

A MULTI-USE BLOCK IN THE URBAN FABRIC

by

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MASTER OF ARCHITECTURE

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(ABSTRACT)

The spaces we inhabit, the urban fabric, the interplay between the two: this architectural thesis seeks to explore the many components of a mixed-use project, its relationship to the city, and its use by potential inhabitants.

Through this mixed-use project, many aspects of similar commercial/residential projects in the Washington, D.C. are challenged and rethought. It explores the impact of design on the way people live and work in a city.

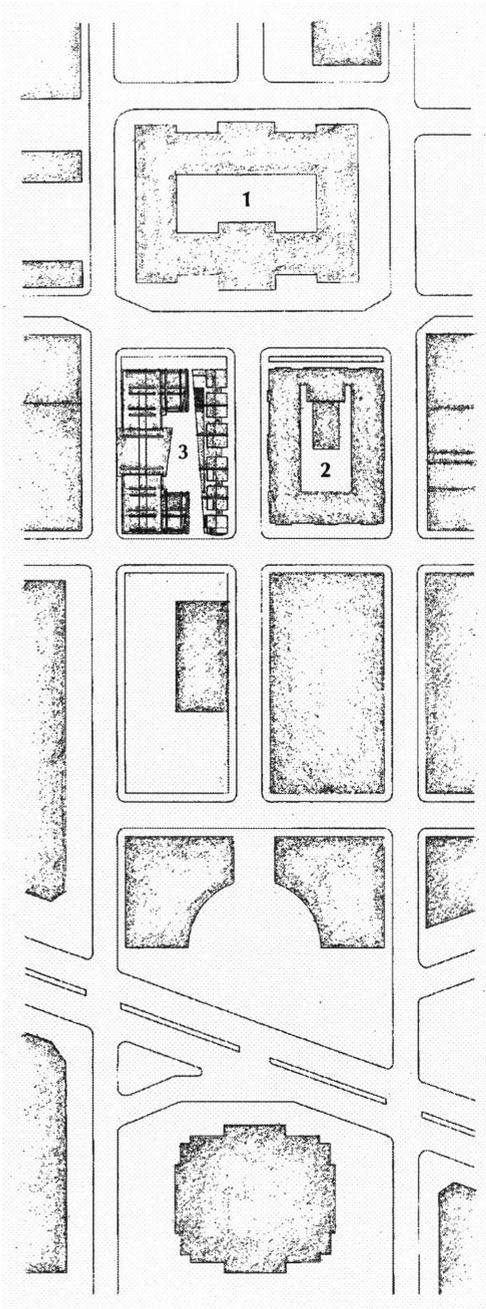
Research and analysis include architectural language, the workplace, the urban dwelling, the relationship of these to each other, and the relationship of these to the surrounding context. What follows is the documentation of these explorations, from site analysis to final drawings, and the beginnings of an understanding of how architecture can impact the working and living environments.

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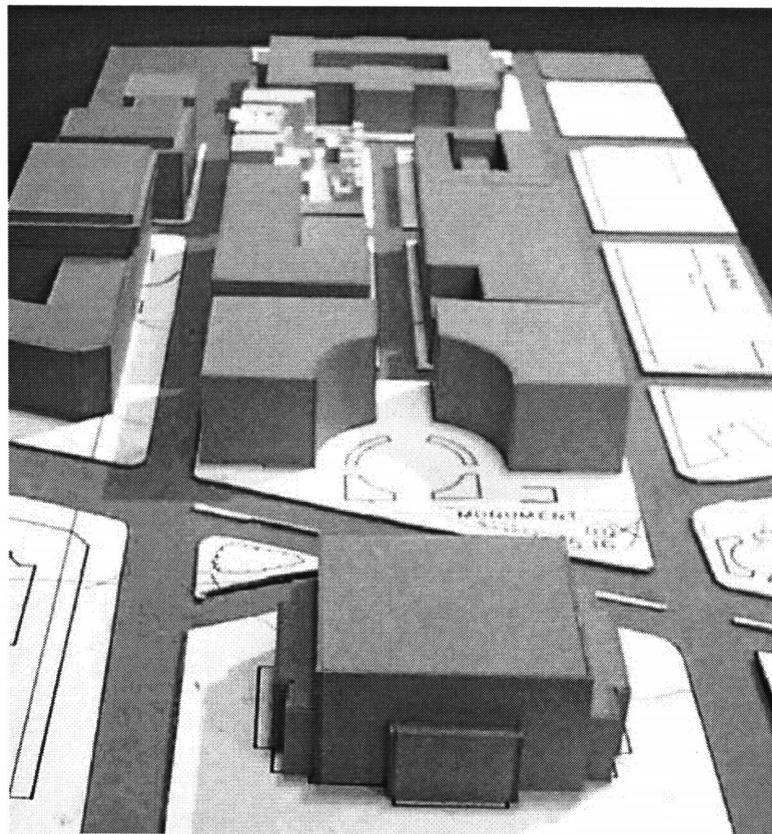
TITLE PAGE	i
ABSTRACT	ii
TABLE OF CONTENTS	iii
SITE	1
PARTI	2
SCHEMATIC SECTION	3
STRUCTURE	4
ENVELOPE	5
WORKPLACE	6
DWELLINGS	7
DRAWINGS	8
CONCLUSION	15
VITA	16

Key:

- 1 National Portrait Gallery
- 2 Tariff Comission Building
- 3 Thesis Project Site



Site Plan



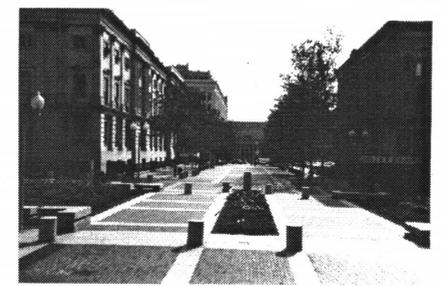
Site Model-Looking North

The project site is in the northwest quadrant of Washington, D.C. Called Square 406 in the Pennsylvania Avenue Plan, produced by the Pennsylvania Avenue Development Corporation (P.A.D.C.), this block is part of a comprehensive revitalization movement and is currently underutilized with surface parking and a few structures in deteriorated condition.

