission in the competition for the Jefferson National Expansion Memorial was the only one to make the finals in the contest Eero Saarinen won.

Characterized by sweeping graceful lines, his work adroitly tuned structural design with natural surroundings—only natural from a man who never relinquished his warmth or wit, even when the going was rough.

Harris Armstrong was a very substantial leader during that time of innovation and transition—and, as he liked telling his younger colleagues, a good time it was.

PHOTOGRAPHS: Page 10, The Cincinnati Post, except bottom left, Richard Nickel; page 16, Wide World Photos.

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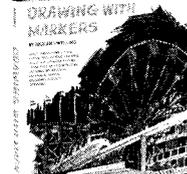
Bayfair Station (BART), San Francisco, Calif., Gwathmey, Sellier & Crosby with Esherick & Assoc., Apr. 48
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 San Leandro Station (BART), San Francisco, Calif., Gwathmey, Sellier & Crosby with Esherick & Assoc., Apr. 46

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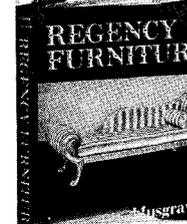
"Hitting Home," by Adele Chatfield-Taylor (women in the home and home architecture), Mar. 58



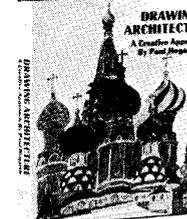
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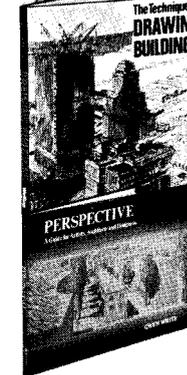
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PERSPECTIVE: A Guide for Artists, Architects, and Designers by Gwen White. Exercises of increasing complexity lead reader from fundamentals to mastery of perspective. 96 pp. 8¼x11¾. 300 B&W illus. Index. 8230-4000-3. \$8.95

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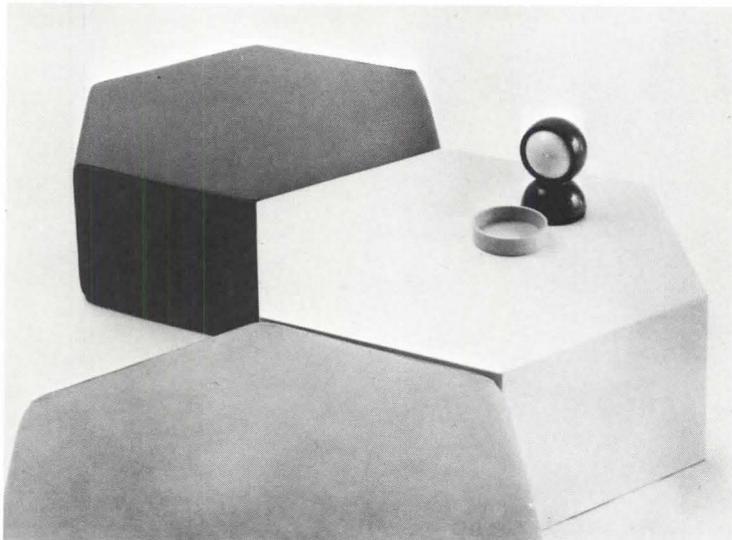
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PRODUCTS



HEXAGON, H'ANYONE?

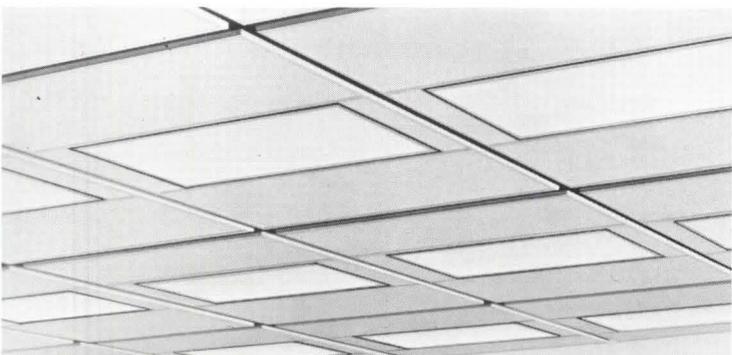
A fiberglass table with many angles was designed by Stendig to be integrated with seating poufs that are of the same shape and size.

Or, according to Stendig, it can complement any type of seating (due to its unusual

shape) and can be ordered in a wide variety of colors.

The pouf is available in leather, suede, or vinyl, or C.O.M. They can be stacked—dimensions are 33" wide, 28½" deep, and 12" high.

On Reader Service Card, circle 125.



CONVERTIBLE CEILING

Conwed Corporation has announced the FL 60 Series Integrated Ceiling System which provides design expression in an integrated ceiling yet allows for *minimum plenum* depth. According to Conwed, their systems combine lighting, air diffusion, and acoustical control in a unified assembly where each environmental function can be handled in a variety of ways to match individual requirements: FL 60 provides a flat linear light source in a 60" x 60" module; light fixtures avail-

able in two sizes. The 20" x 60" fixture can be located in any of six positions within the module. Both fixtures use 48" lamps and have a 48" lens with 6" integral white metal end plates. The hinged lens is recessed from modular grid to prevent interference with adjacent partitions. Both fixtures are interchangeable with any adjoining acoustical modules and all fixtures, tees, and acoustical panels may be rotated 90 degrees.

On Reader Service Card, circle 126.



TOTAL OFFICE PACKAGE

Armstrong Cork Company recently announced its first total package of pre-engineered, fully-coordinated components for office design. And to our knowledge, it's the first open package that consists of all elements: fully-integrated ceiling, acoustical wall panels and screens, resilient flooring and carpeting and a sound masking system.

