

CAMDEN PLAZA: A Mixed-Use Megastructure

This thesis submitted to the
faculty of the
Virginia Polytechnic Institute
and State University
in partial fulfillment of the
requirements of the degree of

MASTER OF ARCHITECTURE

approved by:

Gregory K. Hunt, Chairman

William W. Brown

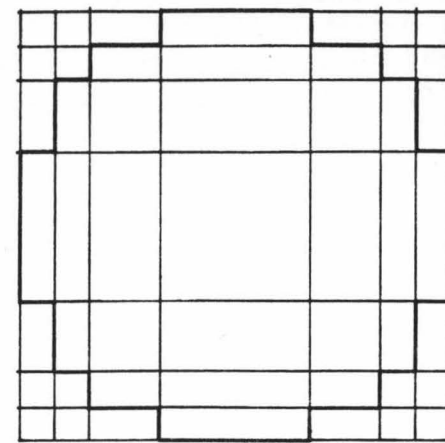
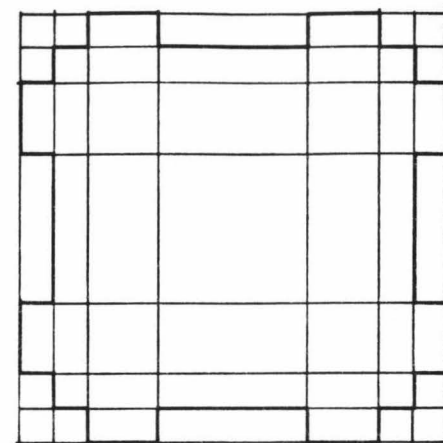
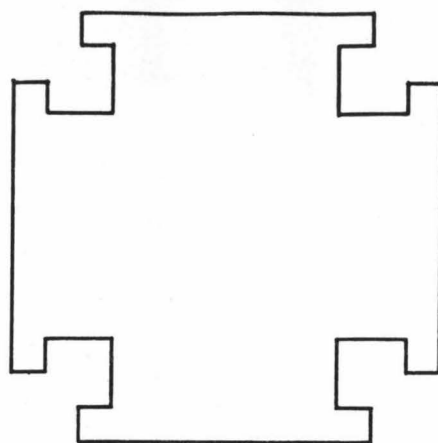
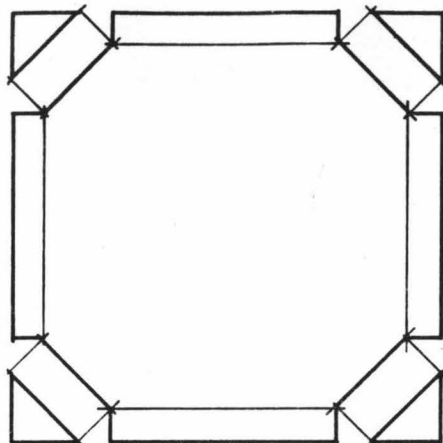
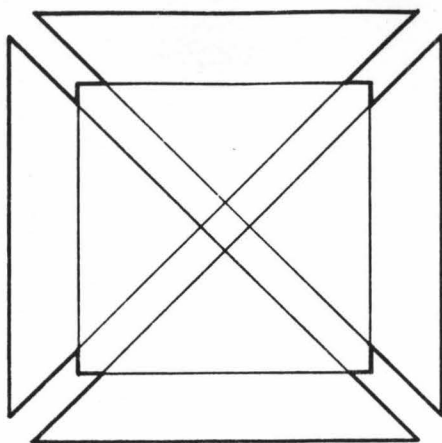
D. Eugene Egger

Guenter Lehman

1986, July
Blacksburg, Virginia

Abstract: Camden Plaza

A twenty-five story, 200,000 square foot mixed-use complex on the edge of Baltimore's downtown office district. A building system reminiscent of the Japanese Metabolists' is developed, but with less of a preoccupation with "high-tech" imagery. This system is manipulated to produce plazas and public spaces at many levels throughout the complex. The complex's relationship to the 1855 Camden Station is also a major issue.



Dedication

Although it is said that a man is the product of all that he has experienced and learned, there are always those people or experiences which have been major influences on him. It is to these people and experiences in my life that I would like to dedicate this book:

To my professors and colleagues who have guided and supported me in my studies. To my parents for all the sightseeing on summer vacations, for the trip to Expo '67, for giving me the means to study in Europe, and for their loving patience throughout my long career as a student. To my sister for her graphic assistance as well as her love. And most of all, to my true love, , whose critiques (and model building) and unending love has kept me going throughout this thesis project.

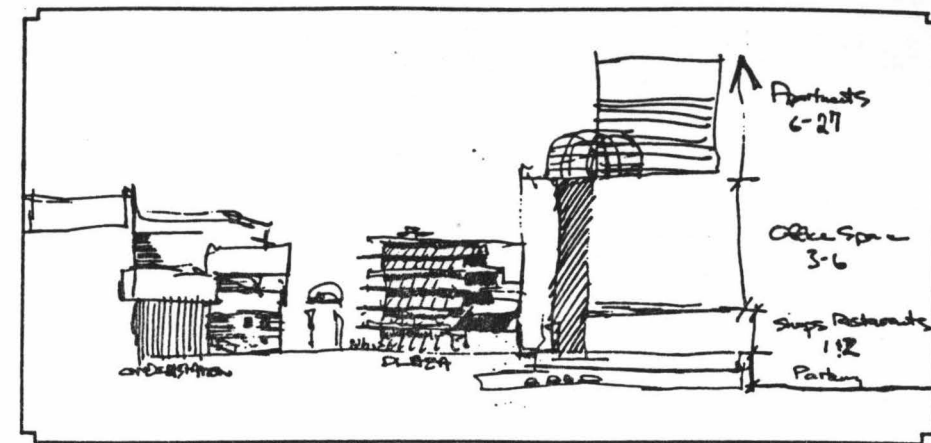
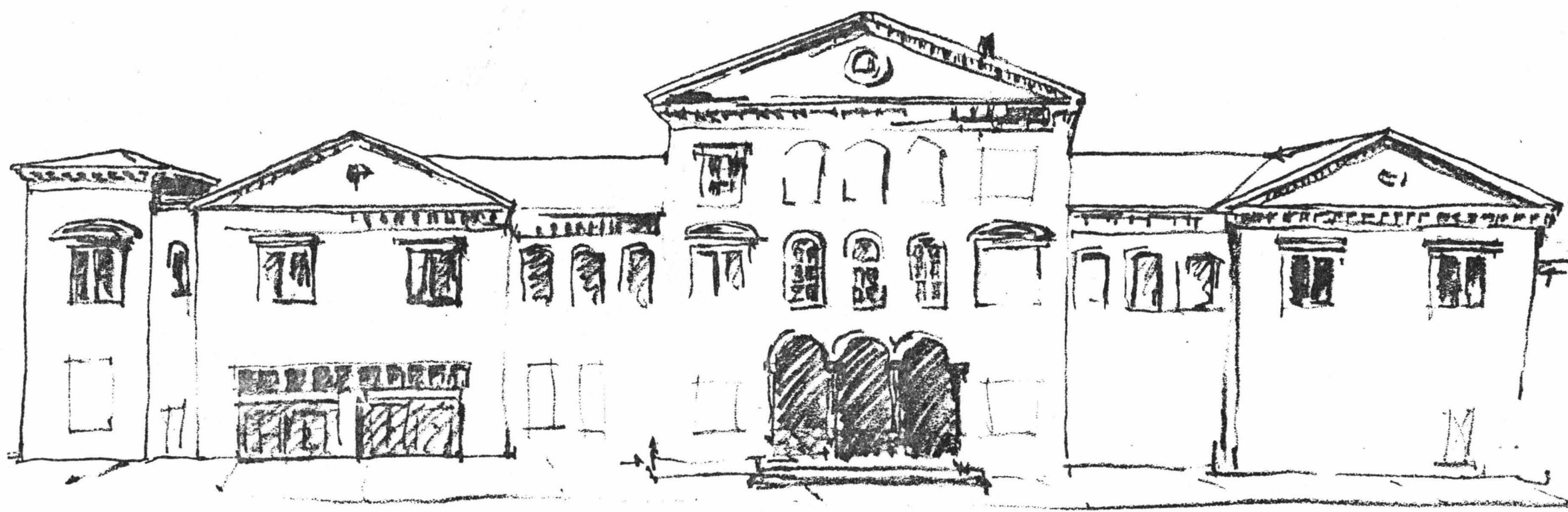
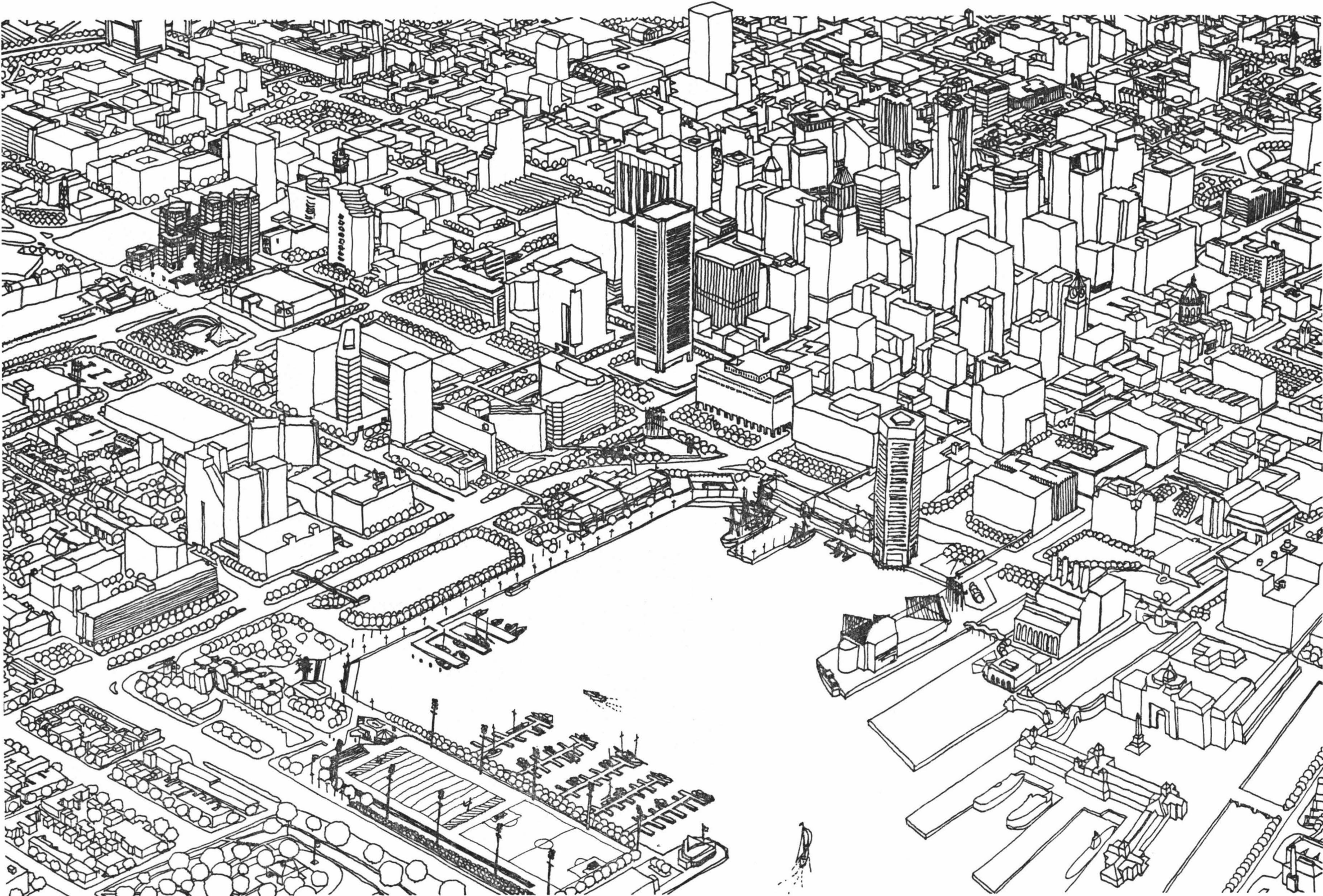


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Downtown
Baltimore



Conceptual Origins

This thesis defines some major problems in the living environments of today's cities and in some of the solutions proposed by others. It attempts, through the synthesis of other architects' ideas and the images that remain from studies in Europe to propose one better solution to these problems.

I wish to propose four major problems in the urban housing environment:

1. The automobile and its related paths have usurped most of the public space between housing.
2. Hi-rise housing separates people from the ground and fails to retain a meaningful connection with it. The elevator has eliminated all intermediate steps and hierarchies.
3. Separation of living, working and service environments increases problems such as traffic and its inherent noise and pollution.
4. Suburban sprawl eats up the countryside-lowering the density of living environments solves problem #2., but creates #1. and #3.

One part of the solution to these problems, has already become popular- the reintegration of peoples' living places with their working, shopping and recreational sites into "mixed-use" structures. This concept was used centuries ago in the towns and cities of Europe. It has only recently been rediscovered and become acceptable in this country because of the "urban renaissance" that took place in the late 1970's.

While hi-rise living has become acceptable to some, I feel the lack of more widespread acceptance is due to the problem of the hi-rise's transition to the ground. It is in this thesis that I wish to address the problem of the lack of transition

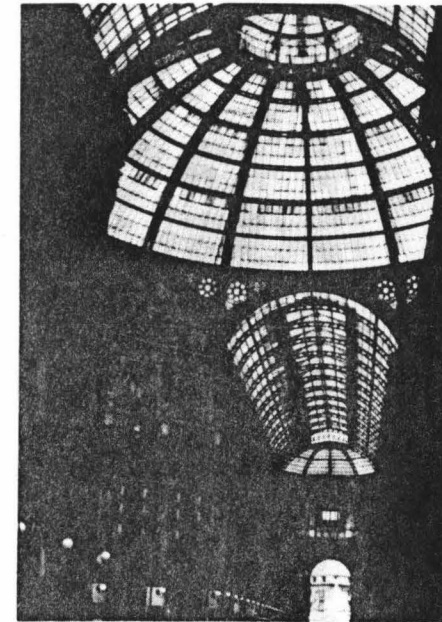
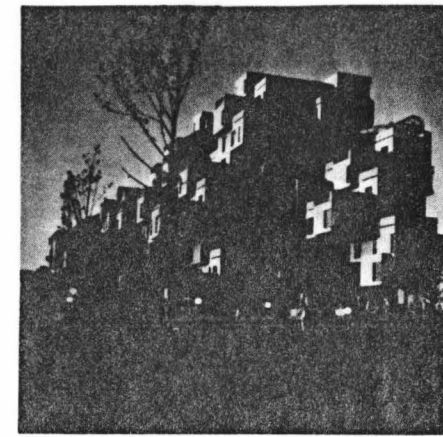
between a hi-rise unit and the ground. Utilizing the building technology that is present today, I would propose to put the hi-rise dweller back into close proximity with the "ground" and public spaces not by lowering the housing, but by effectively raising the ground into the hi-rise. Today's projects have begun to approach this with their sky-lobbies and landscaped roofs, but I propose to actually create open, public, urban spaces at many levels within a mixed-use structure. In effect, I increase the surface area of the ground and modulate it to place it in closer proximity to living spaces. Using modern building materials-concrete and steel- and technology, a hollow man-made mountain could be created that would address all the problems of the urban living environment that have been defined in this project.

This is what Moshe Safdie produced in his "Habitat" for the 1967 World's Fair at Montreal, Canada. Here, though, his scale is such that he gives the "ground" back to the inhabitants in the form of large, private decks (he gives the suburbanites their back yards), but fails to provide the larger-scale public plazas and "streets" that are more urban in nature as his density would indicate. This urbane use of public space versus the suburban private, individual space is a lesson we are re-learning from the older cultures of the world.