Bound by F Street to the north, 8th Street to the east, E Street to the south, and 9th Street to the west, this site is charged with historical issues, contextual opportunities, and very strong forces to influence the design of this block. Across F Street is the National Portrait Gallery, a terminus to 8th Street which ends to the south three blocks away at the National Archives building. Both of these buildings are bold landmarks and form an extremely strong north-south axis.

Enfronting 8th Street is the Tariff Commission building. A smaller scaled structure than others in the area, it is the hope of the P.A.D.C. that this building will be renovated into residential or hotel units. The west façade of the Tariff Commission building is symmetrical with a center portico suggesting a mid-block east-west axis. It's façade is composed of a clearly defined base, middle, and top.

Across 9th Street, all the structures are commercial buildings, their street facades topping out at the height limit of 110 feet. The Portrait Gallery, the Tariff Commission building, and many other buildings in the vicinity are laid out as courtyard buildings, creating oases from the pace of the city.

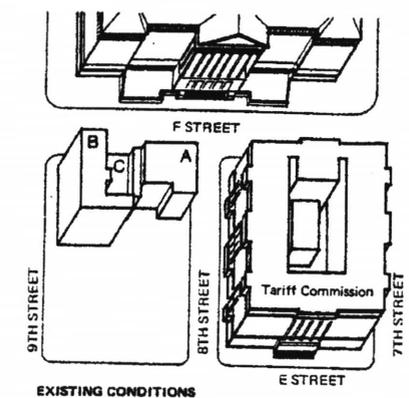


Existing Conditions-Tariff Building at left



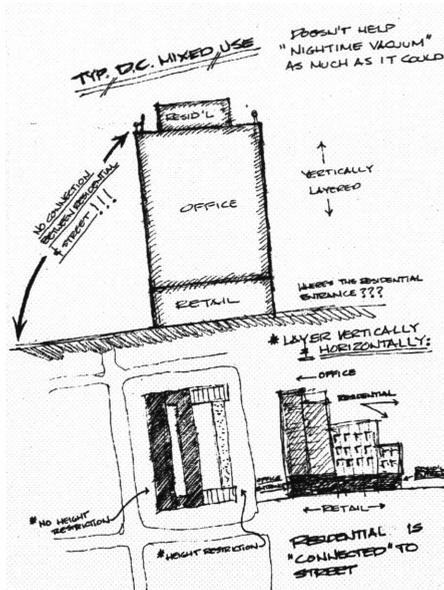
Existing Conditions-National Portrait Gallery

SQUARE 406

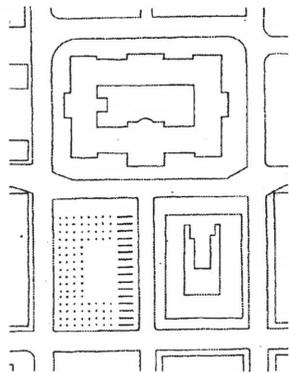


courtesy of the P.A.D.C.

