

Three new skyscrapers

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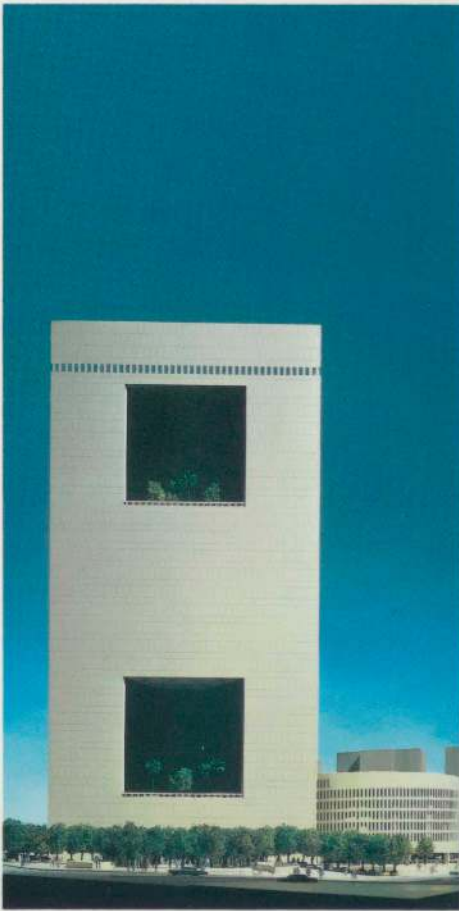
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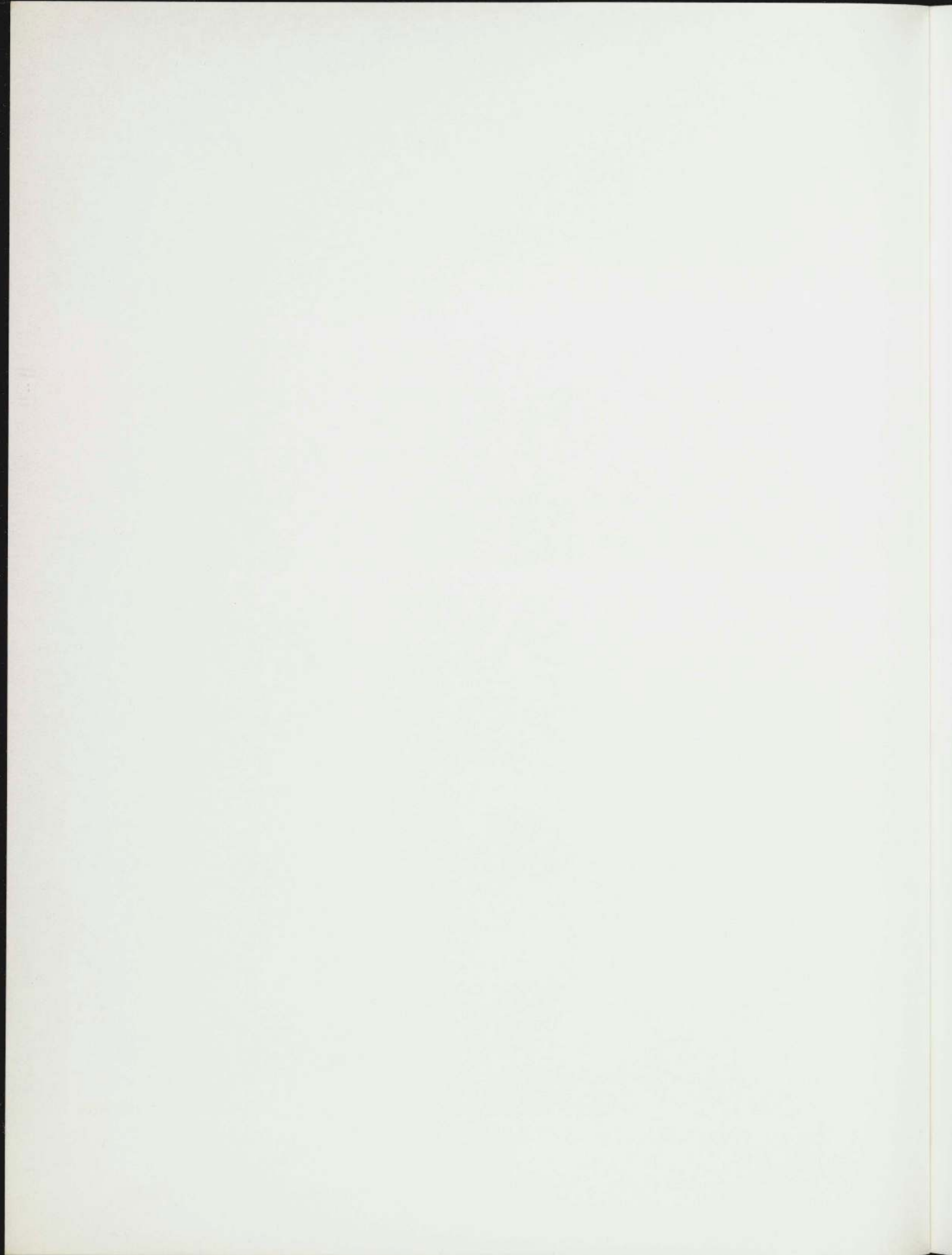
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available online. It includes exhibition catalogues,
primary documents, installation views, and an
index of participating artists.

THREE NEW SKYSCRAPERS



The Museum of Modern Art, New York



THREE
NEW
SKYSCRAPERS

Arthur Drexler

The Museum of Modern Art, New York

Hongkong and Shanghai Banking Corporation, Hong Kong

Foster Associates, Architects

Design began in 1979

Site excavation in 1981

Foundations in January 1983

Completion scheduled for 1985

National Commercial Bank, Jeddah, Saudi Arabia

Skidmore, Owings and Merrill, architects

Gordon Bunshaft, partner in charge of design

Design began in 1977

Construction began in 1979

Completion in 1983

International Place at Fort Hill Square, Boston

Johnson/Burgee Architects

Design began in 1982

Construction to begin in 1983

Completion of first phase in 1985

On behalf of the Museum I wish to thank Norman Foster, Gordon Bunshaft, and Philip Johnson for their assistance in preparing this exhibition and catalog. It is no exaggeration to say that without their help both would have been impossible.

My thanks must also go to the following:

At Foster Associates, Katy Harris for research assistance; Ian Lambot for supervision of models made for the exhibition; and Peter Bilson at Kandor Models.

At Skidmore, Owings and Merrill, Gordon Wildermuth for arranging the transfer of the model from Jeddah to The Museum of Modern Art; Tom Killian for locating drawings and providing much helpful information; Jack Serabian for his construction photographs at the Jeddah site; Michael Keselica for useful advice; and Debra Joan Curtin and Clare Leary for photographs and documentation.

At Johnson/Burgee Architects, Scott Johnson for preparing the perspective and elevation drawings on pages 44 and 45 and for coordinating the production and delivery of models, drawings, and photographs; and John Burgee for much helpful advice.

In the Department of Architecture and Design I am as usual grateful to Mary Jane Lightbown, Research Assistant, Marie-Anne Evans, Assistant to the Director, and Robert Coates, Department Preparator, for their skillful handling of innumerable details.

Arthur Drexler

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Skyscrapers are machines for making money. They exploit land values to the point of rendering cities uninhabitable, but that is no reason to stop building them: in a free society capitalism gives us what we want, including our own demise. Since we want and love skyscrapers, and spend so much time in them, their design ought to involve other issues besides external styling.

The skyscraper is usually a stack of undifferentiated floors without architectural interest. Ground-level areas devoted to public access are expected to be more than minimal: their elaboration confers status and announces the rentals tenants can afford to pay. Structure is standardized, and the architect's job is largely the design of a cheap skin somehow different from the neighboring competition.

The resulting impoverishment of form has encouraged a return to "features" memorable enough to have advertising value. A top, for instance, of conspicuous shape offers the most publicity for the investment. (In these matters eccentricity has a proven cash value, as both corporations and commercial developers have noticed.) Lavish lobbies preempt rentable space and are therefore more difficult to justify, and yet public circulation areas, including elevators and corridors, are obvious candidates for improvement.

No architect can be indifferent to these seemingly superficial problems. The kind of image a building leaves in the mind is a substantive architectural question despite its being raised by commercial developers rather than, say, the church. Skyscrapers still offer the most serious challenge to historicizing architects who want to be free of the moral and aesthetic constraints of modernism, as well as to architects who want to enrich the vocabulary of modernism without recourse to historical styles. But fundamental change depends on two other considerations.

First, form may be radically altered by rethinking the manner in which space is distributed within a building. This involves judgments as to what is "suitable" and/or economically feasible for buildings in which characterless spaces have always been thought good enough. Second, new approaches to structural design may reduce the cost of construction

and open the way to a more generous use of space and materials.

The design of structure might seem the likelier line of development, but in fact it has so far yielded engineering efficiencies that remain largely concealed and cannot be considered improvements when made visible. On the other hand, the rethinking of what constitutes a humane environment is beginning to have visible results, perhaps because innovations in planning do not automatically require costly research.

The three buildings in this exhibition illustrate with singular force the interaction of these related factors: innovation in structural design; in spatial arrangement; in the scale of abstract form; and in the manipulation of architecture as urban scenography.

The Hongkong and Shanghai Bank, by Norman Foster, brings architectural structure into line with civil and aeronautical engineering: its family resemblance to suspension bridges and rocket-launching installations is immediately apparent, but its extraordinarily spacious interiors and rooftop gardens may prove to be of even greater interest.

The National Commercial Bank in Jeddah, designed by Gordon Bunshaft just before his retirement from the architectural firm of Skidmore, Owings and Merrill, is an abstract monument that looks colossal, although at twenty-eight stories it is the smallest of the three projects. It is also the only one whose abstract form is independent of structure but literally impossible without its humane innovations in the planning of space.

The commercial office complex called International Place at Fort Hill Square, in Boston, designed by Philip Johnson and John Burgee, manipulates the conventional office-building program only externally to make what Johnson calls "a village of skyscrapers." Its deployment of contradictory facades and its division into what look like six buildings of assorted sizes and shapes, seemingly added at different times, address problems of urban scale with whimsical efficiency.

Both banks divide vertical mass into stacked zones of floors, each zone intelligible as a "neighborhood." In the Hong Kong bank five divisions are effected by the double-height floors that occur

between them. Visitors will take express elevators to one of these reception levels and proceed to the floors above by escalator. At the Jeddah bank each of three "neighborhoods" is visible from all the floors it contains, because those floors face each other across a huge covered terrace within the mass of the building. The occupants will feel themselves to be in a private seven-story precinct rather than a twenty-eight-story tower.

Many of the differences among these buildings are a consequence of their sizes and programs, as well as their architects' preferences. The Hong Kong bank occupies the most important site in a phenomenally crowded city: the ground-level concourse is kept largely unenclosed, and from it escalators rise forty feet to the banking hall in a bright atrium ten stories high. The banking hall of the Jeddah building, as intimate as the Hong Kong bank's is grand, is an enclosed, softly top-lighted space of contemplative calm.

Ultimately the architectural character of both bank buildings derives from aesthetic commitments strong enough to influence rational decisions. The dizzying structural apparatus and fantastic space-age intricacy of the Hong Kong bank are obviously "modern," but Norman Foster also sees the building as analogous to the Gothic cathedral, in which the accumulation of detail not only explains how the structure works but is an end in itself.

Bunshaft's building also has some formal precedents. Le Corbusier's unbuilt projects for skyscrapers in Algiers display a single gigantic recess on their major facades, but since the buildings were to have been entirely glass-walled the shallow recesses are for purely rhetorical emphasis. Recent office buildings by Skidmore, Owings and Merrill have incorporated multistoried atriums at different levels, but these huge rooms have glass walls that tend to make them indistinguishable from the rest of the facade. Bunshaft's version of the atrium as an open court produces a monumental effect related to the multistory niches that make up the entrance elevations of Muslim mosques; he may have produced the first Muslim skyscraper.

When these connections have been noted the deliberate historicizing of the Johnson/Burgee buildings may seem, if not exactly innocent, at least straightforward. Instead of "neighborhoods" there are different perimeter configurations with different kinds of windows; variety will be felt inside as well as outside. Instead of multistory atriums there is a modest glass-roofed concourse; with a restaurant raised at one end it will be the all-weather common for this eclectic village. Eclecticism here means not the sober recall of historic form, as in Johnson's recent Dade County Cultural Center, but a synoptic inclusion of most varieties of modernism, including the "Palladian." If the juxtaposition of facade treatments suggests an outdoor showroom of architect's samples, the effect is not unrelated to the "real"

details of Gothic or Technological decor. Like many other Johnson buildings, this one is a thesis, an architectural criticism meant to prove a point.

In some ways each of these buildings seems to be a repudiation of the others. But questions of technology, scale, and eclecticism are dealt with by all of them in ways important enough to modify the terms of the argument.

Arthur Drexler

Director

Department of Architecture and Design

Amiens Cathedral, detail of flying buttresses

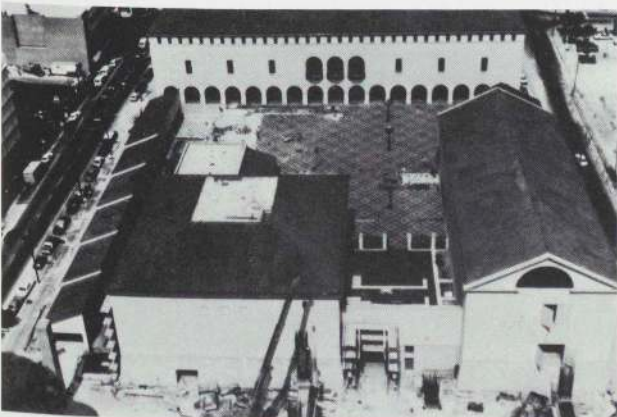
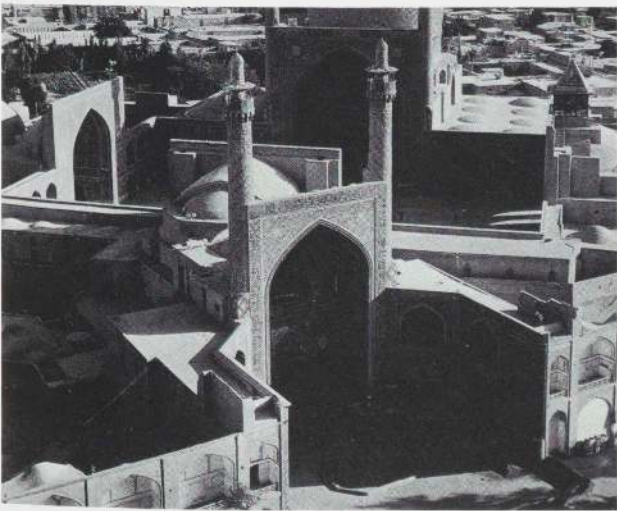
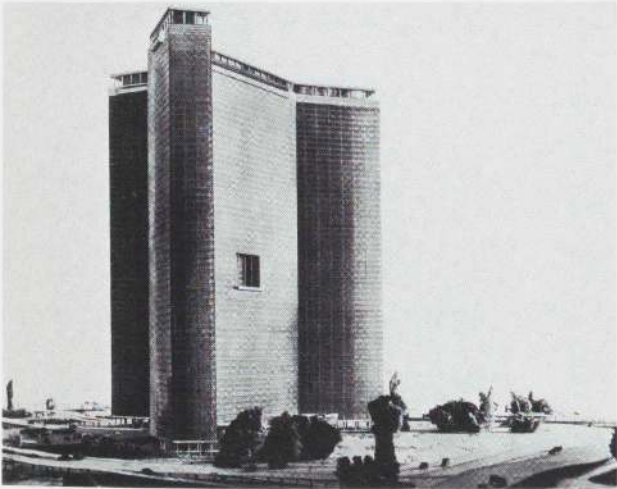
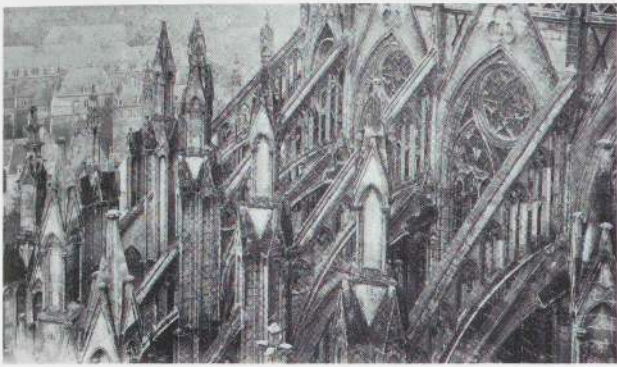
Le Corbusier. Skyscraper project for Algiers, 1931-36

Royal Mosque, Isfahan

Dade County Cultural Center, Miami, Florida, in construction

Johnson/Burgee Architects
Connell, Metcalf & Eddy, Associate Architect

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Hongkong and Shanghai Banking Corporation
Hong Kong, 1979-85
Foster Associates, architects

This new headquarters will replace the bank's original 1936 building on a site overlooking Hong Kong's Statue Square, the harbor, and mainland China to the north. The building is constructed in three bays of twenty-eight, thirty-five, and forty-one levels including double-height floors, with the tallest bay placed in the center. Because a hill blocks light from the south the lowest bay is on that side. Elevators, utilities, and stairs are in eight towers on the east and west sides, leaving the floors unobstructed.

The main structural frame consists of eight vertical mast assemblies, four each at the east and west sides. Inclined horizontal structures like trusses are attached to the masts at five levels. These elements provide lateral stiffness and suspension points for the groups of floors hung from them. External walls are an aluminum structural system incorporating glazed, solid, translucent, or louvered areas.

Services, utilities, and stairs are incorporated in 144 prefabricated modules—the largest ever made. These will be built in Japan, shipped to the Hong Kong waterfront, and then hoisted into place. All support service distribution is contained within structural floor voids rather than above the ceiling, with outlets for air, light, power, and communications through removable floor panels, as in computer installations. The building is virtually self-erecting from traveling gantries, which place pieces of the masts in position and then climb up them. Under-slung gantries assemble the floor units, which arrive, like the modules, pre-plumbed with services. The building area can be expanded by 30 percent without any modification of the basic structure.

The arrangement of floors suspended by tension rods achieves an unusually high percentage of usable space: 75 percent net to gross compared with around 60 to 65 percent for a traditional forty-story tower. This provides an additional 800,000 square feet of income-producing space, which the bank receives as a bonus worth around sixty-five million dollars.

The structural system has been exploited to make a division of floors into five distinct tiers, the breaks occurring at those double-height levels marked on the elevations by the inclined suspension structures. From bottom to top the sequence of spaces is as follows: Street level is an open concourse paved with

translucent glass, which admits light to the shopping center below and at night functions to illuminate the entire area. From this concourse escalators rise forty feet to the main banking hall. At the north and south sides of the building the hall is two levels high; at the center it rises ten floors as an atrium. The double-height eleventh level admits sunlight by means of reflectors mounted on the south elevation and on the atrium ceiling. Double-height spaces occur at the eleventh, twentieth, twenty-eighth, and thirty-fifth levels, which are used for reception, lounges, and restaurants. Terraces at the twenty-eighth and thirty-fifth levels are covered by transparent sliding roofs. A helicopter landing pad at the summit of the central bay concludes the sequence with a memorably technological flourish.

The steel masts will be painted mat gray, and the aluminum modules and cladding system will be glossy silver-gray. Translucent and louvered glass panels will produce effects comparable to those in traditional Japanese architecture, but consonant with design details that range from the steel mast structures, with their diagonal bracing and suspension trusses at the scale of the Eiffel Tower, to aluminum sunshades as delicate as parasols. The ceilings are made of light-reflecting curved aluminum panels that establish a high level of architectural finish for work areas. Perhaps most important in the proliferation of architectural details are the escalators. At ground level they are placed on a diagonal axis and achieve a kind of informal grandeur; on the upper levels they help to establish the pace at which the building is experienced and maintain visible connections between floors.

It is characteristic of Norman Foster's architecture that with each new building something new is learned about the nature of materials and techniques. His work advances the craft of architecture. In this building the unrelenting externalization of detail particularizes every surface. The resulting gradations of scale are virtually without parallel in anything but the Gothic, or perhaps the nineteenth-century iron-and-glass, architecture that Foster admires. Some of this detail may be considered excessive, but its ultimate purpose is to make the technologies of our era familiar, beautiful, and exhilarating.