Armstrong says the breakthrough package includes all environmental aspects of the open-plan office—acoustics, lighting and air distribution.

Their C-60/30 Luminaire integrated ceiling system is vaulted to provide almost 100 percent surface absorptive area with little lens obstruction. The coffer plays a big role in noise reduction by dissipating sound in the vault and preventing it from being reflected into adjoining work areas. It also comes in combinations of flat and vaulted modules. One part of the ceiling is the Supply Air Linear Diffuser which insures draft-free air distribution in large open spaces. Conditioned air is supplied and returned through slots in the grid or light fixture. Luminaire is supplied with an Open Plan Board, which has a perforated pattern, is mineral fiber, and has an NRC of 75.

In conjunction with the ceiling system, Armstrong developed a wall and space divider treatment, Soundscape Wall Panels and Screens which control horizontal and reflected sound while providing privacy. The screens and panels are made of mineral fiber acoustical material to which a soft modacrylic fabric is laminated. When installed, this layered configuration offers an NRC of 60-70.

Panels are 30" wide and are available in 9' or 10' heights and in 10 colors. Soundscape screens are free-standing partitions that are 5' wide and either 5' or 6' high.

They come in straight and curved designs allowing for proper space layout and the finished framing will be offered in either a bronze anodized aluminum finish or a walnut wood finish. The screens are available in 8 colors.

The background sound-masking system offered by Executone, Inc. is provided in conjunction with the ceiling system as one element. Generated and controlled at no more than a 40 db level, and transmitted through a series of speakers installed in the ceiling plenum, the sound masks normal speech sounds and renders them unobtrusive as they travel from one work space to another. Sound level controls are provided for individual zones to compensate for differences in ambient noise levels in varying types of work areas.

Completing the open plan package are Armstrong's resilient flooring and carpeting. Two patterns, Houndstooth Check and Grand Central offered in six colors, make up the Quiet Zone for commercial flooring. ½" thickness of cushion cord foam vinyl muffles the noise, and it is soft underfoot for comfort. It offers 35 mils thickness to hide traffic patterns, scuffs and soil.

The total package is designed to set new performance standards, according to Armstrong, in all critical areas of the open plan environment.

On Reader Service Card, circle 127.

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PRODUCTS

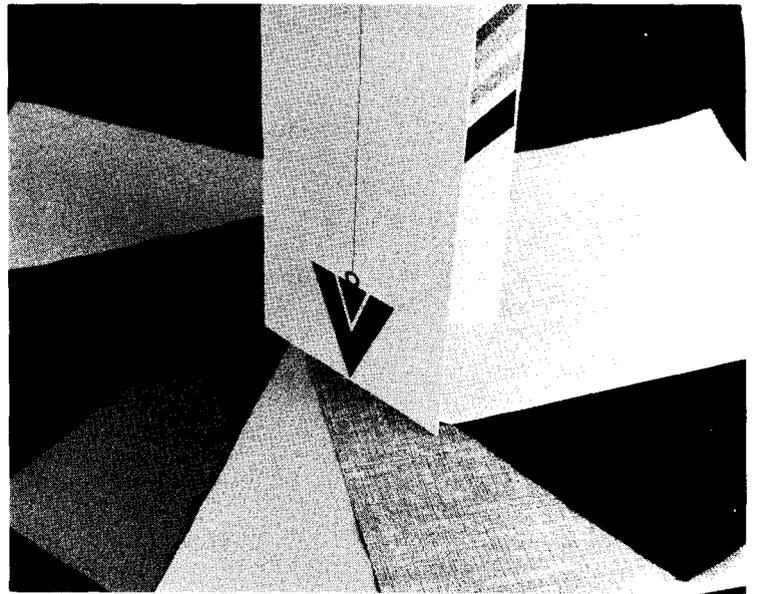
(Continued from page 102)

OFFICE ENSEMBLE

Herman Miller, Inc. is pre-assembling and marketing a series of office work stations which can be ordered as a complete unit. Areas range from a 180

square foot office (AO 577) with stand-up and sit-down work surfaces plus a separate conference area, to a 54 square foot station (AO 575) with free-standing desk and back-up panel enclosure. Any of the work stations are available in three different finishes: quartered oak veneer, dark walnut grain and neutral light vinyl.

On Reader Service Card, circle 128.



FOOTNOTE

Vaughan Walls, Inc. now offers a low cost vinyl wallcovering on its prefinished movable partitions. Produced by General Tire and Rubber Company, Vaughan Walls "vinyl wrap" colors match standard Genon patterns, thus enabling a designer to coordinate finishes

throughout an entire project.

These vinyl films are available in stipples, rich linen textures and wood grains. When machine applied to Vaughan Walls partitions, "vinyl wrap" provides a durable surface according to the manufacturers.

On Reader Service Card, circle 130.

WALL TO WALL

Two vinyl wallcovering patterns have been added to General Tire and Rubber Company's GENON collection.

"Orbit," features an overall large dot design, creating a bold texture when used on large wall areas and viewed from a distance, according to the company. Colors include maize, marigold, cerulean blue, hydrangea, vermilion and plum, as well as several shades of neutrals. It is a Type II wallcovering with a light stipple texture and is avail-

able in slightly wider than 54" widths.

"Escort" is a double-straited, multicolored grass cloth design, also a Type II material and is available in 22 colorways including neutrals, grape, tangerine, lime and brick.

Both patterns pass government specifications and have a special bacterial additive to inhibit microbiological growth, good for hospitals and nursing homes.

On Reader Service Card, circle 129.



WOOD AND STEEL

Steelcase Inc.'s "Designs in Wood" represents a new direction for the company in the design of desks and credenzas. This new line is designed with matched wood veneers and features drawers and pedestal framework fabricated from steel for durability and smooth drawer action.