Diagram from the Pennsylvania Avenue Plan

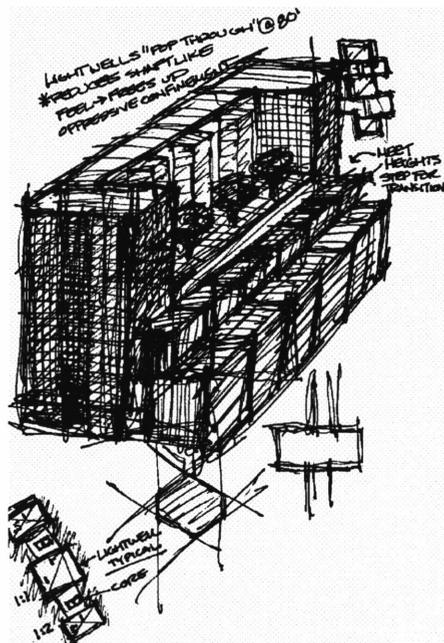


Massing Study-
Typical Existing/This Project



Early Parti Diagram

Early Parti Sketch-Axon and Plans



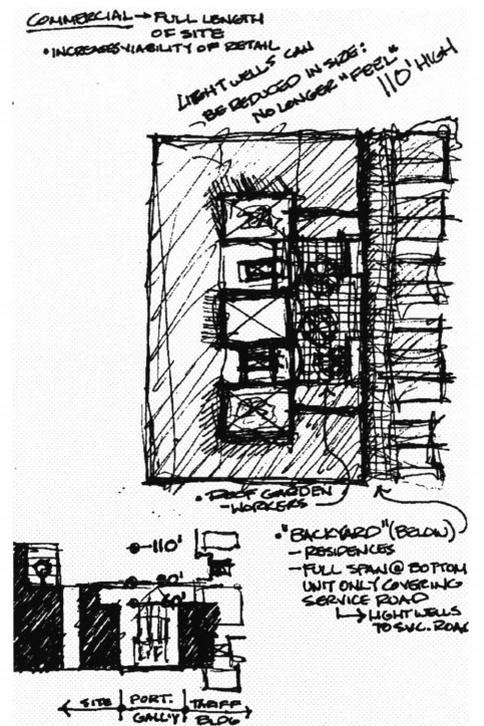
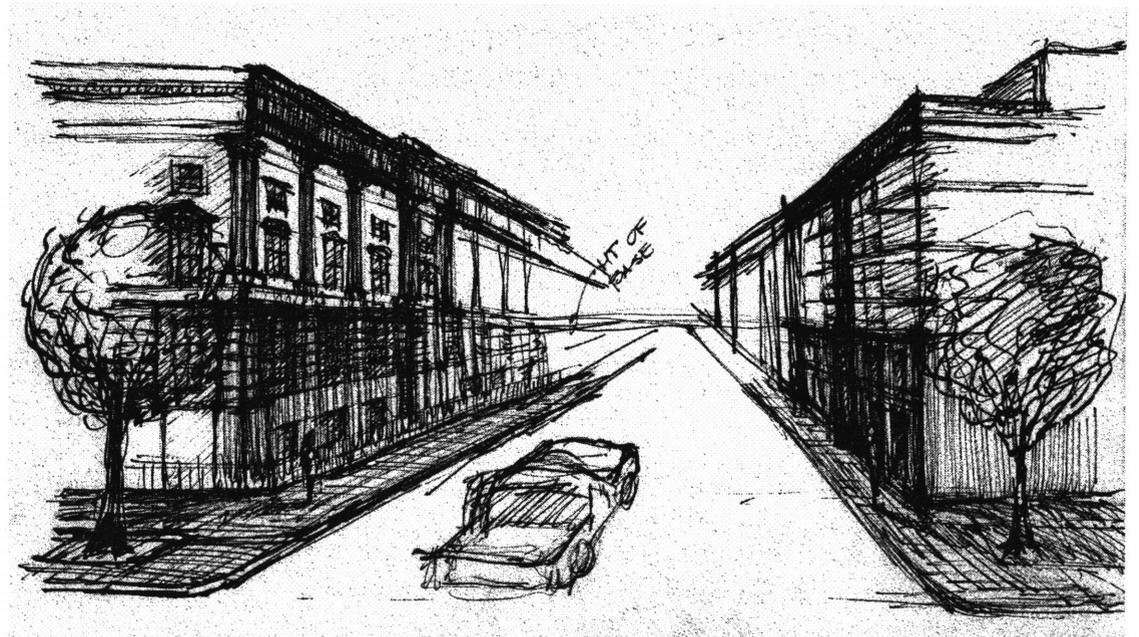
With retail at the street level, office space in the middle, and residential at the upper-most floors, the typical multi-use project fails to create a meaningful connection between the unit where the urban dweller lives and the street far below. Here, the residential component is separated out and clearly associated with the street and sidewalk to which it belongs. With shared stairways and numerous balconies, the connection is enhanced and the humane scale of the street is reinforced.

The Tariff Building across 8th Street is only 65' high and is slated to be renovated into residential units. The dwelling units of this project therefore, line 8th Street with buildings similar in height, also composed of a clearly defined base, middle, and top. The matching heights and similar composition, along with the rhythm of the architecture, reinforce the important axis between the Portrait Gallery and the Archives.

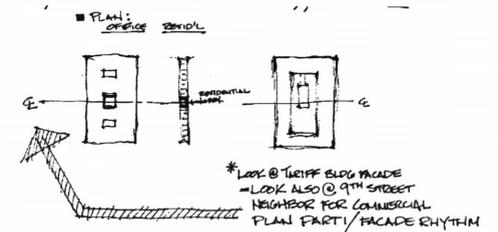
The small art galleries at the street level are an appropriate function for the retail at the east edge of the block due to the adjacency to the Portrait Gallery and the scale of 8th street. These spaces are highly flexible, where a tenant can lease a single 'module' and erect a party wall for a very small gallery, or lease more square footage for a larger gallery, and even take up residence in the loft overlooking the space.

The office building lines the remaining edges of the site, matching the height of the adjacent commercial buildings. In the spirit of many nearby courtyards, the office building is configured as a 'U' that forms an urban oasis as well as a buffer between the two functions of office and home. Although the facades which bind the site are orthogonal to enfront the streets, the building edges that face the courtyard are free to break that grid. These elevations are angled about the axis of the south sun to maximize the sun-light for the courtyard.

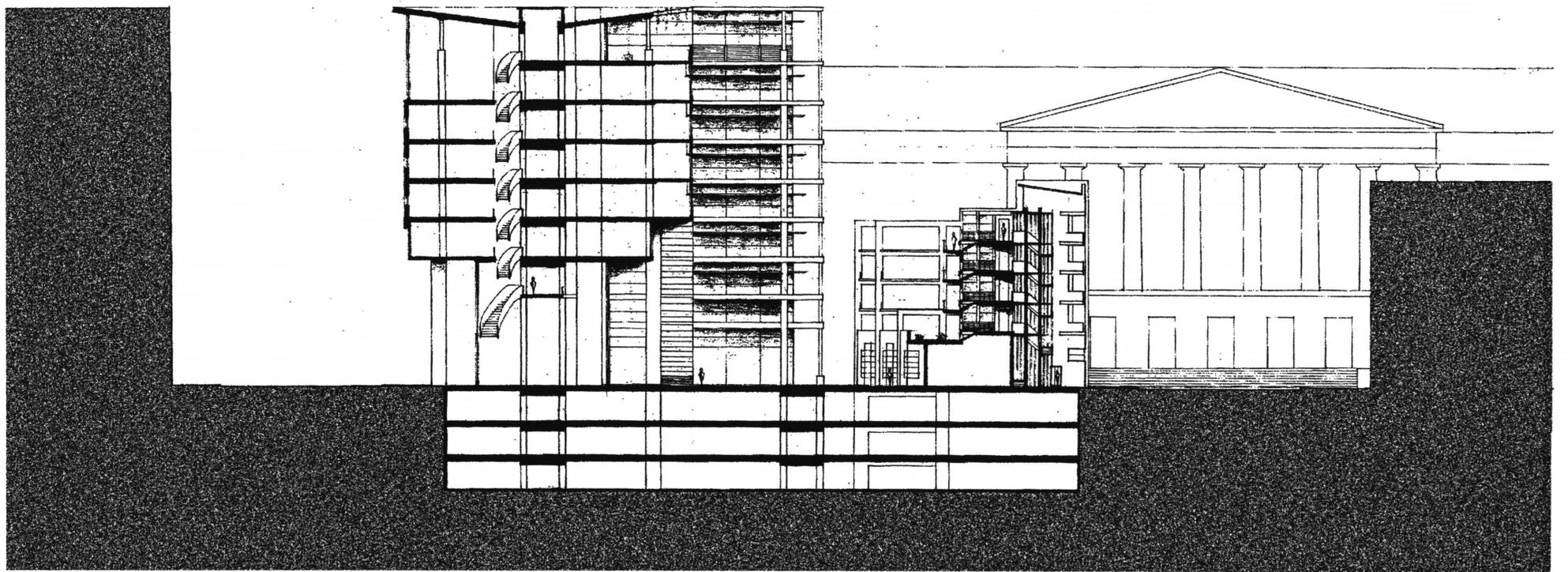
Study of Residential (at right)-Looking Down 8th Street



