

ARCHITECTURE **plus**



ARCHITECTURE plus

The International Magazine of Architecture March 1973

LIBRARY OF THE MINNEAPOLIS
COLLEGE OF ART & DESIGN

Editor-in-Chief Peter Blake, FAIA
Managing Editor Ann Wilson
Art Director Charlotte Winter
Ruth Gosser, Associate
Senior Editors Stanley Abercrombie
Ellen Perry Berkeley
Marguerite Villecco
Editor-at-Large Paul Grotz, AIA
Field Editors
Bombay Charles M. Correa, Architect
Buenos Aires Leonardo Aizenberg, Architect
London John Donat, ARIBA AAdip
Melbourne Neil Clerehan, FRAIA
Milan Vanna Becciani
Munich Detlef Schreiber, BDA, DWB
Paris Gilles de Bure
Tokyo Yasuo Uesaka, Architect
News Editor Virginia Dajani
Chief Researcher Marie-Anne M. Evans
Contributors Ivan Chermayeff
Françoise Choay
Rosalind Constable
George Cserna
George Dudley, AIA
C. Richard Hatch
Samuel Kaplan
Burnham Kelly, AIA
Walter McQuade, FAIA
Charles W. Moore
Roger Schafer
Vincent Scully Jr.
Bernard P. Spring, AIA
Advertising Sales Manager Donald T. Lock
Circulation Manager Steven R. Deedon
Production Director Elaine E. Sapoff
Publisher Richard W. Shaver

- 9 **News +**
Reports and reviews from around the world.
- 14 **An Oasis Called Soleri**
Italian-born architect Paolo Soleri has for the last 20 years been transforming five acres of barren Arizona desert into a new kind of environment.
- 20 **I. M. Pei & Partners**
The second of two stories about this unique architectural firm—its most recent and significant accomplishments in buildings and projects just completed, in process or under design.
- 26 **Urban Centers**
Boston, Mass. / John Hancock Tower
Boston, Mass. / Christian Science Church Center
New York City / 88 Pine Street
Toronto, Canada / Commerce Court
Paris, France / Tete de la Defense
Wilmington, Del. / American Life Insurance Company
Melbourne, Australia / Collins Place
Dallas, Tex. / Dallas City Hall
- 56 **Art and Building**
Wallingford, Conn. / Mellon Fine Arts Center
Ithaca, N.Y. / Herbert F. Johnson Museum of Art
New York City / Cinémathèque
Washington, D.C. / East Building—National Gallery of Art
- 68 **Housing**
New York City / Kips Bay Plaza
Philadelphia, Pa. / Washington Square East (Society Hill)
New York City / University Plaza
Staten Island, N.Y. / St. George Place
- 78 **Italian Furniture Design**
Something old, something new, something borrowed. By Suzanne Slesin.
- 84 **The Boeing 747**
With its three floors, two elevators, super-engineered kitchens, bathrooms, environmental controls, container-storage areas, and innumerable support systems, this plane may be the most interesting "building" of the decade. By Ellen Leopold.
- 101 **Letters**
- 111 **Product Literature**
- 112 **Advertising Index**

Architecture PLUS March 1973 Volume 1 Number 2.

Published monthly by Informat Publishing Corporation. Richard A. Hashagen, President; Richard W. Shaver, Executive Vice President; Paul M. Wehrin, Vice President; Richard J. Gash, Treasurer. Executive and Editorial offices at 1345 Sixth Avenue, New York, NY 10019. Phone: 212 489-8697. Telex: RCA 224232 CIC-UR.

Business Publications Audit, Inc. (BPA) applied for July, 1972. Publication available, without charge, to all qualified, practicing registered architects and/or association-affiliated specification writers throughout the world. Paid subscriptions for individuals in the field served available at an international rate of \$18/1 year, \$27/2 years, \$36/3 years. Others at \$24/1 year. Students and faculty members of accredited schools of architecture, \$12/1 year. Single copies, \$3 per issue. Application to mail at controlled circulation rates is pending at Washington, D.C. and New York, N.Y.

For all subscription information, including change of address, write Circulation Department, Architecture PLUS, 1345 Sixth Avenue, New York, New York 10019.

© 1973 by Informat Publishing Corporation. All rights reserved.

Book Review

Living For Today by Karen Fisher. The Viking Press, New York, 1972 \$14.95.

Underground Interiors by Norma Skurka and Oberto Gili. Quadrangle Books, New York, 1972 \$14.95.

Young Designs in Color by Barbara Plumb. The Viking Press, New York, 1972 \$15.95.

by Suzanne Slesin

It is safe to assume that there is a little bit of the *voyeur* in all of us. One of the least harmful and yet less readily indulged manifestations of voyeurism is to see how others live—where they keep their brooms or their pots and pans, how they stretch a one room apartment into a mansion, how they shield themselves from the outside brick wall view, or how they have the courage to adopt that screaming green for their basic color scheme. For the voyeur whose tastes run to modern interiors, the situation has been difficult. Help is finally on the way.

Three new books—Karen Fisher's *Living for Today*, Barbara Plumb's *Young Designs in Color* and Norma Skurka and Oberto Gili's *Underground Interiors*—allow a glimpse into the surprising variety of schemes that have been adopted by ingenious architects, designers, and just people.

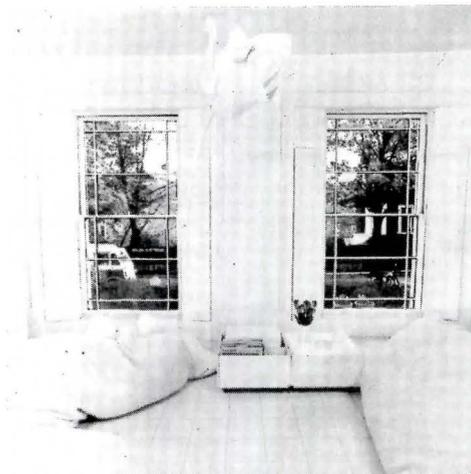
Forget the need to plough through endless formal living rooms with their studied seating groups, heavy draperies and silk wall coverings. All these books show us alternatives to the status-oriented decorated interior as well as to the now inevitable Bauhaus statement. As a group, they seem to be breathing life into the presentation of interiors and providing material for a growing number of modern interior enthusiasts. These are really a new breed of people who believe, as *Newsweek* pointed out in a recent article, that "... a house is more than a home; it is a highly personal statement."

I think that the books as a group do succeed in that they are all sensitive to this growing individualization, this movement away from possessions for possessions' sake and this disregard for status furnishings. We can in fact enjoy what other people are doing because we have grown to be freer ourselves and can respect other people's needs and creative urges. These are not how-to books, they are books about ideas—and we have learned to be interested in things that are suggested to us rather than told us. The

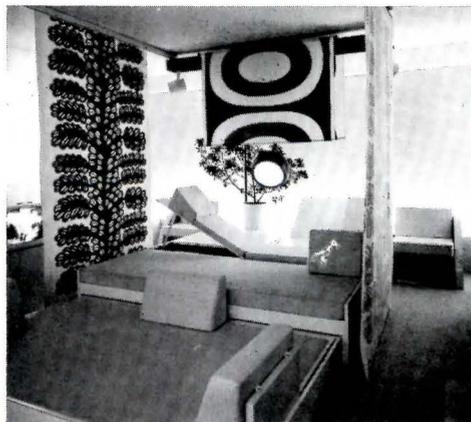
Suzanne Slesin is a freelance writer on design. Her work has appeared in major U.S. and European publications.



Bedroom in Karen Fisher's *Living For Today* uses cut-out Pop Art motifs.



Max Clandinning's London flat is one of the "environments" in Norma Skurka and Oberto Gili's *Underground Interiors*.



Romuald Witwicki's New York studio apartment is totally adaptable. From Barbara Plumb's *Young Designs in Color*.

books suggest you forget all the decorating stereotypes you have already read about and try thinking differently, and more important, do your own thing. Personalization is the key—freedom and courage help.

But, it may be that the books are talking to the wrong audience. Those who can afford to buy them may not be the ones who would profit the most from them. There is no doubt, however, that even the most knowledgeable homemaker could note a number of interesting ideas. As many architects have discovered, awareness and recognition are the beginning of acceptance.

While all three books fit into the same general category, each has its own point of view and attitude. Karen Fisher expounds on the transient nature of today's living situations. "Ours is the world of the two year lease . . . the one year job, six month fashion and three month love affair. All of us are transients in some way or other, yet we want to live beautifully—without giving up our flexibility."

Many of Fisher's interiors do in fact illustrate this point of view. I especially liked the Pop Art bathroom and Raymond Waites' diagonal graphics. Maybe I was drawn to these because of personal taste and maybe someone will prefer other things to those I have picked out. Fine. That is the point of the book.

I would nevertheless be critical of some of Fisher's inclusions. Far from being economical, they are obviously expensive (anyone who has recently priced any furniture and/or labor can testify to this) and some interiors are a hodge-podge (*rarely a positive sign*) and some so slickly done that only the most competent do-it-yourselfer could attempt a similar environment. These interiors should in fact be out of the realm of this book. There are nevertheless lots of useful, creative points and lots of lived-in residences—a rare bird in most interiors books. All in all it is a fresh and young approach.

The same can be said for Norma Skurka's and Oberto Gili's book. Here the emphasis is on (as the book is subtitled) *Decorating for Alternate Life Styles*. We wonder, and by reading the introduction learn what this is the alternate to. It turns out to be as much an alternate to the Billy Baldwin school as it is to the Bauhaus esthetic.

The authors have conveniently and very intelligently taken their interiors one step

continued on page 109



Republic lockers. Loud in one way, but not the other.

Bright. Bold. And, really, beautiful.

That's the way it is with Republic Steel lockers. Available in 19 decorator colors. No matter whether you want them in hallway style, gym style, in single, double, or multiple tier types.

But the great thing about these Republic steel lockers is that they are now much quieter.

The secret is in the new spring steel one-piece latching system we've developed that just doesn't "thump" when it's opened or "thump" as it's closed.

It's due to rubber silencers that just won't allow

metal-to-metal contact or let the doors go "bang." (As anybody knows, doors that don't slam take less maintenance and last years longer than doors that do.)

So, if you want lockers loud in one way (to please the eye), but not loud in the other (to please the ear), order from Republic.

Send for brochure L-102 that describes our whole locker line. Contact our nearby district sales office or write Republic Steel Corporation, Manufacturing Division, Youngstown OH 44505.

Republicsteel
Manufacturing Division



Efficient building idea: Recent report tells how to solve the acoustical problems of open offices.



Good news for architects who like the design freedom of open offices—but don't like the acoustics.

Tests by an independent acoustical testing agency show you can get excellent open office acoustics by using these three things (with the help of an acoustical consultant):

1) An acoustically non-reflective ceiling—so the sound won't bounce off to other areas.

2) Sound-controlling screens—

to stop the sound from going directly from one work area to another. (Either directly or by reflection.)

3) A masking sound system—technically designed to fill the sound voids without increasing the overall ambient noise level. This makes it possible to hold personal conversations in a normal voice—without being overheard.

Of all the ceilings tested for Owens-Corning Fiberglas—

including expensive coffered and baffled systems—the best was Owens-Corning's Nubby II Fiberglas* Ceiling Board in a standard grid suspension system.

If you'd like the whole story, send for our free design guide, "Achieving Acoustical Privacy in the Open Office."

Write to Mr. P. H. Meeks, Owens-Corning Fiberglas Corporation, Fiberglas Tower, Toledo, Ohio 43659.

*T.M. Reg. O.-C.F.

Owens-Corning is Fiberglas

OWENS/CORNING
FIBERGLAS
TRADEMARK ®

“O R society will never be great unless our cities are great,” he said in 1965. “I propose we launch a national effort to make the American city a better and more stimulating place in which to live. Many of you will see the day, perhaps 50 years from now, when there will be 400 million Americans; four-fifths of them in urban areas. In the remainder of this century, urban population will double, city land will double, and we will have to build homes . . . equal to all those built since this country was first settled. . . . We have over nine million homes, most of them in cities, which are run down or deteriorating; over four million do not have running water or even plumbing. . . . The old, the poor, the discriminated against are increasingly concentrated in central city ghettos. . . . Let us be clear about the core of this problem: The problem is people and the quality of the lives they lead.”

To many of our readers who live outside the U.S., former President Lyndon Johnson may have seemed something less than a dedicated humanitarian. But his achievements in U.S. domestic affairs were significant: No President since Abraham Lincoln (according to NAACP leader Roy Wilkins) did as much to advance the civil rights of blacks and of other U.S. minorities; and no other U.S. President had so keen an understanding of the needs of cities—especially the needs of the urban poor.

The legislation enacted because of Johnson’s dedication to these causes was remarkable not only for its humanity and vision; it was doubly remarkable because he was a product of the American South, and of the American agrarian tradition—traditionally anti-city. In most U.S. politicians of that combined heritage, these factors are supposed to produce racist and anti-urban bias; in President Johnson, that combined heritage produced the most energetic programs to date to cure America’s most serious racial and urban ills.

These programs—the sunny side of his monument—are now being dismantled by a successor not quite so sensitive to where it’s really at.—PETER BLAKE.

Many of the news reports and comments are from our regular field editors: John Donat (London), Gilles de Bure (Paris), Detlef Schreiber (Munich), Vanna Becciani (Milan), Charles Correa (Bombay), Neil Clerehan (Melbourne), Yasuo Uesaka (Tokyo), Leonardo Aizenberg (Buenos Aires), and from other sources. Plus correspondents are identified by their initials; other contributors by their full names. The remainder is contributed by our New York staff.



Covent Garden: 96 acres of London

In 1966 The Covent Garden Consortium was formed as a joint enterprise between the Greater London Council and Westminster and Camden to prepare a master plan for the Covent Garden area. The plan is to be implemented when the fruit, vegetable and flower market moves next year to a new site at Nine Elms, south of the Thames, after 300 years in Covent Garden.

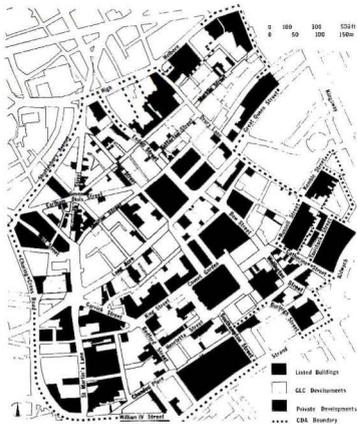
The GLC plan was for comprehensive redevelopment which paid lip service to the cultural, commercial and environmental richness of the area by preserving a “line of character” through the new development. But the plan was prepared without consideration for the community living and working in the Covent Garden area (most of whom simply wish to remain there) and would almost certainly have driven the majority out as a consequence of the high rents that would inevitably follow commercial development.

All this was happening at a time when words such as partici-

pation, conservation and environment were even penetrating to the mysterious strongholds of government, and the GLC grossly underestimated the public furor and the organised popular revolt that would greet their lavish “improvements” in an area which, because of its very seediness and run-down charms, could support a multitude of living and working styles very economically indeed. Opposition to the plan focused on the Covent Garden Community which achieved a Public Inquiry into the plan and brought about the dramatic resignation of Lady Dartmouth, chairman of the Covent Garden Committee, on the grounds that the plan she had championed would cause “irreparable damage”.

The Covent Garden campaign became the most significant confrontation between the people and the planners and commercial developers that Britain has experienced yet.

The Secretary of the Environment in his decision following the public inquiry has clearly demon-



Map of Covent Garden. Black shows buildings placed on protected list

strated that he hasn't the first idea of how to reconcile the conflicting interests of comprehensive planning, commercial development and conservation with a workable social objective.

The Minister in his wisdom has granted the GLC the comprehensive planning powers it wanted for the 96-acre site and at the same stroke imposed limitations and conditions that render comprehensive redevelopment economically and physically impossible.

He has added 250 more buildings to the "historic" list and has extended the conservation area well beyond the 25 percent originally envisaged. He has refused some road widening proposals that were critical to the plan—while retaining others that bear no relation to any overall traffic strategy for the area. He has restricted the proportion of commercial development (which was the financial base of the GLC's social amenities plan) and asked for an increase in housing and land for schools and community buildings for which there is now no means of paying.

"Garden Plan Blessed and Scuppered" ran the *Guardian* headline—and that is precisely what has happened.

It is victory and defeat for both sides. The GLC has won its comprehensive powers—but lost the means to exercise them. The community has won a substantial shift of emphasis towards conservation—but without any guarantee that the people living and working in the area will be able to afford to remain there.

As usual, the developers are laughing. They will either contribute to the comprehensive plan—what's left of it—or claim massive compensation for loss of development rights. In any case they have already bought out something like three-quarters of the area reputedly worth £5 million per acre.

What is perfectly clear is that people are refusing to take the medicine of autocratic planning, but no one has come up with an alternative view that works. The

old enemy was "piecemeal development"—and yet if you examine closely the aims and objectives of people who wish to develop an area while retaining the essential characteristics it now possesses—"piecemeal development" is actually the *objective* of their intentions.

You can try to dismiss the response of the kind of people who collectively become a Covent Garden Community by murmuring about sentiment and nostalgia. What is undeniable is the power with which convictions are held about *what is there*. In our Heroic Period all the passion and conviction was about what *could* be there.—J. D.

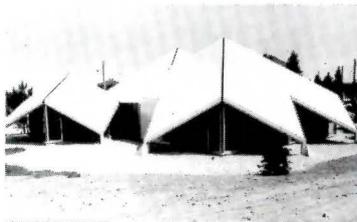
One thousand youth clubs

The French Ministry of Youth, Sports and Leisure (Secrétariat d'Etat à la Jeunesse, aux Sports et aux Loisirs) has announced the winners of its competition for the design of youth clubs. The rules of the competition, which was titled "Operation One Thousand Youth Clubs," called for something prefabricated, easy to build and very cheap.

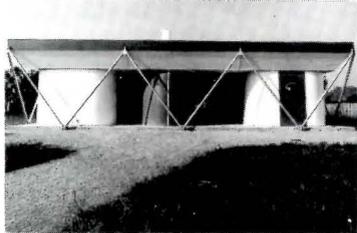
The Ministry plans to set up these clubs all over France to channel the abundant energies of youth into sports activities.

The two winning architectural firms are: Enterprise SEAL and Roland Deleu, André Goddeeris & Claude Thoreau. One example of each of the two winning designs is shown (below).—G. de B.

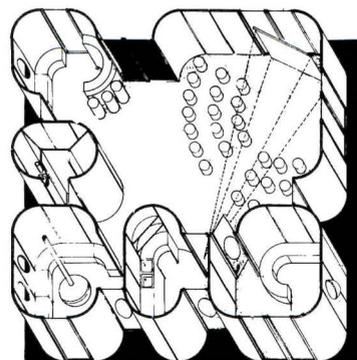
Enterprise SEAL prototype



TRIDIM prototype



Axonometric view, TRIDIM club



Federal Design Assembly

The "First Federal Design Assembly" in U.S. history will take place on April 2 and 3, in Washington, D.C., sponsored by the Federal Council on the Arts and the Humanities, under a grant from the National Endowment for the Arts.

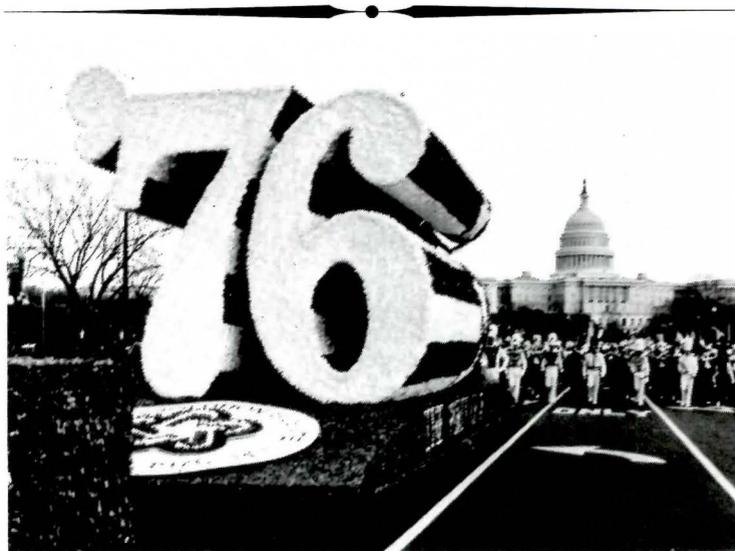
The government's intention with this Assembly is to launch a major program for improving the quality of design in Federal projects—and the Federal government is, after all, the country's largest planner, builder, landlord and printer.

The Assembly has two purposes: to communicate to everyone present, and to the country, President Nixon's concern for design improvement (as expressed in his Message on Design Improvement, in May 1972); and to develop a greater awareness among decision-makers at the Federal level of the

importance of design to their various agencies.

According to advance notice, the message of the Assembly will be "that effective design of public services is in itself an essential public service; that design is not a luxury or a cosmetic addition; and that good design can save money and time and enhance the effectiveness of Federal programs." Co-chairmen of the Design Assembly are Ivan Chermayeff, graphics designer, of the firm of Chermayeff & Geismar Associates; and Richard Saul Wurman, of the architectural and urban planning firm of Murphy Levy Wurman.

The Assembly itself doesn't sound too surprising; perhaps the most surprising thing is that it is being held at all. And some people believe that if anything substantial comes of it, that will be even more surprising.



The Spirit of '76

The American Revolution Bicentennial Commission—an organization that seems to be moving at a certain, deliberate crawl—has been very busy these past six years planning for a big bash to be held in 1976 throughout the U.S. To date, the Commission has:

- installed itself in some very nicely furnished spaces on Washington's Lafayette Square;
- designed itself a letterhead and a postal stamp (the designs were, in fact, commissioned from Chermayeff & Geismar, of Manhattan, and they look neat);
- persuaded some big baking companies to bake zillions of red-white-and-blue birthday cakes in 1976;
- arranged for baseball and football spectacles in Philadelphia in 1976 and televised by satellite to an assuredly mystified world;
- commissioned a prototype for a series of "Bicentennial Parks" designed by Davis/Brody, architects, and intended to establish standards to be emulated (hopefully) in all the 50 states of the Union;
- commissioned some feasibility

Saying it with flowers

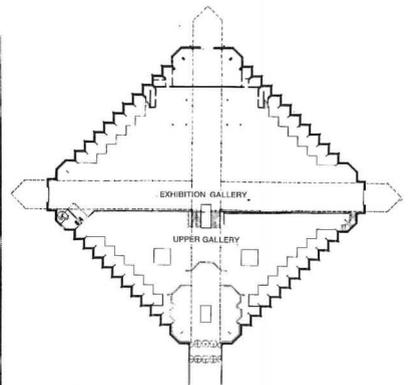
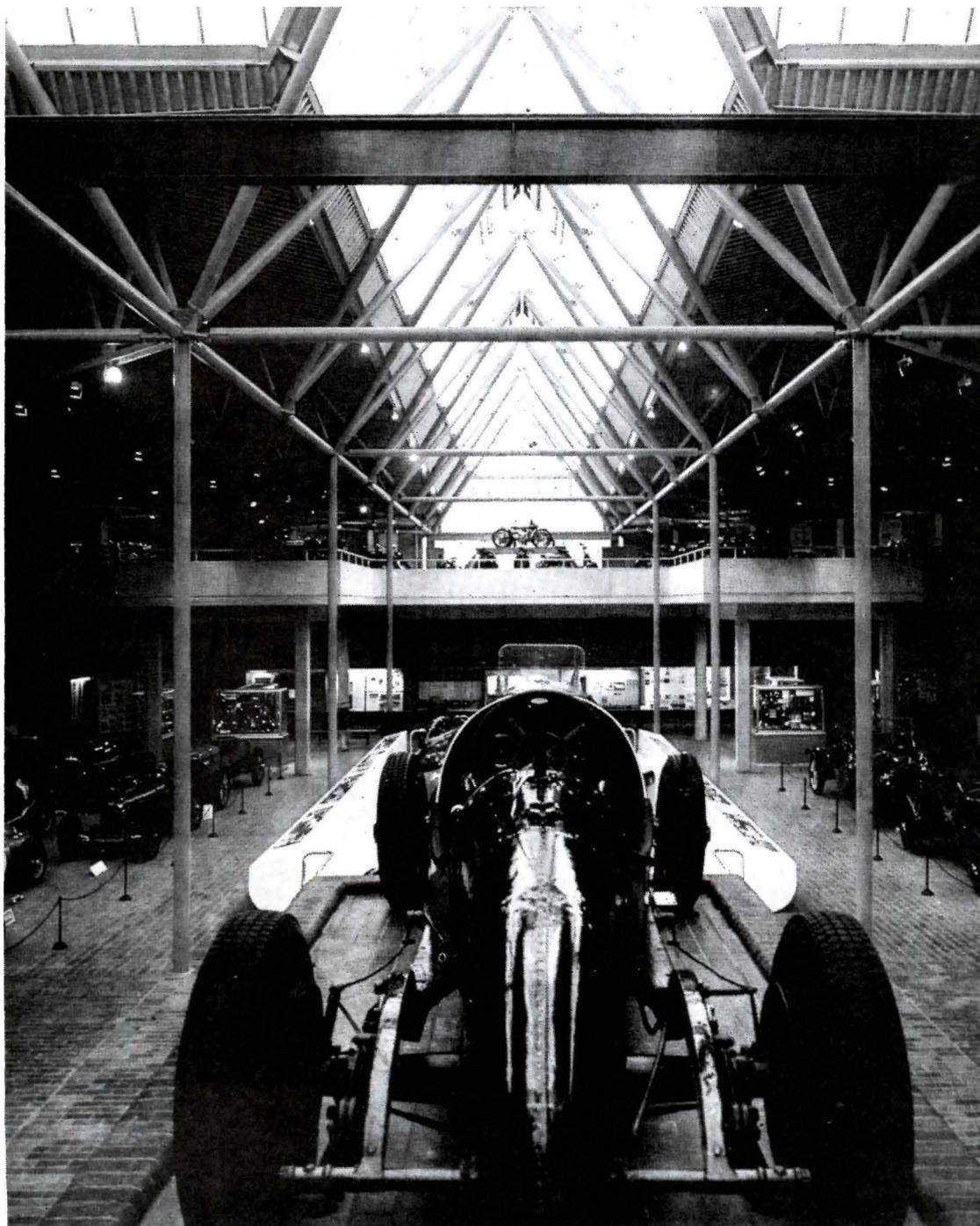
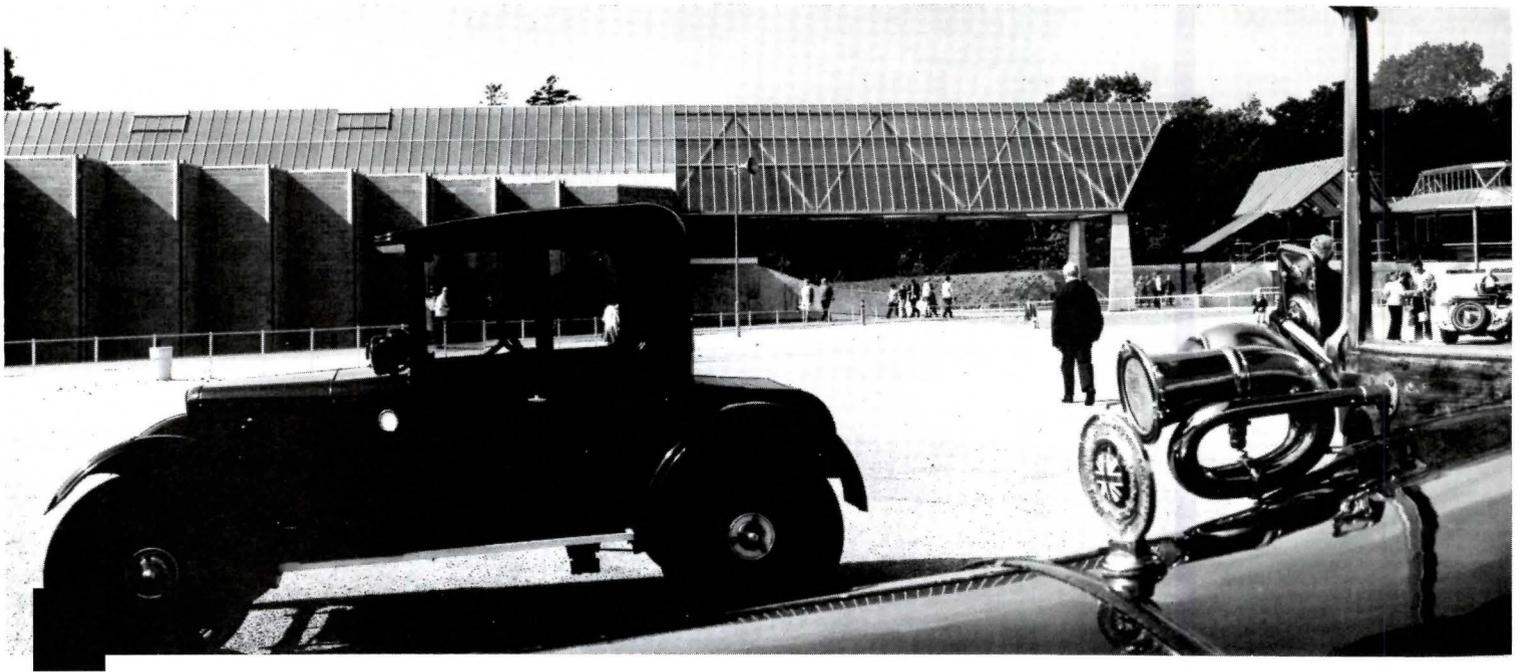
studies to find out if a Bicentennial is, in fact, due in 1976;

- talked to a lot of politicians and strangers to get them involved;
- and looked at quite a few potential "Bicentennial Park" sites.

Then, in January, at the second inauguration of Richard M. Nixon, the Commission rolled out a magnificent paper-flower float in the shape of a huge "76" to remind Mr. Nixon of its existence.

Whereupon Mr. Nixon (having been duly reminded) sent legislation to the Congress that would abolish the Commission and replace it with a seven-member "administration" answerable only to the White House.

If Congress goes along with the President's plan, there will be need for a new letterhead and for other graphics. There may also have to be more feasibility studies and more prototypes and, conceivably, some more cakes and some more floats. After which it will be time to celebrate the nation's *Tricentennial*—if, indeed, there is anything left by then to celebrate.



Beaulieu, Hampshire

England's National Motor Museum in Hampshire is one of four buildings of a complex on the Beaulieu Estate—110 acres surrounded by woodland, parkland and farms. The building is square, the shape chosen for its economical perimeter wall, and for flexibility in arranging future exhibits. The diagonals of the square are defined by triangular, double-pitched skylights that follow those diagonals and intersect at the center. Generous daylight is thus furnished, while protecting the automobiles on exhibit from direct sunlight. One of the diagonals has a monorail running through it supported on its own columns, the rail sitting just below the main roof. The exhibit space is divided into four triangular sections—vintage cars, veteran cars, racing/sports cars and commercial vehicles. Construction is of reinforced concrete blockwork; the steelwork is exposed, and painted orange. Architects are Leonard Manasseh and Partners.



The Guggenheim Museum now

Altering Wright

Last month, Thomas Messer, the director of the Frank Lloyd Wright-designed Guggenheim Museum in Manhattan, announced that he was altering the building by filling in a part of the ground floor now used as a porte cochere. The area is to be glassed in to create some "badly needed" public eating facilities.

The building is, of course, the best piece in the Guggenheim's fine collection. One wonders if altering so important a collector's item will set an interesting precedent. For example, Tom Messer's museum contains a number of important paintings by Wassily Kandinsky; will they now be altered to blend more effectively with other canvases on display? Or will some of them be cut down in size (or cleverly enlarged) to fit the walls on which they hang?

Luminomilan gets the ax

In December of last year, the city of Milan decided to call attention to its problems of smog and pollution by inviting Artist Bruno Contentotte and Architect Aldo Jacober to make some sort of visual statement describing these problems.

This is what Contentotte and Jacober came up with. At the center point of Milan's Galleria, they

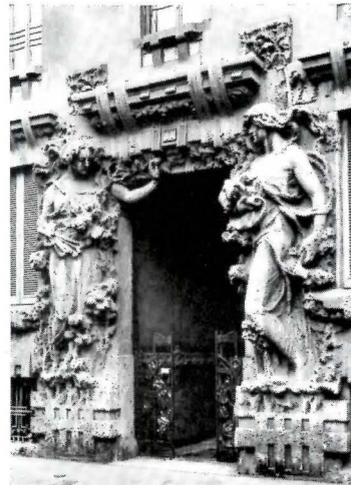
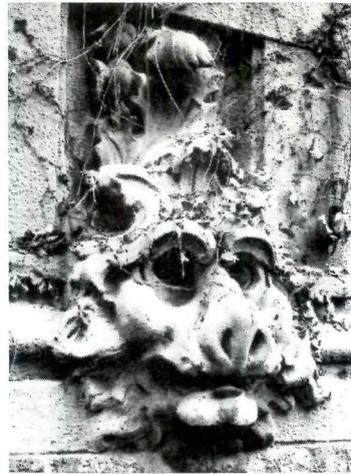
set up a small translucent cube (below) containing a couple of trees (nature protected from smog, etc.), which was then placed on a rainbow-bright platform with the message "colors, air, water, sound" (elements of nature we should protect, etc.). The public was invited to observe the cube, take in its message, and then follow a wiggly umbilical cord, also rainbow-hued, on out of the Galleria to a larger cube set at the feet of Master Naturalist Leonardo da Vinci in the Piazza della Scala—the square with the world-famous opera house.

Contentotte and Jacober, with Architect Castiglione, set up 40 slide projectors to light up the square with shifting colors. During the evening, the slides—or images—each lasting 30 seconds—that is, 26,000 images per hour—were electronically changed and synchronized with 30-second catchy phrases from operas to be performed at La Scala during 1973.

The exhibit was installed for the express purpose of inviting public opinion, but unexpected flak came from other quarters. The Director of La Scala would not allow his opera house to be doused by its floodlights; La Scala, like most famous buildings and monuments in Italy, is lit during the evenings. Other buildings, too, would not keep their front rooms dark—so the *son-et-lumière* was washed out by the competition.

And the public was outraged. In 1971 they had similarly protested Artist Christo's wrapping of Leonardo; they didn't like that glossy cube at his feet either. So the exhibit closed prematurely.

One response was favorable: The Italian Art and Landscape Foundation in New York City has invited Contentotte and Jacober to mount a similar exhibit to coincide with *MORE STREETS FOR PEOPLE*, a program scheduled to open May 3 to celebrate Mayor Lindsay's Madison Mall.—V. B.



Three examples of Liberty Architecture

Mostra del Liberty Italiano

Milan had an excellent exhibition from December to the end of February in the Palazzo della Permanente focusing on the design period known as "Liberty". In English that's pronounced art nouveau.

The collection, assembled after two years of intensive research into private collections, cemeteries (a rich source) and abandoned buildings, consisted of posters, sculptures, glass objects, and photographs of architectural ornamentation.

All the selected material is dated 1895 to 1915: one of the organizers of the exhibition, Professoressa Rossana Bossaglia of the Department of Art History, University of

Pavia and Bergamo, said that anything created before or after those years cannot be truly called "Liberty". The pieces in the show were divided into four groups: architecture, figurative arts, graphics and industrial design.

It is estimated that 2,000 Liberty buildings still exist in Italy, though some of the more important ones have been demolished in the relentless pursuit of progress.—V. B.

Buenos Aires Music Center

The competition for this structure, organized by the municipality of Buenos Aires, had as its objective to provide the city with a center for the presentation of musical concerts in the sophisticated manner of Philharmonic Hall in New York City, or the Royal Festival Hall of London.

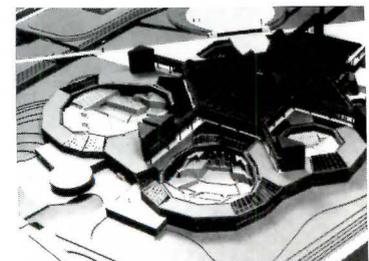
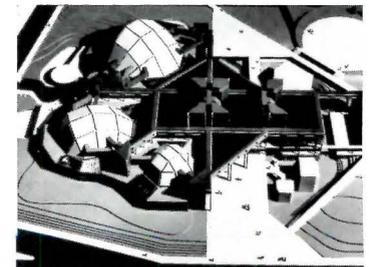
The first prize was awarded to the architecture firm of Miguel Baudizzone, Antonio Diaz, Jorge Erbin, Jorge Lestard and Alberto Varas.

Three multifaceted domes will contain the theaters: one with 3,000 seats for choral groups, one with 1,800 seats for symphony orchestras, and an intimate hall with 500 seats for soloist and chamber music.

The area open to the public includes foyers, cafeterias, restaurants, lounges and a room where critics and members of the press can hide out during intermissions. Technical rooms will be equipped with radio, television and taping facilities. The administration area houses offices and lounges for the employees.

With its location on a large site in a residential section of the city, the jury felt this entry offered the most coherent and functional solution: great ease of access and egress in the public areas and ample freedom of movement for administrative personnel. The jury showed much interest in the proposed structural system.—L. A.

Model of Argentina's Music Hall





Bombay, India

When our Bombay Field Editor Charles Correa sent this report on the work of Indian Architect Shivnath Prasad, he included a Mahabharata legend to describe the work of Prasad; it was not intended for publication. We reproduce it in the belief that our readers will find it as charming as we did.

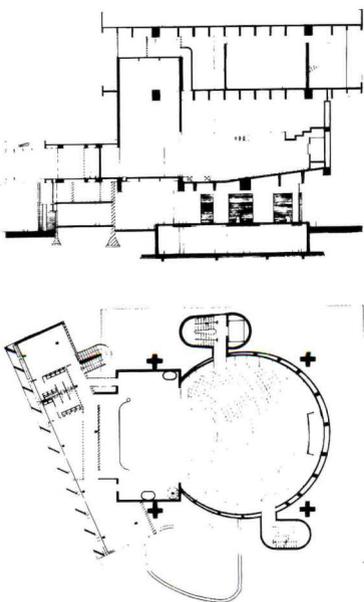
One day, when the famous Prince Arjun was in the forest practising with his bow and arrow, he and his friend heard a dog barking close by. They were trying to figure out how to keep the dog quiet, when suddenly an arrow shot through the forest and wove through the dog's teeth in a deft and complicated way, which stopped him from barking without hurting him at all.

Arjun and his friend were amazed: this obviously was the work of an archer of the very highest quality. The next minute they found the archer himself, a young boy from the untouchable caste. Arjun was astounded that such a boy could have learnt archery. When asked who was his teacher, the boy said, "Drona", the most famous archer in the land. Now Drona was also the guru of Arjun and it was quite impossible that he would accept an untouchable as a pupil. So Arjun asked the boy how he had managed to meet Drona, and the boy replied that he had never in fact done so, but that he had made a clay image of the master. Every day he practised in the forest in front of the image, and he told himself that the great Drona was watching him. This is how he had learnt.

Prasad has never been anywhere near Le Corbusier. He seems to have picked up the idiom by a process of osmosis. But he has mastered more than just the vocabulary; in all his work there is a poetic impulse which would do credit to the guru himself. He works with one or two assistants and makes all the drawings (including the detailed working drawings) himself. His output is really as personal a product as a piece of handcraft or landloom. The devotion and humility of the true artist is an inextricable part of—in fact perhaps it is the wellspring of—his profound talent. Such a man is Shivnath Prasad.—C. C.

The design for the Indian National Theater (above, and plan) satisfied an extensive program on a tight site. The square top floor, which houses a small hall for films, rehearsal rooms and dormitories for visiting artists, rests on four cross-shaped columns, releasing the ground floor area for the art gallery, restaurant and open-air exhibition spaces. The large drum contains a 600-seat auditorium.

continued on page 92

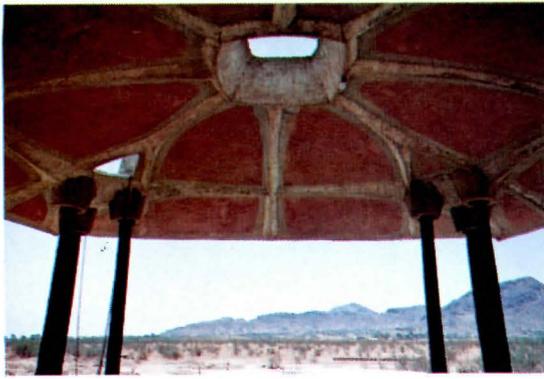


The Institute of Chartered Accountants Annex (right) is an extension of an existing structure. Vertical brises-soleil, strangely reminiscent of Le Corbusier, are an accommodation to the climate.

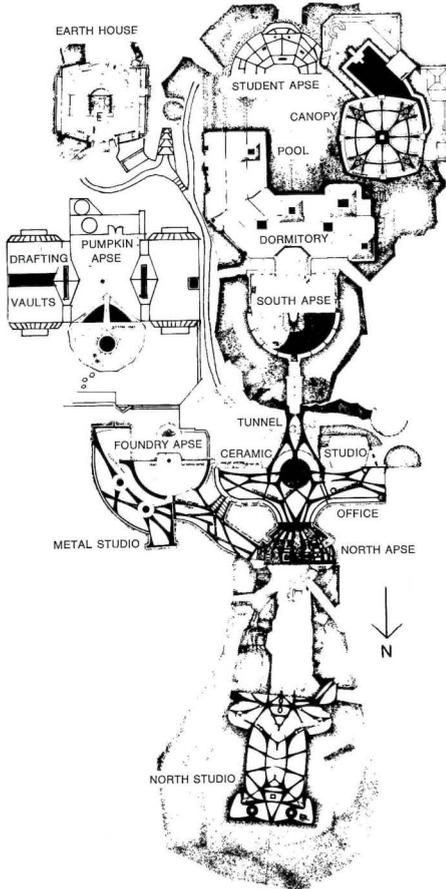


A s c led So ri





Aerial view of Soleri's oasis shows workshops, studios, earth houses and original owner's ranch house at upper right. The photo at left shows the concrete canopy that shelters the pool. It is supported on wooden poles. Diagrammatic plan of the oasis, as drawn by Soleri, is shown below.



In the desert that is Scottsdale, Arizona, Paolo Soleri, the Italian-born architect who spent some time at Frank Lloyd Wright's Taliesin West, bought himself five acres of barren land about 20 years ago. The land had on it a routine ranch house built by the previous owner, and many layers of dust. It did not even have an address.

Today, those five acres in the Arizona desert have been transformed into an oasis of beautiful forms and spaces and plants. It is an oasis peopled by young men and women from all over the world, whose desired lifestyle has drawn them to this strange little paradise created by its inspired designer. It is a wonderful place, unlike any other to be found in the U.S.

Soleri, who makes beautiful drawings of ideal cities on seemingly endless rolls of paper, is not a theoretical architect by any means. He does his own building and he built many of the shell-like structures in this little paradise with his own hands, with the help of many young people who chose to join him. The way he built these shells is this: He made molds of sand in the desert and covered them with reinforcing mesh and concrete. Then, after the concrete shells had hardened, he excavated the sand that had formed them using a little bulldozer to do the job. Then he completed the concave bowls under those shells with concrete also.

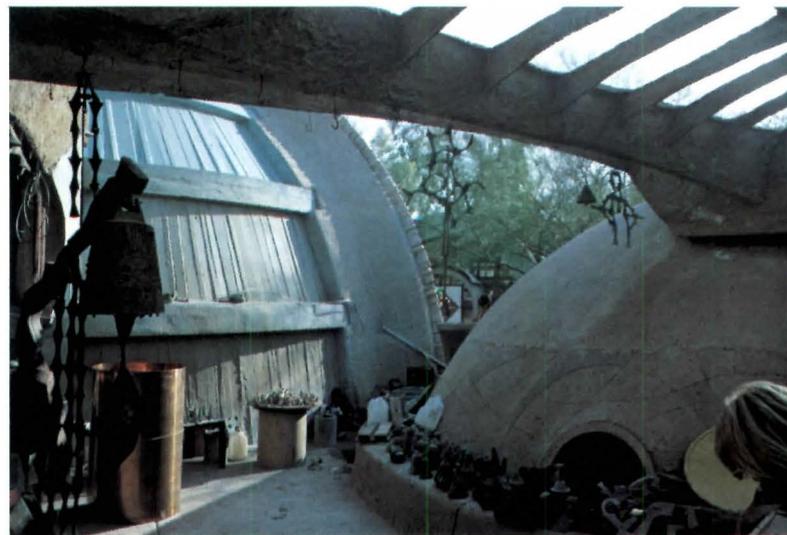
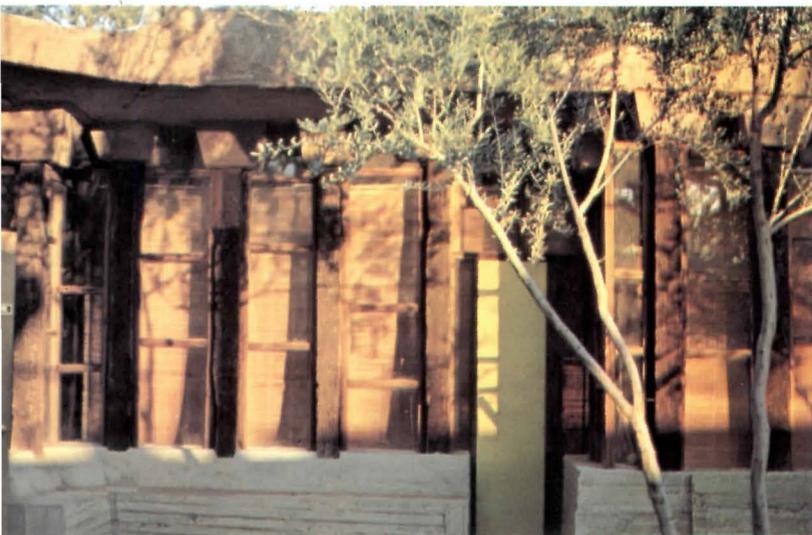
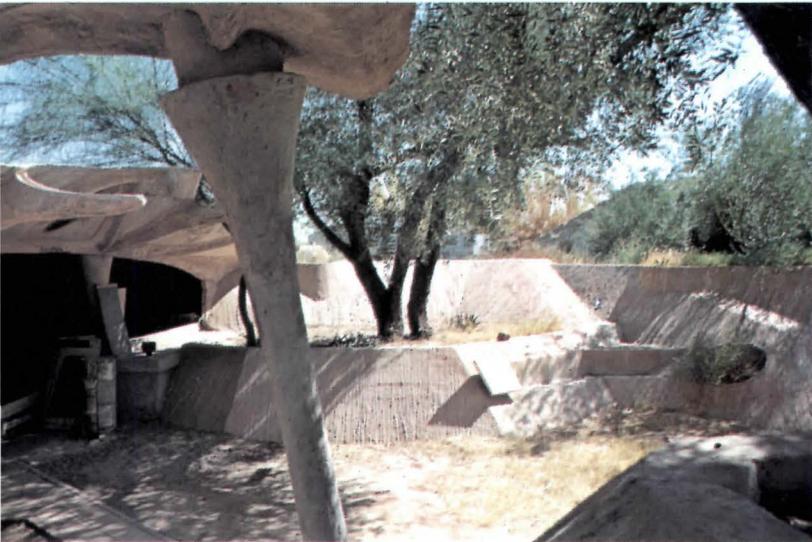
Here and there, Soleri used precast elements—large sewer pipes, or slabs. Here and there, also, he poured roof slabs and jacked them up on poles. The openings in the concrete would then be filled in with glass and other materials.

The buildings that make up Soleri's oasis shelter some of his apprentices and other associates; they also house drafting rooms and model workshops. And a sizeable portion of the oasis is taken up by the various facilities used to make Soleri's famous bells of clay and of bronze. The sale of these bells that tinkle melodiously in the wind is Soleri's primary source of income.

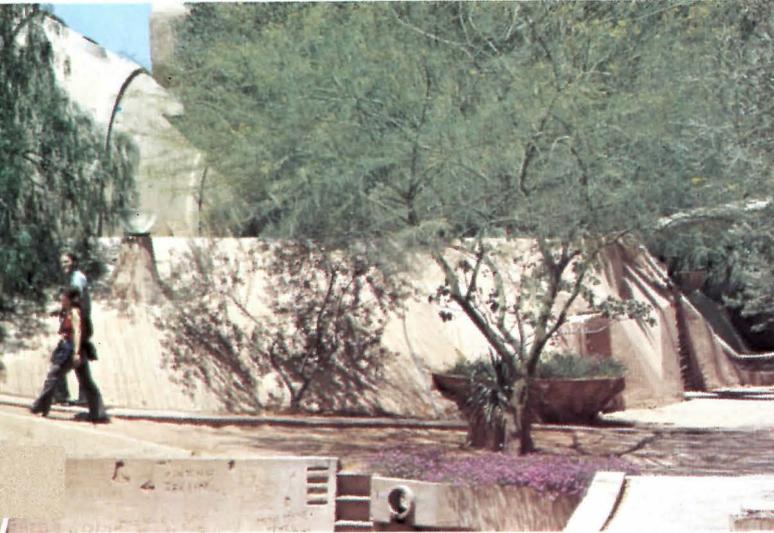
Whatever Paolo Soleri is able to earn with the making of these bells, and by teaching and lecturing and other means, he plows back into a heroic experiment on a mesa an hour's drive north of Scottsdale—a "new town" called Arcosanti, now rising slowly as 60 or 70 apprentices come each year to dig foundations, precast concrete, and hoist great slabs into the air. When Arcosanti becomes habitable, Soleri and his family will move north from the little oasis in Scottsdale. But that may not be for some time.

It is just as well, for Soleri's oasis is a wonderful environment in which to weather any kind of storm. It is its environmental quality—more even than the strangely haunting forms of the buildings that have grown there—that is perhaps its most impressive aspect. Long before environmental concerns became a fashionable preoccupation, Soleri understood that to build organically was to build *with* Nature, not *against* her. His caves and pools and shells and gardens in this desert are not isolated works of architecture, but intricate and connected organisms that have grown up around his life and work. Although Soleri's oasis owes much to the thinking of his former teacher, the expression is entirely personal—not a monument, but a very genuine act of faith produced by one man who decided to shape his own world, and did it, really, without any means at all except his energy and his vision.

Views below (first row) show formed silt walls used in landscaping, and interior of ceramic studio; (second row) entrance to the oasis, with leg of north studio at left, and roof detail of ceramic studio; (third row) exterior of dormitory, and metal bell casting area.

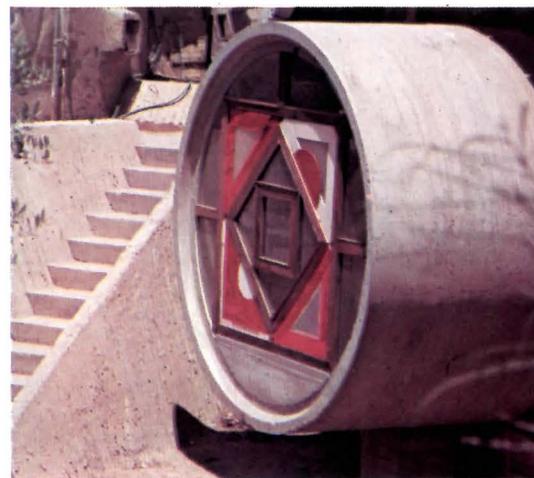
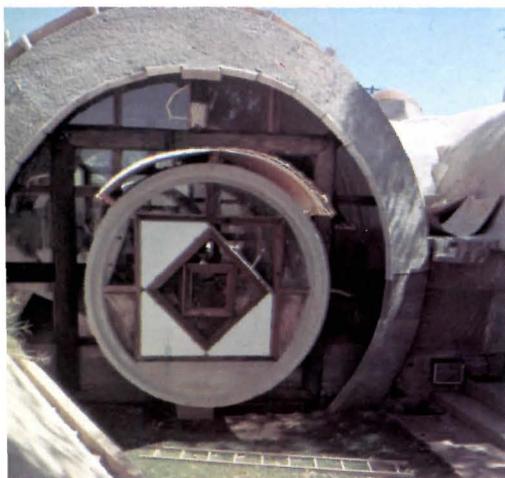
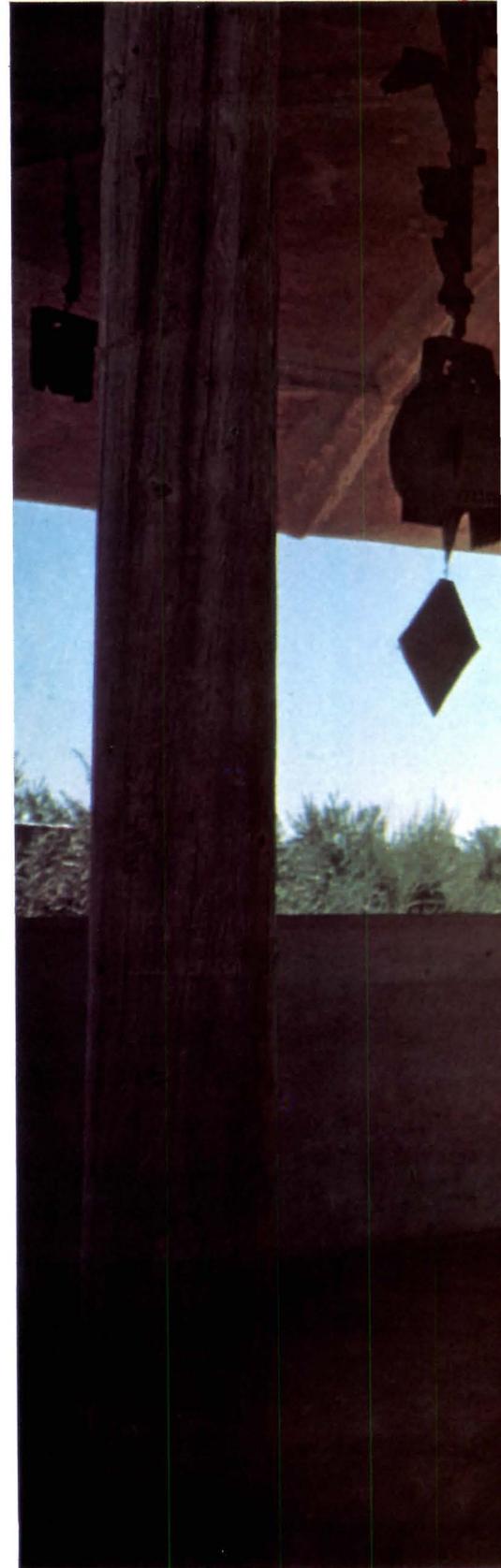
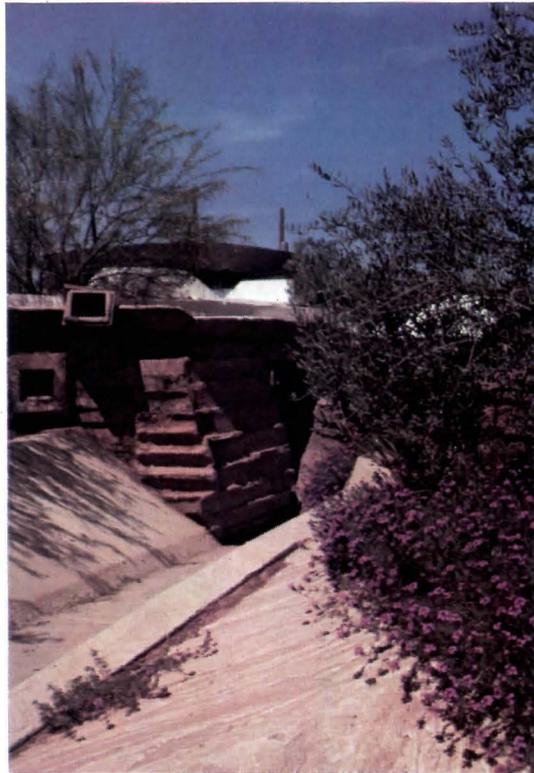
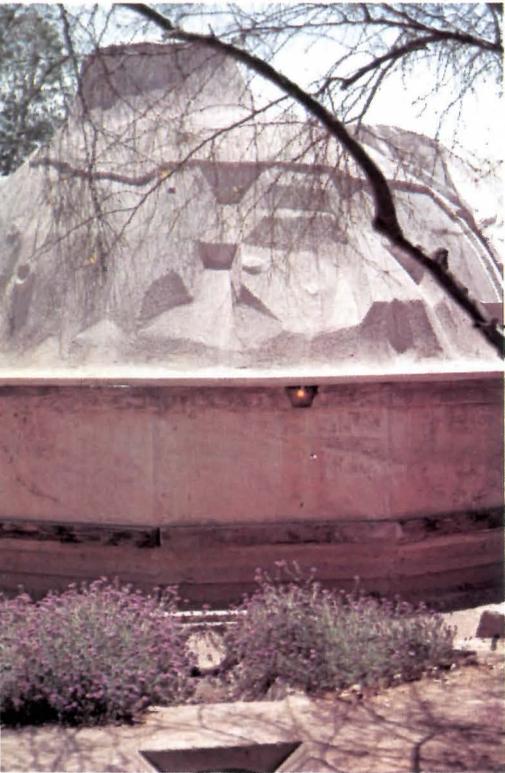


Top row shows the tunnel seen from front of foundry apse, and the metal foundry studio; (second row) view into the tunnel from the ceramic studio, and the roof of the metal foundry; (third row) the south apse seen from dormitory roof, and the metal bell casting operation watched by visitors.



Below left, top to bottom: view toward pumpkin apse from ceramic studio, interior of model building vaults (with sewer-pipe windows), and same window seen from the outside. Second row: entrance to dormitory as seen from the drafting vault, an interior view of the model-making vaults, and a close-up of one of the sewer-pipe windows. Large photo at right: the pool with its pole-supported concrete canopy, with the student apse beyond.