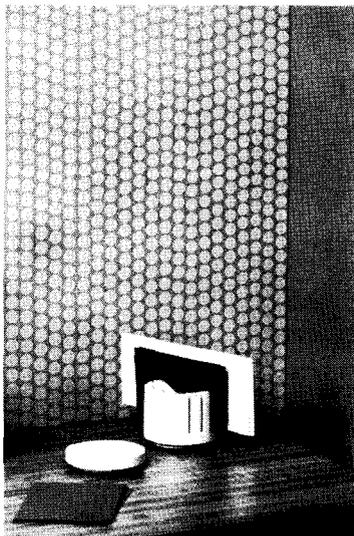
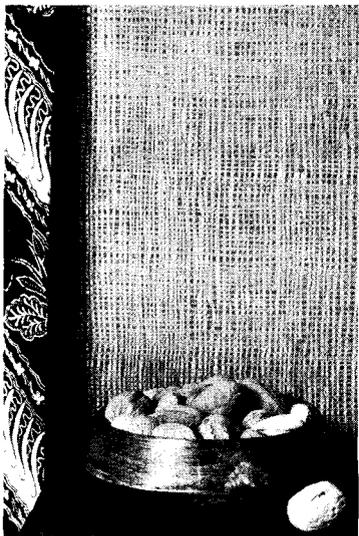
Four style choices are available. The 100 Series features grip drawer pulls, ebonized reveal and trim strips, and flush or recessed back panels. 200 Series has an H-frame leg design, hidden drawer pulls and recessed panels. 300 Series of-

fers panels flushed or recessed, and optional stainless steel bases and trim strips and the 310 Series features "cube" styling with stainless steel bases and trim standard.

All lines are available in walnut or oak veneers with a synthetic catalyzed oil finish. Offered optionally are inset tops in veneers, laminates, vinyl and Carpathian Elm Burl on the 100 and 200 Series.

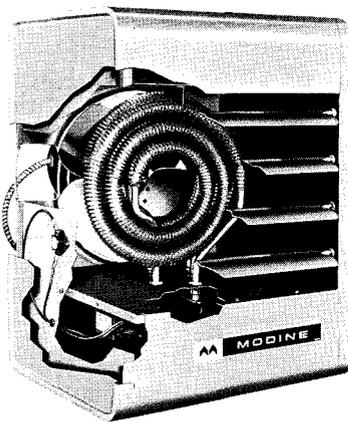
To complement "Designs in Wood," Steelcase also offers companion seating with wood-accented bases.

On Reader Service Card, circle 131.



PRODUCTS

(Continued from page 103)



HEFTY HEATER

Modine Manufacturing Company introduced seven basic models of horizontal delivery electric unit heaters recently. Ranging from kilowatt ratings of 5 through 25, the units have BTU

capacities of 17,065 through 85,325 and CFM deliveries of 530 to 1300.

Each unit has a series of spiraling wound finned-tube, sheathed nichrome wire heating elements which are staggered to provide even air distribution. The fan motor on all units is 208/230-volt, single phase, enclosed, continuous duty with thermal overload protection. A transformer, if required, is built into each unit allowing operation of the motor when any other power supply is utilized.

Casing design is accommodated by a hinged-bottom panel providing access to wiring and control. Accessories and optional equipment include remote mounting line voltage thermostats, summer-winter switch kit, and unit mounted line voltage thermostat. Modine said that this thermostat is completely factory assembled and wired on each unit ordered with that option, and is manually adjusted to the desired level of comfort. *On Reader Service Card, circle 132.*



STEEL SANDWICH

Dayton's newest store, located in Apache Mall, is of particular interest in that it uses a pre-fabricated steel sandwich panel wall system which up to now has been restricted to use in industrial buildings. It is reportedly the first time the panel has been used for a department store, and according to Gruen Associates, architects and engineers of the building, the wall system resulted in savings of more than a dollar a square foot in construction cost.

The panel, developed by the

H.H. Robertson Company, consists of two facing sheets of pre-finished steel bonded to a two-inch-thick foamed-in-place urethane core. Side joints are designed to interlock for a tight seal and provide a thermal break between front and back. The U-factor of the wall is .08 about one-third that of conventional masonry. The interlocking capability of the panel permits horizontal expansion of the building with 90 per cent of the panels reusable in the process.

On Reader Service Card, circle 133.

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

BOARDWALK. (a 28-story, 450 D.U., FHA 221-d (4) Apt. Bldg.) ARCHITECT: Stanley Tigerman & Associates. (Materials & manufacturers as submitted by the architect.) PILING: Concrete caissons to hardpan. CONCRETE AND CEMENT: Material Service Corporation; Penn Dixie Cement. FLOOR AND DECK SYSTEMS: Concrete slab—8" thick. ROOF MATERIALS (ROOFING, GUTTER): Built-up roof. THERMAL INSULATION: Fiberglass. FENESTRATION: (Medium Bronze Duranodic Frames) Marmet Corp. GLASS: Solar Bronze. INTERIOR PARTITIONS: Metal stud and drywall. ELEVATORS AND ELECTRIC STAIRWAYS: Westinghouse. DOORS (EXTERIOR AND INTERIOR): Aluminum and glass, exterior, wood and hollow metal interior. INTERIOR MATERIALS (TILE, PLASTIC): American Orlean Tile. LIGHTING FIXTURES, LAMPS: Markstone. HEATING BOILERS: Bryant. UNIT VENTILATORS, RADIATORS, CONVECTORS: International vertical fancoil unit. INTERCOM SYSTEMS: Couch. CEILING MATERIALS: U.S.G. Drywall and Kadex. MAIL BOXES AND CHUTES: American Device. VENETIAN BLINDS AND SHADES: Horizontal Venetian blinds—Duranodic.