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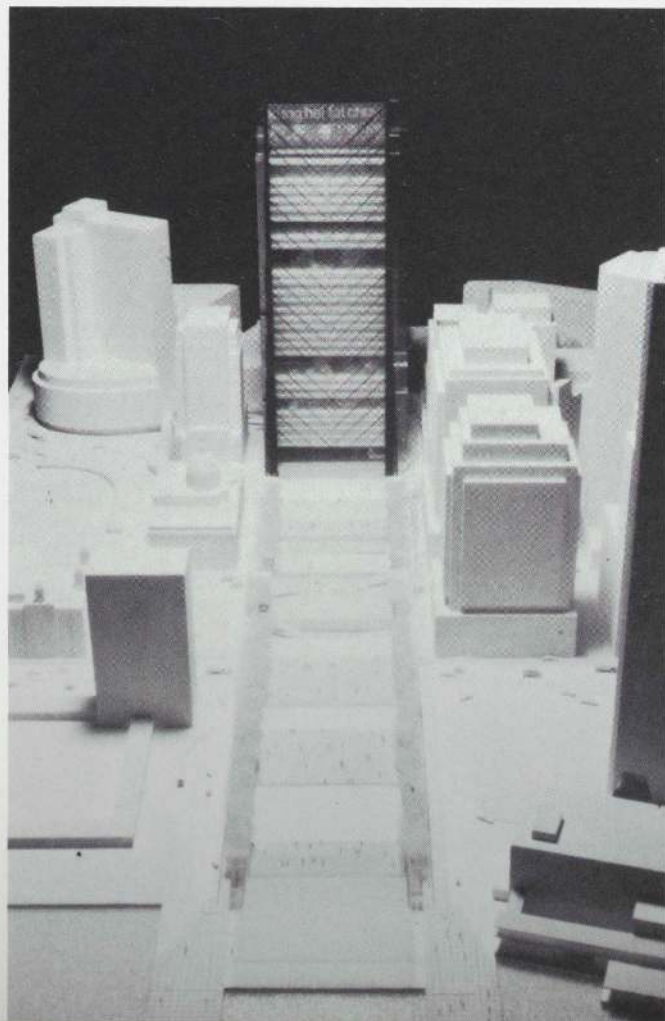
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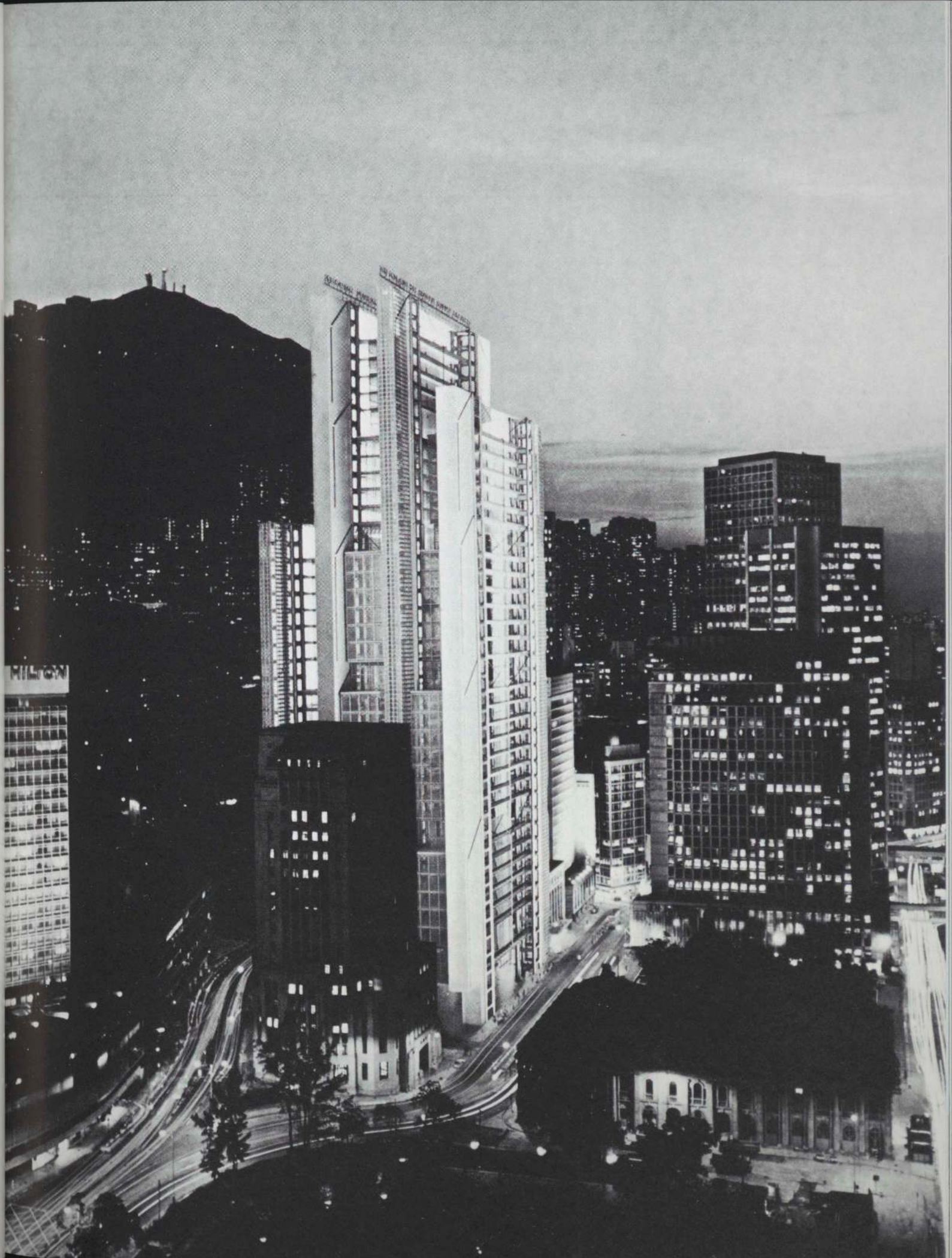


previous page:
Photomontage of model,
view from Victoria
Harbor

this page:
Preliminary study mod-
els showing suspension
structure. Existing
esplanade preserves view
of waterfront.

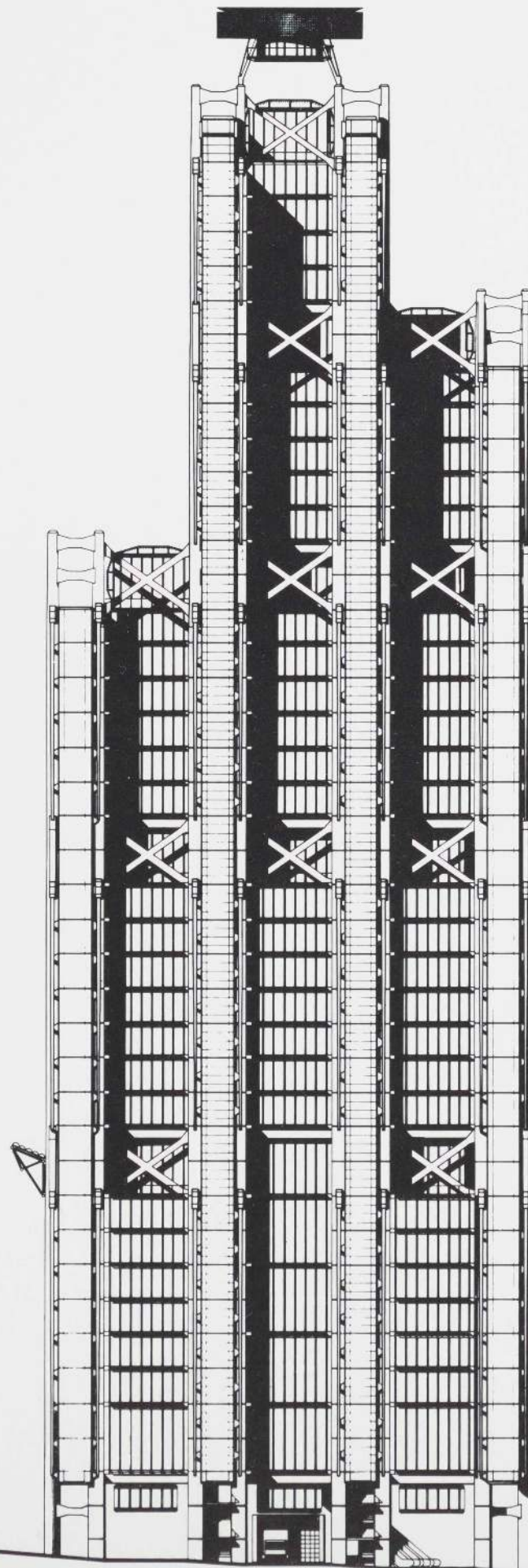
far right:
Photomontage of model,
night view from east

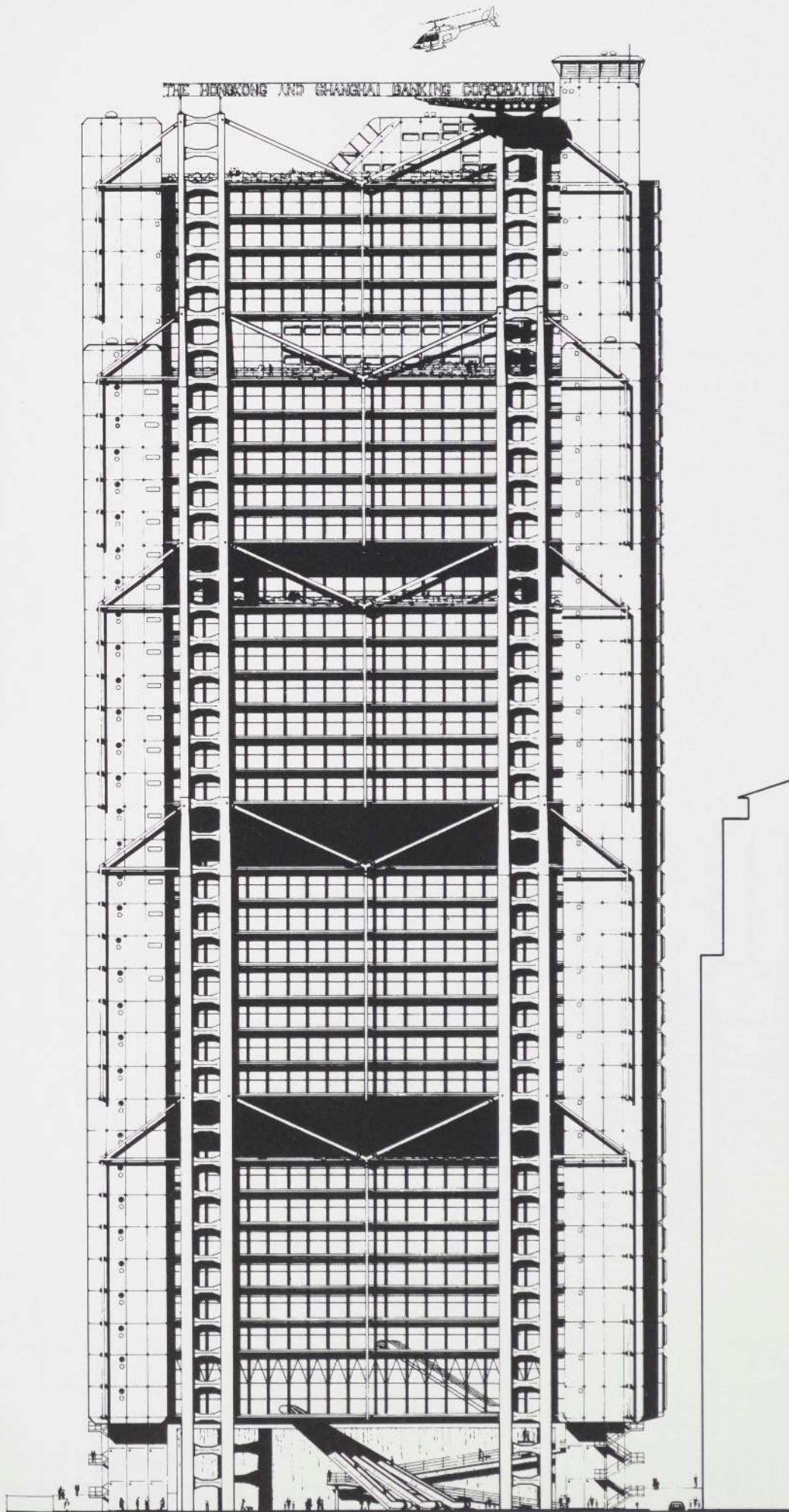


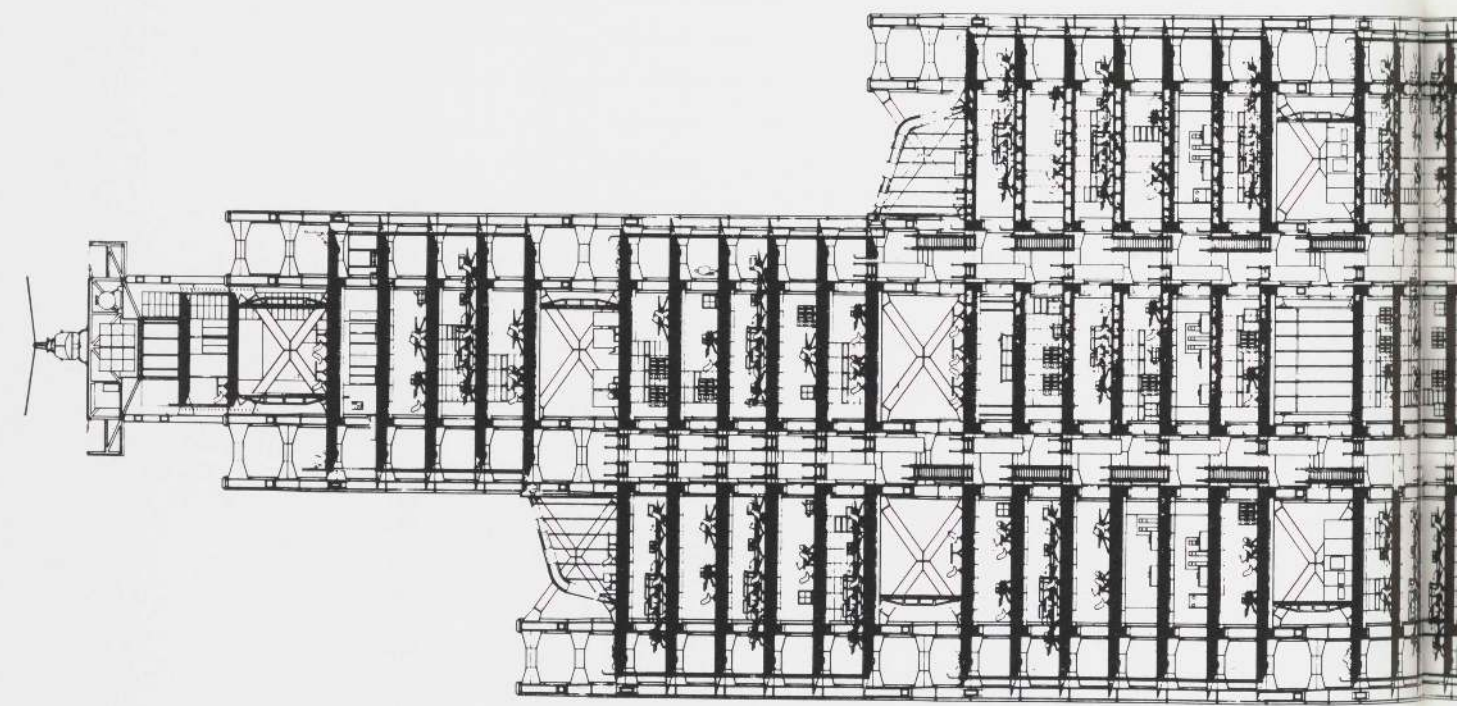


right:
East elevation. Central
bay is crowned by heli-
copter landing pad.

far right:
North elevation. Main
facade overlooking
esplanade and harbor





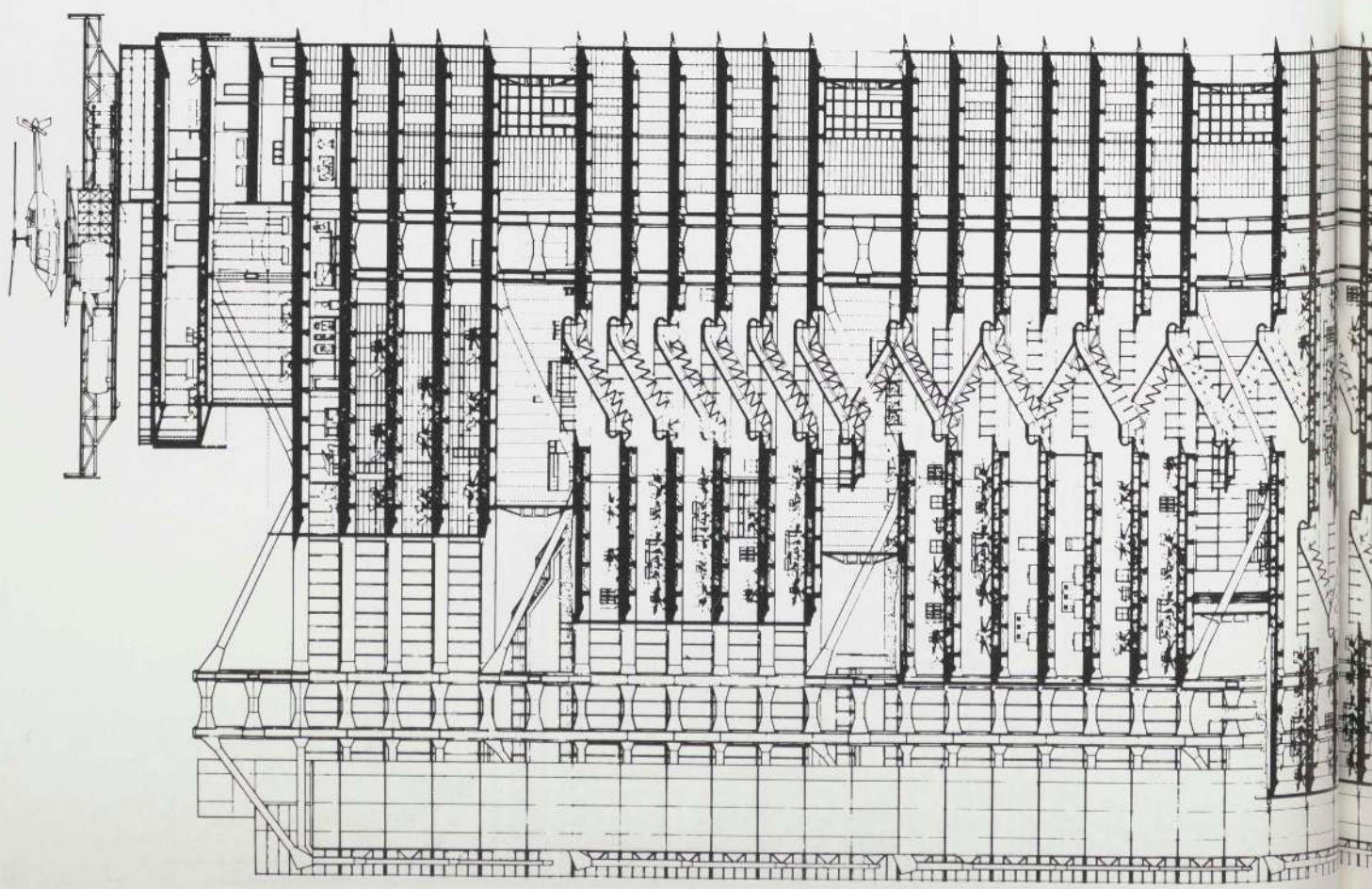


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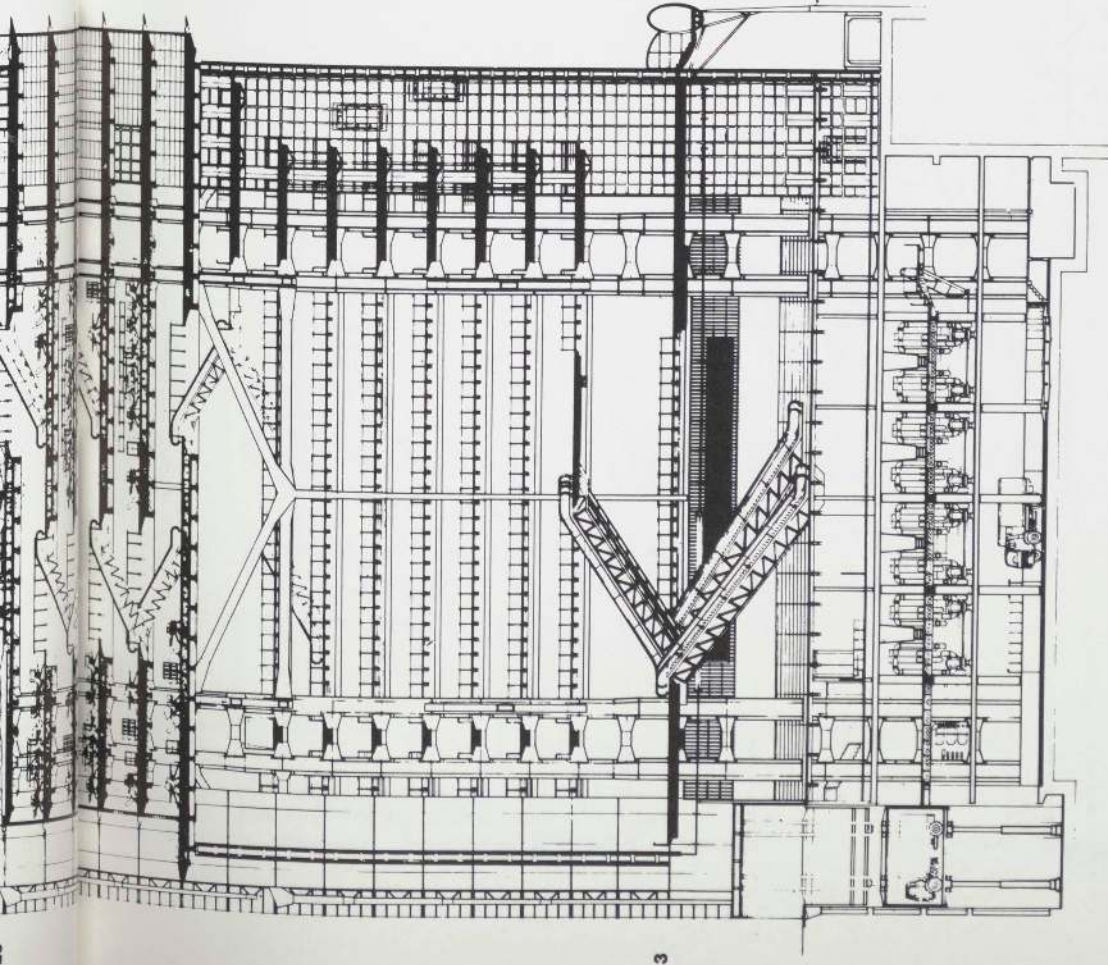