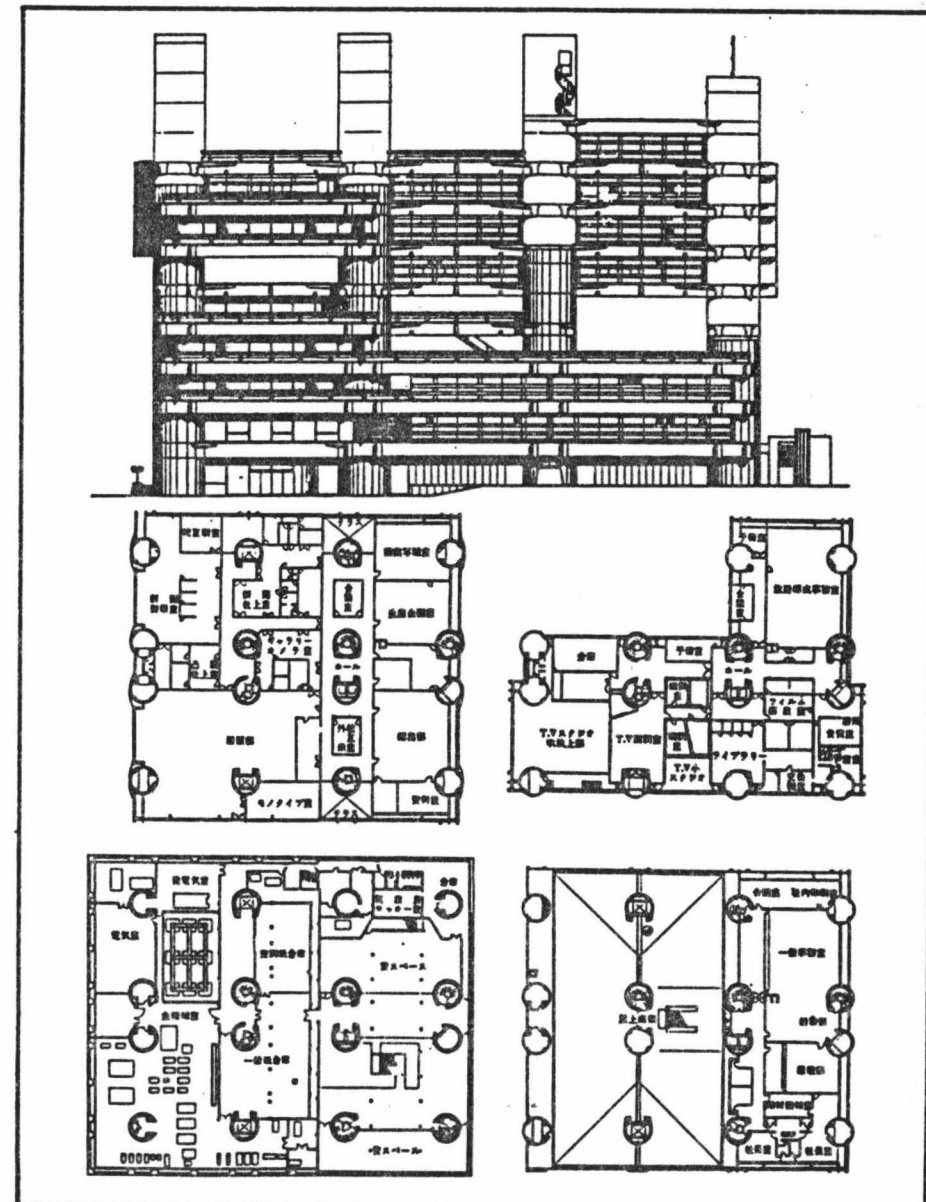
Scale, material, and the peripheral functions are all keys to making

these public spaces successful. Integrating these things into our new hi-rise, steel and glass cities has not been easy, but buildings such as the Citicorp Building in New York City are showing what can be done. The lower levels are "carved out" to give space, air and light to the pedestrian. The remaining plaza is enlivened with shops and restaurants. The plaza also serves as an entry to the city's subway system. This density of functions, amenities and the fact that the space is also a path of circulation are what make Citicorp a success.

The raising of a building up onto stilts to free ground space for pedestrians has origins in a wide variety of vernacular architecture, in Le Corbusier's housing blocks, and in the work of the Japanese Metabolists. It is their visionary development of the "megastructure" with its' extensive use of precast, slipcast and industrially-produced elements that provides a means to make a large, mixed-use complex that could adapt to various needs and usage over time. Kenzo Tange's Dentsu Communications Building is the best build example, to date, of the Metabolist concepts, showing large structural piers in which verticle circulation is contained and with structural spans between some piers and vacancies between others. This image of incompleteness gives both the suggestion of expandability and open outdoor spaces for the occupants.



Habitat, Moshe Safdie, 1967
Galleria del Duomo, Milan
Dentsu Communications Bldg
Kenzo Tange



Site Analysis

The site is in Baltimore, Maryland on a vacant 350' x 360' square block. It is located four blocks west of the Inner Harbor on the fringe of the downtown office district, near an industrial area of the city. It is faced on the east by the new city "Festival Hall", a temporary, steel, warehouse-like structure. On the west by another empty lot and on the north by the back of an old Holiday Inn and the iron facade of an old industrial building. This iron-faced building is the subject of

preservationists' efforts to prevent it from being torn down. To the south of the site is the object I have focused on- the old 1890's Camden Railroad Station and the B&O Warehouse, a 1/5 mile long brick structure. Attempts have been made to renovate the station and warehouse into a mixed-use (business-residential-commercial) complex, but, so far, it is still being leased as a warehouse. A wide pedestrian corridor that follows Pratt Street west from the

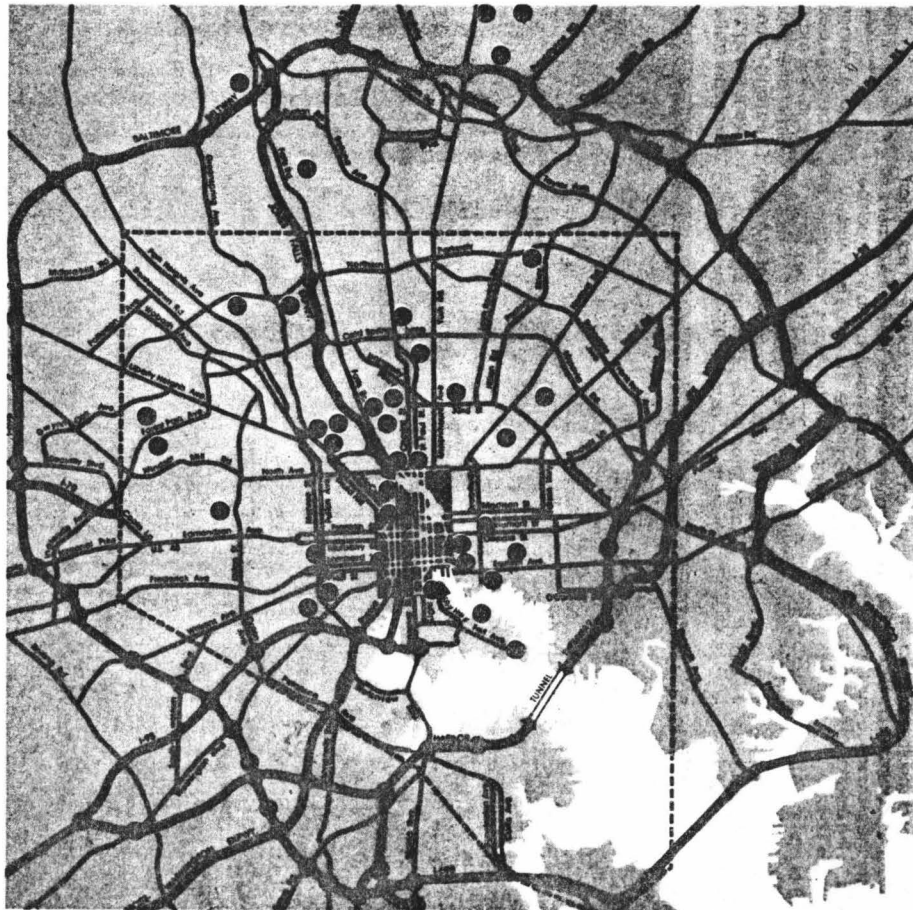


Inner Harbor lines the north side of the site. This is a remnant from the original Charles Center development to the north.

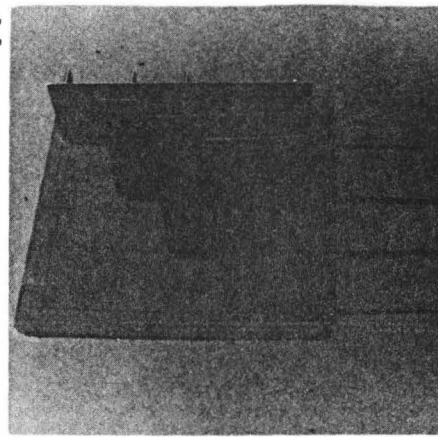
Across from the southeast corner is a vacant lot that faces the entry to the Festival Hall (which turns it's back on the pedestrian corridor on Pratt Street.) Only a few blocks north of the site is the renovated Lexington Market and the plazas of the Charles Center. The site is very near to these activity centers as well

as being next door to the Inner Harbor/Convention Center district. It is also near a majority of the downtown housing-from the apartments and condominiums of Charles Center and the Inner Harbor to the renovated row houses of Federal Hill and the Otterbien Historic neighborhoods.

- ▲ Site Views
- ▼ Baltimore and Vicinity
- ▼ The Inner Harbor, Downtown

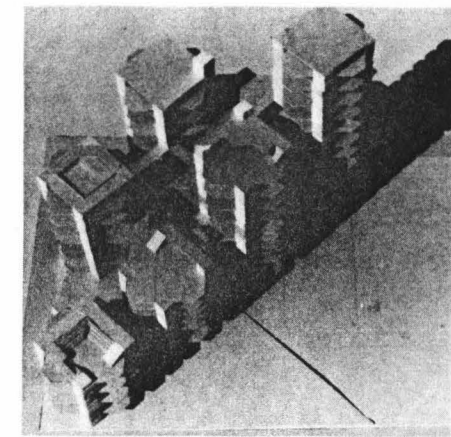
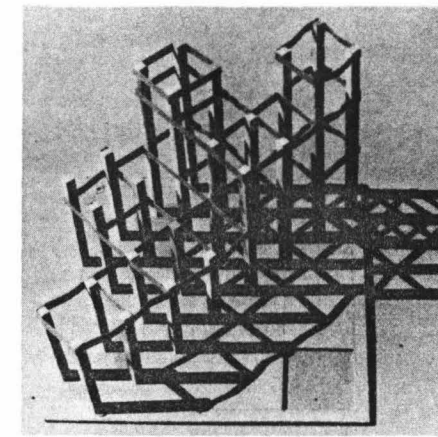
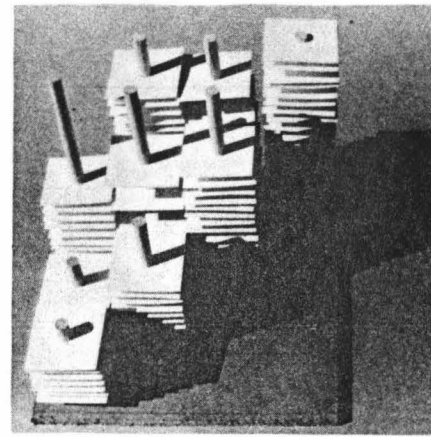


Form from Context



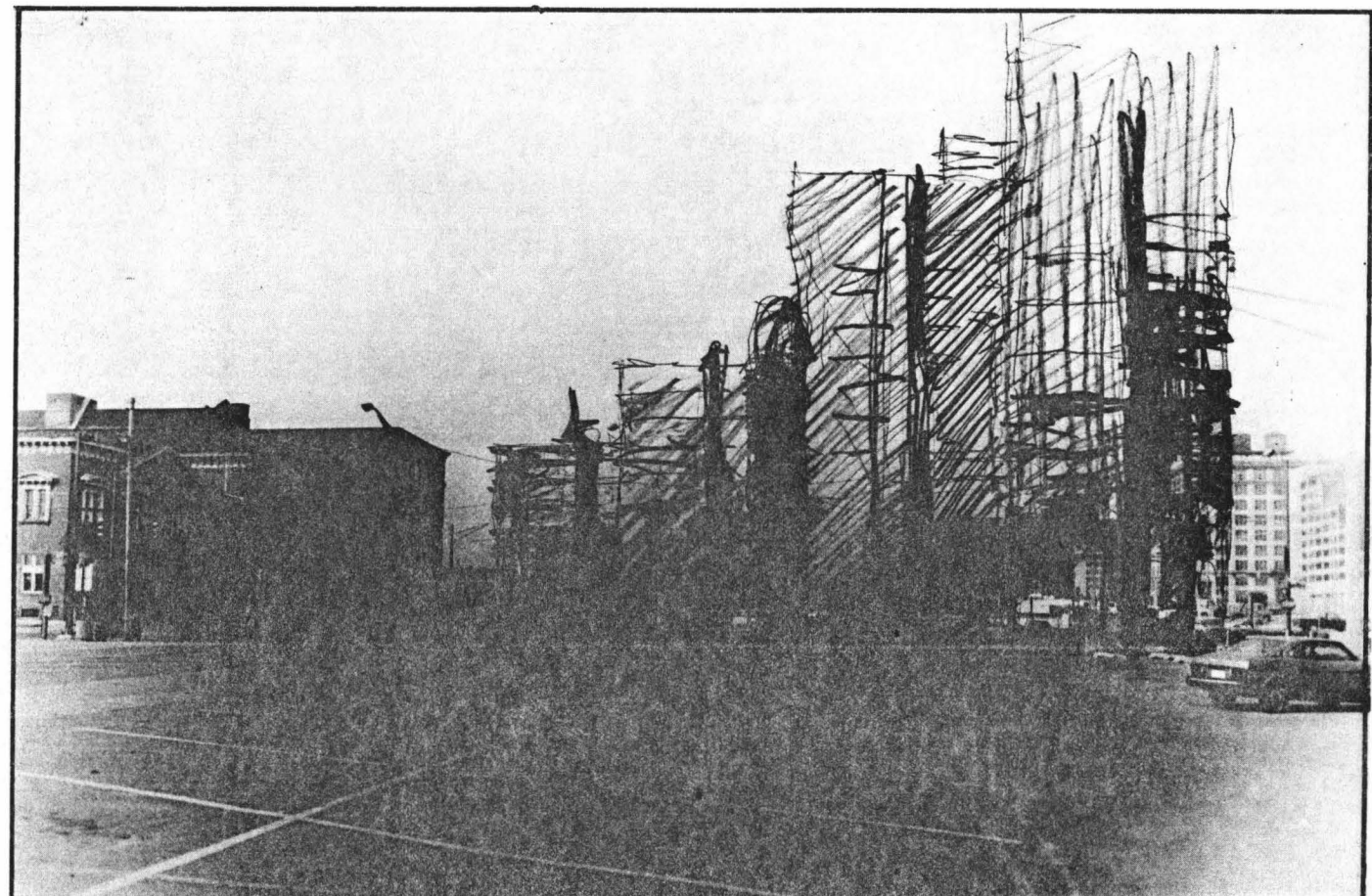
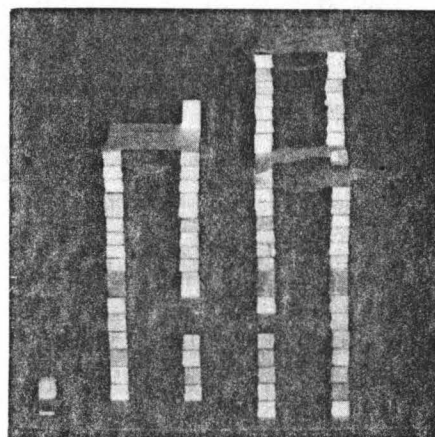
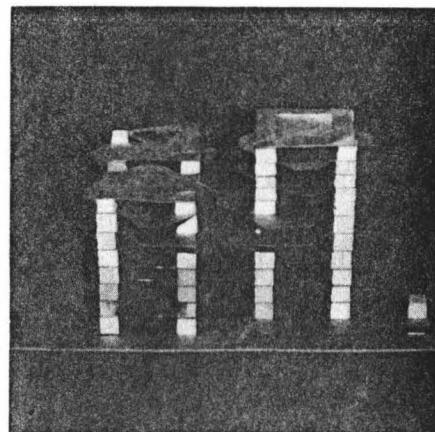
Initial massing was designed to match scales at the southern edge with the Camden Station and to step up to meet the new high-rise office tower to the northeast. This stepped up form allows a large number of the offices, residences and public plazas to have a southern exposure. This will promote the growth of vegetation for shade in the summer, provide a warm place to be in cooler weather and allow light to penetrate deep within the complex.

At the northeast corner, the tallest part of the complex, the building is "carved out" at the lower levels and forms an endpiece for the pedestrian corridor along Pratt Street. The pedestrian pathway that makes its way from the Inner Harbor over a series of skywalks and through the Convention Center leads straight to the southeast corner of the triangular plaza that is formed by the complex. This plaza is faced on the east by the Festival Hall, the South by the Camden Station and



on the northwest by my thesis project. At the center of the plaza facade of my project is the entry to the shopping gallery. The project is a megastructure that as a whole, relates to the buildings and spaces around it. Within this overall form, however, the parts can be manipulated to relate to specific, "local" conditions-exposures, public spaces, etc. This project could conceivably extend to the empty block to the west to double the office space and housing units.