SEARS TOWER. ARCHITECTS: Skidmore, Owings & Merrill. (Materials and manufacturers as submitted by the architects.) CONCRETE CAISSONS: Case International & Millgard Corp. WATERPROOFING: Koppers,

Tremco, Kedmont. CONCRETE & CEMENT: Mayfair Construction. BRICK, BLOCK & STONE: Campolonghi, Mariotti. STRUCTURAL STEEL: American Bridge Div. of U.S. Steel. CURTAIN-WALL: Cupples. FLOOR & DECK SYSTEMS: Inland-Ryerson. ROOF MATERIALS: Dex-O-Tex, Carey-Tred. THERMAL INSULATION: U.S. Gypsum. ACOUSTICAL MATERIALS: Johns-Manville. GLASS: PPG Solar-bronze. INTERIOR PARTITIONS: U.S. Gypsum. ELEVATORS & ELECTRIC STAIRWAYS: Westinghouse. DOORS: North American, Schweig Apton, Demco, Flour City, Williamsburg, Bruce Texcen. HARDWARE: Folger-Adam, Dor-O-Matic, Selby, Stanley, Niles, Rixson, Schlage, Van Duprin, Adams-Rite. INTERIOR MATERIALS: Pilot, Modulaire. PANELING: Vin-A-Tex. PAINT: Sears. ELECTRICAL DUCTS & WIRING: Allied, Wheeling, Scotchlok, Kaiser, Raco, Phelps-Dodge. ELECTRICAL EQUIP.: Fusetron, General Electric, Ideal, Leviton, Hubbell, Walker. STANDBY EMERGENCY POWER: Western, LaMarche. LIGHTING FIXTURES: Smith-Craft, Edison Price, Crouse-Hinds, Hager. PLUMBING FIXTURES: Schulhof, Bobrick. PIPING: Great Lakes, Leslie, Youngstown. HEATING BOILERS: Cam, Ind., Adamson. UNIT HEATERS: Trane, Brasch. UNIT VENTILATORS, RADIATORS, CONVECTORS: Carrier, Weil, Aerofin. HEATING VALVES, PIPING, CONTROLS: Honeywell, AAF, Cam, Worthington. AIR CONDITIONING COMPRESSOR, FAN UNIT: Carrier, Marley. DIFFUSERS, DUCTS, PUMPS: F&P Assoc., Kraissl, Armstrong, Federal, Semco, Tuttle & Bailey, Cleveland. SPECIAL FANS & VENTILATORS: Trane, Bilco, Furst. INTERCOM SYSTEMS: Complex, McMartin. RADIO & TV SYSTEMS: Motorola. AUDIO VISUAL EQUIP.: Kayle, Paducah, Ox-

ford. PNEUMATIC TUBES, CONVEYORS: Lamson, Diebold. SPRINKLER SYSTEM & FIRE PROTECTION EQUIP.: Hilti, Allenco, Star, Auto Sprinkler. CEILING MATERIALS: Johns-Manville. WATER COOLERS: Elkay. FINISH FLOORING & CARPETING: GAF. OTHER PRODUCTS: Lufkin, Taylor, Ameter, Potter, Curtis, Erikson, Wilmar, Dielectric, Delta-Therm, Tri-Pack, Steeple-Jac, Bilco, Schmidt.

KINO PLAZA (a one-story shopping center). ARCHITECT: Stanley Tigerman & Associates. (Materials & manufacturers as submitted by the architect.) CONCRETE AND CEMENT: Spread footing and slab on grade. BRICK, BLOCK AND STONE: 4" brick and 8" concrete block bearing wall. STRUCTURAL STEEL: Open web steel joist. FLOOR AND DECK SYSTEMS: Poured concrete floor—1½" steel roof deck. ROOF AND GUTTER MATERIALS: 4 Ply tar and gravel roofing. THERMAL INSULATION: 1" rigid insulation boards. FENESTRATION: Aluminum storefront system. GLASS: Tinted. INTERIOR PARTITIONS: Concrete block tenant separation. EXTERIOR AND INTERIOR DOORS: Hollow metal. CEILING MATERIALS: 2 x 4 exposed "T" system.

FIRST NATIONAL BANK PLAZA, FIRST NATIONAL BANK OF CHICAGO. ARCHITECTS: C.F. Murphy Associates and The Perkins & Will Partnership. (Materials and manufacturers as submitted by the architects.) FOUNDATION WATERPROOFING: Philip Carey. WATERPROOFING: Philip Carey. CONCRETE AND CEMENT: Portland Cement. BRICK, BLOCK, AND STONE: Hanley Brick Co. STRUCTURAL STEEL: Inland Ryerson. CURTAIN-WALL: Cold Springs Granite Co. (Granite); Flour City Architectural