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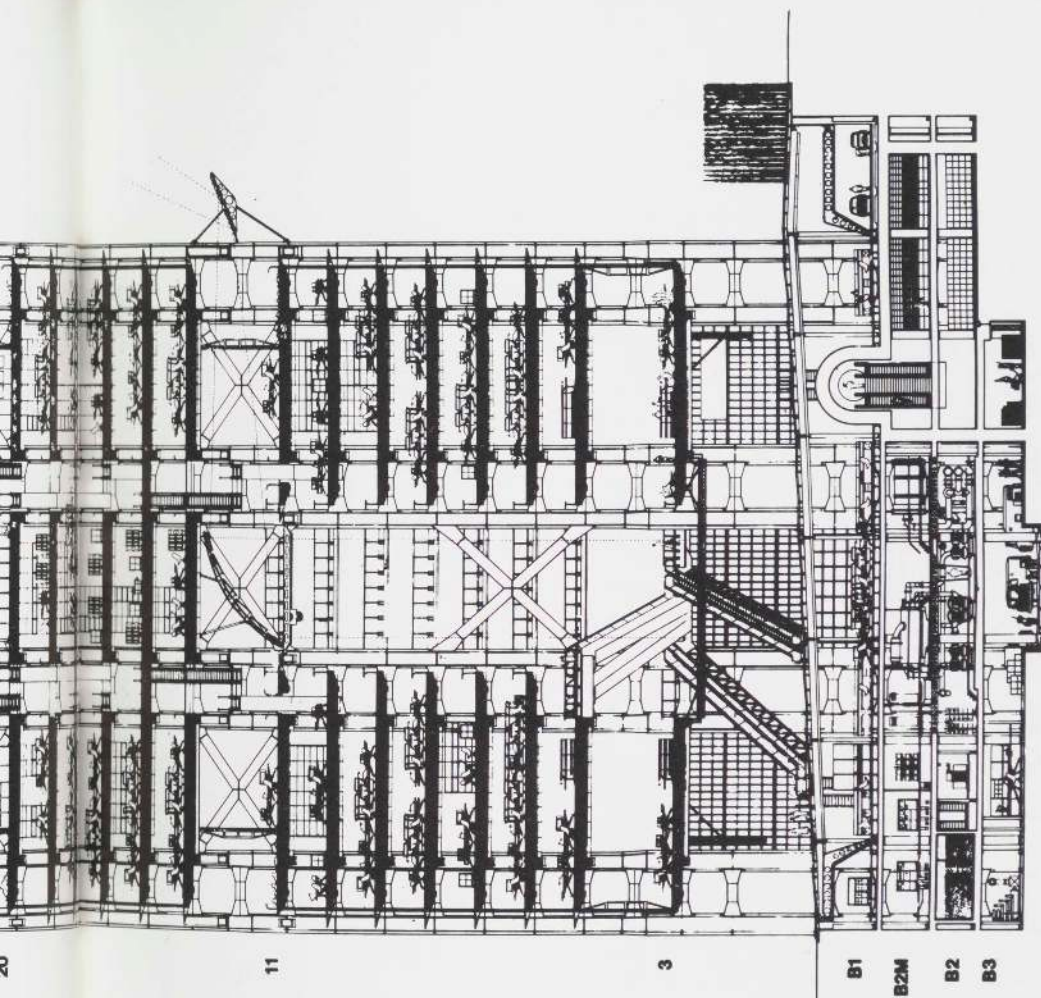
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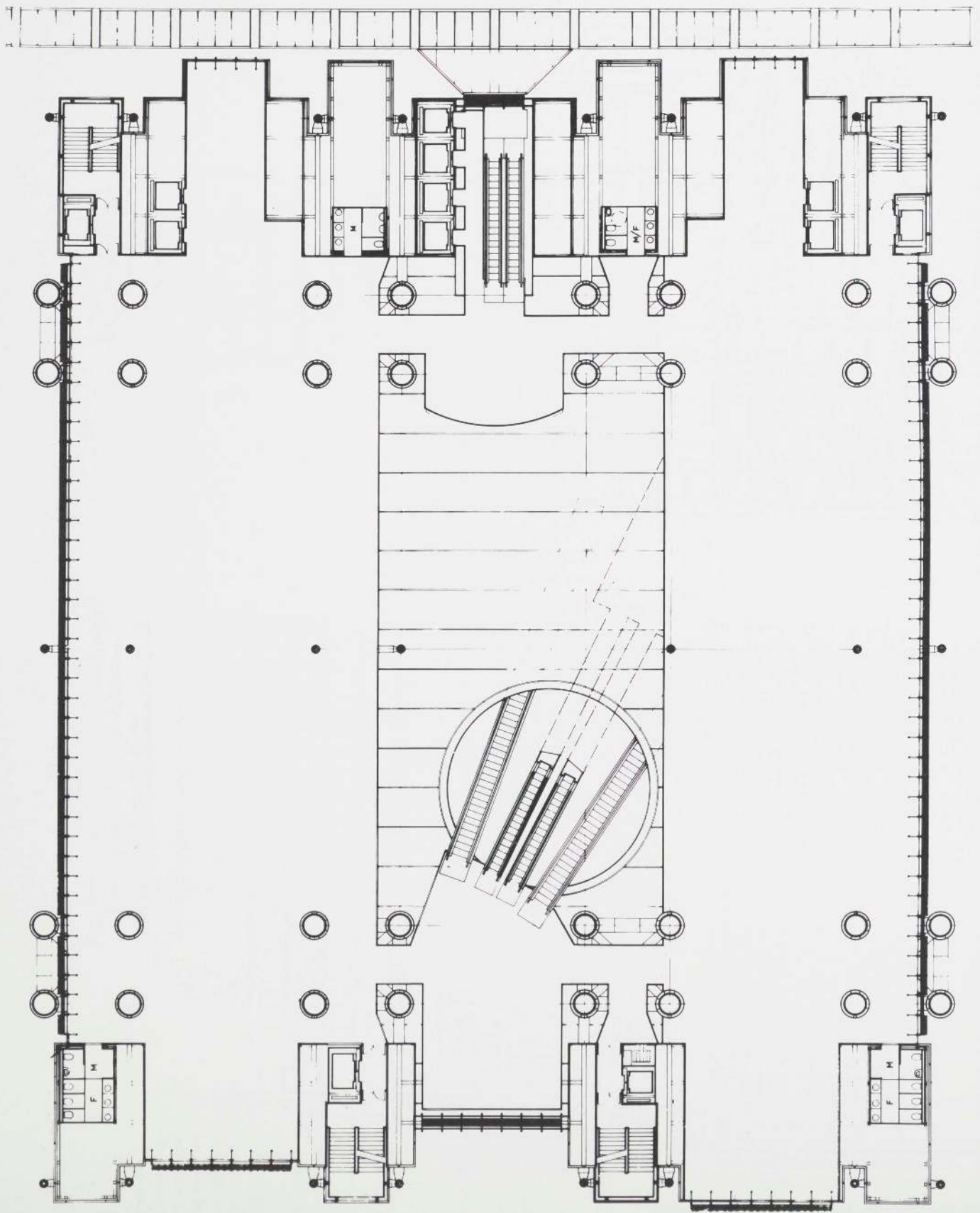


above:
Section looking south

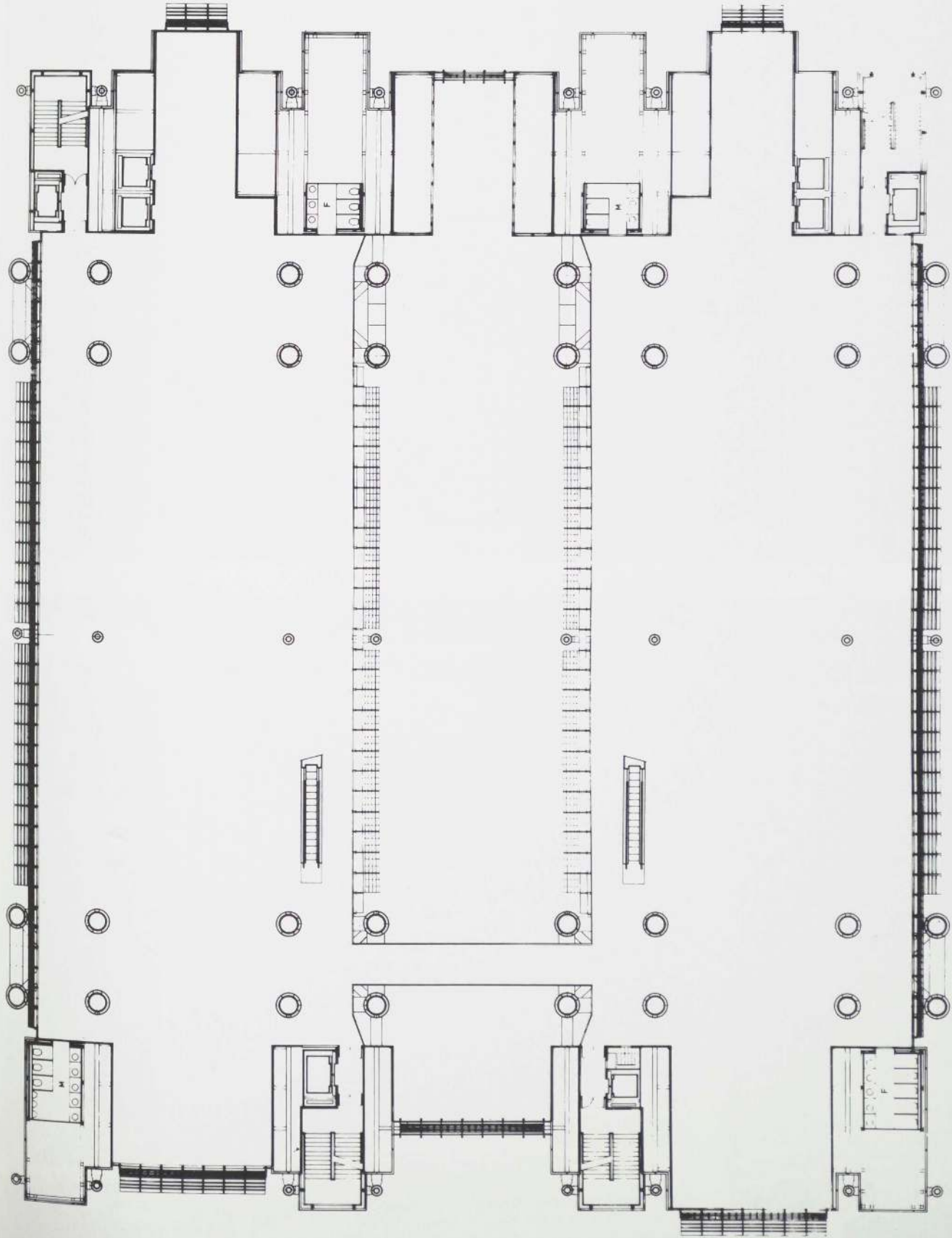
right:
Section looking east.
Central ten-story atrium
is lighted by glass walls at
east and west ends and
by light-reflecting ceiling
and external reflector on
south elevation.

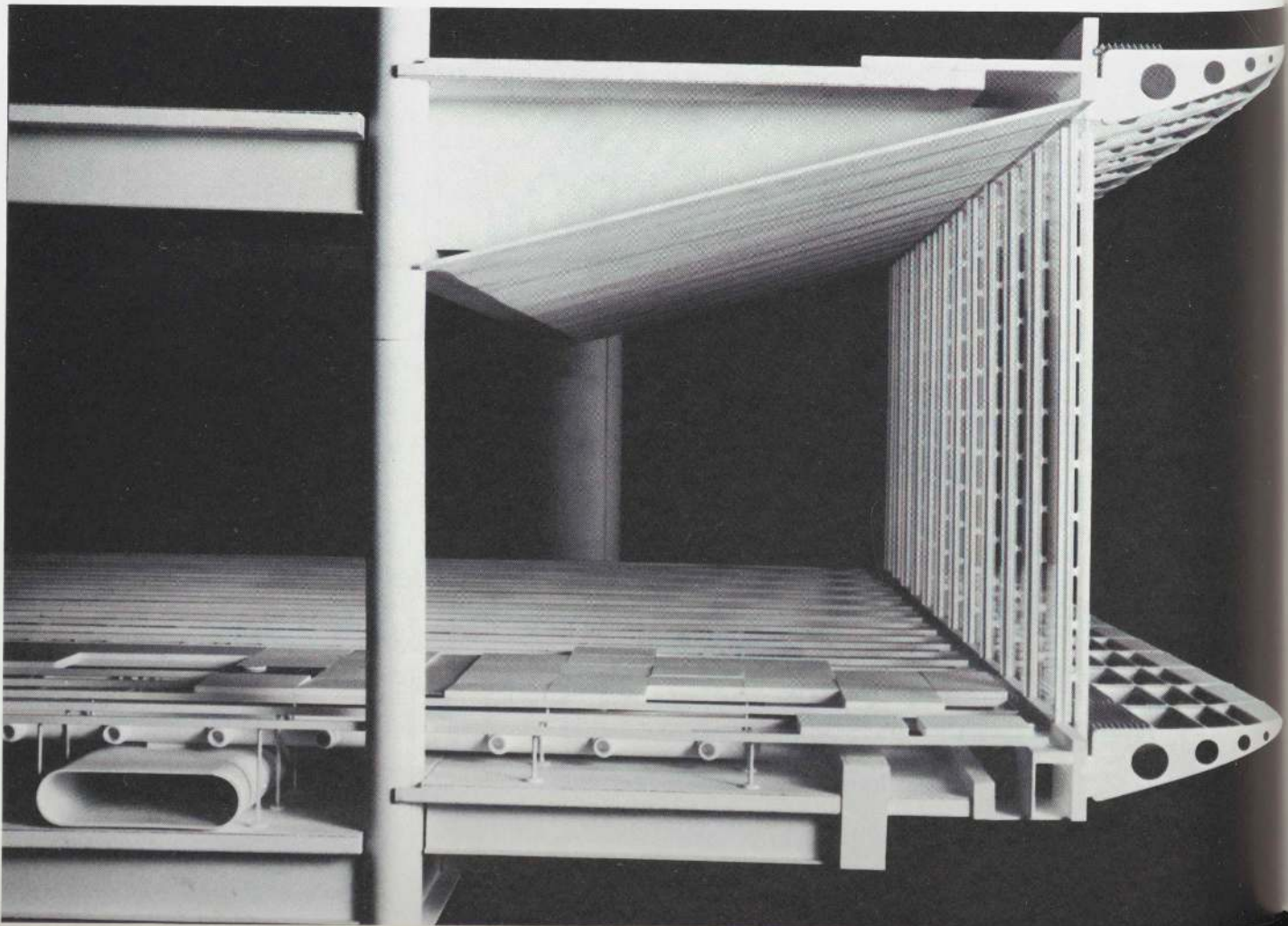
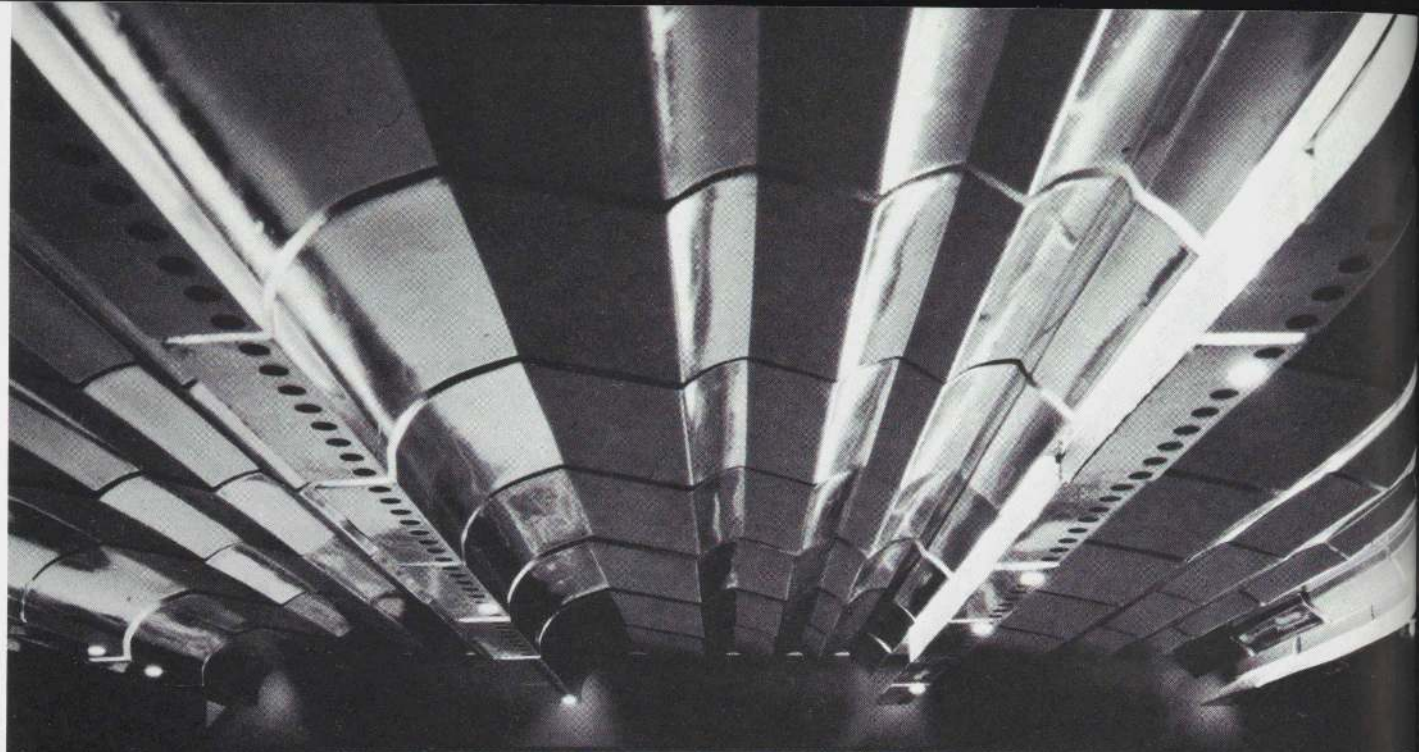


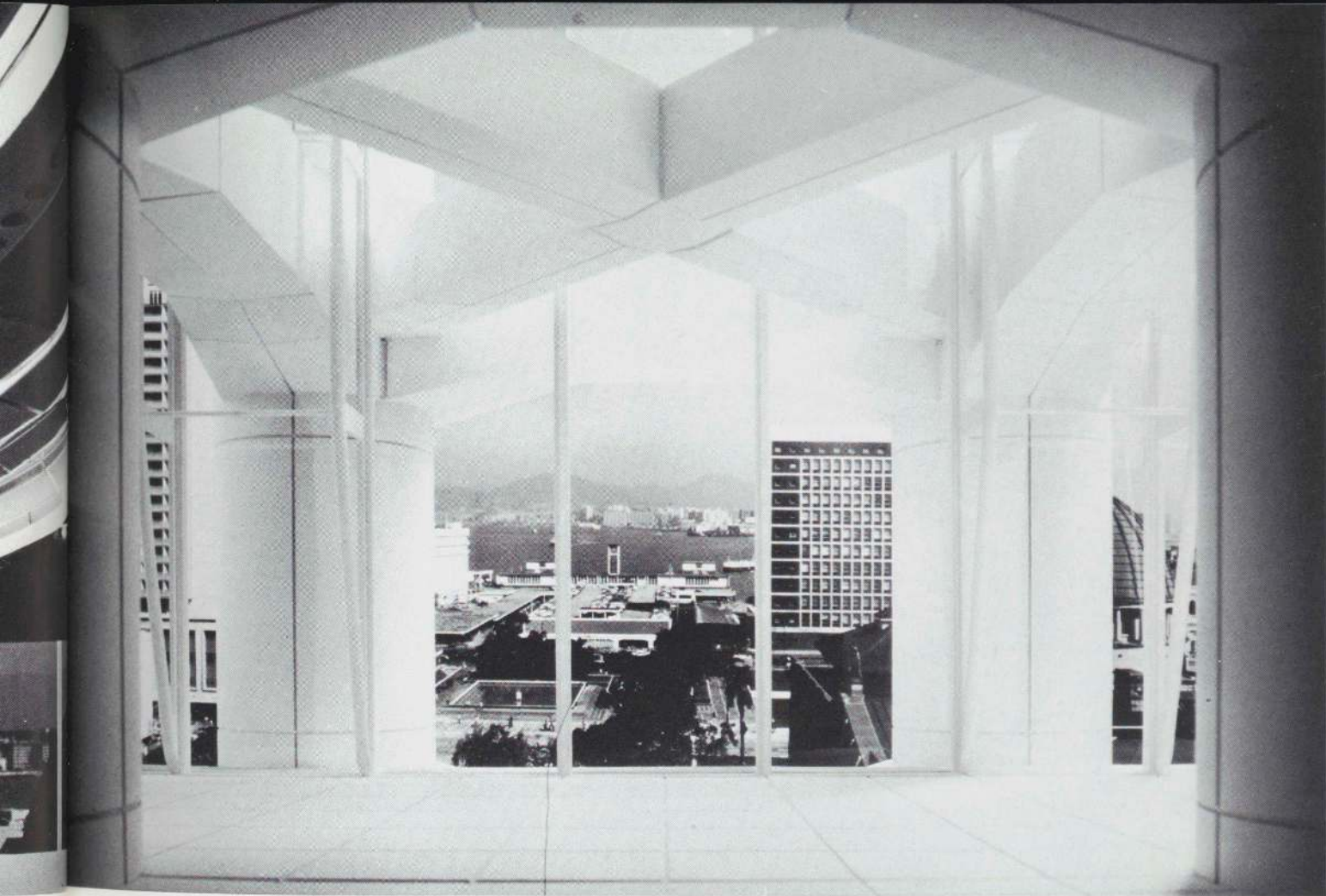
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Plan at level 3, main banking hall