▲ Study Models
▼ Model Sections
▼ Development Drawing



Form alters Context

The shopping building of the gallery forms the primary axis of the project, with a vehicular entry and drive-through terminating it on the northwest corner. Pedestrians enter at either end of this main axis, or from the elevators and stairs that flank the plaza entry. Across the plaza, on axis, is the open-air pavilion with waterfalls and shallow strips of water surrounding it. This spaceframe-roofed structure opens its canopy to the southwest to frame the view of the restored Camden

Station. The plaza to the southwest and northeast of the main axis is an exercise in positive/negative (figure/ground) space. A grove of trees give way only to a small space around a fountain on the N.E. plaza, (adjacent to the Festival Hall) while the corresponding space on the S.W. plaza is all open, but for a cluster of trees covering a similar, corresponding fountain. This side of the plaza forms a frontal "green" for the Camden Station. Smaller objects that are actually light wells to

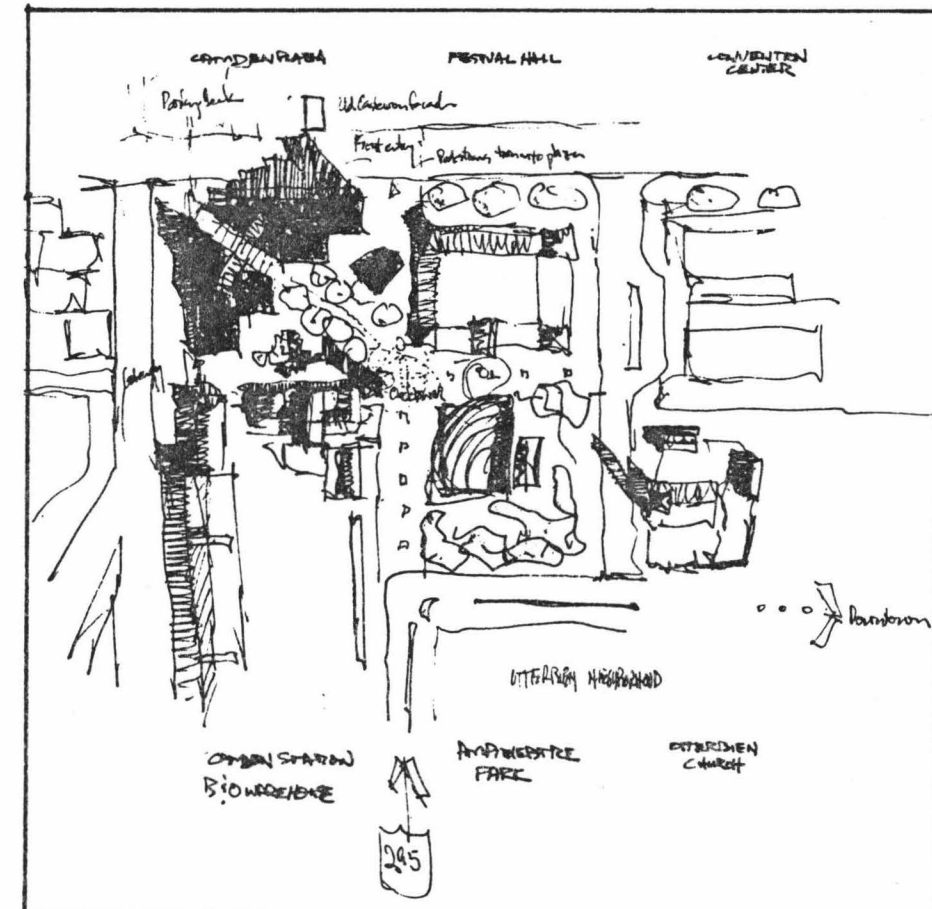
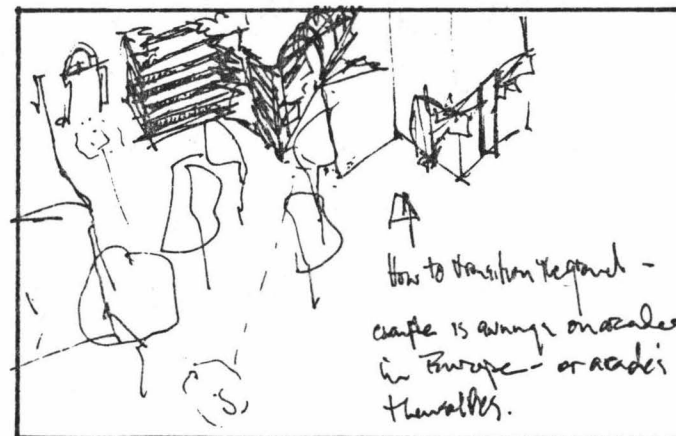
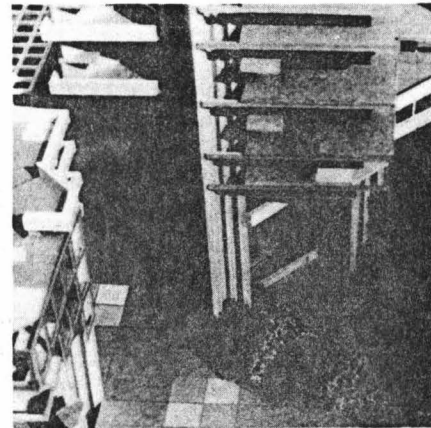
the parking levels below, along with the support structure for the pavilion form a set of "remnants"- a deconstruction of the structure of the building. Small channels of water radiate from the pavilion, appear and disappear and reappear to become sources for fountains in the depressed mid-level decks that form the entry to the complex for people who have parked their cars in the underground parking levels. Continuing from the gallery entrance to the pavilion across the

intersection at the S.E. corner the park facing the Festival Hall is derived from this axis and the one at 45 degrees to it from the entry to the Festival Hall. It's design is only suggested here and is not taken as a part of this project.

In developing the verticle circulation within the complex, many means of pedestrian transport are used. Connecting the parking levels with the plaza level, intermediate-level open-air lobbies provide a level for

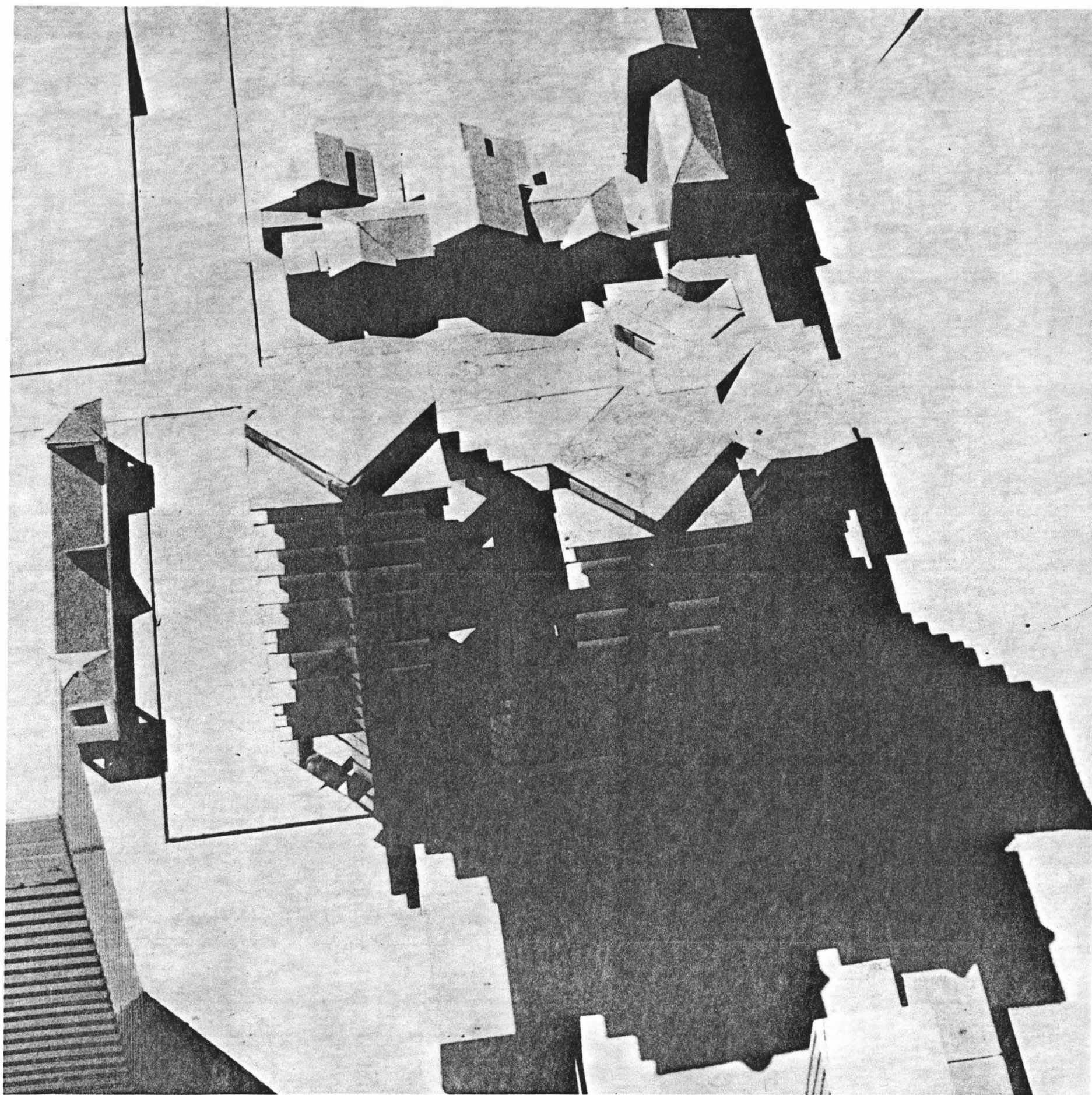
restaurants and sitting that is more private than the main plaza-level shops. These levels are accessed by both stair and elevator. At the northwest corner, above the vehicular drop off entry, a cascade of escalators and terraces connect the two levels of commercial space with the plaza level.

▲ 1:40 Model and Site Model
 ▲ Plaza Sketch
 ▼ Site Plan



The main entry to the office levels and the residential lobby level are the elevator banks that pass through the intermediate levels, flanking the gallery entry from the plaza.

From the residential lobby level the access to the residences is secured and separate elevators in the core of each tower carry the residents up to their floors. The residential levels are punctuated by many outdoor plaza levels and multi-story interior lobbies which the apartments open into. Thus, a hierarchial sequence of spaces which form a smoother transition must be traversed in going from street to plaza to gallery to sky-lobby to a "neighborhood" lobby to residence.



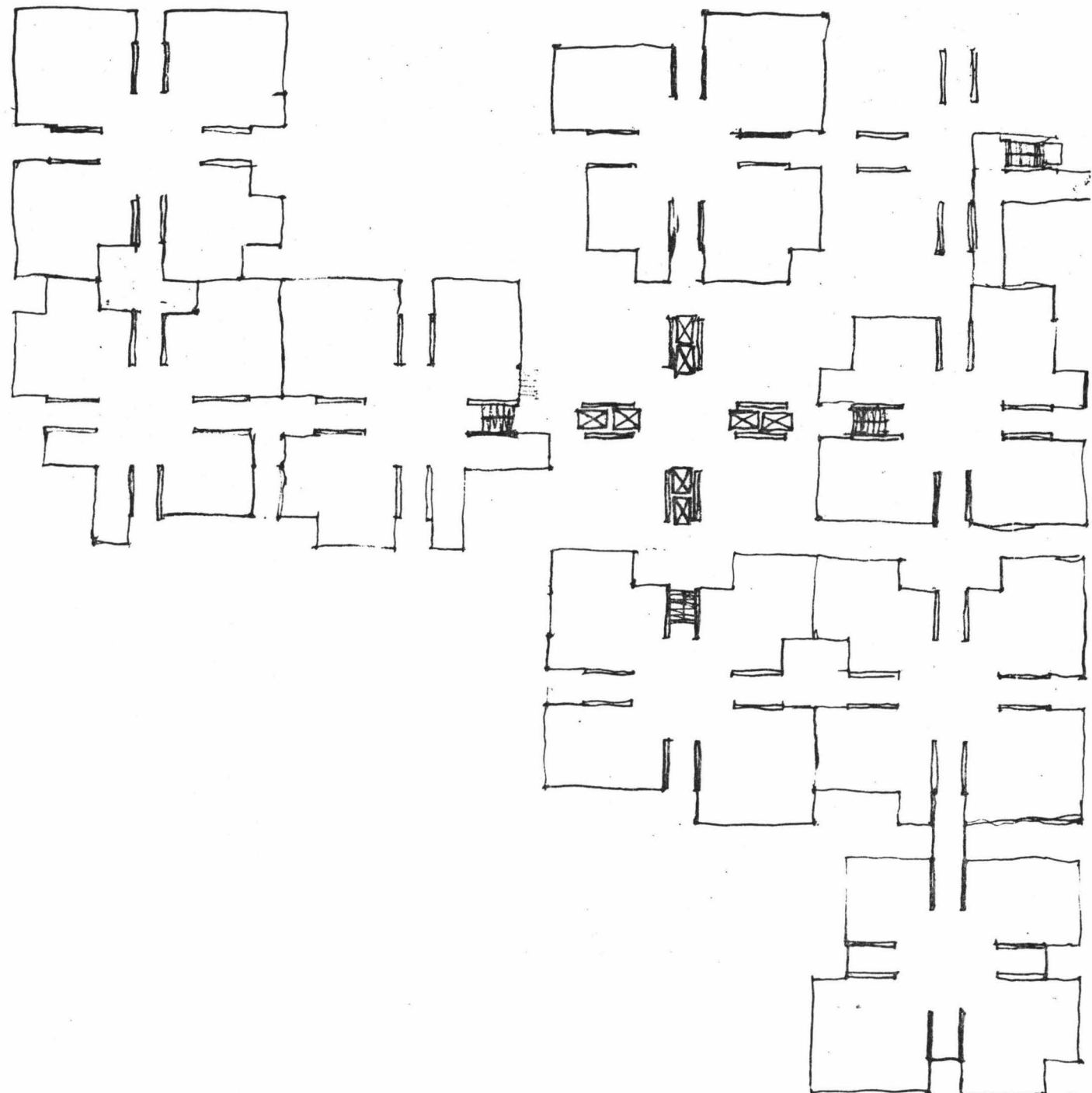
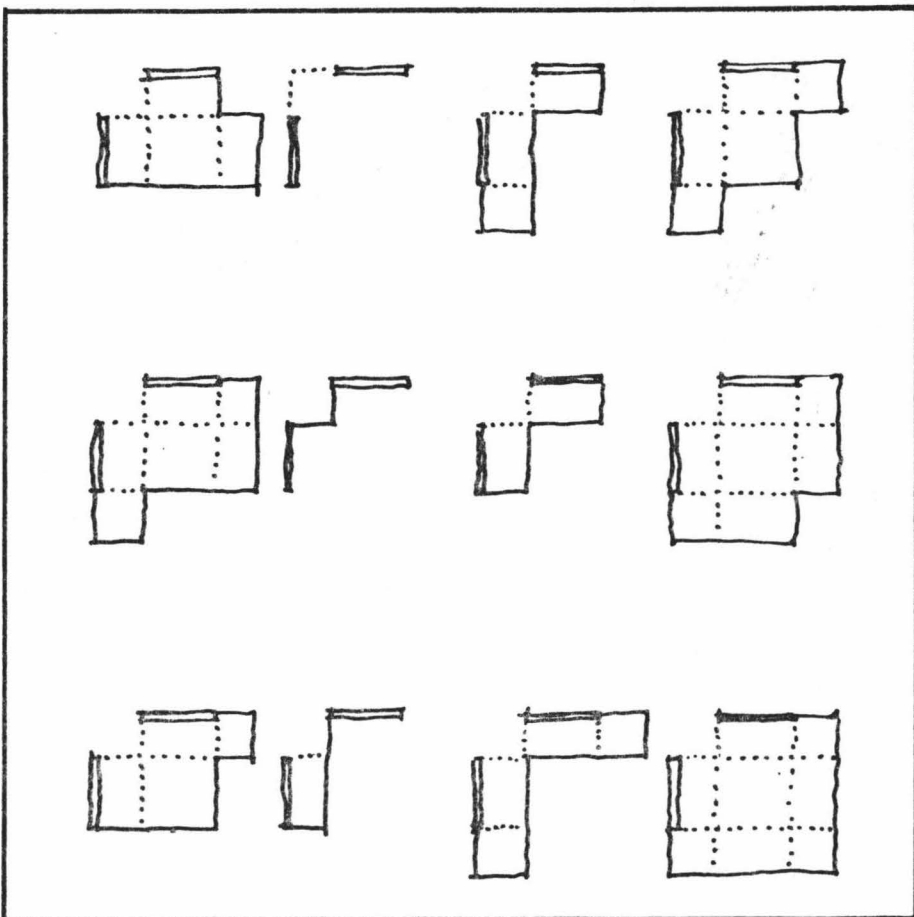
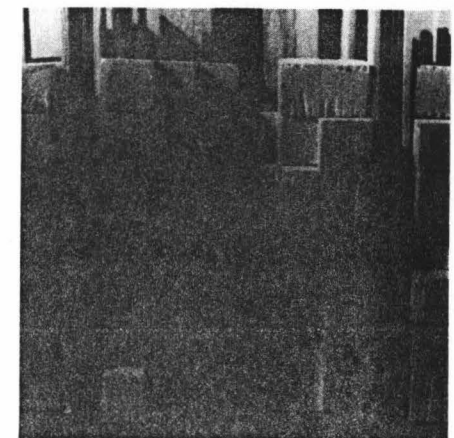
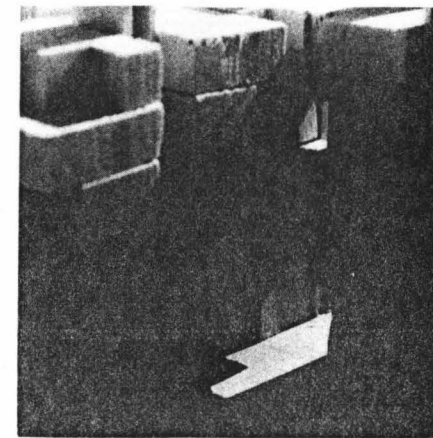
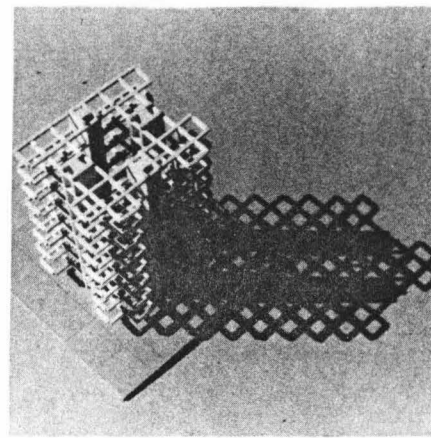
Housing