Metals (Bronze). FLOOR AND DECK SYSTEMS: Gust K. Newberg. ROOF MATERIALS: Philip Carey. THERMAL INSULATION: Owens Corning, Dow, Zonolite. ACOUSTICAL MATERIALS: Owens Corning. FENESTRATION: Flour City Architectural Metals. GLASS: PPG. INTERIOR PARTITIONS: Hauserman. ELEVATORS AND ELECTRIC STAIRWAYS: Westinghouse. DOORS: Flour City Architectural Metals (Exterior); Johnson Fireproof Door Co. (Interior). HARDWARE (LOCKSETS, HINGES, CLOSERS): Yale. INTERIOR MATERIALS (TILE, PLASTIC): Flintkote (Tile); Johns-Manville (Base). PANELING: (Wood Paneling) Woodwork Corporation of America. PAINT: PPG. ELECTRICAL DUCTS AND WIRING: Square-D Electric. ELECTRICAL EQUIPMENT (SWITCHES, BREAKERS): Square-D Electric. LIGHTING FIXTURES, LAMPS: Columbia Lighting. PLUMBING FIXTURES, TOILET SEATS: American Standard. UNIT HEATERS: Trane. UNIT VENTILATORS, RADIATORS, CONVECTORS: Modine. HEATING VALVES, PIPING, CONTROLS: Kroeschell Engineering Co. DIFFUSERS, DUCTS, PUMPS, ETC.: Tuttle & Bailey. INTERCOM SYSTEMS: Rich Sound Engineers. RADIO AND TV SYSTEMS: Muzak. AUDIO VISUAL EQUIPMENT: IMF of New York. PNEUMATIC TUBES, CONVEYORS: Mosler Airmatics. SPRINKLER SYSTEM AND FILE PROTECTION EQUIPMENT: F.E. Moran. CEILING MATERIALS: USG (Acoustone Ceiling Tile); USG (Plaster). WATER COOLERS: Filtrine. MOVABLE PARTITIONS: Hauserman. VENETIAN BLINDS AND SHADES: Art Drapery Co. KITCHEN, LAUNDRY, LABORATORY EQUIPMENT: Ed Don & Co. FINISH FLOORING AND CARPETING: Boettcher (Wood); Moore Flooring Carpet (Carpeting). FURNITURE AND SEATING:

PRODUCTS

American Seating. FABRICS (UPHOLSTERY AND DRAPERIES): Art drapery.

SINGLE FAMILY HOUSE, CHICAGO, ILLINOIS: ARCHITECT: Stanley Tigerman & Associates. (Materials & manufacturers as submitted by the architect.) CONCRETE AND CEMENT: Spread footing and slab on grade. STRUCTURAL STEEL: Open web steel joist and 3" pipe columns. CURTAIN-WALL (ALCOA ALPLY PANELS): Alcoa Aluminum. FLOOR AND DECK SYSTEMS: Poured Concrete floor—1½' steel roof deck. ROOF AND GUTTER MATERIALS: 4 Ply tar roofing and walk on surface. THERMAL INSULATION: 2—1" Layers Rigid Insulation. ACOUSTICAL MATERIALS: Batt Insulation. FENESTRATION: Kawneer Zipperwall P.P.G. Entrance Doors. GLASS: 1" insulated glass, 1 clear and 1 tinted. INTERIOR PARTITIONS: Metal Studs and Gypsum Wall board truss steel studs and plaster. DOORS (EXTERIOR AND INTERIOR): Flush Aluminum Exterior; Flush Hollow Metal Interior. PLUMBING FIXTURES, TOILET SEATS: Kohler Co. AIR CONDITIONING COMPRESSOR, FAN UNIT: Carrier Air Conditioning Co. CEILING MATERIALS: Suspended Gypsum Wall Board.

COMMUNITY CENTER / ATRIUM. ARCHITECTS: Booth & Nagle. (Materials and manufacturers as submitted by the architects.) WATERPROOFING: General Electric. BRICK, BLOCK, AND STONE: Clayburn Brick Co. STRUCTURAL STEEL: Inland Steel. FLOOR AND DECK SYSTEMS: Tim-Con Glu Laminated Beam; Weyerhaeuser. ROOF MATERIALS (ROOFING, GUTTER): 28 ga Terne coated S.S.—TCS—Follansbee Steel Corp. FENESTRATION: LaSalle Glass Co.; PPG. GLASS: PPG. INTERIOR PARTITIONS: U.S. Gypsum. HARDWARE (LOCKSETS, HINGES, CLOSERS): General Lock Co. INTERIOR MATERIALS (TILE, PLASTIC): American Olean. PAINT: Olympic Stain; Pratt and Lambert. ELECTRICAL EQUIPMENT (SWITCHES, BREAKERS): Slater. LIGHTING FIXTURES, LAMPS: Lightolier. PLUMBING FIXTURES, TOILET SEATS: Kohler.