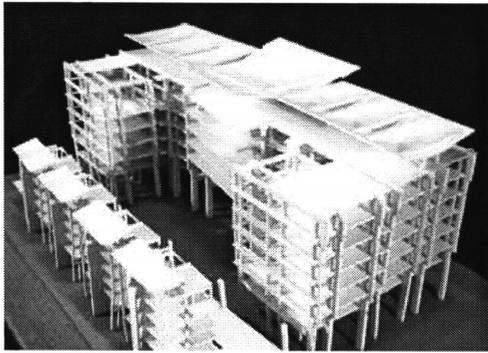
Early Parti Sketch-Plan and Section



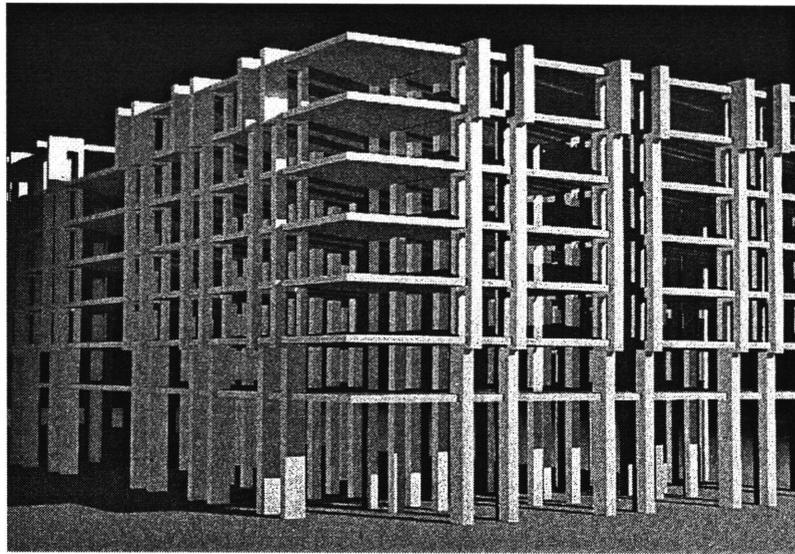
Axis Study



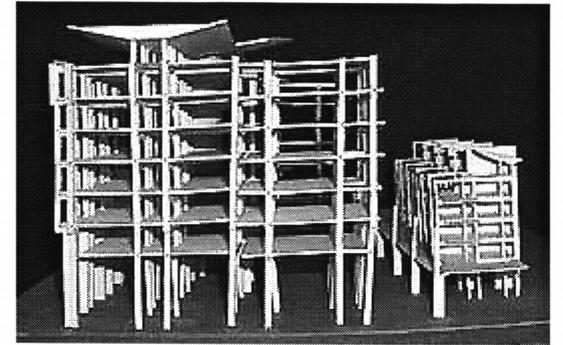
Early Site Section-East/West Looking North