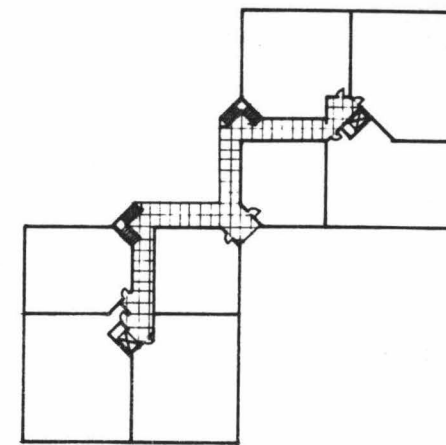
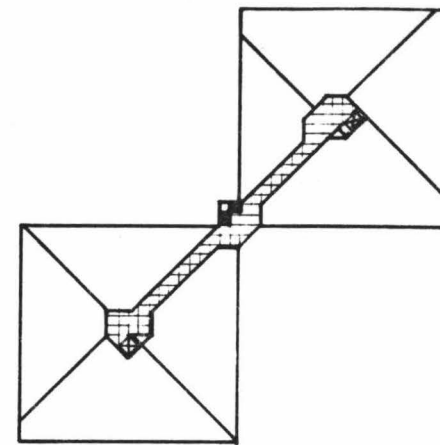
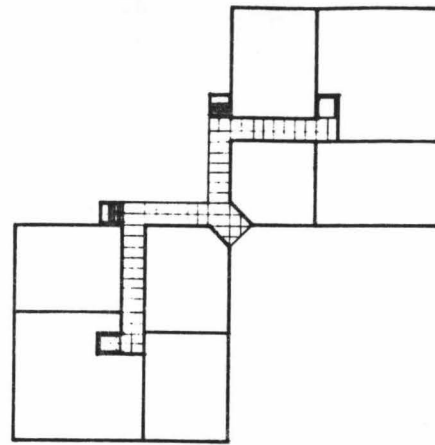
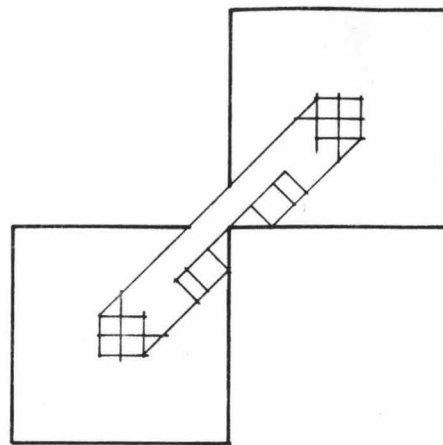
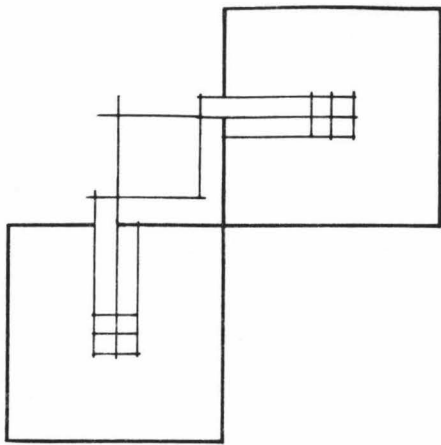
Study Models
Structural Model
Modular Study
Individual Modules

The development of the housing part of this project required the analysis of many possible solutions to mass housing. The goal for the housing was to develop a semi-modular unit that could be inserted into the megastructure in almost limitless arrangements to provide open public spaces, while forming the equivalent of the neighborhood cluster or cul-de-sac. The concept of the entire complex is to create a hierarchial sequence of spaces of increasing privacy. My

feeling is that modern high-rise housing skips several of these steps that are found in more low-level housing neighborhoods. (The neighborhood *is* the backbone and character of Baltimore-thus this concept becomes especially relevant here.)

This project attempts to replace and fill out that sequence of steps. Unlike the Japanese Metabolists, an attempt is made to play down the high-tech slickness of steel and





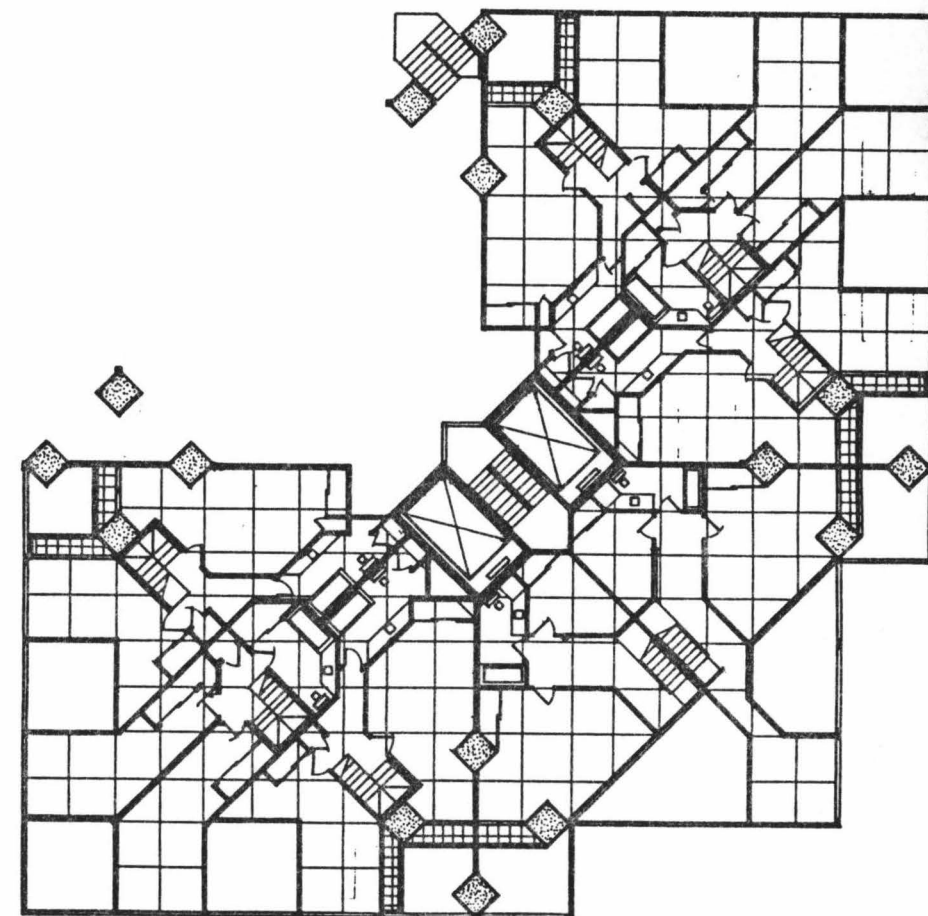
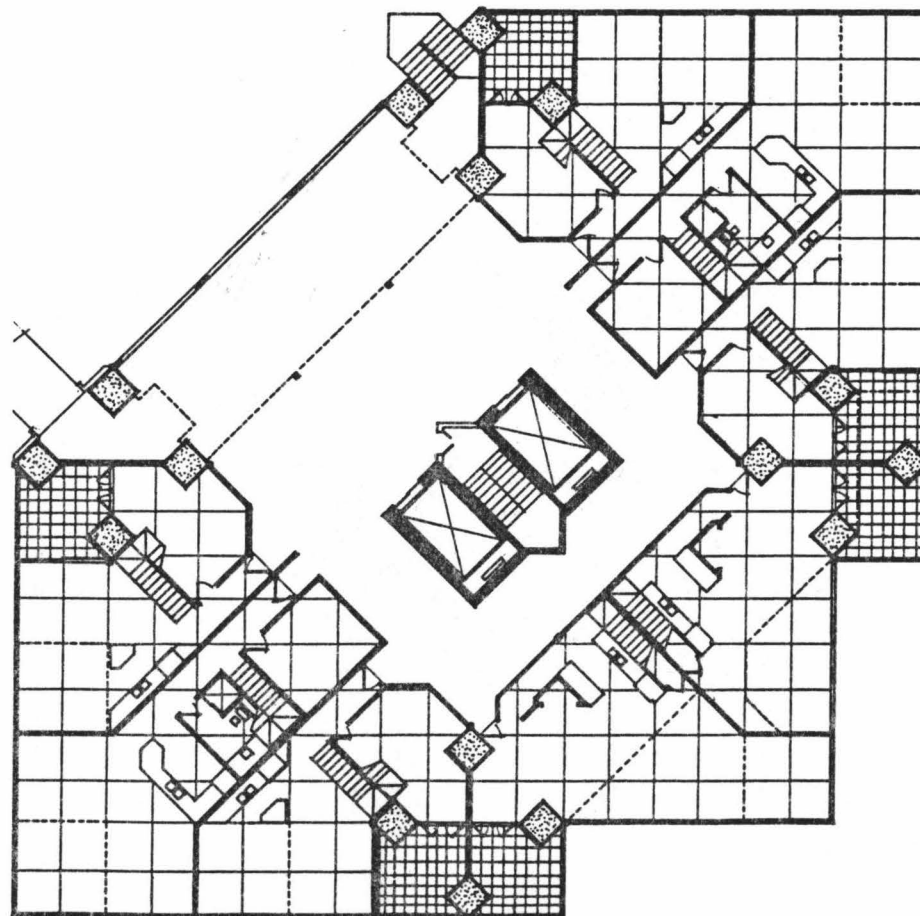
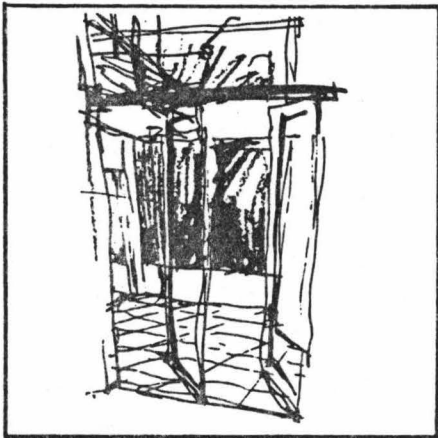
plastic and produce a feeling of permanence and solidity through the use of masonry, steel, iron, and other industrial-scale materials. The development of a more complex, labyrinthian quality opposes the oversimplification of present high-rise housing. The rigid adherence to a hierarchial order maintains the ease with which circulation patterns are comprehended by the users. Residual spaces are produced, but used as public space.

Among the examples that were studied were Moshe Safdie's "Habitat" and Ricardo Bofill's "La Muralla Roja", "La Manzanera" and "Walden 7". The richness of spaces derived from the complex geometries present in Bofill's works is hopefully carried into this thesis.

The results are modules of two and three apartments that are supported by major structure on each end. They can be inserted or left out as required. Some are two-level units

as shown here, others are smaller single-story units. A distribution pattern and the quantities of each size unit could be determined by a market study, or by pre-construction sales/rent applications. Within the units, large balconies on the living level are over-looked by smaller balconies. Bathrooms, storage, and service spaces occupy the innermost space so that all living rooms have either direct exposure to the outside or open into a room that does.

▲ Circulation Studies
▼ Housing Floorplans



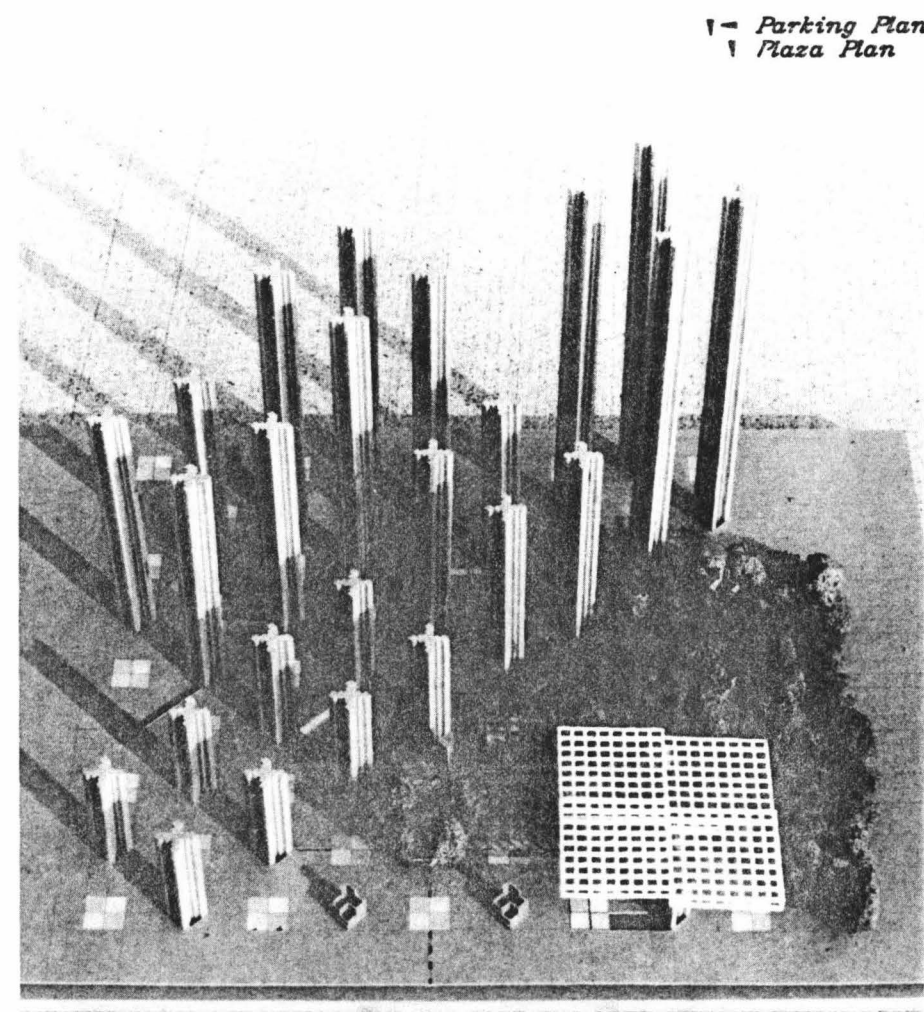
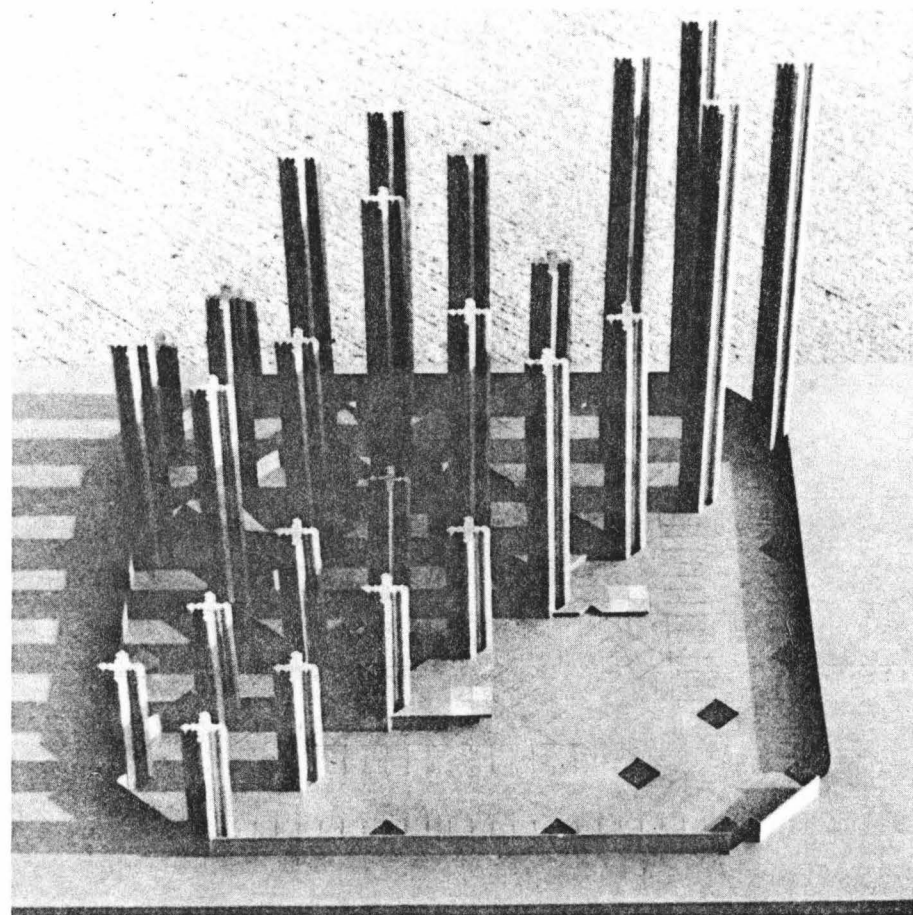
Structure

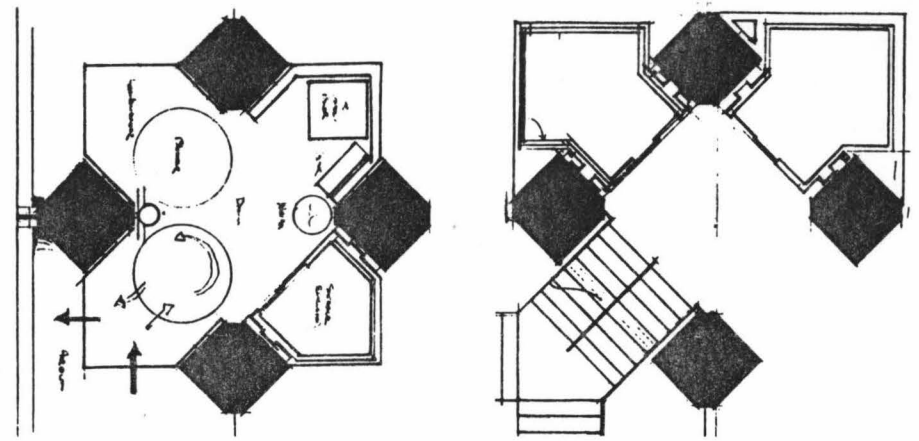
An initial decision to develop a megastructural building led to a rapid development of the initial form. A debate between using primarily concrete or steel and where the structural elements are located are shown in some studies, here.