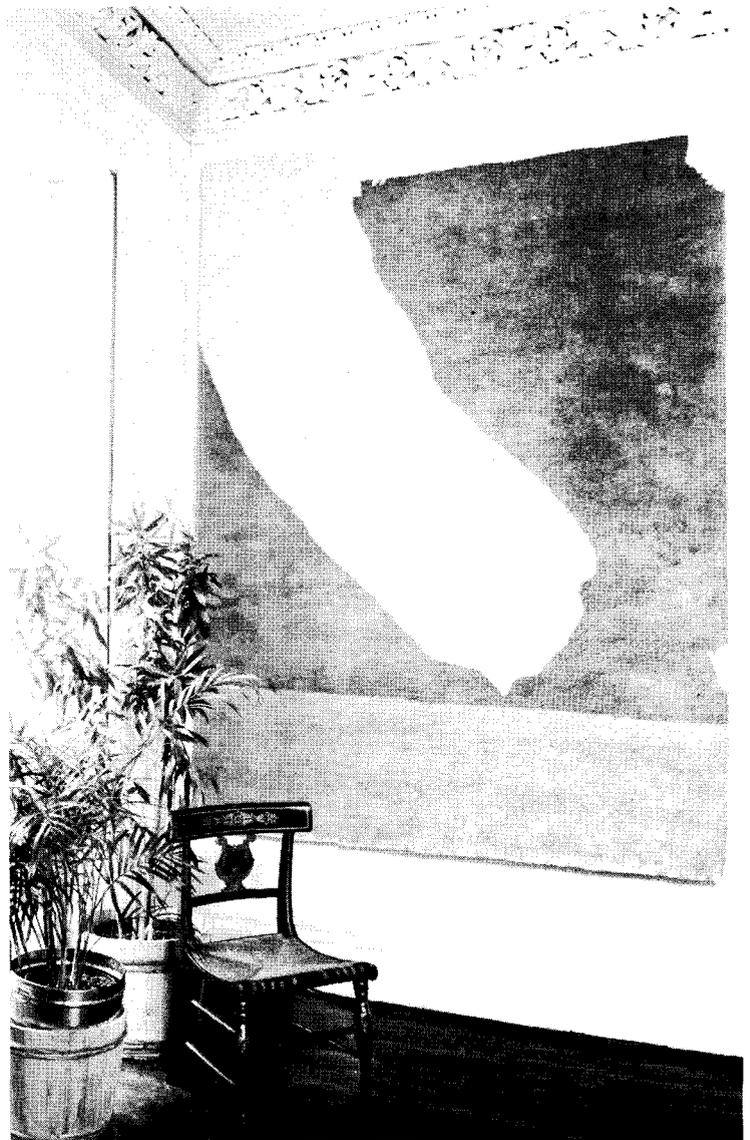
KOHLER CENTENNIAL HOUSE. ARCHITECTS: Booth & Nagle. (Materials & Manufacturers as submitted by the architects.) CURTAIN-WALL: American Redwood Association. FLOOR AND DECK SYSTEMS: Richardson Lumber Co. THERMAL INSULATION: Kohler General. GLASS: Arcadia Sliding Doors. STAIRWAYS: Woodbridge Ornamental Iron Co. HARDWARE (LOCKSETS, HINGES, CLOSERS): General Lock Co.; Stanley Hardware. INTERIOR MATERIALS (TILE, PLASTIC): American Olean. PANELING: American Redwood Association. PAINT: Pratt and Lambert. ELECTRICAL DUCTS AND WIRING: Wiremold exposed at baseboard. ELECTRICAL EQUIPMENT (SWITCHES, BREAKERS): Slater Co. STANDBY EMERGENCY POWER: Kohler Co. LIGHTING FIXTURES, LAMPS: Lightolier.

Co. PLUMBING FIXTURES, TOILET SEATS: Kohler Co. HOT WATER HEATER: A. O. Smith Corp. AIR CONDITIONING COMPRESSOR, FAN UNIT: General Electric Co. DIFFUSERS, DUCTS, PUMPS, ETC.: Krueger Co. INTERCOM SYSTEMS: Nutone. VENETIAN BLINDS AND SHADES: Royal Crest Co. KITCHEN, LAUNDRY, LABORATORY EQUIPMENT: General Electric. FINISH FLOORING AND CARPETING: Armstrong Cork Co. FURNITURE AND SEATING: Knoll International; Stendig, Inc. OTHER PRODUCTS: Crate and Barrel Accessories (General accessories); John Boos & Co. (Marble tops); DuPont Co. (Corian tops).

PORTALS AT GRANT PLACE. ARCHITECTS: Booth & Nagle. (Materials & Manufacturers as submitted by the architects.) FOUNDATION WATERPROOFING: P. Carey Company. CONCRETE AND CEMENT: United States Gypsum. BRICK, BLOCK, AND STONE: Rosemold Brick, Indiana Limestone. FLOOR AND DECK SYSTEMS: Wood frame. ROOFING MATERIALS (ROOFING, GUTTER): Philip Carey Company. THERMAL INSULATION: Philip Carey Company. FENESTRATION: Weathershield windows. GLASS: Arcadia Sliding Doors. INTERIOR PARTITIONS: Drywall—U.S. Gypsum Co. DOORS: Weyerhaeuser (Interior); Pease (Exterior). HARDWARE (LOCKSETS, HINGES, CLOSERS): Schlage Lock Co. PAINT: Pratt and Lambert. PLUMBING FIXTURES, TOILET SEATS: American Standard Co. AIR CONDITIONING COMPRESSOR, FAN UNIT: Bryant. KITCHEN, LAUNDRY, LABORATORY EQUIPMENT: Kitchen Aid Dishwasher; American Standard Sink. FINISH FLOORING AND CARPETING: Oak flooring.

ONE ILLINOIS CENTER. ARCHITECT: Office of Mies van der Rohe. (Materials & Manufacturers submitted by the architect.) WATERPROOFING: Tech Thio-deck & Poly-Tok. BRICK, BLOCK, AND STONE: Hanley Brick, Waylite & Cold Spring Granite. CURTAINWALL: Soule. THERMAL INSULATION: All Weather Crete; Foamglass. GLASS: LOF. ELEVATORS AND ELECTRIC STAIRWAYS: Westinghouse. DOORS: Soule (Exterior); Acme (Interior). HARDWARE (LOCKSETS, HINGES, CLOSERS): Schlage, Lawrence, Russwing. INTERIOR MATERIALS (TILE, PLASTIC): Romany Spartan Tile, Armstrong VA. ELECTRICAL EQUIPMENT (SWITCHES, BREAKERS): General Electric. LIGHTING FIXTURES, LAMPS: Luminous Ceilings, Inc. PLUMBING FIXTURES, TOILET SEATS: Kohler. HEATING BOILERS: Cleaver - Brooks. UNIT VENTILATORS, RADIATORS, CONVECTORS: Carrier Induction Units. HEATING VALVES, PIPING, CONTROLS: Minneapolis-Finn-Honey Controls. AIR CONDITIONING COMPRESSOR, FAN UNIT: Carrier Induction Units. CEILING MATERIALS: Johns-Manville. MAIL BOXES AND CHUTES: Cutler. VENETIAN BLINDS AND SHADES: Leveler.