Photographs: Annette Del Zoppo







I. I. PEI & PARTNERS

General Partners

Ieoh Ming Pei FAIA
Eason H. Leonard FAIA
Henry N. Cobb FAIA
Araldo A. Cossutta AIA

Associate Partners

Leonard Jacobson AIA
James I. Freed AIA
Werner Wandelmaier AIA

Senior Associates

Theodore J. Musho AIA
James P. Morris AIA
Robert Lym
A. Preston Moore AIA
August T. Nakagawa AIP
Shelton R. Peed AIA
Kellogg Wong AIA
Pershing Wong AIA
Michael D. Flynn
Harold Fredenburgh AIA

Associates

Owren J. Aftreth
Lien C. Chen AIA
Theodore A. Amberg AIA
Paul E. Crocker, Jr.
William J. Jakabek
John Laskowski
Bernard Rice
Michael Vissichelli
Bartholomew Voorsanger AIA
Ralph D. Heisel AIA
John L. Sullivan, III
Robert C. Bates AIA
H. Alan Hogle AIP
Robert H. Landsman
Joseph Morog
F. Thomas Schmitt
Abe Sheiden
Richard Smith CSI
Yann Weymouth

Business Manager

Robert J. Hagelin

Last month's issue of PLUS contained an account of the motivations, the workings, and the very unusual attainments of I. M. Pei & Partners—a firm that perhaps, uniquely in the U.S., combines architectural excellence with the broad operational resources of a very large, American office.

This month's issue contains the second half of that story: the most significant, recent accomplishments of the firm—buildings and projects recently completed, or about to be, or in the design stage.

This story is told in detail, and in three parts, on pages 20-77. It documents, I think, what was claimed in the earlier article: that the Pei firm may, quite possibly, be the very best fraternity of architects functioning in the U.S. today—with the evidence visible not only in its own country, but also in Canada, France, Australia, Singapore and elsewhere—or about to be visible there.

Before documenting what has surely been evident to many critics for a couple of decades, it might be useful to look at the record of the firm's work in the past.

It is a record that began in 1948, when Ieoh Ming Pei became Developer William Zeckendorf's in-house architect. Pei was all of 31 years old at the time—straight out of M.I.T. and out of a teaching-stint at Harvard; Zeckendorf, one of the most imaginative U.S. developers of this century, hired Pei and gave him almost unlimited opportunities to project, plan and design.

Pei, in turn, began to surround himself with former students and

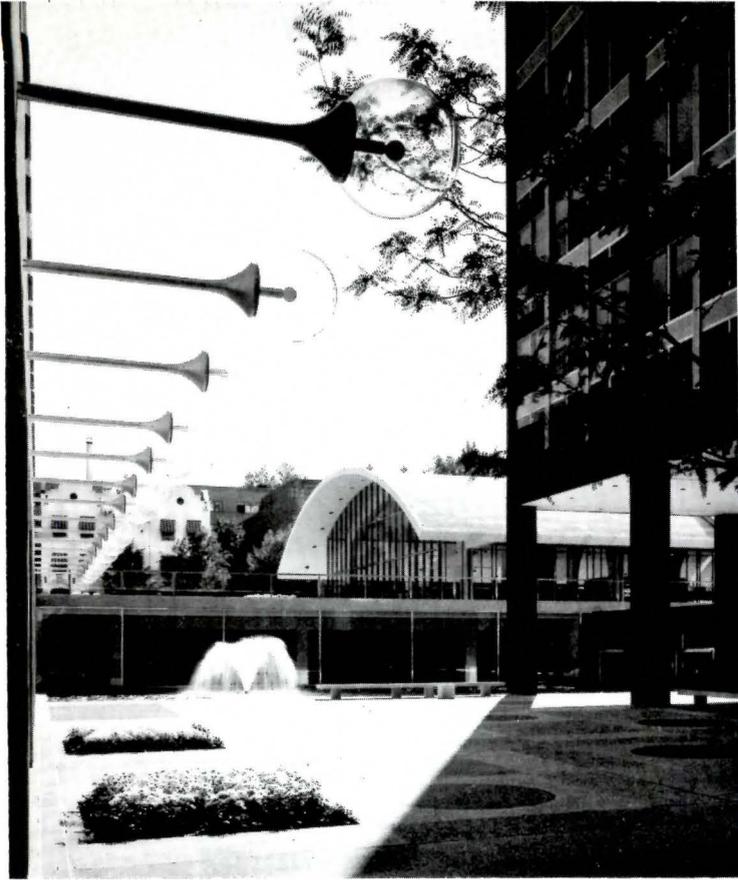
other kindred spirits and set up shop on Madison Avenue in Manhattan. The first projects were pure fantasy—but what fantasy! The Helix apartment tower may have been the best of those, but there were others, many of them never built.*

But then, in 1952, life became real for Pei and his growing band of associates. Zeckendorf decided to zero in on Denver, Colo., then a quiet, conservative town that might, conceivably, drift into suburban coma unless given an infusion of downtown energy. Zeckendorf's prescription: build a prestigious new office center across the street from the beautiful old Brown Palace Hotel—and a new commercial center (department store, restaurant, hotel) two blocks to the south. Together, these two developments would spark a major downtown revival, so Zeckendorf thought.

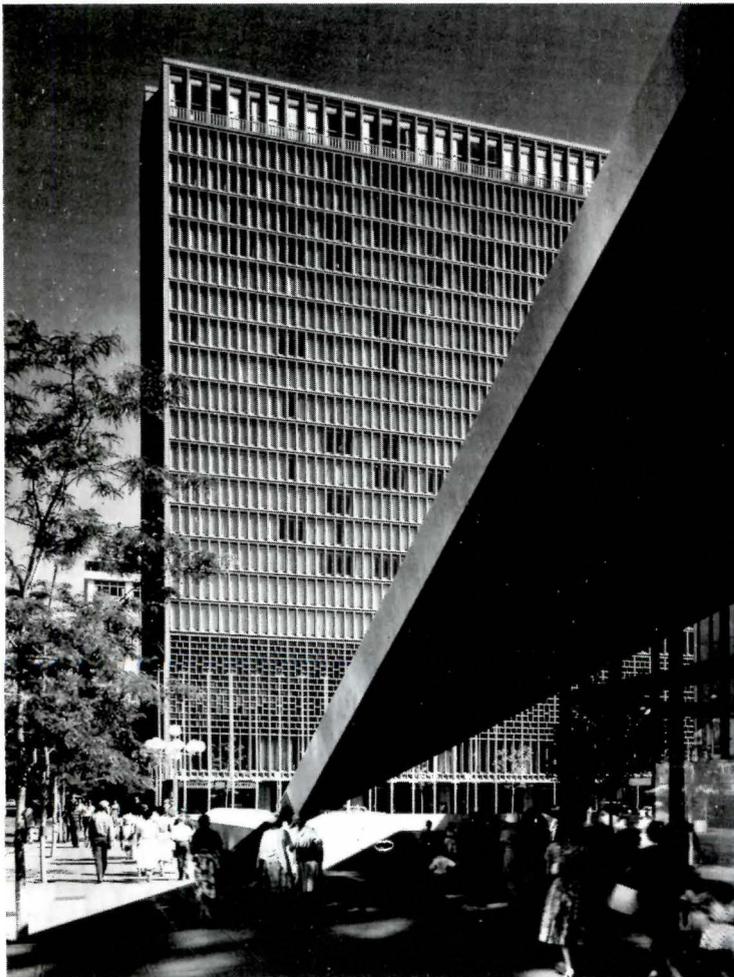
Local and out-of-town experts thought he was out of his mind. Today, Zeckendorf's only regret may be that he did not take even greater risks. For Denver's downtown has become one of the most active urban areas in the U.S.

A good part of the credit is due to Zeckendorf's architects. In both of their Denver projects, I. M. Pei & Partners created not only buildings of considerable quality—but, even more importantly—urban spaces of great generosity that continue to attract Denverites. And these spaces—as the architects learned from Zeckendorf

*These early projects have been so widely publicized the world over that they are shown here only in marginal illustrations, as reminders to our readers.



Above, Mile High Center, Denver, Colorado, completed in 1955. Below, the Denver Hilton, with its square and May Co. store visible at right. This was completed in 1960. Photograph: © Ezra Stoller



—can generate not only pleasure, but also generate further high-quality development around their fringes, and thus higher tax revenues to their cities.

Several years later, Zeckendorf descended on Montreal—a city then also rather somnolent, but with opportunities for self-renewal that were, apparently, evident to him but to hardly anybody else. Through a combination of circumstances described in several earlier publications, former railroad yards and other properties suddenly became available just to the west of Montreal's old downtown area—and there were people of means and of imagination at the heads of just the right banks and railroads (at just the right moment) for Zeckendorf to create a sort of *ad hoc* consortium that was willing to collaborate for the mutual benefit of its members and their city.

It was, in short, once again a case of Zeckendorf's imagination in the face of typical "expert" skepticism. But it was, also, again, his architects who gave his vision a persuasive form. Design Partner Harry Cobb, supported by Planner Vincent Ponte, created Place Ville Marie—an important, new office complex on top of a multi-layered platform containing a pedestrian shopping concourse with vehicular service routes on lower levels.

But then Cobb and Ponte extended that Rockefeller Center-type complex northward and southward to create or project a huge urban organism that would tie together office buildings, hotels, department stores, and other existing (or planned) downtown facilities by means of a remarkable circulation network that joined new and old transportation systems (suburban railroad lines, the Metro, the Trans-Canada highway, bus lines and so on) and sorted them out on separate levels (see opposite page).

Place Ville Marie was, and continues to be, a powerful generator of urban form. And though some of the new buildings plugged into this urban organism will not make the history books, the basic, organizational principle has profoundly changed the direction of Montreal's growth: several important, new centers of residential and office space have sprung up in that city since the initial PVM complex was completed in 1962, and every one of them has been plugged into mass-transit facilities, into highway grids, and into pedestrian concourses lined with shops. (The few new buildings or centers that have not learned the lessons of the PVM organism are almost invariably in financial trouble.) Montreal's downtown, today, is a lively and vibrant place—in great part because of what was generated by PVM.

In the years that preceded and followed PVM, the Pei firm was deeply involved in all manner of urban redevelopment. They were the master planners for Boston's Government Center—a plan now almost fully realized by such luminaries as Kallmann & McKinnell, Edward L. Barnes, The Architects' Collaborative, and others. At the time, U.S. planning agencies felt that the planners of such a development should not be the architects of any part of it—the reason being, it seems, that this might constitute some peculiar conflict of interests. Thus the Pei firm, while in effect designing the spaces and volumes of the Government Center, was ineligible to design any of its buildings. The fact that the Center turned out to be a more than creditable complex, despite the absence of design continuity, is a tribute to the strength of the original concept.

Out of such work in urban redevelopment in Boston, in Washington, D.C., in Oklahoma City and elsewhere—and out of much work in the difficult area of housing—the firm gained a reputation that led to such significant projects as the Christian Science Center in Boston, and to the Dallas City Hall. "When we were interviewed in Dallas," I. M. Pei said recently, "they asked us how we would approach the problem of the City Hall. We said that we would want to make a very thorough environmental study of the entire area and its relationship to the rest of the city—before we designed anything at all." That, it seems, was what convinced the city fathers that they should retain the Pei firm. What the architects' study showed, and how it led to crucial architectural and urbanistic decisions, is described on pp. 52-55.

Still, PVM in Montreal must have established I. M. Pei & Partners more solidly on the urban design scene than any other single

effort the firm has undertaken. The PVM example has influenced urban design philosophy far beyond the city limits of Montreal or, for that matter, the borders of Canada. Fifteen years after the core of PVM was planned, urban designers in New York, London, Berlin and elsewhere are offering incentives to private developers if those developers agree to plug into mass-transit facilities, to create pedestrian systems, to provide shopping facilities and so on. It is important to realize that, without any official planning legislation to back them up, I. M. Pei & Partners, in Montreal, achieved much of this basic integration of the urban infrastructure through the only clout they had at their disposal: their persuasive designs, and their persuasive urban diplomacy.

It is relatively easy to design and build an urban organism for a single, powerful client, or in a New Town in the middle of nowhere; and it is relatively easy to design an architectural jewel that does not really plug into the infrastructure of its city. What the Pei firm has done so impressively is to persuade the often warring merchants in a capitalist society to do, of their own free will, what is usually done elsewhere, in more severely managed societies, by government fiat—and to produce first-rate architecture to boot.

Out of PVM came the new project in Toronto, for the Canadian Imperial Bank of Commerce (CIBC), whose chairman, Neil J. McKinnon, had first been dubious of the validity of the PVM system, then became convinced by its success, and finally retained I. M. Pei & Partners to design his new CIBC Center. (CIBC, again a first-rate complex and space intimately related to the existing urban fabric, and plugged into Toronto's urban infrastructure, is described in detail on pp. 38-41.)

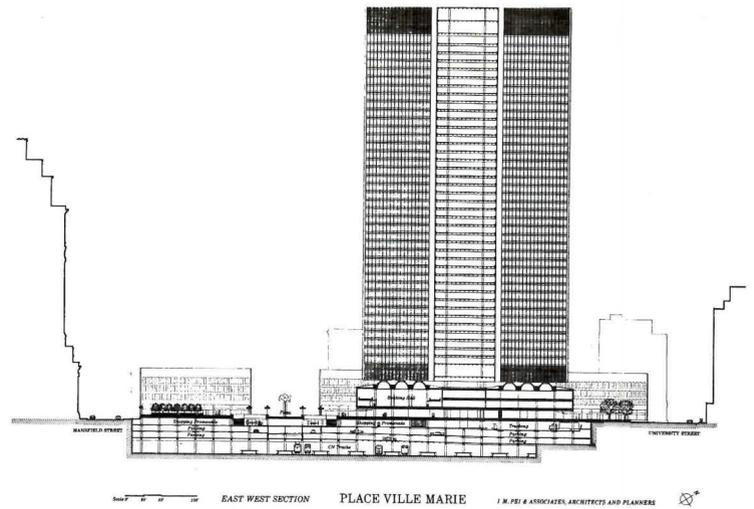
And out of PVM came, also, some of the impressive new urban organisms created by the Pei partnership in such far-flung places as Boston, Dallas, Paris, and Melbourne. These, and others, are described on the pages that follow.

But urban diplomacy in a free-enterprise society is not the only expertise the partnership has attained—though it may be the most unusual expertise for any architects to have mastered. There are other areas in which I. M. Pei & Partners have refined and polished the vocabulary routinely expected from our profession.

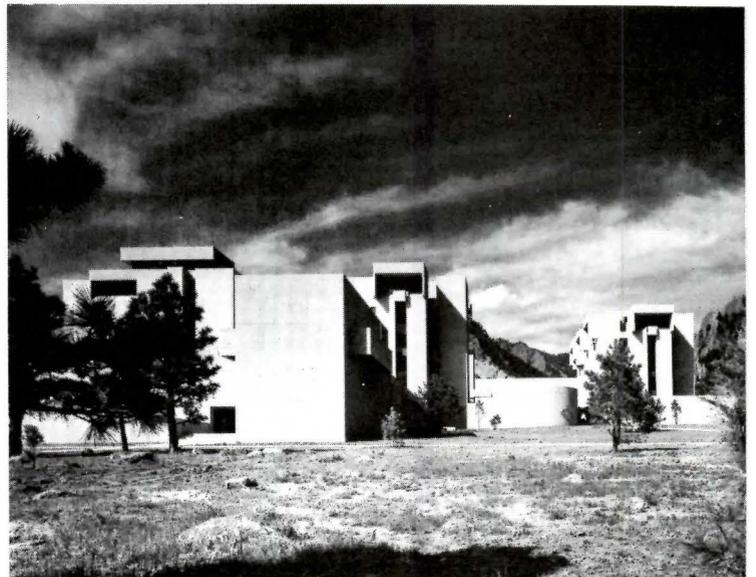
For example, from 1958 on, the firm has become more and more deeply involved in the design of urban housing. This involvement, and, indeed, commitment, has, in turn, led the Partners into the exploration of modern concrete technology—precast, as well as cast-in-place. Much of this is described on pp. 68-77, but some of the experimental work these architects have done in exposed concrete was not, in fact, related to housing at all.

In 1966, when Pei (as design partner) completed the first stage of the laboratory complex for the National Council for Atmospheric Research (right), in Boulder, Colo., he felt that the new buildings, on a spectacular site against a backdrop of the Rocky Mountains, should be constructed of poured-in-place concrete with an aggregate taken from the Rockies themselves. This made good sense, both in practical and in esthetic terms. But some minor problems developed—problems of detail and finish that few people except Ieoh Ming Pei would really notice. But he did, and they bothered him. "We have really done a lot of pioneering work in exposed concrete," he said recently. "And we may have made some mistakes. But I think we have learned a tremendous amount from our mistakes—and from our successes as well. I really think we know more about how to handle and mix and finish exposed concrete today than anybody else. We know just about all the pitfalls, because we have had to deal with every one of them. Now we know how to avoid them."

Concrete technology—although it is a favorite subject with Pei—is not the only technological expertise that has preoccupied this firm. Manufacturers of curtain walls, in the U.S. and in Canada, turn pale when confronted by the firm's experts and their specifications. "The only architectural firm in the East that really knows all about glass-and-metal curtain walls is the Pei firm," one glass company expert told me not long ago, "and those guys really terrify me." Even so, the firm has had its problems with curtain wall design also—and they have had their triumphs, too, as at CIBC, in

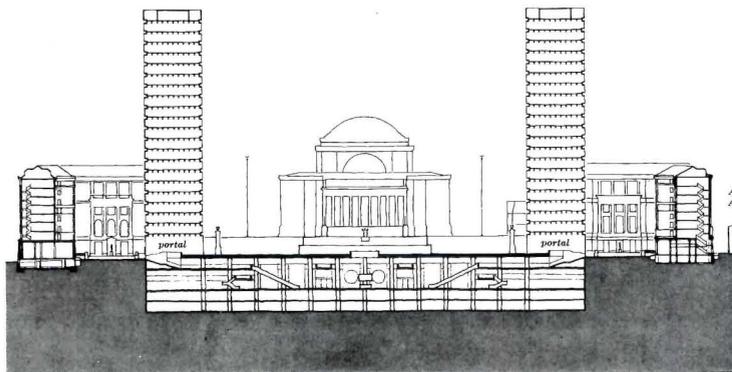


Above, Place Ville Marie, in Montreal, Canada, completed in 1962. The section on top shows the multi-level concourse below the main office tower; the plan shows the elaborate pedestrian concourses, highway tunnels, and metro lines that form PVM's infrastructure. Below, a view of the laboratories for the National Center for Atmospheric Research, in Boulder, Colorado, completed in 1966. Photograph: Ezra Stoller © ESTO





Above, before-and-after views of one of the demonstration blocks in the Bedford-Stuyvesant section of Brooklyn. The rehabilitation effort was completed in 1969. Below, a section through the Columbia University campus, showing the kind of infrastructure proposed by the architects in their report. The perspective drawing is of one of the under-cover concourses envisaged next to the underground gymnasium. The bird's eye view on the opposite page shows the New York State University campus at Fredonia, N.Y., designed by the architects in 1970. Most of this has now been built. Drawing: Ted Musho; photograph above: George Cserna.



Toronto. At this point, I. M. Pei & Partners probably know more about the detailing of glass-and-metal walls than anybody else in the U.S., or anywhere else. They know more, because they have taken much of the brunt that goes with innovation; and they are almost obsessive in the way they discuss a truly monumental project in terms of the crucial problems finally solved by, let's say, a neoprene gasket. They really understand the difference between the schematics for a given project and what will turn those schematics into architecture. The National Gallery Annex in Washington, D.C., for example (pp. 62-68), might have lost much of its hard-edged geometry if the architects had not come up with a highly imaginative set of details for the marble surfaces and corners that will define that building. They did—after much blood, sweat, and perhaps even a couple of tears.

Finally, there is another area of commitment that seems to distinguish the Pei partnership from most of its contemporaries. That is the area of what might best be called "urban emergencies."

Two of these stand out:

The first of these—Pei's personal favorite—is the Bedford-Stuyvesant rescue operation in Brooklyn, N.Y.—a demonstration, in two blocks (left) in that black ghetto, of how a neighborhood gone to seed for physical as well as social reasons might rehabilitate itself. The two blocks were quite different in social composition: one, a rather respectable, middle-class neighborhood; the other a strip that was anything but that. Pei was asked by his friend, the late U.S. Senator Robert Kennedy, to involve himself. He did, with the help of Planner-Advocate A. Nakagawa, Landscape Architect M. Paul Friedberg and others; and the result, while not particularly significant in terms of urban design, represents what may be the first glimmer of hope in this particular ghetto.

To achieve that result required a labor of love that few other architects would have been willing to undertake: not one client (a prestigious fund-raising group headed by wealthy businessmen), but two (a locally organized citizen-group as well, headed by Judge Thomas Jones and Frank Thomas)—or, in fact, dozens of clients. For local residents became much involved; not one, experienced contractor, but an inexperienced combine of local craftsmen whose enthusiasm did not quite make up for their lack of organization, and who had to be bailed out on occasion to save the project. And not one, homogeneous community, but a neighborhood very much split, socially and economically.

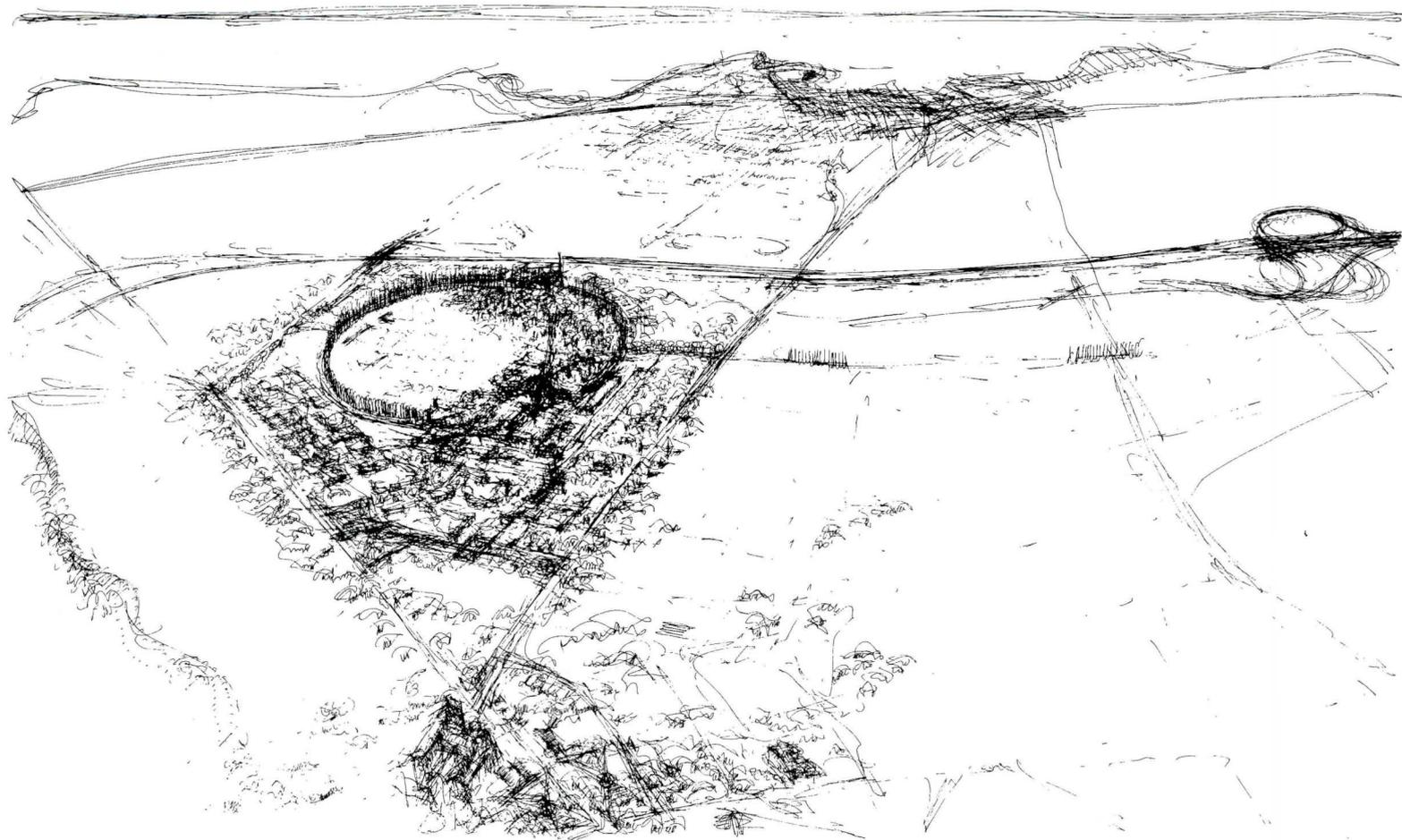
In a sense, the Bed-Stuy "superblock" is an on-going experiment that Pei and his various associates continue to monitor. "The first superblock cost far too much to complete," Pei said recently, "somewhere between \$500,000 and \$1 million. But we learned so much in doing it that we could now duplicate these streets in other parts of Bed-Stuy for \$200,000 a block." Obviously, Pei would like nothing better. Where the money would come from, given Washington's current priorities, is another question.

The second "urban emergency" tackled by I. M. Pei & Partners in recent times—and it stands out as a truly heroic effort—is the master-planning for Columbia University, on Manhattan's Morningside Heights (bottom left).

In 1968, Columbia University, still shaken by the student rebellion of the previous year, commissioned the architects to draw up a master plan for the University and its extensive real estate holdings in the neighborhood. The Partners were concerned about the possibility that they were going to be used by Columbia to defuse what was then a dangerously explosive situation. The local distrust of the University administration which had ignored neighborhood desires and neighborhood needs for generations, was intense. And the incompetence on the part of Columbia in handling its own planning problems was dramatically evidenced in a campus that had been eroded, rapidly, by bad decisions, badly designed.

The Partners decided to give it a try, anyway, realizing that, even if their efforts achieved little more than a temporary cease fire on Morningside Heights, this might be of some value.

Over a period of 18 months, in 300 separate meetings with some 75 different groups, the firm's planning team tried to identify local community as well as university needs, and to propose solutions. It was a harrowing time. For the first six months the community



groups thought of the architects as agents of the Columbia Establishment—and often were (to put it mildly) less than cordial to them. After that, the local groups began to accept the architects' obvious sincerity and concern but continued to believe that they were "being had" by the University—that the University's sole interest was in keeping the lid on the situation by making a token effort, while continuing to perform in the same old ways behind the scenes.

Today, the evidence suggests that the community groups may have been partly right. The Partners prepared a detailed report and a detailed and integrated plan for the campus, but very little of that plan has so far been implemented. Although Columbia did accept the architects' recommendation that the controversial gymnasium (over which there was such furor in 1967) should be built on- rather than off-campus, the administration shortsightedly placed it in the one location where it obviously should *not* have been placed—and where it will create serious problems for future development, and prevent the creation of the sort of urban infrastructure that the architects had ingeniously mapped out to tie together the present, disintegrating campus. Meanwhile the community has become confirmed in its previous convictions concerning the war between town and gown on Morningside Heights.

Despite some of these setbacks, the architects will probably tackle similar problems again, if and when they are presented. It is, of course, a cinch to solve a simple and glamorous non-problem—for

example, an expensive corporate headquarters building commissioned by one cultivated and rich client on a beautiful, rural site near a community that has no social, economic, or racial tensions. I. M. Pei & Partners would, presumably, solve such non-problems as deftly as any other firm on the present scene. Indeed, they have done so when given the chance.

But one curious quality of this firm of architects is that they seem to thrive on real problems presented by the real world. Whether it is a matter of persuading competing, urban interests and factions to plan and build together for their common good, or a matter of persuading contractors and suppliers to join them in technical innovation, the Pei firm has rarely hesitated to take on the kinds of difficulties that come with pioneering in any field.

And that may, of course, be the chief reason the firm continues to attract so much exceptional young talent. Really good, young architects seem to realize that I. M. Pei & Partners, despite their obvious fashionableness, are not "Establishment Architects" in the ordinary sense of that term. They are, as Voltaire would have put it, architects in search of the best of all possible worlds, rather than advocates of dreams.

It is a difficult role to play. The dreamer doesn't have to deliver—nobody expects him to; but the seeker of the best of all possible worlds is judged by the degree to which he succeeded in finding it, and in nailing it down. I. M. Pei & Partners, one feels, would want to be judged by those standards.—PETER BLAKE



Urban Centers



The recent aerial view of the City of Boston demonstrates more convincingly than any other graphic evidence the impact which I. M. Pei & Partners have had on the U.S. urban scene—and, by extension, upon urban development around the world.

At bottom, left, there is the Christian Science Center now well under construction, and described in detail on pp. 32-35. It is an impressive, if somewhat formal complex of housing, offices, open spaces and social facilities—all designed not only to weld together two seemingly incompatible neighborhoods of an aging city, but also to supply a noble setting for the Mother Church of this interesting sect.

To the east of this spacious center, beyond the deplorable Prudential Building and its satellite boxes, there is Copley Square, with the mirrored John Hancock tower rising on its south-east corner, next to H. H. Richardson's Trinity Church. That tower—made almost invisible by its mirror-like skin—is described on pp. 28-31; and so are the strategies and tactics that the Pei firm employed to help make this a significant, new asset to a city in which the Design Partner for this tower—Harry Cobb—was born, and in which his great uncle practiced architecture at the beginning of this century.

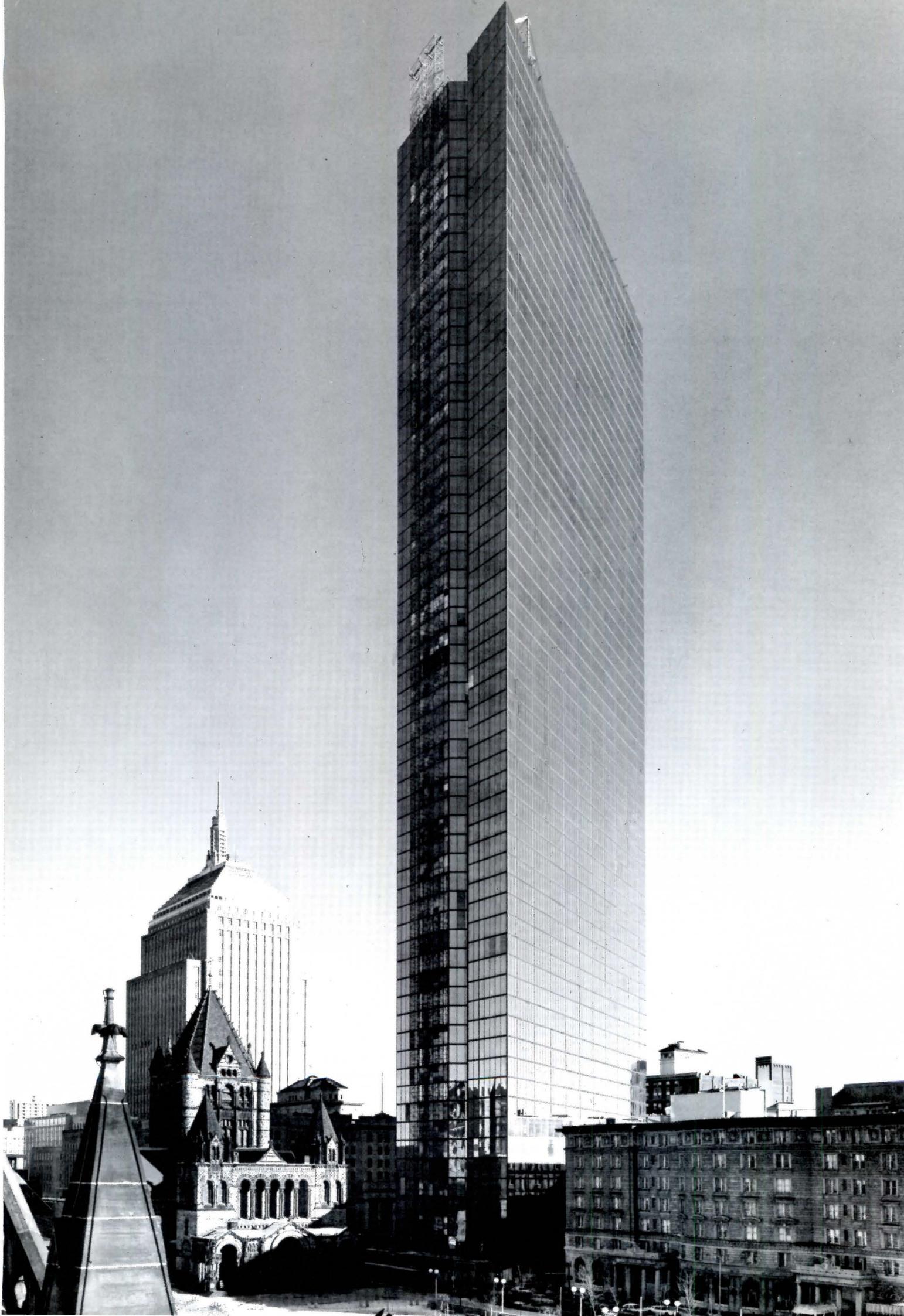
Farther east, beyond the greenery of the Boston Common, and now surrounded by tall and occasionally distinguished new office buildings, is the Boston Government Center, planned down to many details (but not designed) by I. M. Pei & Partners for one of their favorite clients, Edward J. Logue, then head of the Boston Redevelopment Agency. Ed Logue was so impressed by the firm's performance in that effort, and by the firm's tough idealism, that he helped these architects, as diplomatically as he could, to move on to even bigger and better things.

And, finally, to the east of the Government Center, and just on the edge of Boston Harbor, are two off-white concrete apartment towers (they overlap in this aerial view) designed by the Pei firm as part of the architects' serious commitment to urban housing. The Boston Harbor Towers apartments frame the extraordinary environmental sculpture done by David von Schlegell, and shown on p. 57.

But these are not the only imprints left on the Boston area by Pei and his partners. At the Massachusetts Institute of Technology, across the Charles River, the Pei firm has done and continues to do impressive work in laboratory and other teaching facilities; for Harvard University, the firm is designing and building similar facilities; and then there is, of course, the John F. Kennedy Library, a commission that is perhaps closest to I. M. Pei's heart, and that is now far along in design. This complex, just south of Harvard Square, is once again much more than a single building; it will be a major generator of urban life in a town—Cambridge, Mass.—that has recently been threatened by commercial exploitation.

Boston, of course, is not the only city in which the firm has been effective. There was the earlier effort in Denver, Colo.; and, since then, there have been major office centers in Toronto and Washington, D.C.; and now several others—in Melbourne, Singapore, Paris, and Lyons—are in the planning stage or under construction.

Many of these are shown on the following pages. A few are really single office buildings, but even these represent an effort to reweave the immediate urban fabric: They are never treated as isolated events on the urban scene.



Boston

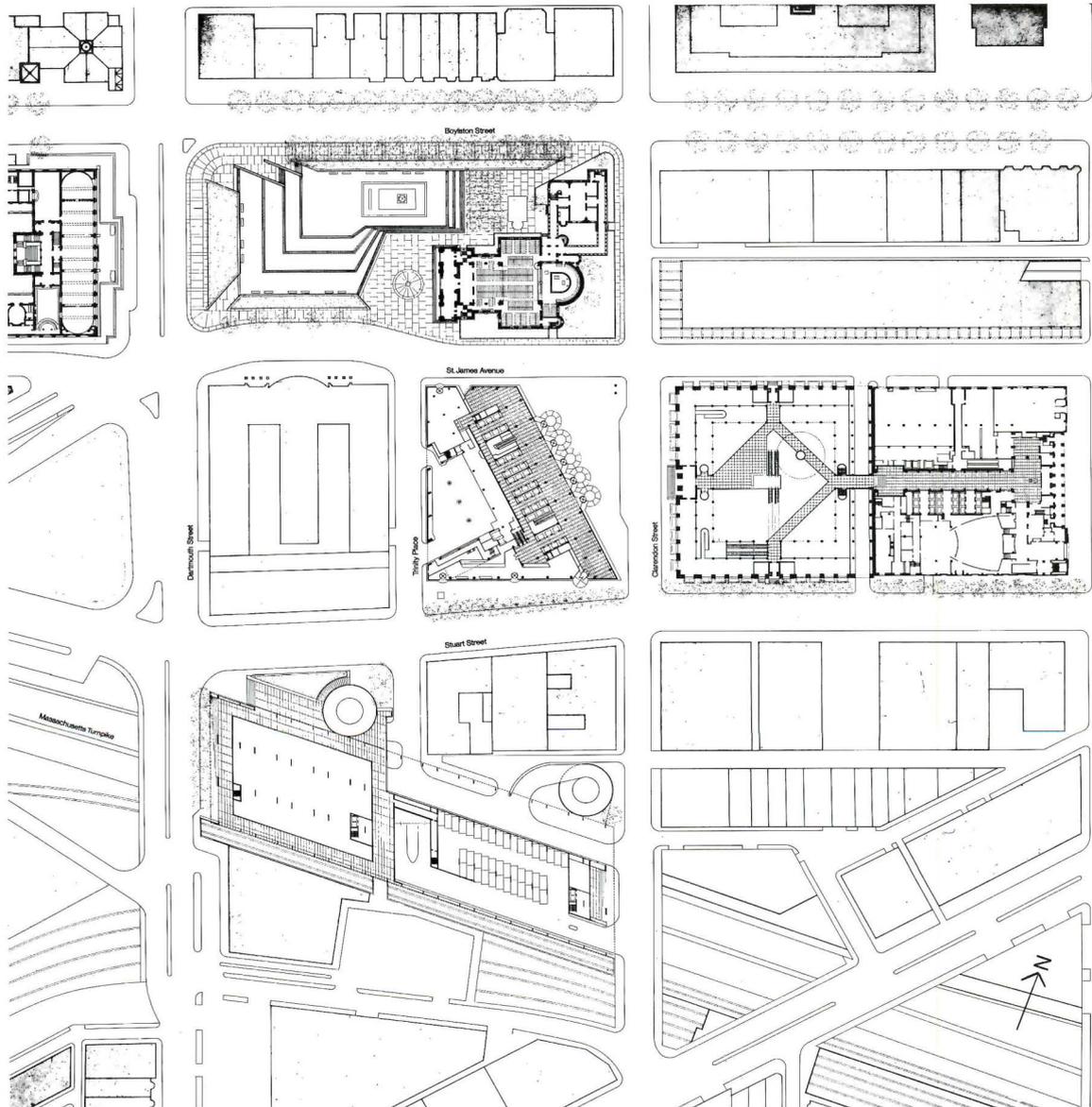
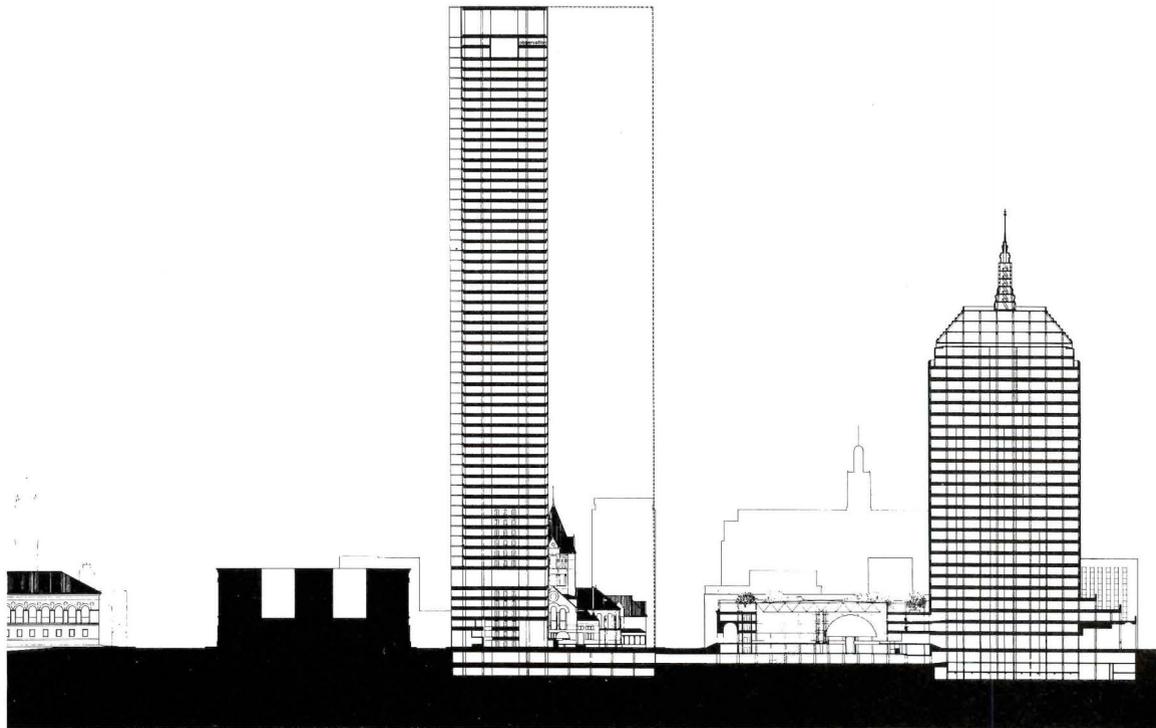
In 1967, the Pei firm was commissioned to design a 2 million sq. ft. tower for the John Hancock insurance company in the south-east corner of Copley Square, right next to H. H. Richardson's Trinity Church of 1877, with its neo-Romanesque grandeur, and roughly opposite McKim, Mead & White's neo-classical Public Library built in 1895. It was, quite obviously, a very difficult commission: Harry Cobb, the Design Partner, who was born in Boston and is extremely sensitive to its architectural traditions, knew that whatever the architects did on that site, with that program, would make the local, architectural fraternity froth at the mouth.

Still, the architects decided to give it a try. They knew—even if the local opposition did not—that if John Hancock were going to be thwarted in building on that site, the company would simply move out of the city—taking with it many Boston jobs and much in taxes.

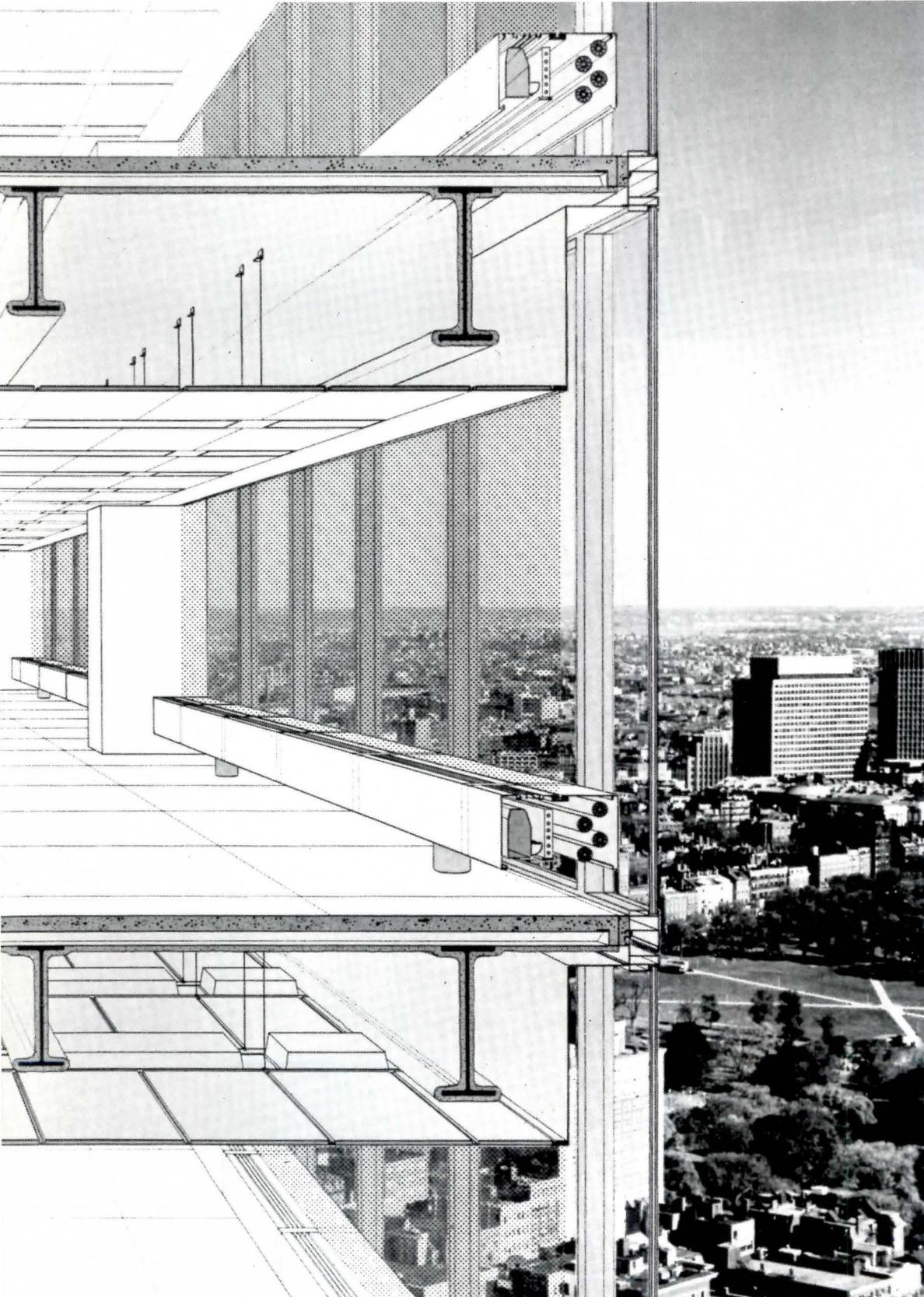
So the architects fought for the Copley Square site on civic and social grounds alone; then, having won the battle of the site, Cobb designed a building, rhomboid in plan, and sheathed, top-to-bottom, in reflective glass so that its walls virtually dissolve in almost surrealist images of the existing cityscape.

It is hard to believe this until one sees it in the flesh: a 60-story tower, disappearing into romantic images of Trinity Church (and a neighboring hotel) at pedestrian level—and dissolving into a kind of skyscape a little higher up. David B. Wilson, a columnist for the *Boston Globe*, recently described the effect in lyrical terms: "To steal the very sky itself to decorate your building!... on fair-weather days, to be the very illusion of the sky itself, with reflected cloud merging into the immediately perceived.... At no instant of time since its grey-mirrored curtain wall went up, nor at any future instant of time, will it ever be the same. The sky, the weather, the clarity of the atmosphere, the angles of incidence and reflection are too complicated for repetition...."

The John Hancock tower is, in a



Perspective section through typical John Hancock floor shows 11-ft. 6-in. tall reflective glass panels that form window and spandrel in one piece. Heating/air conditioning units double as window rail. Opposite: H. H. Richardson's Trinity Church reflected in John Hancock's mirrored wall. At pedestrian level, the building tends to dissolve in such surrealist images.



way, a charming monument to its chief designer, Harry Cobb, who has got to be his generation's most completely self-effacing architect. But it is, of course, much more than a beautiful monument: Typically, the new tower, which raised so many local hackles when first proposed, is a valid economic and social accommodation, and a successful esthetic accommodation as well. The extremely subtle angling on its block (see site plan) not merely creates useful open spaces, as well as holding down the corners of the block and the square; but it also, suddenly and dramatically, reveals the south side of Trinity Church, which had previously been smothered on a narrow street.

The tower is nearing completion, and it continues to demonstrate its effectiveness not only as a work of architecture and urban self-renewal, but as a work of pragmatism as well. Its volume and height were achieved through the usual zoning trade-offs; in a further trade-off, involving air rights above a John Hancock-owned, 8-story structure on an adjacent block, Cobb is trying to persuade the client to convert that existing building into a Children's Museum (reduced in height, and souped-up inside)—thus creating another windfall for the city.

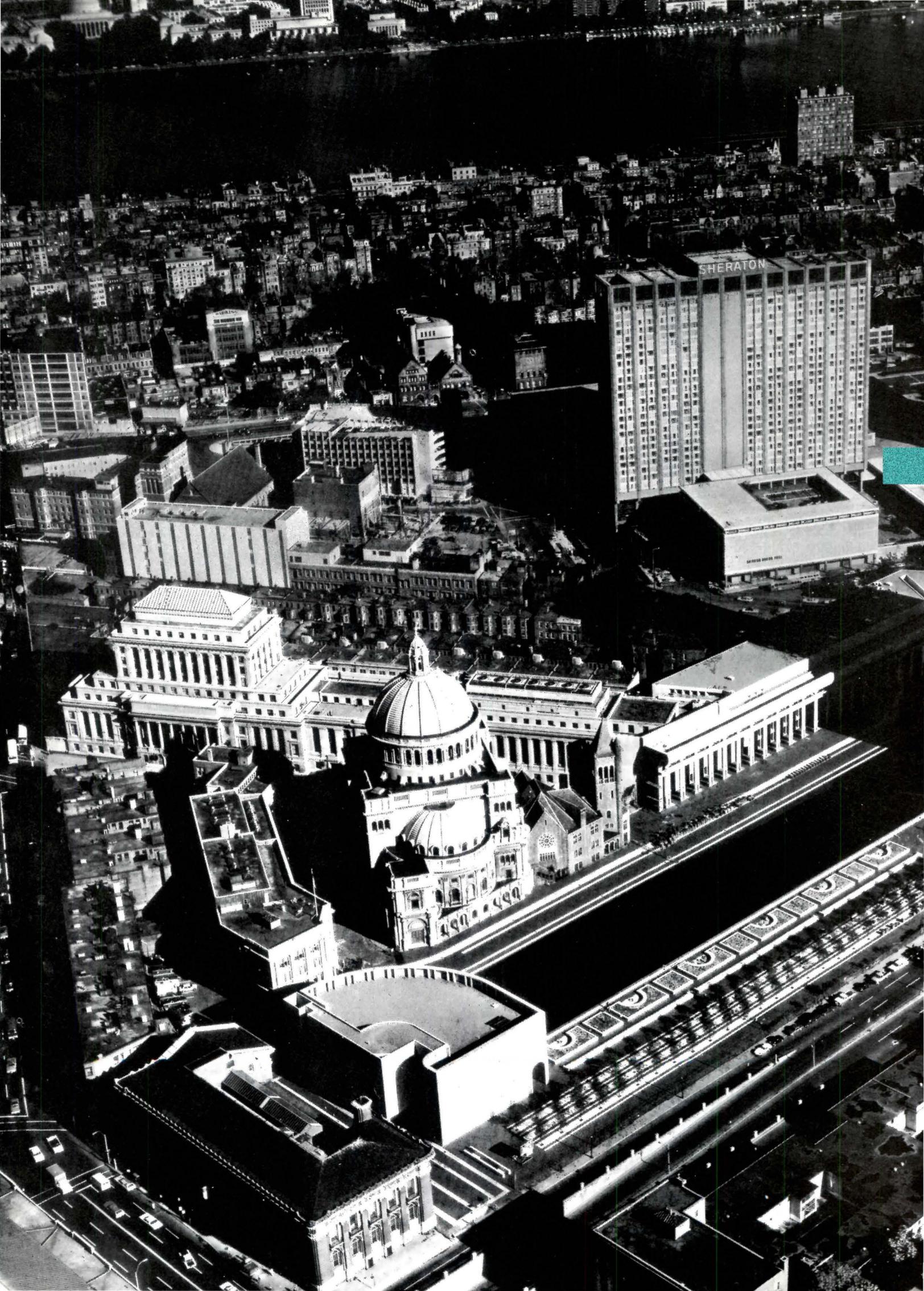
John Hancock is, in short, a textbook example of the way these architects function: In more insensitive hands, such a building could easily have wrecked a historic square; in their hands, it preserves and enhances it. In less responsible hands, the project might have been built outside the city's limits; in their hands, it preserved badly needed inner-city jobs and revenues; and, in addition, there may emerge a delightful, new educational and cultural facility as a further bonus. It is not a bad track record, at all, for an effort that began with a fairly mundane program which called for two million square feet of office space.

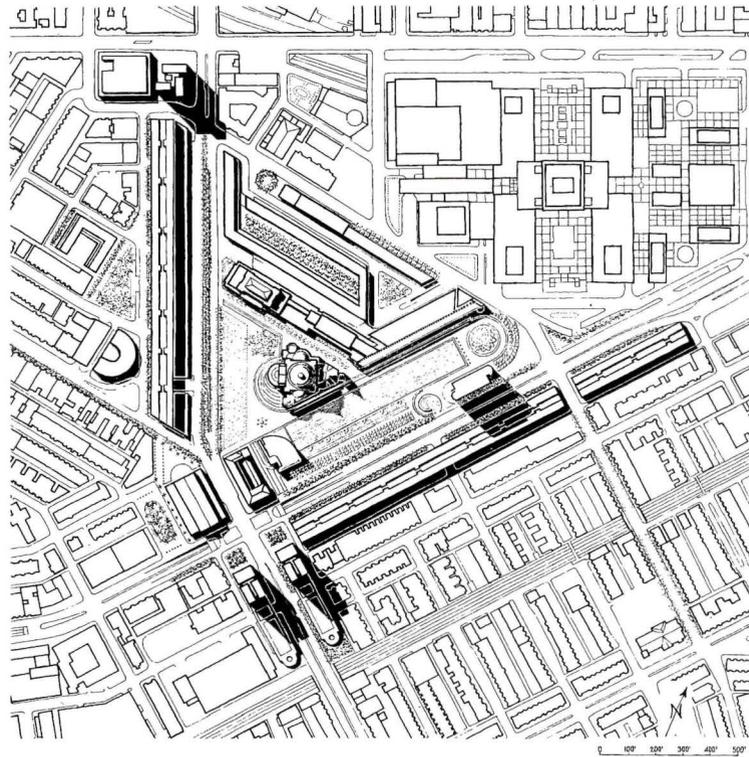
John Hancock Tower

Team: Henry N. Cobb, Werner Wandelmaier, Harold Fredenburgh, Michael Flynn, Michael Vissichelli, Andrew Gorzynski.

Complete credits on page 108.
Photographs: Norman McGrath.







Partly as a result of their work in master-planning the Boston Government Center, I. M. Pei & Partners, in 1963, were retained by the Christian Science Church to help it realize an ambitious, but not very clear program. Carl B. Rechner, one of the leaders of the Church and a realtor by profession, had assembled a large number of properties in the areas adjacent to the original Mother Church. Rechner and his associates felt that their Church had a responsibility both to itself and to the City of Boston to create a better urban environment in its precincts. They had been impressed by the architects' earlier planning efforts, and especially by the manner in which they had resolved political, economic and social conflicts in carrying out those efforts.

Aldo Cossutta, perhaps the most classically oriented among the partners, took over as head of the design team—and, quite typically, began by examining the potentials of this project in the broadest, urban contexts.

The resulting analysis (which uncovered much fascinating material about the origins of the city's urbanistic growth) suggested that the Christian Science site—a 16-acre triangle, largely owned by the Church—might become a link between the prestigious Back Bay area to the north, and the rapidly deteriorating South End. The Prudential Center, with its unfortunate commercial towers, had largely failed to grasp that opportunity; CSC could and should.

The Mother Church itself—a huge shrine, a kind of St. Peter's for all Christian Scientists—had been almost snuffed out, visually, by surrounding buildings; it should, obviously, be given plenty of air and plenty of space. The even bigger and rather ungainly building housing the Christian Science Monitor and other publishing activities of the Church had to be played down in importance—yet given needed expansion space. A link had to be forged, also, to the Prudential Center to the north; but the overbearing hulk of that complex had to be visually screened out of the CSC, if at all possible. Finally, new administrative office

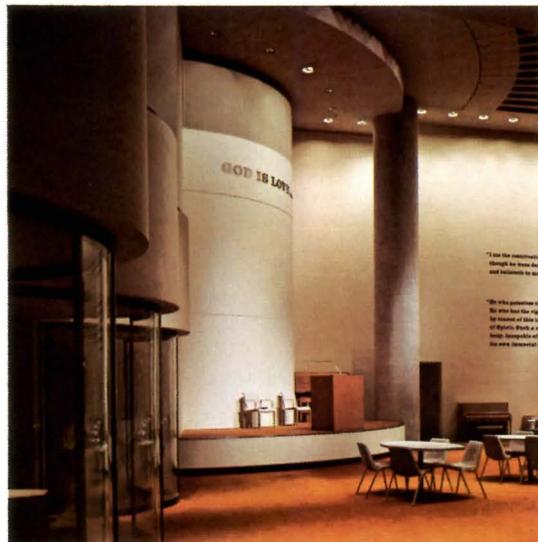
One of the first buildings to have been completed in the Christian Science Center is the quarter-circular Sunday school. Some of its interiors are shown below, including the auditorium and the ramps that connect different levels. The building is shown in the aerial view, opposite, at the end of the 700 ft. long reflecting pool. The quarter-circular form was chosen to complement that of the Mother Church.