The studies of material and structure led to a building that is a field of megastructural "columns" that are centered on the faces of the individual tower elements. At

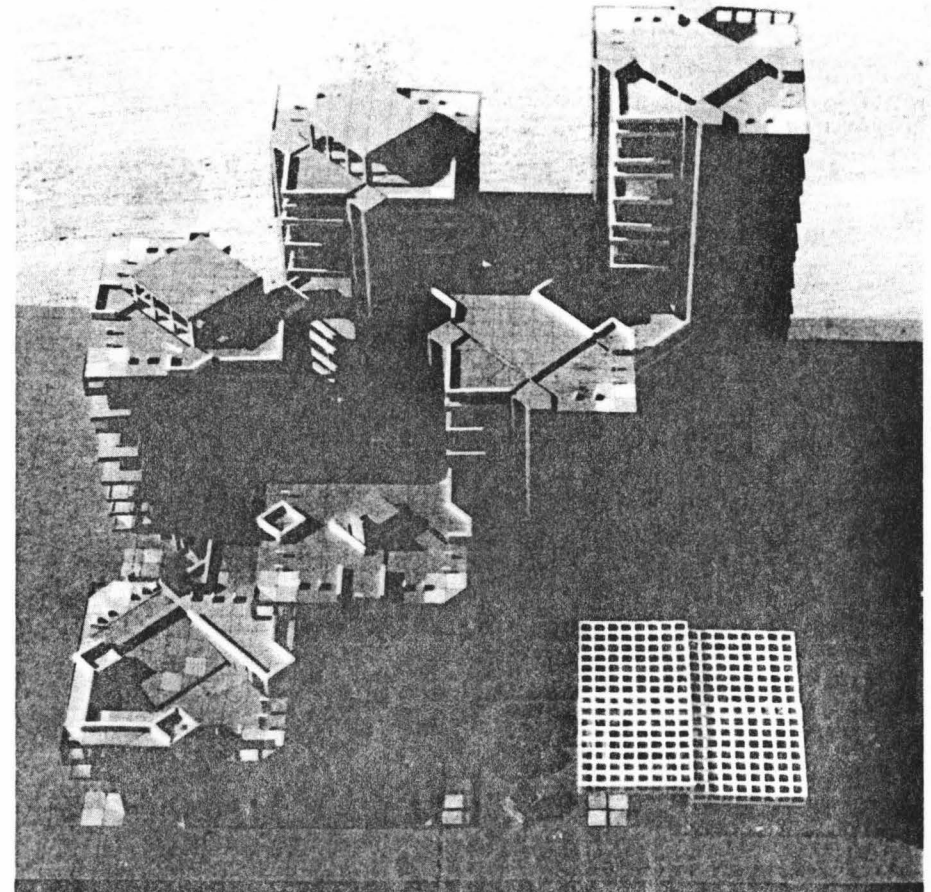
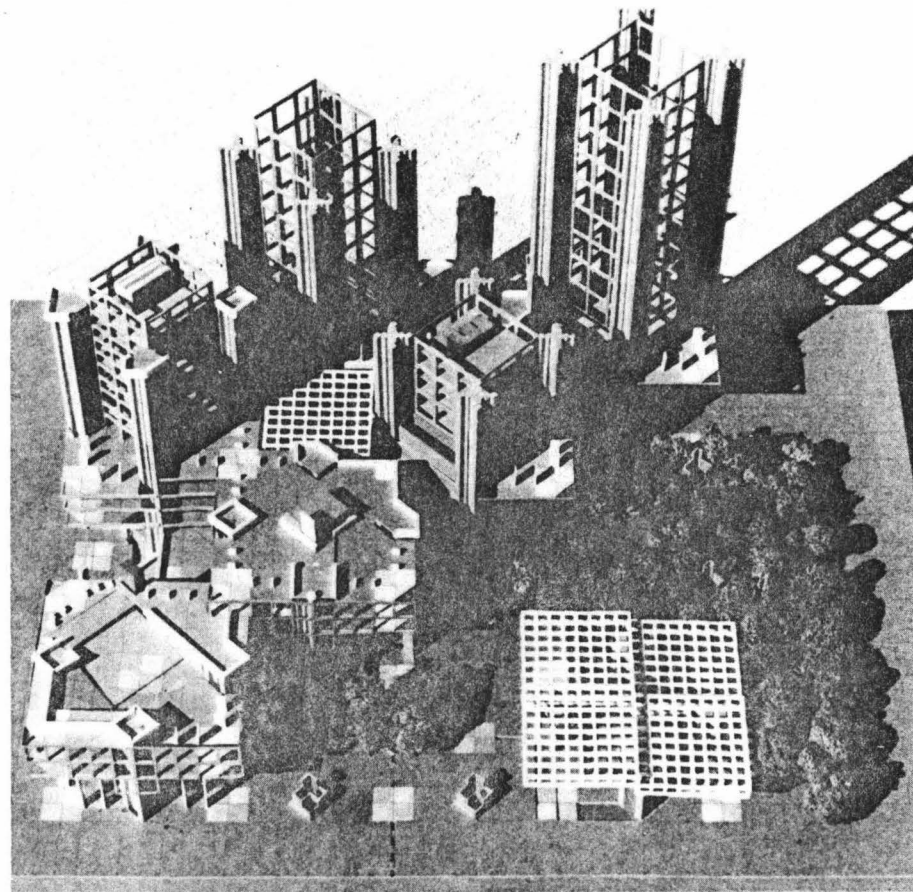
the top of each tower is an inverted triangle of gridded trusswork used to link and stabilize the entire complex. Thus the building resists windloads as an entire entity. The apartment modules also are rigidly connected to each other to form cantilevered deep trusses, supporting their own overhang weight. Interior trusses connect the megastructure (see models) to rigidize the complex and off of which "hang" the apartment modules.

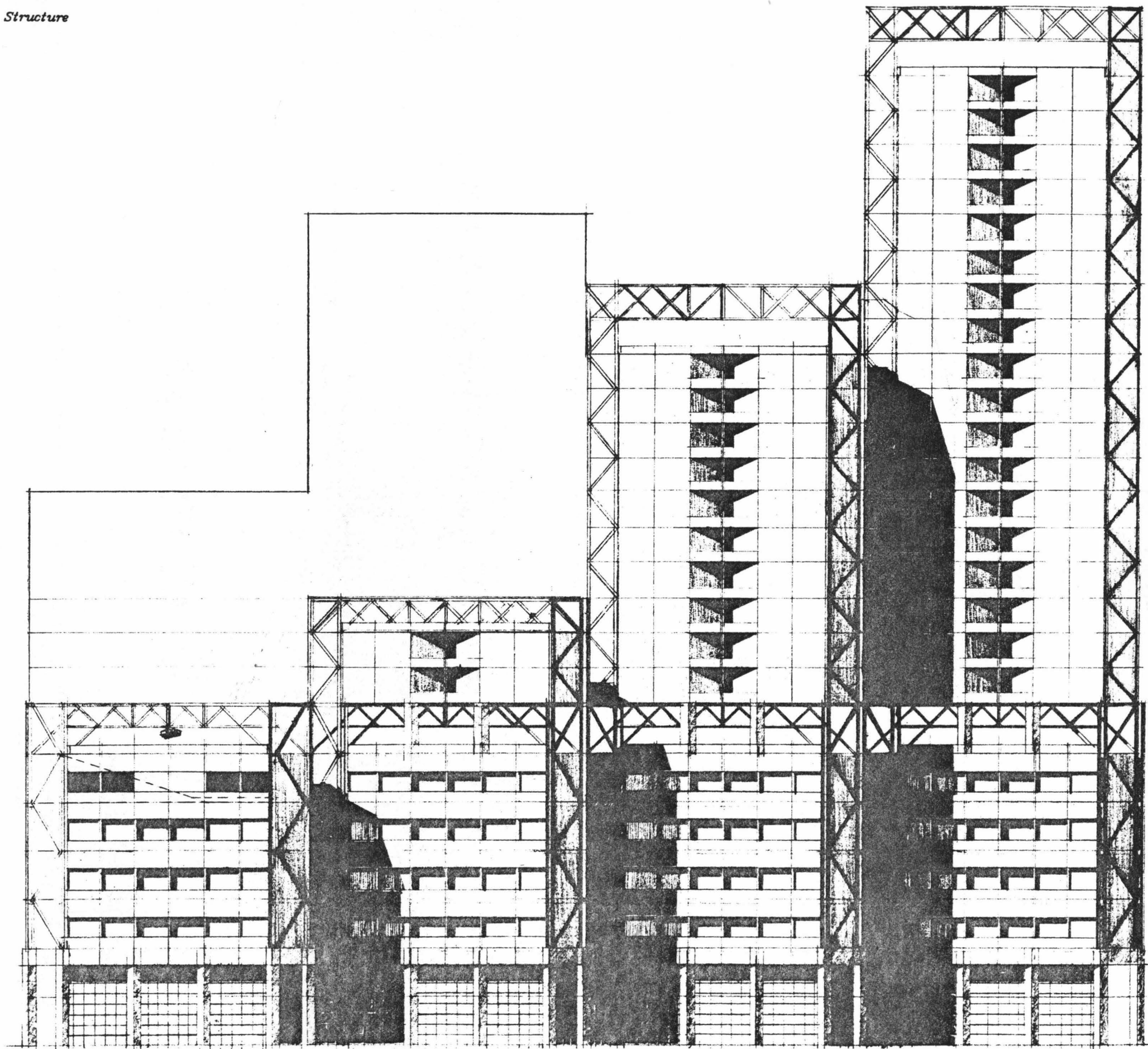
Attempts at incorporating all user services in the columns (such as Tange did at Dentsu) led to many compromises in circulation and apartment module placement, so a core element was introduced to provide most of these functions. Some can remain in the megastructure-electric and HVAC-but all circulation except some fire stairs have been moved to the core.

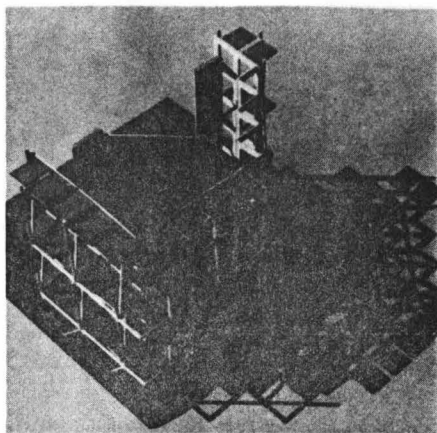




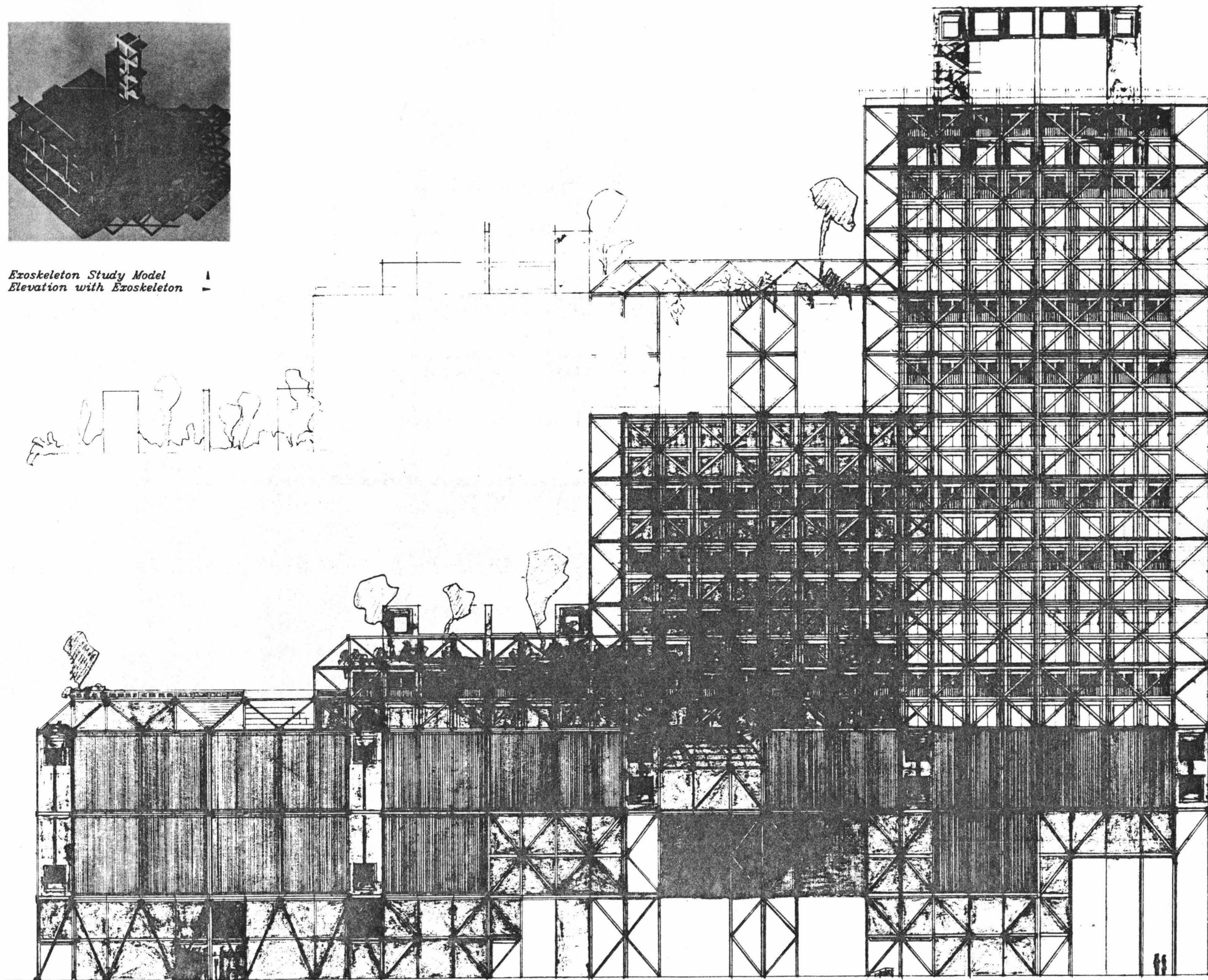
- ▲ *Structural Detail*
- ▼ *Comercial/ Office Levels*
- ▼ *Complete Building*