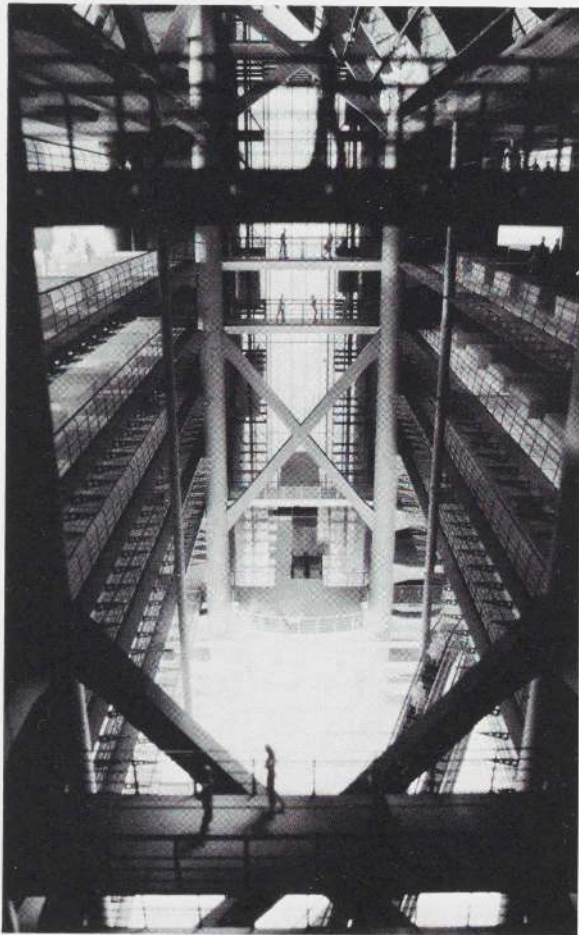


opposite page top:
Photomontage of model,
showing reflector ceiling in
office floor

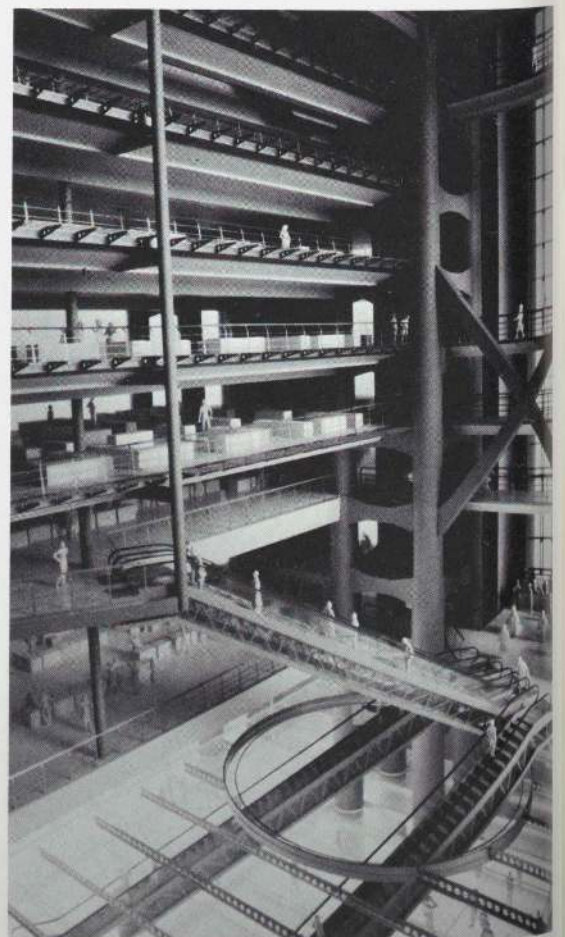
left:
Cutaway model of typical
floor and glazing structure

above and right:
Montage of model and har-
bor view, seen through
structural mast at double-
height level





Detailed models are made at every stage of the design process; photograph at bottom left shows early version of bracing between structural masts; other photographs show final design. Floors are suspended from slender tension rods. Street-level floor is shown as transparent plane but will be made of translucent glass to light shopping concourse below.



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National Commercial Bank

Jeddah, Saudi Arabia. 1977-83

Skidmore, Owings and Merrill, architects

Gordon Bunshaft, partner in charge of design

The startling elevations of this building are the result of its ingenious organization of space. In plan the tower is an equilateral triangle for its entire height, divided vertically into three successive increments of seven, nine, and seven floors. Each of these increments has office space along two sides of the triangle, with glass walls facing *inward* to open-air loggias seven or nine stories high. The bottom and top increments face the same direction (southeast in the built version), while the middle section is rotated (to face northwest). It is this change of orientation for the middle floors that produces a single opening in the center of one elevation and two openings, at the top and bottom, on the adjacent elevation.

Because all the perimeter walls are solid, the tower at first glance appears to be a windowless shaft pierced by gigantic niches. Within these niches, or loggias, are glass walls in deep shade. The occupants have dramatic views out over the city, and each of the terrace levels will be planted with large trees. Since the loggias are 95 feet wide and either 97 or 125 feet high, their giant scale overwhelms the monotonous plaidlike window grids of surrounding buildings and makes the tower identifiable for miles around, even though it is only twenty-eight stories high.

The client's requirements were relatively simple, and the major formal theme of this building appears to be perfectly reconciled with functional considerations—but not without a compromise. In order to achieve the desired amount of office space in a tower of acceptable proportions, all elevators and services were grouped not in the core of the building, but in a separate rectangular tower, which abuts the third side of the triangle. The straightforward but undistinguished elevation that this practical arrangement yields makes possible the extraordinary drama of the other two sides, as well as the internal convenience of the plan. More congenial to the geometry of the tower is the complete contrast made by a four-story circular garage, which adjoins the main entrance.

Two other design solutions depart from the basic scheme but have the effect of reinforcing its strength. The banking hall at ground level and the executive offices at the top do not overlook loggias but rather occupy the entire triangular space. The

bank, which can be entered directly from the street as well as from the main entrance, is a double-height room with a mezzanine floor floating free of the walls. A central triangular opening admits light from the loggia above. The penthouse level has glass walls on all sides, but set well back behind a covered arcade. Narrow vertical openings in the perimeter wall, which give the arcade a distinctly formal character, also crown the elevations with a delicate dotted rhythm that makes the giant openings seem even bolder.

Beautiful materials will make this building quietly sumptuous: all external cladding and the interior of the banking hall are of travertine, and exotic marbles are used in traditional geometric designs to enrich the most important areas.

The site for this building is a promontory on the Red Sea. The old city lies to the east; to the northeast is a lagoon; to the west a coastal road passes through landfill that is gradually extending the shoreline. Originally planned to overlook the water, with a sizable plaza fronting the entrance to the bank, the tower would have been seen at its best from the coast road. But after the building was designed the site was unavoidably reduced, necessitating the reorientation of the tower and its accompanying four-story cylindrical garage. As built, the tower is difficult to see in its entirety from close up, but the loggias now overlook the more interesting cityscape rather than the coast and are seen to better advantage from other buildings.

Indeed, the juxtaposition of this tower with what remains of Jeddah's old architecture suggests an underlying compatibility with indigenous buildings. This has more to do with the proportions of traditional wall openings, which are normally vertical and small in relation to wall area, than with the manipulation of scale. In the twenties modern architects were sometimes rebuked for making white, cubist housing projects that looked like Arab towns. Nothing could be more Western than a skyscraper, but Gordon Bunshaft's rethinking of its nature for this site in Saudi Arabia seems to have resulted in a promising new type.

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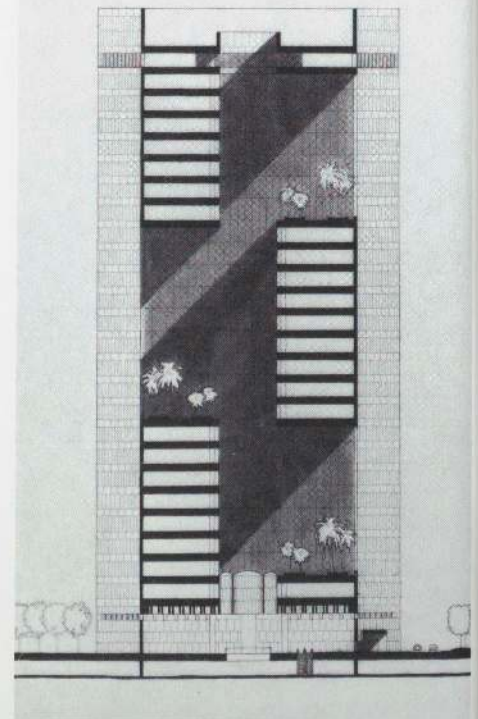
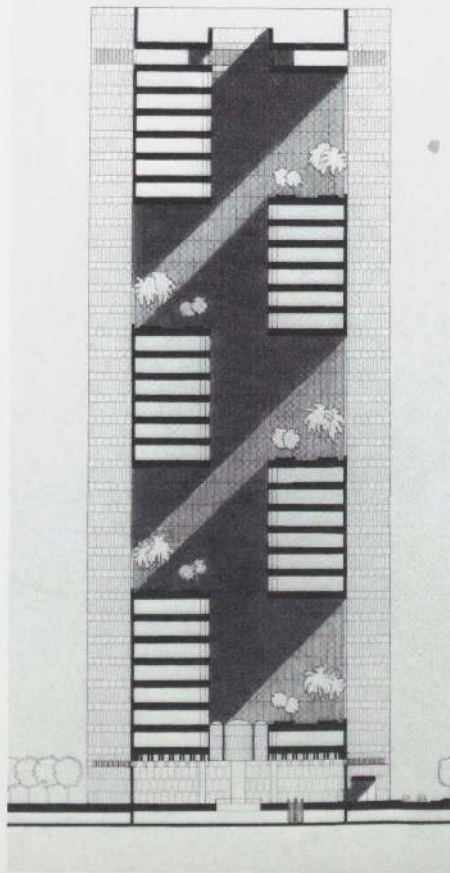
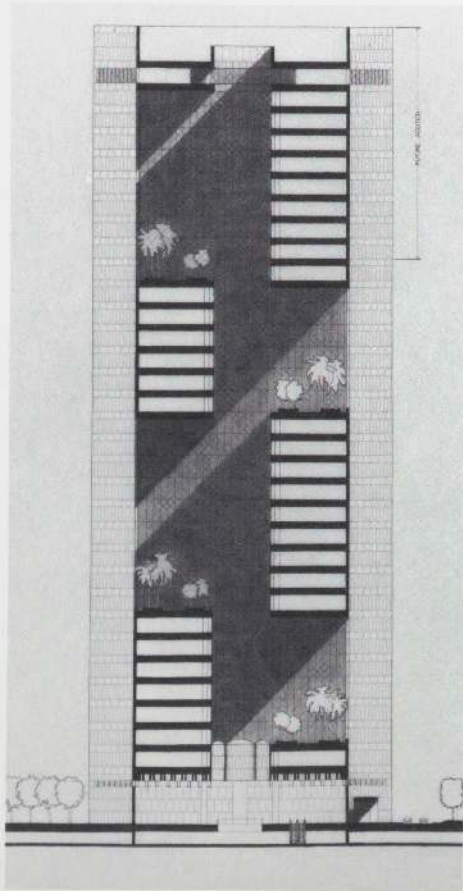
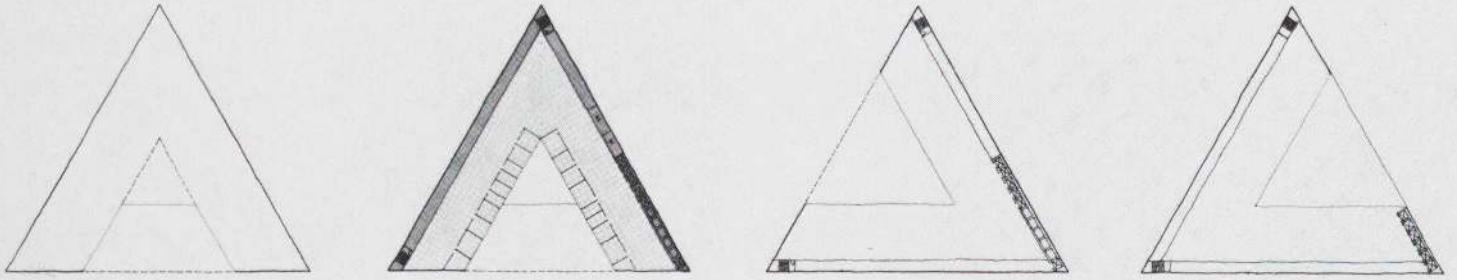
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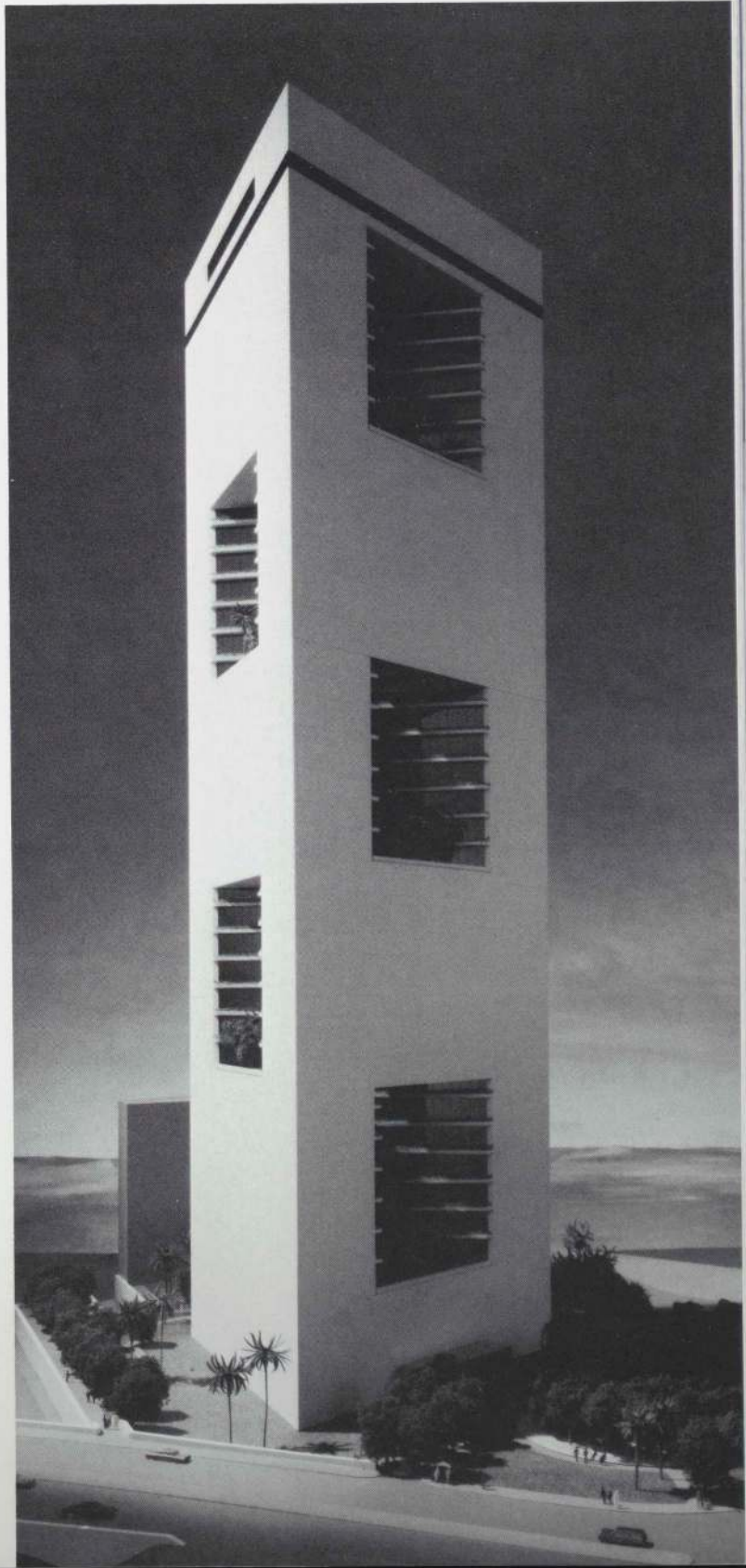
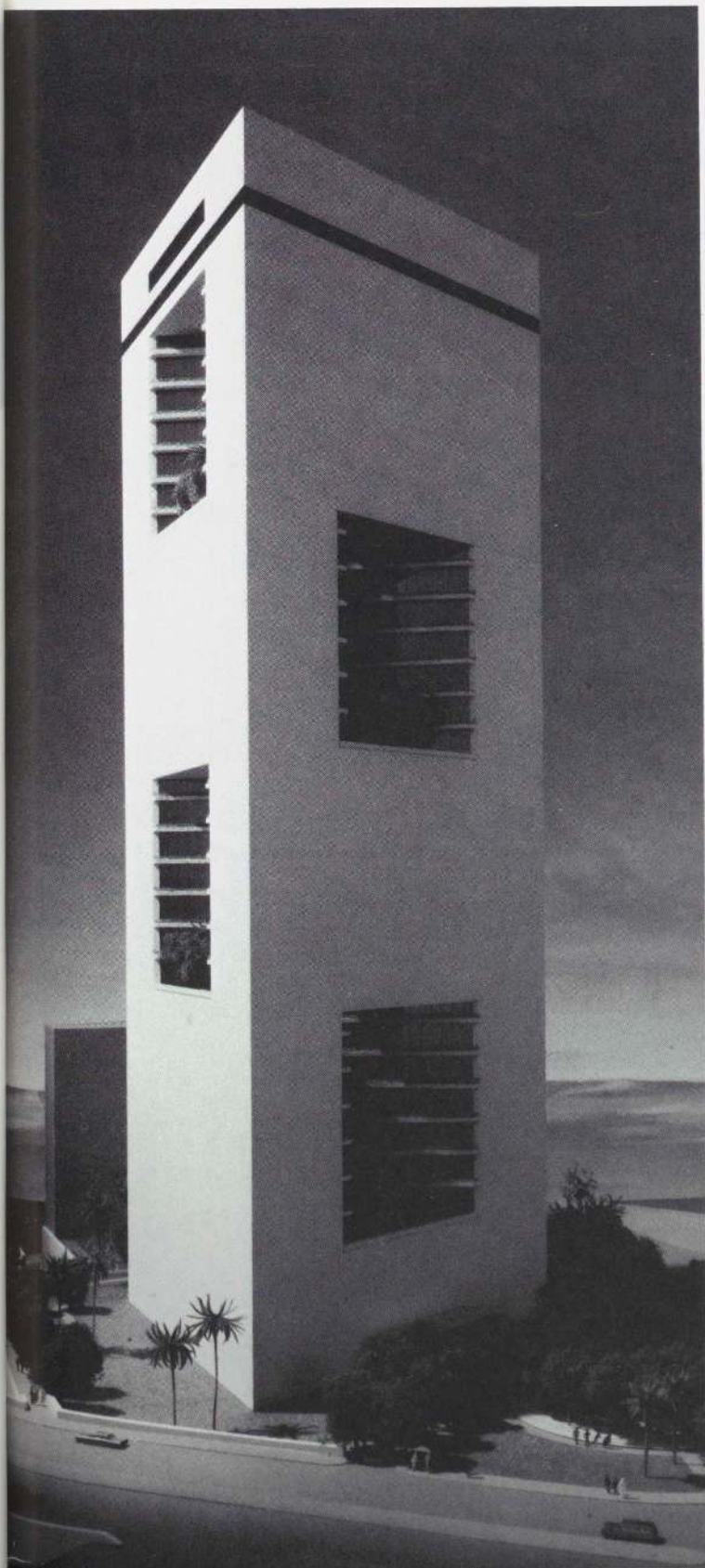
previous page:
View of tower from coast road