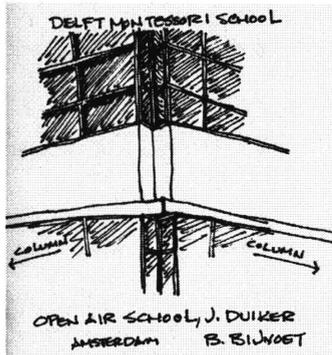
Study Model



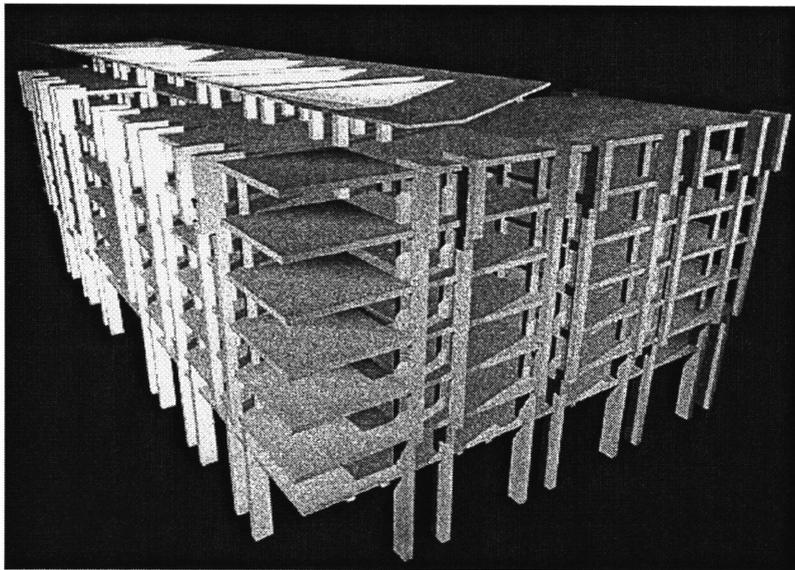
Computer Model



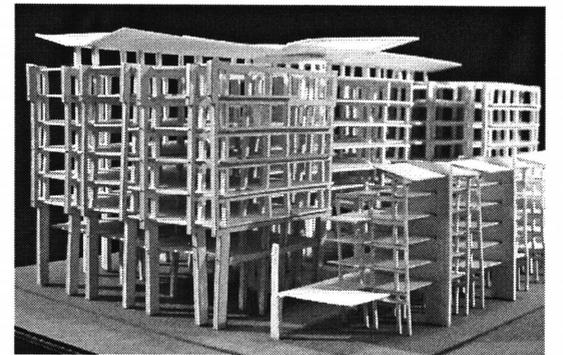
Study Model



Precedent Study:
Open Air School, J. Duiker



Computer Model



Study Model

University of Pennsylvania
Laboratory, Louis Kahn

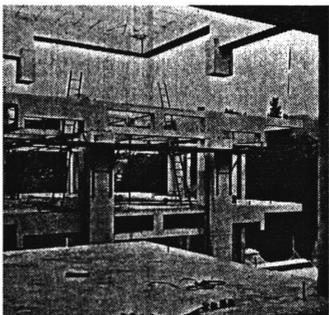


photo by Marshall Meyers

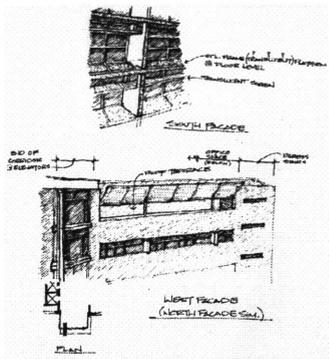
The primary structural material is reinforced concrete, which is typical for commercial projects in Washington, D.C. due to height limitations. What is not typical here is the way the concrete is formed into an architectural system to be seen and celebrated, rather than the more typical utilitarian columns and slabs, hiding behind finishes.

The piers at the perimeter of the office building grow in width as they move up, creating space to inhabit so occupants can experience the structure. Interior columns rise to support cantilevered "fins", which hold up roof slabs that reach for the sky.

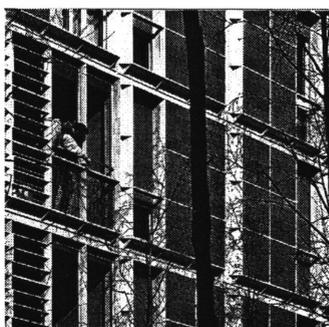
University of Pennsylvania
Laboratory, Louis Kahn



photo by Marshall Meyers



Precedent Study:
Hypolux Bank, Richard Meier



Rue de Meaux
Housing, Renzo Piano

photo by Peter Buchanan

Model-South Facade



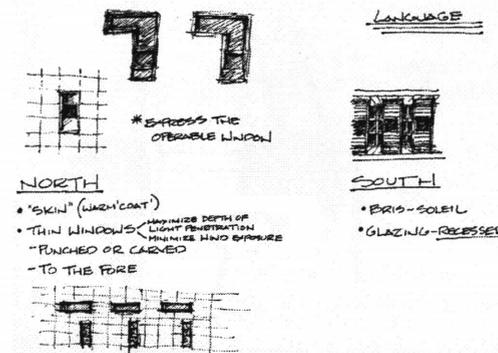
The skin is infill between the concrete, so the expression of structure is maintained. The language of the envelope is derived from a module that fits within the structural grid. The module of the skin at the office building is the same proportion of height to width as the module at the residential units, but the size of the module is smaller at the dwellings due to the smaller scale and function of the buildings.

Each façade is designed individually according to its particular orientation and function, but conforms to the common grid of the module so as not to lose the cohesiveness of the project as a whole. At the two south elevations of the office building, *bris-soleils* occupy the line of the skin, and curtainwall of vision glass and spandrel glass are recessed, to mitigate the direct rays of the sun. The south elevation of the residential units have deeply recessed terraces and cantilevered balconies for shade.

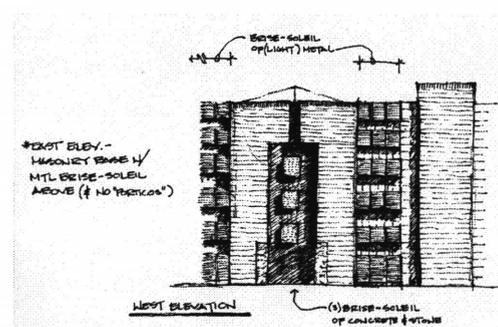
Due to adjacent conditions, the only east or west elevations subject to solar rays are the east façades of the office building. Since these do not face the street, they are able to break out of the orthogonal urban grid, and the main east façade is angled toward the sun. Light shelves, which fit within the modular pattern, bounce sunlight into the workplace and block direct solar gain.

At the north elevations of both buildings, the envelope is forward so windows can let in as much diffused daylight as possible, but the windows are punched openings in an opaque "coat" to insulate against the cold north winds and lack of solar heat gain. The material of the residential "coat" is a natural stone, such as limestone.

The material of the commercial "coat" is stainless steel to indicate a more high tech function. But the finish is a brushed stainless steel to contrast less with the stone of the residential than a polished metal. With the consistent language of modular proportions, expressed structure, and acknowledgement of solar orientation, the skin of the buildings can and should be different materials, and the project still appears as a unified whole.