*Exoskeleton Study Model
Elevation with Exoskeleton*

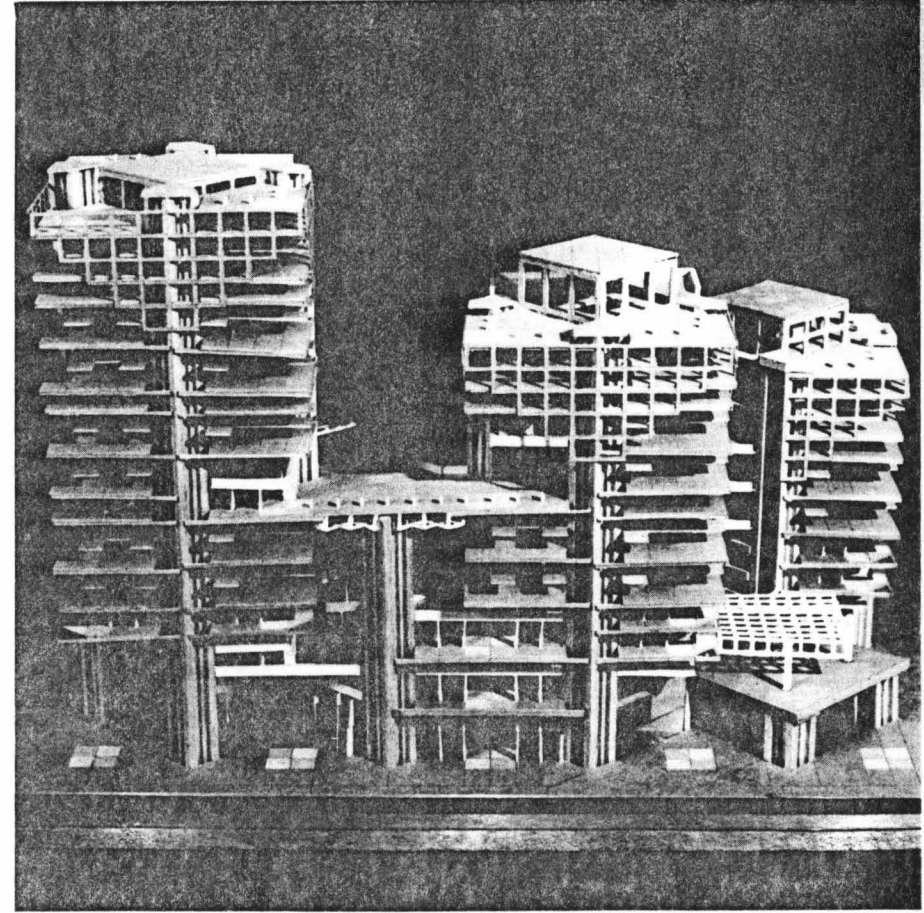
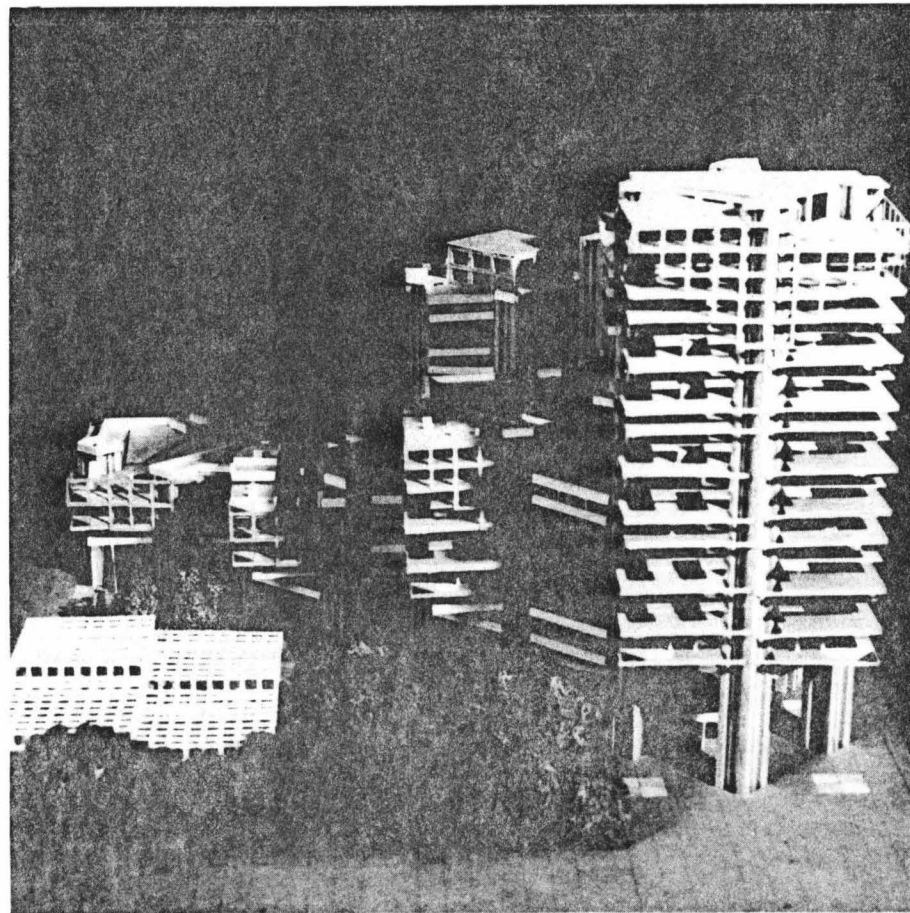
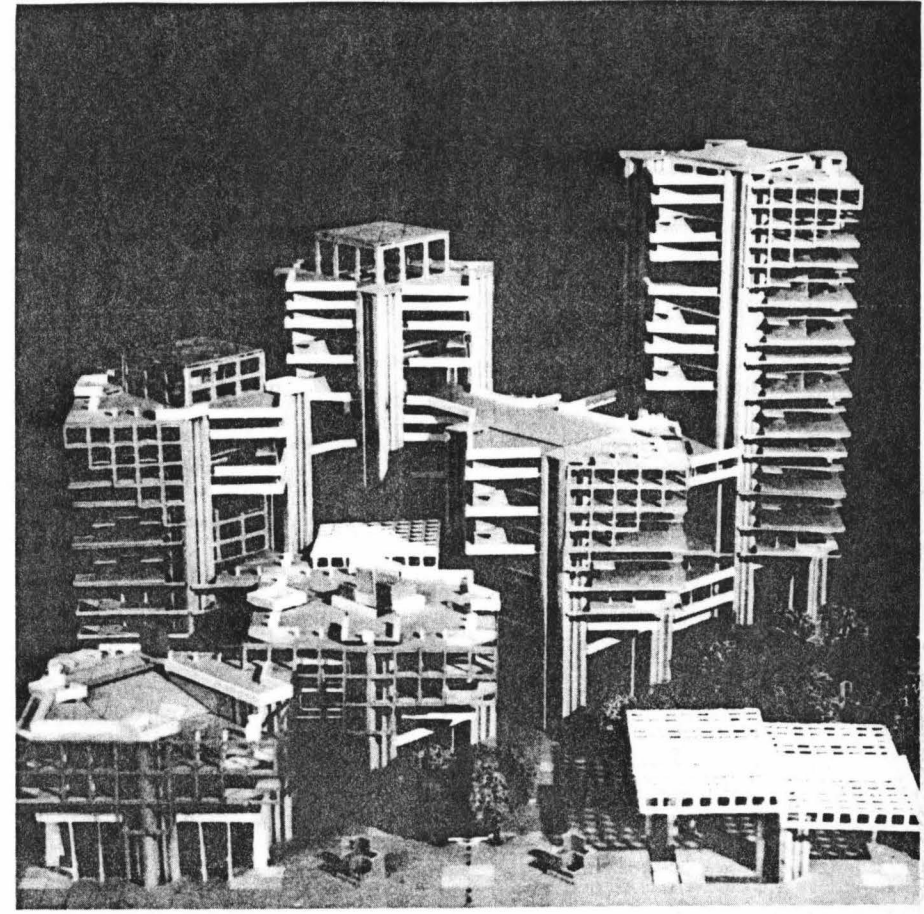
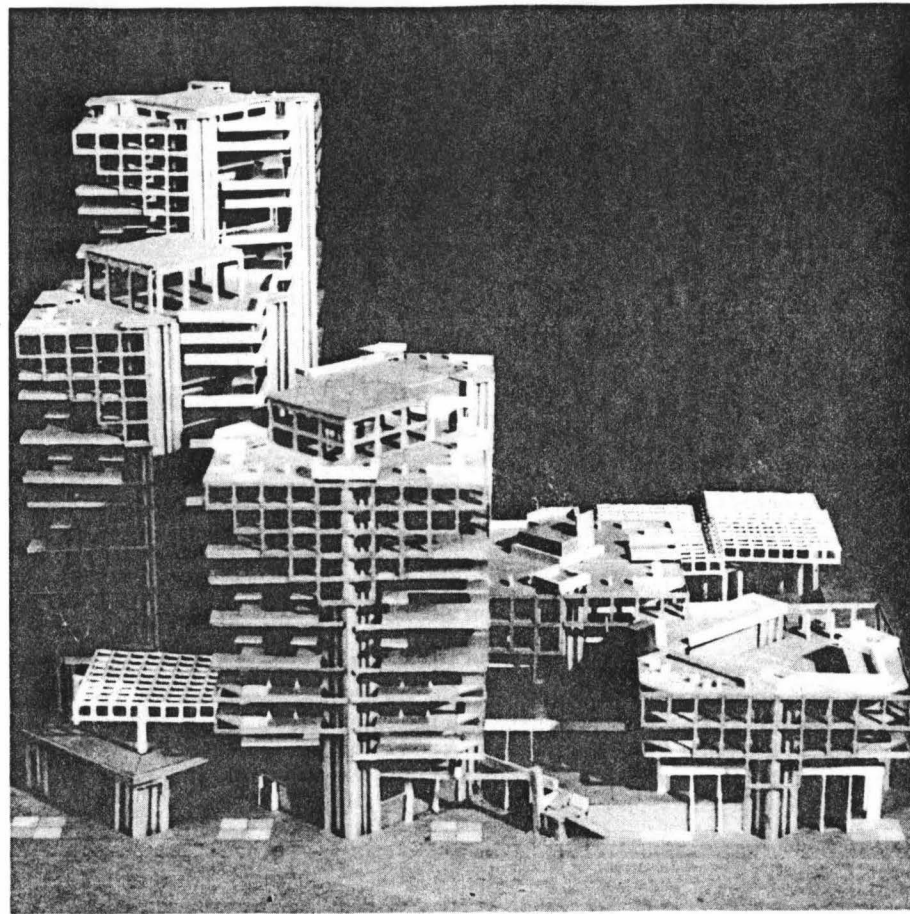


Final Model

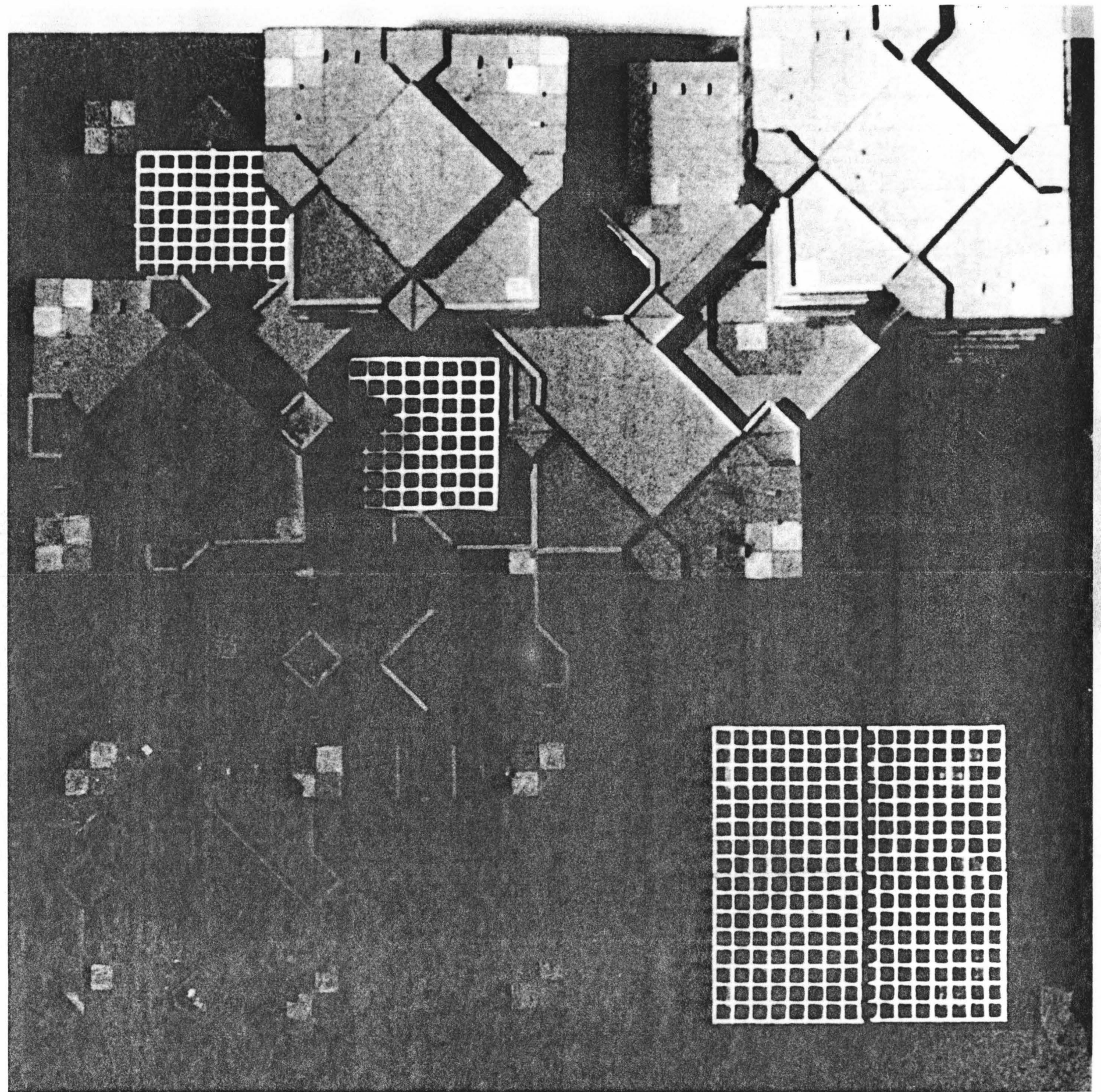
Elevations:

West South

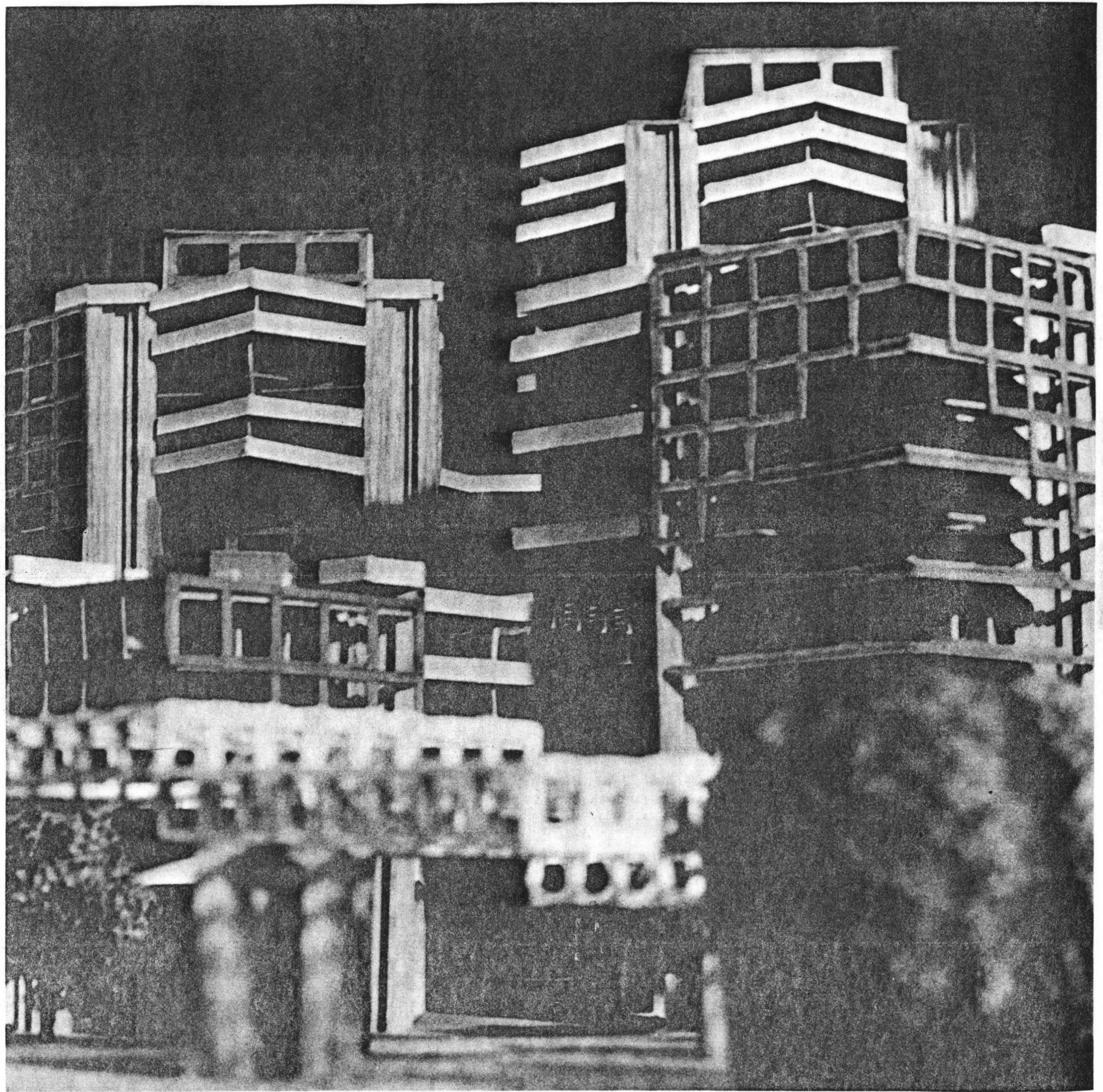
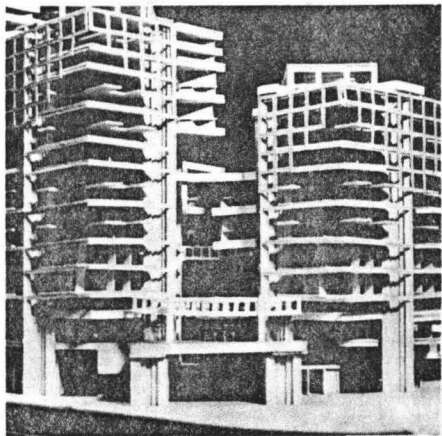
East North