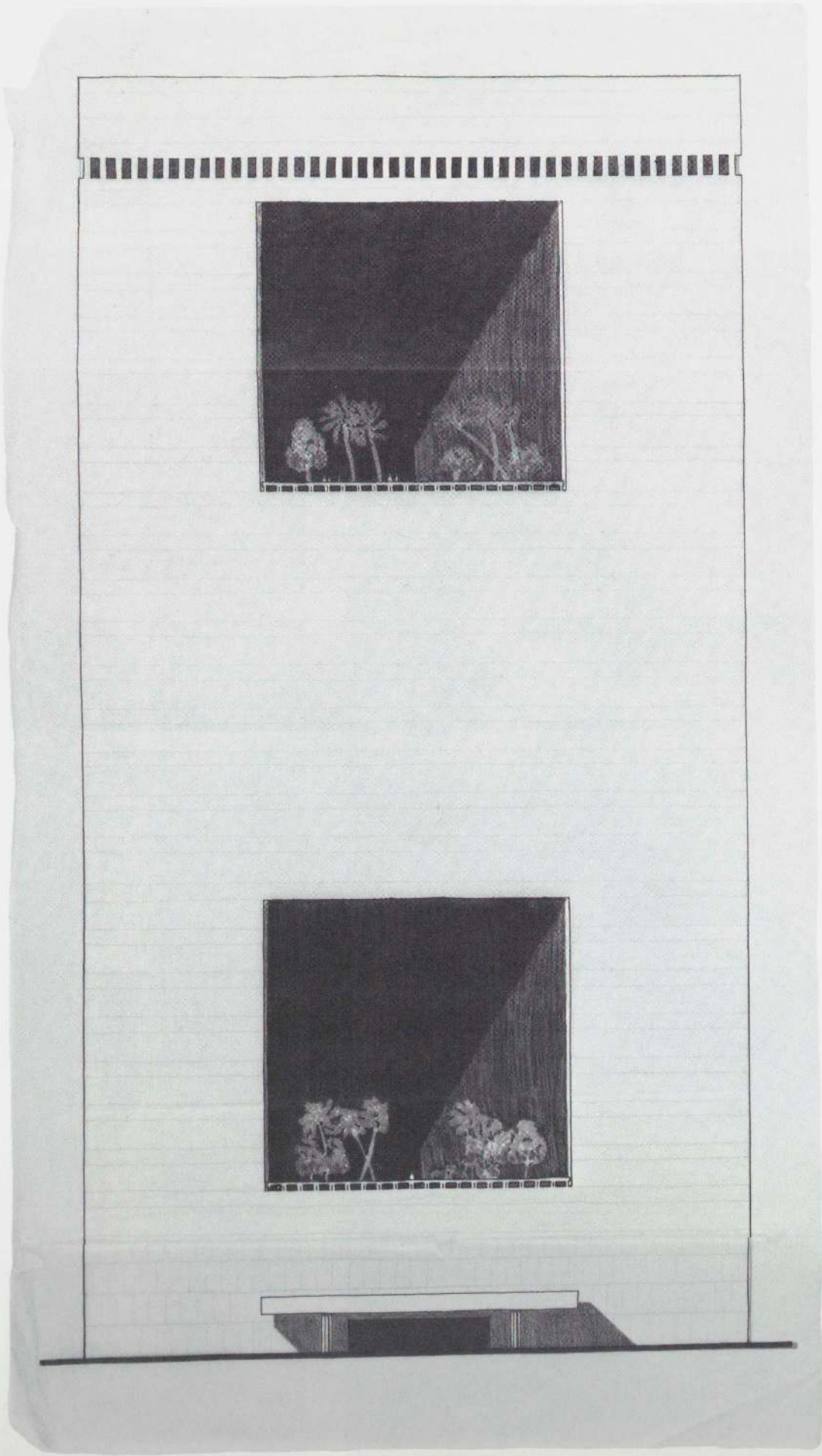
below:
Early studies for rejected scheme with elevators and services absorbed in perimeter walls

bottom and opposite page:
Although the architect intended from the beginning to keep the proportions of the tower low and massive, alternative versions are shown in section drawings with four loggias (left) and five loggias (center); the three-loggia version (right) is essentially as built. Glass-walled office floors with masonry banding are conspicuous detail in models of preliminary studies.



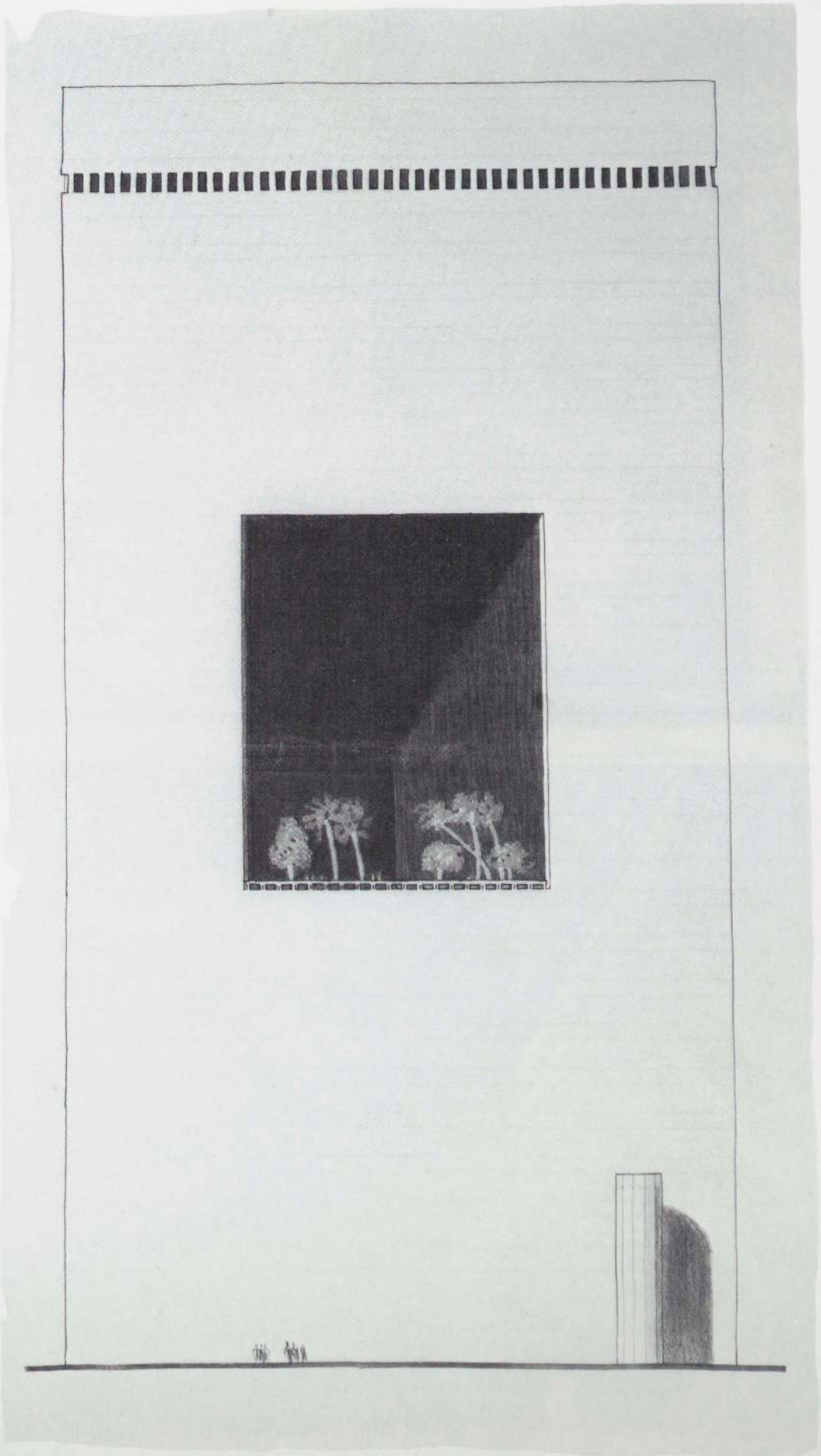
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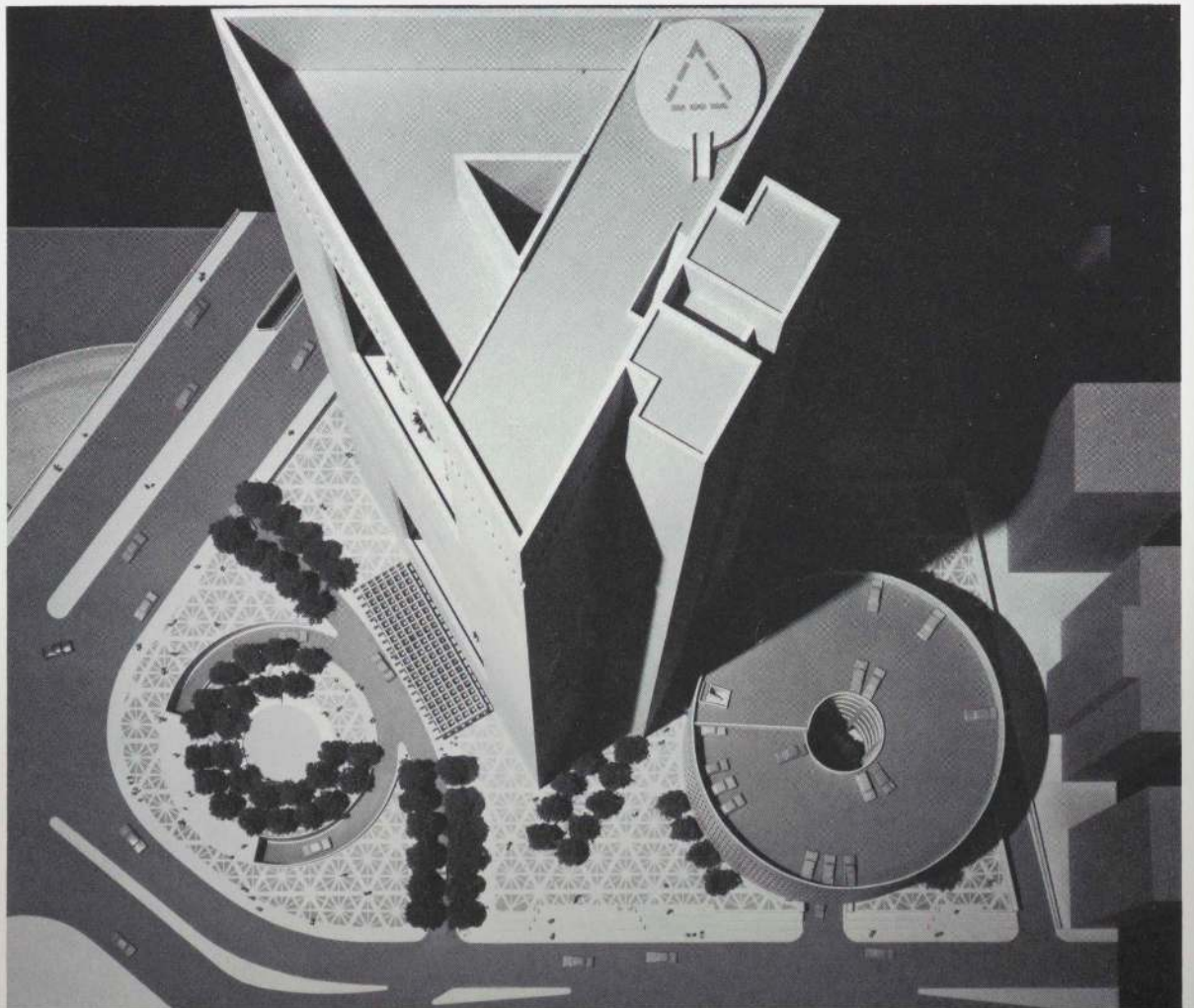
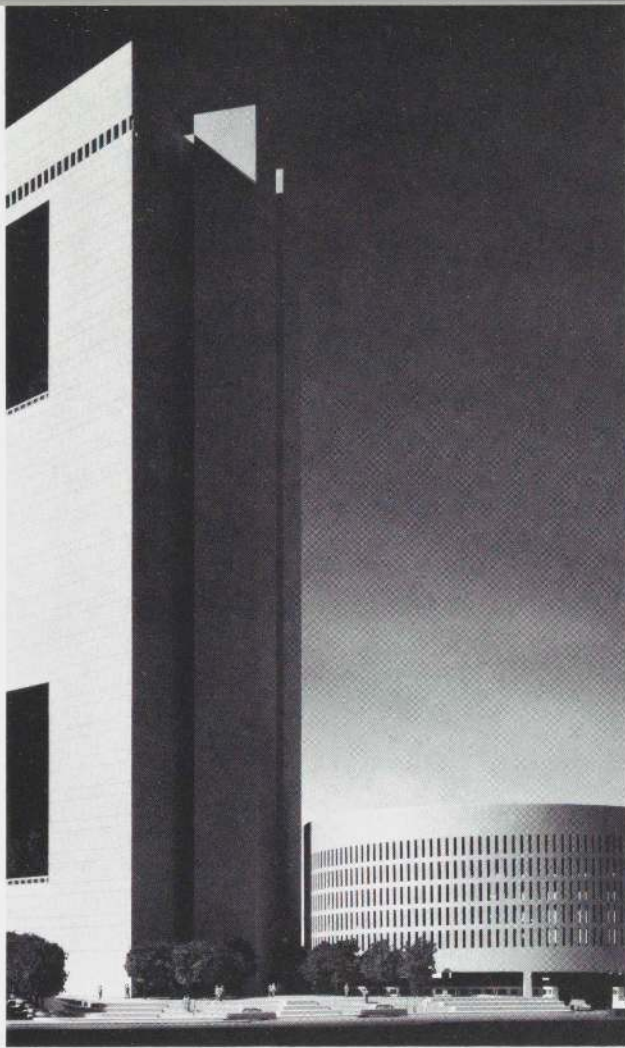




right:
Main elevation. Canopy marks main entrance to bank; colonnade at top shields terrace at executive-office level.

far right:
Small octagonal tower contains fire stairs for banking hall and mezzanine.

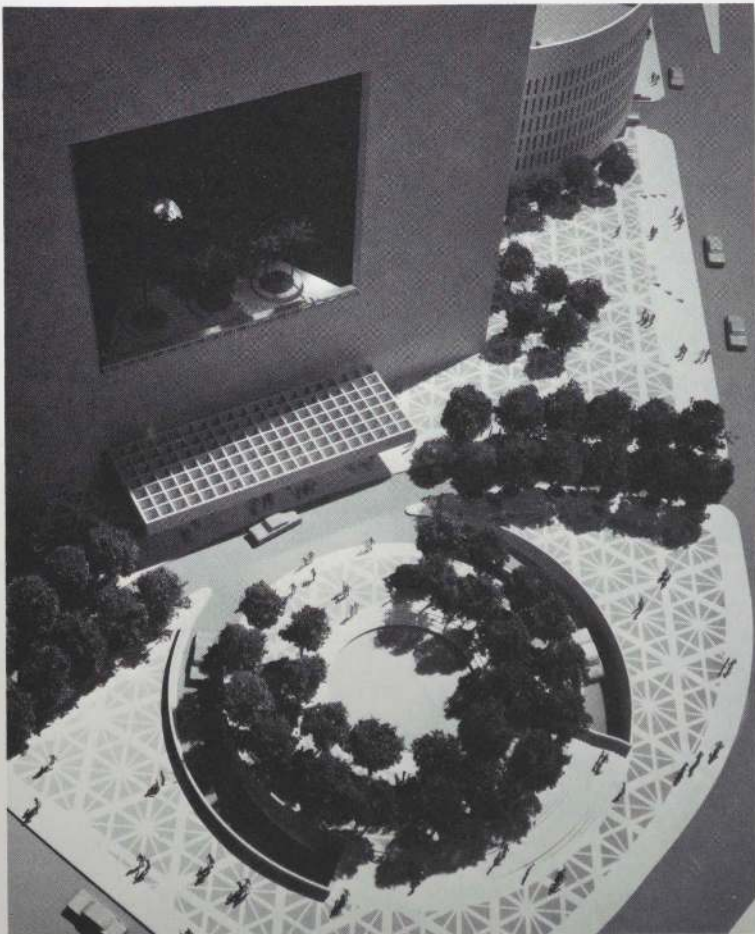


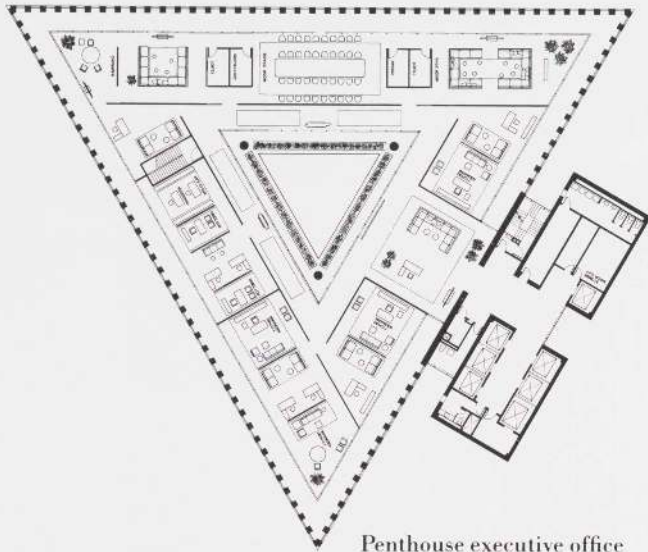




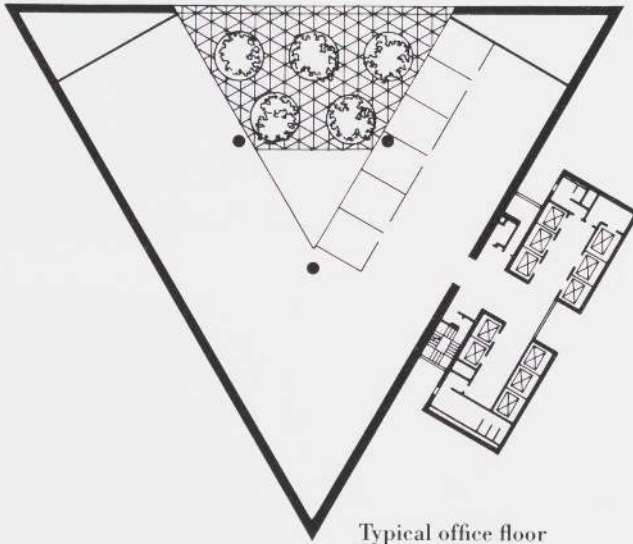
opposite page:
Model. Rectangular shaft abutting tower contains elevators and services; low circular structure is four-story garage. Opening at center of roof admits light and allows escape of warm air from each of the three loggias.