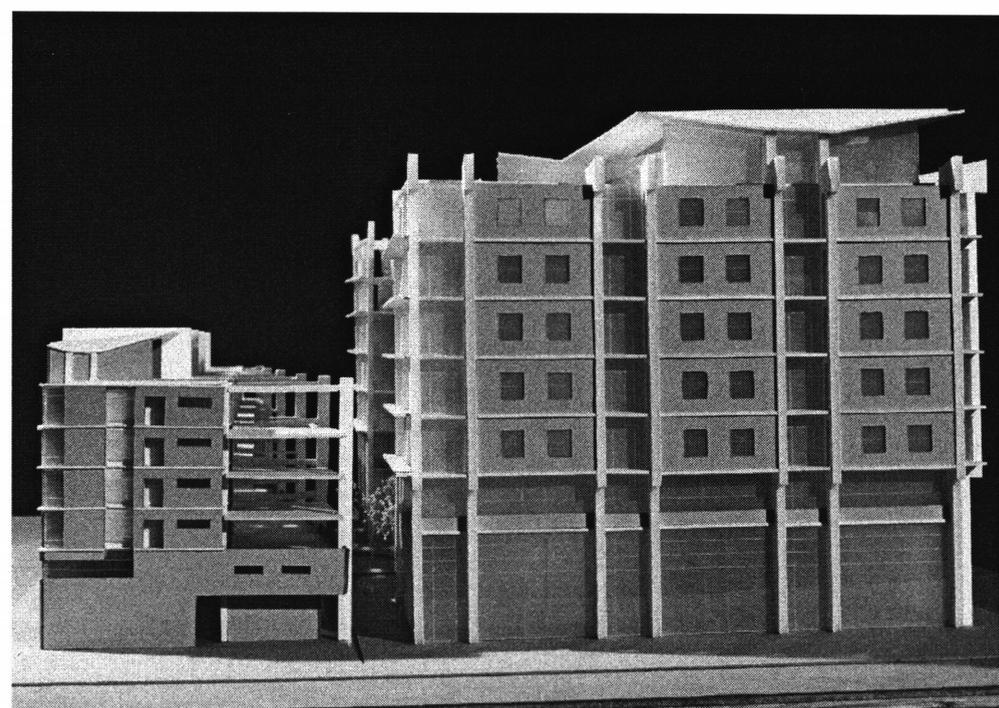


Study Sketch



Precedent Study:
Banca Del Gottardo, Mario Botta

Model-North Facade



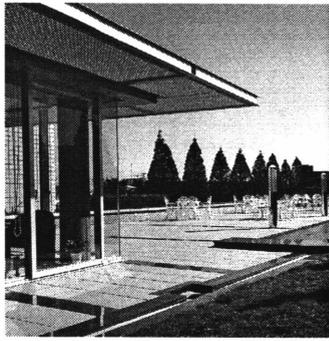
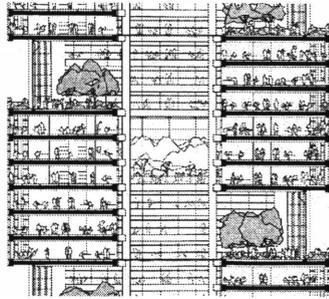


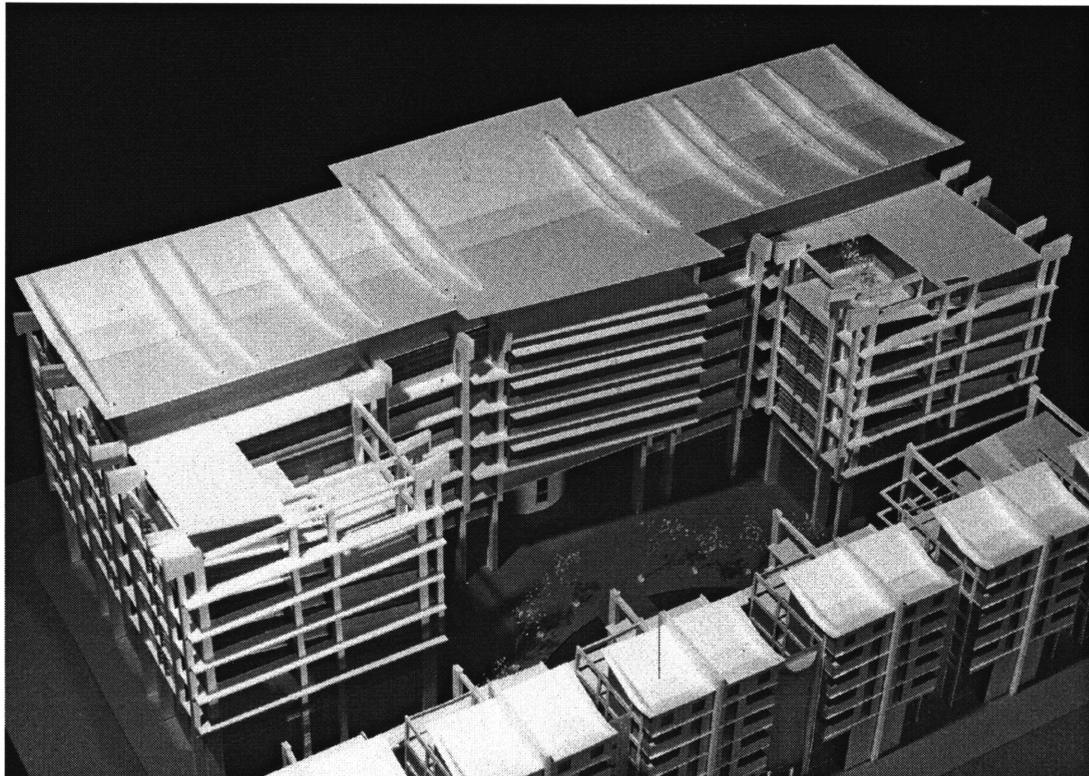
photo by Toshiharu Kitajima

Wacoal Media Center,
Fumihiko Maki



Commerzbank Headquarters,
Norman Foster & Partners

Model-Courtyard

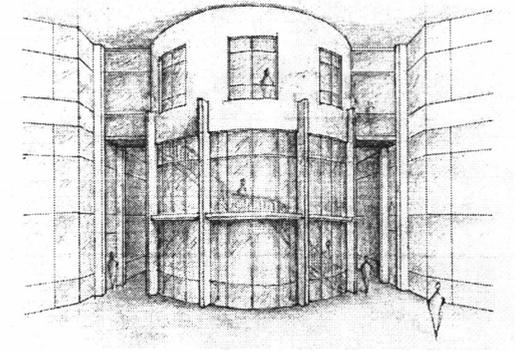


The typical American office building design maximizes leasable space with enormously deep floor plates, but sacrifices daylight to all but a small percentage of tenants. Along with a hermetically sealed skin, the typical office worker goes through his day without any sense of the outside environment, and may even be subjected to "sick building syndrome".