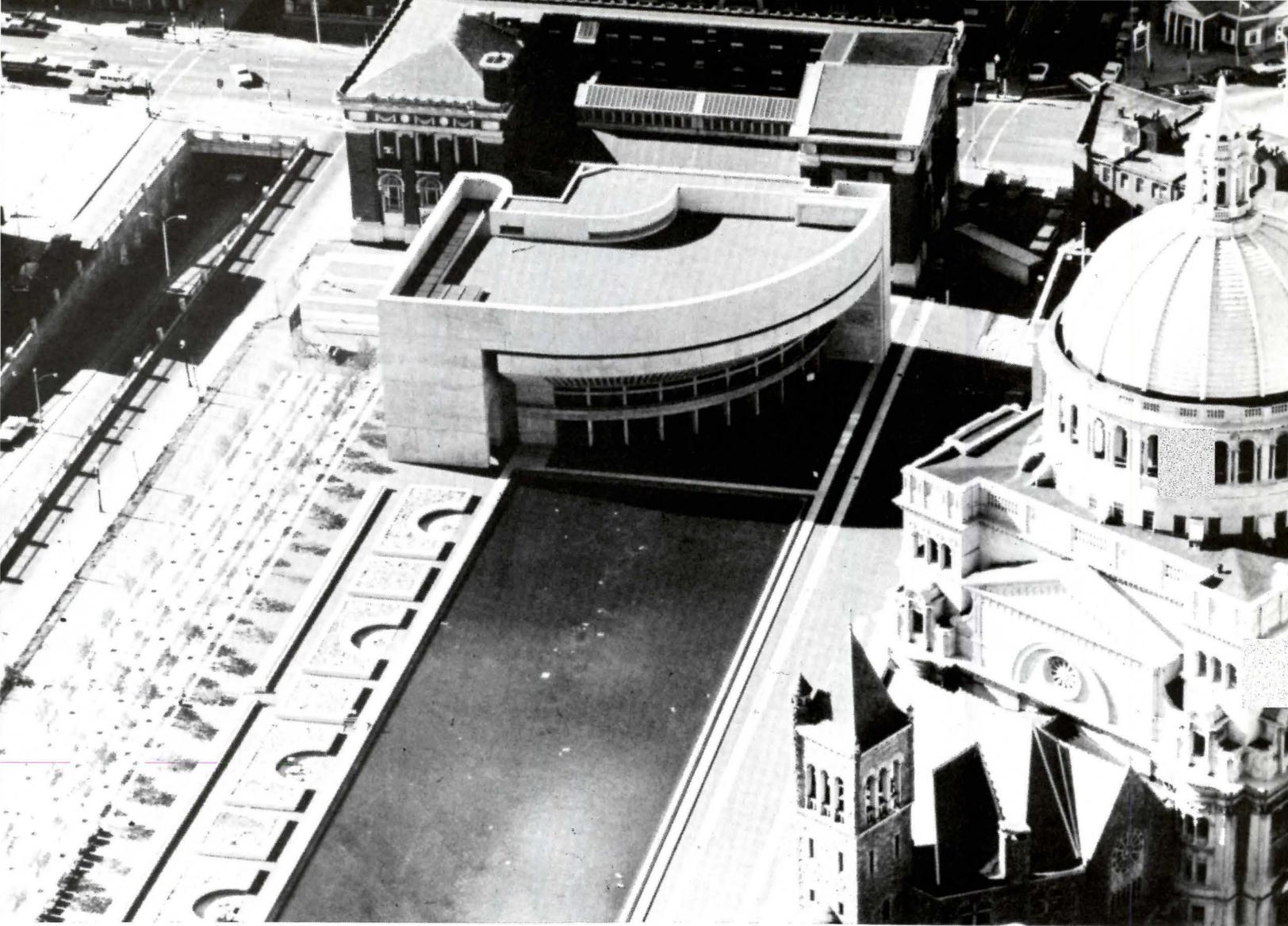
space had to be provided to replace scattered facilities that would have to be razed to give the Mother Church more exposure, and much new housing would have to be built to accommodate both employees and others.

The program written by the architects was convincing. It was, in fact, an invitation to the Church to spark a major renewal of this part of the city of its birth. Superficially, the CSC—now well under way—suggests a kind of Christian Science “Vatican City”—and that is, of course, a reflection of Cossutta’s special talents. But while certain classical relationships at CSC have been worked out with great formality and care (e.g., even the main portico of the Mother Church was re-designed, neo-classically, so as to relate better to other components of the space it will dominate), the social composition and the infrastructure of the CSC are entirely modern. The latter—a large cross-over level beneath the plaza and its reflecting pool—connects all the major structures in the new Center.

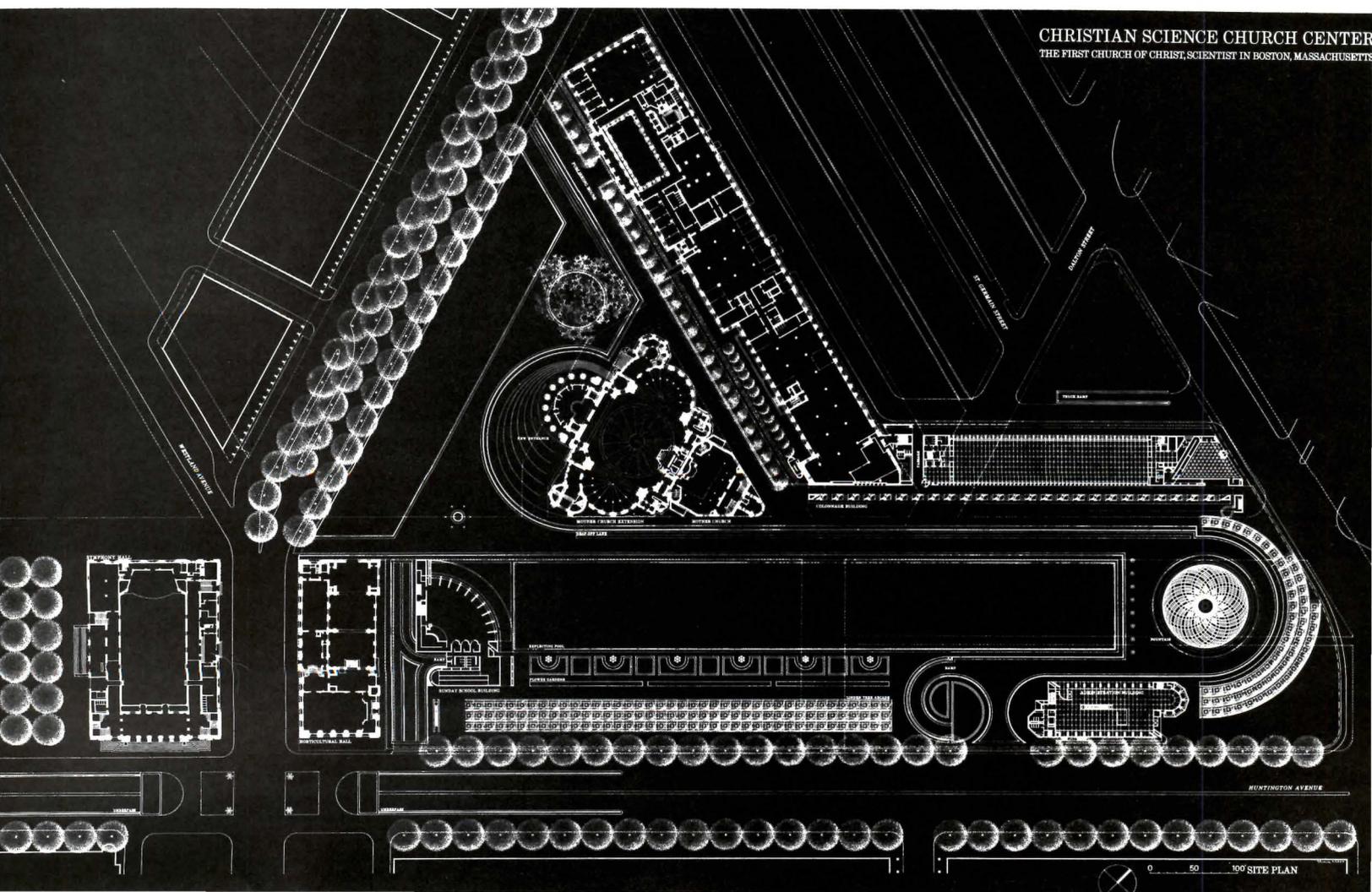
The quarter-circle building shown opposite, at the end of the long reflecting pool, contains the new Sunday School. Some of its interior spaces are shown at the immediate right. Also complete (or nearly so) are the 28-story-tall administration building and the Church colonnade building (5 stories in height), an extension of the old Publishing Society Building. Long walls of apartments and other housing, 11 stories in height, are also under construction and will complete the spatial enclosure of the Center. The exquisite site plans reproduced here and elsewhere in our story were drawn by Ilona Rider and Mimi Szanto of the Pei firm.

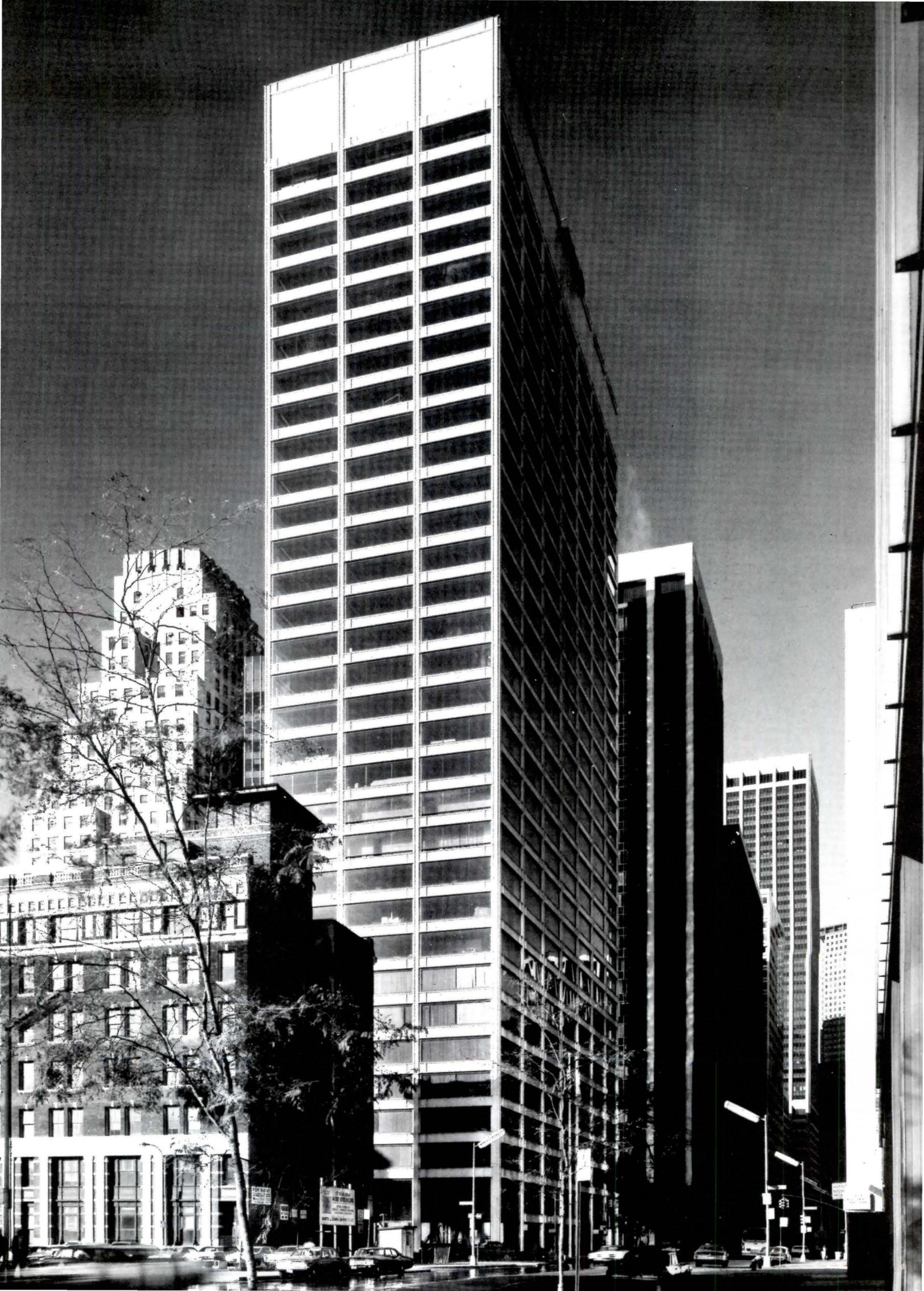
Christian Science Church Center
 Team: Araldo Cossutta, Joe Morog, A. Klein, R. Kolbe, L. Perfido, Ken McKenzie, Sid Goldstein.
 Photographs: Aerial Photos of New England (preceding page); Norman McGrath (color); Wellsman (top right). Complete credits on page 108.





CHRISTIAN SCIENCE CHURCH CENTER
 THE FIRST CHURCH OF CHRIST, SCIENTIST IN BOSTON, MASSACHUSETTS





New York City

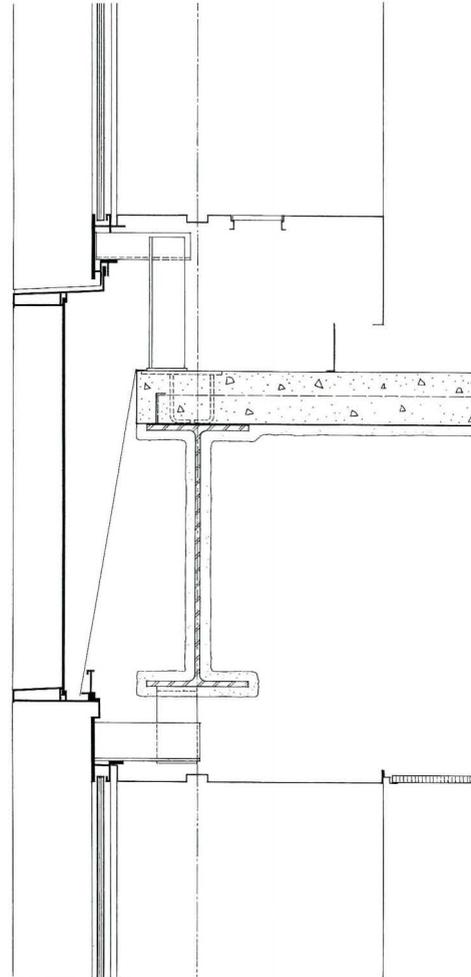
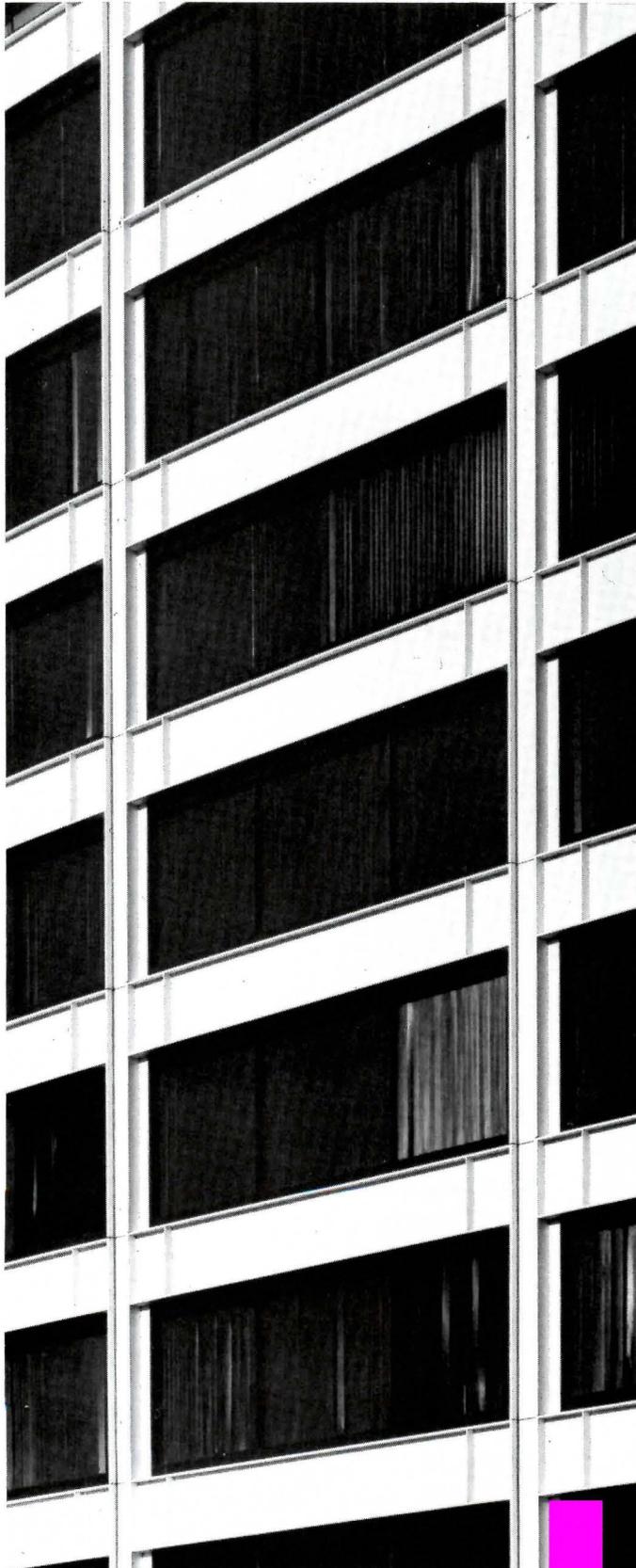
This neat, aluminum-and-glass office slab completed in 1972 in New York City's Wall Street area is probably as well-conceived an investment building as has been constructed in the U.S. in some time. It is an unpretentious building: 198 ft. wide, 86 ft. deep, 32 stories tall, with an elevator core and glassy lobbies, stores, and banking spaces on the ground floor, a lower-level concourse ready to be plugged into a planned subway, and nicely paved and planted plazas outside. It is the prototypical, late-20th-century American office tower—straightforward, economical, and clean (in fact, white-painted aluminum). But unlike contemporary buildings of similar, low cost, this one is a jewel. For 88 Pine has a sophistication of detail and of proportion that gives it considerable distinction on a street lined with curtain-wall catalogues.

88 Pine really goes back, consciously or not, to the Equitable Building that Pietro Belluschi designed for Portland, Ore., more than a quarter of a century earlier. Although Equitable is only 13 stories in height, it is very similar in overall composition, and in certain details. It, too, is clad in aluminum with glass infill (although the aluminum there is "natural" in finish); and, it, too, sits on a ground floor of glassy banks and commercial showrooms.

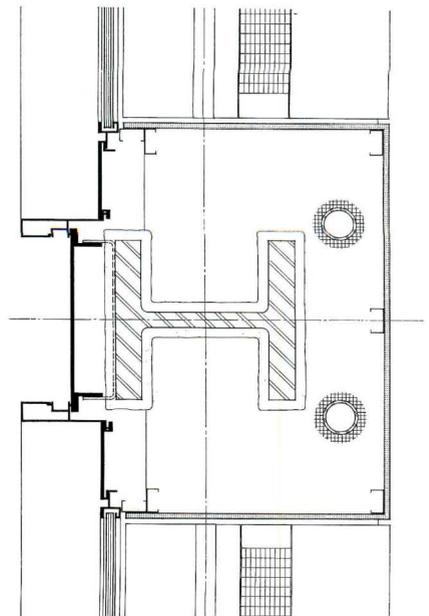
The difference between Equitable and 88 Pine is one of refinement: The ground floor at 88 Pine is considerably higher; the proportions of the structural bays are smoother; the "fence" that surrounds all the air-conditioning gadgetry on the roof is neater; and the detailing of the aluminum and the glass is more hard-edged.

Jim Freed, the Design Partner at 88 Pine, is a product of the Chicago School; and, so, 88 Pine has extremely wide windows (without mullions, incidentally). It is a really elegant building that makes most of Downtown Manhattan look sleazy by comparison.

88 Pine Street
Team: I. M. Pei and James Ingo Freed, Bernard Rice, Robert Milburn, Michael Flynn, Stuart Barger.
Photographs: George Cserna.
Complete credits on page 108.



VERTICAL SECTION OF SPANDREL



HORIZONTAL SECTION OF COLUMN



Toronto

This 57-story-high stainless steel-and-glass mirror held up to the Toronto skyline is the new headquarters of the Canadian Imperial Bank of Commerce, completed by the Pei firm at the end of 1972. It is an impressive structure in many respects, not the least of them technological; but—in the tradition established by these architects—CIBC is perhaps most significant in terms of urban design.

The CIBC tower is, actually, the dominant element of a complex of four structures on a 4-acre site: One of these existed previously (a 1929 limestone-finished building, 34 stories tall); two others are new and relatively low in profile (they are also clad in limestone, to match the old bank tower); and the fourth is the 57-story stainless steel tower, with 1.5 million sq. ft. of space within it. Together, these four structures frame a pedestrian space that is now known as Commerce Court.

This granite-paved, pedestrian plaza is located just to the east of Mies van der Rohe's Toronto Dominion Center complex of black-painted steel and glass. The Pei firm not only composed its complex to relate spatially and in its massing to its neighbors, but also plugged Commerce Court into Toronto's subway system in much the same way that the architects had joined Montreal's Place Ville Marie to that city's urban infrastructure—by means of a below-ground, pedestrian shopping concourse that is directly linked to the nearest subway station.

To achieve these functional and volumetric relationships took some doing. More properties and more rights-of-way than initially anticipated had to be acquired. But CIBC's Chairman Neil J. McKinnon, who had been much impressed by the way in which PVM was plugged into its various service systems, understood very clearly what his architects were trying to do, and so the means were found to make Commerce Court more than an isolated oasis in Downtown Toronto.

What meets the eye, above ground, is of course the handsomely planted court and the soaring tower that dominates it. This



tower is framed with 56-ft.-long steel girders (to create a spacious and open banking hall at the level of the court); and the long spandrels are faced with 1/8-in.-thick stainless steel rolled out in single sheets of similar length, and given a mirror finish during that process.

The kind of research that went into the detailing of these long stainless steel spandrels almost boggles the mind. The most obvious problem to be avoided was oil-canning; the next most obvious was visual and actual distortions at the points of attachment of the long slivers of stainless steel. The Pei firm's experts in curtain wall design are notorious perfectionists and they worked out a two-point attachment system (on rockers) for each of the long spandrels that reduced stresses to a minimum. (The vertical "slots" in the center of each column serve as expansion joints and double as rails for the window-washing machinery.) The firm's experts, moreover, did not confine themselves to detailing of the finished curtain wall; they realized that those slivers of stainless steel could become distorted while hoisted into place, and so they figured out a way of doing that, too—using special suction cups and derricks on a carefully coordinated schedule.

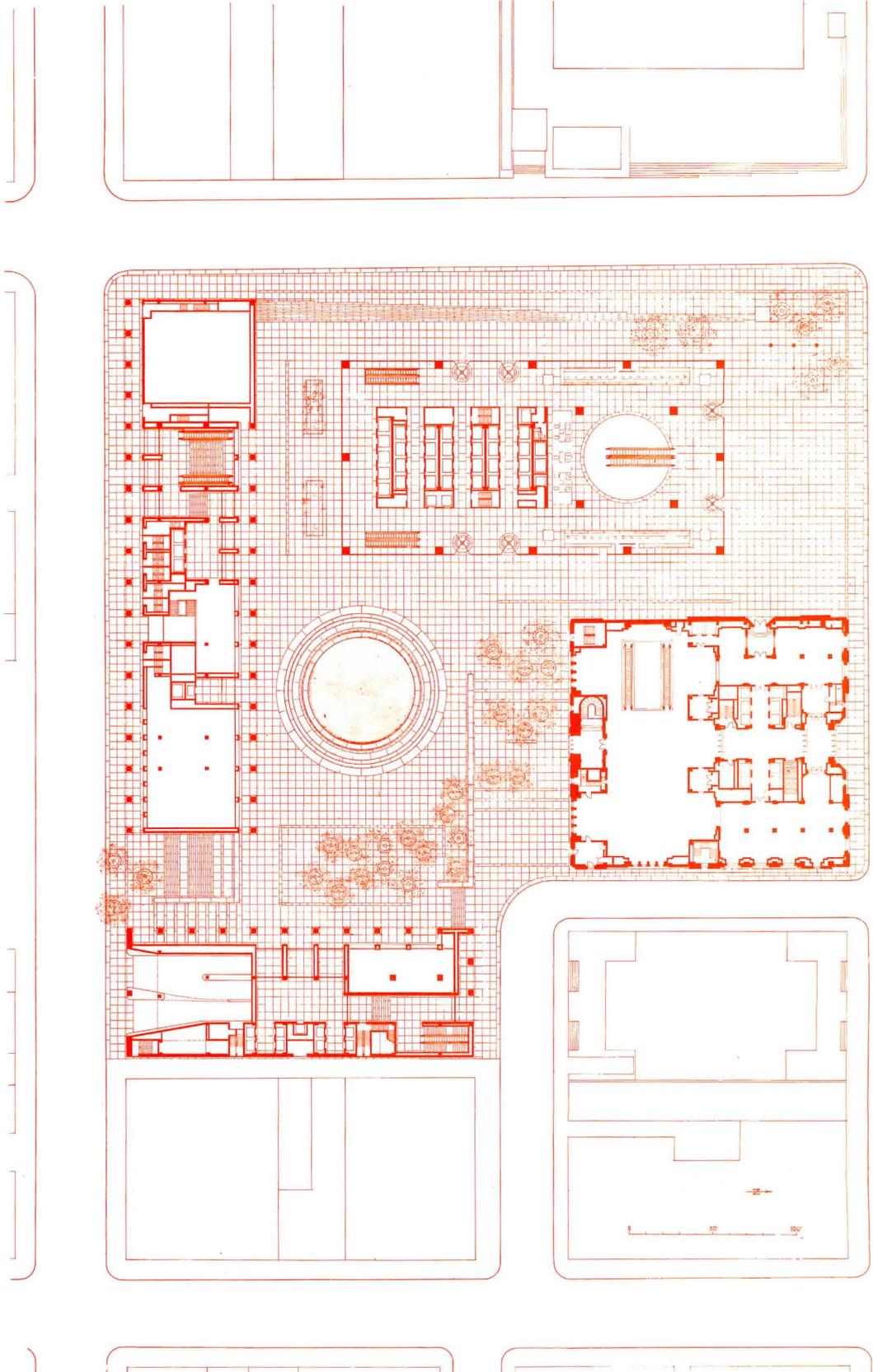
This sort of expertise is truly awe-inspiring—and it inspires exactly that (and much respect) in fabricators dealing with these architects. The glass used between the ribbons of stainless steel, incidentally, is grey, insulating, and reflective.

Conceivably, CIBC's tower might have been black in finish, as are its neighboring towers by Mies van der Rohe. But given the obvious competitiveness between the two owners, this became inadmissible. To create a reflective skin seemed the most elegant alternative, and it is.

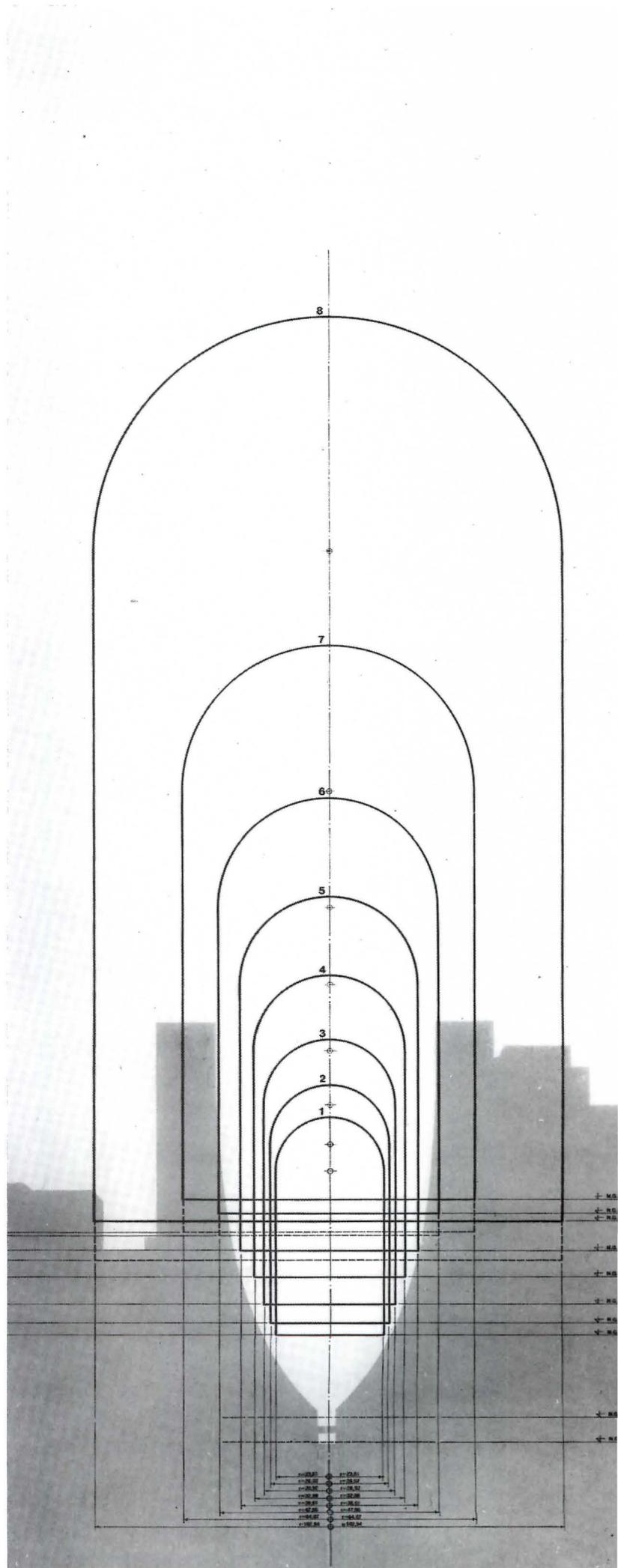
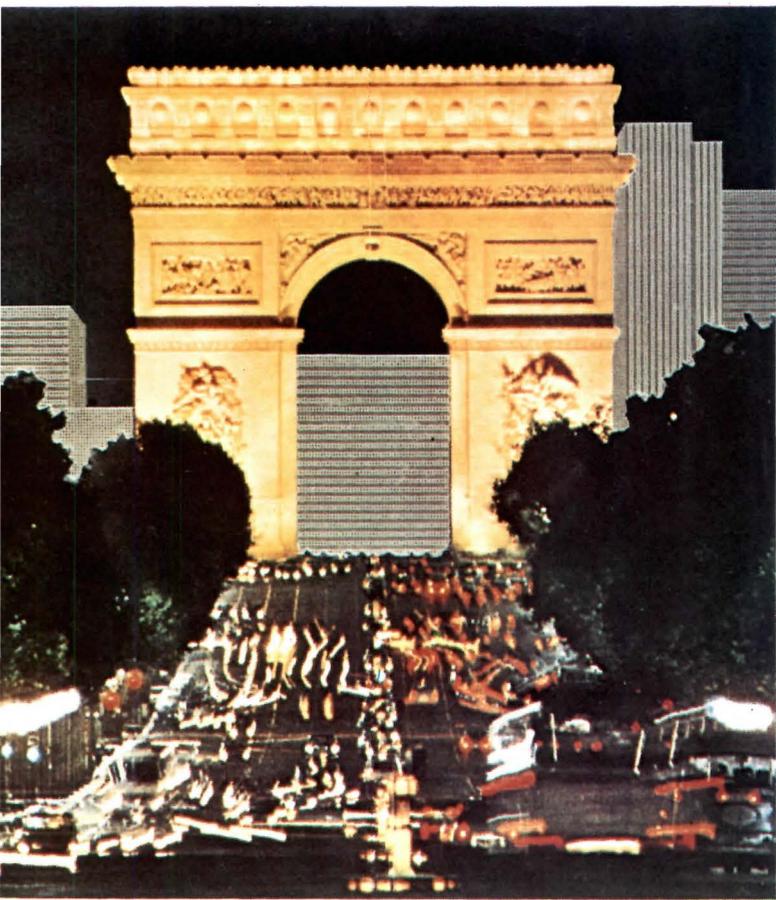
Commerce Court

Design Consultants: I. M. Pei & Partners. Team: I. M. Pei, Kenneth D. B. Carruthers, Bartholomew Voorsanger, Abe Sheiden. Executive Architect: Page & Steele, Architects (Toronto). Photographs: Balthazar Korab; Frank Grant (color).
Complete credits on page 108.

Commerce Court, in Toronto, is formed by four buildings: an existing, limestone-finished tower (visible at far right); two new, lower structures, also finished in limestone; and the 57-story stainless steel-and-glass tower seen in the view on the opposite page. All these buildings were plugged into a lower-level concourse system that was, in turn, connected to the existing urban infrastructure of the city. The complexity of that infrastructure is shown in the site plan on the previous page.







Paris

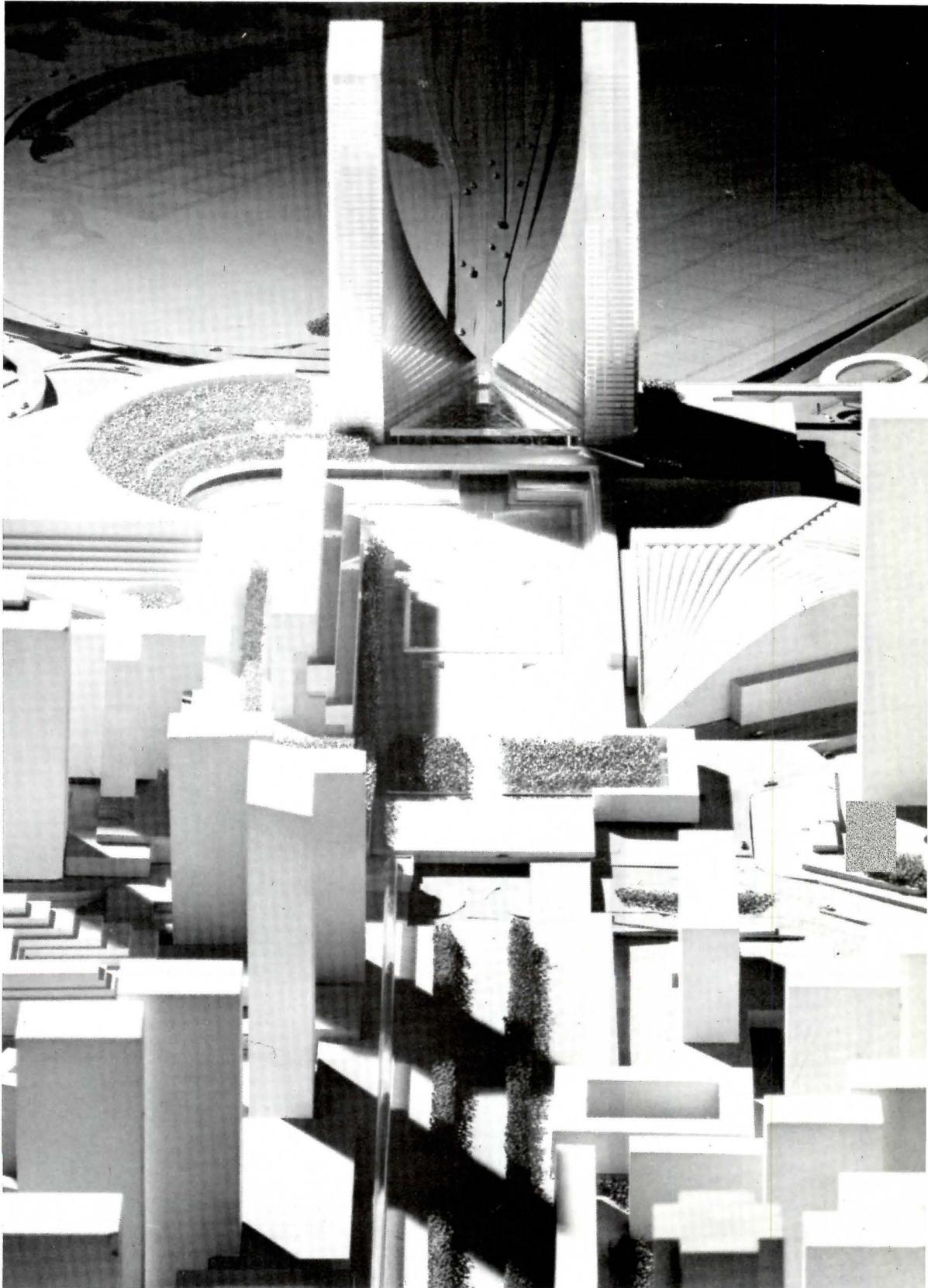
Perhaps the most prestigious commission ever tackled by the Pei firm (except, possibly, for the John F. Kennedy Library at Harvard) is this one: to design a large office tower at the head of La Défense, the rather chaotic complex of skyscrapers recently built at the end of the Louvre-Concorde-Etoile axis—at the end of the Avenue de la Grande Armée and its continuation, the Avenue de Neuilly—in Paris.

Most French architects and city planners thought of La Défense as a satellite development far out on the edge of Paris, out of mind and, hopefully, out of sight. But Aldo Cossutta, the Design Partner on this commission, who had spent several years in Paris, knew better: He knew that whatever was going to be built at La Défense would dramatically change the central image of Paris, possibly for the worse.

The photomontages and drawings and sections and plans shown on these two and the next two pages represent only a tiny fraction of the almost unbelievable study conducted by Aldo Cossutta and his team—a study finally reproduced in three beautiful volumes.

As in just about all its work, the firm of I. M. Pei & Partners tackled this commission as a problem in environmental and urban design, and attempted to solve that problem not necessarily with the most elegant and latest architectural form, but with a solution that would save a given space and a given tradition, with a view toward future development.

The twin towers proposed by the Pei firm (visible in the model photo, right) are not necessarily *the* solution. But they respond to a paramount requirement recognized by the architects: how to build on that site, *without* visually closing the great opening of the Arc de Triomphe as it is seen from different points along the route from the Louvre up to the Etoile and beyond. The drawings and photomontages on these pages show how the architects' solution—a twin tower—was studied in relation to these different views, and how its height was determined by a meticulous analysis of sightlines



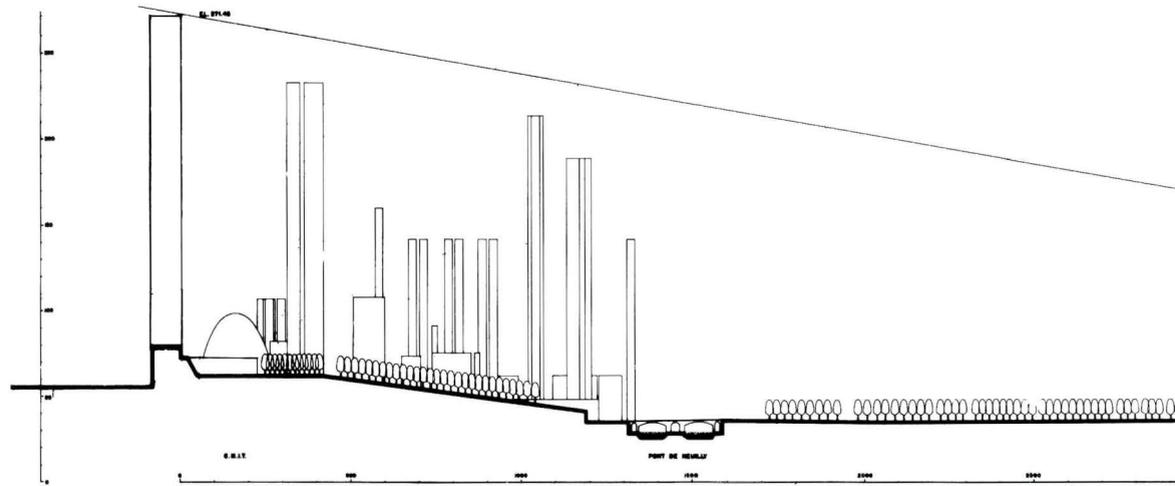
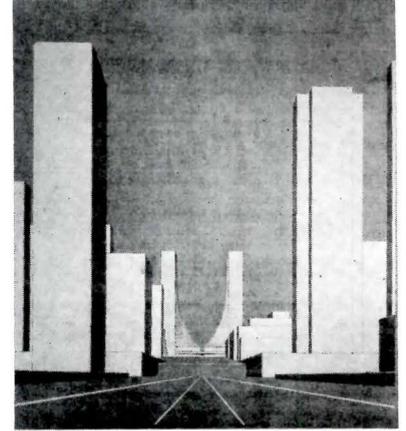
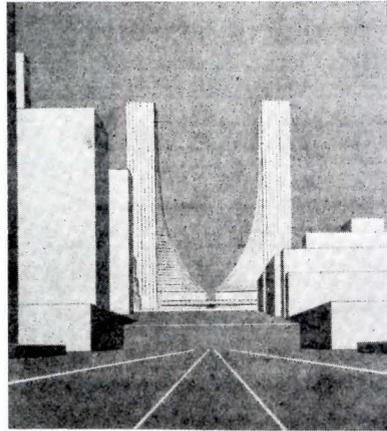
The key to the design of the double-tower at La Défense is the section (with its sight-lines) shown below. It was taken all the way from the Louvre to the new skyscraper city 4.8 miles away, and shows how high the new buildings might go without overwhelming the Arc de Triomphe.

to make certain that the complex would not stick out above the top of the arch.

In the course of preparing this study, over a period of more than one year, the architects also examined all the access and infrastructure problems at La Défense, called in one traffic expert to advise on how to simplify the highway pattern proposed by local planners—and then double-checked with a second expert to confirm the findings of the first one. “Although we are out of the picture at La Défense at the moment,” Cossutta said recently, “they *are* changing the highway loops in accordance with our suggestions. . . .”

I. M. Pei & Partners lost the commission at La Défense—for the time being, at least—to a French architect with the correct political connections, but with very little apparent understanding of the formal, urbanistic problems on that crucial site. But the French public has become aware of the crucial issues raised by the earlier architects—the framing of the great vista, the need to keep the “gate” of the Arc de Triomphe visually open in perpetuity, and so on. Influential critics, such as Pierre Schneider of *L'Express*, have challenged more recent proposals that deliberately violated the symmetry of the axis and violated the vista framed by the arch.

Meanwhile, perhaps in part because of the impression made by this extraordinary study, I. M. Pei & Partners have been called in to work on several other West European projects: in Lille, in Lyons, in Madrid, and elsewhere. And of course, the last word may not have been spoken yet on the subject of La Défense.



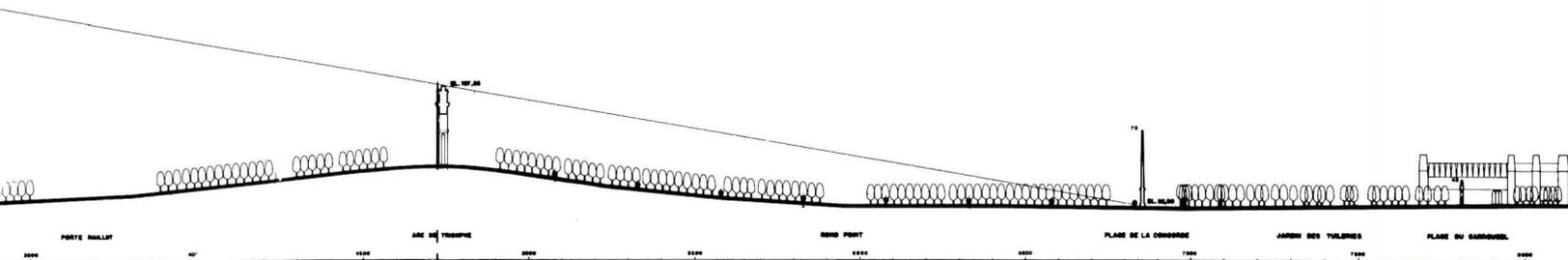
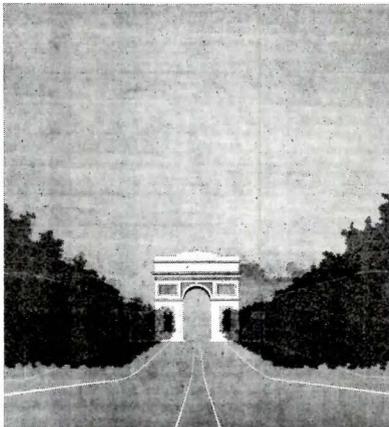
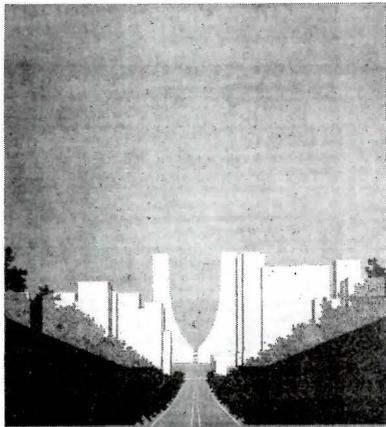
Tete de la Defense

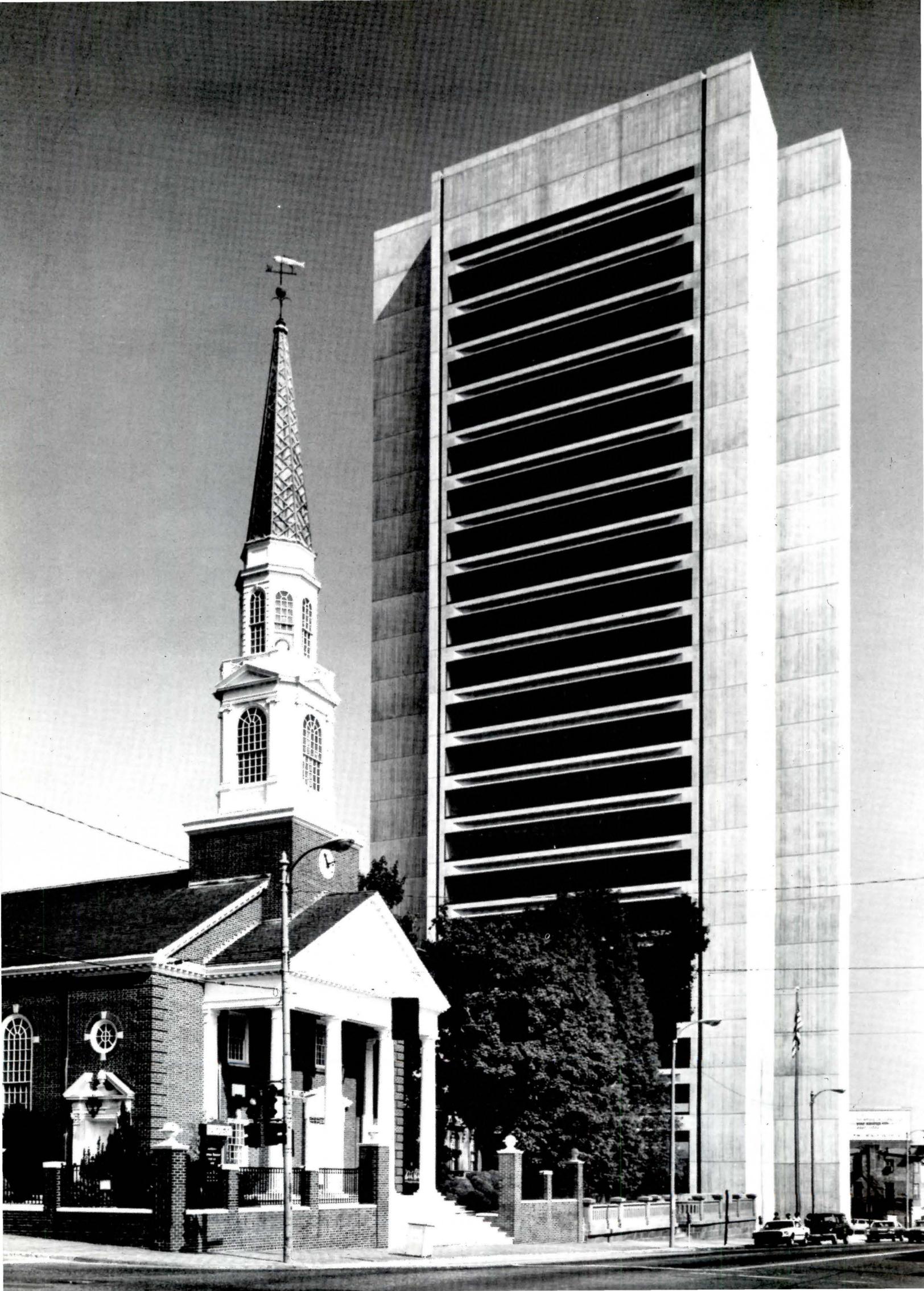
Team: I. M. Pei and Araldo Cossutta, David Helpern, David Martin, Joe Mygatt.

Complete credits on page 108.



The plan at the bottom of these pages shows that same 4.8-mile stretch of Paris' "sacred way." The four one-point perspectives along the top of these pages demonstrate how little the double-tower scheme would intrude into the monumental vista, and how it would keep the great arch visually open.





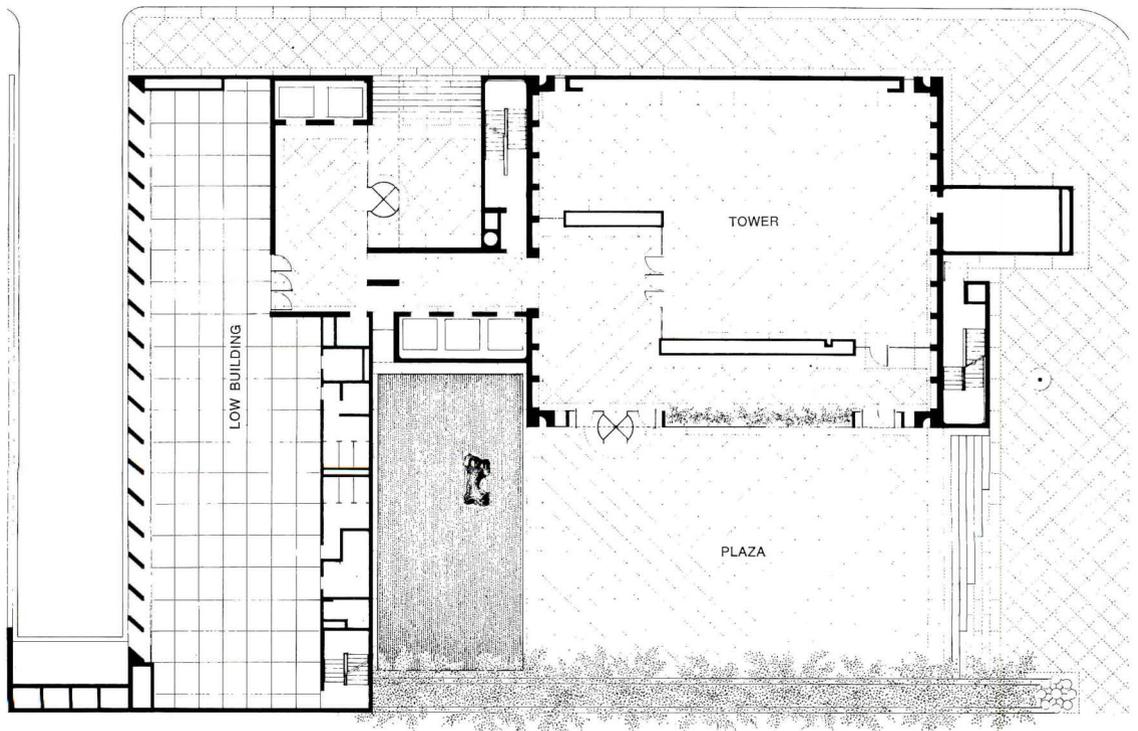
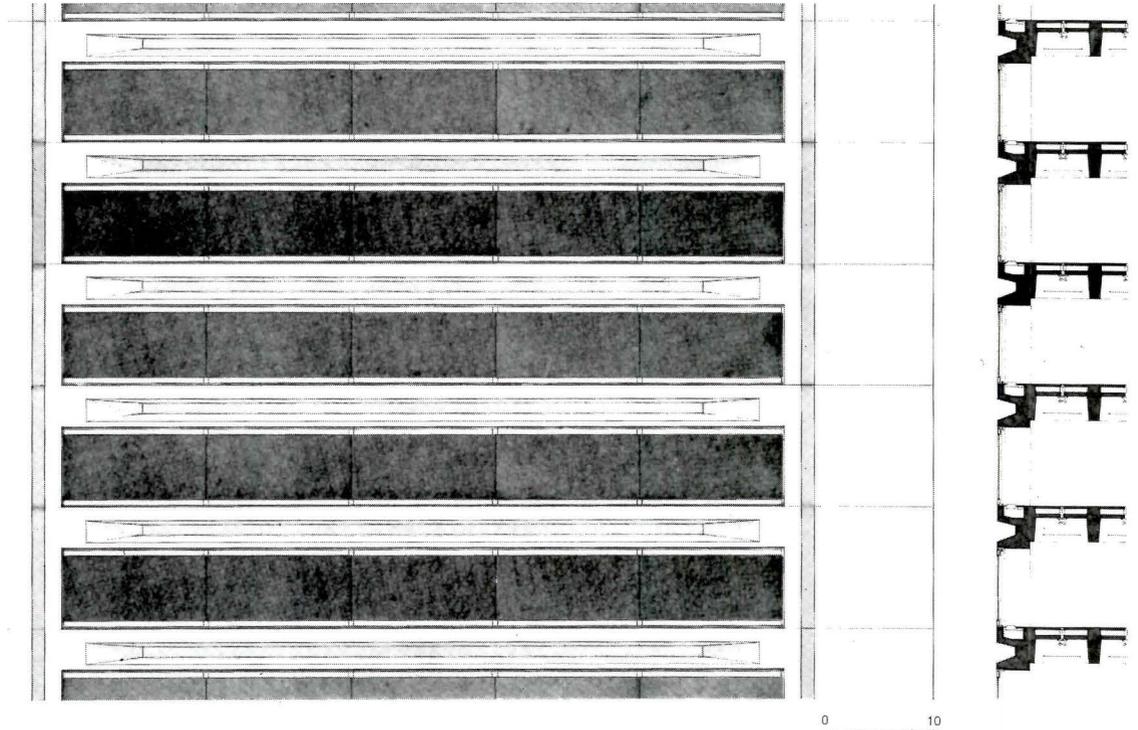
Wilmington, Delaware

Three aspects distinguish this office tower for an insurance company: first, the fact that it is an exposed concrete building, with all the special, plastic opportunities that concrete offers; second, the fact that it is not a service-core tower, but has its elevators, stairs and utility shafts at the two ends of the vertical slab; and, third, the fact that, in spite of the rather modest scale of the project, these architects were able to extract from it certain urbanistic opportunities—a mid-block alcove off the street, for example—that others might have missed.

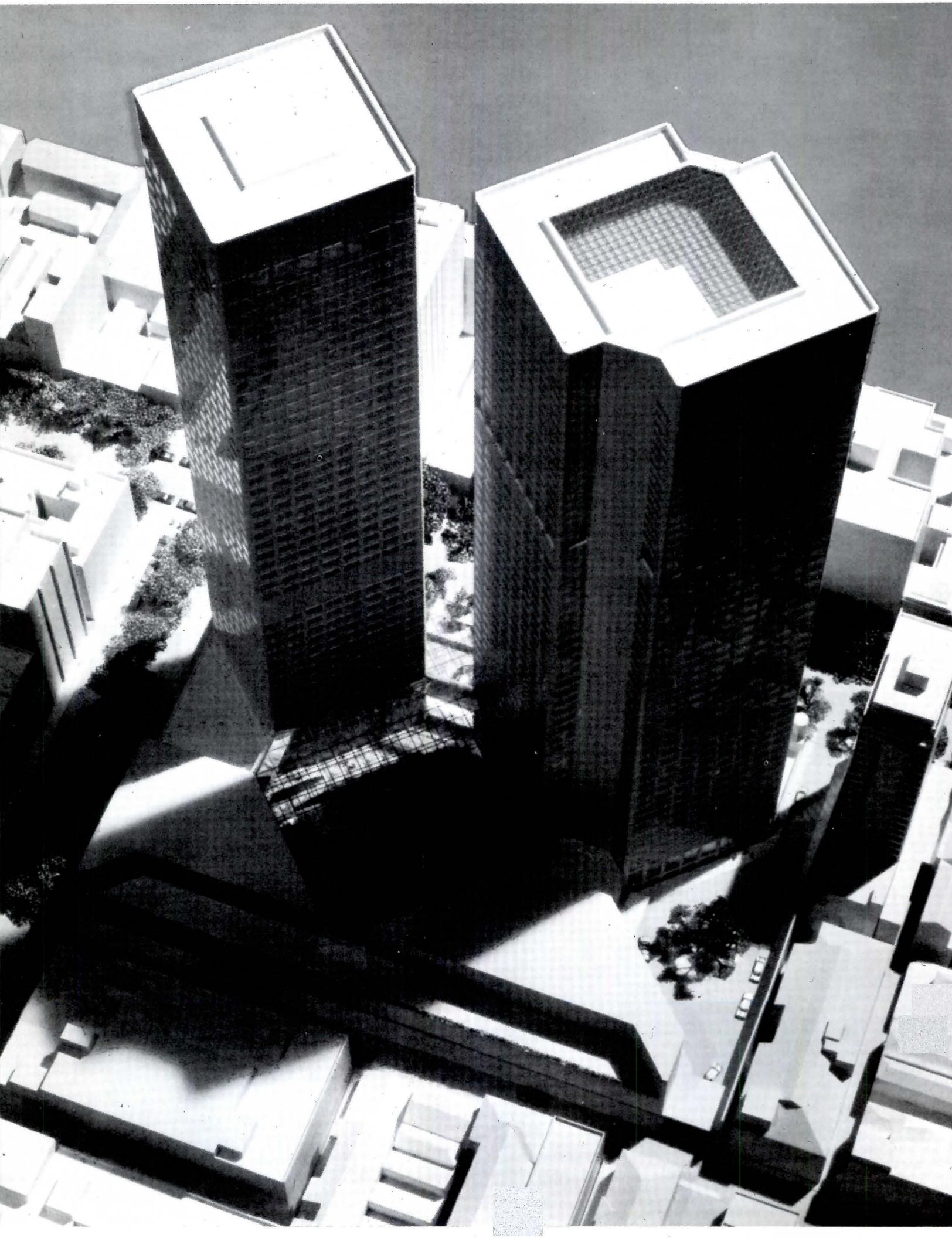
The most striking aspect of this building—its exposed concrete frame—is explained in the details at right. The very spare spandrel beams that stretch 68 feet across the north and south faces of the building are shown to be part of an integrated air-floor system that is a complete “package” containing heating, air conditioning, lighting, all wrapped in the clearly delineated concrete structure. Current U.S. building practice being what it is—i.e. something of a mess unless precast and built in great volume—this eminently rational structure turns out to save little money; but it is so convincing in its reasonableness that U.S. building practice should probably adjust to its persuasiveness.

The unusual plan—service shafts at each end, open loft space between them—is becoming increasingly interesting as “office-landscape” concepts begin to take hold. The floors here are only about 6500 sq. ft. in size; but the column-free loft space, sandwiched between service shafts, offers a wider range of options in interior designs than are usually found in more commonplace office towers.

Finally, the mid-block pedestrian alcove, lined with trees, a pool, and a bank, is the kind of small or medium-sized blessing that the Pei firm has so frequently been able to extract even from the most modest program.



American Life Insurance Company
Team: I. M. Pei, Pershing Wong, Lien Chen, James Morris, Mike Vissicelli.
Photograph: George Cserna.
Complete credits on page 108.