left and below:
Model. Detail views of entrance plaza

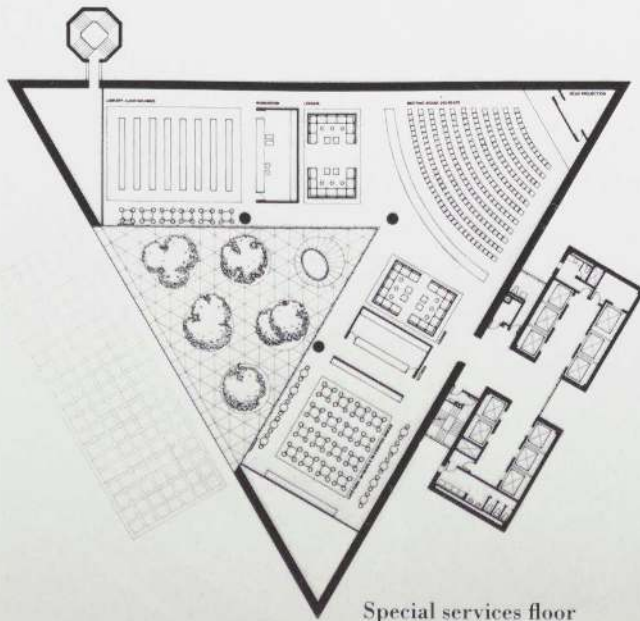




Penthouse executive office



Typical office floor

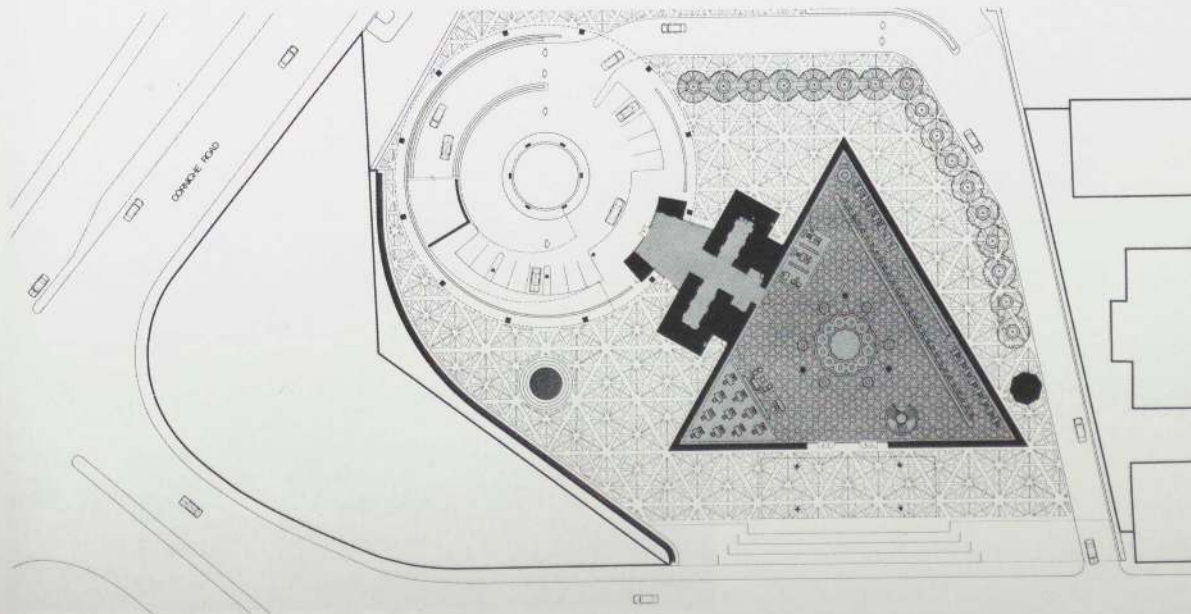
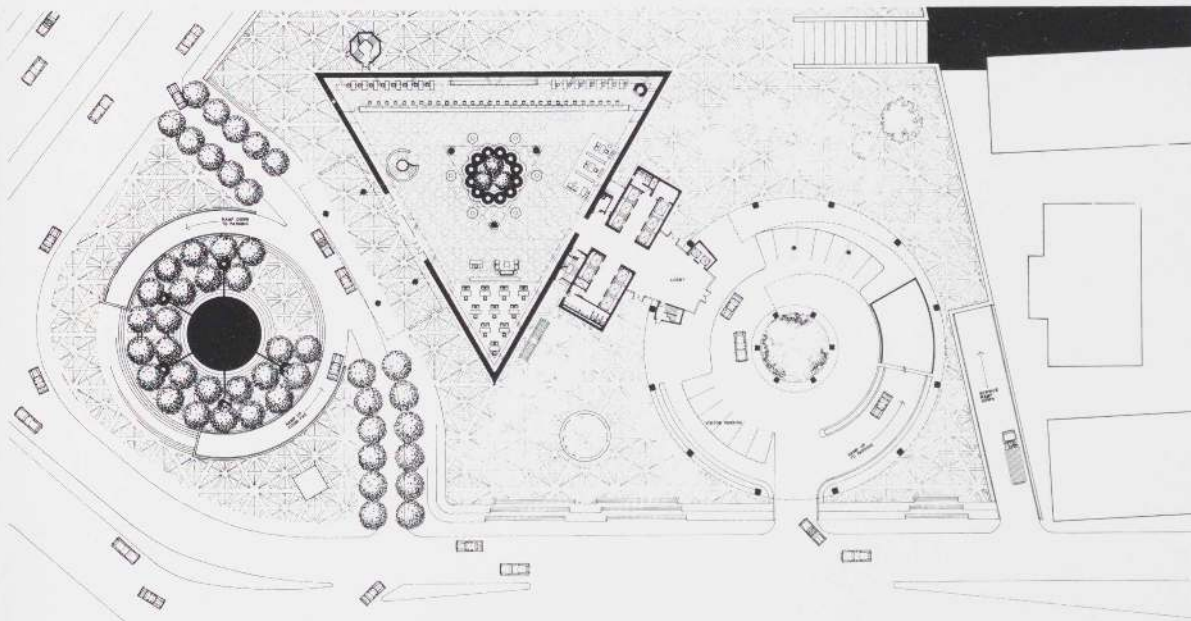
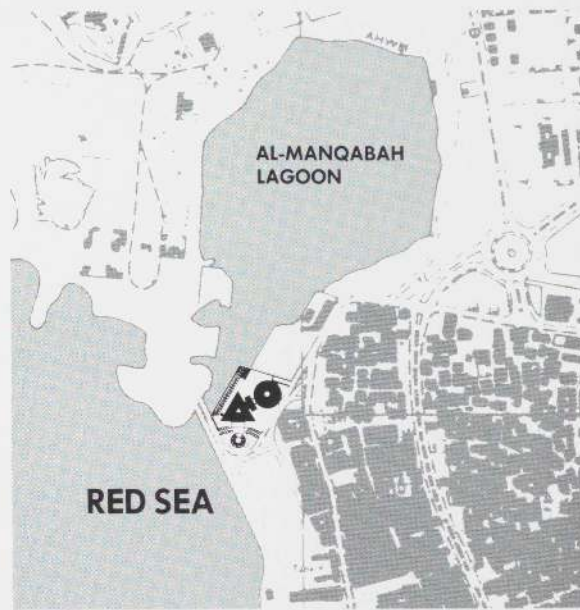


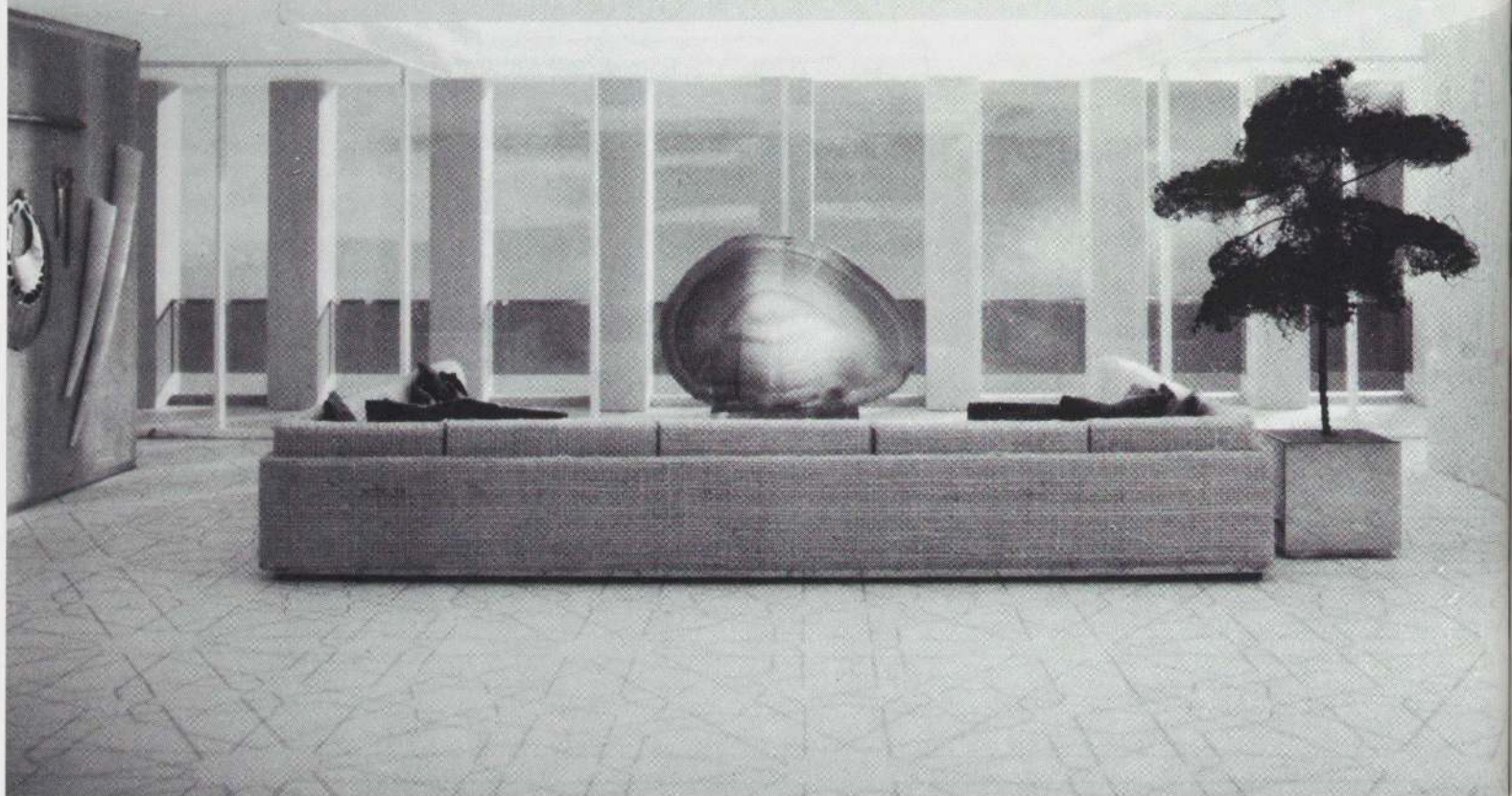
Special services floor

top:
Site plan, Red Sea at left

center:
Plan at ground level, with banking hall

bottom:
Site as revised, with corner given over
to other usage. Locations of tower
and garage are reversed and tower
is reoriented.





above:
 Model. View through reception area in executive penthouse level, looking toward colonnade and covered terrace

right:
 Model. Banking hall with mezzanine floor held free of perimeter walls

far right:
 Detail model of upper section of building, with penthouse floor removed, shows final design of balconies to facilitate window cleaning. Triangular opening at top runs from bottom loggia to the roof for air circulation.







December 1982 photographs of building in construction show its monumental scale in contrast with modern buildings of conventional curtain-wall design. Wall cladding is precast concrete panels covered by travertine slabs. Colonnade at top (right) is unfinished; proportions of large openings in blank walls relate to indigenous architecture.





International Place at Fort Hill Square

Boston, Massachusetts. 1982–

Client: The Chiofaro Company

Johnson/Burgee Architects

For the purposes of this exhibition the Fort Hill project has been considered as one building, although in fact it is two buildings designed to look like six—or seven, if the enclosed plaza that connects them is also included. Making one thing look like many things is the point of the design.

Intended as a New England counterpart to New York City's World Trade Center (over nine million square feet gross), the buildings will comprise two million square feet above ground, exclusive of the covered plaza. The design is based on several judgments about large-scale urban architecture, particularly as it responds to irregular or curved street patterns. Johnson states that "the objection to placing regular rectangles on an irregular site is the misproportion and meaningless shape of the leftover spaces," and that "the demand of 'modern' architecture for rectangular buildings is one of the reasons for the decline of that very bland and featureless style."

Given the irregular angles and curves of the site, Johnson began with a curvilinear, vertically segmented design comprising two large and almost identical buildings, their sleek sculptural forms well within the canon of modern architecture in its streamlined mode (page 36). But as the studies progressed he moved from a conceptually abstract scheme to versions designed as urban stage sets. The first three studies break the large masses into smaller extensions meant to be read as modulations of a single theme. With the introduction of rectangles the final version abandons continuity in favor of maximum contrast.

In Johnson's words: "To reduce the scale each building is divided into three separate elements... and the facades are treated in two entirely different spirits... We think we have succeeded in creating simplicity and complexity; high buildings and intimate pedestrian space; large buildings and the appropriate scale in Boston."

The description seems reasonable enough until one looks at the actual result, which to many architects is likely to be unusually irritating. The composition systematically violates precepts of architectural coherence and yet does achieve an order of its own. The massing of the six "buildings" is meant to be misleading. There are only two buildings, but

each of them trails appendages meant to look like completely separate elements. Externally the forms appear to abut, or pass through, or bite into, one another with deliberate ambiguity, and facade treatments are even more capricious.

The Palladian window, which in classical usage was meant to give rhythmic variety to an extended facade, Johnson uses like wallpaper: a pattern repeated with mechanical regularity. The round towers are faceted in bays conforming to the actual granite-clad steel structure, and within each module transparent gray-tinted glass is framed by bands of opaque mirrored glass. But this strong pattern is contradicted by an overlay of the Palladian-windowed masonry wall running from top to bottom of the towers and incorporating their street entrances; and by the removal of a segment of each tower, as if a large portion had been sliced from the side of a tall cake. The slice reveals that what lies beneath the icing is another kind of icing: a slick curtain wall of mirrored glass.

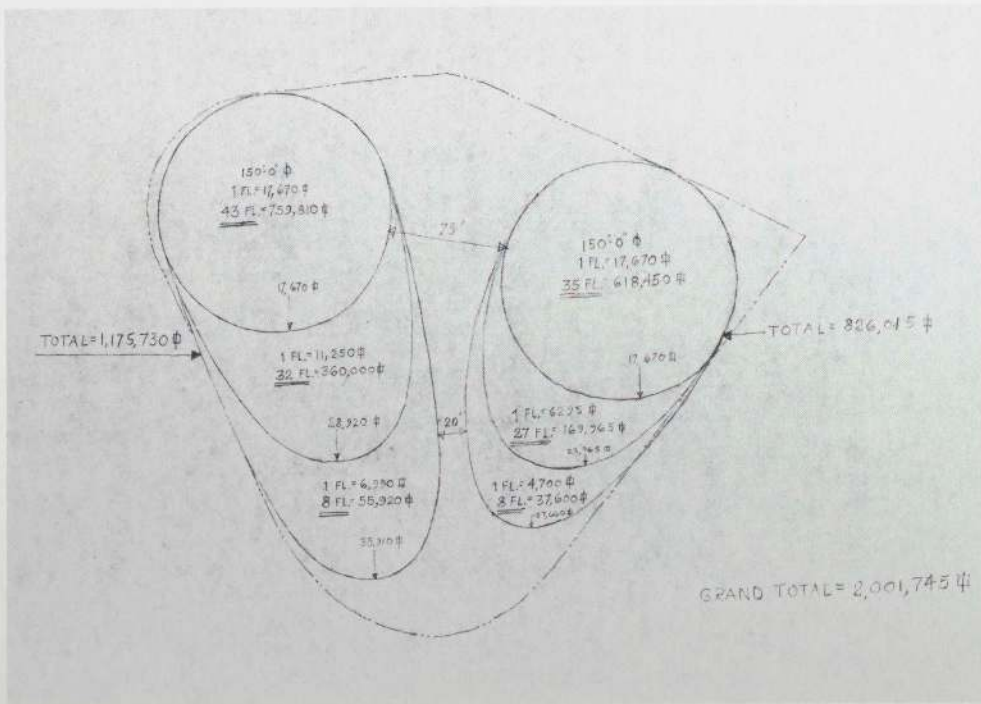
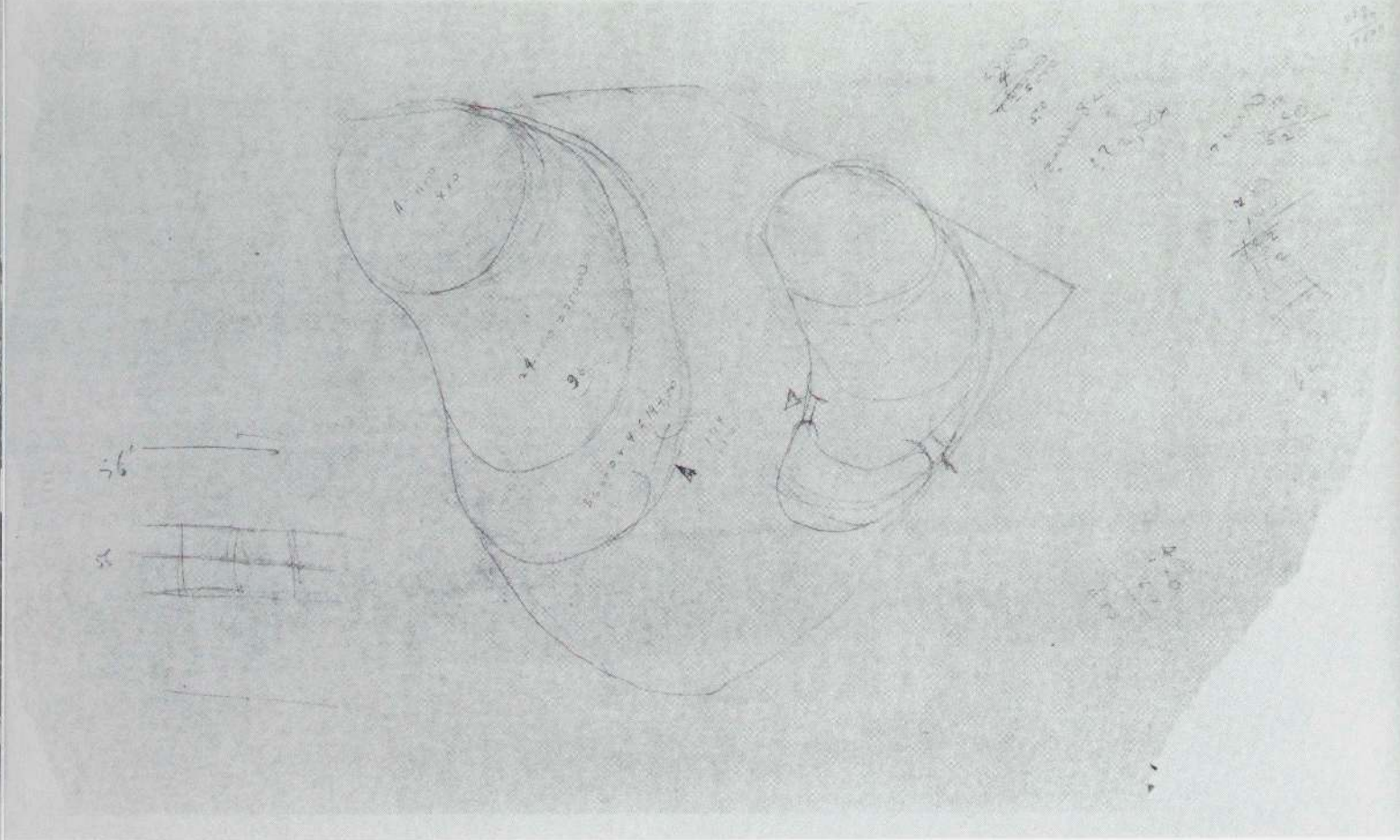
There are thus three kinds of buildings sharing three kinds of facades, but the distribution of materials and patterns is both logically descriptive (masonry for rectangles, glass for cylinders) and descriptively illogical (masonry overlaid on glass cylinders, one kind of skin cut away to reveal another kind of skin). What makes this project more than an anthology of eccentricities is that it achieves its goals: it does modulate urban scale; it does solve its site problems; it does provide variety and interest; and it most certainly demonstrates that there is more to eclecticism than the average eclectic dreams of.

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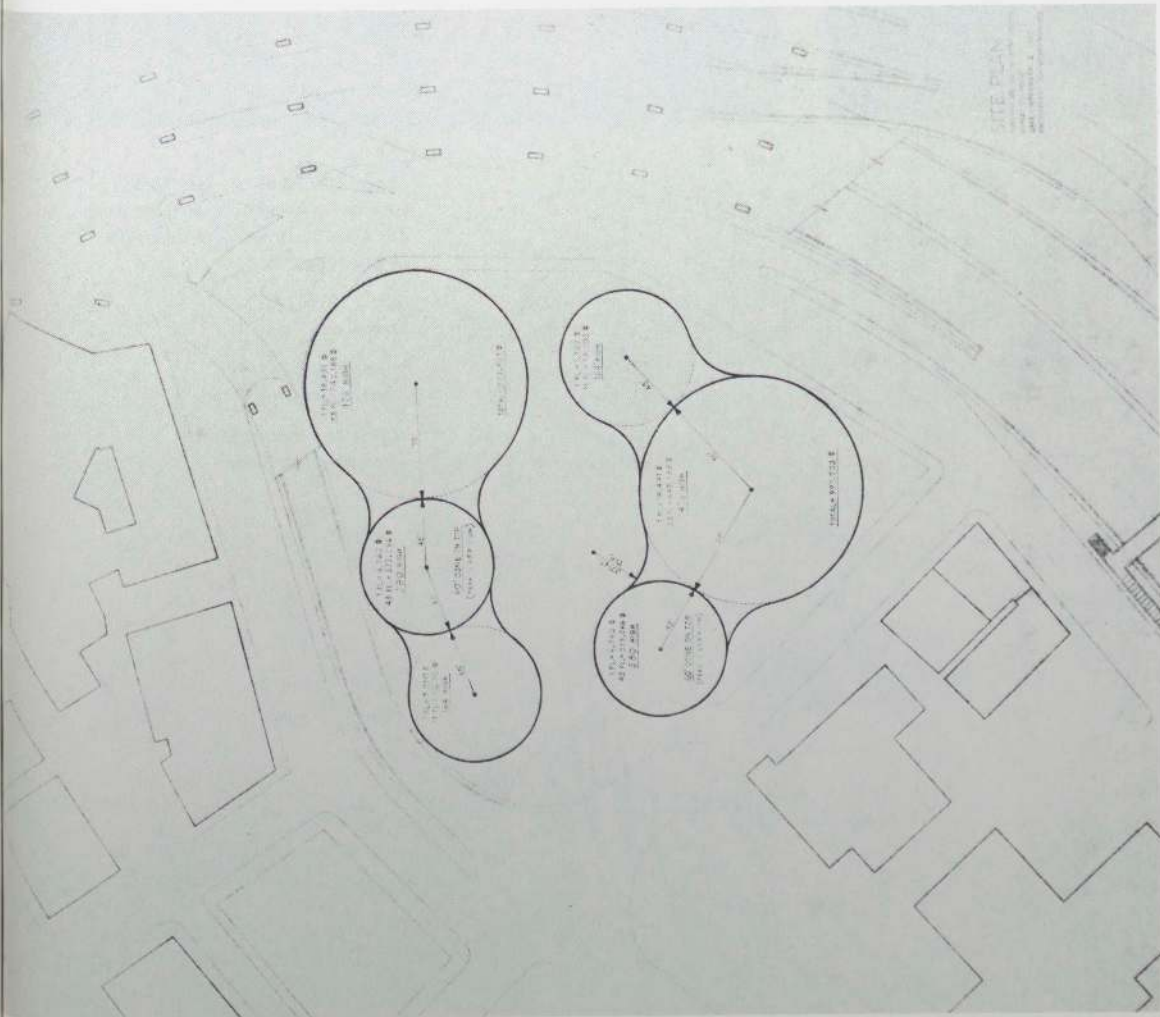
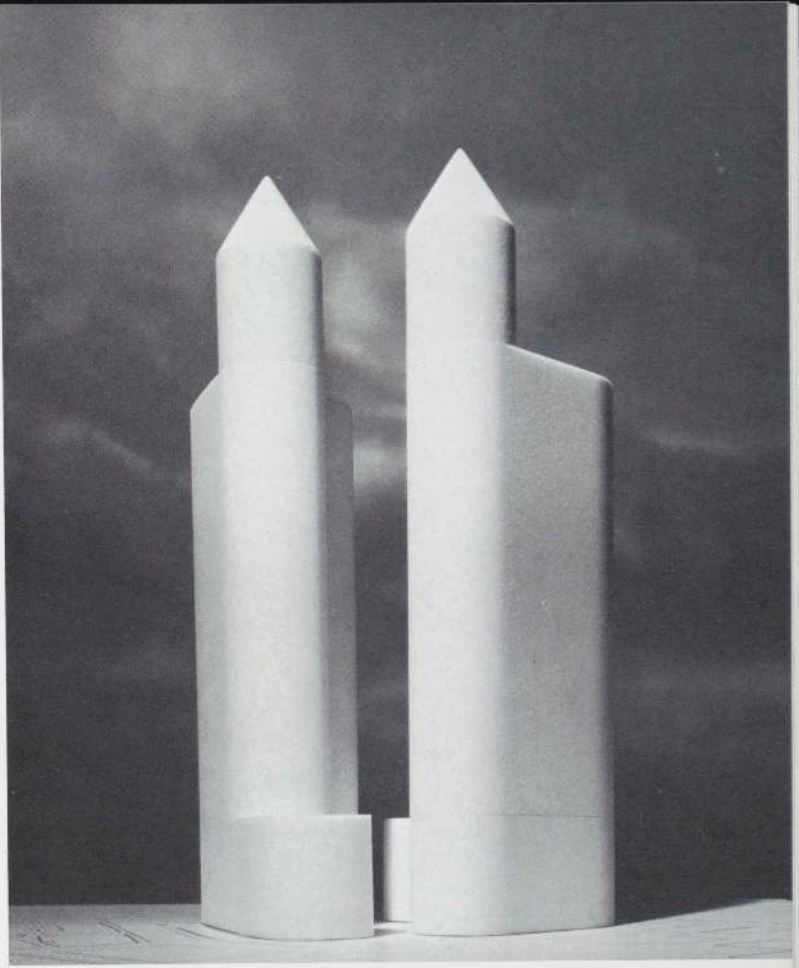
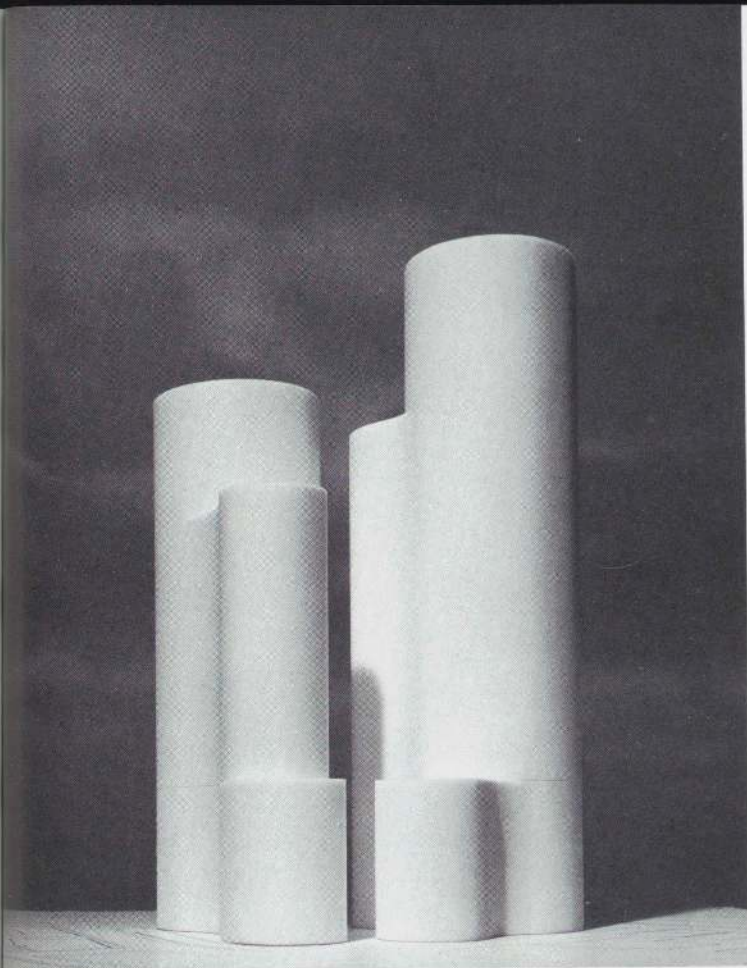