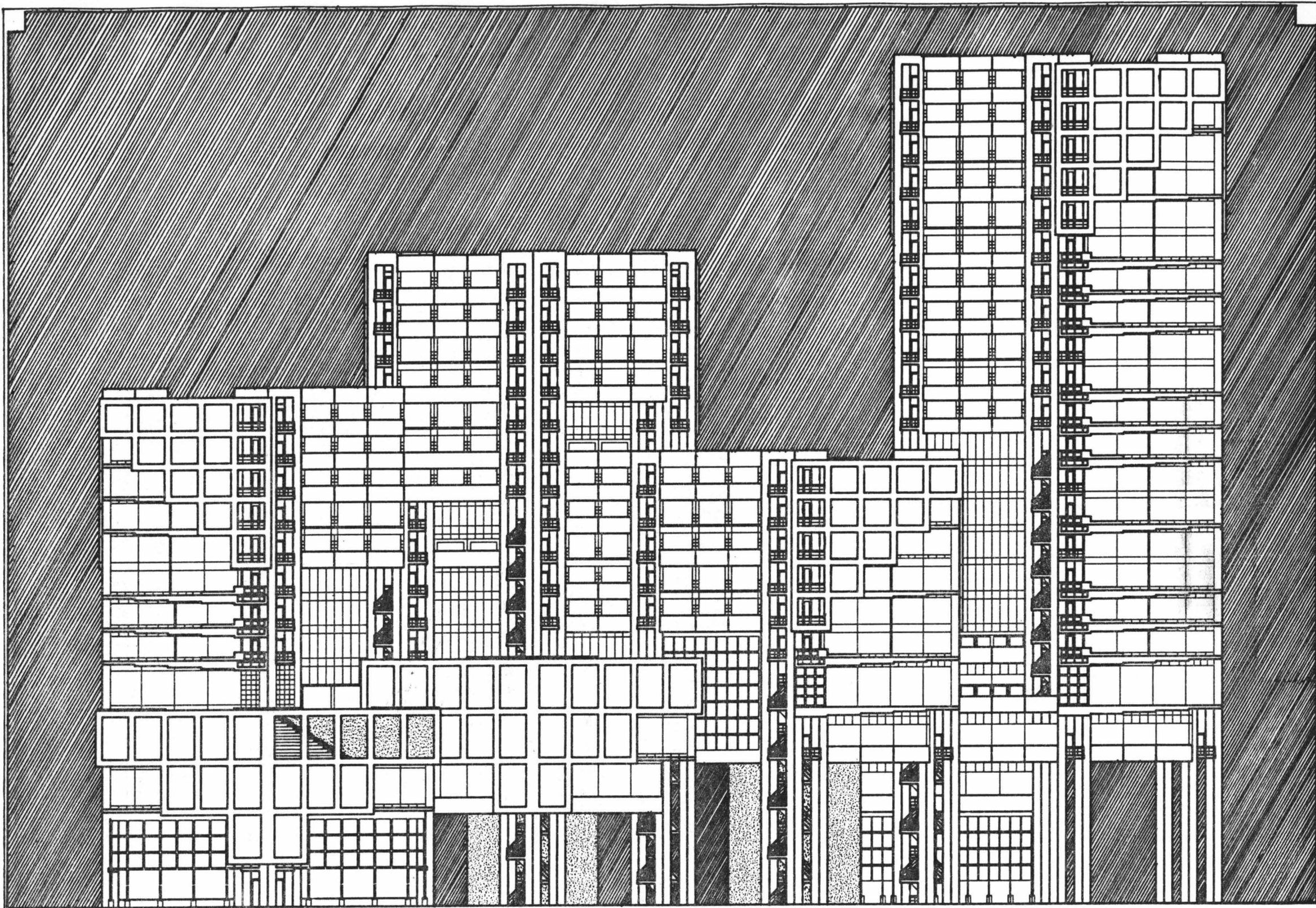


Overhead View

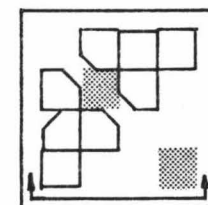


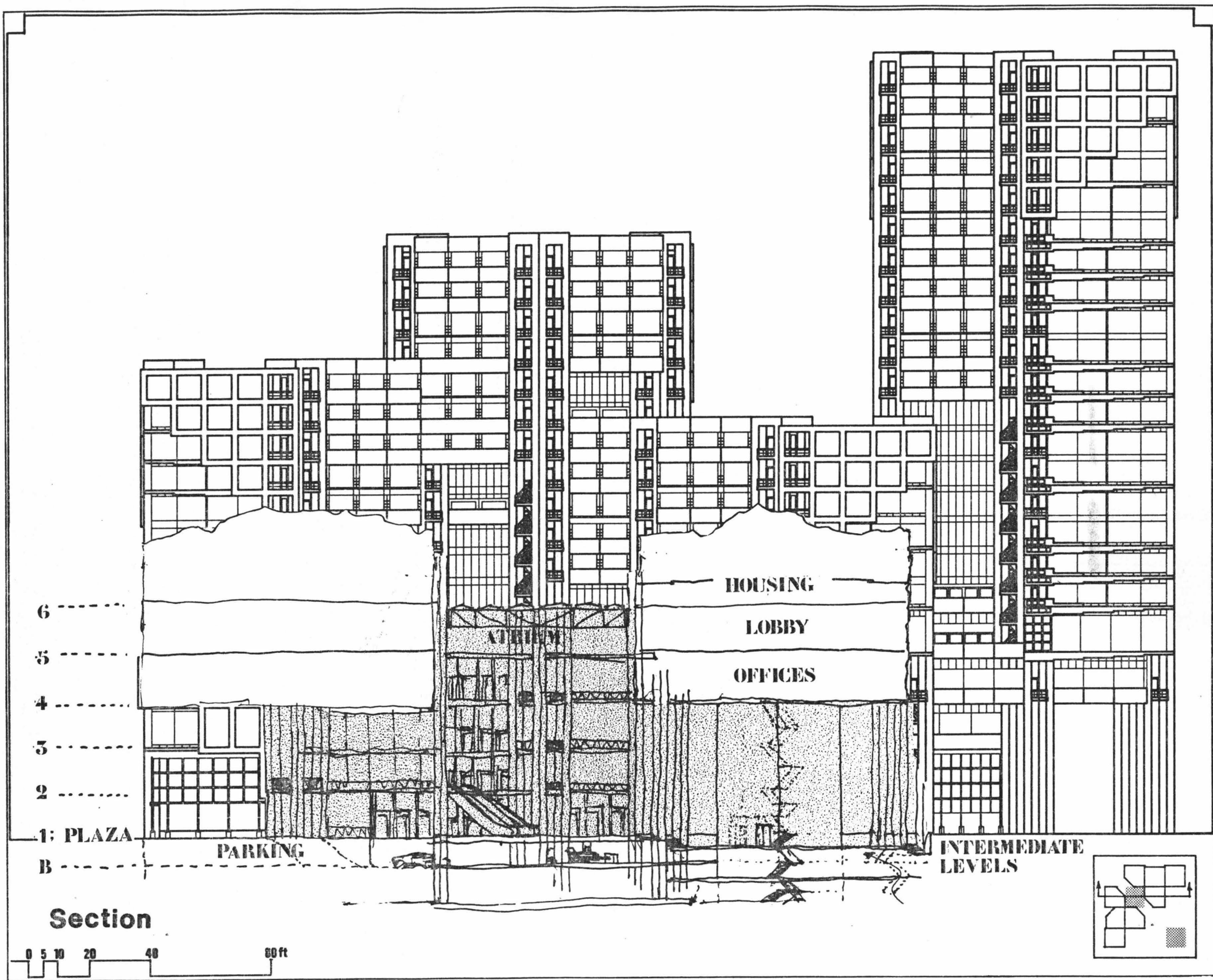
Axial View from Plaza ➤
Axial View from Northwest

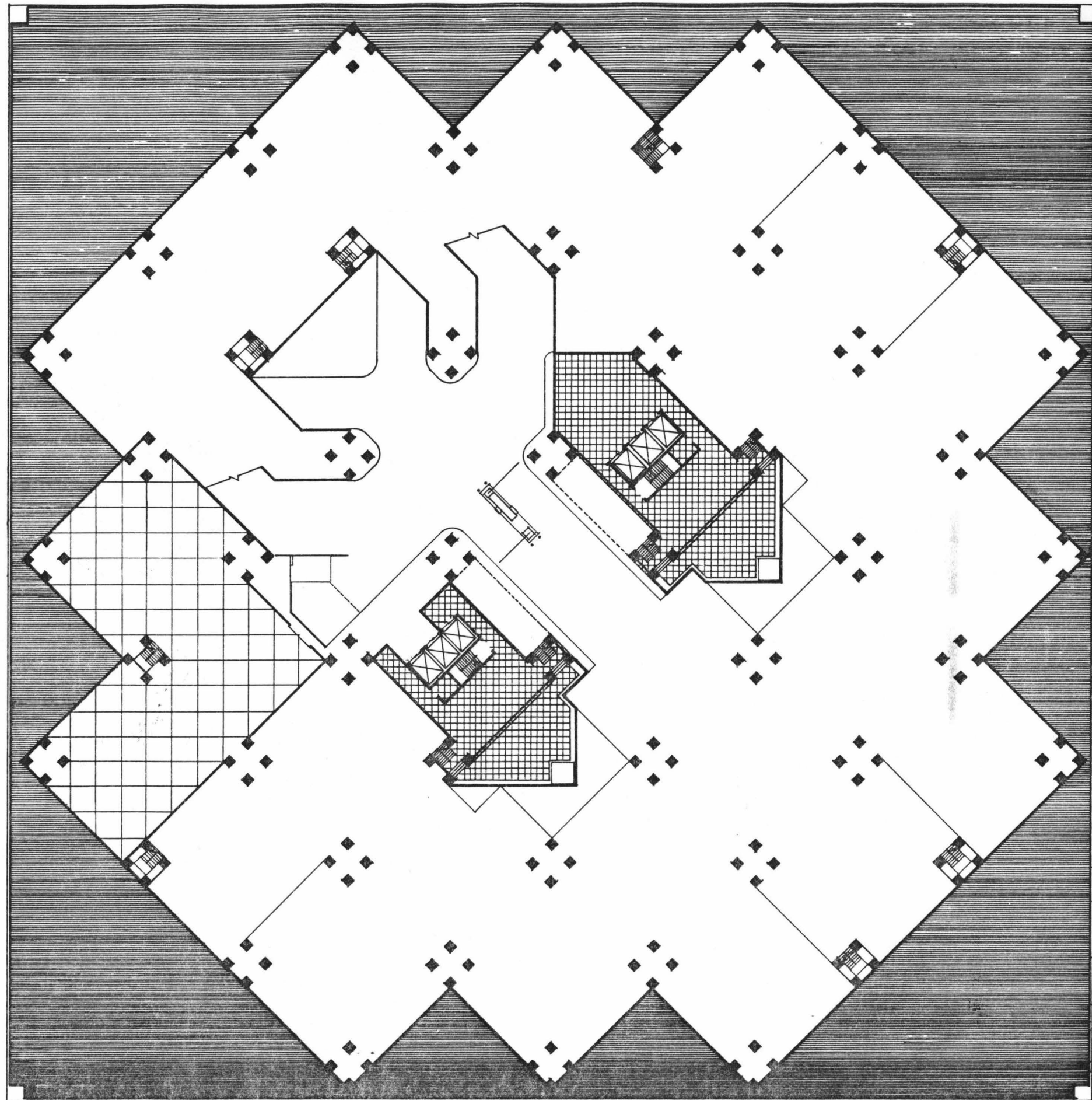
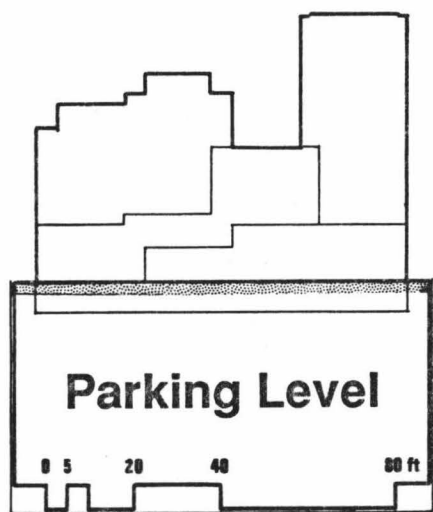


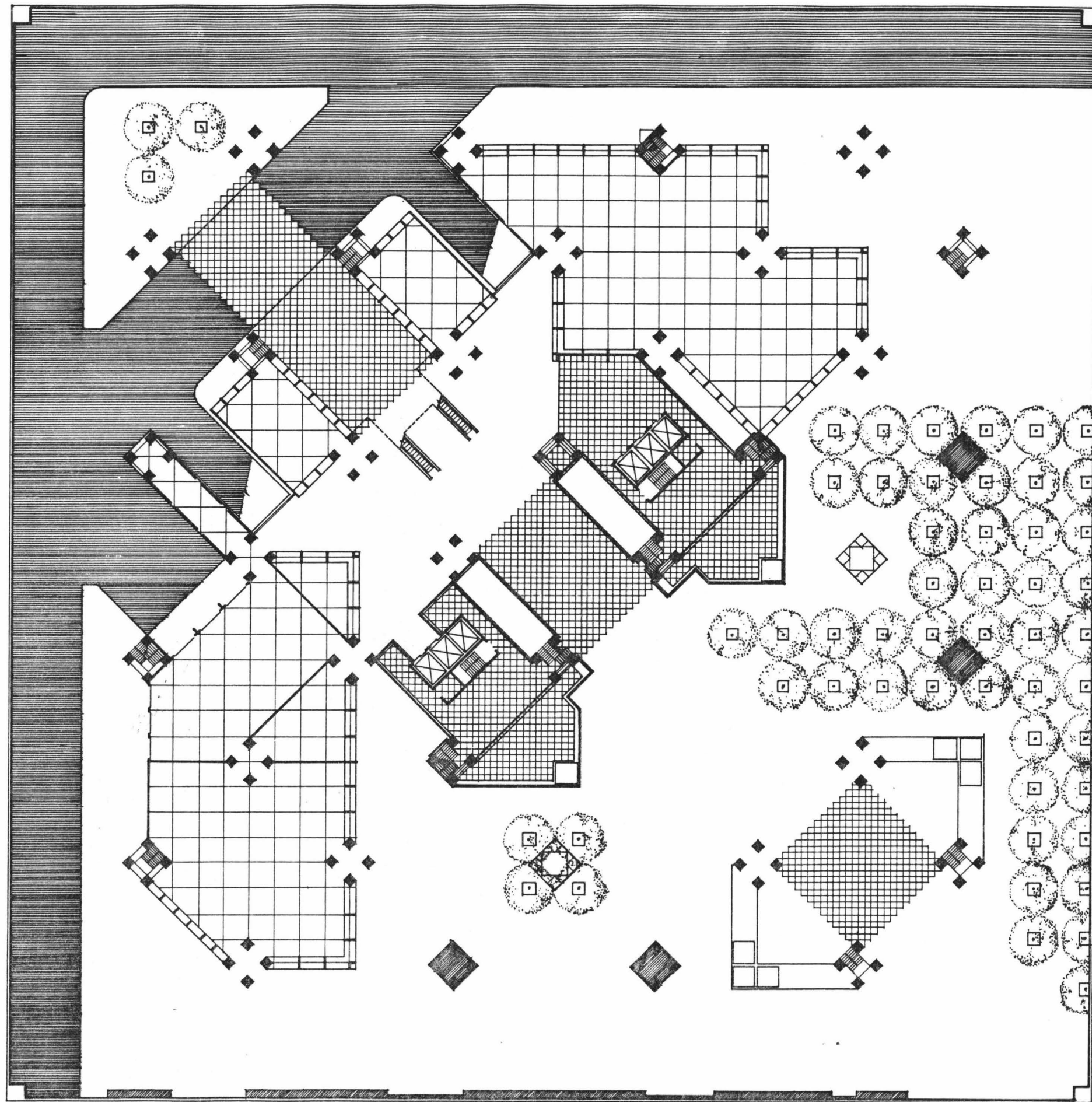
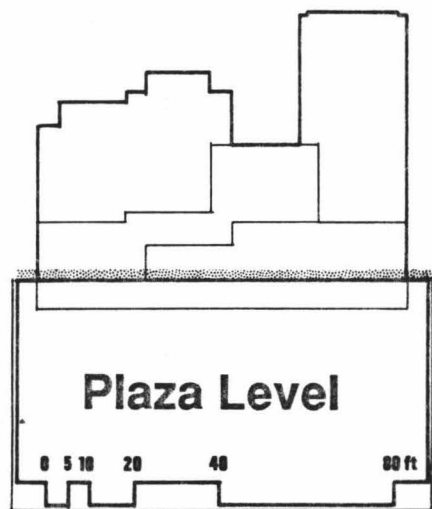