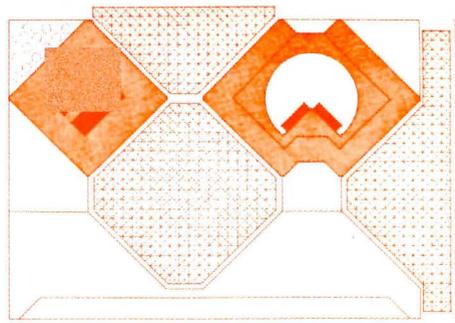


Melbourne

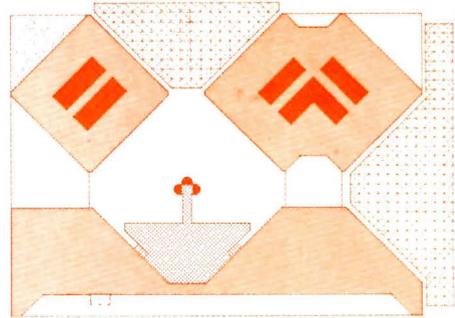
Collins Street, in Melbourne, Australia, is the most prestigious avenue in that city. The 3 $\frac{1}{3}$ -acre site, bounded by streets on three sides, which was given to the Pei firm and its Australian associates by the developers (the Australia & New Zealand Banking Group), thus offered opportunities for a very exceptional complex, on the order of Manhattan's Rockefeller Center—though the latter now covers a site about five times the size of this one.

Apart from the difference in size, Collins Place (as this project will be called) differs from Rockefeller Center in two significant respects: First, the architects and the planner, Vincent Ponte, conceived of Collins Place as a great public space first, and as a grouping of towers, second. This great public space is not a lobby in the ordinary sense, but a 200-ft.-wide covered plaza, with a transparently glazed space-frame roof that helps orient the visitor to the towers that rise on two sides of that plaza. And, second, Collins Place significantly differs from Rockefeller Center (and other, similar urban complexes) in that it will contain a mixture of uses, and thus avoid the after-hours doldrums that make most office centers so deadly at night.

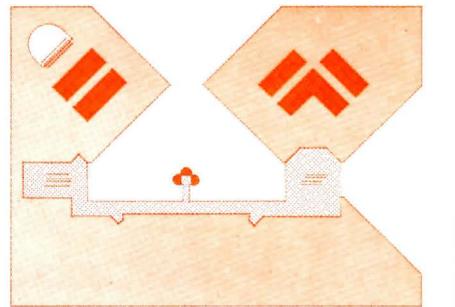
The diagrammatic plans at right explain the complexities of the plan, created in part by differences in elevation of surrounding streets, and partly by the necessary complexities of access, both pedestrian and vehicular (including a trucking entrance that serves all of Collins Place). Yet, stripped of these surface complexities, Collins Place becomes a convincing organism that should be easily understood by all who use it: The great public space is, of course, the key to the entire complex. It is reached from Collins Street by way of a triangular forecourt (also sheltered by a glazed, space-frame roof). Within the great space several levels intersect, and these levels not only reach out to other, adjacent streets, but also to the three-story high ANZ Banking Hall on one strategic corner of the site, and to dozens of small specialty shops to be located on the perimeter of the space, on



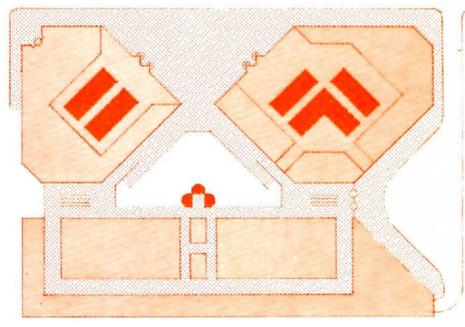
+500.0' TOWER LEVEL



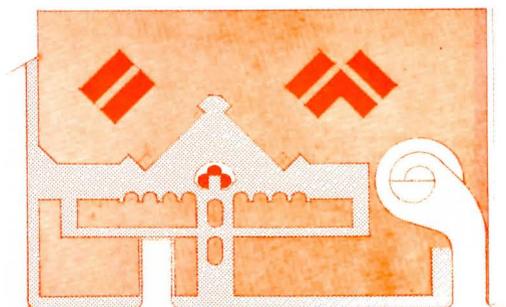
+24.0' TERRACE DINING LEVEL



+12.0' MAIN BANKING & HOTEL



0.0 MAIN GROUND LEVEL



-12.0' LOWER GROUND LEVEL

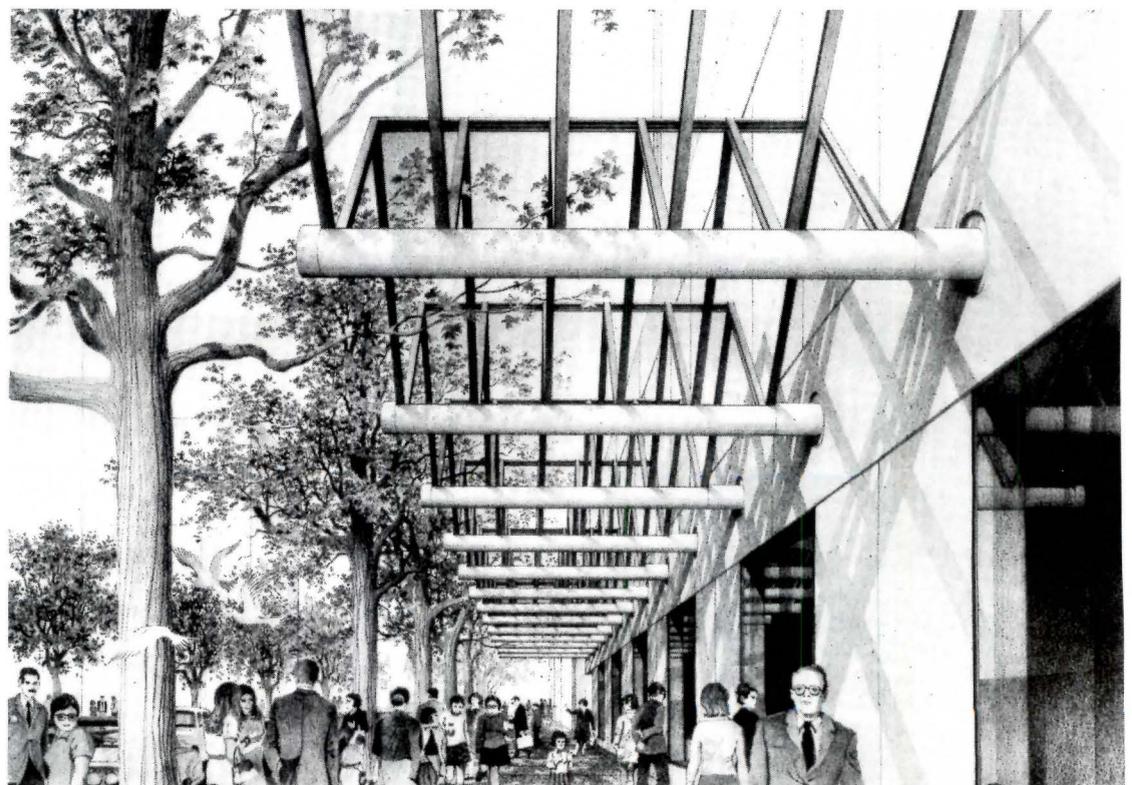
several levels. Cylindrical, glass-walled elevators (top, right) rise through the great space to connect the several gallery levels. The isometric on the opposite page is a diagrammatic bird's eye view. These public facilities are contained in a three-story-high base that follows the rectangular geometry of the site and the streets. Above this base will rise two towers set at 45 degrees to the building line. One, the ANZ Banking Group Tower, is a 42-story office building, 116 ft. square in plan; the other, a split square in plan, is the Collins Tower; this one has 30 floors of rental office space (each containing 22,000 sq. ft. gross), topped by a 15-story hotel. The banquet and reception areas for the hotel are at street level, and overlook the covered plaza. From that level guests ride up to their floors. The hotel has not only dramatic views of the city, but views also into a 15-story tall interior court topped by a huge skylight.

When completed in 1976, Collins Place will be documented in detail in *Architecture PLUS*. Meanwhile, its most significant characteristics are becoming clear: the fact that it is, once again, a private development that has been transformed into a public asset—and the further fact that its mixed uses, as described above, will offer a lively alternative to the sterile downtown enterprises of the past.

Collins Place

Team: Henry N. Cobb, Shelton R. Peed, David King, Randolph R. Croxton, Fred Fang. Architects: Bates, Smart & McCutcheon (Melbourne). Complete credits on page 108.

Perspective, below, shows the interior of the great public space at the center of Collins Place. The cylindrical, glass-enclosed elevators connect the various levels that overlook the space. They contain shops, a banquet hall and hotel reception facilities. View of the sidewalk, bottom, demonstrates that the Collins Place complex will, in fact, follow the configuration of the street up to the third floor. Opposite: isometric view of the great interior space. Banquet hall is on mezzanine level in the rear. Drawing by Ron Williams



Dallas

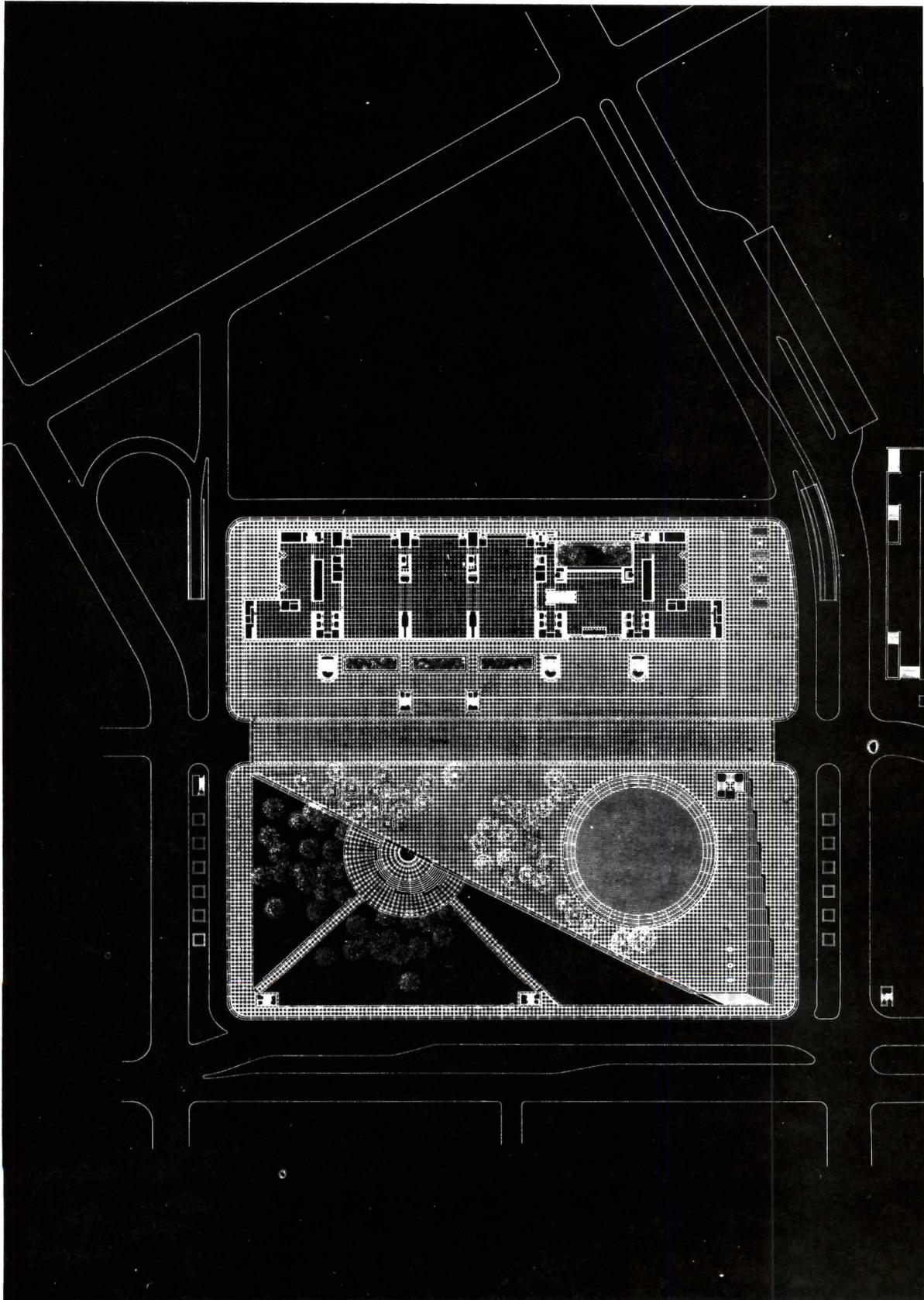
The so-called "Municipal Administration Center" (or City Hall) now under construction in Dallas is a kind of horizontal skyscraper. It is a 775,000-sq.-ft. office building that is also the symbol of city government—and that symbolic function, of course, determined its unusually expressive form and open plan (see next page).

But the new City Hall is more than a symbol and more than an administrative headquarters. When the Pei firm was commissioned to design the new building, the architects began by examining the entire neighborhood in which the building was to stand. It became clear, soon enough, that what was needed was not merely a good building, but a civic space that would generate high-quality development around the City Hall.

The comparative aerial views at the top of the opposite page show the original 7-acre site acquired by the city—and the additional parcels (adding up to a further 10 acres, approximately) which the city came to acquire in response to the architects' analysis.

This additional area enabled the architects to plan for a 1400-car sub-surface garage, topped by a pedestrian plaza and a park—something heretofore lacking in Dallas. Further, the acquisition of parcels adjacent to the proposed park enabled the architects to plan for future civic buildings and to open up opportunities for private development of the park's fringes that would upgrade the present, rather seedy neighborhood.

Without an energetic and adventurous civic leadership, it is unlikely that I. M. Pei & Partners could have persuaded the powers that be to acquire the necessary extra space. Still, the architects' persuasiveness was impressive: They demonstrated with the utmost clarity that the new City Hall could be made to generate tangible and intangible civic assets for Dallas that would not become completely evident until the building and its park had become a reality.



Dallas City Hall
Team: I. M. Pei, Eason H. Leonard,
Theodore J. Musho, Theodore Amberg.
Complete credits on page 108.

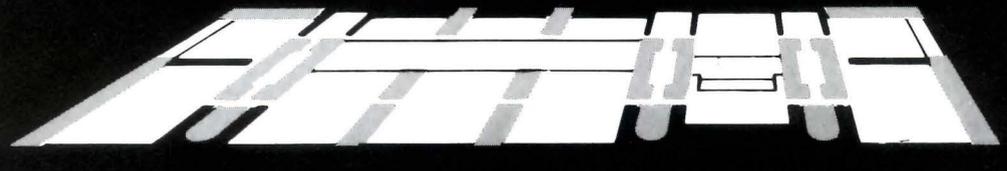
Diagrammatic plans of Dallas City Hall show eight levels above grade. There are three additional levels below grade; these contain police, fire department, and other services, and are linked to the three garage floors below the park. Opposite: One of Senior Associate Ted Musho's inspired drawings—an impression of the City Hall seen from its narrow west end.



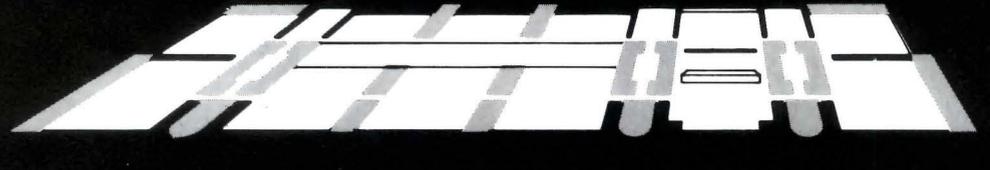
ROOF GARDEN LEVEL 8



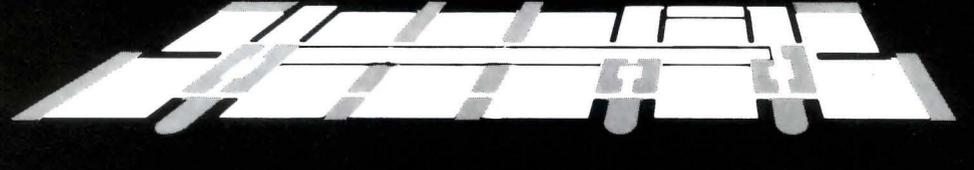
TECHNICAL SUPPORT LEVEL 7



TECHNICAL SUPPORT LEVEL 6



TECHNICAL SUPPORT LEVEL 5



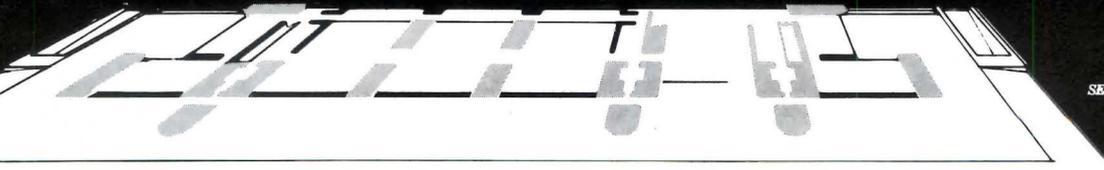
ADMINISTRATIVE LEVEL 4



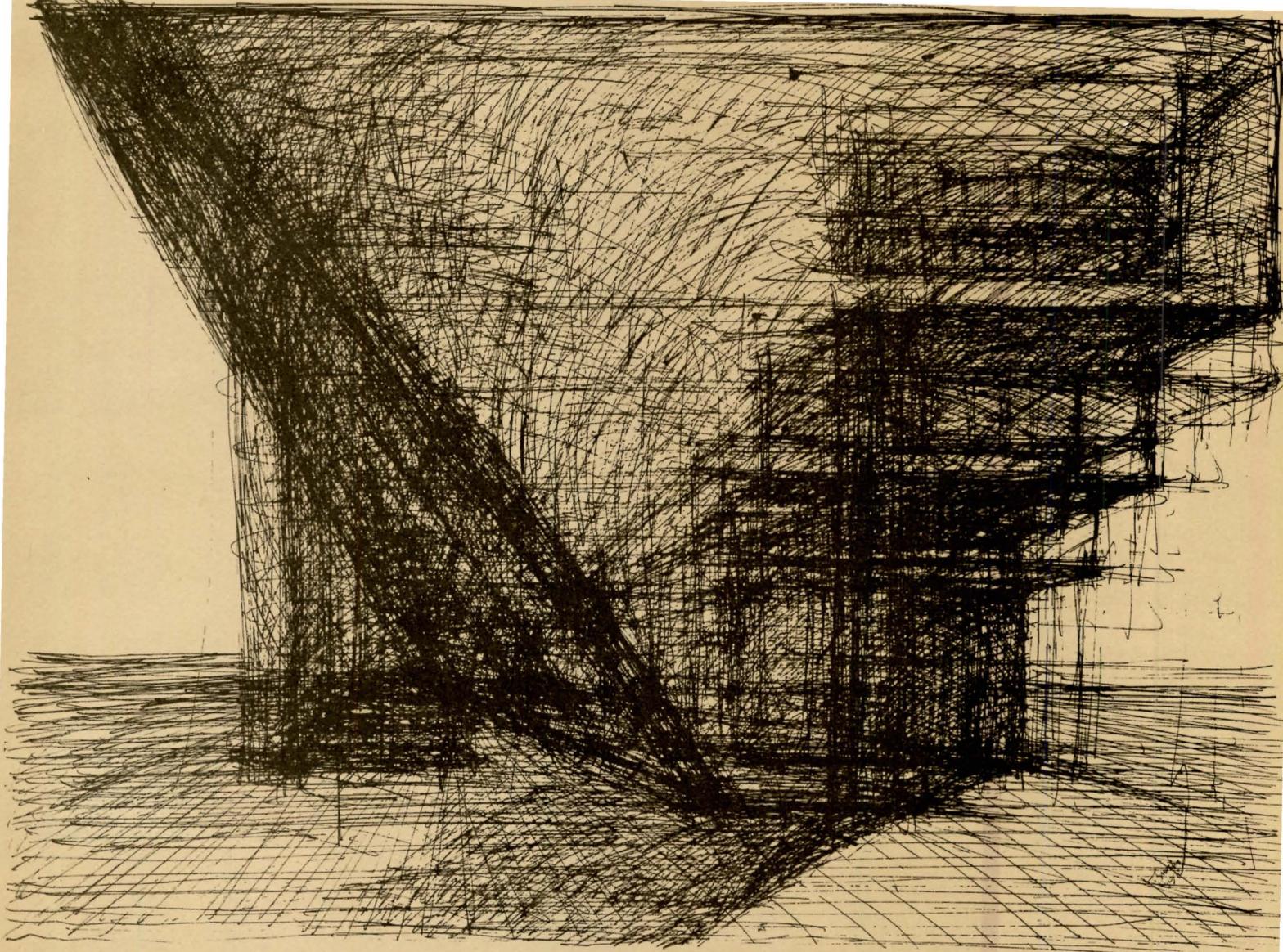
ADMINISTRATIVE SUPPORT LEVEL 3



PRIMARY PUBLIC SERVICE LEVEL 2



SECONDARY PUBLIC LEVEL 1



Art Jil ing

Moore's *Large Arch* at Columbus, Indiana.
Below: A Moore *Reclining Figure* at Syracuse, N.Y.

By no means the least accomplishment of the Renaissance was the seemingly easy collaboration between architect, painter, and sculptor (indeed the three were sometimes the same man). Since then, we seem to have lost the gift for such collaboration, but a few architects are working to regain it.

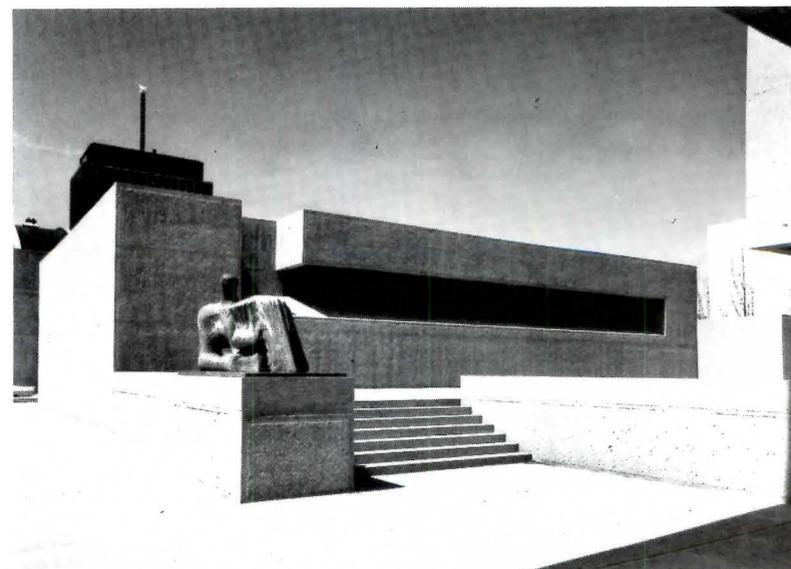
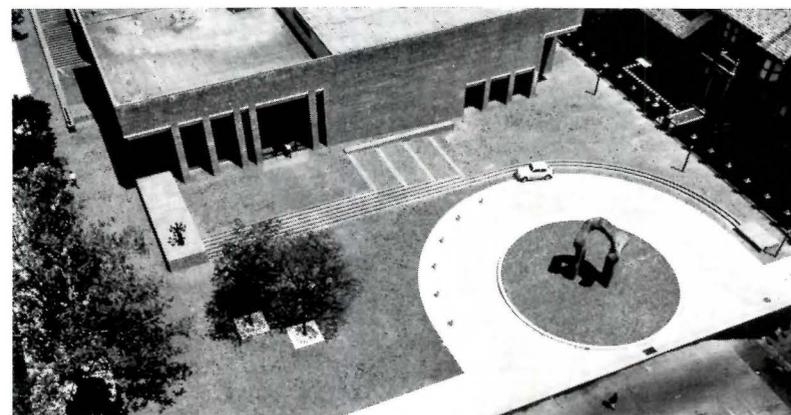
Probably no other architect today has as adventurous and influential a personal collection of painting and sculpture as Philip Johnson, and, in a smaller and generally more conservative way, Skidmore, Owings, & Merrill's Gordon Bunshaft is also an eager collector ("Gordon really has an incredible eye," I. M. Pei remarks). These and other architects are frequently employing sculptors today, Bunshaft most recently in commissioning Jean Dubuffet's *Four Trees* as a foil for the Chase Manhattan Plaza in downtown New York. But, of all architects now practicing, it is Pei who shows the greatest ability for making his buildings combine with art to form seemingly inseparable wholes. Perhaps this is because Pei knows when NOT to use art. "One percent of the construction cost for art is no longer unusual," he says, "but I never use art as decoration. I use art only where nothing else will do."

One such place was the Rogers Memorial Library Pei designed for Columbus, Ind. Columbus was already rich in fine individual buildings, but it lacked a focus. The library alone was too small to provide such a focus, but Pei persuaded the city to close an adjacent street, and he placed the library so that it worked with two other buildings to frame a public square. The essential key to the plan's success, however, was the introduction of a significant rallying point.

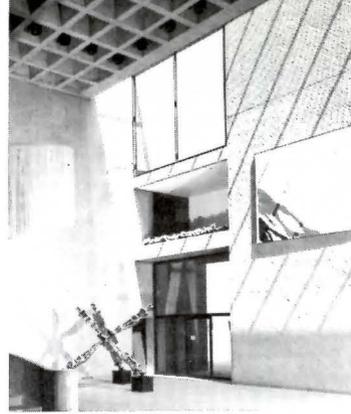
Pei sought out Henry Moore in his studio in England at Much Hadham, Hertfordshire, and presented the problem to him. Pei mentioned his admiration for a small Moore arch he had seen in New York City and which his daughter had delighted in running around and through. Could a similar piece be enlarged enough to allow adults to walk through? Moore thought it could.

After looking over Pei's plans, Moore spoke briefly with his assistant (he has had some excellent ones: Anthony Caro, considered one of the best sculptors of the younger generation, is a graduate of Moore's studio). In two hours, while Pei and Moore were having tea on the terrace, the assistant put together a full-size Styrofoam mock-up of the arch. Both the architect and the artist were delighted with it. "I. M. Pei came to me and wanted the arch," Moore said recently, "and we scaled it up from the one that I consider a working model at the Museum of Modern Art. . . . I wouldn't let an architect have something that I thought would be wrong with his building. . . . This one is right for Pei's library." It is also right for Columbus. *Large Arch*—not only often walked through now, but, on fine days, even the location for children's classes—transforms an open space into a civic event. The arch, incidentally, was cast in bronze in Berlin, then shipped to New Orleans, and finally barged up the Mississippi.

Another Moore, *Two-Piece Reclining Figure No. 3*, marks the entrance to Pei's Everson Museum in Syracuse, N.Y. (completed in 1968). Entering the museum would certainly be a lesser experience without it, and its forms seem a happy complement to the strongly sculptural—but very different—forms of the museum behind it. Such competition is intentional; Pei thinks, in fact, that a bland architecture is an unworthy background for art. "Unless one challenges the other," he says, "there is no



The Picasso head at Pei's University Plaza housing in New York. David von Schlegell sculpture in Boston.



The skylit, central gallery of Pei's Everson Museum, in Syracuse, N.Y., was designed to hold sculpture. Even so, the diagonal shadows that streak across this Morris Louis painting would not be much welcomed by sculptors either.



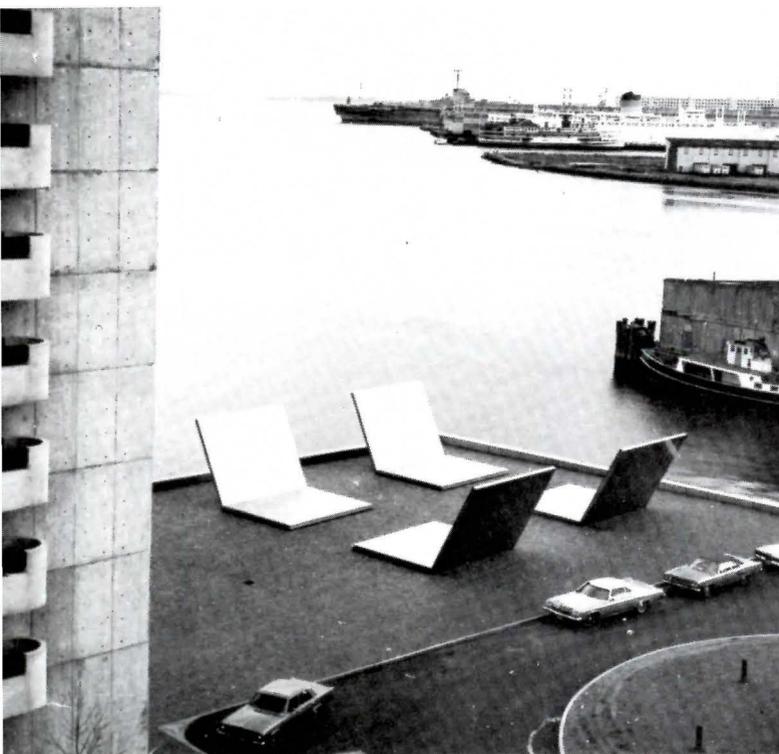
successful interplay between building and sculpture." On rare occasions—as when a striking circular stair upstages any sculpture put near it, or when dramatic lighting from a skylight overwhelms a painting below—Pei's buildings can present *too* great a challenge to art; much more often, however, the combinations are exhilarating. On the MIT campus, in Cambridge, Mass., for example, the Earth Sciences tower and the great Calder stabile before it are a well-matched couple indeed, each enhanced by the strength of the other.

To create such combinations, an architect needs not only taste but also a world of tact in dealing with artists. Determinations of scale and placement are ideally the joint work of sculptor and architect—and each sculptor works in his own way. In the case of the giant Picasso head among the three towers of the University Plaza housing for New York University, Picasso received a block model of the entire scheme and confirmed Pei's choice of size and position; in the case of the Columbus arch, Moore trusted Pei to place it as he thought best, requesting only careful orientation to the sun.

An architect using sculpture also needs, at times, great powers of persuasion over his client. When Cobb's Harbor Towers apartments on the Boston waterfront were begun, the developer was obligated, in a land disposition agreement with the Boston Redevelopment Authority (BRA), to spend one percent of the sizeable construction cost (about \$20 million) for art—and in a manner approved by the owner, the architect, and the BRA. Partner Henry Cobb and Wayne Andersen, an MIT historian then advisor to the BRA, were determined that the funds should not be frittered away on "lobby art," but that a major share be marked for a single major work. The result of their determination is a sculpture really commensurate with the scale of its site: David von Schlegell's composition of four beautifully reflective stainless steel angles forming a 60-ft. square. As von Schlegell describes it, this is not just an object but "sculpture as place."

In developing their college campus in Fredonia, N.Y., the Pei firm thought a Robert Murray piece—a bright red focus among the concrete buildings—critical to the success of the campus, but no funds were forthcoming. They had the piece shipped to Fredonia nevertheless, installed it on a loan basis, and left it there to make its own case—which it did. At the eleventh hour, just before the Murray was to have been taken away, it was purchased by the college.

In addition to these uses of sculpture to strengthen and vitalize public spaces, the office has produced a series of remarkable buildings for the housing, study, and celebration of the arts. Three principles show clearly in all of them: the consideration of art placement at the earliest stages of design; development of a vocabulary of architectural forms equal in vigor to the sculptural forms in and around them; and the provision of two distinct types of museum space—closed spaces for controlled display and—connecting these—open spaces glorifying visitor circulation and themselves claiming appreciation as sculptural achievements. We will look at four of these buildings on the following pages.—STANLEY ABERCROMBIE.



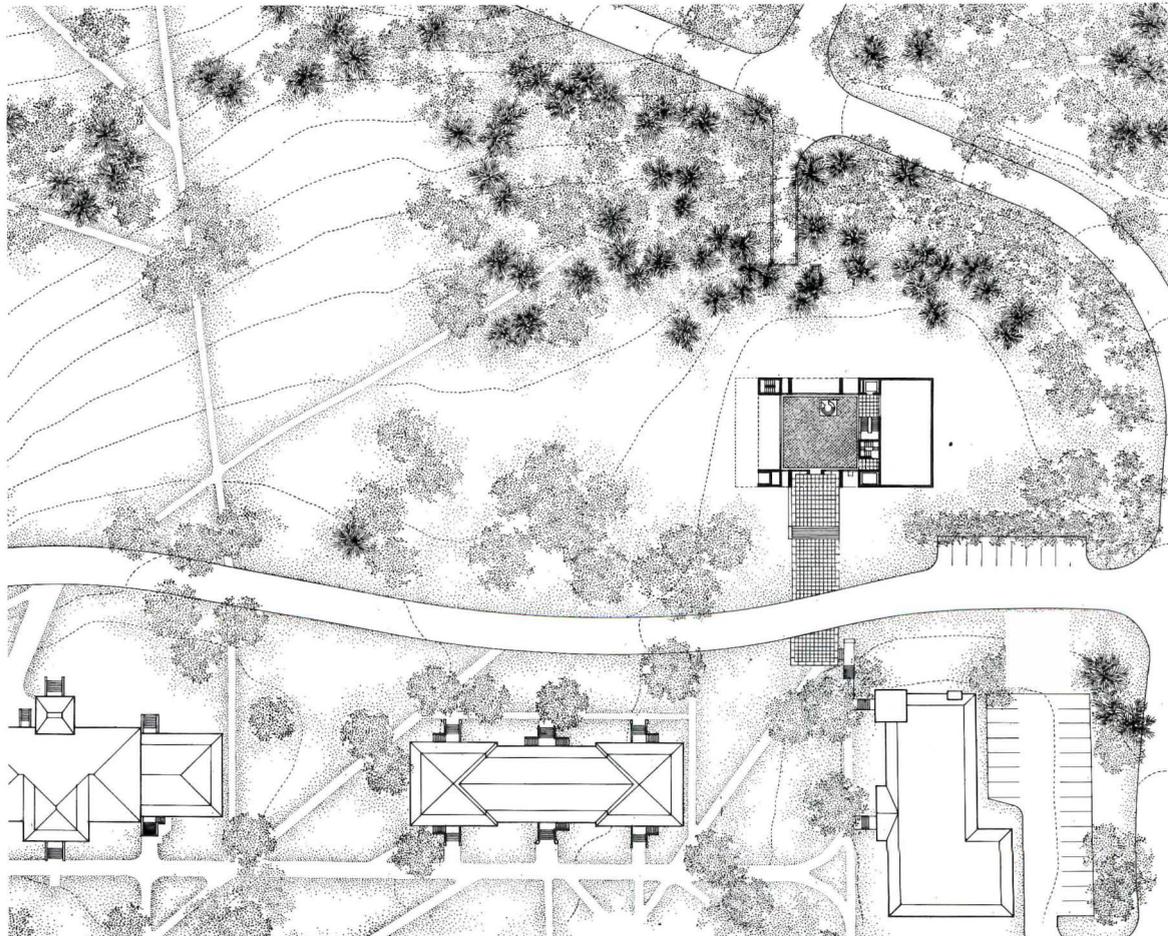
Photographs: page 56 (top and middle) Balthazar Korab; (bottom) Ezra Stoller © ESTO. Page 57 (top) Ezra Stoller © ESTO; (top left) George Cserna; (bottom left) C. B. McGovern.

Wallingford, Connecticut

In the Paul Mellon Center for the Arts, built for the Choate School in Wallingford, Conn., Pei has played intriguing games with geometry. In plan, two squares, slightly overlapping, are carved out—the auditorium square carved with a curve, the teaching square at forty-five degrees—to create two solids around a central diagonal void. The apparent opposition between the two positive forms (physically connected only below grade) is explained when one realizes that the building's most important space is really the central passage and its most important function that of a gateway between Choate and the neighboring campus of Rosemary Hall, another preparatory school with new buildings by James Stewart Polshek.

As well as a happy mixture of Choate boys and Rosemary Hall girls, the building accommodates a happy jumble of facilities for arts—practice rooms, a recital room, an experimental theater, a mezzanine painting studio, and an auditorium. Even this largest room has many aspects: baffles can seal off either the balcony or the stage house to vary the seating capacity from 400 to 840 and the acoustic qualities to suit either chamber music or musical drama.

Inside the sculptured concrete forms, some technical problems remain (the insulation of sound between mechanical room and stage, and the insulation of heat from the teaching wing's great skylight and the lounge and work areas beneath it), but solutions to these problems are being studied, and the building seems happily to accomplish its goal: to provide an attractive meeting place between two schools where the students will be provoked to think not only about each other but also about a variety of architectural spaces and a variety of arts.



Mellon Fine Arts Center

Team: I. M. Pei, Ralph A. Heisel, John Scarlata, Paul Veeder, Murray Kalender, Robert Lym.

Photograph: Joseph Molitor.

Complete credits on page 108.

Ithaca, New York

Perhaps the most startlingly mannered of all Pei's recent buildings is the Johnson Art Center nearing completion at the Cornell University campus in Ithaca, N.Y. It is a gift of Herbert F. Johnson, a Cornell alumnus and, several times in the past, a client of Frank Lloyd Wright. The spectacular form is spectacularly sited: it emphatically terminates a long open space sloping up to it through the campus from the south, and its north face overlooks Fall Creek Gorge and Lake Cayuga. "High above Cayuga's waters," it seems, is being given new significance.

The most prominent feature of the building is an open space at the third floor level, a sculpture terrace that combines the virtues of seeing sculpture in the open air with the demands of the Cornell administration that its collection be secure and beyond the reach of vandals. Around this central void, the building is divided into three elements:

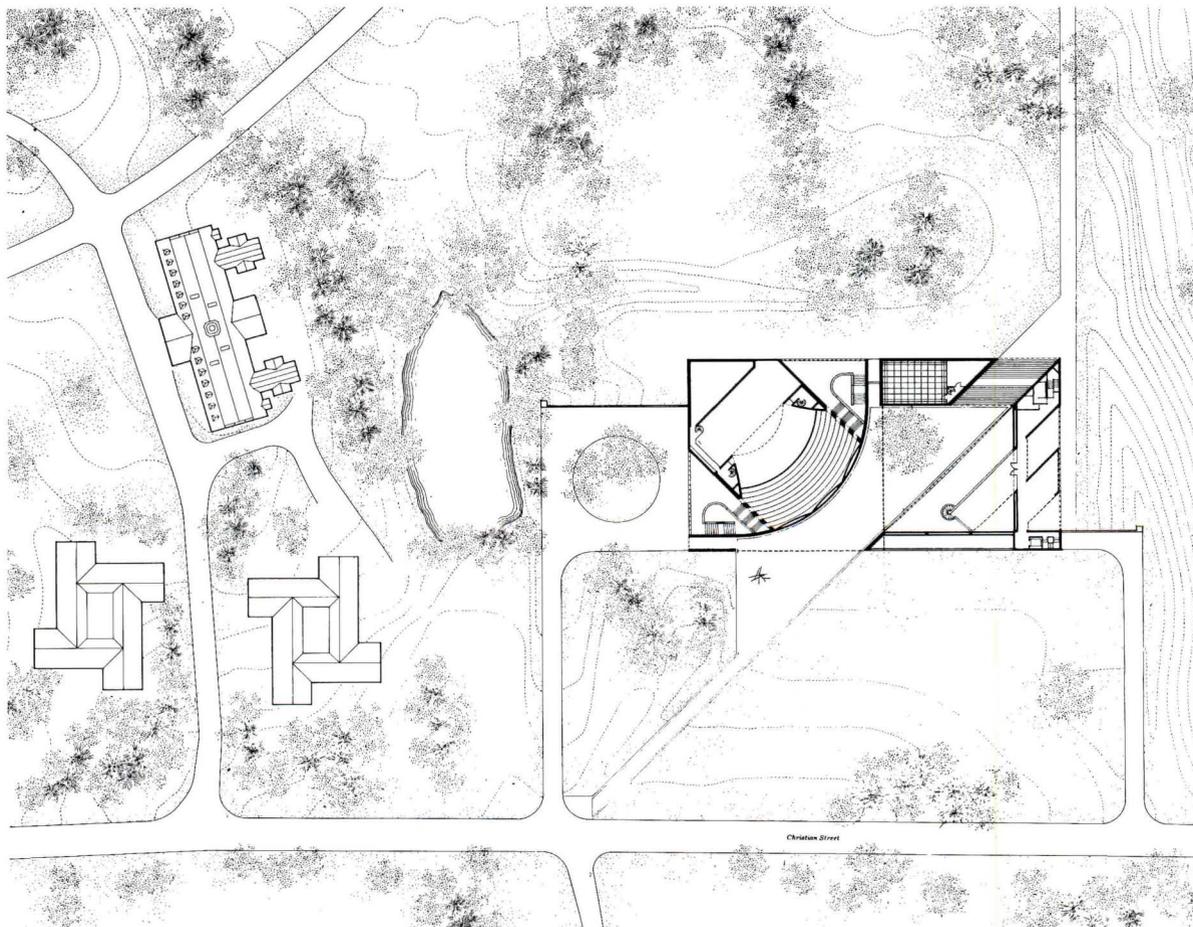
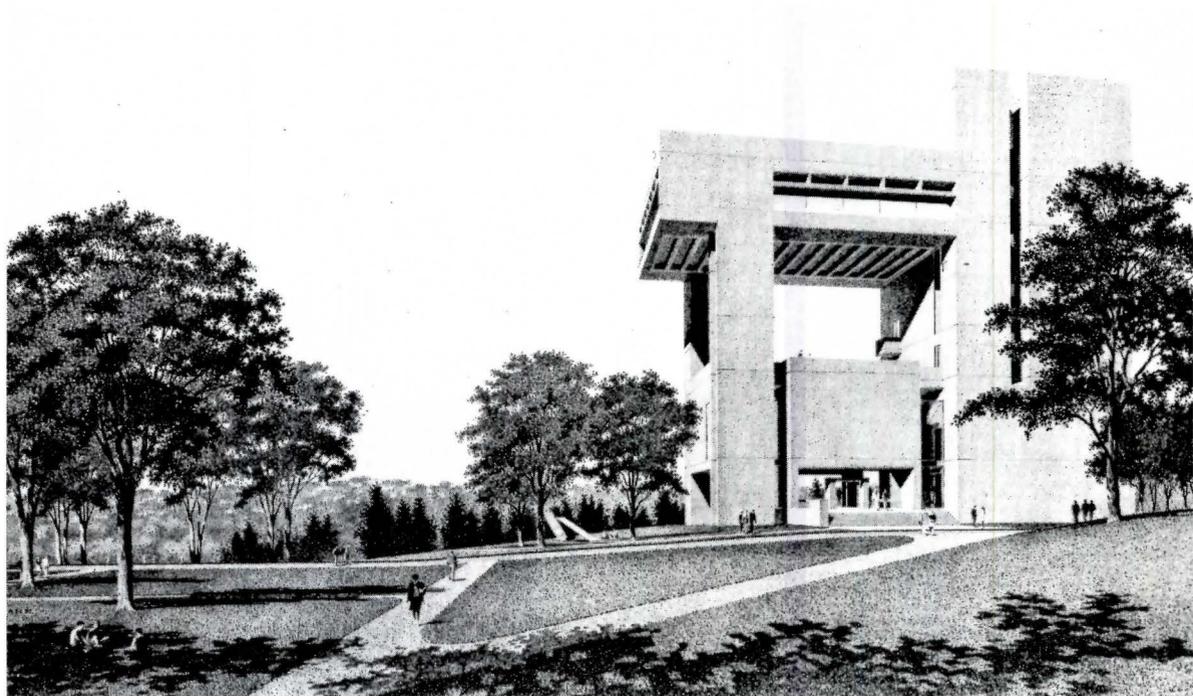
First, the public areas on the lowest levels, including some generous gallery space below grade for temporary exhibits. Here the spaces open into each other with dramatic views, stairs are obvious architectural elements, and the public is encouraged to flow freely.

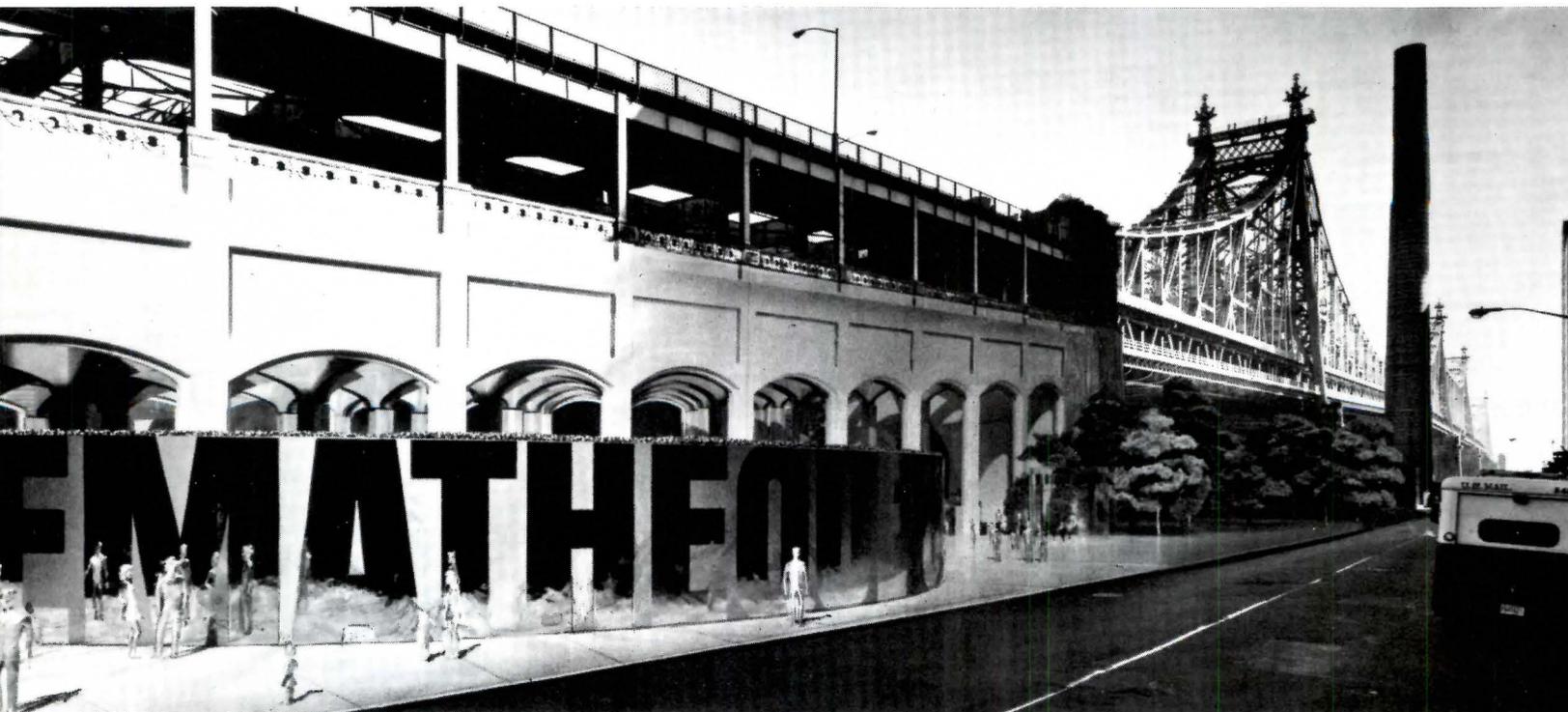
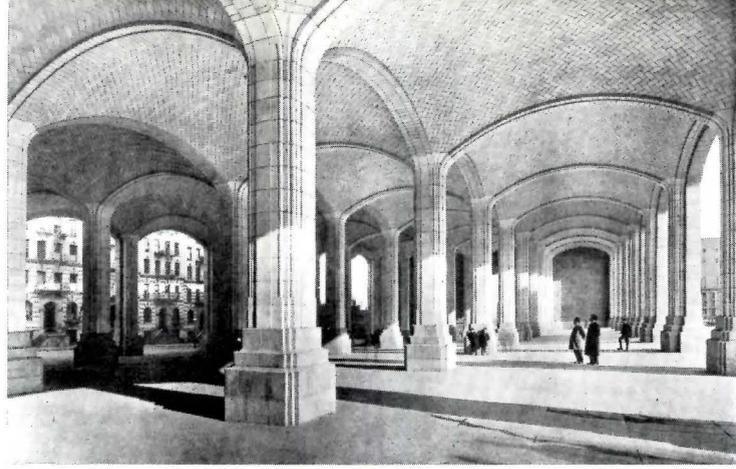
Second, the tower on the north side of the building housing offices, a small library, and, at the top, a glass-walled meeting room for University trustees.

Third, projecting as a roof over the sculpture terrace, a special study gallery for the University's prized Asian collection. Here again, security has been a planning determinant: Asian ceramics will be placed in glass cases directly from a central storage area and viewed from a separate public corridor on the perimeter that will also open its outside walls to the view.

The building is of tan concrete, constructed with pours as long as 60 feet and as high as 20 feet. Construction joints have been minimized to give as monolithic an effect as possible.

Herbert F. Johnson Museum of Art
Team: I. M. Pei, John L. Sullivan III,
Robert Landsman, Floyd Brezavar.
Complete credits on page 108.





New York City

The space—not exactly a building—for Pei's new Cinémathèque project is the great open area between street level and the tiled vaults under Manhattan's 59th Street Bridge. In the 1910s it was the site of a prosperous open market; in 1916 it was glazed in as a covered market; it was given a mosaic fountain in 1918; and it continued in popular use until the 1930s. Today road signs and police barricades are stored there.

The space's new uses will include three movie theaters (for 150, 250, and 550 seats), a film library, a shop for books and film-related materials, and a restaurant, cafe, and exhibition space. Under the auspices of the New York City Center and with the approval of two community planning boards (the bridge being the dividing line between the two's jurisdiction), the establishment will be modeled on Paris' Cinémathèque Française (the world's largest film archive) and its new affiliate, a film museum at the Palais de Chaillot. Henri Langlois, creator of the Paris facilities, will be Artistic Director for their New York offspring.

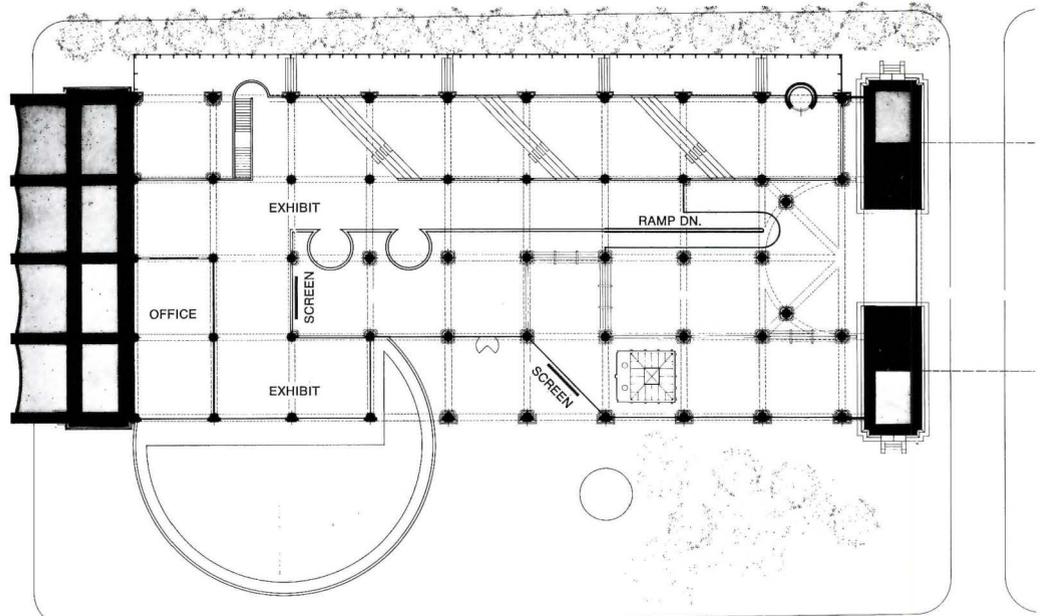
The design solution is at once exciting and unassuming, a variety of new spaces and experiences, yet all partaking freely of the existing vaulted grandeur above. An adjacent parking lot will be made over into a park.

The cultural focus which the Cinémathèque will provide, in an area of mixed uses and mixed incomes, may be made even more important by its proximity to two proposed new transportation facilities, the Second Avenue subway and a bridge-related rapid transit to Welfare Island. It could even help catalyze other hopes for the area, such as a 59th Street mall or a decking over the FDR Drive to provide a continuous pedestrian promenade from the bridge to Carl Schurz Park (and eventually along the entire waterfront).

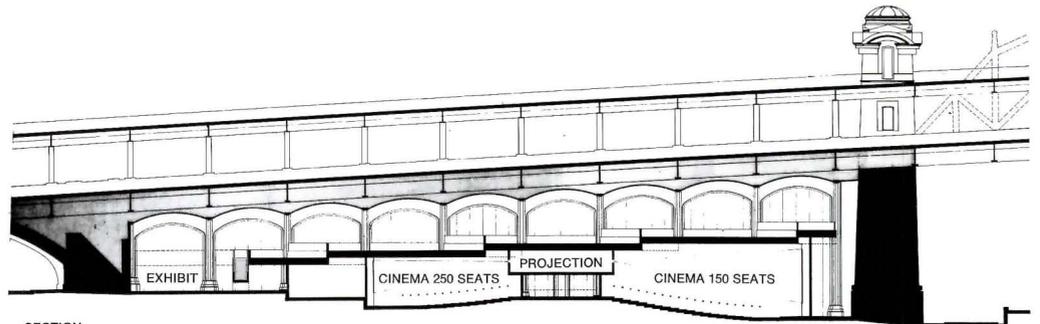
Cinémathèque

Team: I. M. Pei, Harold Fredenburgh, Andrew Gorczynski, Françoise Bollack. Photographs: Museum of the City of New York (top); Nathaniel Lieberman (bottom).

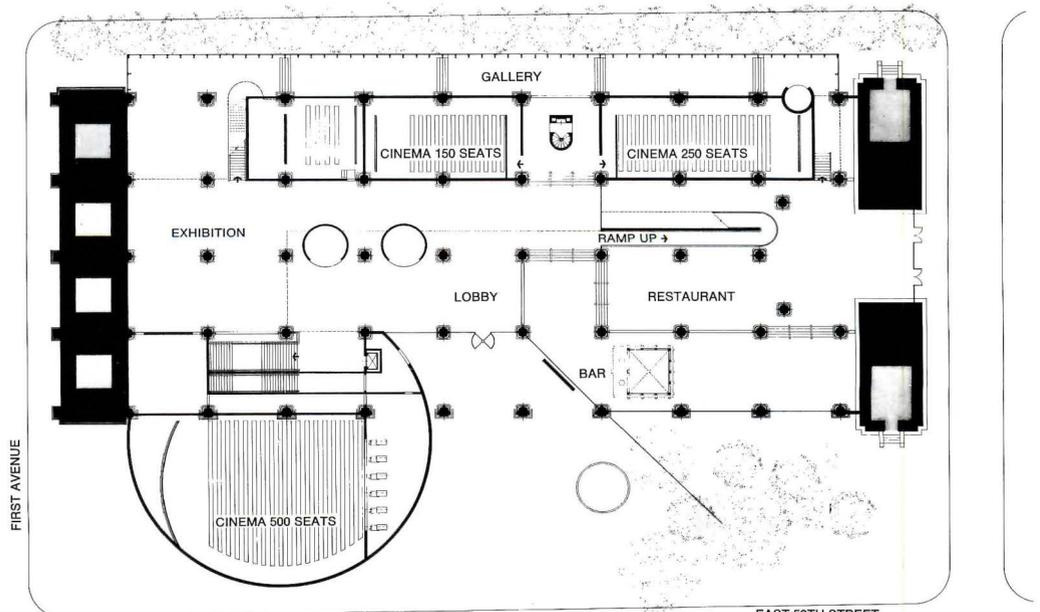
Complete credits on page 108.



UPPER FLOOR PLAN

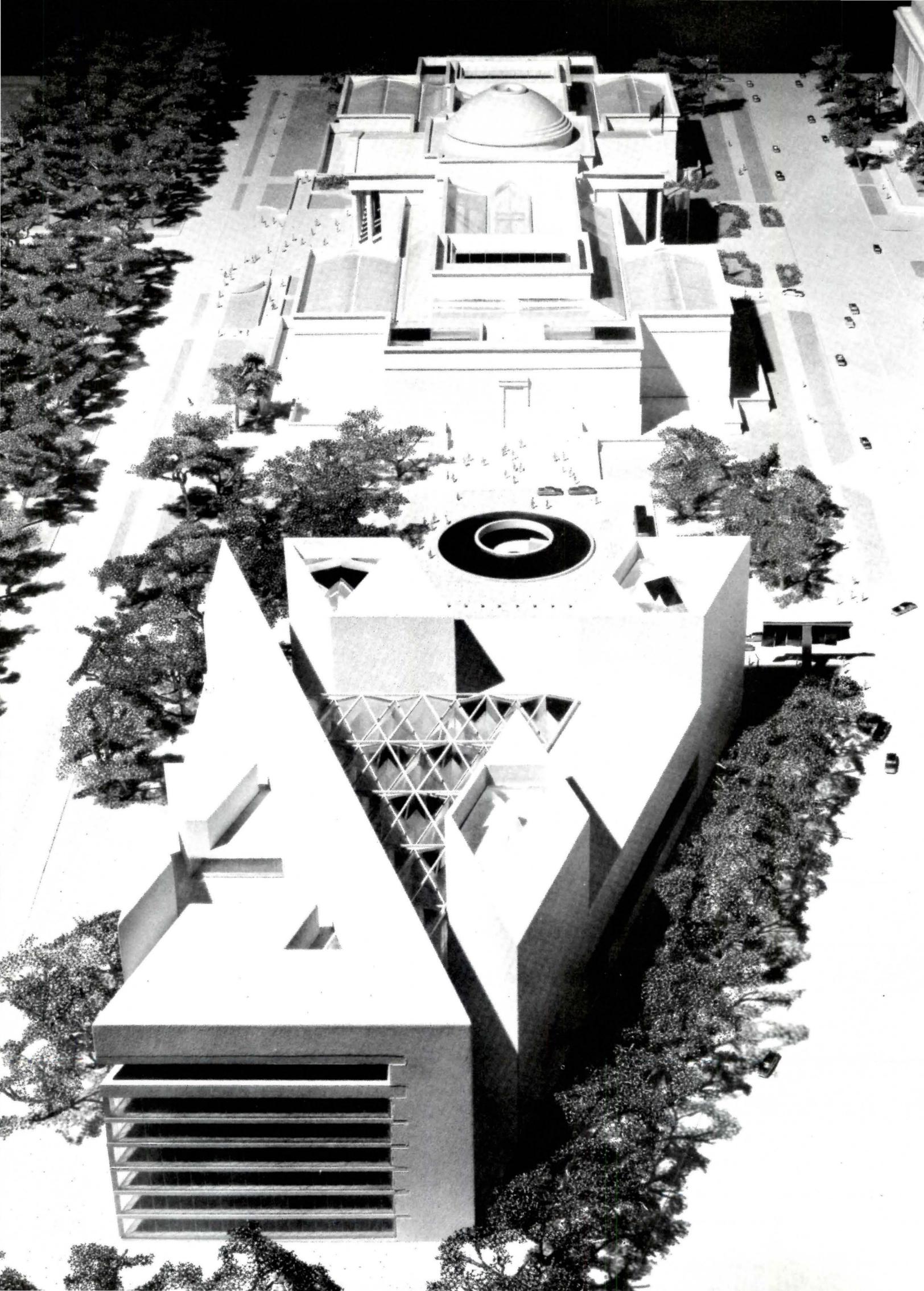


SECTION



MAIN FLOOR PLAN

EAST 59TH STREET



Washington, D.C.