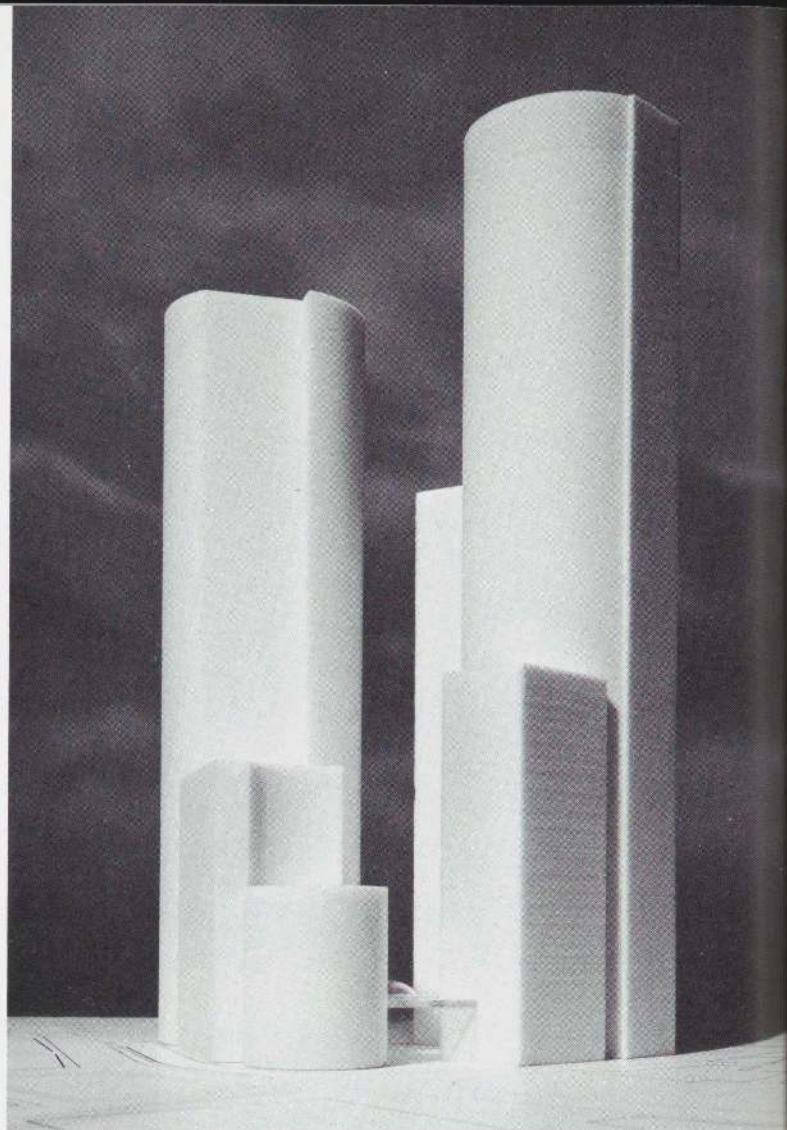
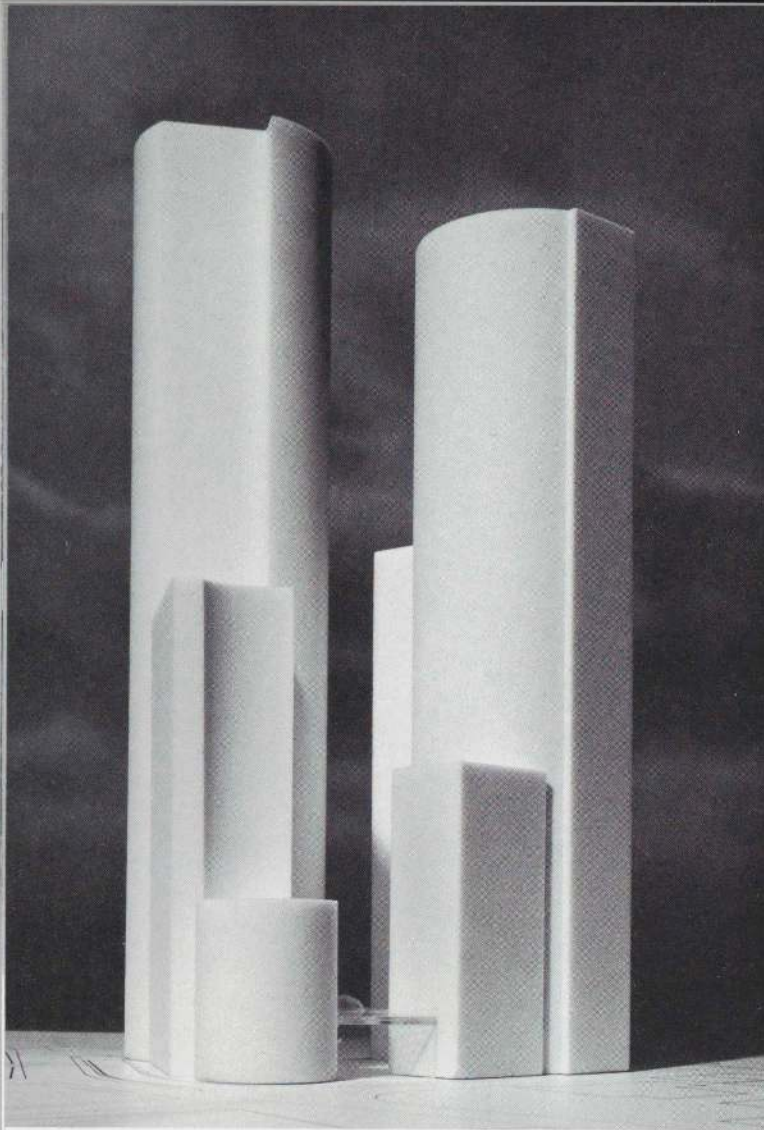


preceding page:

Model. View from southwest corner. First phase of construction is tripartite building on right; heights of various elements have been changed.

Preliminary versions (above and left) show tiered, semicircular massing of two towers, with lower units at south end of site. Plan on opposite page corresponds to model in photo at top left; photo at top right shows massing transformed to make composition more fortresslike.



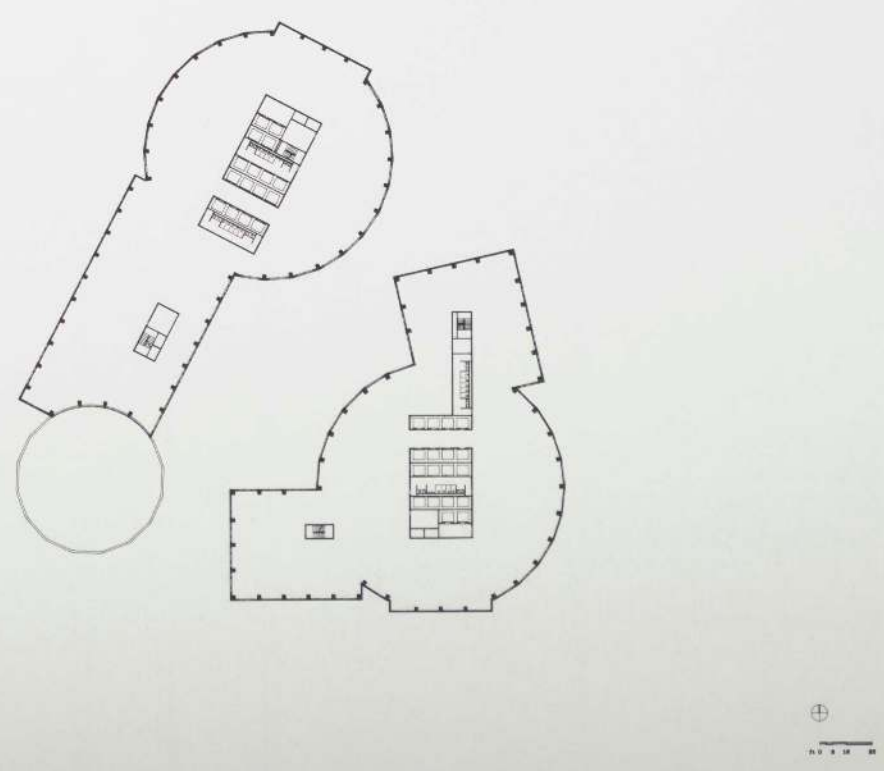
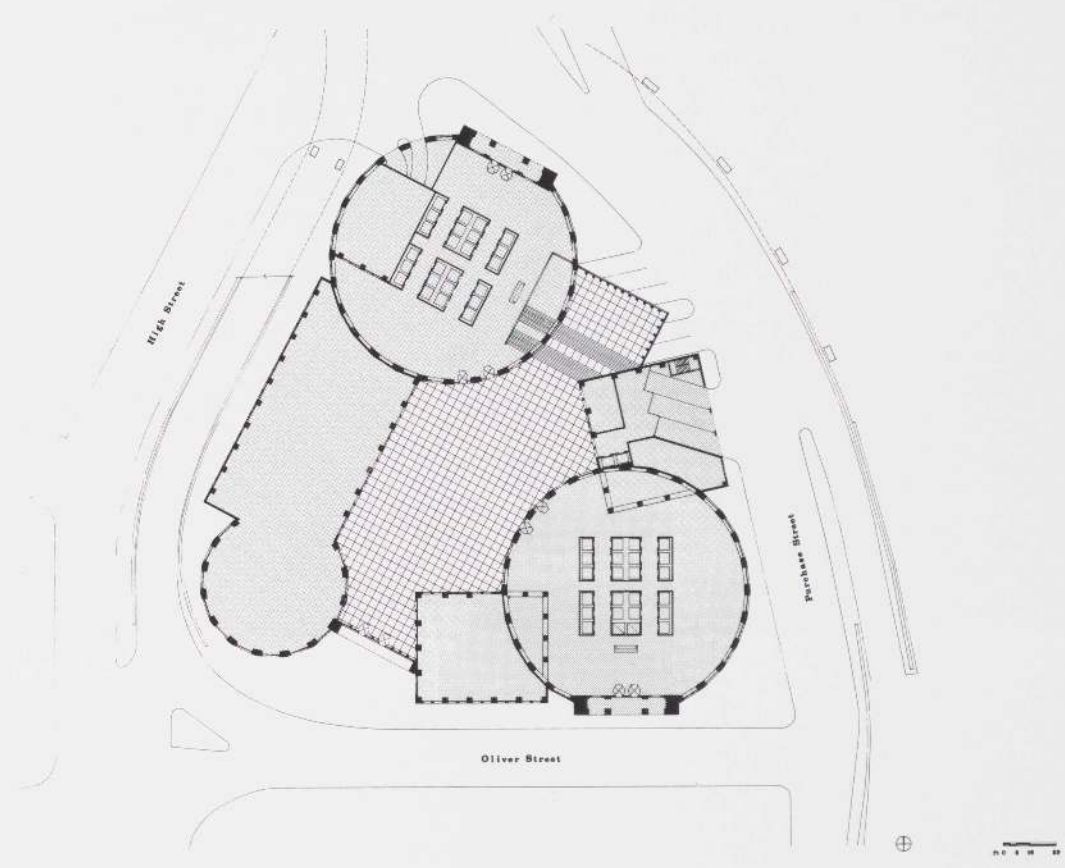


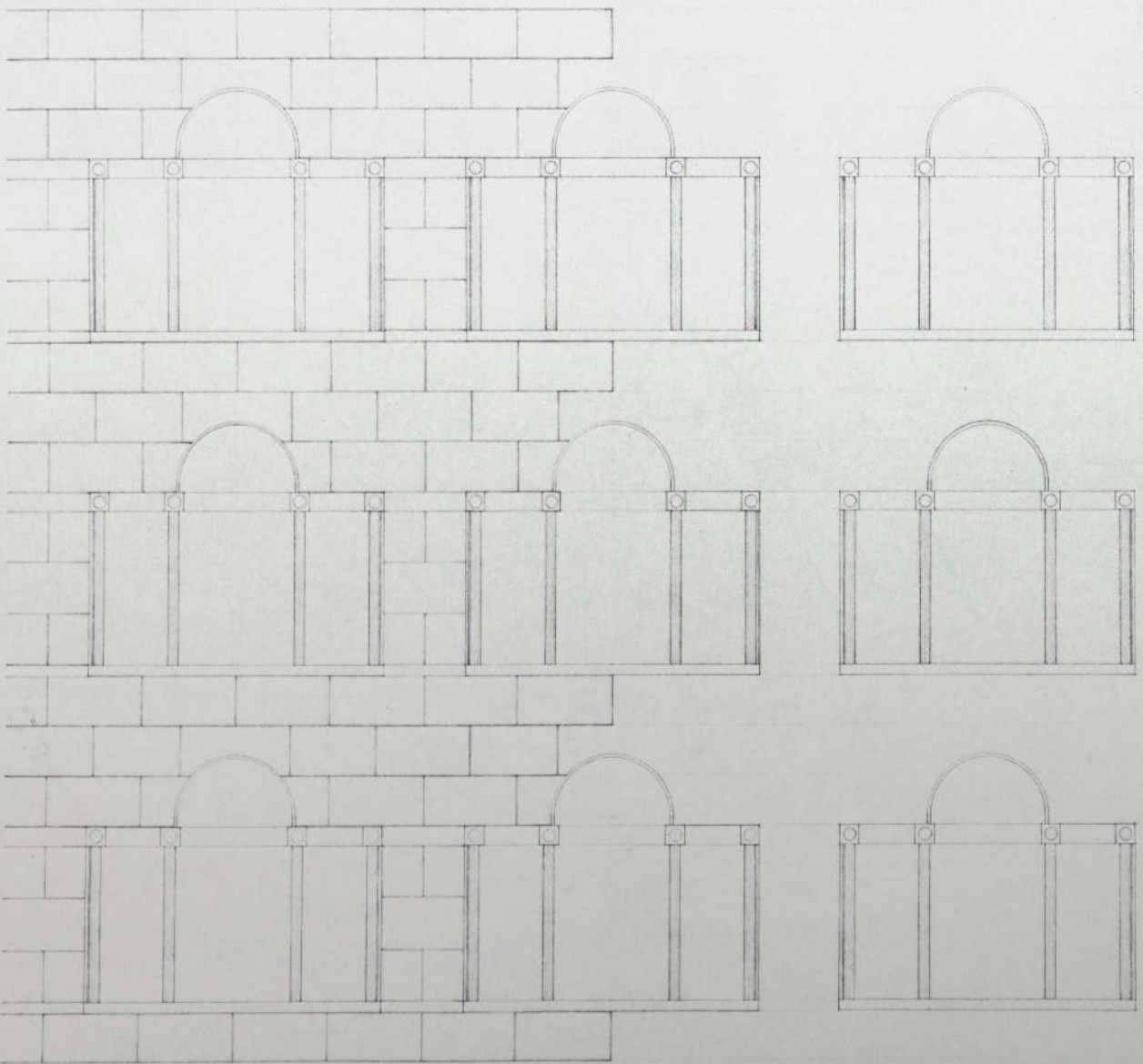
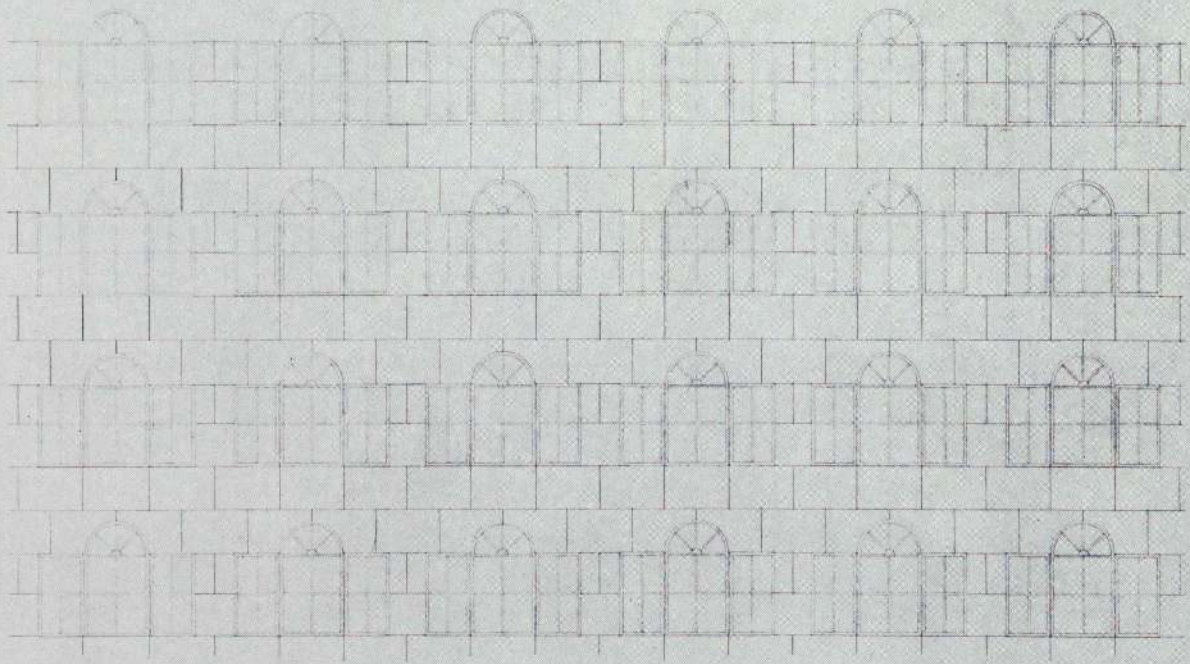
Model photo at top left corresponds to version shown on page 35. Photo above is final design of massing.