TWO ILLINOIS CENTER. ARCHITECT: The Office of Mies van der Rohe. (Materials & Manufacturers as submitted by the architect.) WATERPROOFING: Tech Thio-deck & Poly-Tok. BRICK, BLOCK, AND STONE: Hanley Brick, Waylite & Cold Spring Granite. CURTAINWALL: Cuppler.



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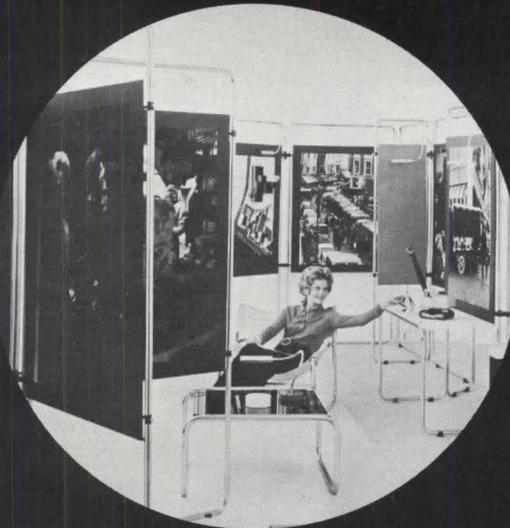
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(Continued on page 107)

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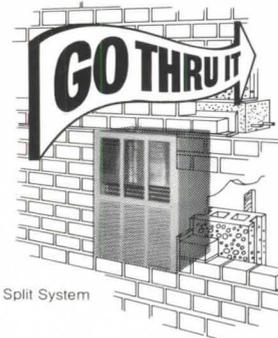
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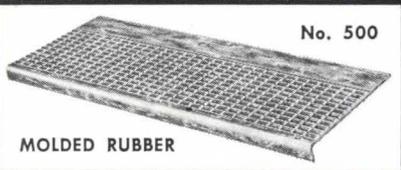
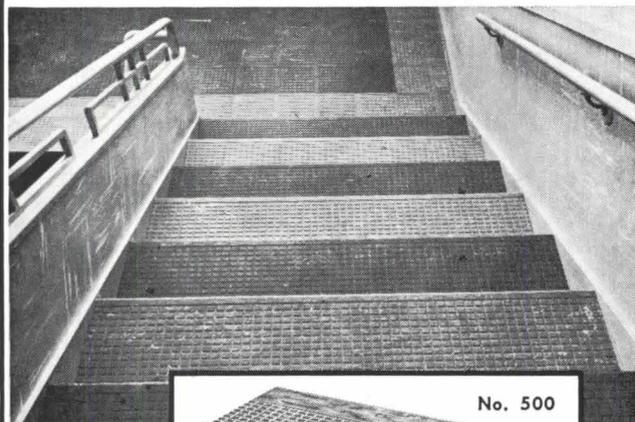
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PRODUCTS

(Continued from page 105)

THERMAL INSULATION: All Weather Crete; Foamglass. **GLASS:** PPG. **ELEVATORS AND ELECTRIC STAIRWAYS:** Houghton. **INTERIOR DOORS:** Fire-door Corp. **HARDWARE (LOCKSET, HINGES, CLOSERS):** Schlage, Lawrence, Russwing. **INTERIOR MATERIALS (TILE, PLASTIC):** Romany Spartan Tile, Armstrong VA. **ELECTRICAL EQUIPMENT (SWITCHES, BREAKERS):** General Electric. **LIGHTING FIXTURES, LAMPS:** Delta. **PLUMBING FIXTURES, TOILET SEATS:** Kohler. **HEATING BOILERS:** Cleaver-Brooks. **UNIT VENTILATORS, RADIATORS, CONVECTORS:** Carrier Induction Units. **HEATING VALVES, PIPING, CONTROLS:** Robertshaw Control. **AIR CONDITIONING COMPRESSOR, FAN UNIT:** Carrier Induction Units. **CEILING MATERIALS:** Johns-Manville. **MAIL BOXES AND CHUTES:** Cutler. **VENETIAN BLINDS AND SHADES:** Leveler.

POST OFFICE BUILDING, CHICAGO FEDERAL CENTER. **ARCHITECTS:** Schmidt, Garden, Erikson; The Office of Mies van der Rohe; C.F. Murphy Associates; A. Epstein Sons, Inc. (A Joint Venture). (Materials and Manufacturers as submitted by the architects.) **CAISSONS:** Caisson Corp. **FOUNDATION WATERPROOFING:** Metallic. **WATERPROOFING:** Bituthane; W.R. Grace. **CONCRETE AND CEMENT:** Paschen-Newberg. **BRICK, BLOCK, AND STONE:** Cold Spring Granite Co. **SUPER STRUCTURAL STEEL:** Bethlehem. **SUB STRUCTURAL STEEL:** U.S. Steel. **CURTAIN-WALL:** Bethlehem; Cupples. **CONCRETE FLOOR AND DECK SYSTEMS:** Robertson Cellular Steel Floor. **ROOF MATERIALS (ROOFING, GUTTER):** Barret. **THERMAL INSULATION:** Zonalite; Owens Corning; Apache Millox. **GLASS:** American St. Gobain. **ELEVATORS AND ELECTRIC STAIRWAYS:** Houghton. **DOORS (EXTERIOR AND INTERIOR):** American Steel Products. **HARDWARE (LOCKSETS, HINGES, CLOSERS):** Sargent. **INTERIOR MATERIALS (TILE, PLASTIC):** Roman Spartan Summitville. **PANELING:** U.S. Plywood; Olson Woodwork Corp. **PAINT:** Enterprise Paint Co. **HEADER DUCT:** Walker. **ELECTRICAL CONDUITS:** Republic Allied. **ELECTRICAL EQUIPMENT (SWITCHES, BREAKERS):** General Electric. **LIGHTING FIXTURES, LAMPS:** Columbia; Sylvania; Hub; Garcy; Rambush. **CEILING MATERIALS:** Armstrong Tile Concealed System. **MOVABLE PARTITIONS:** Steel and gypsum. **VENETIAN BLINDS AND SHADES:** Alcan Flexalure. **FINISH FLOORING AND CARPETING:** Carpet used throughout.