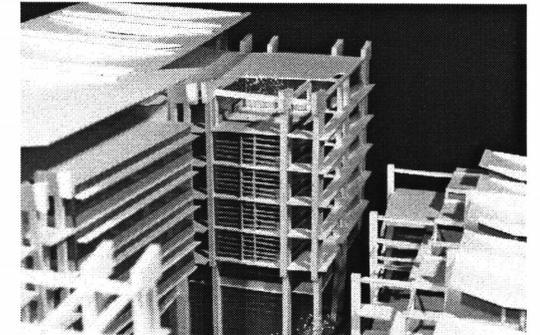
In areas of Europe, especially Germany, Holland, and Scandinavian countries, humanely designed workplaces are economically viable. With these as examples, developers in the United States could begin to think more long-term, seeing that more user friendly structures can actually conserve natural resources, promote productivity, and be marketed as an amenity to informed tenants who may pay premium lease rates.

The depths of the floor plates (approximately 30 feet from envelope to corridor wall) are shallow by today's standards in the United States. This allows the maximum number of people to have views to the outside and experience natural daylight. Also, many little balconies and gathering terraces help further connect the occupant with the natural environment.

Another aspect of current progressive thinking about office buildings is the notion of the intelligent workplace. The most sophisticated office buildings provide a logical layout and short runs for the mechanical, electrical, and plumbing systems. This maximizes flexibility for the tenant and simplifies maintenance for the owner. The plan of this building is based on a tartan grid of small and large bays. The small bays provide a simple network of pathways for the systems to run from the cores into the work areas. Also, secondary cores which contain separate sub-mechanical/electrical/LAN rooms, reduce the runs of the systems and provide the user with maximum flexibility and control of their work environment (*see also Floor Plans-pages 9&10*).