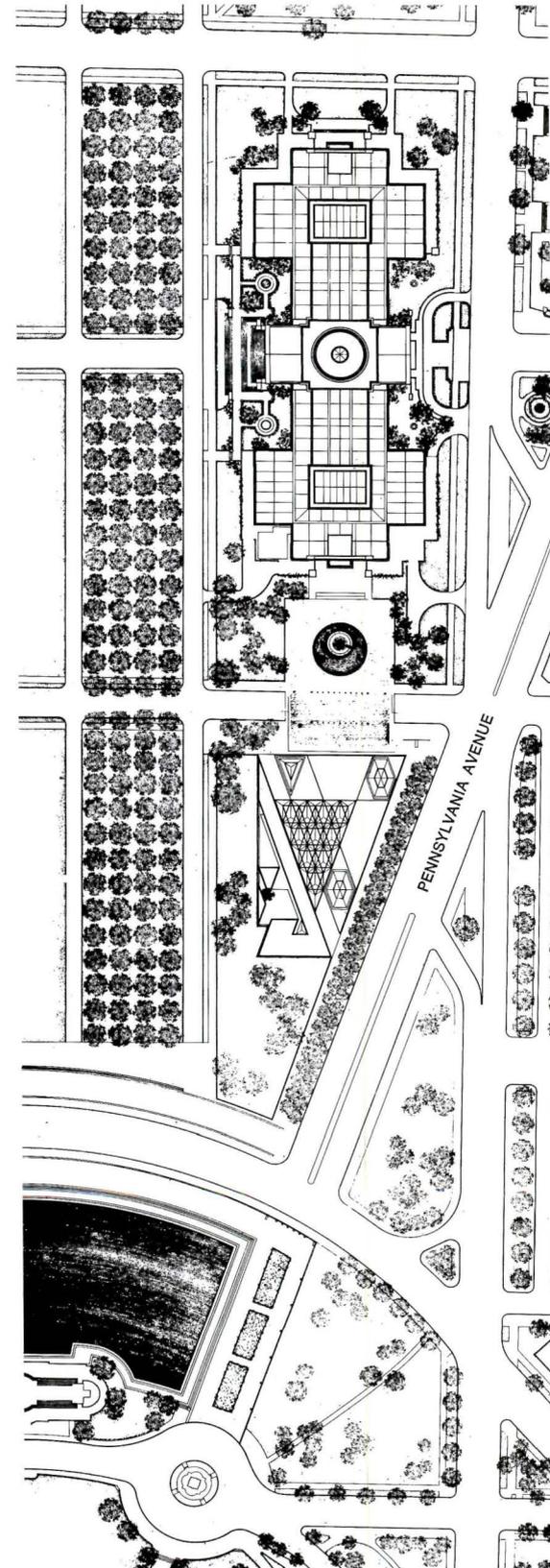
Construction photo and site plan of the National Gallery addition, with the original domed building at top and the Mall at left.

If the United States has a *via sacra*, it is surely the Mall in Washington, D.C. Conceived in 1791 by Major L'Enfant, and now sweeping grandly from the Capitol to the Lincoln Memorial, no other place in America can match its monumentality and history. Along this sacred stretch, three new buildings for the arts are planned, and the three architects with such temerity are Gordon Bunshaft of Skidmore, Owings & Merrill (for the Hirshhorn Museum, already well along in construction), Gyo Obata of Hellmuth, Obata, and Kassabaum (for the National Air and Space Museum), and I. M. Pei & Partners for a major addition to the National Gallery of Art.

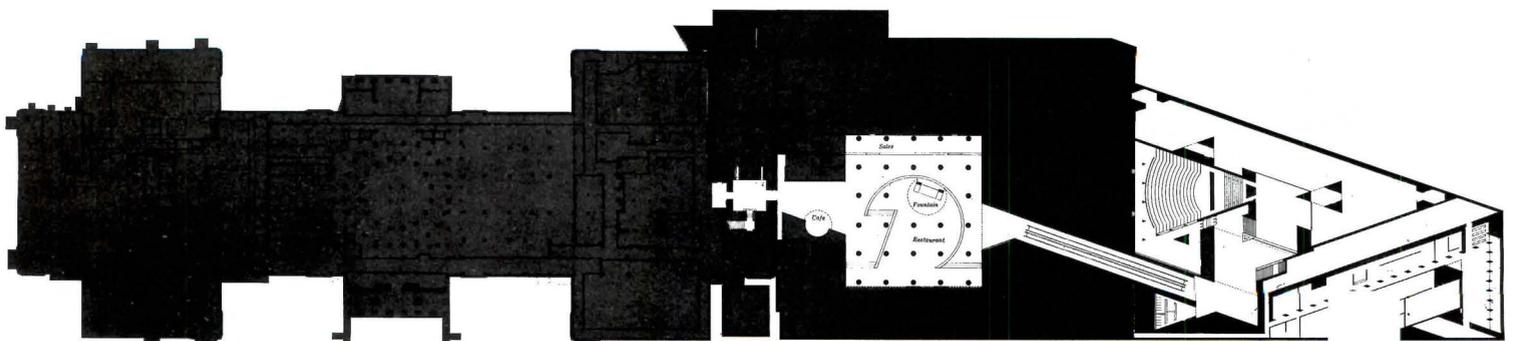
Pei's building is still in construction (an opening by July 4, 1976, is the aim), but the beautiful drawings and scale models prepared by the Pei office promise that it will be a splendid achievement: at once, a brilliant example of civic planning, the most strongly organized and most flexible of all Pei's buildings for the arts; and the best modern building in the Federal Triangle.

Basically, the building is divided into two adjacent elements triangular in plan, the smaller one housing functions with restricted public use, the larger housing public galleries. The resultant form responds ingeniously to its surroundings, strengthening the end of Pennsylvania Avenue as it approaches the Capitol, respecting existing building lines along the mall and presenting to the east façade of the National Gallery an elevation directly on axis with that of the older building and compatible with it both in materials and basic (but modified) symmetry.

John Russell Pope's original building for the National Gallery was begun in 1937 and opened in 1941. Though hardly adventurous for its time (Wright had, after all, completed Fallingwater, and Mies had begun the IIT campus), it was neat, skillful, and respectful of the Mall. It was also completely self-sufficient. In addition to it, Pei realized that the Pope building must remain freestanding; the new wing is 380 feet from the old, the two connected only by an under-



Model of the skylight-covered central space connecting galleries. Below, plan of the Concourse Level (below grade). Considerable alterations are being made to the older (shaded) building at this level for easy circulation to the new addition.



CONCOURSE LEVEL

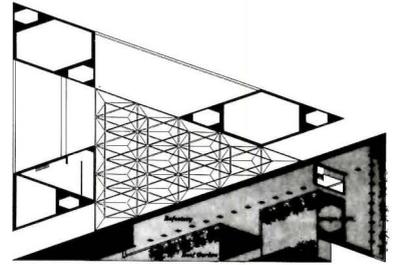
Ground level of the central space with stairs to the mezzanine level beyond. Below and at right: the plans at grade and upper levels.

ground concourse containing sales areas and a variety of dining rooms.

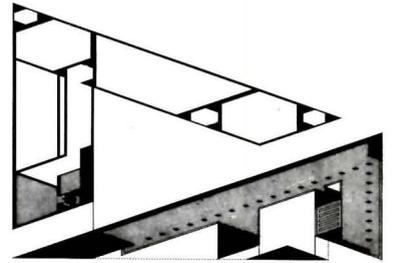
Facing the Mall in the new building will be a center for advanced studies and, at its heart and rising the full height of the structure, the reading room of the center's research library, one of its corners opened to the exterior for a direct view of the Capitol. (Will even the most dedicated scholar be able to look at his book in such a spectacular room?) Surrounding the library will be offices and other facilities for the center's fellows, the curators, and the administration.

The larger part of the building, facing an entrance plaza shared with the older building, will be a marvelous complex of exhibition galleries. "Museums are no longer just for connoisseurs," Pei says. "Public interest in museums has risen so rapidly lately that they have become much more than storehouses for art; they have become also important places of public gathering." The National Gallery addition will be well suited for that role.

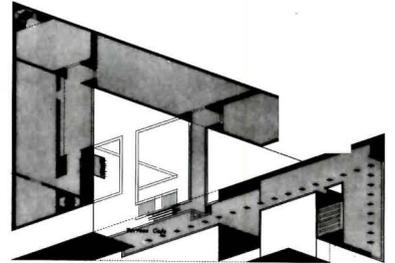
As in his earlier Everson Museum, Pei has planned, at the corners of the triangular gallery wing, enclosed exhibition areas where the disposition of art will be flexible and its lighting controlled. Between these perimeter galleries, and seen by visitors passing from one gallery to another, will be a large and lively central space roofed by a dramatically faceted skylight. It will most likely house a few major art works of monumental scale, but its primary functions are to offer an appropriate space for public coming and going—for people-watch-



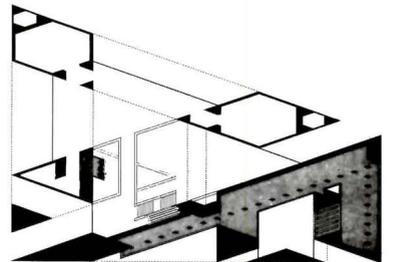
LEVEL 7



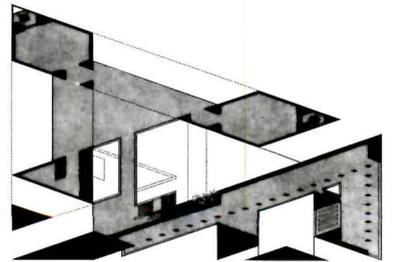
LEVEL 6



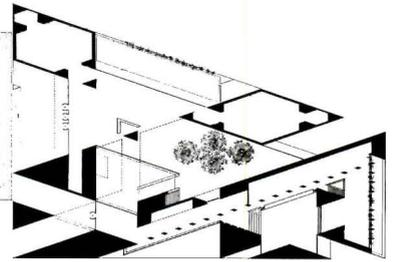
LEVEL 4 MAIN GALLERY



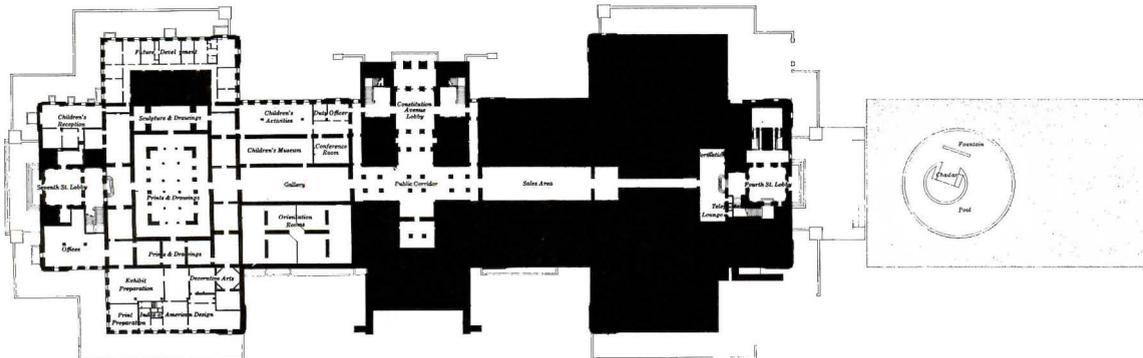
LEVEL 3



LEVEL 2 MEZZANINE



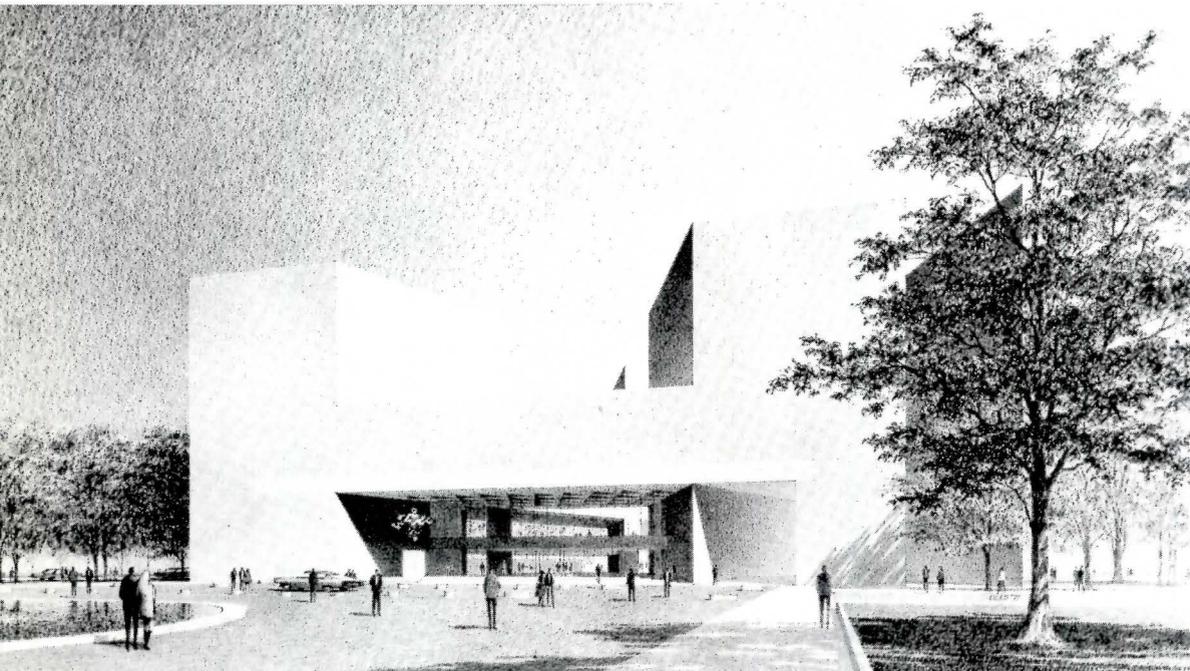
GROUND LEVEL 1



Rendering of entrance elevation facing the existing Gallery.

Below, a plan of the marble facing at an acute exterior corner, the marble cut to provide solid, jointless corners.

The vertical section shows the brackets supporting bottom corners of adjacent pairs of marble panels and buttonhead anchors restraining panel tops. A special neoprene gasket accepts thermal expansion and keeps joints watertight.



Opposite, the construction site, looking towards the Capitol. Pennsylvania Avenue cuts the site on a diagonal at the left.

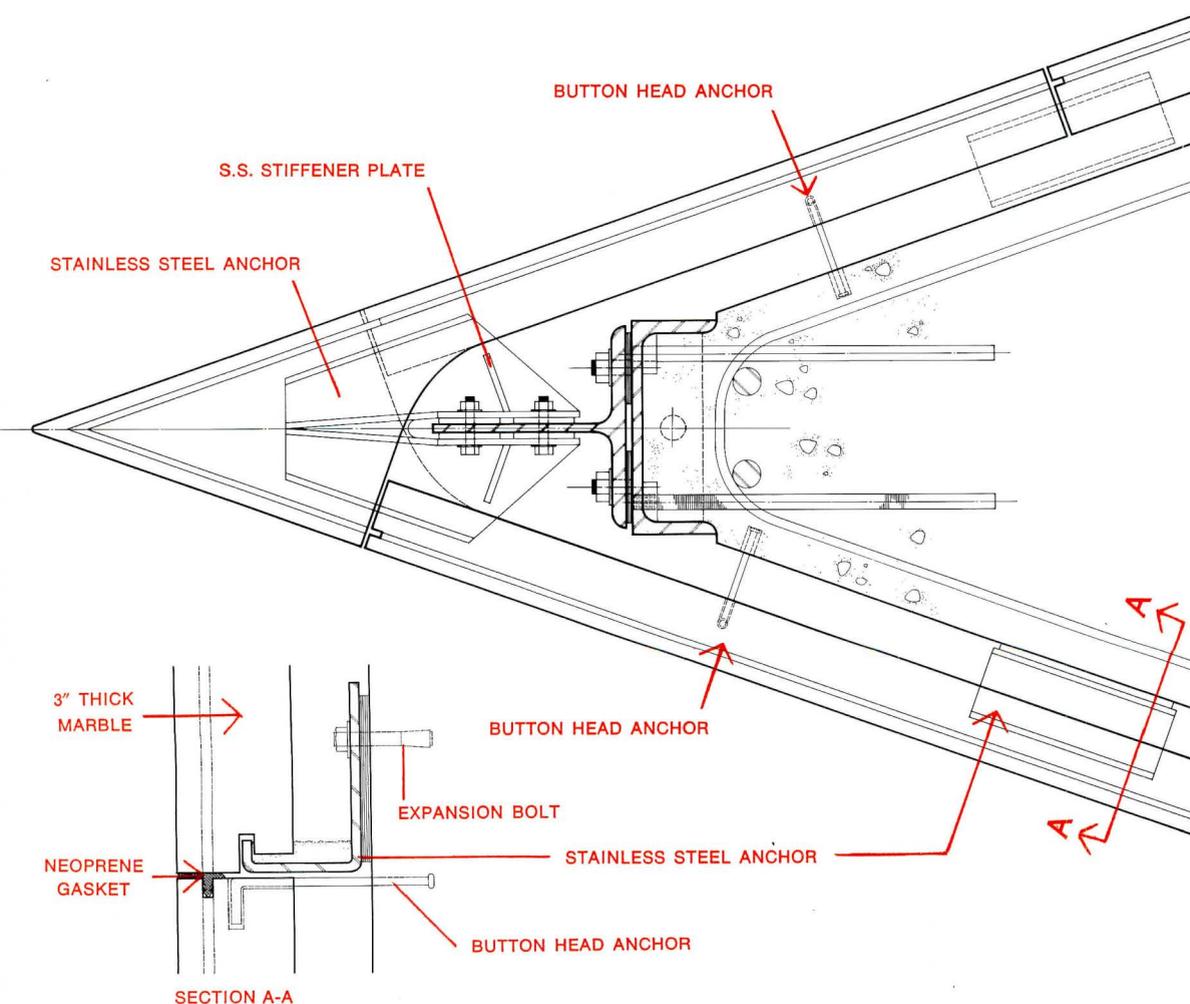
ing as well as art-watching—and to offer a sense of physical orientation and refreshment between galleries. Both Pei and Carter Brown, Director of the National Gallery, feel that a museum's organization must recognize the average visitor's limited capacity to observe before satiation. The division of gallery areas will also allow unusual flexibility in exhibition planning: Shows can be organized vertically, in a stack of corner galleries; horizontally, on a single level; or in any number of other combinations.

With the consultation of Carl Morse of Diesel Construction, the Pei firm, at the beginning of its work, not only studied costs but also determined which aspects of the work might be most likely to cause delay and which should, therefore, be investigated without waiting for a final design.

Many of these difficulties involved the use of stone: Pei wanted to use, if possible, the same Tennessee marble as in the original building, with stones of the same size (2 ft. by 5 ft.), joints of the same size ($\frac{1}{8}$ in.), and even color-graded in the same way (darker at the base, lighter at the top of the wall)—but without the older building's pilasters and changes of plane, in surfaces as long as 400 feet, and without expansion joints! The ingenious solution avoids the accumulation of expansion movements in large surfaces by allowing each stone to move independently, yet keeping joints thin and watertight with a special neoprene gasket developed by Leonard Jacobson and Owren Aftreth of the firm.

In such technical expertise as well as in its design, the National Gallery addition is a superbly controlled building. Its disciplined geometry and its clear plan promise a masterful environment for private study and public delight.

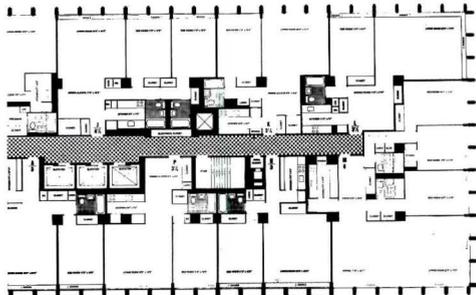
East Building—National Gallery of Art
Team: I. M. Pei, Leonard Jacobson, Thomas Schmitt, William Jakabek, Yann Weymouth, William Pederson, Steve Wood, Owren Aftreth, Michael Flynn, Fritz Sulzer, Robert Bates, John Gewalt. Photographs: Capitol-Glogau (aerials). Complete credits on page 108.



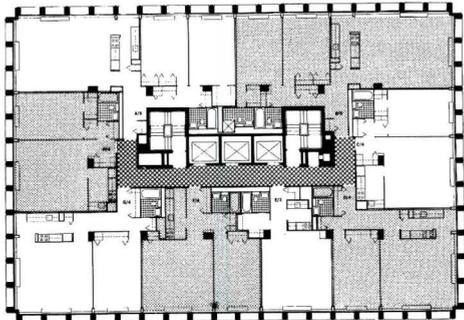




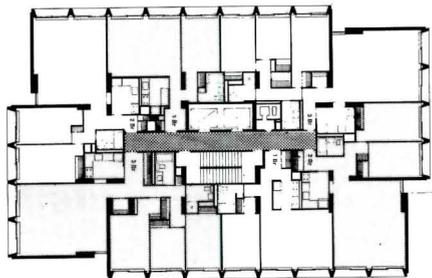
Housing



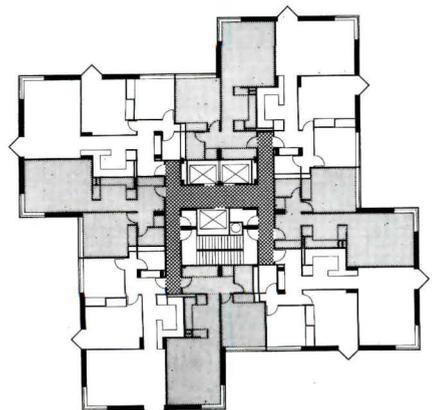
KIPS BAY PLAZA, NEW YORK CITY



WASHINGTON SQUARE EAST, PHILADELPHIA



UNIVERSITY PLAZA, NEW YORK CITY



ST. GEORGE PLACE, STATEN ISLAND, N.Y.

"It's easy to design a great museum or office building, but so very difficult to design good housing." I. M. Pei's analysis is also his challenge; and despite generally poor fees, coupled with bureaucratic and industry resistance to any innovation, his firm has persisted and triumphed in housing.

There is no prototypical housing from I. M. Pei & Partners because each project has been designed to change existing standards or to solve a particular problem. Each foray into housing has proved to be its own precedent, sociologically or technologically. The plans here illustrated are from projects to be discussed in this section; typically, no two are alike.

The office first got into housing in the early 1950s, working primarily under the 1949 U.S. Housing Act's provisions for urban renewal. Few people then thought of housing as more than a building; social amenities were not a part of the accounting process and any response in this direction was intuitive and not a program goal. All slums were considered bad and destroying them, therefore, had to be good.

I. M. Pei & Partners were no exception to these early fallacies, but they learned better fast. Now when one talks to any of these architects about housing, their conversation is of social interaction, sense of community, the quality of life, and options for living. A physical description of a given building evolves from these broader concepts and is usually described as the simplest (the office's euphemism for elegant and rational) physical solution to the problem. The approach is a somewhat paradoxical combination of pragmatism and missionary ideals. Admirers of the office as builders of significant monuments may be surprised to hear its unanimous and emphatic denial: "Housing is no place for monuments."

The constraints of housing are familiar and consistent: owners, agencies, industry, location, distribution, and mix. Complicating the picture are the market and financial analyses that become as important as the structure itself. Housing produces only two-thirds the income of comparable office space, and the margin where an owner can afford to innovate is small because the margin for financial survival is small.

In the 1950s, I. M. Pei & Partners took on all comers in an effort to improve housing standards, which were then typified by "cookie cutter apartments where only the address changes." Their efforts were largely in the technological area, where they introduced glazed walls, "interior balconies," more generous room standards for living rooms and interior kitchens, and integrated architectural concrete systems, in which wall and structure are one. They also worked to loosen the political constraints that affected bureaucratic and industry attitudes and practices.

Starting in the 1960s, the firm became more outwardly concerned with social amenities. Today community spaces, usable outdoor areas and community services are receiving highest priority. The architects take pride in diverting some monies from extra living space and putting them into outdoor or community amenities.

The design priorities are clear and they include designing for the larger good. Living rooms are therefore more important than bedrooms and deserve the best perimeter space. Pei himself goes further and says, "Life comes first, then community. Housing comes before the agora or church. We can have all the beautiful museums in the world and we are still poor as a people if we do not have decent housing."—MARGUERITE VILLECCO

New York City

Kips Bay was the Impossible Dream. I. M. Pei & Partners were told that it couldn't and shouldn't be done, but they did it anyway and helped to change the standards of urban housing in the process.

The project, which is located in mid-Manhattan amidst the brownstones of an old Italian neighborhood, would have been a typical urban renewal project were it not for the architects' decision that either they would improve urban housing or they would not do any.

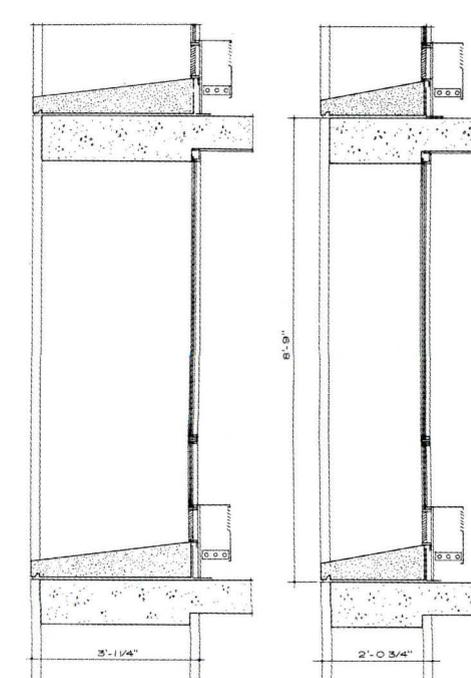
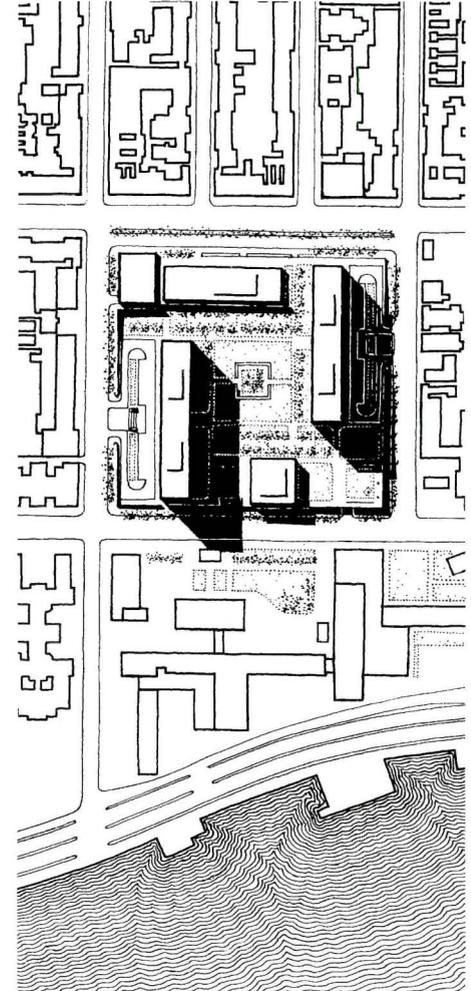
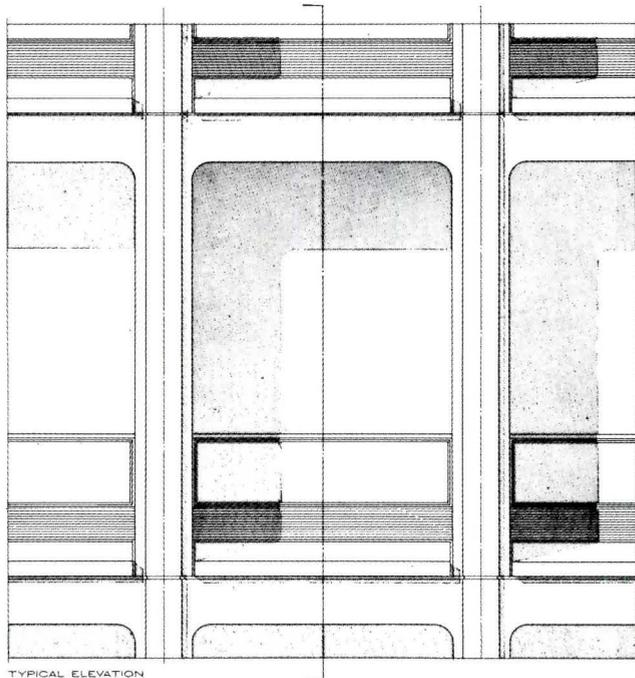
Kips Bay is now two slab buildings with exposed concrete structures (the first for the firm and for the city) and large glazed areas that help eliminate the claustrophobic atmosphere of most apartments. Inside, tenants have rectangular living areas (there are more options this way, say the architects). Kitchens are interior units "because it is more important to give window area to the living room" and they are larger than conventional FHA allowances because the architects added "pantries." Both tenants and the community can enjoy a definable park area between the two buildings.

Every one of these changes and more were a triumph for the persistence and convictions of the architects. The exposed concrete structure is typical. Both the city agencies and the industry told the architects that exposed concrete structures were economically and structurally impossible. Contractors submitted bids at twice the architect's estimate or refused to do the work. Finally, the developer (Webb & Knapp) and the architects bought a concrete subcontractor to do the work and erected a full-scale test bent (mock up) to demonstrate and test their system. In the end, the project was built at a competitive price and today, this construction method and its test bent prototype are standard practice—far less expensive than building a concrete structure and then cladding it.

Kips Bay Plaza

Team: I. M. Pei, James Ingo Freed, Gabor Acs, John Laskowski, Edward Friedman.

Complete credits on page 108.



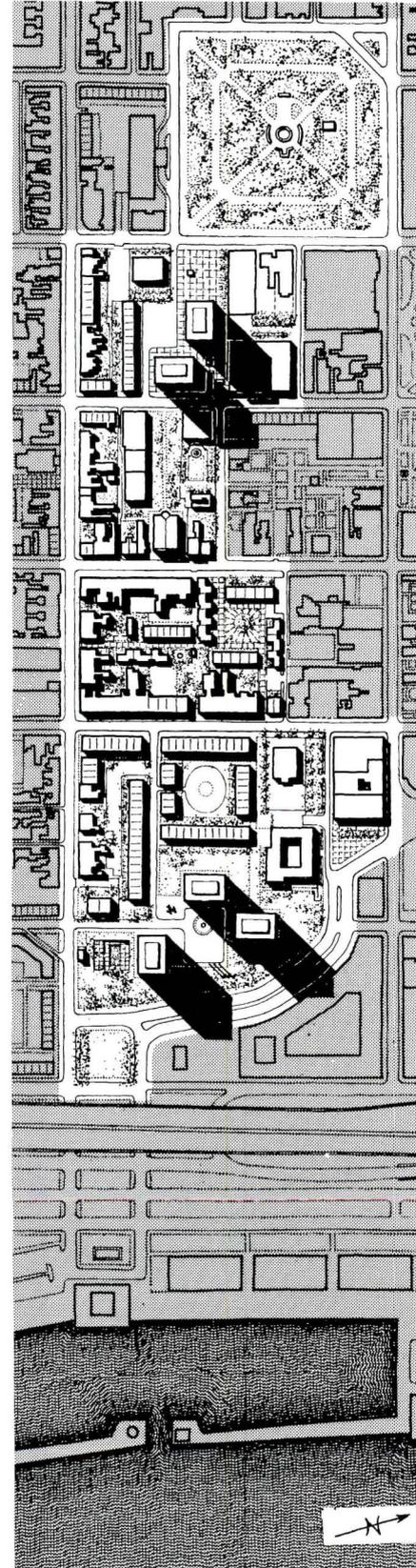
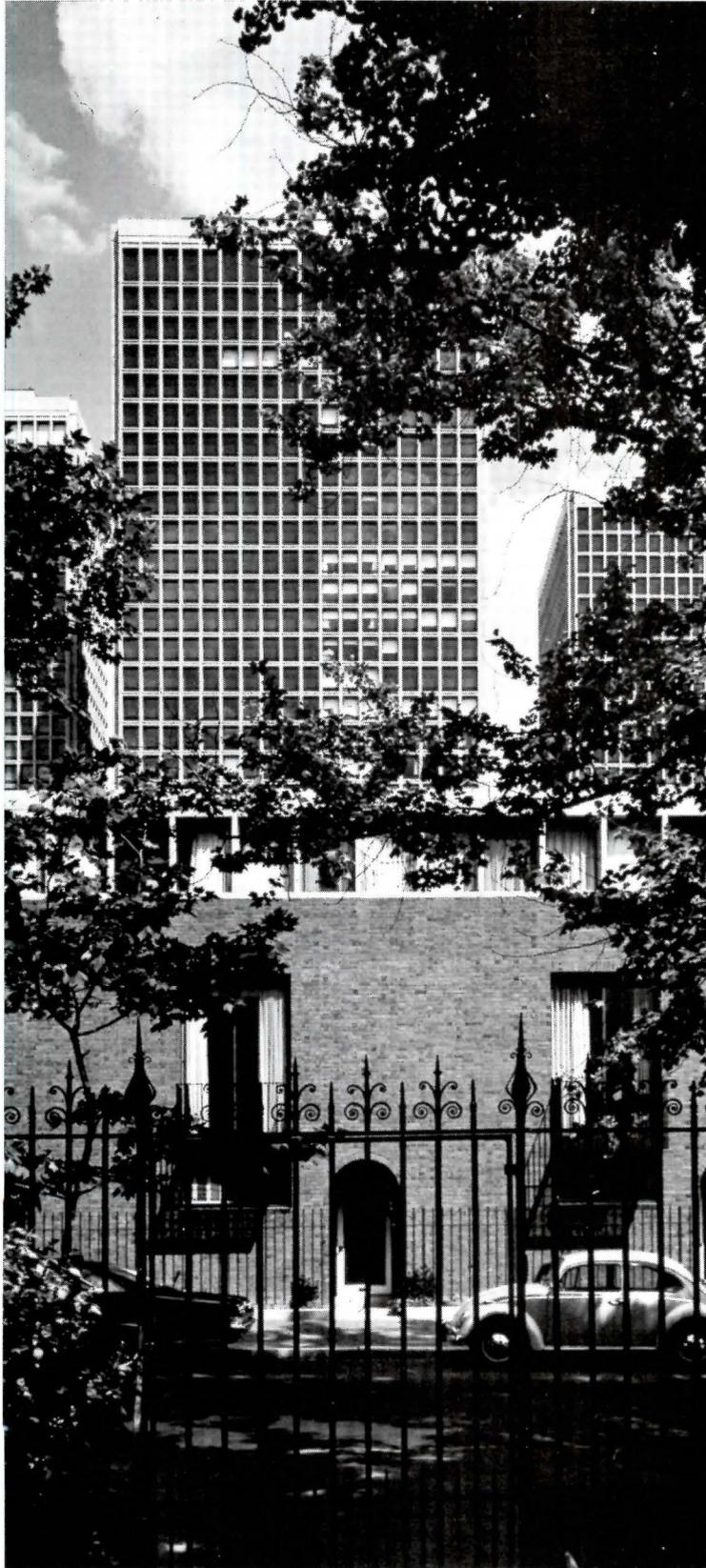
Philadelphia

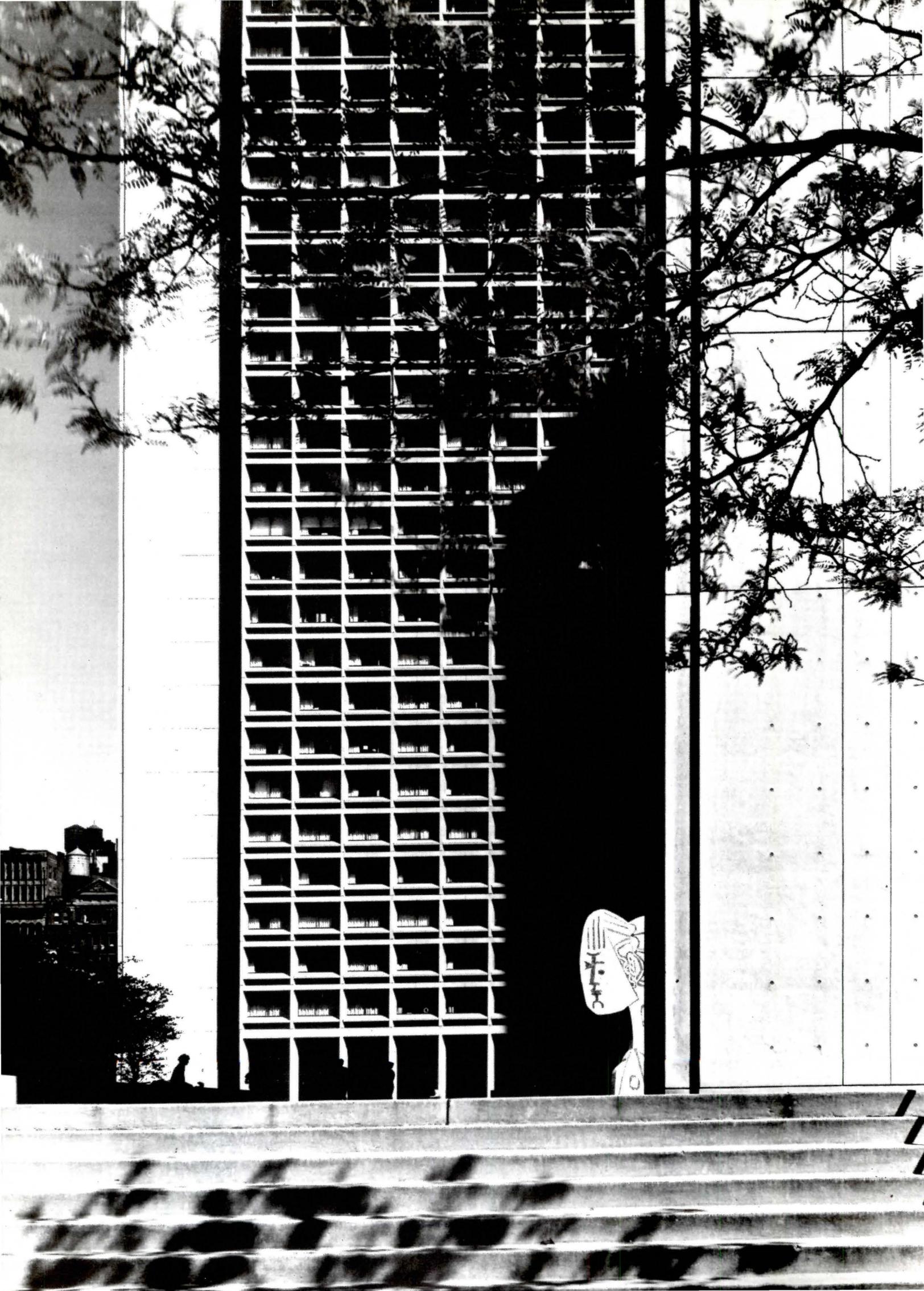
Among the firm's early housing efforts, the Society Hill development, in Philadelphia, Pa., is the most complete in scope and the first to be consciously woven into an existing urban fabric. In this venture, I. M. Pei & Partners again had the support of Webb & Knapp and, for the first time, the total cooperation of housing and planning authorities, as well as the confidence and experience of Kips Bay.

By the end of the 1950s, when the architects started on Society Hill, the neighborhood was deteriorating, but still boasted sound townhouses and some landmark structures, including three steepled churches. Scale and style between the old and new areas became important. Pei's solution was to preserve and renew many of the existing townhouses and then build new ones in quadrangle patterns between the older housing and three new towers (see plan), which were planned for the embankment overlooking the river (beyond a proposed expressway site). Some of these townhouses and other structures shown on the plan were never built, and the housing quadrangles remain uncompleted; but the project is nonetheless a success because of the process it entailed, as well as the structures that were realized.

The new townhouses are of brick bearing wall construction, the towers a lightweight concrete refinement of the Kips Bay structure, with a 5 ft.-10 in. planning module. The walls have an improved version of the Kips Bay window and sill section that includes the HVAC system. The towers accommodate 241 households in each 31-story structure; in addition, 25 townhouses were built. I. M. Pei & Partners had now demonstrated that exposed concrete was not only an acceptable building material, but more particularly that it was an acceptable material for highrise structures. They had also proved, again, that urban housing need not be a collection of brick boxes.

Washington Square East (Society Hill)
Team: I. M. Pei, Leonard Jacobson, A. Preston Moore, Gabor Acs.
Photograph: Cervin Robinson.
Complete credits on page 108.





New York City

Pei is not alone in his judgment that the Washington Square project in New York City's Greenwich Village is the most architecturally distinguished of the firm's housing efforts. The buildings have enjoyed critical acclaim since their completion in 1964.

The project consists of three apartment towers. One is a city-sponsored moderate-income apartment building; the other two were sponsored by the New York State Dormitory Authority and are a part of New York University. The city benefitted from the strange coupling. The NYU buildings provided an enlightened client and decent fees, which allowed the architects to "include" the city apartment in their NYU design work and acted as a lever in persuading city authorities that the resulting deviation from city standards was acceptable.

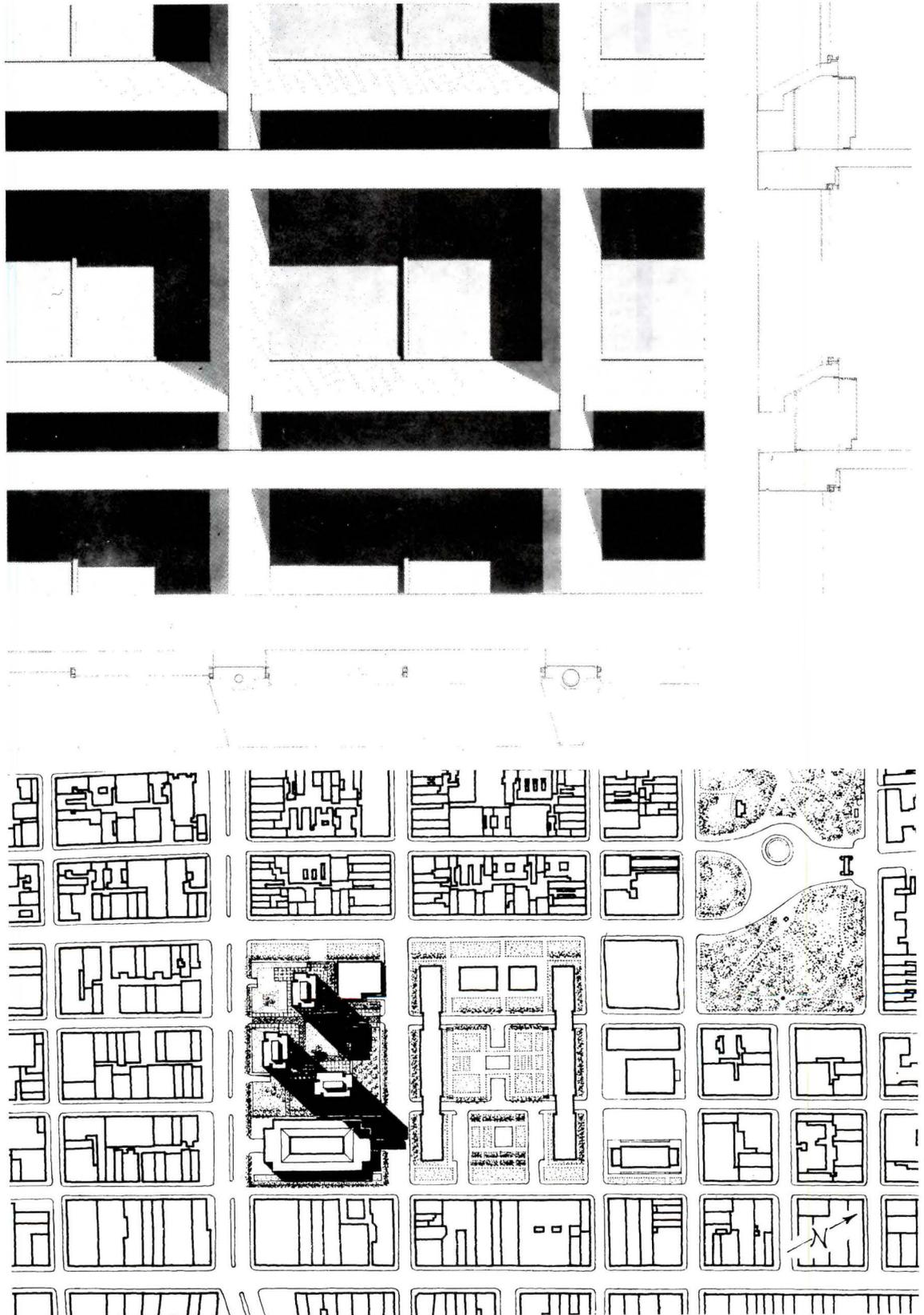
One layout change required special strategy. By preparing a series of drawings and showing them to the agency in sequence, the architects were able to convert the one-half room allowances for balconies into larger living rooms. The drawings showed the balconies enclosed, then progressively eliminated any separation between living room and balcony.

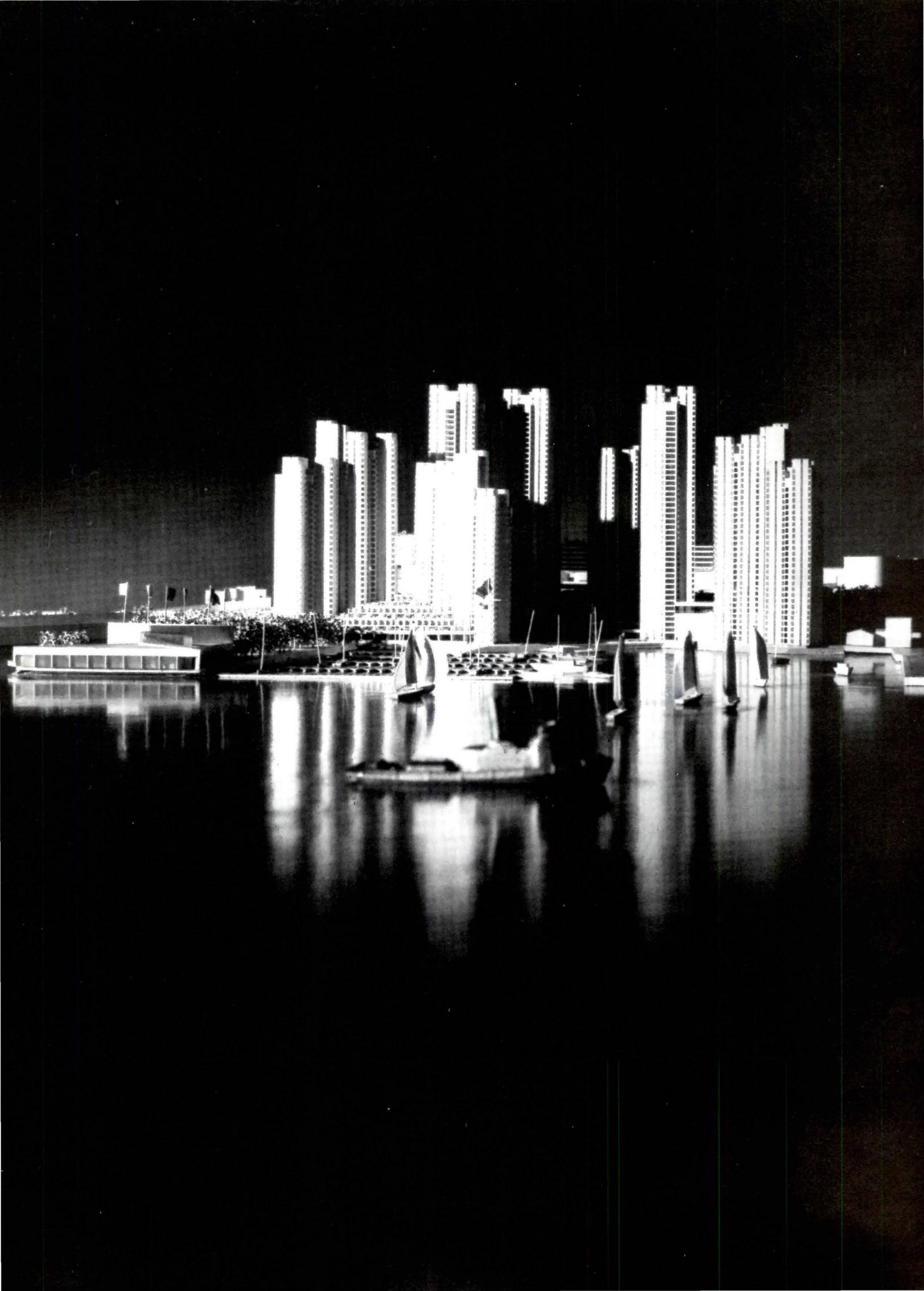
James Freed, co-Design Partner says the three towers are essentially the same although there are some interior differences in layout and detail. They turn their back on commercial Houston St. and form an enclave of parks and playgrounds. A road has been extended to separate the NYU and city-owned parts of the project.

A touch of artful whimsy is provided by a giant Picasso sculpture (see photo, p. 57), executed *in situ* by the Norwegian sculptor Nesjar. The sculpture was donated by Picasso; the Allan D. Emils of New York paid for its execution. It is made of concrete with a Norwegian black stone aggregate, sandblasted along the linear patterns to create an etched black line.

University Plaza

Team: I. M. Pei and James Ingo Freed,
A. Preston Moore, Theodore Amberg.
Photograph: George Cserna.
Complete credits on page 108.





New York City

Even planning the Staten Island project has been a whole new experience for I. M. Pei and Jim Freed, the Design Partner. For the first time, the firm is designing a community—creating, not merely accommodating an urban fabric.

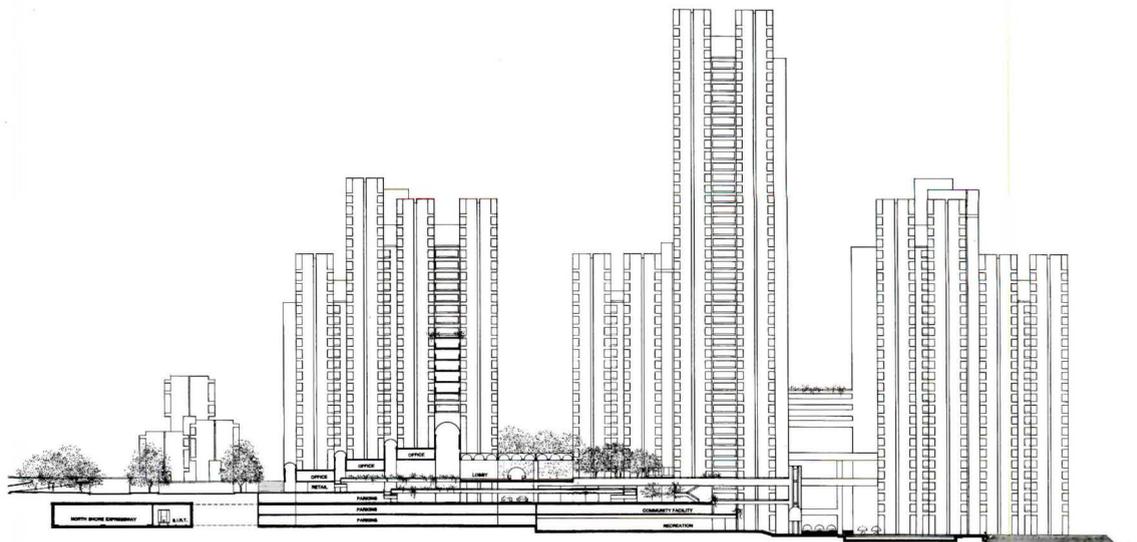
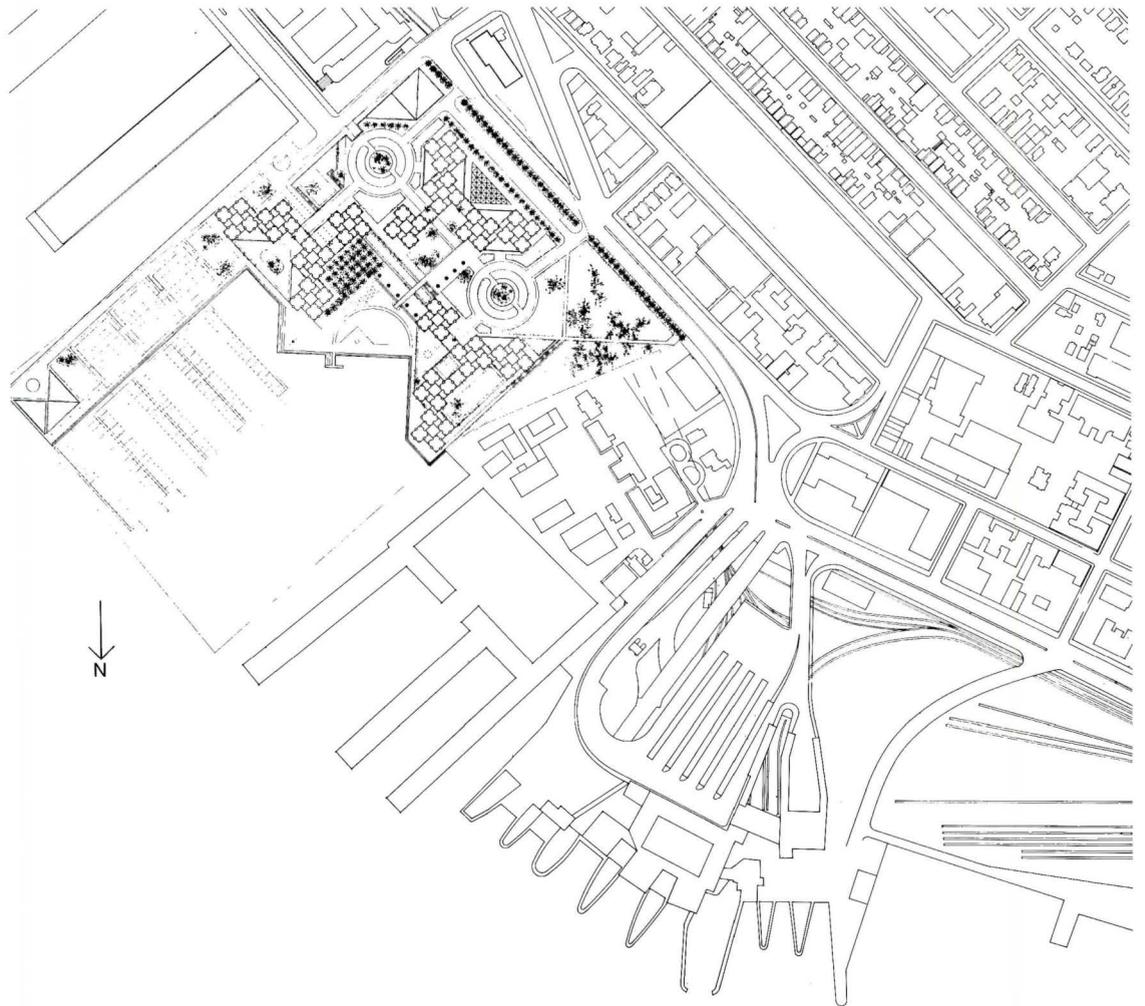
St. George Place, as the project is called, will be a waterfront city for 3500 households (or about 8,000 people) that will include educational, social, commercial and office facilities. Already 18 months into planning, the project continues to evolve and the goals continue to expand. The mere size of such a project makes it crucial that it include social amenities and not overburden existing services.

The site has several natural advantages. One is a fantastic view of lower Manhattan and the Verrazano Narrows. A second advantage is that the waterfront site, which includes old storage and dock facilities, is adjacent to many different transportation services.

The topography of the site includes a sharp incline (from 53 ft. high) down to the waterfront. The infrastructure for the project will be built up in layers from the lowest point. An internal street system will interconnect the various levels.

Each level has its own identity. At the topmost layer (see progressive diagrams, next page) there is the first of two ramps (the architects call them “plaza loops”) that spiral downward to provide vertical access to the lower levels. At the 36-ft. level, the second plaza loop and its connection to the first loop appear. Also apparent are parking areas, community facilities and commercial spaces, which weave in and around the apartment towers. At 27 ft., there is more parking, community facilities and the mechanical area, plus the all-weather pedestrian street system. The lowest, or 10-ft. level, contains the service spine and truck access routes, more commercial, mechanical and community spaces, plus additional parking. (No cars will be allowed along the waterfront.)

The range of planned amenities is tremendous. It includes waterfront restaurants; a shopping area between the two spiral routes (creating an effect similar to New York’s Guggenheim Museum) and



other shopping; a marina, docks and clubhouse; tennis courts; health club; day care center; school and more. These facilities will be open to the public, as well as to tenants and will provide a social interface between them. Activities will be grouped to form primarily commercial, adult recreation, or children's recreation areas.