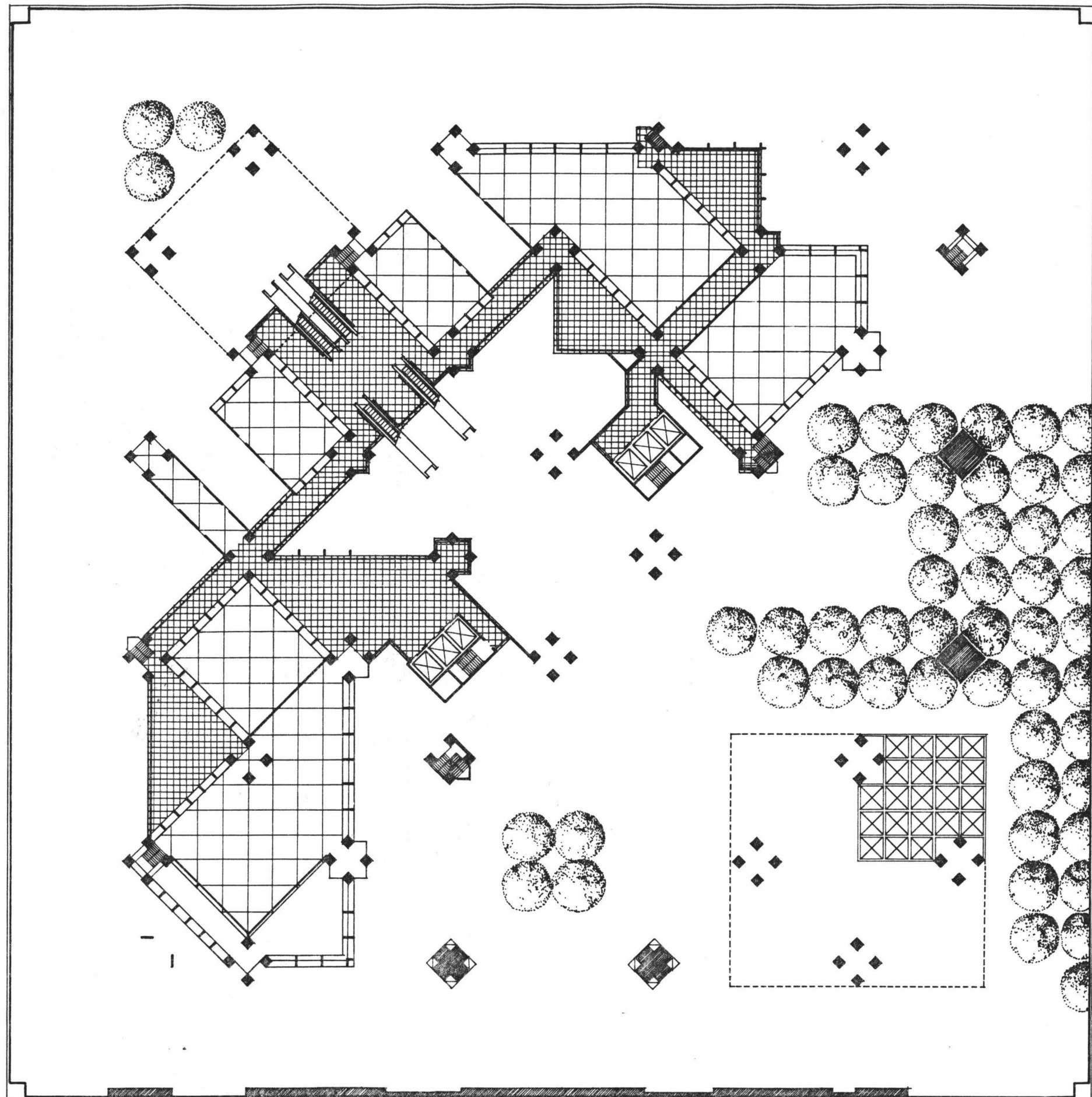
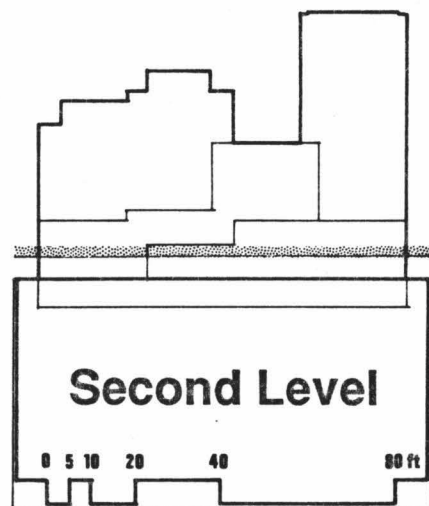
Plaza Elevation

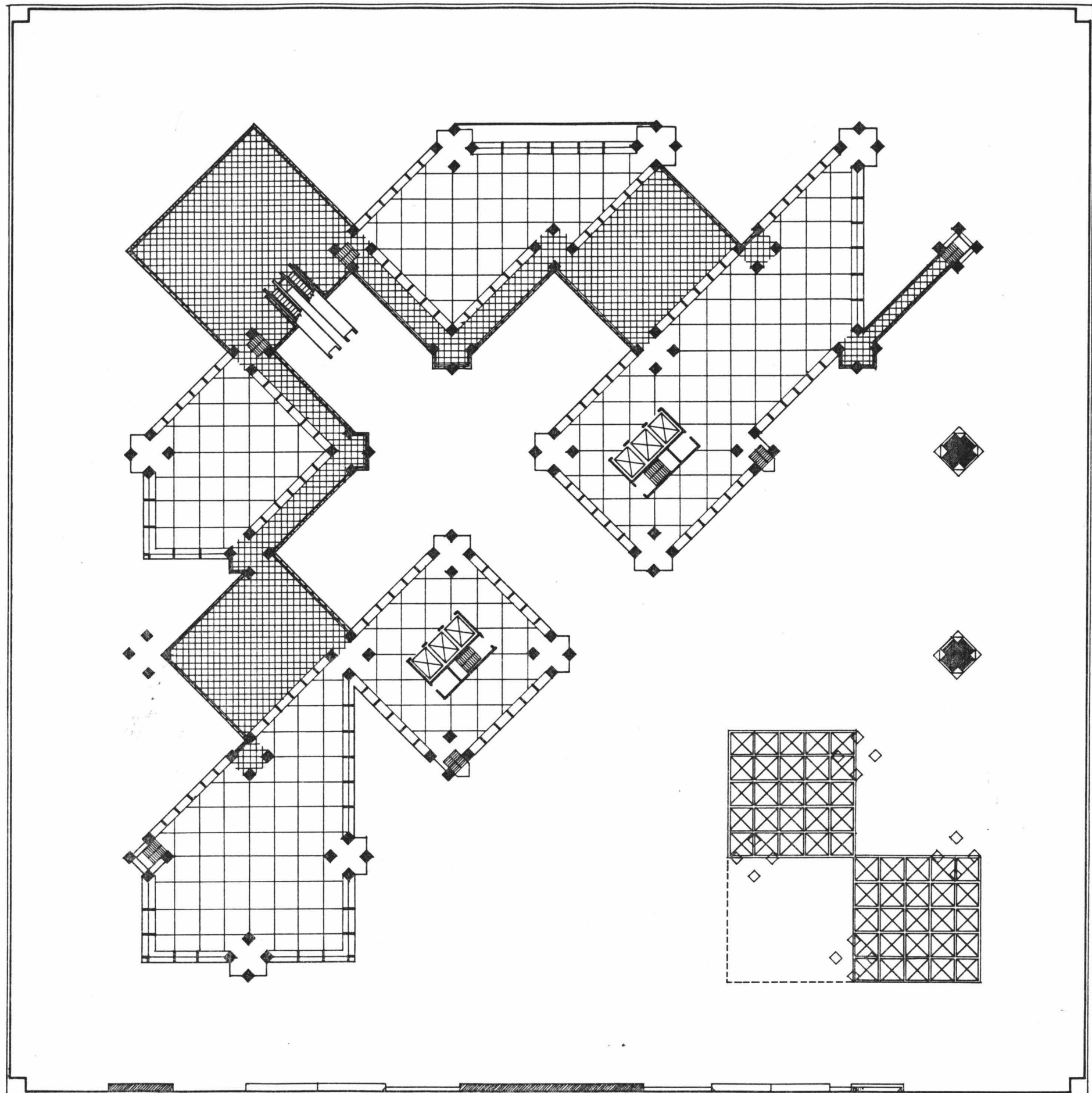
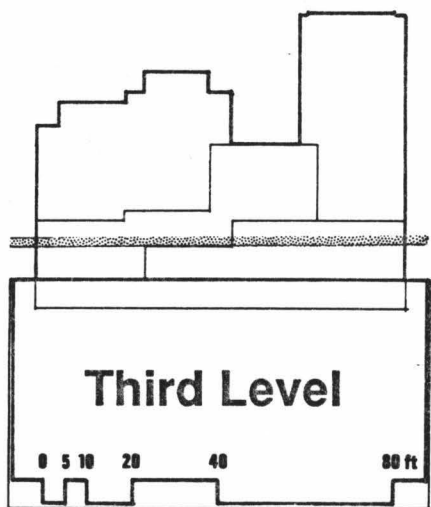


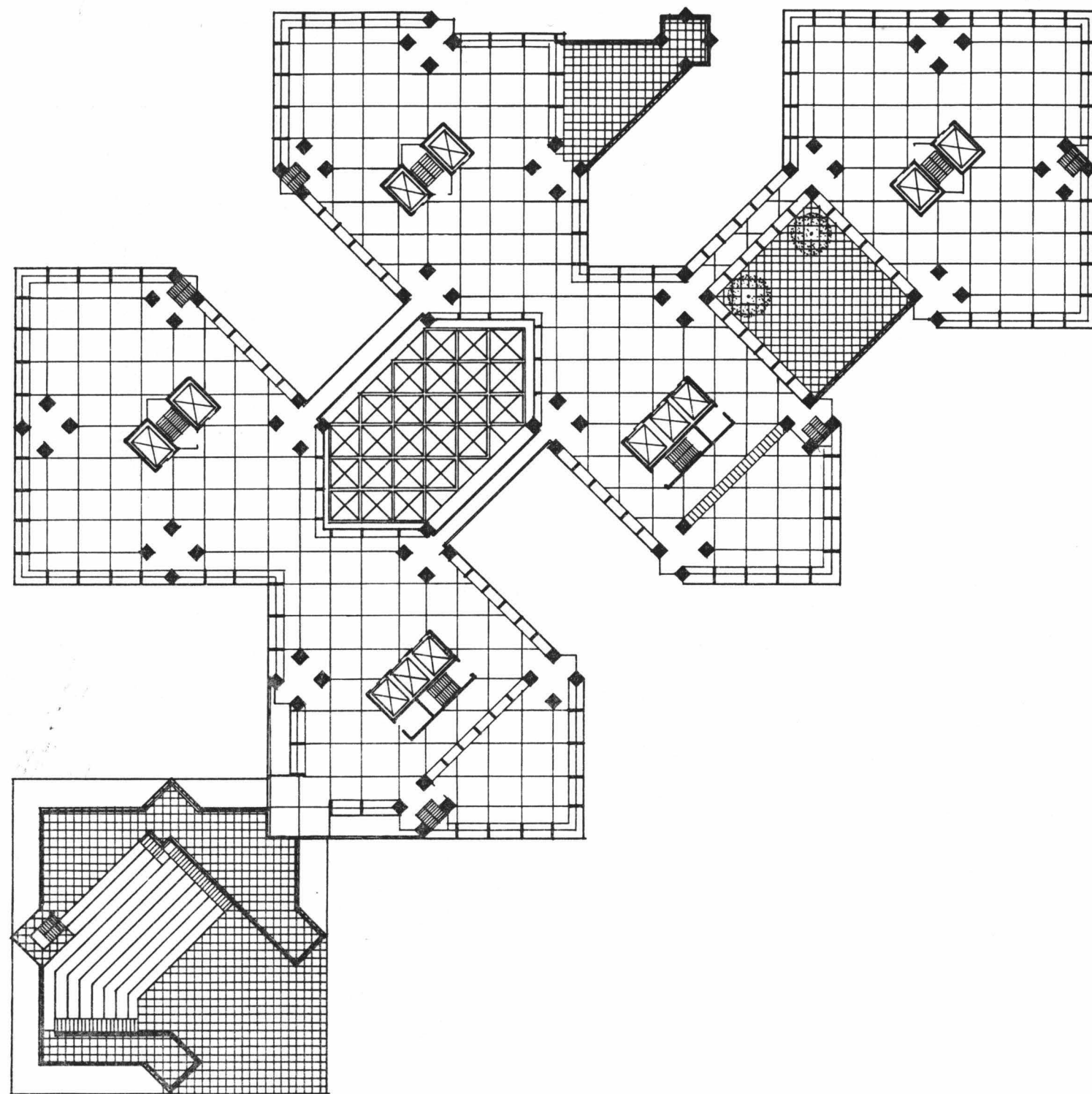
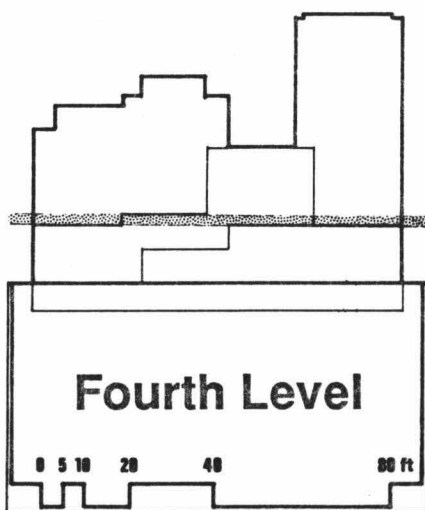


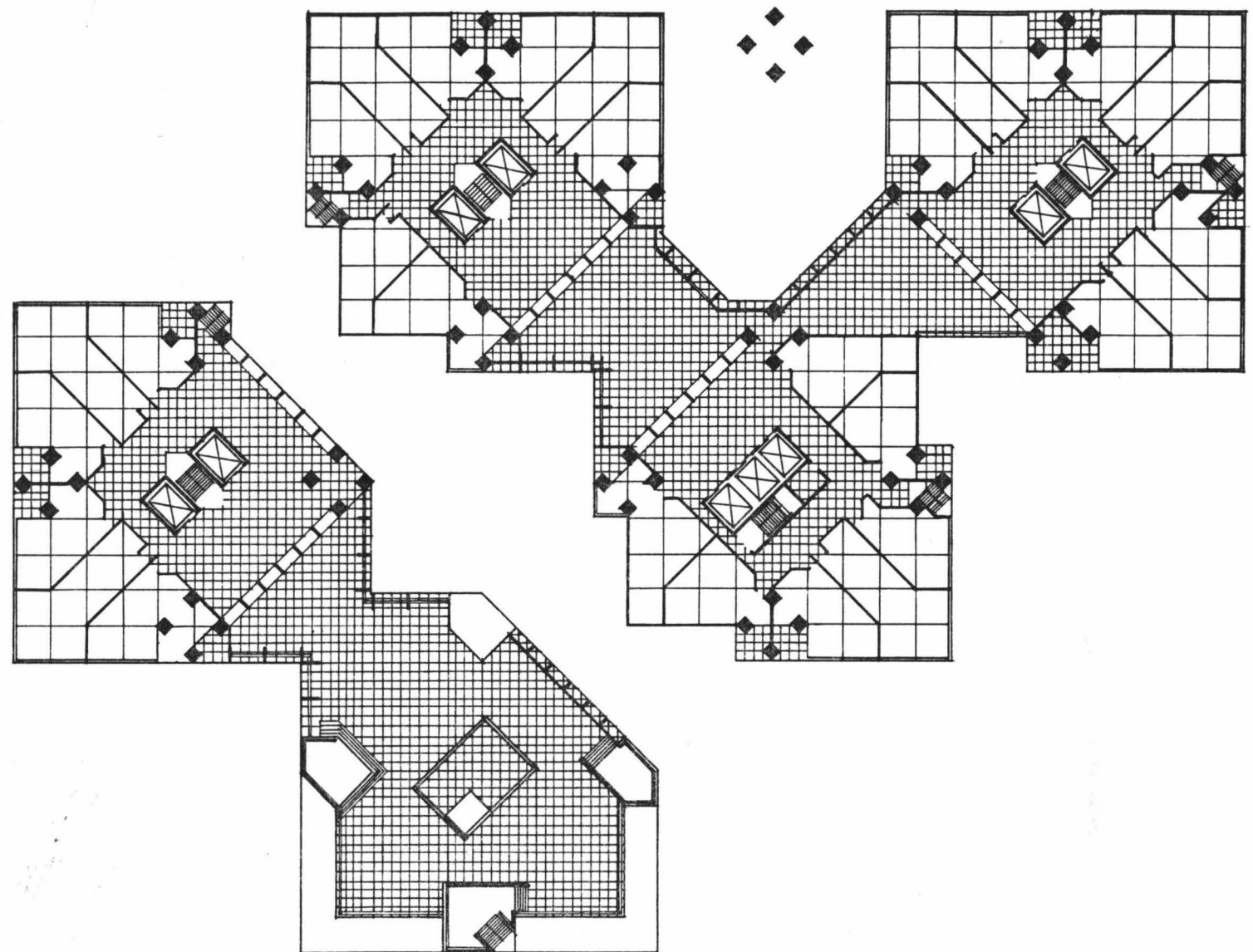
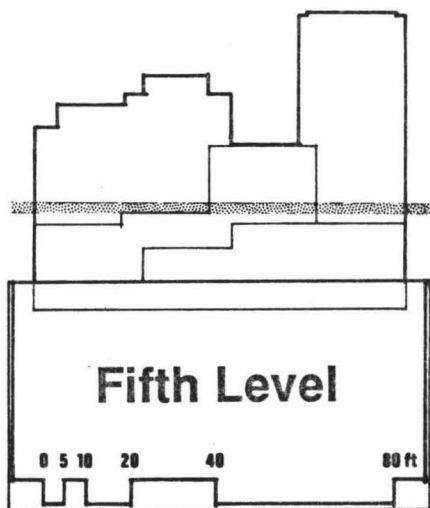












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the scanned document**