FEDERAL OFFICE BUILDING. **ARCHITECTS:** Schmidt, Garden, Erikson; The Office of Mies van der Rohe; C.F. Murphy Associates; A. Epstein Sons, Inc. (A joint venture) (Materials & Manufacturers as submitted by the architects.) **CAISSONS:** Caisson Corp. **FOUNDATION WATERPROOFING:** Metallic. **WATERPROOFING:** Bituthane; W.R. Grace. **BRICK, BLOCK, AND STONE:** Cold Spring Granite Co. **SUPER STRUCTURAL STEEL:** Bethle-

hem. **SUB STRUCTURAL STEEL:** U.S. Steel. **CURTAIN-WALL:** Bethlehem; Cupples. **FLOOR AND DECK SYSTEMS:** (concrete) Robertson Cellular Steel Floor. **ROOF MATERIALS (ROOFING, GUTTER):** Barret. **THERMAL INSULATION:** Zonalite; Owens Corning; Apache Millox. **GLASS:** American St. Gobain. **ELEVATORS AND ELECTRIC STAIRWAYS:** Houghton. **DOORS (EXTERIOR & INTERIOR):** American Steel Products. **HARDWARE (LOCKSETS, HINGES, CLOSERS):** Sargent. **INTERIOR MATERIALS (TILE, PLASTIC):** Roman Spartan Summitville. **PANELING:** U.S. Plywood; Olson Woodwork Corp. **PAINT:** Enterprise Paint Co. **HEADER DUCT:** Walker. **ELECTRICAL CONDUITS:** Republic Allied. **ELECTRICAL EQUIPMENT (SWITCHES, BREAKERS):** General Electric. **ELECTRICAL WIRE:** Kaiser/Triangle. **LIGHTING FIXTURES, LAMPS:** Columbia; Sylvania; Hub; Garcy; Rambush. **TOILET SEATS:** Sperzel. **PLUMBING FIXTURES:** Kohler. **CAST IRON PIPING:** Century Foundry. **STEEL PIPING:** U.S. Steel. **HEATING BOILERS:** Murray Iron Works. **UNIT HEATERS:** Trane Co. **UNIT VENTILATORS, RADIATORS, CONVECTORS:** Trane Co. **HEATING VALVES:** Posiseal; Conbra. **PIPING:** Crane Co. **HEATING CONTROLS:** Barber Colman. **AIR CONDITIONING COMPRESSORS:** Trane Co. **AIR CONDITIONING FAN UNIT:** McQuay. **DIFFUSERS:** Tuttle; Bailey; Titus. **PUMPS:** Taco. **SPECIAL FANS:** Sheldon Co. **FAN COIL UNITS:** International. **SPRINKLER SYSTEM AND FIRE PROTECTION EQUIPMENT:** Peerless Pumps; Standard Hose Cabinets; Viking Equipment Corp. **CEILING MATERIALS:** Armstrong Tile Concealed Systems. **MOVABLE PARTITIONS:** Steel and gypsum. **VENETIAN BLINDS AND SHADES:** Alcan Flexalure. **FINISH FLOORING AND CARPETING:** Carpet used, throughout.

EVERETT MCKINLEY DIRKSEN BUILDING. **ARCHITECTS:** Schmidt, Garden, Erikson; Mies van der Rohe; C.F. Murphy Associates; A. Epstein Sons, Inc. (A joint venture). (Materials & Manufacturers as submitted by the architects.) **CONCRETE AND CEMENT:** Paschen and Newberg. **STRUCTURAL STEEL:** Bethlehem. **CURTAIN-WALL:** Bethlehem; Cupples. **FLOOR AND DECK SYSTEMS:** Cellular steel deck. **INTERIOR PARTITIONS:** Cement block plastered. **ELEVATORS AND ELECTRIC STAIRWAYS:** Otis. **DOORS (EXTERIOR & INTERIOR):** Aetna; Pontiac Millwork. **HARDWARE (LOCKSETS, HINGES, CLOSERS):** Sargent. **PANELING:** Pontiac Millwork. **ELECTRICAL DUCTS AND WIRING:** (Header Duct by) Condufloor. **ELECTRICAL EQUIPMENT (SWITCHES, BREAKERS):** Allis-Chalmers. **LIGHTING FIXTURES, LAMPS:** Lightcraft and Garcy. **PLUMBING FIXTURES:** Kohler. **TOILET SEATS:** Beamis. **CAISSONS:** Caisson Corp. **HEATING BOILERS:** Erie City. **UNIT HEATERS:** Modine. **UNIT VENTILATORS, RADIATORS, CONVECTORS:** Modine. **HEATING CONTROLS:** Minneapolis Honeywell. **HEATING VALVES:** Crane. **FAN UNIT:** Trane. **AIR CONDITIONING COMPRESSOR:** Carrier Corp. **PUMPS:** Aurora. **DIFFUSERS:** General Register. **SPECIAL FANS:** Chicago Blower. **INDUCTION UNITS:** Carrier Corp. **FIRE PUMPS:** L.E. Courtenay Co.; Standard Hose Cabinets. **WATER COOLERS:** Dunham Bush. **MOVABLE PARTITIONS:** Aetna Steel Products.

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