The 3500 housing units are distributed in towers ranging from 16 to 35 stories high and arranged diagonally on 36 acres of the site. The varying patterns thus created help to avoid a project-like appearance. Despite the density of the housing (an economic necessity), the architects have managed to infiltrate the mass of structures with light and air. (The triangular windows—see model—allow a tenant to almost step outdoors while remaining in his apartment.)

The towers are clustered in what the architects call a molecular pattern. Each tower is a molecule, made up of four atoms, or vertical sections. Five molecules equal a cell, or group of buildings. Each molecule has its own elevator and lobby, and there are only 8 or 9 apartments on any one corridor.

Several construction methods, including several systems are still being explored. The architects hope for project completion by 1976.

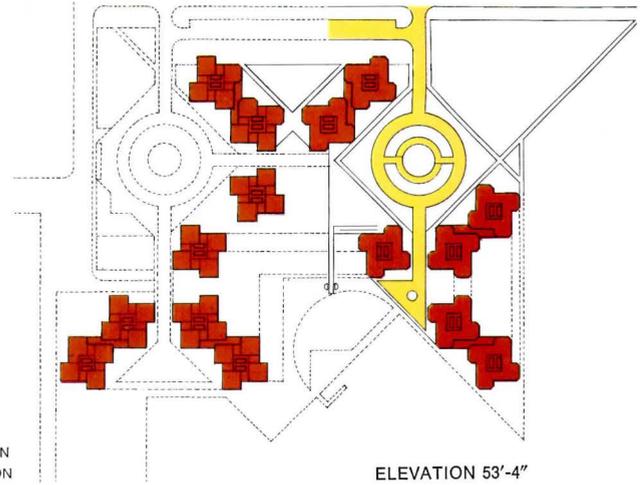
Early experiences in dealing with U.S. government agencies have proved invaluable on this project, which falls under the jurisdiction of 22 agencies. The mortgage for the project, for which General Properties Corp. and Westinghouse are the developers, will be guaranteed by the New York State Mitchell-Lama (moderate income) program. Hopes that some 236 (federally sponsored low income housing) units might be included have dimmed since President Nixon's moratorium on federal housing funds. The community planning board has worked closely with the architects on integrating the project into existing development.

St. George Place

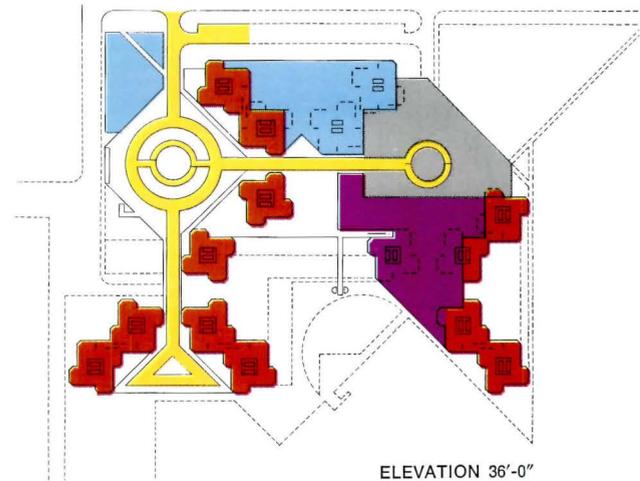
Team: I. M. Pei and James Ingo Freed, A. Preston Moore, James Morris, Rosaria Piomelli, Kellogg Wong, Allan Hoglund, Richard Vandenburg. Complete credits on page 108.

LEGEND

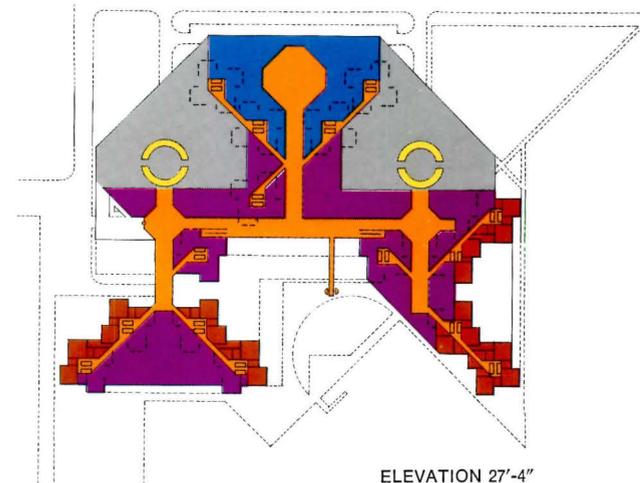
YELLOW	MAJOR CAR CIRCULATION
ORANGE	PEDESTRIAN CIRCULATION
RED	SERVICE CIRCULATION
LIGHT BLUE	COMMERCIAL
PURPLE	COMMUNITY FACILITIES
DARK BLUE	MECHANICAL
GREY	PARKING
BROWN	RESIDENTIAL



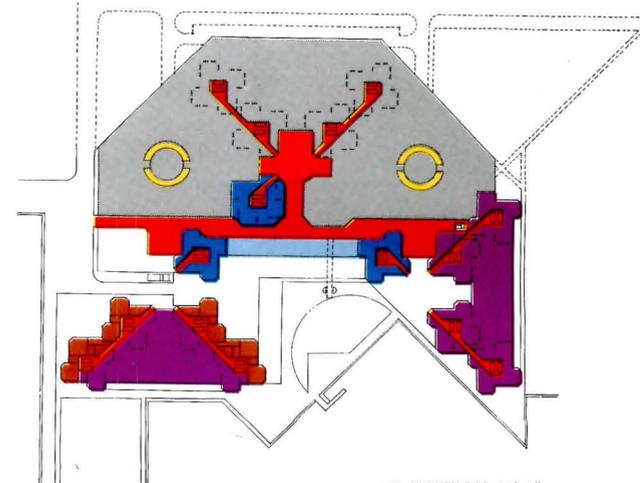
ELEVATION 53'-4"



ELEVATION 36'-0"



ELEVATION 27'-4"

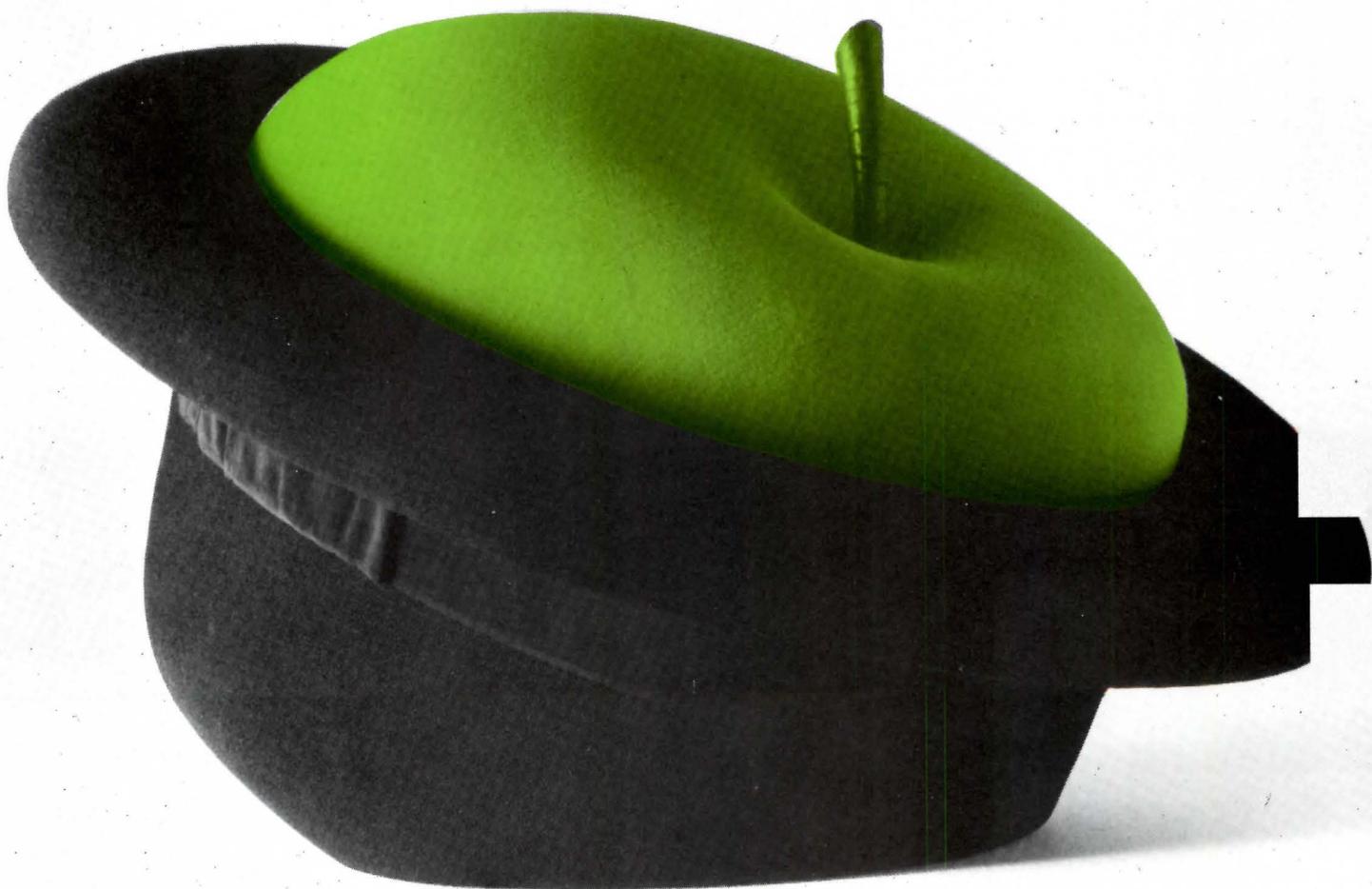


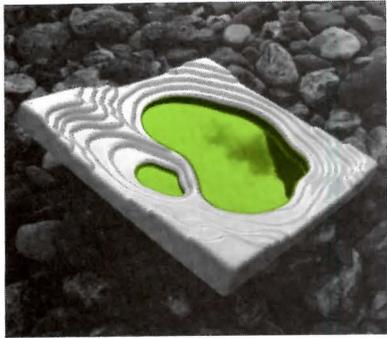
ELEVATION 10'-0"



So et ng old, something new, something borrowed

By Suzanne Slesin





MAGriTTA, left, combines the names René Magritte and Sebastian Matta. Originally designed in 1937 as an "Homage to Magritte," the chair was put into production by Simon International in 1971. Matta, who fused two of the Surrealist's best known symbols explains, "With Marcel Breuer culture was introduced to mass production. With MAGriTTA, poetry makes its appearance."

Morgana, above, is an old fashioned hand mirror enlarged as a wall mirror. By Raimondi/A.BA.CO. for Cristal Art.

Lago Blu, above, is a trompe-l'oeil floor, table or wall piece. By Piero Gilardi/A.BA. CO. for Cristal Art.

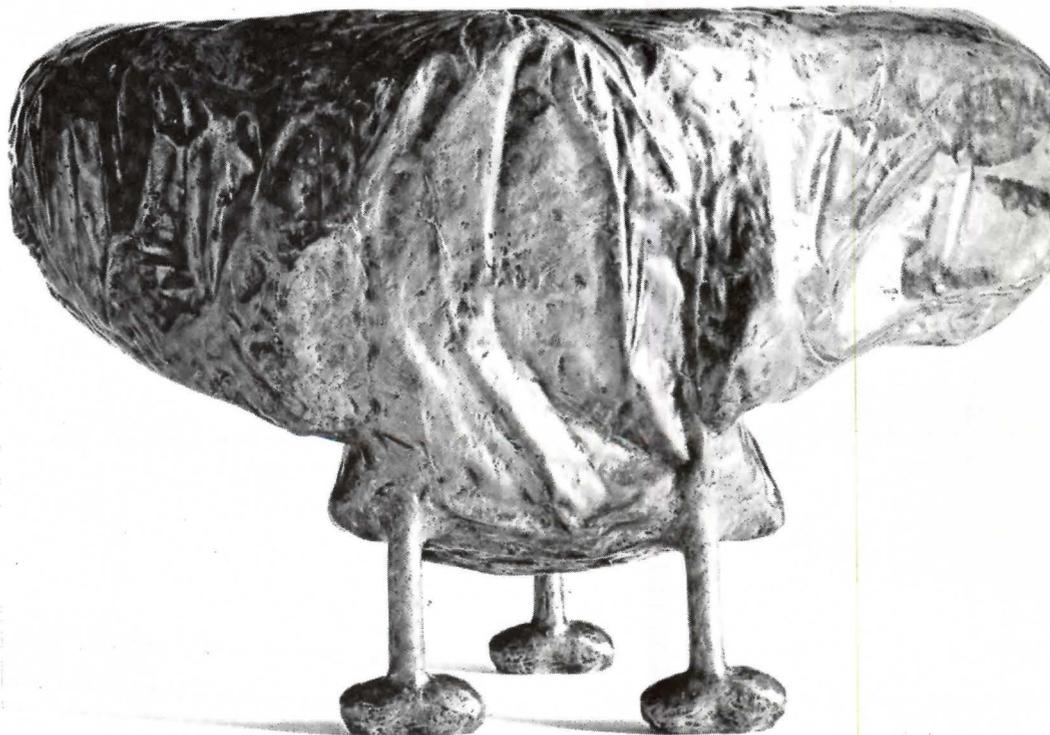
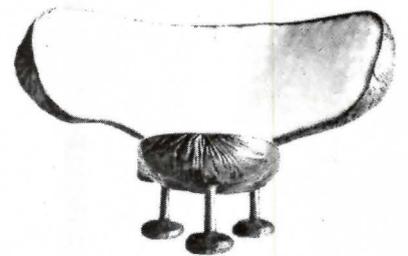
Sacco Alato, right, by Sebastian Matta for Simon International illustrates the artist's wish, written in 1938, to make a chair "that would have an unheard of meaning and configuration."

New trends in Italian design have been hard to distinguish. Nevertheless, over the past year, one could discern a new softness, a wider use of natural materials, a more assured articulation of chrome and steel—and a turning point. In fact, Italian designers, for the most part, seem to be taking a rest before they decide what direction or directions to pursue further.

Out of the middle of all this has grown *Suzanne Slesin is a freelance writer in design. Her work has appeared in major U.S. and European publications.*

a separate "movement" in which the relationship of art and furniture has become more important. It seems that in a world where chrome, steel and plastic abound, we have a need to relate to artistic objects, and to fantastic, funny and surprising pieces of furniture. And, all in all, current Italian design has taken up this cause with energy and imagination, losing none of its usual sense of humor, and gaining a greater sense of poetry.

Art and furniture have never been far apart. Artists have designed furniture and



good furniture designers are, often, artists. The new Pop Art-derived and Surrealism-inspired pieces shown here further document this intermarriage. Some will no doubt see Salvador Dali's 1936 couch in the new *Marilyn* sofa and think that there is nothing new. They may be right. But many of the pieces are imaginative, witty and deserve more than a passing look. The fiberglass *Handkerchief* table and *Capitello* use plastics in a really creative way. Matta's "Homage to Magritte" with *MAGRI*, juxtaposes two of the Surrealist painter's

images and *Giant Cactus* must be one of the most convenient hat and coat stands anywhere.

Who is designing this furniture? There are artists like Mario Ceroli, who created a whole group of furnishings made out of pine, and companies that were formed to produce and market exactly what they thought to be the new statement in furniture. One of these, Gufram, is based in Torino and has brought together some of the most talented of the young Italian painters and sculptors. Another, Simon In-

ternational, has a more literary approach. Their new furniture is more directly related to the literature of the Surrealist movement and some of the pieces were actually designed over thirty years ago.

These pieces are not furniture as we are used to seeing it. But the chairs can and should be sat on, the tables used and the beds slept on. Some of the pieces will appeal to our sensibilities, some will not. All are poetic, witty and somehow friendly. In evaluating them one must ask different questions and expect different answers.





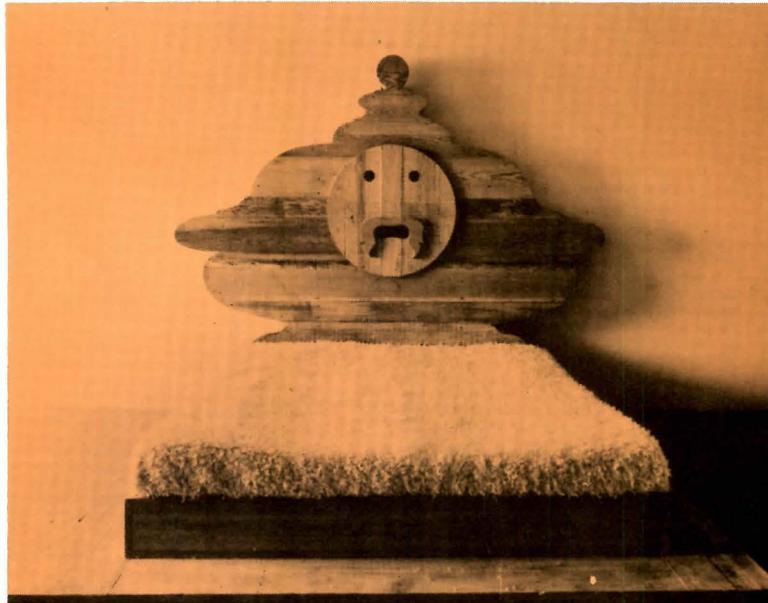
Marilyn, opposite page, is a polyurethane foam sofa covered in lipstick red stretch nylon. By Studio 65 for Gufram.

Handkerchief, above, is a fiber glass coffee table designed by Studio Tetrach for Linea B.

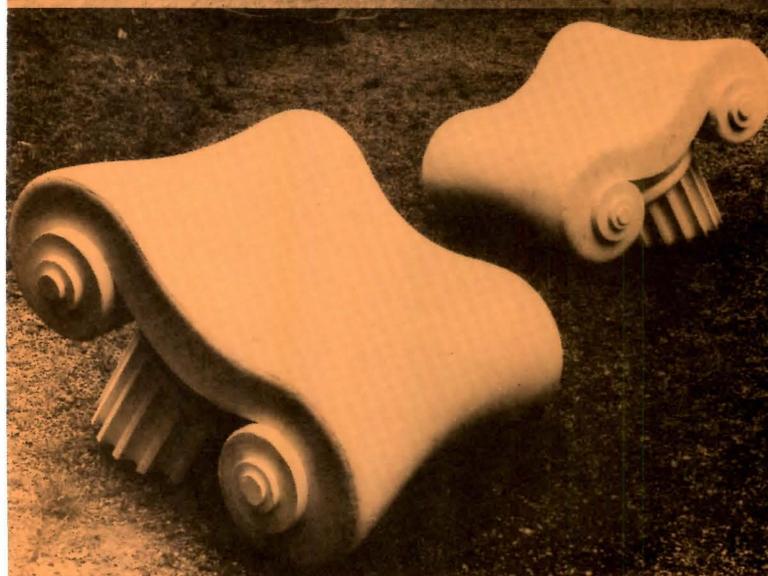
Charlie, left, is a resilient pouf or stool. By Ceretti De Rossi Rosso for Gufram.

Traccia, below, by Meret Oppenheim was conceived in 1936 and produced by Simon International in 1972. The table top has bird's feet tracks.





The Mouth of the Truth bed is one of a series of pieces of furniture created by Roman artist Mario Ceroli for Poltronova. The bed is made of Russian pine.

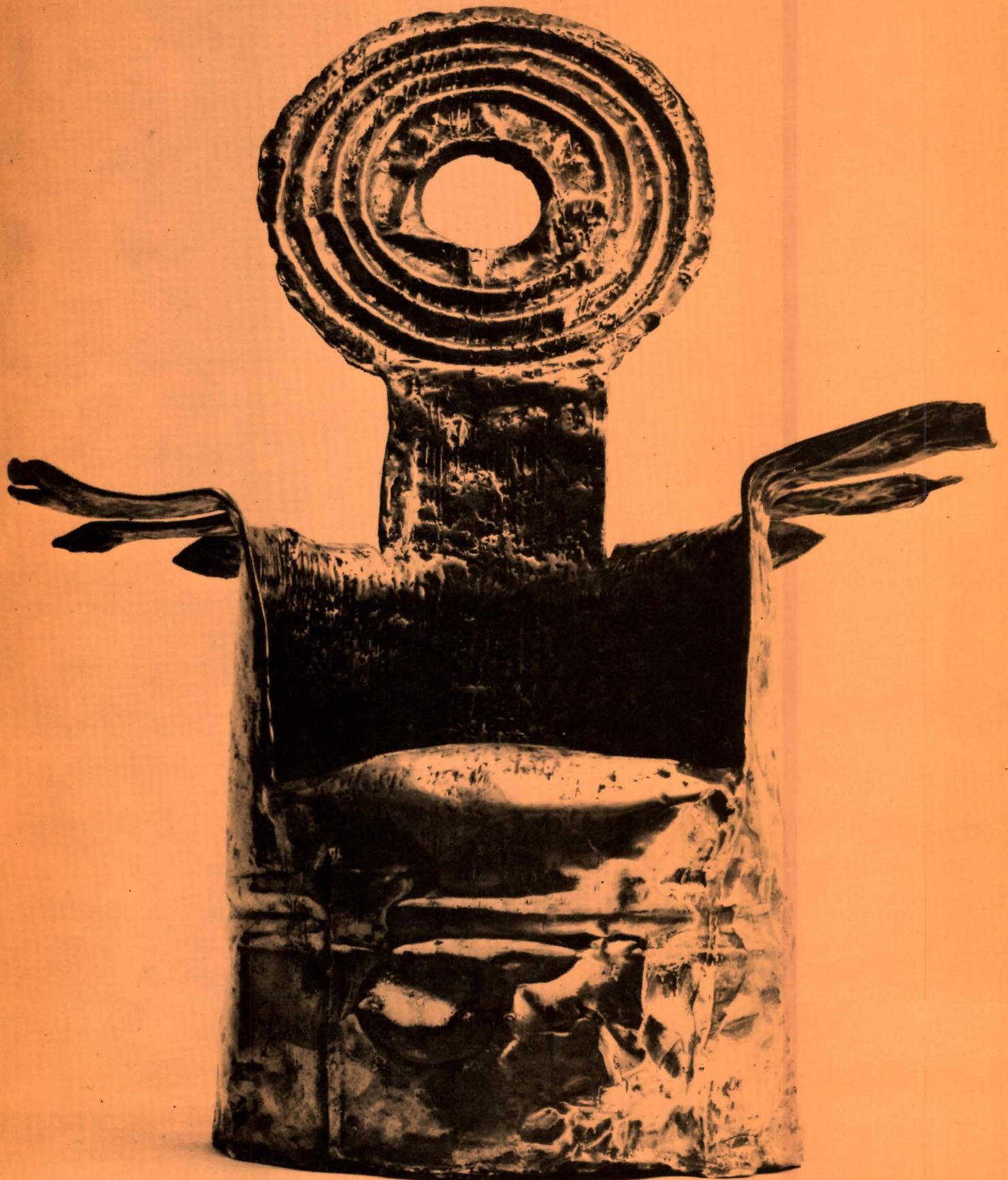


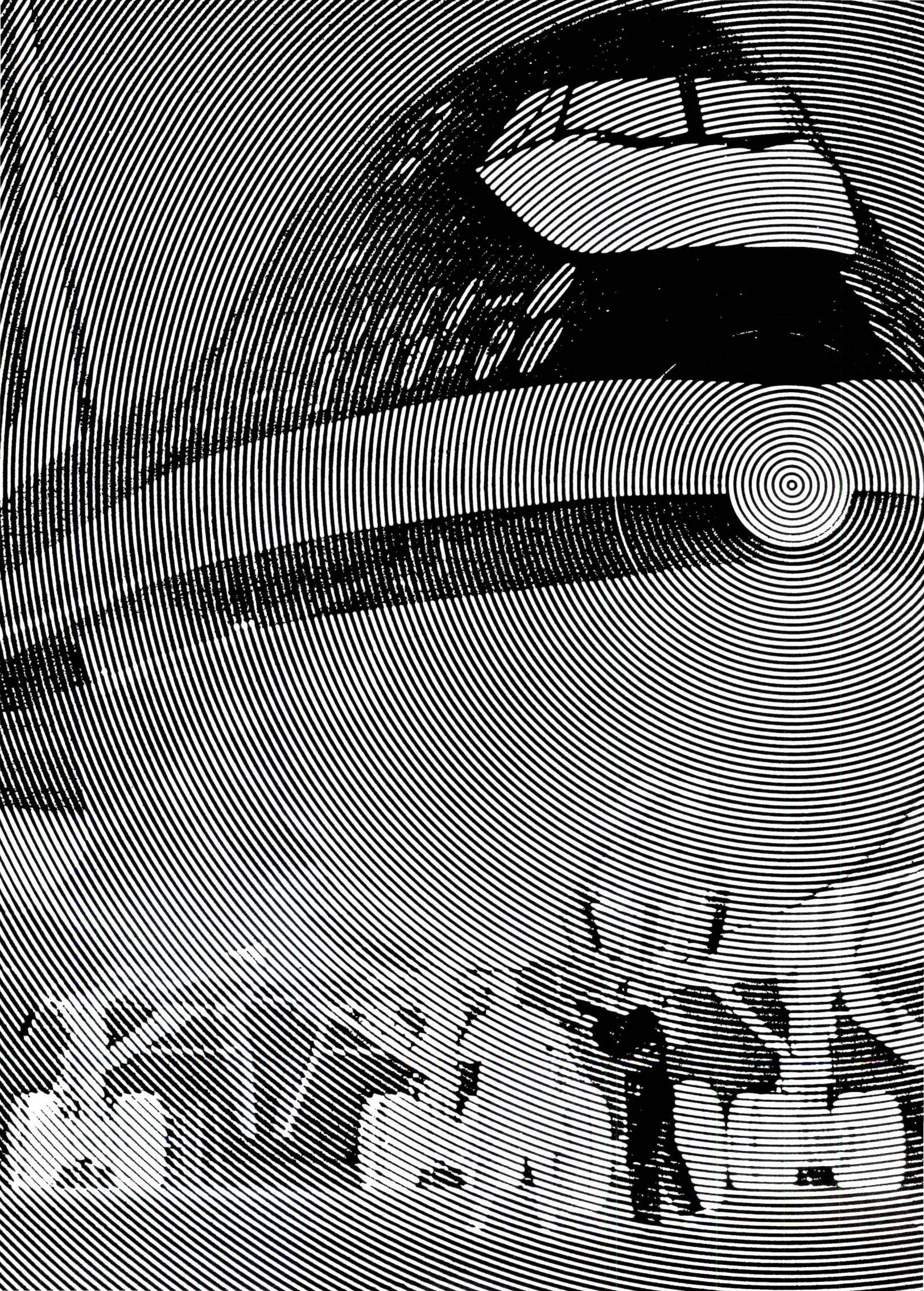
Capitello is a comfortable foam chair. By Studio 65 for Gufram.



Giant Cactus designed by Guido Drocco and Franco Mello for Gufram is covered in a gold velour cloth and can be used as a coat and hat stand.

Margarita, by Sebastian Matta for Simon International is a bronzed and stately chair.





BOEING 747

By Ellen Leopold

With its three floors, two elevators, super-engineered kitchens, bathrooms, environmental controls, container-storage areas, and innumerable support-systems, this plane may be the most interesting "building" of the decade.

The airplane is the product of close selection.

The lesson of the airplane lies in the logic which governed the statement of the problem and its realization.

The problem of the house has not yet been stated.

Our architects are disillusioned and unemployed, boastful or peevish. This is because there will soon be nothing more for them to do.

Our engineers . . . will be our builders.

Le Corbusier

Towards a New Architecture

Forty-five years ago, Le Corbusier pleaded for the evolution of a "mass-production spirit" among architects. In recent years, the U.S. Department of Housing and Urban Development has recruited personnel from an area that has confirmed the viability of this spirit on an enormous scale, the aerospace industry.

This industry, unlike the atomized profession of architecture, grew and continues to grow out of a *collective* operation, immersed in technological research and development. To the degree that it incorporates extremely diversified experimentation and cross-fertilizes the results in all areas of research, it behaves more like an open-ended system than a product manufacturer. Even as a manufacturer, its products cannot be construed as isolated events (as can most buildings) but appear more as by-products, tangible evidence of the direction and progress of research to date. In this way they function as working laboratories; continual feedback from their operation readjusts and revitalizes efforts to keep them moving.

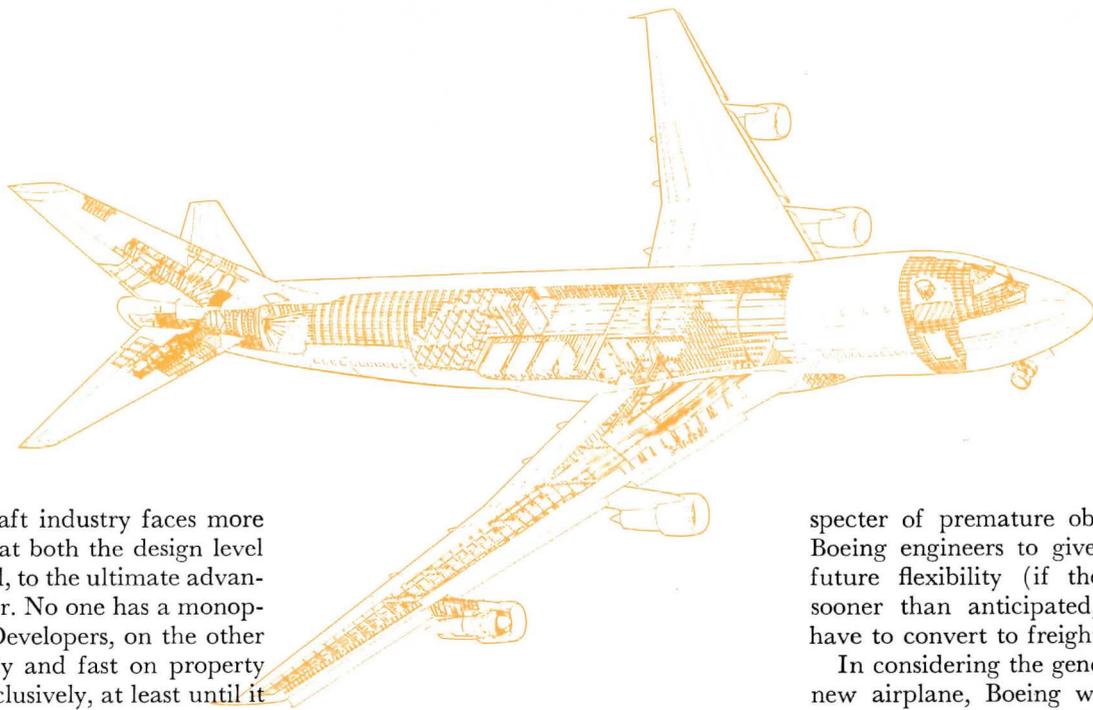
Within this framework, the Boeing 747 must be viewed as the most recent generation in a family of aircraft that has been evolving for over 50 years. It also must be viewed as a member of an extended family that now includes relatives such as the Minuteman solid fuel rocket and the Saturn rocket booster for the Apollo space program. But, unlike these other projects and earlier military aircraft, the 747 was totally privately financed. In April 1966, Pan American placed a \$525-million order with the Boeing company for 23 747s. The contract stipulated that Boeing could withdraw by August 1 of that year for economic

Ellen Leopold has a Master's degree in architecture from Yale University.

reasons, but only with great penalty. The project, then, involved them in an enormous risk—and one that involved not just economics but a serious challenge to the ingenuity of technological research.

Risk has always played a critical role as a generator of productive and creative thought; the more stringent the set of obstacles, the greater the incentive required to overcome them. Historically, the design parameters governing building on the ground have always been less demanding than those dictating building for use on the sea or in the air. Land buildings embodied the notion of permanence, of enduring mass which was often extensive (and oppressive) enough to obscure the engineering forces at work altogether. Space and weight limitations (relating to what Buckminster Fuller calls "performance per pound") were not, until recently, primary determinants as they have always been with ships and airplanes. And, although building structures must respond to prevailing wind forces and gravity, they do so in a primarily defensive way. Airplanes put these same forces to work for them and through a range of conditions that change continuously (arctic to tropical temperatures, zero to 600 miles-per-hour winds, G-loads exceeding four times normal). Also, buildings rarely operate as self-contained environments but generally tie into existing communication, waste-disposal and municipal power systems. An airplane, while it is aloft, must assume responsibility for all these critical services on its own. The sobering demands of a constant safety alert in any survival capsule will always provide an ultimate check on all system and design considerations.

The factor of time plays a much more dynamic role in the operation of an airplane. Airlines compete on the basis of reliability. Keeping as close to schedule as possible requires scrupulous coordination of servicing during stopovers and turnarounds. This breeds an Indianapolis 500 (to 5000) spirit that at the design level guarantees the elimination of all inessentials and the constant surveillance of materials. And the pressure never lets up during the active life of the aircraft. While it is true that both airplanes and buildings are expected to pay for themselves over a given time span, airlines try to maximize profit potential much more aggressively than do



builders. The aircraft industry faces more active competition at both the design level and the service level, to the ultimate advantage of the customer. No one has a monopoly on air routes. Developers, on the other hand, build cheaply and fast on property which they own exclusively, at least until it becomes profitable to sell. Their profit potential lies not in their tangible and (sometimes) serviceable products but in the developing land values which they passively sit on. To the taxman this is known as "land improvement."

Builders and those who finance them consider their product more or less "finished" on the day of the cornerstone ceremony; follow-up investigation is almost never integrated into the building process. Lack of any kind of in-use examination minimizes the possibilities for productive change, to the ultimate disadvantage of the customer. As long as this is true, architects (and their clients) will never profit from the kind of shared and expanded feedback that keeps a company like Boeing in perpetual motion.

Although the 747 cannot accurately be compared to any building, it might be considered as a horizontal elevator projected through a building the length of any one of its journeys. This makes its high cost per cubic foot and the laws governing its performance more intelligible to the layman, since the cost and construction of vertical elevators have often determined the allowable heights of land buildings. The 747, however, must provide all the other services of a building as well as its primary one of efficient, safe transportation. This makes the feat of the 747 even more astonishing.

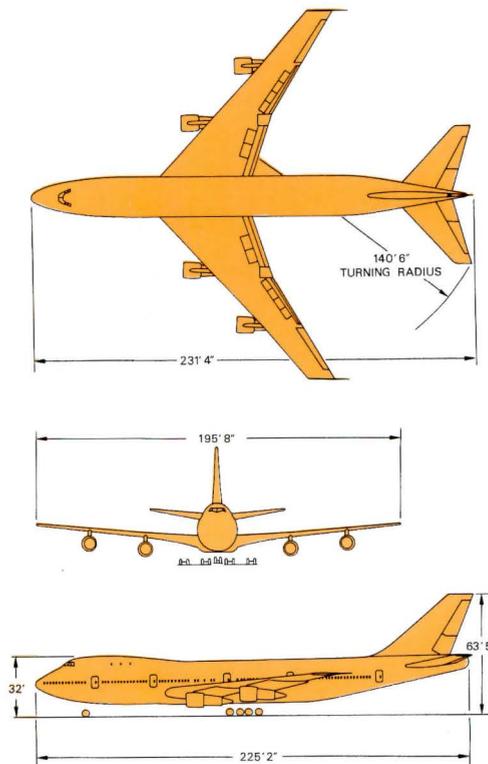
The idea for the 747 grew out of an exhaustive analysis of market projections. Revenue passenger miles (one passenger traveling one mile) had tripled between 1955 and 1965 in a continuously rising trend. Air cargo statistics suggested an even greater growth rate. Airports, meanwhile, were already congested with an alarming number of airplanes waiting to take off and land. The solution, then, lay not in simply adding more airplanes but in creating a bigger one that could accommodate a much larger cargo and seating capacity over relatively longer hauls and thereby reduce the total number of departures. With the plans for the SST at that time still hovering in the wings, the

specter of premature obsolescence forced Boeing engineers to give high priority to future flexibility (if the SST appeared sooner than anticipated, the 747 would have to convert to freight).

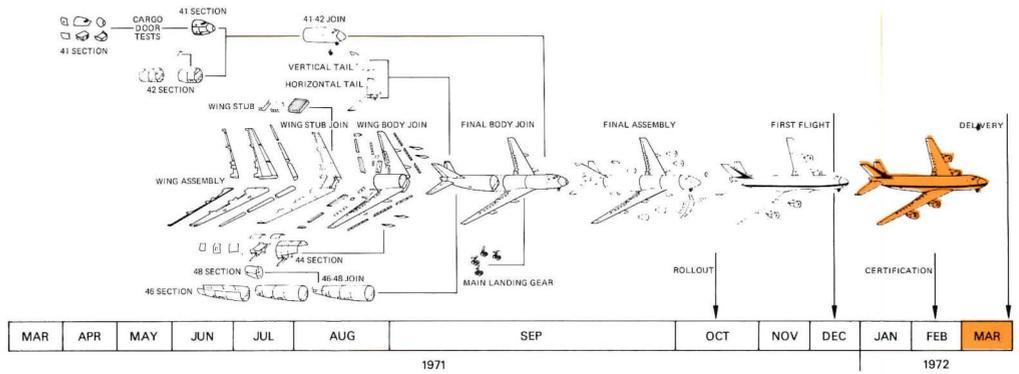
In considering the general design of this new airplane, Boeing was able to profit from work it had done in competition for a government contract to build the C5-A cargo airplane. Lockheed won the contract but Boeing put its costly research to work in designing a civil derivative. Although the requirements of the 747 differed radically from those for the military airplane, C5-A proposals for some elements such as the wing design and the engine proved useful. And Boeing's military and space management experience proved essential. Just as the airplane itself provides the interface between two destinations, so its development suggests one between military research and commercial application.

This sharing of mutual boundaries extends into the production and manufacture of the airplane. In one of the largest subcontract programs in the history of commercial aircraft manufacturing, Boeing involved its subcontractors in both increased risk-sharing and in increased design responsibility. Other companies build about 65 per cent of the airframe weight and rely on their own research networks to provide solutions that dovetail with Boeing specifications. To coordinate such a mass of technical information, Boeing has made extensive use of electronic data processing, especially in master dimensioning, which involved the actual production of drawings by computer, with computer tapes forwarded to major subcontractors. (Architects have hardly begun to think about doing this.) Some design incentives applied to all contractors and helped to create a more cohesive and integrated overall effort. The unrelenting demand for weight reductions in all areas, for example, led to a much more extensive use of titanium alloys, in uses ranging from the landing gear support beams to floor panels with a PVC foam core.

The actual dimensions of the new giant developed in response to specific functional requirements—after much experimentation. In an early investigation, Boeing designers considered lengthening the body of their earlier jetliner, the 707. This solution, however, offered no improvements in



Initial design and construction of the 747 took about one year; the sequence and kit of parts is illustrated at right. Below, wing and tail assembly of several planes simultaneously suggests the giant scale of the structure. The lower drawing illustrates turn-around service operations; the entire process takes only one hour.

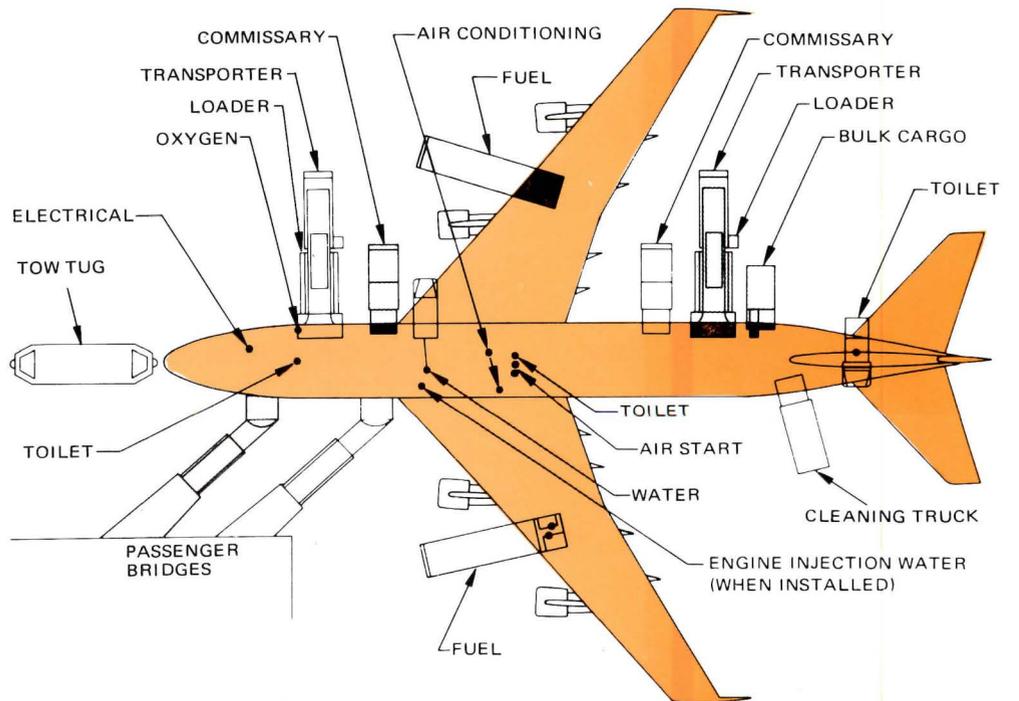
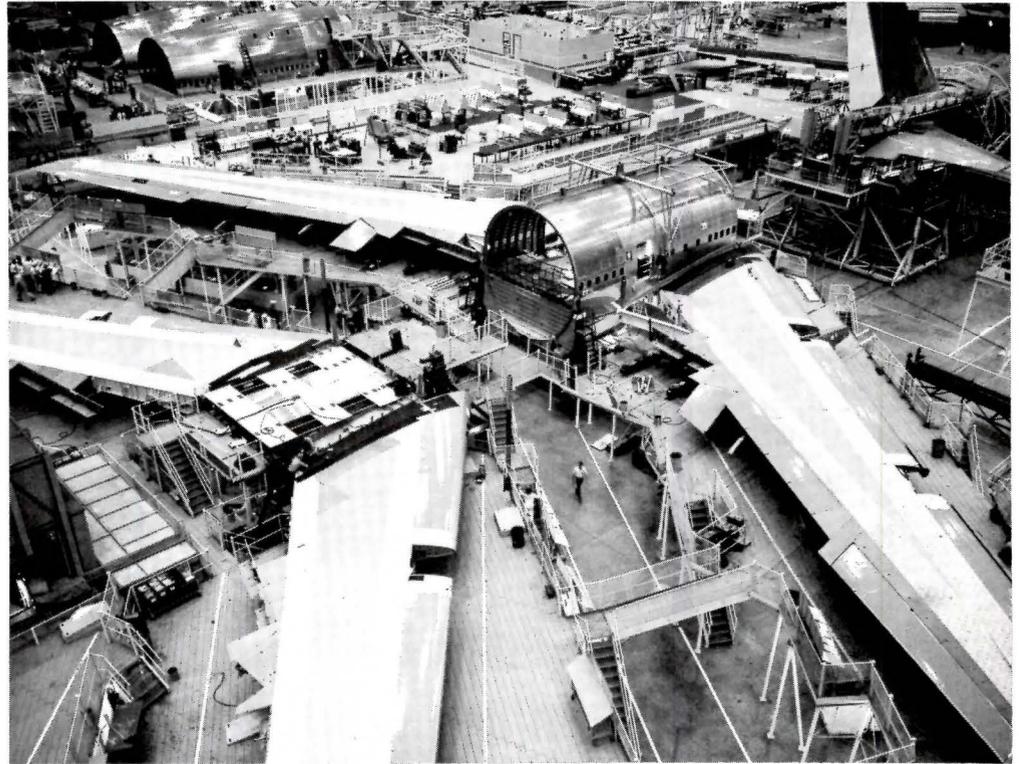


passenger comfort and many jet strips could not have tolerated the added weight on the two existing landing gears. The decision followed to expand laterally. Since the airplane was to be designed for both cargo and passenger service, the choice of the wide-body cross-section was reinforced by the desire to carry 8-ft.-square containers side by side. The demand for increased capacity and convertibility coupled with the requirement that the new airplane be able to operate from all existing runways that have taken 707s created a passenger cabin more spacious than any ever before available.

The interior of the 747 really is enormous. The Wright Brothers could have performed their first flight at Kitty Hawk *within* the length of its 225-foot fuselage. This move toward bigness makes it an easy target for antitechnology doom watchers. But paradoxically, the quantum leap forward in size spurred efforts to maximize efficiency and introduce innovative environmental and ecological controls. The engineers were determined, because of the high-risk nature of the project, to accomplish all this in an airplane that could operate at costs 25 to 30 per cent below the existing averages.

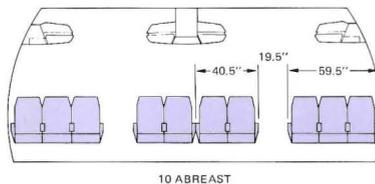
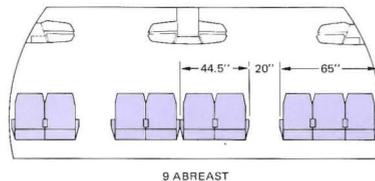
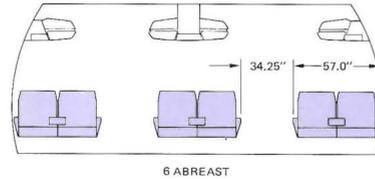
The 747's inertial navigation system epitomizes the kind of remarkable improvements that the airplane has made in reliability, precision, weight and volume. Developed originally for use in strategic missiles, military aircraft and space vehicles, this system's arrival in the 747 marks its first use in commercial aviation. A computer-based operation, independent of star sightings, radar and radio signals, it can take over the complete task of navigation. When tied into the automatic pilot and automatic landing systems, the 747 can fly a precise route and land without the flight crew ever touching the controls. The use of microelectronics and numerical displays gives greater accuracy to all measurements while at the same time reducing the number and weight of necessary components. The new system certainly improves the safety of air travel and facilitates the control of high-density air traffic around airports. It also obviates the loss of revenue caused by weather cancellations.

Another area of enormous improvement is that of maintenance and servicing. The 747 utilizes built-in test equipment (BITE)



TURNAROUND ARRANGEMENT

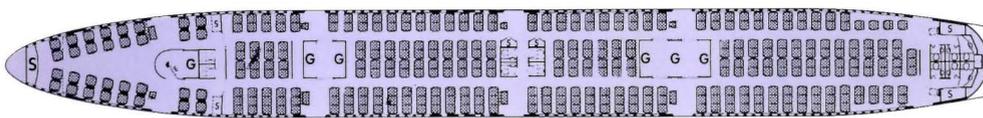
The plane is designed for multiple arrangements and rearrangements of passenger and cargo accommodations. The photo shows a typical coach area with nine-abreast seating. The plans below show progressive conversions of the plane from all-passenger service to containerized cargo. In a "convertible" model of the 747, such a changeover takes only 24 hours.



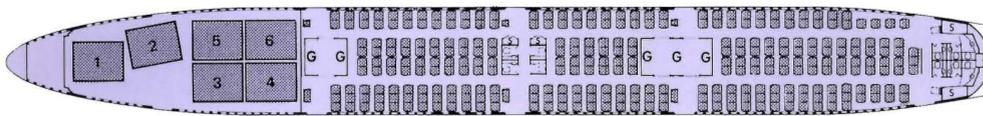
to isolate the source of any trouble immediately and to determine the functional condition of most of its systems without having to remove their components from the airplane. This equipment, centrally located and requiring minimal skill to operate, can maintain a constant check on everything from the main generators to the cabin temperature selectors. Access points to systems that need servicing at turn-around stops—food, fuel, cargo, baggage, etc.—are conveniently located along the lower side of the fuselage, arranged to allow all systems to be serviced simultaneously without service vehicles interfering with passenger loading.

The cargo and baggage operations have been fully automated. Containers for either the main deck or the lower-hold move quickly over pneumatic wheels powered by individual electric drive units beneath the deck. The lower-deck cargo system can load or unload 74,000 pounds in less than seven minutes with minimum supervision. The 747 is the first commercial airplane capable of carrying an intermixed load of containers of all sizes currently in use. This, together with a payload capacity that is three times greater than that of the 707, offers air carriers a cargo-profit level never before attainable.

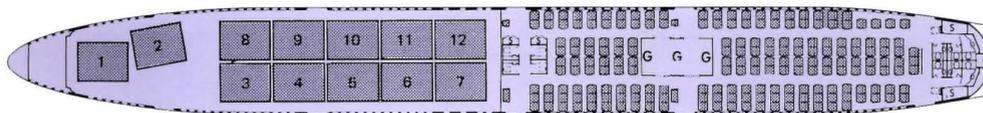
The convertible version of the 747 gives another clear indication of how market analyses have functioned as design determinants. This model (with the same external dimensions as the standard 747) was developed to serve those markets where the composition of traffic varies by season between predominantly passenger and predominantly cargo loads. It was also designed to accommodate new markets where both passenger and cargo traffic exist but where neither is sufficient to yield profits from an all-passenger or all-cargo operation. The airplane can adapt to any of these situations through a wide variety of mixed-load configurations. Conversion from any one arrangement to any other takes a maximum of 24 hours. (It is conceived of as replacing one "kit" with another; for example, the passenger "kit" includes seats, carpets, upper-deck stairs, lavatories, galleys, partitions, overhead stowage and drop ceiling.) Designers estimate that this quick conversion can add as much as 15 hours per week to the airplane's utilization.



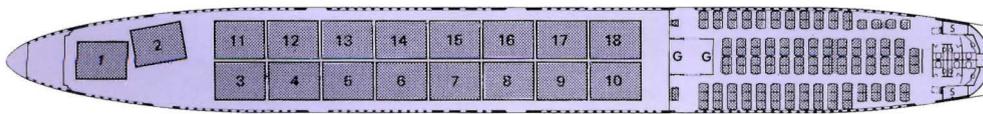
32 First Class Passengers At 41 In. Spacing
 16 First Class Upper Deck Passengers (Optional)
 337 Economy Class Passengers, 9 Abreast At 34 In. Spacing
 385 Total Passengers



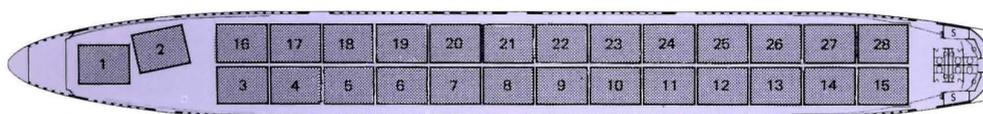
6 Pallets 96 x 125 x 96 In.
 630 Cu Ft Each
 Total 3,780 Cu Ft
 296 Economy Seats At 34 In. (9 Abreast)
 322 Economy Seats At 34 In. (10 Abreast)



12 Pallets 96 x 125 x 96 In.
 630 Cu Ft Each
 Total 7,560 Cu Ft
 196 Economy Seats At 34 In. (9 Abreast)
 212 Economy Seats At 34 In. (10 Abreast)



18 Pallets 96 x 125 x 96 In.
 630 Cu Ft Each
 Total 11,340 Cu Ft
 122 Economy Seats At 34 In. (9 Abreast)
 132 Economy Seats At 34 In. (10 Abreast)



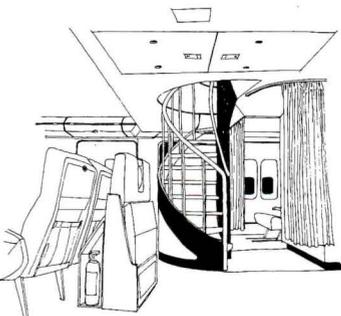
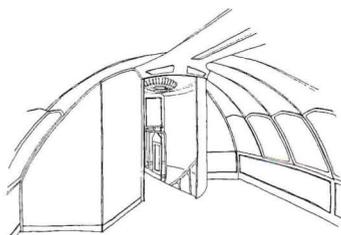
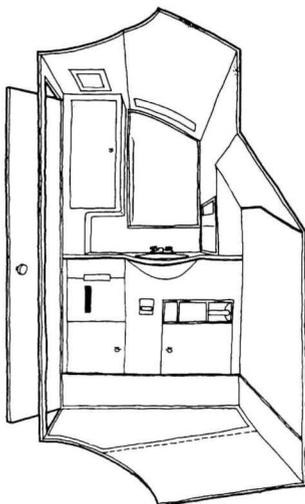
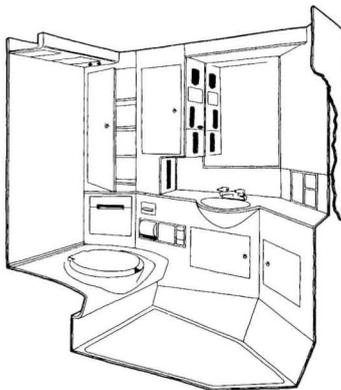
28 Pallets 96 x 125 x 96 In.
 630 Cu Ft Each
 17,640 Cu Ft

The top two drawings show two of many modular bathroom designs; the lower of the two is for the upper deck area. The lower drawings show the staircase curving up to the "penthouse" lounge and down to the first-class seating area (also shown in lower photo). The top photo shows a coach area (seating fabrics are supposed to survive five years of this use). The middle photo shows a booth variation of a first-class seating area.

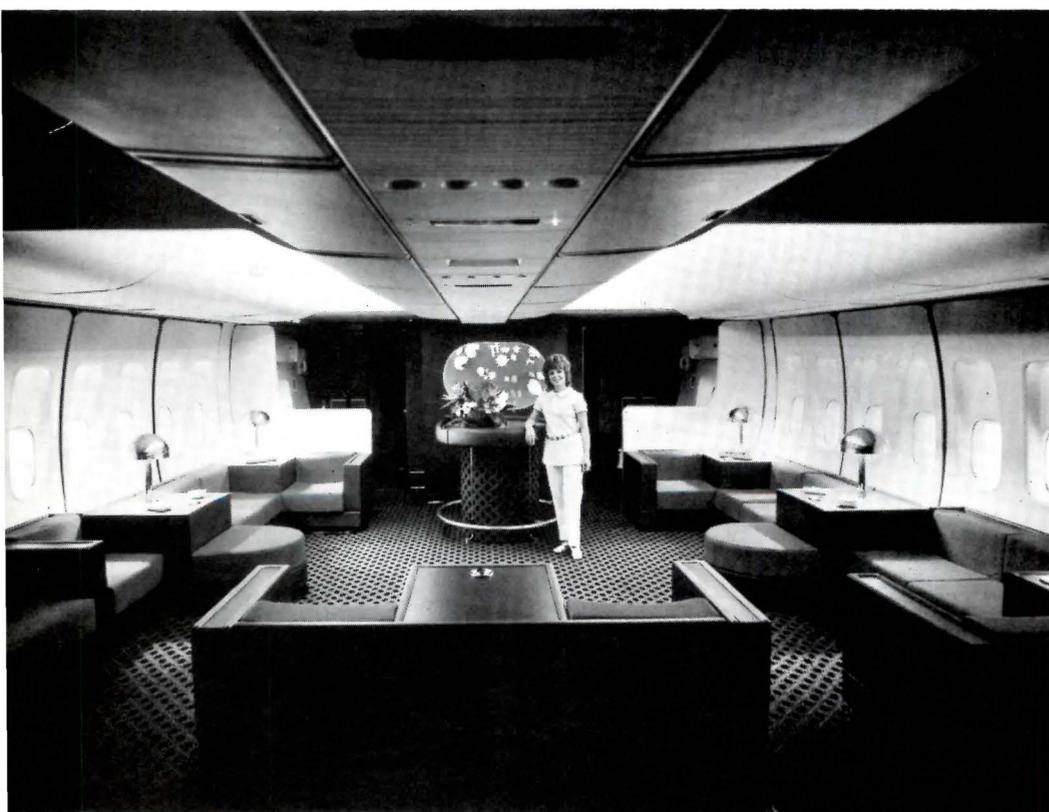
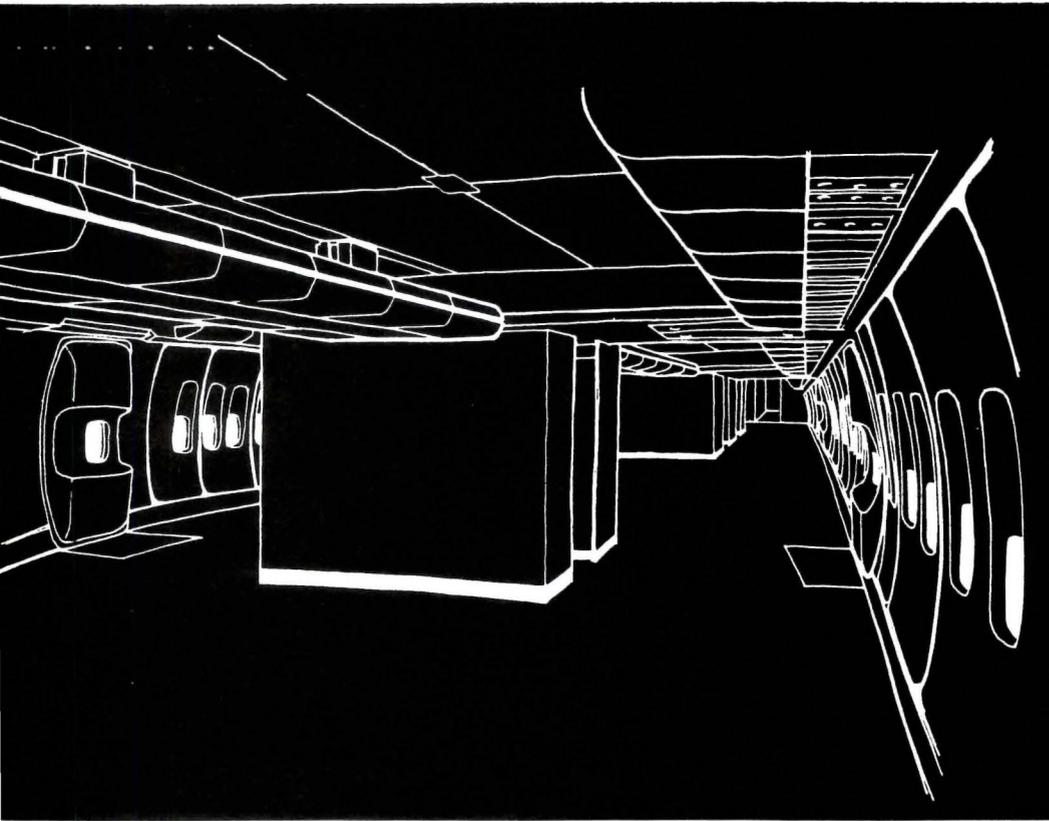
Environmental controls, both inside and outside the plane, give further evidence of design innovations that derive from highly specific objectives. The engine (Pratt and Whitney JT9D) was originally developed in competition for the government contract to power a military cargo airplane (the Lockheed C5-A). But for the 747, Pratt and Whitney completely reworked this design to eliminate smoke emission entirely and to reduce the external noise level considerably. This is more remarkable when one considers that the 747 is more than twice as heavy and has engines almost two-and-one-half times as powerful as other commercial jetliners. The reductions ultimately benefit not only the community in the immediate airport environment but affect the comfort of the passengers as well. Overall sound and speech interference levels in the cabin areas are the lowest among Boeing airplanes.