left:
Site plan

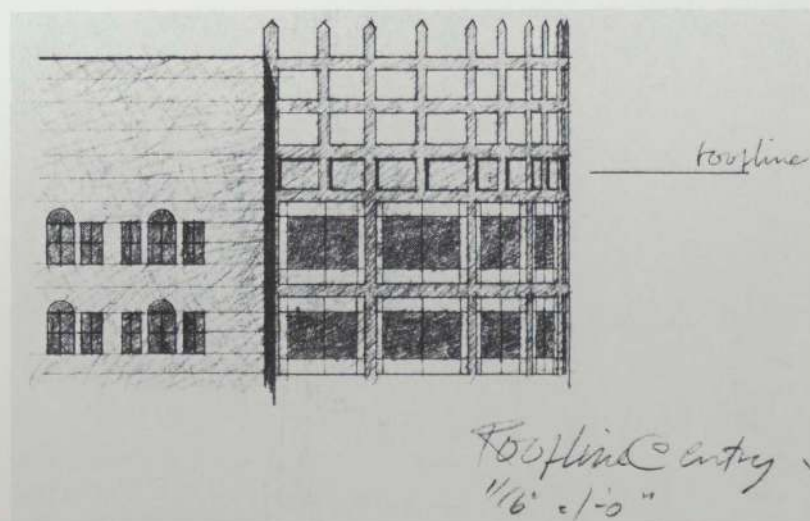
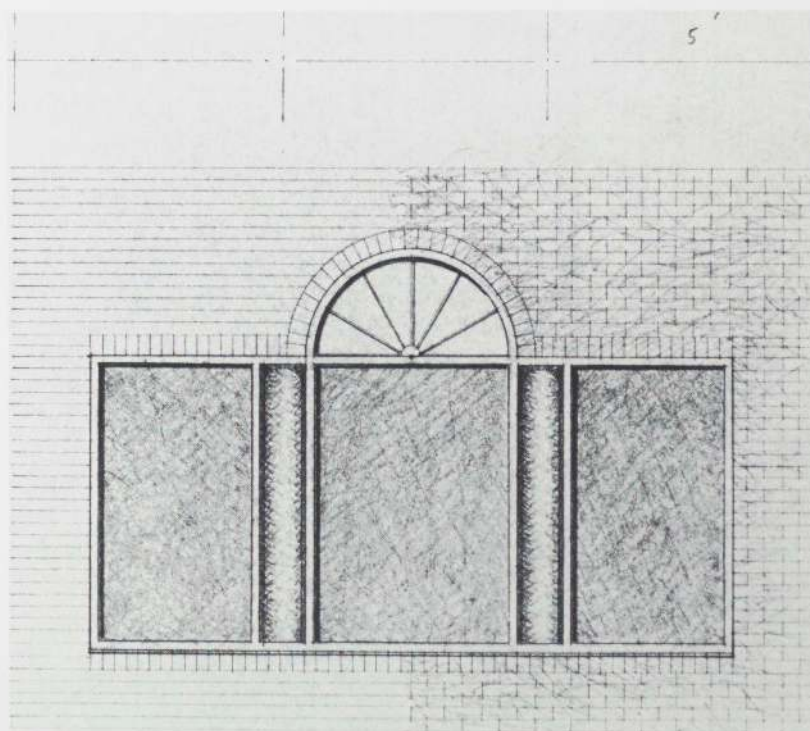
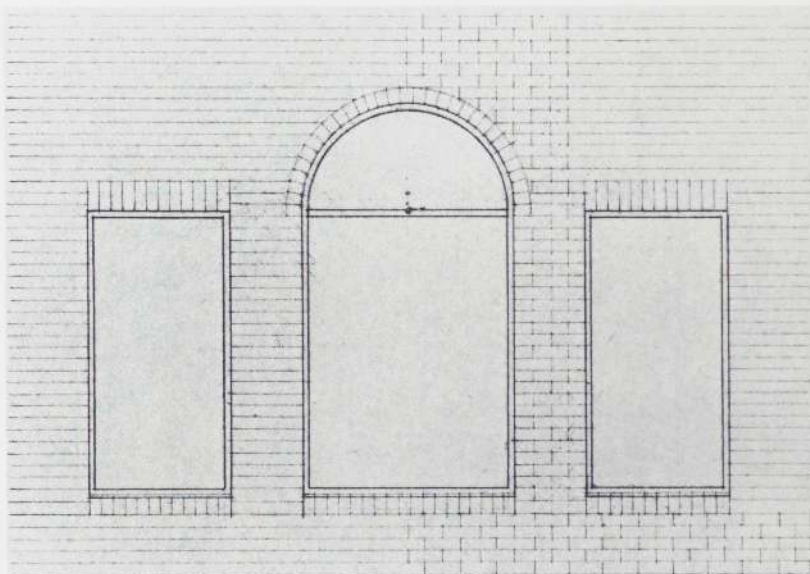
opposite page top:
Plan at ground floor

opposite page bottom:
Typical office floor

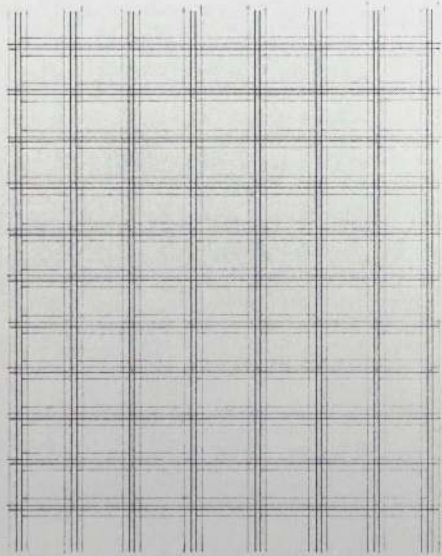
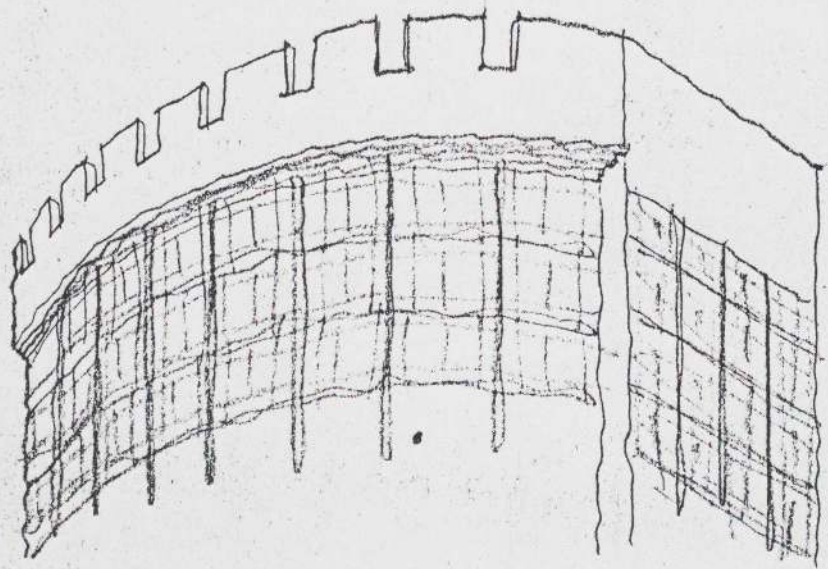




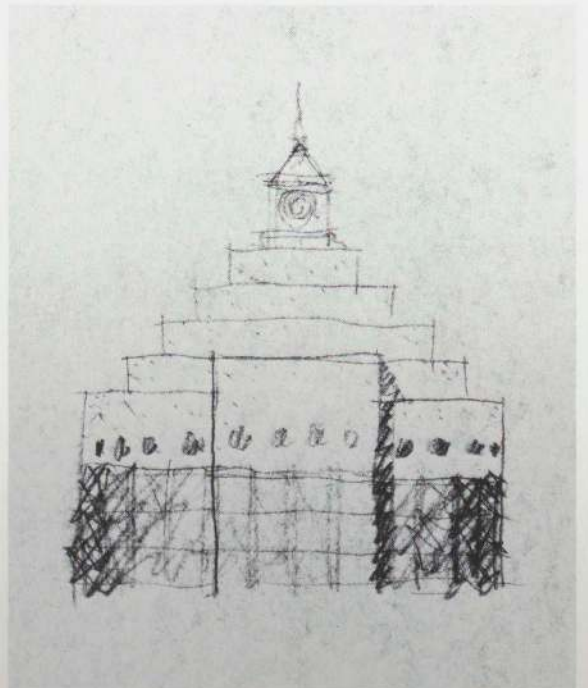
Elevation studies for treatment of Palladian window. Drawing at bottom right shows window pattern juxtaposed with tower fenestration. If windows are kept large, semicircular head of central bay cuts into ceiling. Final solution is likely to be decorative semicircular glass panel applied to facade.

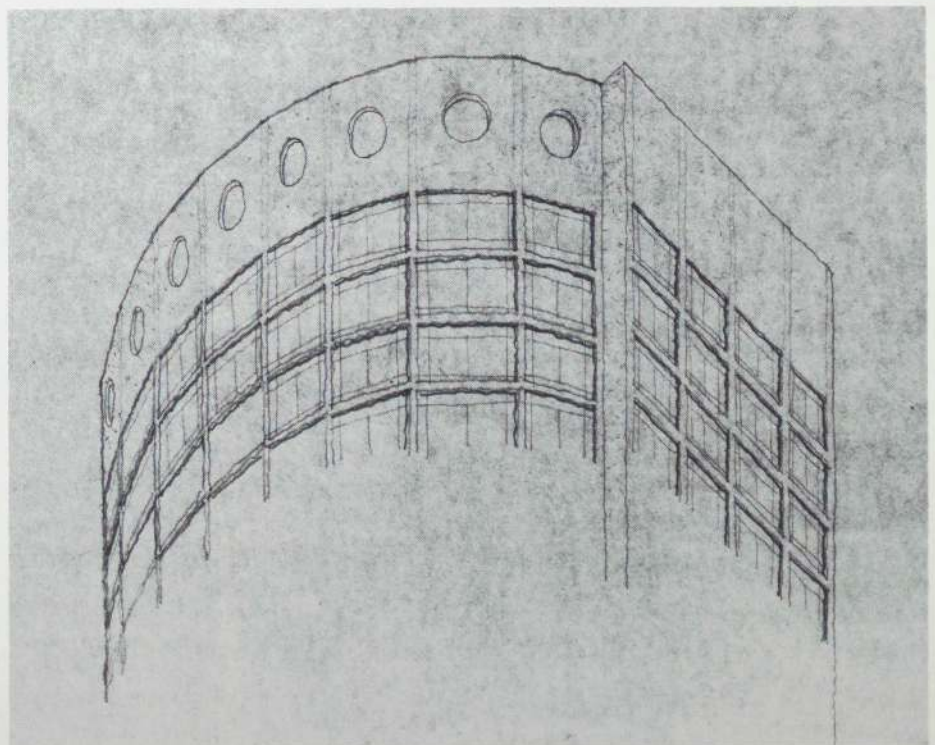
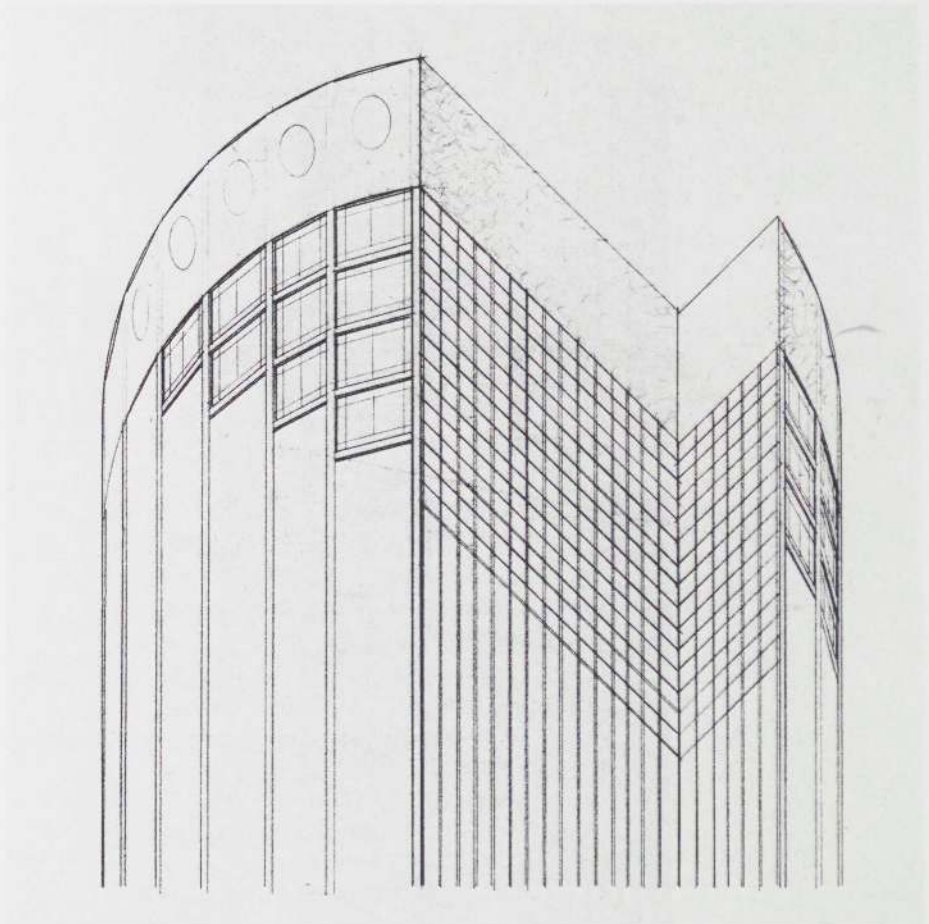


find this ugly
Philip



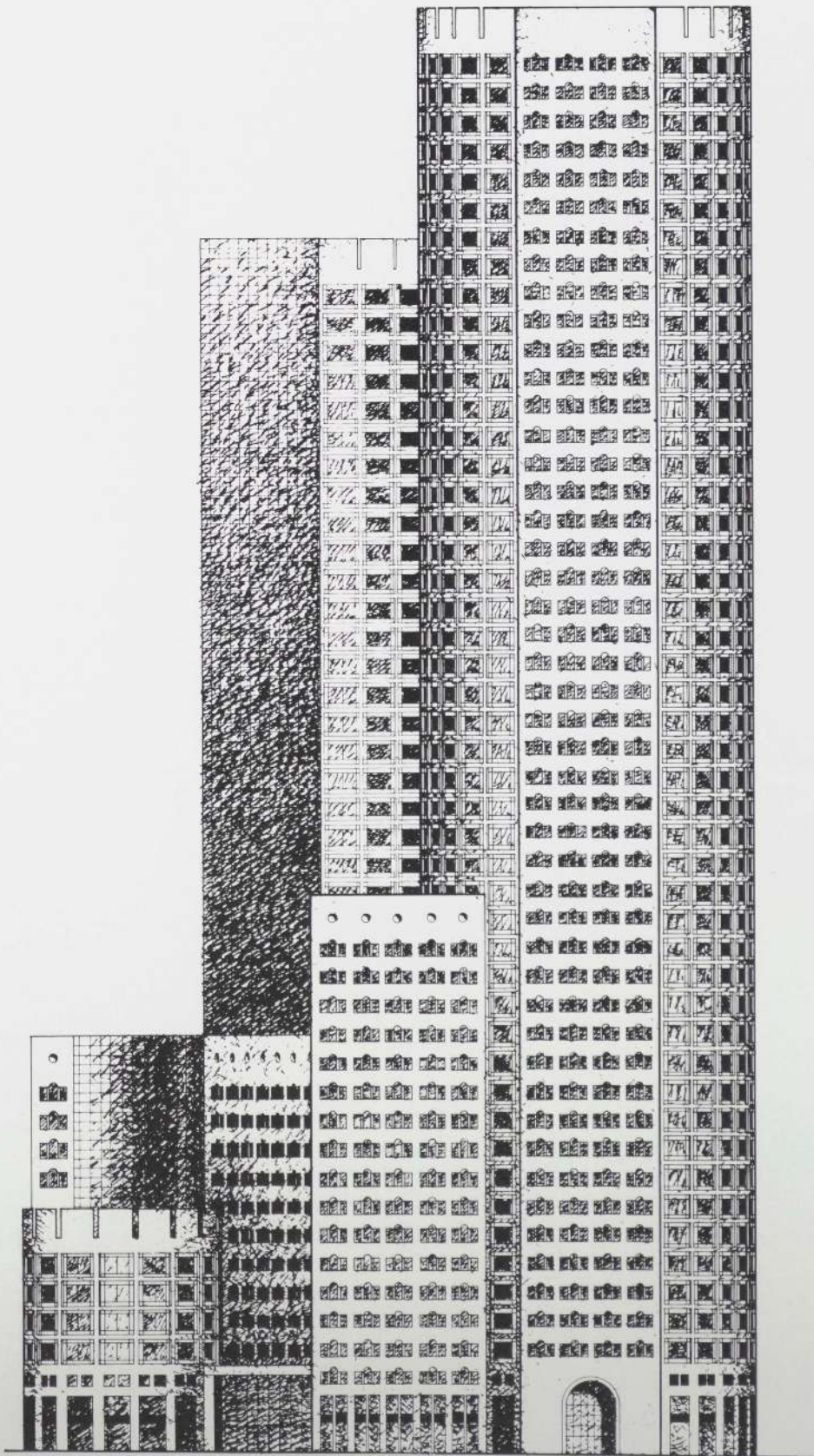
(A) Amal and design
c. 1/4 cylinder

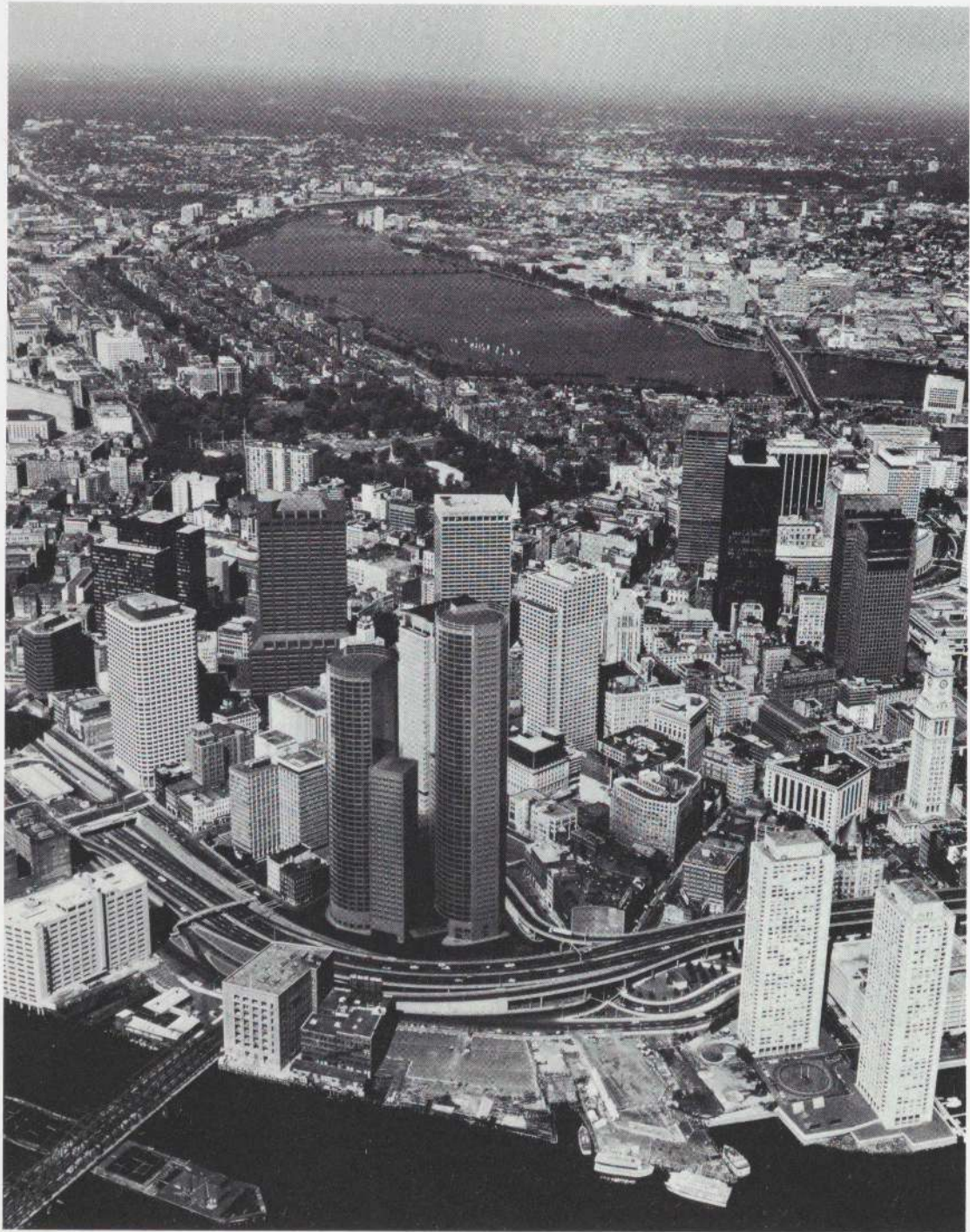




Elevation and roof-line studies for towers
following two pages:
Perspective and elevation drawings







above:
Photomontage of model in Boston site

right:
Detail of model showing juxtaposition of Palladian window with grid pattern of cylindrical towers



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