Lighting for the airplane, again both inside and out, reveals the same determined efforts to make significant—and noticeable—improvements. In the passenger cabin, the maximum lighting is approximately twice as bright as it was in earlier jetliners. For the first time fluorescent lights provide the primary source of illumination and can be separately controlled, in each of the five sections of the cabin, to four levels of increasing intensity: for sleeping; for lighting the cabin during stopovers; for movie viewing; for boarding. A switch in the arm of each seat controls individual reading lamps, and, during the day, an indirect light diffuses illumination around the window areas. Outside the airplane, one important improvement is the automatic dimming device. As the 747 lands at night, its rotating beacons and navigation lights, more intense than those on earlier jets, are automatically reduced in brilliance to prevent glare.

The air conditioning system must always perform a more demanding task in an airplane than in a building, first, because it is critical for survival, and second, because it must respond to widely divergent conditions. The 747, when fully pressurized, adds a full ton of air to its weight to create an atmosphere equivalent to being not more than 8000 feet above sea-level. To do this, it converts hot pressurized air from the engines' compressors to a temperature-controlled supply for the cabin's four pressurized zones. The temperature of each



Despite the cylindrical shape of an airplane fuselage, the interior of the 747 is a huge rectangular space (drawing) that may be divided according to airline specifications. The photo shows American Airline's version of a coach lounge (designed by Dreyfuss Associates)—an option that has caused fare controversy among the airlines.



can be individually adjusted as required.

The 747, along with other aircraft, is even capable of creating the climatic conditions outside the aircraft as well as within it. So great is its mass that its compression on the column of air supporting it condenses the moisture streaming off the wings into a mixture of mist and rain. Land buildings also play a role in shaping the weather conditions that surround them but their effects have not been so innocent—nor so amusing. Tall buildings often create unpleasant wind tunnels and impose a braking effect on the winds needed to cleanse the atmosphere (not to mention the generation of pollutants, heat, etc.). The 747 has shown an infinitely greater sensitivity to repercussions of its own behavior.

Of course, all of these environmental improvements are intended to make the 747 more attractive to the airlines as well as to the passenger. To this end, the airplane also offers remarkable flexibility for multiple arrangements—and rearrangements—in its passenger service. With a cross-section of 20 ft. by 8 ft., 4 in., cabin zones give the option for a variety of classes of service using six, nine or 10 abreast seating. In the nine abreast seating arrangement, individual seats are still 10 per cent wider than the economy seats used on the 707. The use of modular designs for lavatories, galleys and stowage allows each airline to experiment with its own layouts and to change them with minimal difficulty. The upper-deck lounge, located just aft of the flight deck, is available in two lengths (19 ft. 2 in. or 25 ft.), and can serve any function the airline chooses. The area comes equipped with one lavatory, with provisions for a second and a third and a galley or bar. So far, it has been used primarily to accommodate cocktail lounges and conference areas. Pan American is introducing a private dining room, and other airlines are working on similar developments. Lower-deck galleys provide yet another option for airlines with a minimum cargo requirement who wish to increase their passenger capacity on the main deck. These galley modules are loaded onto the airplane by the same automatic system that loads the baggage containers.

Boeing hired the U.S. design firm of Walter Dorwin Teague to work with their engineers on the basic interior design. They wanted to create an illusion of spaciousness



The upper lounge may become the first flying stateroom (left), but so far has been used largely as a first-class lounge. Quantas (Australia) airlines chose a nautical motif (photos at right). The modular kitchens come in several versions. The upper version is the optional kitchen below passenger level. The middle photo shows the elevator connection to the passenger area. The lower kitchen is a service model on the passenger floor.

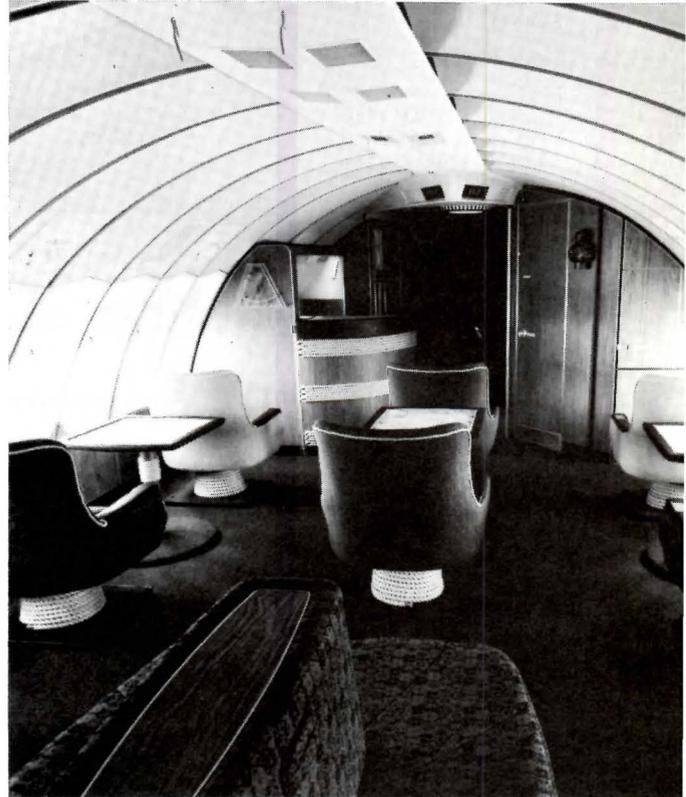
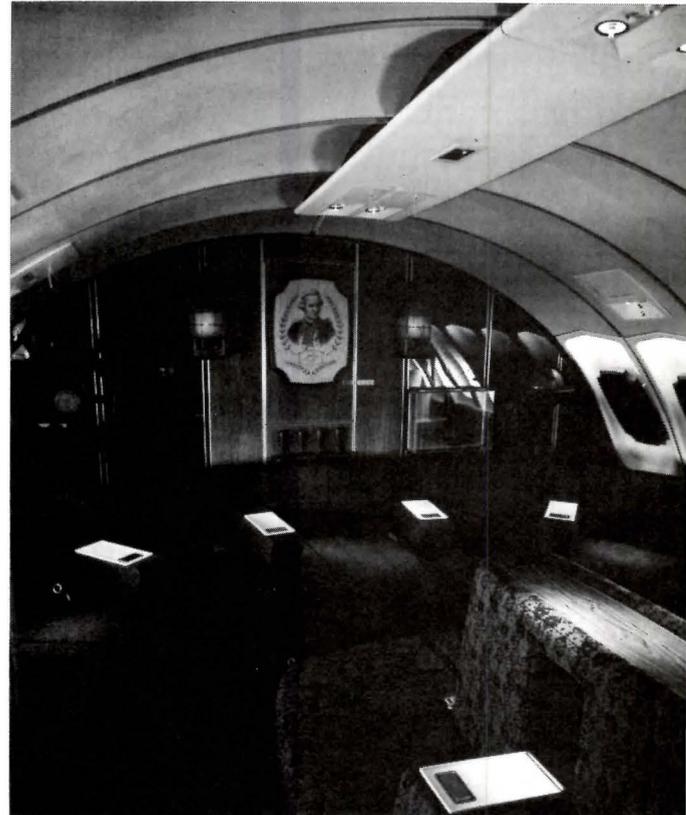
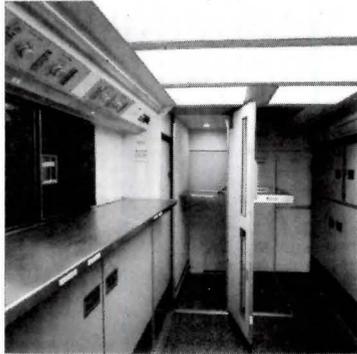
and at the same time minimize the tunnel effect of the basic cylinder they had to work with. To achieve this, they subdivided the space into five individual zones, using the fixed equipment (galleys, lavatories) as transverse bulkheads to enclose each section. (Their arrangement is flexible.) The stowage system is located over the seats, to lower the ceiling and provide a more intimate scale in the seating area. Full-height ceilings exist primarily over the aisles in the passenger sections. Both lowered and full-height ceilings, however, are flat and the side walls nearly vertical without ever joining together at a rigid right angle. These elements still combine to create an interior space more nearly rectilinear (and hence more room-like) than that on any previous airplane. The airlines seem to be convinced of the wisdom of this living room atmosphere: Many of them have recently remodelled the interiors of their smaller aircraft to simulate the wide-body configuration of the 747.

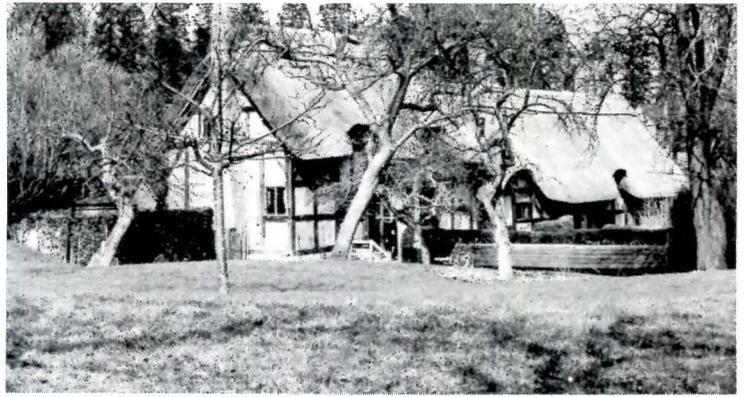
The chief obstacle to overcome in the interior of the aircraft is the problem of many people being held together for many hours in what is undeniably a very limited space. There is a great need to divert the passenger's attention from his seemingly helpless, strapped-in condition. One solution is to create the illusion of extended space by providing as many activities as possible that involve the use of different areas of the airplane or the same area put to different uses—to subdivide, both spatially and psychologically, the basic cylinder that forms the interior.

Seven-forty-seven designers have superimposed a remarkable number of these activities on the primary one of transportation. By operating simultaneously as restaurant, cinema, bar, lounge, library or living room, as well as air-carrier for close to 500 people, the airplane gives eloquent testimony to the wastefulness of zoning and building code restrictions that determine space requirements on land.

Although architects often make claims for successful "mixed use" spaces in their buildings, they are generally referring to large, undefined spaces that can accommodate different activities only sequentially (not simultaneously) and that always rely, for back-up support or emergencies, on other areas of the building. Even these spaces—high school gyms, conference

continued on page 104





Is your thatch authentic?

It is estimated by the National Geographic Society that 50,000 cottages with thatched roofs remain in the charming countryside of England, not a bad score if one considers that a master thatcher needs

four million reeds and 60 days to weave the roof of one small cottage.

Now, a cherished tradition is threatened. Somber news reaches us that a hotel roof in Devon—the very heart of thatchland—is made of fiberglass thatch.



Pablo's prints banned in Brazil

Picasso is "porn"

The government of Brazil has banned a \$5 portfolio of Picasso prints that has been selling in bookstores in Rio de Janeiro for the past three years. Last year, a poster of a painting by Michelangelo was banned, and almost all members of Brazil's erotic-surrealist school of painting have been denied the possibility of exhibiting their works. Censorship in all the arts is generally tightening, with growing prohibitions against films, plays, books, and the fine arts. The chief offenders are sex, violence, and politics—

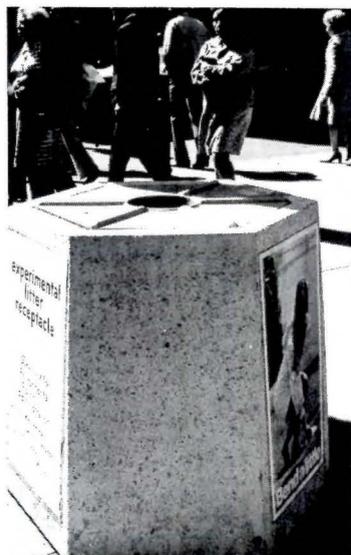
or whatever else may be defined as "a threat to the traditions of the family," or "contrary to public morals and good behavior."

Brazilians, and outsiders, may be aghast at this affront to artists of the stature of Picasso and Michelangelo. But the real affront is to artists who will never be accorded such grand stature, and to artists whose "art" may seem to have little or no value, either social or esthetic. And the ultimate affront is to a public that is not trusted to make up its own mind.

Neat city

What is reasonably good looking, weighs 470 lbs. and has six sides? Answer: A concrete litter basket, that's what. New York City ordered 60,000 of these wonderfully efficient tubs for its sidewalks. The six sides will (hopefully) be covered with advertising messages, which a City Hall optimist has estimated will bring to the city \$3.7 million over the next five years.

The container is light brown concrete with a plastic cover which can be removed to lift out a plastic bag. The litter is put in through a seven-inch hole, big enough for litter but much too small to allow people to put in their garbage bags. And, if you are wondering why it weighs 470 lbs., try and steal one.



World Bank aids Jamaica

With the help of the World Bank, the island of Jamaica will soon start a \$19-million project to build low-cost housing and develop viable communities.

The project is intended for persons earning less than \$1,500 a year. Prospective householders will work on the construction, earning credits for their downpayments. A core unit will cost about \$1,900, and will include a sleeping/dining room, kitchen and toilet facilities. At a later date, owners will add to this core, buying building materials at special low prices.

Kingsley Robotham, an architect in the Ministry of Housing, describes this as a "community-development program," with integration of various elements; provision of housing, training in skills, and establishment of small industries. The goal is not just a low-cost housing project that could easily degenerate into a slum, but a nucleus community that will grow and will enable people to grow, too, improving their economic position. The World Bank, which has announced that urban housing is a worldwide problem in which the Bank is taking special interest, will put up about \$6.25 million, one-third of the estimated cost.

IDCA Conference in June

"Performance" is the theme for the 1973 International Design Conference in Aspen. "This year," it says in fine print, "the conference will focus inward upon the designer as performer, whether designing a building, a city, a consumer product, a poster or whatever."

As a service to our readers who may be considering taking part in the conference (June 17-22, high in the bracing air of the Colorado mountains) we are reprinting here the four questions asked on the registration form under "Impor-

tant Conference Information". The applicant is asked: 1) Present professional commitments 2) General esthetic and intellectual interests 3) Existential coordinates 4) Do you like to dance?

Conferees will have the option of attending a full week's rehearsals of an instrumental group, or of a dance company, a photographer shooting portraits, or a director working with actors on a play.

Milton Glaser and Jivan Tabibian are the co-chairmen.

Photography show at MIT

Minor White, professor of photography at the Massachusetts Institute of Technology, is planning his fourth exhibition of original photographs. He is looking for thousands of photographs to choose from, by amateurs and professional cameramen from all over the world. The show will be called "Celebrations", an extension of his last show, "Octave of Prayer", November 1972.

Professor White describes what he is looking for in the entries: "Celebrations of spirit... of the moment when spirit reveals itself in any way that is fitted to photography. The soul in us... graduations, weddings, divorces, griefs, losses and gains. It wakes in the morning and celebrates the rising sun... the new moon... peace as well as war... destruction, resurrection."

The photographs should arrive during October 1973; the chosen prints will be shown in April 1974 at MIT's Hayden Gallery. Write: Prof. White, MIT, Cambridge, Massachusetts 02138, USA.

Catching hold of the sun

Solar energy is non-polluting, and using it would solve many of our air pollution problems. Unfortunately, we haven't figured out yet quite how to do it.

The U.S. Scientists' Institute for

Public Information tells us that experiments with harnessing solar energy at the Communications Satellite Corporation, Clarksburg, Maryland, suggest that it may be possible to coat windows in any building with a special, invisible substance that will convert the sun's rays into electricity.

Balloons in the USSR

The New York Times reports that in the Soviet Union a dirigible will be used to help lift and assemble prefabricated flocks of four and five apartments into a multi-floor building in Kiev.

If it proves to be successful, it could revolutionize construction methods there (and elsewhere). Helicopters, of course, have been used for such purposes all over the world for some time.

We'll drink to that

Ice from the huge Greenland Ice Cap is collected just as it slips into the sea from a glacier on the west coast of Greenland. This prehistoric ice is then crushed and packed for sale as ice cubes. Well, why not? In fact, if all the ice on Greenland were to melt, scientists have estimated that the water level of the world's oceans would rise at least 25 feet. So let's raise a glass to the Royal Greenland Trade Department—for keeping our port cities above water.

Art school gives honors

Kenneth Clark (Lord Clark of Saltwood) is coming to the U.S. in May to receive the Skowhegan Gertrude Vanderbilt Whitney Award for his "outstanding contributions to art." Lord Clark is the creator of the television series called "Civilisation". The occasion is the 27th anniversary of the Skowhegan School of Painting and Sculpture of Maine, an academy whose enrollment is limited to 65 hand-picked students.

The Skowhegan School schedules nine summer weeks of concentrated study on its 150 acres, providing an opportunity for talented students to work on a day-to-day basis with leading professionals.

Skowhegan offers courses in painting, sculpture, graphics, and mosaics, and the only fresco course in the U.S.

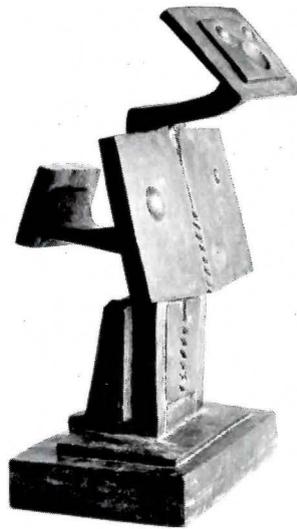
Painting and sculpture medals will be given to three others on that evening: Georgia O'Keeffe for painting; George Rickey for sculpture, and Leonard Baskin for graphics. Besides the medal, each winner has the privilege of selecting one scholarship student for the school.

Max Ernst

"Inside the Sight", an exhibition of the paintings, drawings, collages and sculptures of the German Artist Max Ernst, opened in February



"King Playing With The Queen"



"An Anxious Friend"

at the Institute for the Arts, Rice University, in Houston, Tex. All of the 104 pieces in the show are from the Menil Family Collection. The show has been traveling for three years in Germany and France. (It opened at l'Orangerie des Tuileries in Paris last April on Max Ernst's 80th birthday, and marked the first time l'Orangerie has shown the work of a living artist.)

"Inside the Sight" will be moving to the William Rockhill Nelson Gallery of Art and the Atkins Museum of Fine Arts in Kansas City, Mo., from September 27 to October 28, 1973; it will be at the Art Institute of Chicago from September 15 through November 18, 1974; and it will be shown at the Solomon R. Guggenheim Museum, New York City, from December 6, 1974 through February 9, 1975.

Spruce up a trailer in 1973

A design competition for mobile home exteriors is announced by the Reynolds Metals Company. The design should be suitable for mass production, conforming to normal specifications (48 to 60 feet long by 12 to 14 feet wide and 8 to 9½ feet high.) The design should be for the exterior of a "single family" home of one or two units.

First prize is \$7,500, and entries

are due before August 1, 1973. Write for details to Mobile Home Design Competition, Reynolds Metals Company, P. O. Box 27003, Richmond, Va. 23261.

AIA awards for 1973

The American Institute of Architects has made public some of the awards the AIA will give at the national convention in San Francisco from May 7 to 10.

- Three women and seven men, outside the architectural profession, are slated to receive honorary memberships for "distinguished contributions to the architectural profession, or to allied arts and sciences." They are: Lieutenant General Frederick J. Clarke, chief of engineers, U.S. Army; Ben E. Graves, project director, Educational Facilities Laboratories, Chicago office; Nancy Hanks, chairman, National Endowment for the Arts; Vernon E. Jordan Jr., executive director, National Urban League; Rita E. Miller, executive secretary, Southern California Chapter, AIA, and Arthur F. Sampson, administrator, General Services Administration; Betty Silver, executive secretary, North Carolina Chapter, AIA; Herman D. J. Spiegel, dean, Yale School of Architecture; James Johnson Sweeney, former director, Museum of Fine Arts, Houston; and Paul N. Ylvisaker, dean, graduate school of education, Harvard University.

- Ten architects will be named Honorary Fellows, a title reserved for non-U.S. citizens (and who do not practice in the U.S.). It is currently held by only 150 others and is given for "esteemed character and distinguished achievement." The ten are: Nikolai B. Baranov, USSR; Justus Dahinden, Switzerland; Robert LeRicolais, France; Nikola Nikolov, Bulgaria; Fabio Pentead, Brazil; Roland Rainer, Austria; Cyril Frederick Thomas Rounthwaite, Canada; Takeo Sato, Japan (posthumously); Manuel de la Sierra-Amieva, Mexico; and Sir John Newenham Summerston, U.K.

- The Architectural Firm Award in which "continuing collaboration among members of the firm has been the principal force in consistently producing distinguished architecture" will be given to the 100-year-old practice of Shepley Bulfinch Richardson and Abbott of Boston.

Other awards to be given are:

- Fine Arts Medal to Italian-born Harry Bertoina, sculptor and furniture designer.
- Allied Professions Medal to Hideo Sasaki, landscape architect and planner.
- Craftsmanship Medal to Swedish-born Helena Hernmarck, textile weaver now working in a studio in London.



It's Innsbruck in 76

The contest for the selection of the site of the 1976 Winter Games was not without its intriguing moments.

The American contenders, Denver and Salt Lake City, eliminated themselves in the name of poverty or the cause of ecology (although Lake Placid in upstate New York, site of the 1932 games, was ardent to the end). The International Olympic Committee was understandably cautious about the ability of a small mountain town like Lake Placid to raise the \$22 million necessary to organize the games.

Tempere, Finland lacks the facil-

ities for ski races, and had proposed that these events be held next door in Sweden.

Chamonix (Mont Blanc region of France) was second choice, but flunked bobsled.

One wonders if there was ever really any contest. Innsbruck Mayor Alois Lugger tactfully reminded the IOC of the 1964 Winter Games in Innsbruck: faced with impending disaster when snow refused to fall on the right mountains, cooperative Austrian soldiers transported snow in trucks and tamped it down on the ski runs, with great success.

- Industrial Arts Medal to the Italian-born husband and wife design team, Lella and Massimo Vignelli.
- Architectural Photography Medal to Robert C. Lautman.
- Collaborative Achievement in Architecture to BART (Bay Area Rapid Transit, San Francisco).
- Citation of an Organization to the San Francisco Planning Commission.
- Architecture Critics' Medal to Robin Boyd (posthumously), architect and author from Melbourne, Australia.
- Architecture Critics' Citation to Alan Dunn, cartoonist.
- Whitney M. Young Jr. Citation, to Architects' Workshop of Philadelphia, a volunteer group of professionals, for helping impoverished neighborhood groups with rehabilitation.
- Research Medal to Harold B. Gores, president of Educational Facilities Laboratories.

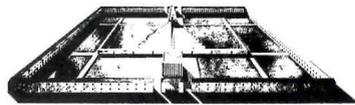
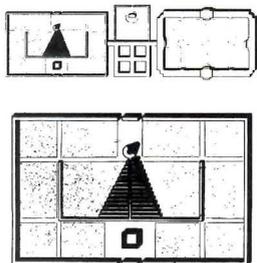
Eames at the MOMA

New York's Museum of Modern Art will present a major show of the work of Charles Eames, April 17 to June 30, starting with a program of his short films on March 28 and 29.

The exhibition will survey the work of Eames from his prize-winning MOMA competition entry of 1940, designed with Eero Saarinen, to his current use of "foam-in-place" integral padding. The show will include prototypes of furniture that never went into production, and photographs of the house Eames designed and built in Santa Monica, Calif., in 1949.

"More than any other American furniture designer," says the Museum, "Charles Eames has used and developed modern technology to suit his own ends, and his now-classic chairs of molded plywood and plastic have influenced designers throughout the world." It will surely be standing-room-only at the Modern, for designers eager to see the assembled works of this extraordinary designer-architect-filmmaker.

Eames-Saarinen winning design, 1940



Cemetery competition

Italian competitions grow in number and scope. A recent one involved the design for a new cemetery in Modena. This was the first time in memory that a national competition was held for a graveyard. Forty-seven projects were considered and there were seven meetings to determine the winner. First prize went to Aldo Rossi and Gianni Braglieri, architects in Milan, for their project "L'azzurro del Cielo" (The Blue of the Sky). The design of the new cemetery is one that incorporates a square plan—like a house without floors or walls with the area of burial somewhat parallel to the idea of death itself, timeless and completely open.—V.B.

Lively burial grounds

Cemeteries aren't what they used to be. In the Chicago area, it is reported, a number of cemeteries have opened up to bicyclists, joggers, picnickers, baseball teams, fishermen, and nature enthusiasts.

The director of 37 Roman Catholic cemeteries in the Chicago archdiocese feels that cemeteries will increasingly be multi-use: "They will have to be; it's just good citizenship." The National Association of Cemeteries also feels that such steps are necessary. Reforms will do a great deal to discourage costly vandalism, to improve neighborhood relations, and to ease the pressures of land-hungry developers who call cemeteries "wasted land."

The reforms have been enacted quietly. One cemetery dropped its rules forbidding bike riding, and posted new signs: "Bicycling permitted under adult supervision." Another cemetery opened its lake for fishing, and lengthened its summer evening hours. Two other cemeteries now allow local youngsters to play baseball on land that is held for future burials. Other cemeteries permit ice skating, or encourage strollers with pamphlets that describe the wildlife and plantlife found in the cemetery.

Not all cemetery operators are in agreement. "A cemetery is a burial ground, not a playground," said an official of a Massachusetts ceme-

tery. And the recent proposal by planning consultant Walter Thabit, to turn a Brooklyn cemetery into a park, was described by a local politician as "ghoulish."

With all respect for those who are buried in these changing cemeteries, we think the new develop-

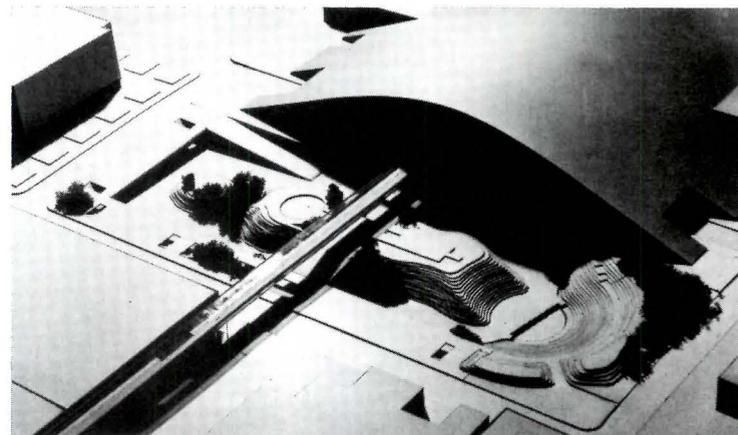
ment is a remarkable one, and an example of the kind of flexible and creative thinking that is so necessary today. The only trouble we can foresee is that as soon as a cemetery can be used for bicycles, it won't be long before someone will think of using it for a highway.

Niagara Falls competition

An international competition for the design of New York State's Niagara Falls Rainbow Center Plaza has been won by the Manhattan architecture firm of Abraham W. Geller, Raimund J. Abraham, and Giuliano Fiorenzoli, it was announced a month ago.

The winning design shown here is a brilliant and innovative solution to an almost impossible problem: how to make a typically vast, windswept and (in this climate) frequently snowbound open space inhabitable. The architects decided to excavate most of the space, thus revealing the natural rock formations known to exist below the surface. These will form two islands to be surrounded by an artificial lake, and reached by a wide bridge. The sunken space, which will contain an open amphitheater at its southern end, will be shielded from winds and partly from the weather. Above the bridge there

Model of Niagara Falls Rainbow Center Plaza



The architect as client

All American architects talk about the appalling lack of response to the nation's housing needs. Now, a group of them has done something about it. The New York State Association of Architects established its own development corporation, as sponsors of nonprofit housing, in an effort to demonstrate that quality housing can be achieved with a willing client. The group hopes to "pioneer a new role for architects in responding to the social challenges of their time." Thus the N.Y. State Association of Architects Development Corporation was born.

In a joint venture with the city of Utica, New York, the Corporation bought an already cleared downtown site, and announced as

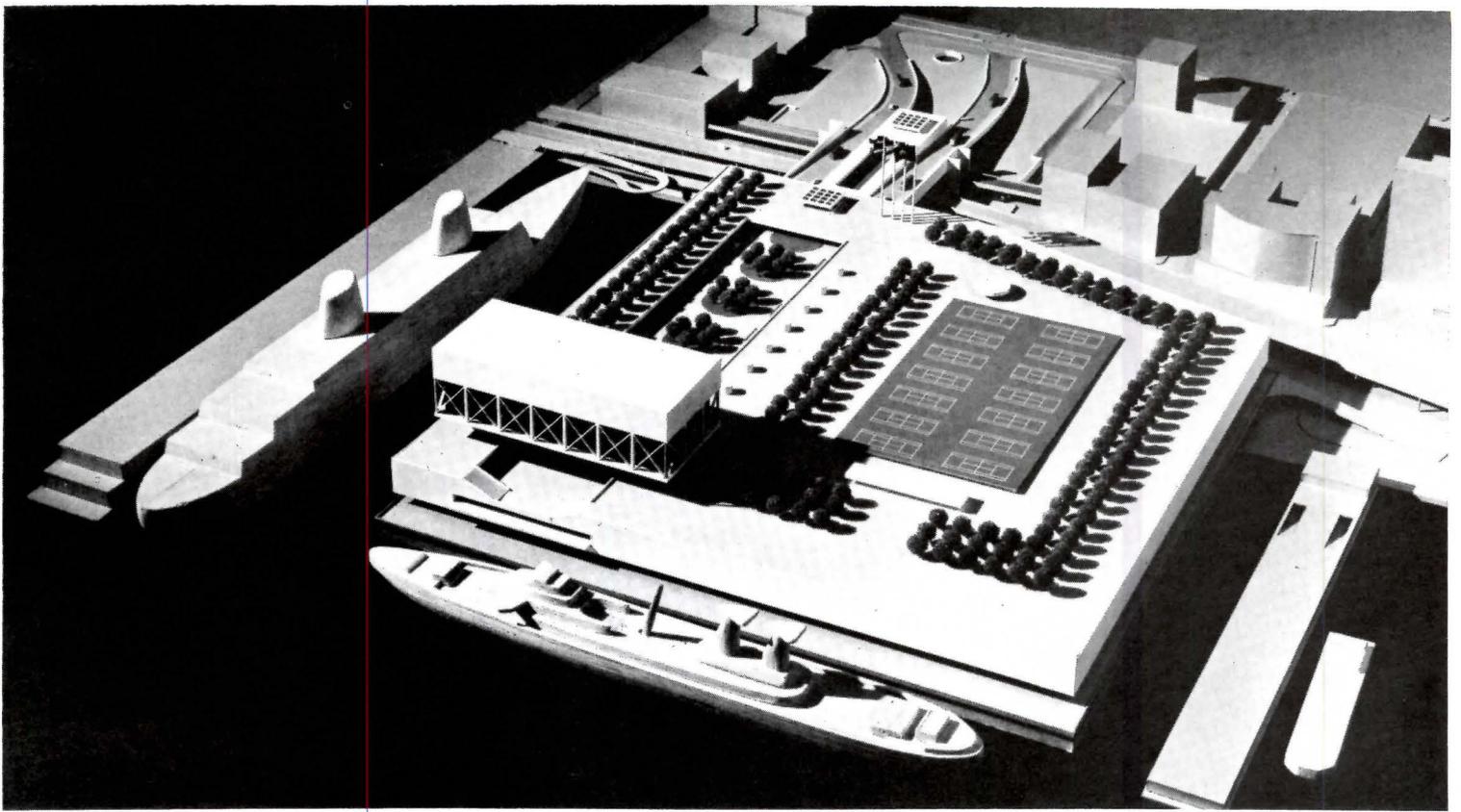
its pilot project a competition for the design of a 100-unit apartment complex for the elderly. This type of housing was chosen for "maximum present need, and therefore, optimum marketing prospects."

Thomas F. Galvin, president of the NYSAA, credits Utica Mayor Michael R. Caruso: "Without his enthusiastic and effective cooperation... we could not have hoped to get under way with our first project so soon."

Architects G. Kent Hawks and John S. Garment, both of White Plains, N.Y., are the winners of the competition.

A "strong sense of community was the underlying motivation of the design"—a square doughnut cut on the diagonal, enclosing a

continued on page 96



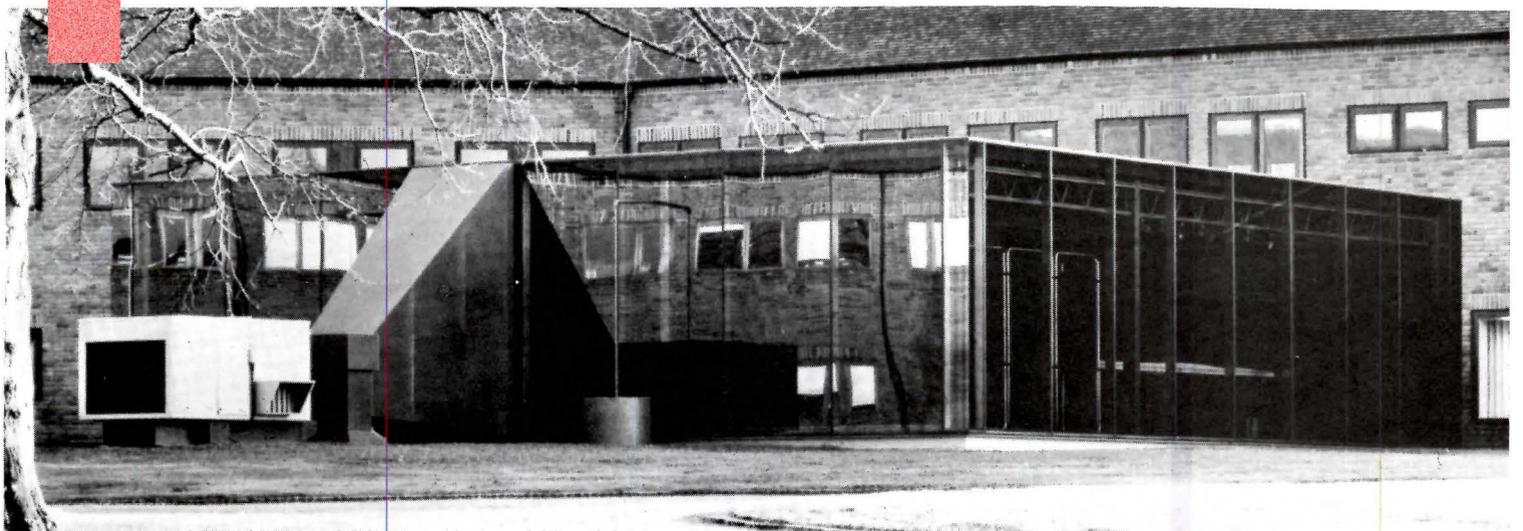
New York City Convention and Exhibition Center

On July 4, 1976, New York will stage its own Bi-centennial spectacular over 40 acres of the Hudson River—the opening of a four-level, \$200-million convention center. The New York office of Skidmore, Owings & Merrill is designing the facility (said to be the world's

“biggest and best”) over the water from piers 84 to 86, with 560,000 sq. ft. of exhibition space on its second level. Set on pilings up to 160 feet tall, the building will have four restaurants, 58 meeting rooms, and a 2,000-car garage. The 18-acre roof will hold a park and 14

tennis courts in summer and convert to an ice skating rink in winter. A special road completely encircling the site will be built for the construction vehicles, so that the neighborhood streets will not be inconvenienced during the building process. Mayor John Lindsay has

high hopes that the center will bring the city some business—for example, the Boat Show, which could even be offered docking privileges. New York City also has a hopeful eye on the Republican and Democratic political conventions of 1976.



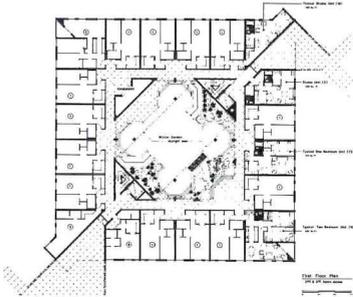
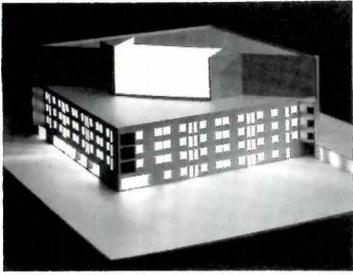
Milton Keynes, England

The new town of Milton Keynes (between London and Birmingham) is the last in a series of such communities created in the past 25 years to catch the “overspill population” from London. The Milton Keynes Development Corporation (D. J. Walker, chief architect) has left the plan for the 22,000-acre city quite flexible; they call it “an open city with a soft landscape . . . a city of trees.”

The Pavilion, a conference and exhibition room at Wavendon

Tower (above) is sheathed with highly reflective glazing: at first glance the building seems to be constructed of wavy brick. The wedge-shaped air-conditioning unit is plugged in from the outside. The interior (right) shows the conference table with individual square tinted glass slabs, each supported on a large scarlet steel cotton reel. The perimeter walls can be blacked out for showing films, by remote-controlled motorized blinds that descend from the roof-space.—J.D.





Square doughnut, with winter garden
65-sq. ft. winter garden covered with a sloping skylight. (The enclosed garden is a concession to the rather cold Northern climate.)

To avoid a sense of isolation so frequently felt by the aged in housing designed specifically for them, the design "reaches out" to the neighborhood with its fenestration and "tot park."

The intent was philosophical rather than architectural. "We were trying for an interesting facility rather than an interesting design," said the architects "... a familiar kind of architecture... that would recall what the residents have always lived in..."

The building has an interesting combination of walk-ups and high-rise elevator units in three-story and six-story segments. There are cheerful community spaces for neighborhood get-togethers, and "leftover spaces" whose function the tenants will decide. Each floor has sunny sitting areas.

Construction is load-bearing masonry with precast concrete floor slabs.

Banners everywhere

New York City is going to look like a giant parade during the week beginning March 26, and with good reason—it's her 75th birthday. It's that long since the five boroughs were united as one city. That date

Anne Raymo Raphael Boguslav



Crafts



also marks the start of Craft Week and Banner Week in the city.

Craft Week is sponsored by the New York City Craftsmen Association and it is intended to highlight the phenomenon of the renaissance in crafts interest in the U.S. At the Coliseum an exhibition of craft equipment is planned, as are museum and gallery openings and department store happenings.

To celebrate Banner Week, a number of artists in the city have been commissioned by companies to design and execute corporate banners to be displayed during that week. Banners will hang from windows, on flagpoles, and marched in several parades. School children, PTA groups and block organizations are fast at work stitching at banner bees.

Painting the town with banners is the brainchild of Artspeak, a group of enthusiastic designers who brought the idea to the Department of Cultural Affairs. They are responsible for the designs of many of the banners which will be on display.

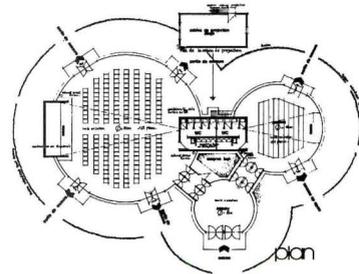
The Parks Department has commissioned four major banners, from Artists Anne Raymo, Richey Kehl, Raphael Boguslav and Barbara Nessim, to hang in the parks.

Technibulles

Electricité de France celebrated its 25th anniversary at Plateau Beaubourg in Paris last year with an exhibition (a "Fête Electrique") inside these *demispheriques*.

The easily assembled igloos, inspired of course by Buckminster Fuller, are constructed of polyester triangles, attached to each other to form a polygon, the end result being a "technibulle", the name given it by its manufacturer, Technirama. The site is near the new Cultural Center soon to be constructed after an international competition.—G. de B.

Plan of a technibulle variation



Ferdinand Hodler revisited

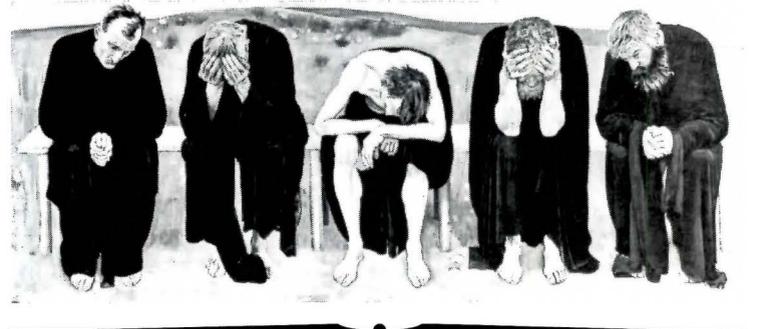
The artist, Ferdinand Hodler, (1853-1918) whom the Swiss regard as their first great modern painter, is the subject of a major exhibition (110 paintings and drawings) at the Guggenheim Museum in New York (see page 12).

Hardly anyone nowadays speaks of Hodler; his entire work has been

hanging in isolation in the private collections of Switzerland although he is rated by those who know his work as a major figure of the Symbolist and Art Nouveau movements. His allegories of life and love and death evoked a vigorous response at the turn of the century.

When Augustine Dupin, his mistress and mother of his son, fell ill, Hodler recorded her sufferings from the bedside, in a series of haunting paintings, the last one done the day after her death.

"The Disillusioned" (shown) depicts five old men sitting on a bench waiting, in silent despair.



Centre de Médecine Ecologique

Hospitals

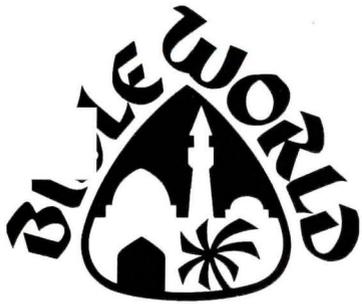
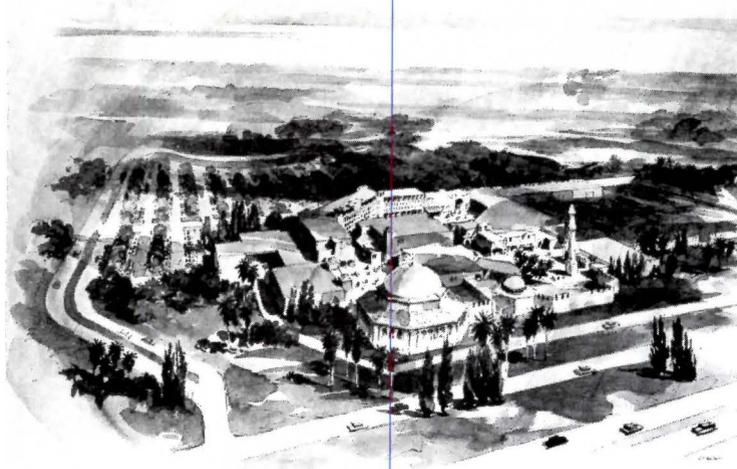
There is something of a renaissance in hospital design in Europe these days. Architects, doctors and the general public are beginning to express the opinion that a hospital must be not only a place to recover health, but also a home, a haven, and maybe even a symbol in which one can have faith. Here are several examples of recent work in hospital design:

- Hospital Center, Gonesse, France. This pilot center is a training facility for the handicapped. The aerial view shows the hospital complex, in the shape of a double Y, and the circular surgical theater. The long arms house the therapy and rehabilitation facilities, and the rooms for students and professional staff. A large white cross marks the helicopter landing pad. Architect: O. Rabaud.
- Psychiatric Hospital, Maison Blanche, France. A successful attempt to create a cheerful and restful environment. This extension, to the west of existing buildings, was planned for 500 beds (ten



Centre Hospitalier de Gonesse

pavilions of 50 beds each) plus a medical block and a social center. Each building is open in character and independent of the others, having its own patio or terrace. Architects: G. Masse and J. Mathiot.
- Center for Ecological Medicine, Genolier/Nyon, Switzerland. The architects chose molded concrete for the skeleton and walls. The cellular hexagonal structure permits a three-dimensional extension, to take maximum advantage of the sun and the superb view. Architects: Jean Hentsch and Beric S.A.—G. de B.



The walled city of the South

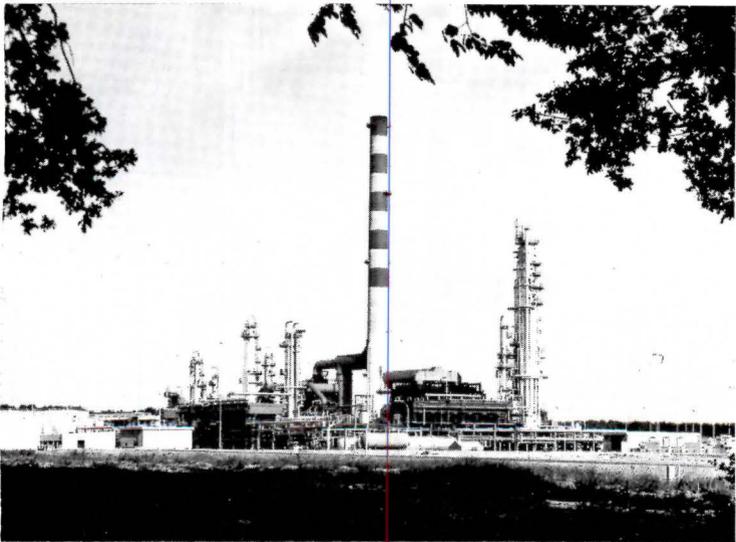
If Disney World hasn't depleted your resources (financial and otherwise) hike three-and-a-half miles west on Highway 192 to Bible World, a "travel adventure recreating the sights and sounds of the Holy Land." It will be finished and waiting in the spring of 1974.

Passing through the gates of its walled city, you will be tantalized by haunting desert flutes, "the jingle of coins on the veils of mysterious dark-eyed Bedouin beauties," camels and striped tents.

Visit the sound-and-light Passion Week Panorama and the David and Goliath marionette theater. This playland of a thousand and one uplifting delights is designed to "amaze, intrigue and move even the most jaded and blasé highway traveler."

Instead of mickeymouse backscratches, the souvenirs offered will be Persian rugs, harem perfumes, Yemeni jewelry, silks from Damascus and copper urns.

Fifty paintings by Jackson Bailey show scenes in the life of Christ, and the figures appear to move as you walk by. Each painting measures 11 by 20 ft.; put end to end that's three times the length of a football field. The architects are Welton Becket Associates who are very experienced in this line of work, having done the designs for Disney World's Contemporary Hotel, and Nashville, Tennessee's Opry Land.



"Grand Prix" in Industrial Design

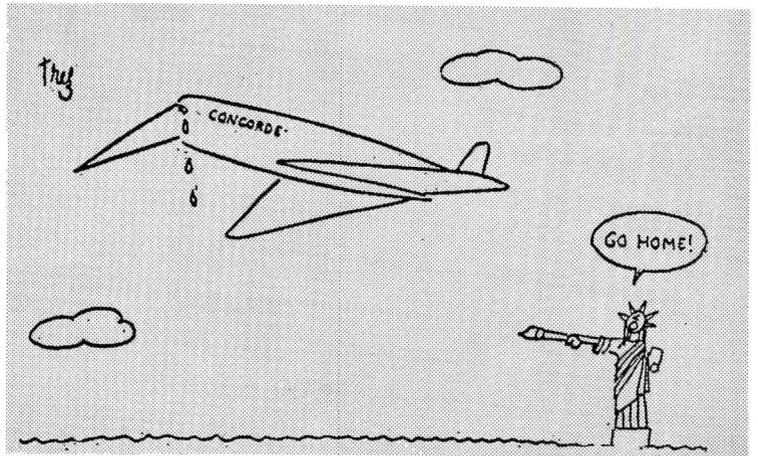
The Institut Français d'Esthétique Industrielle, a private organization (founded in 1951 by Jacques Viénot) that is devoted to the promotion of industrial design in France, has given its second annual Industrial Design Award to the Société Française des Pétroles BP (British Petroleum).

BP won the prize for its shiny new refinery in Vernon, a small town in Normandy 100 kilometers from Paris.

This award-winning oil refinery was designed by the engineering staff and technical services of the French British Petroleum offices. —G. de B.

Highrise eatery

The ultimate in specialization will be the Restaurant Building: 14 stories entirely of "high-quality restaurants," including a nightclub and an outdoor dining terrace. Edward Durell Stone is the architect; Chicago's Near North Side (corner of Rush and Walton Streets) is the location; The Server Company is the developer. It reminds us of a parallel segregation that has prevailed in "cultural centers"—theater after theater, with hardly a restaurant in sight. Didn't everybody decide that wasn't such a good idea?



France-Soir

SST

Environmentalists around the world have been saying unkind things about the likely effects of the various, proposed (or real) supersonic transports upon the quality of life on earth.

Last month, two U.S. airlines turned thumbs down on the British/French *Concorde* for more mundane reasons: according to them, the *Concorde* wouldn't make any money for airlines not subsidized by their governments. (The *Concorde* costs about twice as

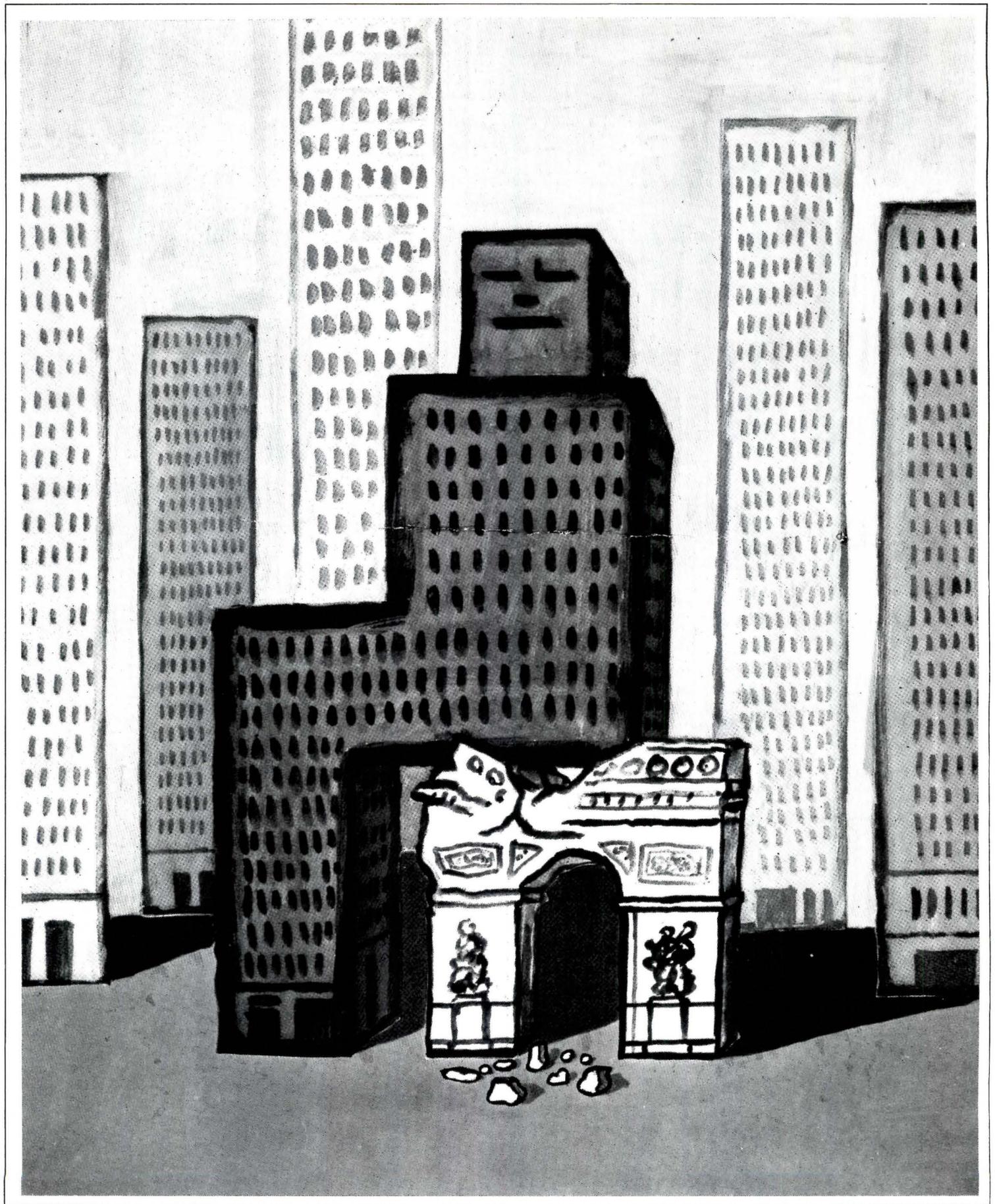
much as the Boeing 747—see pp. 84-91—and will carry fewer than half the number of passengers.) Admittedly, the *Concorde* would get everybody from Paris to New York two or three times faster than the 747—but who would really want to leave Paris that quickly, or London, for that matter? The *France-Soir* cartoonist charmingly expressed the British/French reaction; what he failed to show was the smiles on the faces of the American passengers.

Obit

Some of us on the staff of PLUS worked with Steve Thompson in the early 1960's, when he was the real estate expert on the staff of the old *Architectural Forum*. He was an incredibly knowledgeable and utterly dependable journalist in a field that few of us really understood at all; he was also a gentleman: fairminded, and an unmitigated pleasure to all who worked with him. He had come to the *Forum* from the old *New York Herald Tribune*, where he was the real estate editor also; and when the old *Forum* folded, he went on to become director of public relations for the Webb and Knapp real estate organization. He was the executive vice president of the American Institute of Real Estate Appraisers in charge of public rela-

tions and publications at the time of his death. All of us were saddened when he died on February 10, only 60 years old.

Photographs: Page 9, Dan Cruickshank. Page 10 (bottom center) Claude Bestel. Page 11, Sam Lambert. Page 12 (top left) Ezra Stoller; (bottom left) G. Carli Ballola; (center) Mario Carrieri. Page 92 (top right) The British Tourist Authority. Page 93 (left) Austrian National Tourist Office; (center) Hickey & Robertson. Page 95 (bottom) John Donat. Page 96 (top right) Guggenheim Museum.



Footnote

Savignac, one of Europe's finest poster artists, painted this greeting card as a commentary on what is happening at La Défense, the new skyscraper satellite rising to the west of the Arc de Triomphe, in Paris. His point was, of course, that the silhouettes of those skyscrapers, clearly visible from the Champs Elysées, were beginning to overwhelm the great arch—a point made more soberly, but perhaps not quite so effectively, in our story on page 42. The paintbrush is obviously mightier than the pen—or mightier than the typewriter anyway.—G. de B.

Space, Cost Factors Influence Choice Of Electric Heat Recovery System



The Magnolia Life Building, Lake Charles, Louisiana, adds a touch of glamor to the city's skyline.

PROJECT: Magnolia Life Building, Lake Charles, Louisiana. ARCHITECTS AND ENGINEERS: Dunn & Quinn, Lake Charles.

DESIGN CHARGE: To design a modern office building that would provide a closely controlled year-round environment for approximately 350 home office employees and tenant personnel.

DESIGN RESPONSE: The Magnolia Life Building, designed by Patrick B. Gallagher, AIA, of the architectural firm of Dunn & Quinn, is a handsome 7-story structure sheathed in charcoal curtain-wall panels and glass at the front and rear and marble facing on both ends. The ground floor level, which forms a platform for the superimposed 6-story office tower, is occupied by a bank, brokerage firm, IBM showroom, and a coffee shop. The rest of the building is given over entirely to offices and suites. The insurance company owner occupies two floors and the remaining space is rented to lawyers, ac-

countants, brokers, and other professionals.

The choice of a space conditioning system for the building followed an evaluation of the total owning and operating costs of various types of systems capable of providing simultaneous heating and cooling all year long. As a result of this careful evaluation, the designers chose an electric single-duct HVAC system that makes use of lighting heat recovered by returning air through the fluorescent fixtures and into the ceiling plenums to meet much of the heating demands of the building.

A three-zone air handling unit on each floor contains water coils which are supplied from two parallel chillers located in the rooftop mechanical room. Thermostatically controlled dampers direct the warm plenum air through or around these coils as needed to maintain the desired temperature conditions within the various zones. When any space requires more heat than can be obtained from the plenum, supplementary electric duct heaters downstream from its air handling unit are energized automatically.

SEE REVERSE SIDE FOR DETAIL INFORMATION 

1 CATEGORY OF STRUCTURE:

Office Building

2 GENERAL DESCRIPTION:

Area: 58,000 sq ft
Volume: 702,300 cu ft
Number of floors: seven
Number of occupants: 350
Number of rooms: 200
Types of rooms: private and general offices, commercial spaces on first floor

3 CONSTRUCTION DETAILS:

Glass: single solar gray
Exterior walls: front and rear walls: glass and metal panel curtain walls; U-factor: 0.20. End walls: face marble, air space, 8" concrete block, vermiculite core fill (R-3), gypsum board; U-factor: 0.125
Roof and ceilings: built-up roof on vermiculite fill, precast concrete deck, 3" glass fiber batts (R-11), suspended ceiling; U-factor: 0.08
Floors: concrete slab
Gross exposed wall area: 34,000 sq ft
Glass area: 8500 sq ft

4 ENVIRONMENTAL DESIGN CONDITIONS:

Heating:
Heat loss Btuh: 1,250,000
Normal degree days: 1600
Ventilation requirements: 5000 cfm
Design conditions: 25F outdoors; 75F indoors
Cooling:
Heat gain Btuh: 1,800,000
Ventilation requirements: 5000 cfm
Design conditions: 95F dbt, 79F wbt outdoors; 70F, 50% rh indoors

5 LIGHTING:

Levels in footcandles: 125-175
Levels in watts/sq ft: 5-7
Type: fluorescent

6 HEATING AND COOLING SYSTEM:

The electric ducted-air space conditioning system is capable of simultaneous heating and cooling year around. A three-zone air handling unit on each floor is equipped with coils that are continuously supplied with chilled water from two 100-ton packaged chillers connected in parallel and located on the roof. Return air is drawn into the plenums through louvered recessed fluorescent lighting fixtures. In the air handling units, warm plenum air either moves through the water coils or bypasses them as determined by thermostatically controlled dampers in response to temperature conditions in the various spaces. The recovered lighting heat is supplemented as required by electric duct heaters.

7 ELECTRICAL SERVICE:

Type: underground
Voltage: 480v, 3-phase delta, 120/208v, 3-phase wye
Metering: secondary

8 CONNECTED LOADS:

Heating & Cooling (200 tons)	300 kw
Ventilation	75 kw
Lighting	396 kw
Cooking	40 kw
Water Heating	6 kw
Other	70 kw
TOTAL	887 kw

9 INSTALLED COST: *

General Work	\$ 978,500	\$16.90/sq ft
Elec., Mech., Etc.	371,500	6.40/sq ft
TOTALS	\$1,350,000	\$23.30/sq ft

*Building was completed 1/70

10 HOURS AND METHODS OF OPERATION:

8 a.m. to 6 p.m. five days a week.

11 OPERATING COST:

Period: 9/29/69 to 9/29/70
Actual degree days: 1895
Actual kwh: 1,176,960*
Actual cost: \$17,686.67*
Avg. cost per kwh: 1.5 cents*
*For total electrical usage

Billing Date	Degree Days	Demand	kwh	Amount
10/29/69	18	320	82,560	\$ 1,320.48
11/28/69	226	157	83,840	1,335.64
12/30/69	395	176	92,800	1,464.51
1/29/70	568	224	130,560	1,952.77
3/ 2/70	398	435	128,000	1,868.00
4/ 1/70	248	195	115,840	1,763.04
5/ 1/70	37	346	79,360	1,338.07
6/30/70*	5	282	124,800	1,616.35
7/30/70		416	113,920	1,724.96
8/28/70		390	112,000	1,666.88
9/29/70		365	113,280	1,635.97
TOTALS	1895		1,176,960	\$17,686.67

*Two months bill

12 FEATURES:

The temperature in each zone is regulated independently by wall-mounted thermostats which control face and bypass dampers in the air handling units as well as duct heaters downstream. The air handler coils are supplied with chilled water continuously. When warmer air is indicated, the dampers gradually increase the amount of untreated plenum air being recirculated. When full heating is called for, in any particular zone, the cooling coil is bypassed and the duct heaters energized.

13 REASONS FOR INSTALLING ELECTRIC HEAT:

A feasibility study indicated that the total owning and operating costs for the electric system would be less than those for an equivalent system using another type of energy for heating.

14 PERSONNEL:

Owner: Magnolia Life Insurance Company
Architects and Engineers: Dunn & Quinn
General Contractor: F. Miller & Sons, Inc.
Electrical Contractor: John H. Wolf Associates, Inc.
Mechanical Contractor: Corley Plumbing & Heating Co.
Utility: Gulf States Utilities Company

15 PREPARED BY:

Jack Bass, Commercial Sales Representative, Gulf States Utilities Company.

16 VERIFIED BY:


Patrick B. Gallagher, AIA

G. G. Quinn, P.E.

NOTICE: This is one of a series of case histories of buildings in all structural categories. If you are an architect or consulting engineer; an architectural or engineering student; an educator; a government employee in the structural field; a builder or owner, you may receive the complete series free by filling out the strip coupon at the left and mailing it to EEA. If you are not in one of the above categories, you may receive the series at nominal cost.

ELECTRIC ENERGY ASSOCIATION, INC. 90 Park Avenue, New York, N.Y. 10016

As they become available, please send me the complete series of EEA Case Histories at this address:
Firm, University or other affiliation:
Address:
Zip Code:

Letters to **W** **Publication**

WOW POW ZAP

BILL CONKLIN and JIM ROSSANT
Architects, New York

I think the idea is just wonderful and something that has been needed for a long time. Cheers and I wish you the best of luck in your new venture!

MINORU YAMASAKI
Architect, Troy, Mich.

You have set yourself a vast program and the fact that you want to cover the international field does not make it any easier.

VICTOR GRUEN
Architect, Vienna

PLUS sounds terrific (and even useful).

MICHAEL BRILL
President, Buffalo Organization for
Social and Technological Innovation

Let me felicitate you for the new venture of PLUS. I am more than confident that the new publication will be truly international in its contents and create scope for greater participation between the developed and the developing communities. As I convincingly hold that the architectural expression is independent of the material resourcefulness of any nation.

UTTAM C. JAIN
Architect, Bombay, India

Architecture PLUS promises to be an interesting magazine. I hope it intends to go beyond merely the reporting of architectural work around the world, and takes on the challenging question of what architects can do to improve the state of the urban environment today. No magazine has offered more than a passing reference to this subject.

DOUGLAS CARDINAL
Architect, Edmonton, Alberta

Architecture PLUS sounds most interesting. The magazine will surely be provocative and I wish the staff success.

VLADIMIR OSSIPOFF
Architect, Honolulu

This kind of magazine is a must in the present society, not only to shorten the architects' reading hours but also to re-educate the architects and to close the gap be-

tween the architects and the general public which the present magazines seem to omit... Modern architecture is not limited to only one country or region but is international, without any curtains.

YUKIO FUTAGAWA
A.D.A. Edita, Tokyo

All the best wishes for the wonderful new project, Architecture PLUS. It is indeed time that we raised our sights. Architecture is no longer local.

WILLIAM MCGUINNESS
Engineer, Merrick, N.Y.

Your plans for the magazine are so impressive and comprehensive, I am sure you will have enthusiastic readers throughout the world. The need for such communication is so great, one wonders why a publication of this quality was not developed long before. My congratulations on this extraordinary enterprise and best wishes for great success with Architecture PLUS.

CHARLOTTE TREGO
Journalist, Denver

I do wish Architecture PLUS best wishes and every success, and I hope you will let me know if there is anything at all I can ever do to help.

WM. DUDLEY HUNT JR., FAIA
Gloucester, Va.

The first issue of your new magazine has just arrived and I would like to congratulate you on it—for its design as well as its content and the depth of investigation it represents. I hope the intensity of this first issue can be maintained and especially that kind of incisive journalism represented by Ellen Berkeley's re-assessment of the Boston Government Center.

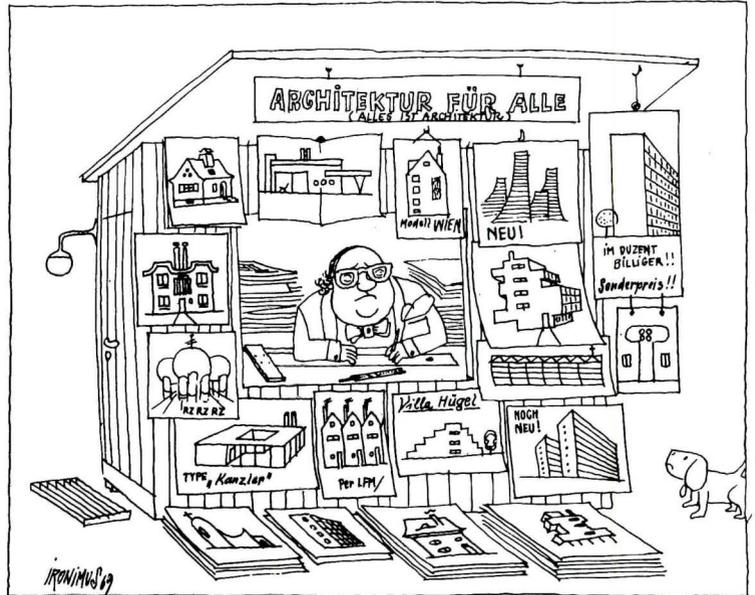
ROBERT A. M. STERN
Architect, New York

It's great!

C. E. KIDDER SMITH
Architect, New York

Thanks—it's the first time in years I have found the subject matter in an architectural magazine worth reading from cover to cover. Keep the good work up.

MARTIN E. RICH
Architect, New York



Thank you very much for the first issue of Architecture PLUS, that pleased us all very much.

I don't know, if you have ever seen my IRONIMUS cartoons and therefore I send you one of my last books *Die siebziger Jahre*. Please let me know what kind of cartoons you want for your magazine and how the form should be.

GUSTAV PEICHL
Architect, Vienna

I found Vol. 1, No. 1 exciting and well done.

Congratulations.

After April 1 if you need a full, free lance photographer let me know. Have PAA pass and film.

FRANK STANTON
New York

Volume 1, Number 1 has been received. It is magnificent. I am sending it to one of your professional associates who is a client of mine, knowing he will admire it as much as I do.

WILLIAM J. VANDEN HEUVEL
Lawyer, New York

Architecture PLUS No. 1 has arrived and was received with enthusiasm. What a splendid achievement, this publication! It is rich in material, versatile and appealing to experts and laymen alike. Belonging to the latter, I enjoyed the Peking article as well as "A Be-

nign Machine for Living", but I am also fascinated by "Australian Superspans" and by the "rakish dorm" created in traditional Oxford. Your little obit on Scharoun brings him very much to life, both as an artist and as the unique human being he was.

My compliments for the handsomely designed cover of the issue and the beautiful layout. It seems to me worth all the hard work and trouble which undoubtedly preceded it.

DR. HAIDE RUSSELL
Consul, Cultural Affairs
German Consulate General, New York

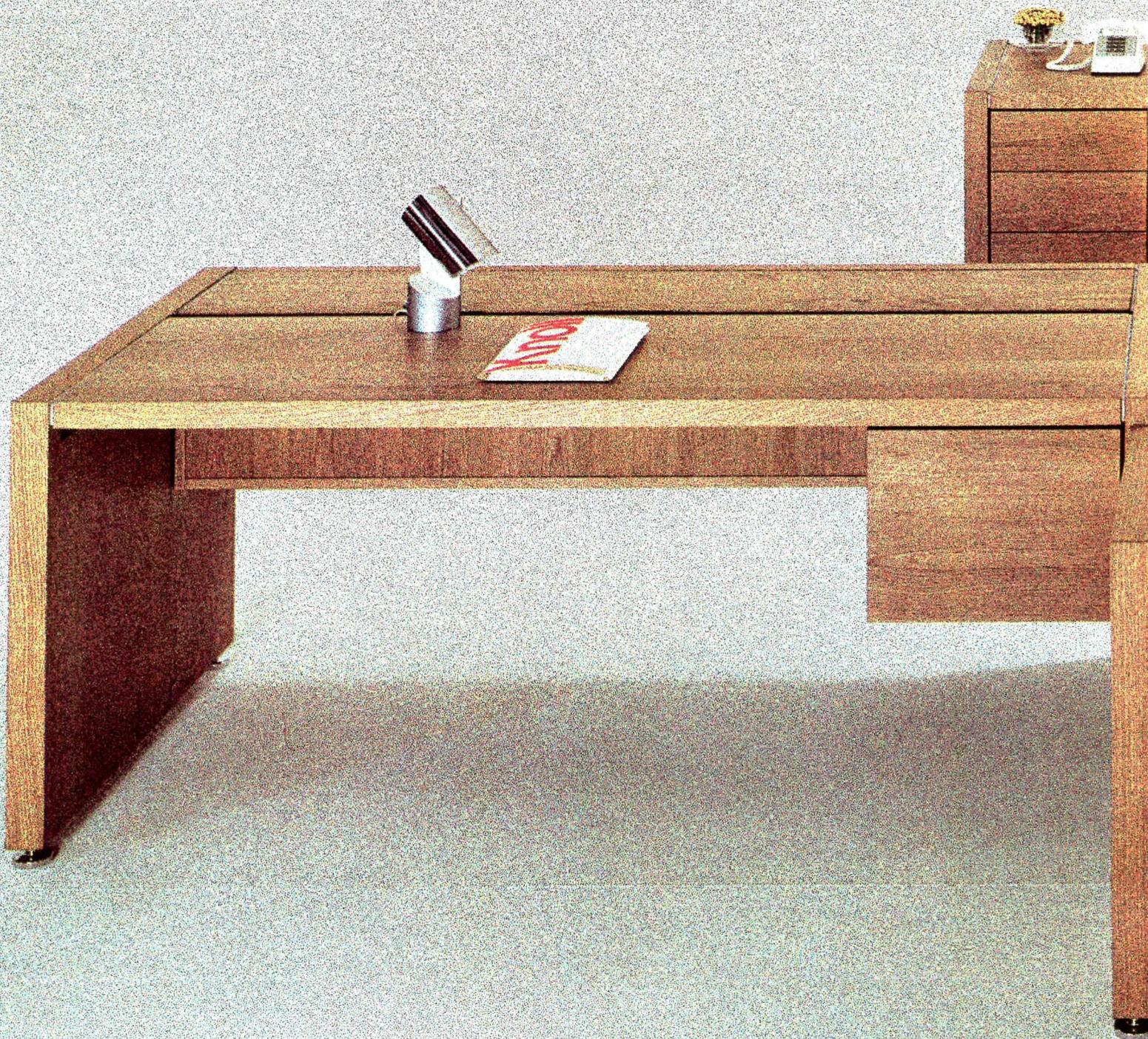
Your first issue of Architecture PLUS proved its point very well and is a tribute to the combination of efforts you have put together internationally. Even though you got admirably into a "first" on China and had considerable coverage outside the U.S., I still would like to hear more from those in other countries on other continents.

You have given a PLUS to our normal architectural coverage and I hope you will continue to consider that an open-ended challenge ever-expanding into all the concerns and opportunities of our man-made environment wherever they may be developing and, more and more, interlocking.

GEORGE A. DUDLEY,
Chairman, New York State Council
on Architecture

Knoll International

745 Fifth Avenue, New York 10022



William Stephens designs for Knoll

His meticulously detailed new oak desks and cabinets for use in private offices or with the Stephens Landscape System, provide an economical, quietly efficient and visually understated solution to today's chaotic office environment.

Knoll designs for the way you work.



The Boeing 747

continued from page 91

rooms, offices, theaters, exhibition areas, waiting rooms—remain empty and underutilized most of the time. For the 747, there are virtually no “non-peak” hours; the airplane is either *in service* or being prepared *for service*.

To stage this complex performance, the designers have put every element of the 747 to work; nothing gets a free ride. Everything gives evidence that the design program has been solved as much in section and elevation as in plan. The lack of traditional walls and partitions has encouraged this kind of solution and has isolated the designers from the set of lax assumptions that often set ground rules for architects.

For example, many of the molded surfaces do a lot of extra work: The underside of the stowage system carries much of the placarding; the back of the passenger seat opens out into a dining tray; the armrest of the seat provides the controls for the individual's reading lamp, earphones, ash-tray; and the back of the lavatory section carries the film screen.

Architects have rarely provided this kind of multiple efficiency because they almost never coordinate the design of a space with the design of other elements it will house. The 747 makes the limitations of their projects painfully clear. It proves, among other things, that the space above a man's height can be made to be as useful as that below; that ceilings need not necessarily be uniformly flat and can do more than carry lighting; that furnishings can also carry lighting and the controls for other operations in the space; that several activities can operate simultaneously and successfully in the same space; and that so-called space-requirements as defined by various codes bear little relation to the activities they circumscribe and certainly impede the evolution of more creative design solutions.

The performance of each of the multiple roles played by the airplane's interior is carefully worked out. As a cinema, the 747 is unceremonious and unpretentious. With the option to screen the same or different films in several cabin zones simultaneously, it encourages unprogrammed passenger movement between the zones. And, because the films are projected onto screens in front of the central seating section, circulation during the screening can proceed along the two aisles with minimal disturbance either to the viewers or to those who may be reading or sleeping along the window walls. This somehow generates a feeling of mixed activity and a relaxation of the “public” anonymity of most forms of transportation. A stranger with his shoes off lying down on the seats next to you does not arouse the same suspicion and distrust as he would on a train or subway. (However, the same man with a bulging attaché case would probably arouse more.)

Traveling to and from the lavatories also contributes to the general movement and may involve passing by or through a galley, which, since the galleys are open, make the

stewardesses much more accessible and their activities much more visible. (In these galleys, the heating and cooling units that deliver the food onto the airplane often constitute the walls of the galley area itself.) The openness of this plan, by exposing the entire process of food preparation, minimizes the passenger's fear of the pre-packaged, plastic meal. Any passenger can watch this operation and can also order (in advance) a special meal to meet specific dietetic requirements. Dividing the meals into stages with several stewardesses in action at once creates the sense that one is being catered to by several waitresses simultaneously. And since there are two aisles, there is rarely any problem in circulation. The fact that the choice of food is limited may be offset by the advantage of not having to get up immediately afterward, pay the bill and drive home.

On domestic flights, the tourist class lounge adds yet another “place” to visit, to talk with friends who may be seated in another area of the airplane, to meet other passengers, to drink, to talk with the stewardesses, to get flight information, or (on American Airlines) to play the piano. Because of the zone system, the passenger cannot, from his or her seat, see into this lounge, or into any other zone. He must go there to find out for himself. And, even if he never once leaves his seat, there is still the illusion of other events occurring in other areas that may, in an unguarded moment, seduce him into thinking that he is still on the ground.

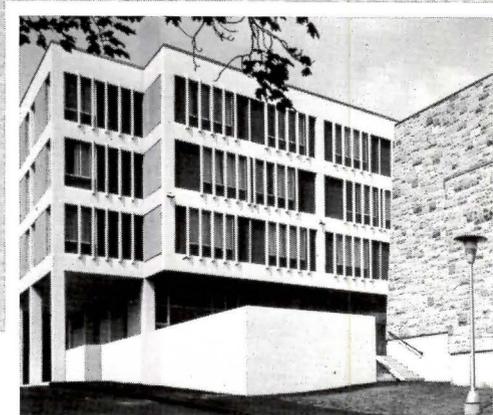
The designers have consistently encouraged the use of new materials in the aircraft's interior. Many of these—vinyl aluminum laminates, rigid unsupported vinyls, paper honeycomb panels, and vacuum-formed plastics—have great potential applications in other areas as well. Besides the most obvious fallout from aircraft design (seatbelts, instrument panels, and energy absorption devices in automobiles) there has been a significant transfer of many innovations. Technology for the World Trade Center borrowed heavily from the aircraft industry, especially in its use of durable, fire-resistant materials.

All passenger 747s come equipped with the basic configuration outlined above. At this point, however, each airline takes over responsibility for the design and planning of its own interiors. Here again, as with all other operations of the airplane, design solutions are highly circumscribed by safety regulations and weight limitations. Every single piece of equipment, from the arm rests to the fabrics, must comply with a rigorous set of U.S. government regulations. (The passenger seat, which must perform more functions than any earthbound domestic equivalent, takes up several pages of specifications.) All furnishings must be simultaneously as light in weight as possible and capable of withstanding nine times that weight in a crash.

Many requirements seem almost fanati-
continued on page 106

Diversion is the name of the game on the 747 and it comes at the passenger's fingertips. For those more restless or gregarious, American Airlines offers a piano bar along with the drinks in its coach lounge.





Give concrete a natural uniform look

without costly rubbing, with waterproof THOROSEAL PLASTER MIX

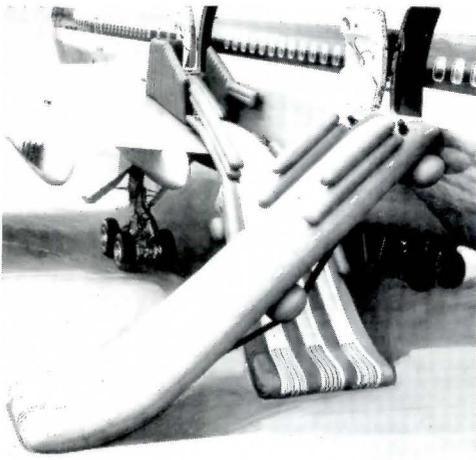
Because THOROSEAL PLASTER MIX is a cement-base, waterproof coating, it solves many problems in finishing rough concrete, while retaining a natural concrete look. ACRYL 60 is added to the mix for a superior bond. Here is proof not only of the great economy of this finish, but the lasting beauty and protection it will give for years to come.

Mt. Carmel Nursing Home, Manchester, N. H. Arch.: Andrew C. Isaak, Manchester Gen'l Cont.: Landers & Griffin, Inc., Portsmouth, N. H.



The Boeing 747

continued from page 104



Among the systems stowed inside the compact-appearing 747 doors are inflatable emergency exit ramps for emergency water landings (top photo). Below, Air India tries to bring a bit of the Taj Mahal into interior and exterior embellishments of the plane's design.



cal; for example, the dining tray, canted from the arm rest of a first-class seat, must be able to take a center load of 150 pounds (what *do* they eat there?).

Stringent fire regulations and durability factors impose further restraints. The fabrics are expected to last five years—this is high when one considers the incredible abuse they take. The structure of the seating is designed to last for the life of the aircraft. Fire regulations for furnishings, despite their obvious logic, have never been applied to buildings.

Nor have buildings had to be as clever in their concepts for emergency exits. The 747, for example, has evacuation tubes (beautiful in their design) contained in the doors. In an emergency, they inflate and roll outside the plane, where they sit on the water or the runway long enough for people to slide out of the plane on them.

Designers have responded remarkably well to all of the obstacles set up as criteria and have even made the process seem effortless. Of course, it is in their interest to do so. Now that so many planes fly the same routes with similar time and cost schedules, improving the quality of their consumer service gives them their only real competitive edge.

To meet this challenge, many airlines have developed elaborate imagery to project their 747s as a unique experience: "The Flagship"; "The Proud Bird of the Pacific"; "Our Spanish Castle in the Sky"; "The Friend Ship"; and "The Garden Jet—a Shelter of Silence." All rely implicitly on metaphorical associations with presumably safer and more enjoyable activities than flying. Somehow, the actual experience of flight has been suppressed, if not lost. The luxury and diversity of passenger service conspire to anesthetize the passenger, to distract his attention from the speed, altitude and distance that he experiences.

This is now also true for most other forms of modern transportation. To the extent that they all—airplanes, ships, subways and even automobiles—share streamlined and internally-oriented spaces, they offer traveling experiences that become more and more interchangeable. This is most understandable in an airplane where there is so little outside to give one a sense of scale and hence so great a need for the reassurance that "familiar surroundings" can provide. Everything must work to distract the passenger from discomfort either physical or psychological, from the color combinations and graphics to the basic description of the aircraft and safety pre-

cautions located at every seat. Boeing hopes, as its advertising states, that the 747 "will create the desire to fly—for the pleasure of it," though what they now mean by "flying" is very different from what Charles Lindbergh had in mind.

Reports on the performance of the 747 in its first years of service suggest that the expectations of its designers seem to have been met. As of September 1972, 192 of the airplanes had been delivered and over 20 more were on order. This is no happy accident, of course, but the result of the most careful planning ever done for a commercial jetliner—and the most exhaustive testing. Four years of continuous examination included more than 14,000 hours of wind tunnel testing, 1400 hours of testing in the air and the systematic destruction of two structurally complete 747s to determine the airplane's ultimate strength. The test program cost Boeing a total of \$165 million—probably a hundred times the amount spent, annually, on testing the performance of "real" buildings all over the world. All this for a "product" that could fit inside the barren lobbies of many office buildings and that will, in its lifetime, accommodate more people more efficiently than any one of those.

Boeing, predictably, has channeled feedback from the first 747s into its research operation. The 747 now includes five members in its family. More recent models provide for either a longer range or a greater payload with JT9D engines even more powerful than those certified for the original airplane. Designers are also considering stretching the body of the airplane to accommodate up to 1000 passengers. The modular construction of all 747 airframe assembly jigs can easily handle the lengthening of the fuselage section. Whatever the results of this feedback, it will clearly reflect up-to-the-minute reports and continuous scrutiny of market projections. And because a company of this size and scope has feelers extended into so many other areas of research, new models will continue to incorporate new applications of technological research.

This achievement has not been overlooked nor its implications ignored by the U.S. Department of Housing and Urban Development. The Boeing Company has won a HUD contract for Operation Breakthrough, to operate as site developers and construction engineers for two experimental housing projects currently underway in Seattle. Le Corbusier, it seems, knew what he was talking about.



Munich's pedestrian mall is one of many around the world that Architecture **plus** will analyze and review in its April issue

STAEMPFLI GALLERY

47 East 77th St., New York, N.Y. 212-535-1919

We specialize in arranging indoor and outdoor sculpture commissions for architects, and represent these artists:

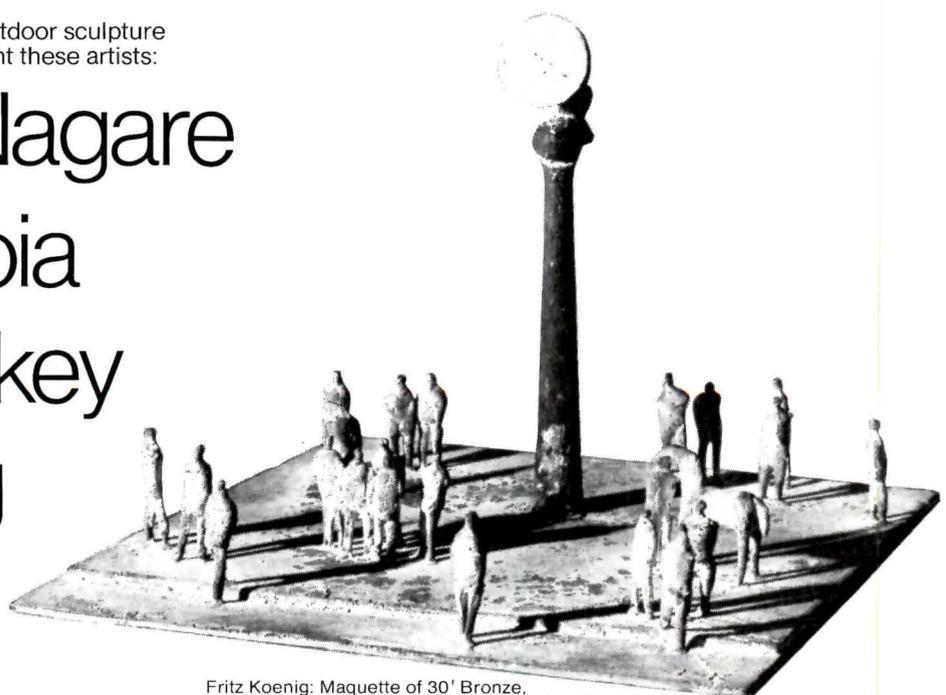
Masayuki Nagare

Harry Bertoia

George Rickey

Fritz Koenig

Max Bill



Fritz Koenig: Maquette of 30' Bronze, Commissioned for 1972 Summer Olympics, Munich, Germany

Additional Credits

continued from pages 20-77

John Hancock Tower, Boston, Mass. Architects: I. M. Pei & Partners. Engineers: The Office of James Rudermann (structural); Cosentini Associates (mechanical). General Contractor: Gilbane Building Company.

Christian Science Church Center, Boston, Mass. Architects: I. M. Pei & Partners. Engineers: Weiskopf & Pickworth (structural); Syska & Hennessy (mechanical). Landscape Architect: Sasaki, Dawson, DeMay Associates. Planning consultant: Vincent Ponte. General Contractor: Aberthaw Construction Company.

88 Pine Street, New York. Architects: I. M. Pei & Partners. Engineers: The Office of James Rudermann (structural); Cosentini Associates (mechanical). General Contractor: Diesel Construction.

Commerce Court, Toronto Architects: I. M. Pei & Partners. Engineers: Joint venture between Weiskopf & Pickworth, New York and C.D. Carruthers & Wallace, Toronto (structural); G. Graneck & Associates (To-

ronto), Cosentini Associates, New York (mechanical). General Contractor: Mason-Kiewit, Ltd.

Dallas City Hall, Dallas, Texas Architects: I. M. Pei & Partners and Harper & Kemp. Engineers: Terry-Rosenlund & Co. (structural); Gaynor & Sirmen, Inc. (mechanical). General Contractor: Robert E. McKee, Inc.

Collins Place, Melbourne Design Architects: I. M. Pei & Partners. Architects: Bates, Smart & McCutcheon, Melbourne. Engineers: John Connell & Associates, Melbourne (structural); Lobley Treidel & Partners, Ltd., Melbourne (mechanical). General Contractor: Mainline Construction, Melbourne.

American Life Insurance Company, Wilmington, Del. Architects: I. M. Pei & Partners. Engineers: Weiskopf & Pickworth (structural); Caretsky & Associates (mechanical). General Contractors: Consolidated Engineering Company.

Tête de la Défense, Paris Architects: I. M. Pei & Partners. Engi-

neers: Weiskopf & Pickworth and Nicolet & Associates, Montreal (structural); Cosentini Associates (mechanical). Planning consultant: Vincent Ponte.

Mellon Fine Arts Center, Wallingford, Conn. Architects: I. M. Pei & Partners. Engineers: Olaf Soot (structural); Campbell & Friedland (mechanical). General Contractor: George B.H. Macomber Co.

Herbert F. Johnson Museum of Art, Ithaca, N.Y. Architects: I. M. Pei & Partners. Engineers: Nicolet Dressel Mercille (structural); Segner & Dalton (mechanical). Landscape architect: Dan Kiley. General Contractor: William C. Pahl Construction Co., Inc.

Cinémathèque, New York Architects: I. M. Pei & Partners. Engineers: Weiskopf & Pickworth (structural); Cosentini Associates (mech.).

East Building—National Gallery of Art, Washington, D.C. Architects: I. M. Pei & Partners. Engineers: Weiskopf & Pickworth (structural); Syska & Hennessy (mechanical). General Contractor: Chas. H. Tompkins Co.

Kips Bay Plaza, New York Architects: I. M. Pei & Partners. Engineers: Weiskopf & Pickworth (structural); Fred S. Dubin Associates (mechanical). General Contractor: Webb & Knapp.

Washington Square East (Society Hill), Philadelphia, Pa. Architects: I. M. Pei & Partners. Engineers: Severud, Elstad, Krueger Associates (structural); Jaros, Baum & Bolles (mechanical). General Contractor: Paul Tishman.

University Plaza, New York Architects: I. M. Pei & Partners. Engineers: Farkas & Barron (structural); Caretsky & Associates (mechanical). Contractor: Tishman Construction.

St. George Place, Staten Island, N.Y. Architects: I. M. Pei & Partners. Engineers: Weiskopf & Pickworth (structural); Cosentini Associates (mech.).

I. M. Pei & Partners Model Shop: Paul Crocker, George Gabriel, John Norwood Site Plan Drawings: Mimi Szanto, Ilona Rider

Building Suppliers

JOHN HANCOCK TOWER Architects: I. M. Pei & Partners. (Materials and manufacturers as submitted by the architects.) *Foundation Waterproofing:* Toch Brothers. *Piling:* Bethlehem Steel Corp. *Cement:* Dragon Cement, Atlantic Cement. *Block:* Plastcrete Corp. *Structural Steel:* U.S. Steel. *Curtain-Wall & Fenestration:* Cupples Products. *Floor & Deck Systems:* H. H. Robertson. *Roof Materials:* Dex-O-Tex. *Thermal Insulation:* Dow Chemical, Karnak Chemical Co. *Acoustical Materials:* Metal Pan, Simplex. *Glass:* Libbey-Owens-Ford Co. *Drywall Interior Partitions:* U.S. Gypsum, Marino Industries. *Elevators:* Otis. *Doors:* Ellison, Fire Door Corp. *Hardware:* Sargent, Stanley. *Interior Materials:* U.S. Ceramic Tile, Romany, Freeport Marble, Peter Bratti. *Paint:* Pratt & Lambert. *Standby Emergency Power:* Onan. *Lighting Fixtures:* Lightolier. *Plumbing Fixtures:* Kohler. *Water Heaters:* Paterson-Kelley Co. *Unit Heaters:* Trane, Bell & Gossett. *Unit Ventilators, Radiators, Convectors:* Carrier. *Heating Valves, Piping, Controls:* Marley Co., Walworth Co. *Fan Units:* Trane, Carrier. *Registers, Diffusers:* Titus. *Pumps:* Peerless Pump Co., Worthington. *Special Fans & Ventilators:* Trane, Titus, Carrier. *Mail Boxes & Conveyors:* Cutler, Lamson. *Sprinkler System & Fire Protection Equip:* Automatic Sprinkler Co. *Ceiling Materials:* National Gypsum. *Water Coolers:* Filtrine. *Movable Partitions:* Hauserman. *Venetian Blinds & Shades:* Levolor-Lorentzen, Inc. *Kitchen Equip:* Blickman Corp.

CHRISTIAN SCIENCE CHURCH Architects: I. M. Pei & Partners. (Materials and manufacturers as submitted by the architects.) *Foundation Waterproofing:* Toch Brothers. *Piling:* Franki Foundation Co., Raymond International. *Waterproofing:* Uniroyal. *Concrete & Cement:* Saylor's Cement, Rowe Stone, Lynn, Wrentham Special Red. *Brick,*

Block, Stone: Capitol Clay Products, Plastcrete Boston Corp. *Structural Steel:* Bethlehem Steel Corp. *Floor & Deck Systems:* Rudkin-Wiley Corp., Granco Steel Products. *Roof Materials:* Uniroyal, Inc. *Thermal Insulation:* PPG, Owens-Corning Fiberglas. *Acoustical Materials:* Simplex Ceilings, Owens-Corning Fiberglas. *Fenestration:* Fiske Architectural Metals. *Glass:* PPG. *Interior Partitions:* U.S. Gypsum. *Elevators & Electric Stairways:* Stanley Elevator Co., Westinghouse Electric Co. *Doors:* Crane Fulview Glass Door Co., Four City Architectural Metals, Fiske, Williamsburg Steel Products. *Hardware:* Best Lock Co., Sargent, Stanley, Rixson. *Interior Materials:* U.S. Ceramic Tile Co., Scalamandre Silks. *Paint:* Glidden, PPG. *Electrical Equip:* General Electric. *Standby Emergency Power:* Onan. *Lighting Fixtures:* Pemco, Devoe, Omega, Lightolier, Westinghouse. *Plumbing Fixtures:* American Standard, Church. *Unit Heaters, Ventilators, Radiators, Convectors:* Trane, Indeco. *Heating Valves, Piping, Controls:* Sarco Valves, Johnson Service Co. *Air Conditioning Compressor, Fan Unit, Unit Air Conditioners:* York. *Diffusers, Ducts, Pumps:* Mitco, Skidmore, Peerless, Weinman, Federal. *Special Fans & Ventilators:* York, Trane, Bayley. *Intercom Systems:* Executone. *Radio & TV Systems:* Philip, RCA, Conrac, Ampex. *Audio Visual Equip:* Kodak, Honeywell. *Pneumatic Tubes:* Power Regulator. *Sprinkler System & Fire Protection Equip:* Carlyle Sprinkler System, Pyrotronics. *Water Coolers:* Halsey Taylor. *Movable Partitions:* Mills Company. *Mail Conveyor:* Lamson Division, Diebold Corp. *Kitchen & Laboratory Equip:* Adamation, Inc., A.F. Underhill, Inc., Joseph M. Linsey Corp., Kewaunee Scientific Equipment Corp. *Finish Flooring & Carpeting:* Roxbury Carpet Co. *Furniture & Seating:* Endicott Church Furniture. *Architectural Metals:* Fiske Architectural Metals.

Brick Sealer: Solarine Company. *Cabinet Work:* Monarch Industries, Loughman Cabinet Co., John Langenbacher Co. *Caulking & Sealants:* Tremco Mfg. Co. *Ceiling Light Diffusers:* Neo-Ray Products. *Concrete Forms:* Concrete Accessories Corp. *Elevator Cabs:* Boston Metal Door. *Glazing:* General Electric Silicone, Tremco Mfg. Co. *Granite:* Canadian National Granite Co., Cold Spring Granite Co. *Marble:* Bordes, Italy. *Miscellaneous Metal:* Potomac Iron Works. *Post-Tensioning:* Stressteel Corp. *Precast:* Allied Building Systems, Cambridge Cement & Stone Co. *Reinforcing Steel:* Bethlehem Steel Corp. *Rolling Doors:* Kinnear. *Rust Remover:* Angler Chemical Co. *Skylights:* Ickes-Braun, Glass Houses. *Traffic Decks:* Robson Corp. *Toilet Partitions:* Mills Company.

88 PINE STREET Architects: I. M. Pei & Partners. (Materials and manufacturers as submitted by the architects.) *Structural Steel:* Schact Steel Construction Co. *Curtain-Wall:* Lupton Manufacturing Co. *Floor & Deck Systems:* Inland-Ryerson Construction Products. *Glass:* Libbey-Owens-Ford Co. *Elevators & Electric Stairways:* Westinghouse Electric Corp. *Doors:* Williamsburg Steel Products. *Hardware:* Schlage, Russwin, Henry Soss & Co. *Mirror Finish:* Allied Bronze Div., Otis Elevator Co. *Lighting Fixtures:* Lightolier. *Plumbing Fixtures:* American Standard, Olsonite. *Cooling Towers:* Baltimore Aircoil Co., Inc. *Unit Ventilators, Radiators, Convectors:* Carrier. *Heating Valves, Piping, Controls:* Johnson Controls. *Air Conditioning Compressor, Fan Unit:* Carrier. *Diffusers:* Anemostat, Weinman Pumps. *Ceiling Materials:* U.S. Gypsum. *Venetian Blinds & Shades:* Verticals, Inc. *Curtain-Wall Coating:* PPG. *Entrances:* Revolving Door Div., International Steel.

WILMINGTON TOWER Architects: I. M. Pei & Partners. (Ma-

terials and manufacturers as submitted by the architects.) *Concrete & Cement:* Universal Atlas Cement. *Brick, Block & Granite:* Georgia Granite. *Acoustical Materials:* Jacobson Company. *Architectural Metal:* Fentron. *Glass:* American Saint Gobain. *Elevators:* Westinghouse. *Doors:* Superior, Crane. *Hardware:* Russwin. *Paint:* PPG. *Electrical Equip:* Square D. *Lighting Fixtures:* Lightolier, Neo-Ray, General Electric. *Plumbing Fixtures:* American Standard, Church. *Heating Boilers:* Kewanee. *Unit Heaters:* American Standard. *Heating Valves, Piping, Controls:* Stockham Valves, Honeywell. *Air Conditioning Compressor, Fan Unit, Unit Air Conditioners:* York. *Diffusers, Ducts, Pumps:* Titus, Peabody & Wind, Weinman Pumps. *Special Fans & Ventilators:* American Standard. *Ceiling Materials:* Soundlock. *Water Coolers:* Filtrine. *Movable Partitions:* Mills Partitions. *Mail Boxes & Chutes:* Capitol. *Kitchen Units:* Crane.

HERBERT F. JOHNSON MUSEUM Architects: I. M. Pei & Partners. (Materials and manufacturers as submitted by the architects.) *Concrete & Cement:* Penn Dixie. *Structural Steel:* Republic Steel. *Thermal Insulation:* AC&S. *Sky-light:* Super Sky Products, Inc. *Glass:* PPG. *Elevators:* Dover, Houser Corp. *Doors:* Alumiline, Pioneer. *Hardware:* Sargent, Stanley, Rixson. *Interior Materials:* Mosaic Tile Co., Heather Brown, Wall-Rus. *Paneling:* Eggers Hardwood Products. *Paint:* Devoe. *Electrical Ducts & Wiring:* Superior Electric. *Standby Emergency Power:* Onan. *Lighting Fixtures:* Edison Price. *Plumbing Fixtures:* American Standard, Kohler. *Air Supply Enclosures:* Brandes Corp. *Sprinkler System & Fire Protection Equip:* Davis Ulmer. *Water Coolers:* Filtrine. *Shades:* Verticals, Inc. *Finish Flooring & Carpeting:* Hasbrouck, Magee. *Furniture & Seating:* Knoll, Harvey Propper.

Book Review

continued from page 6

further by attempting to classify them according to type. I was especially interested in what they call Surrealist Interiors, of which they say, "Nowhere are the absurd conditions of contemporary life exposed so devastatingly as in the Surrealist Interior . . . the designers and owners of these rooms seem to enjoy the most outrageous put-down of society, all it stands for and holds dear." These interiors are indeed fascinating. A huge confectionery sculpture, baroque in form, the strange texture and forbidding quality of a red and purple plastic sheeted living room, fantastic fairytale-like murals, the mystery of the rarified atmosphere of Verde Visconti's Roman living room, or the strange environment of Max Clandinings's London flat.

These, like many of the other living spaces shown, are the epitome of personal style and taste. Some do provide us with ideas that we might use—for example: an extraordinary presentation of seashells, the display of personal objects and a fabulous collection of work gloves in Olivier Mourgue's Paris apartment, the stark emptiness of artist Richard Smith's dining room (that is by the way a knock-out comparison with the clutter of pattern-on-pattern of Seymour Avigdor's scheme), the humorous use of empty picture frames to cover a wall, or the cheery collection of memorabilia in a Roman kitchen.

Underground Interiors is really a treasure box itself. Many of the interiors are new and surprising, and I found that each time I thumbed the book, I discovered something else to look at, think about and enjoy. Like a good interior, a good book grows on you and with you and *Underground Interiors* is such a book.

I found one disconcerting thing—not one dome interior was shown and in a book that deals with alternate life styles, this omission must be a shortcoming. Also, unfortunately, the reproductions were just not as good as they might have been to justify the content.

Barbara Plumb's book, like her reporting work in general, takes the tasteful and elegant approach. In *Young Designs in Color* she investigates how color has become a major factor in interiors and how people have become involved with it. "It would be unrealistic not to admit that many people are making mistakes because of their color-mania. But to what? They are having fun and getting personal satisfaction in the process. And in a world where one feels he

exercises very little control over his destiny it is splendid to be able to play God as colorist even over a small area of our personal environment." Again, the message is clear—choose your weapon, and make your statement.

Interestingly, one of the most beautiful interiors shown in this book is a monochromatic scheme—a Milanese apartment designed by Gae Aulenti, where black, white and grey are used almost exclusively, proving that there is no such thing as non-color, and that even a conservative esthetic which uses modern furniture, antiques and traditional materials can be very exciting.

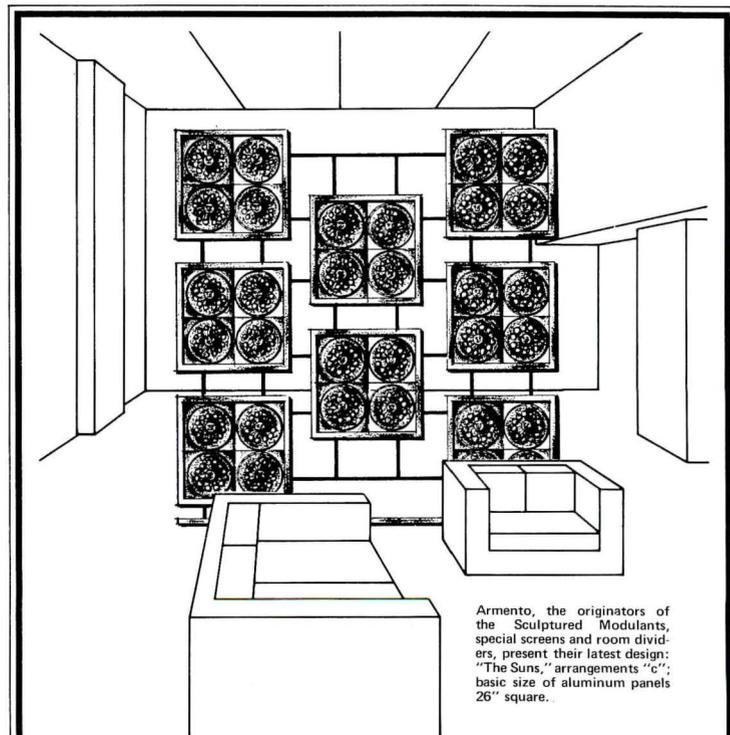
One criticism again is that of the layout of this book. The type pages that alternate with photography pages did not work well for me. Like paintings, these interiors need explanations and guidelines. It would have been more useful to place the written texts



Black-and-white diagonal stripes help define living room designed by Raymond Waites. From Karen Fisher's *Living for Today*.

next to the pictures so that one could look up and see what is being discussed. Somehow turning the page is just too difficult and somehow the impact and detail of much of the beautiful photography is lost.

To whom will these books appeal? Really anyone who is interested in living and in how others do it. Like great travel posters and holiday brochures they offer great diversity of unknown and tantalizing views. What we actually choose to live with is our own business. We are learning to be justly sensitive to our individual needs. All these interiors are very helpful letting us run and maybe walk through many places that are nice to visit. It is then up to us to decide if we really want to live there.



Armento, the originators of the Sculptured Modulants, special screens and room dividers, present their latest design: "The Suns," arrangements "c"; basic size of aluminum panels 26" square.

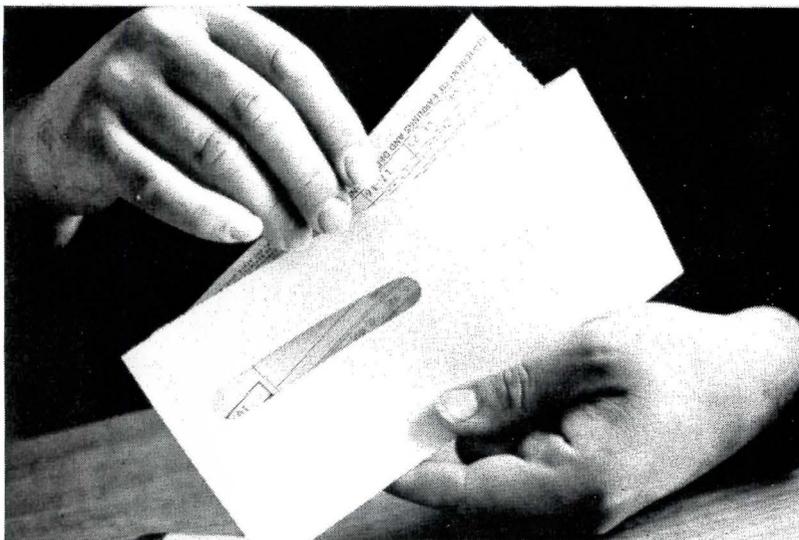
ARMENTO • sculptured modulants

For other designs and information, write us for brochures or consult Sweet's Interior File. ARMENTO ARCHITECTURAL ARTS INC. • 1011 MILITARY ROAD, BOX 39, BUFFALO, NEW YORK 14217

Reader Service #120

Do you make more money than your industry's average?

Probably.



Because you're somebody special.

You are on this magazine's circulation list because you have been *qualified* as an important decision-maker.

People who don't qualify, don't get the magazine.

The editors have people like you in mind when they plan their issues.

They want to make the information they provide in these pages as useful as possible to men in your type of job with your types of informational needs.

That's why you'll periodically get a request from us asking if you're in the same job, at the same address, or have gone on to another assignment. We require this information because our circulation is *audited* — just as your company's books are — to assure our advertisers that our circulation claims are correct.

When you see the BPA symbol on a publication, you know it's edited for people whose jobs are important.

BPA

Business Publications Audit of Circulation
360 Park Avenue So., New York, N.Y. 10010

This symbol means:
edited for businessmen

audited to make sure the records are correct

CEILING SYSTEMS/COMPONENTS

Celotex Corporation brochure on integrated ceilings gives design details and data on acoustical control, air supply and return, and lighting. Reader Service Number 200.

Conwed Corporation new literature outlines two systems for suspended ceiling applications. Catalog includes specifications, technical data, and installation photographs. Reader Service Number 201.

Eastern Products Corporation announces that new and updated literature on its lines of suspension ceiling systems and demountable wall systems is now available. Reader Service Number 202.

CERAMIC TILE

Amsterdam Corporation offers color pamphlet on Buchtal Ceramic Tiles including photographs of various floor and wall installations. Reader Service Number 203.

Cava of Salerno, Italy has brochure describing their design and architect-oriented decorative tiles. Reader Service Number 204.

Available patterns of colorful ceramic tile by the Italian company Ceramica Majorca are illustrated in pamphlet now available. Reader Service Number 205.

The Japanese-based Daibutsu Tile Co., Ltd. offers booklet describing and showing installations of their artistic and glazed roofing tiles. Reader Service Number 206.

Gabbianelli of Italy provides color renditions of their design series of ceramic tiles including illustrations of imaginative applications. Reader Service Number 207.

CONCRETE

The Hebel-Gasbetonwerk, located in the Federal Republic of Germany, offers a 23-page booklet giving manufacturing and technical information on Hebel cellular concrete. Reader Service Number 208.

DECORATIVE GLASS

Seraphic Pty. Ltd. of Australia provides information on their Cameo Clad, a custom made material for use in hotels, office buildings, schools or clubs. Reader Service Number 209.

DOORS

Customwood Manufacturing Company announces availability of new 8-page catalog containing details on their complete line of grilles, panels and doors. Reader Service Number 210.

From Osaka, Japan, Nakamura Takiya Co., Ltd. offers brochure including descriptions and specifications of door-viewers and accessories. Reader Service Number 211.

FLOORING

Azrock's 1973 edition of their catalog on resilient flooring is now available. It includes information on sizes, gauges, uses, installations, light reflectance values, and brief specifications. Reader Service Number 212.

Gabbianelli of Italy provides color renditions of their design series of ceramic tiles for flooring as well as illustrations of imaginative applications. Reader Service Number 213.

Goodyear Tire & Rubber Company tile and sheet vinyl flooring data is available in catalog that provides information on styles, patterns, and colors. Reader Service Number 214.

Inland-Ryerson offers catalog on Inryco Floor Systems containing design data, selection charts, fire ratings, finishes, and specifications. Reader Service Number 215.

Liskey Aluminum, Inc. has available 16-page color brochure including illustrations and specification data on access floor systems. Reader Service Number 216.

FIRE PROTECTION EQUIPMENT

Zurn Industries, Inc., Standard Fire Equipment Division, has recently published a new catalog on fire protection systems and equipment. Reader Service Number 217.

FURNITURE

Simmons Company Contract Division has introduced the "O'Hare Chair," constructed of molded polystyrene, and mounted on an advanced swivel mechanism that allows a full 360 degree turn. Reader Service Number 218.

Thonet Industries, Inc. has released information on their new "Premier" Club chair created for reception areas and public lounges. Reader Service Number 219.

HARDWARE

A data sheet outlining porcelain, crystal, timber, pottery and stone-ware door furniture is now offered by the Australian manufacturing firm Gainsborough Hardware Industries Pty. Ltd. Reader Service Number 220.

Newlite Industry Co., Ltd. of Japan makes available pamphlet and technical details on Doorlite plastic hinges. Reader Service Number 221.

INSULATION

Johns-Manville has developed a home insulation calculator for determining FHA requirements. Reader Service Number 222.

Pittsburgh Corning Corporation makes available catalogs detailing application and specification data on Foamglas® insulation for refrigerated structures, normal-temperature structures, and pipe insulation. Reader Service Number 223.

Grefco, Inc. Building Products Division provides data on three types of rigid roof insulation in new brochure. Reader Service Number 224.

LIGHTING

J. H. Spaulding Co. gives details on its Moderna outdoor luminaires in selector guide that provides specification data. Reader Service Number 225.

Lightcraft of California announces availability of color pamphlet containing photographs and specification information on the Strass crystal collection of lighting fixtures. Reader Service Number 226.

PANELING

Alliance quarter-panels finished in various wood tones are presented in color brochure being offered by Alliance Kesarya Polymer Industries, Ltd. of Israel. Reader Service Number 227.

Information on Vitriform 90, an economical new porcelain-on-steel

building material, is available from AllianceWall Corporation. Reader Service Number 228.

Toyo Bamboard Manufacturing Co., Ltd. of Japan offers details on their newly developed natural veneer bamboo plywood. Reader Service Number 229.

The history and development and architectural applications of Mallo-tex veneer paneling are described in brochure from the Australian manufacturing firm West Coast Mosaics Pty. Ltd. Reader Service Number 230.

PARTITIONS

Georgia-Pacific Corporation's sound-deadening incombustible gypsum board, designed for use in wood and metal stud partition construction, is outlined in new brochure. Reader Service Number 231.

SCULPTURE

Form Incorporated offers brochure illustrating and describing their line of "Sculpture for Play" precast concrete play equipment. Reader Service Number 232.

WALL COVERINGS

Soundfold's acoustical drapery and wallcovering systems are described and illustrated in new booklet now available. Reader Service Number 233.

Rohm & Haas provides new color chart of eight standard shades for Kydex wall coverings. Reader Service Number 234.

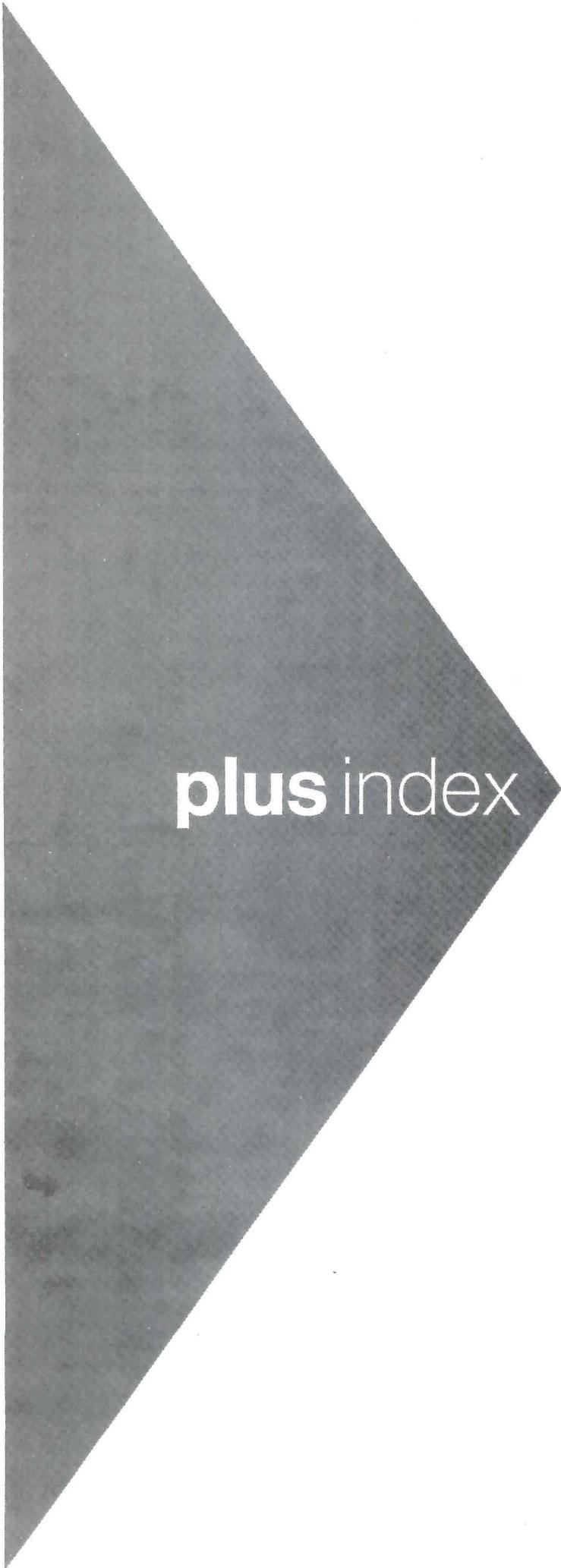
WINDOWS

The William Bayley Company offers eight-page pamphlet detailing their line of steel, stainless steel, and aluminum windows and window walls. Reader Service Number 235.

PPG Industries has announced a new gas-filled insulating glass unit for windows having greater insulating efficiency than ordinary air-filled units. Reader Service Number 236.

WOOD

Koppers Co., Inc. presents application and case histories of Wolman-ized® pressure treated lumber. Reader Service Number 237.



plus index

Advertising Sales Offices

- Billdal, Sweden** John Bacos
Scandic Trading
Box 1010
Billdal, Sweden 43081
- Chicago, U.S.A.** Robert A. Jobson
625 North Michigan Avenue
Chicago, Illinois 60611
phone: 312-787-5858
- Cleveland, U.S.A.** Charles S. Glass
32 West Orange Street
Chagrin Falls, Ohio 44022
phone: 216-247-5461
- Frankfurt, Germany** Manfred Wettlaufer
6232 Bad Soden/Ts.
Postfach 1566, Germany
regional phone: 06196
local phone: 26 3 26
telex: Frankfurt/Main 413569
- Milan, Italy** Etas Kompass
Via Mantegna 6
20154 Milan, Italy
phone: 347051/384798
telex: 33152 Kompass
- New York, U.S.A.** Annie Damaz, Special Representative
Richard E. Kielb
Donald T. Lock
1345 Sixth Avenue
New York, New York 10019
phone: 212-489-8697
telex: RCA 224232 CIC-UR
cable: Publinform
- Tokyo, Japan** Barbara Dorf
Uesaka & Collaborative
9-3 Shoto 1 Chome
Shibuya, Tokyo, Japan
phone: 469-3431
telex: KAGHI-J-24877, Tokyo
cable: Yasuesaka Tokyo

Advertising Index

- Armento Architectural Arts, Inc.**
Colletta Advertising109
- Cold Spring Granite Company**
Kerker and Associates, Inc.2-3
- Electric Energy Association**
Charles E. Root, Inc.99-100
- Knoll International**
William C. McDade, Inc.102-103
- Laverne International, Ltd**
Laverne International, LtdBC
- National Gypsum Company**
Fuller & Smith & Ross, Inc.4
- Owens-Corning Fiberglas Corporation**
Ogilvy & Mather, Inc.8
- Republic Steel Corporation**
Meldrum and Fewsmith, Inc.7
- Rowland Products, Inc.**
Advertising and Promotion Services,
Rowland Products, Inc.IBC
- Staempfli Gallery**
Ridgefield Advertising, Inc.107
- Standard Dry Wall Products, Inc.**
Owens & Clark Advertising105
- Uniroyal, Inc.**
Campbell Mithun, Inc.IFC-1