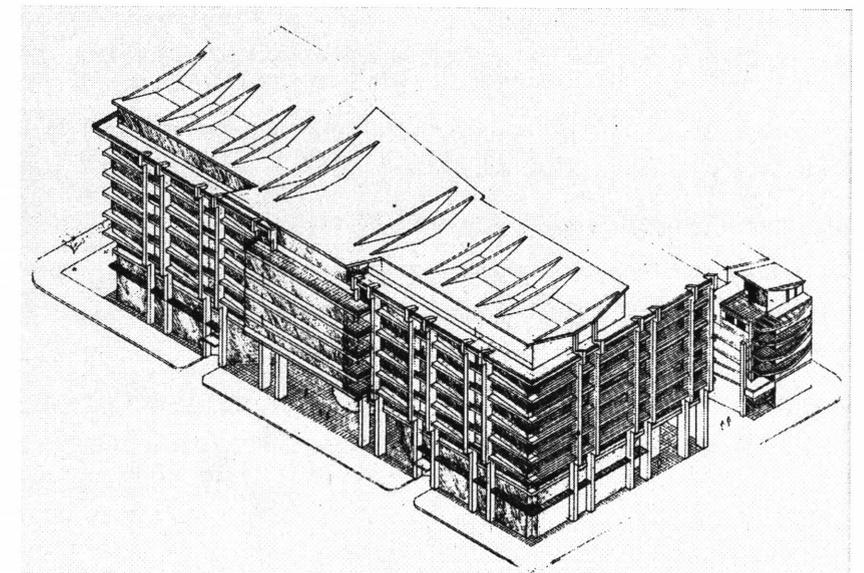


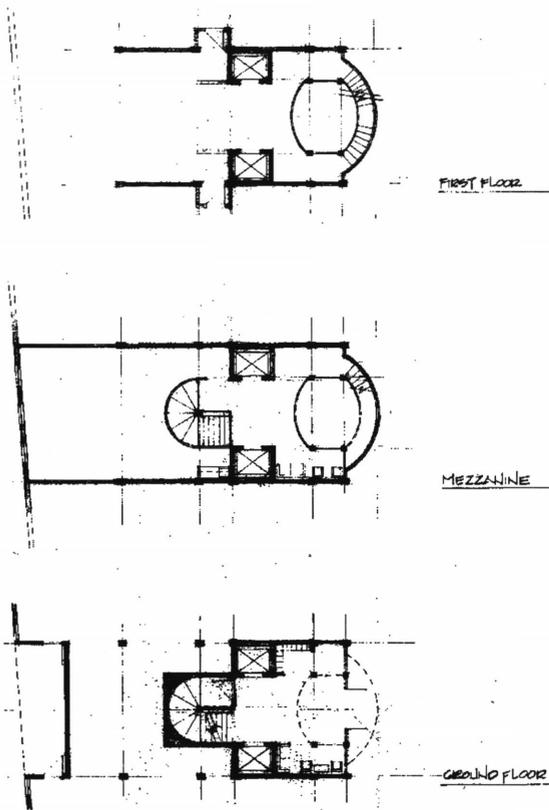
Sketch-Entrance Lobby



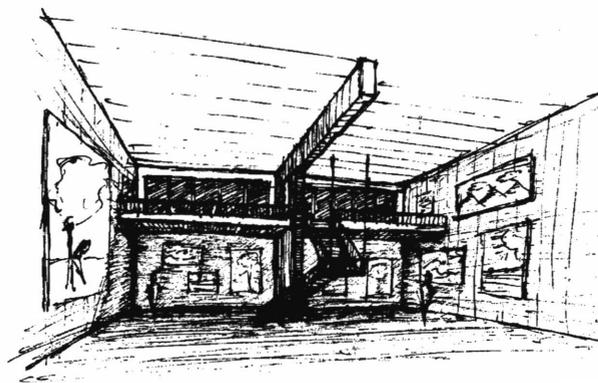
Model-Terraces

Axonomic-South-West Corner

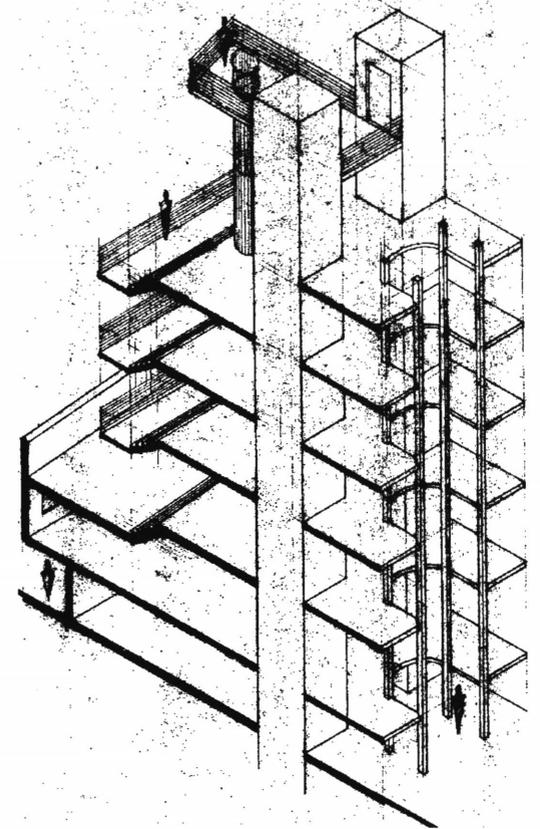




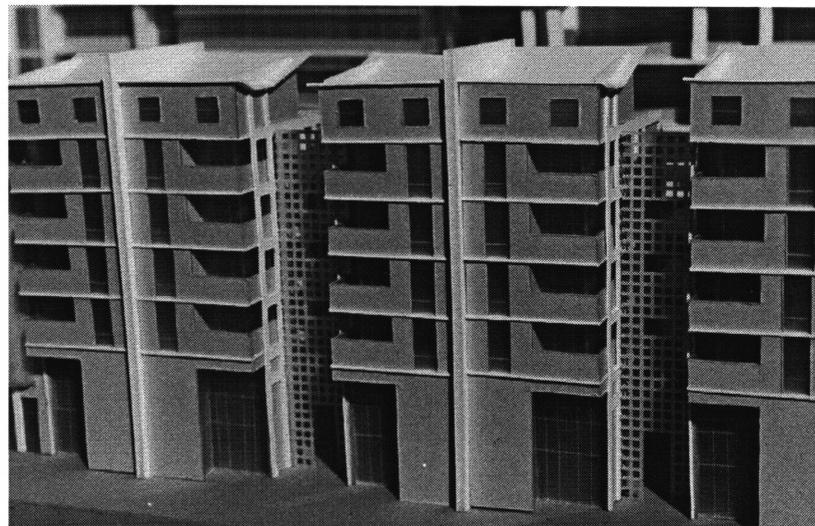
Plans-Residential Core



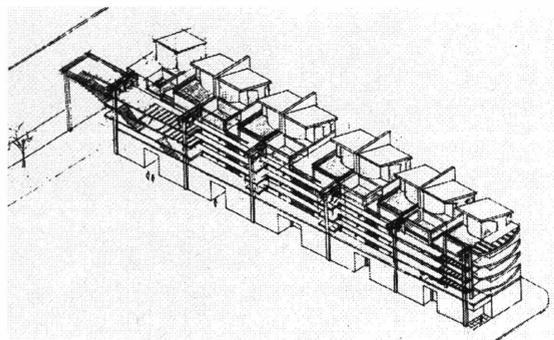
Sketch-Gallery



Sectional Axonometric-Residential Core



Model-East Facade

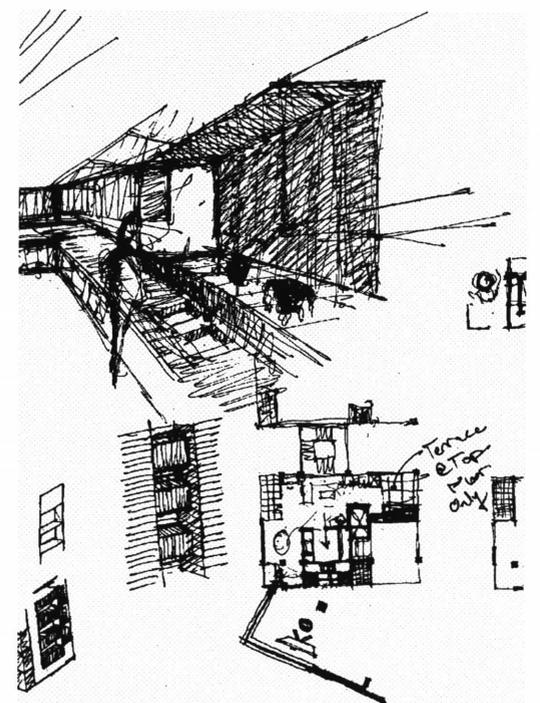


Early Study-Residential Courtyard

The urban dwellers are connected with their street, thereby enhancing the sense of being a part of the larger community. The architecture also provides shared spaces and gathering places so the sense of being a part of the micro-community, that is the group of people who live in that row of units, is also reinforced.

Just above the rear of the galleries, a large area is provided as a community-wide play area and gathering place. Above that, this zone which looks onto the courtyard, is carved away to allow daylight through. These elements not only serve as walkways, but have nodes for little gatherings and can become what Herman Hertzberger calls "living-streets", spaces shared by the inhabitants of the same floor.

In order to preserve the sense of privacy as well, a clear hierarchy of the many layers along the daily processions is maintained. From the very public street, you enter either the main lobby that is shared with all residents, or you enter your stair tower that is shared only with your neighbors that flank that stair. Then you arrive at the space between your unit and your neighbor directly across from you. This area becomes something that belongs to the two of you. As you approach your entrance, your door is recessed in a niche that is your private space, but is visible to others. You enter your home and close the door behind you for total seclusion.



Study Sketches

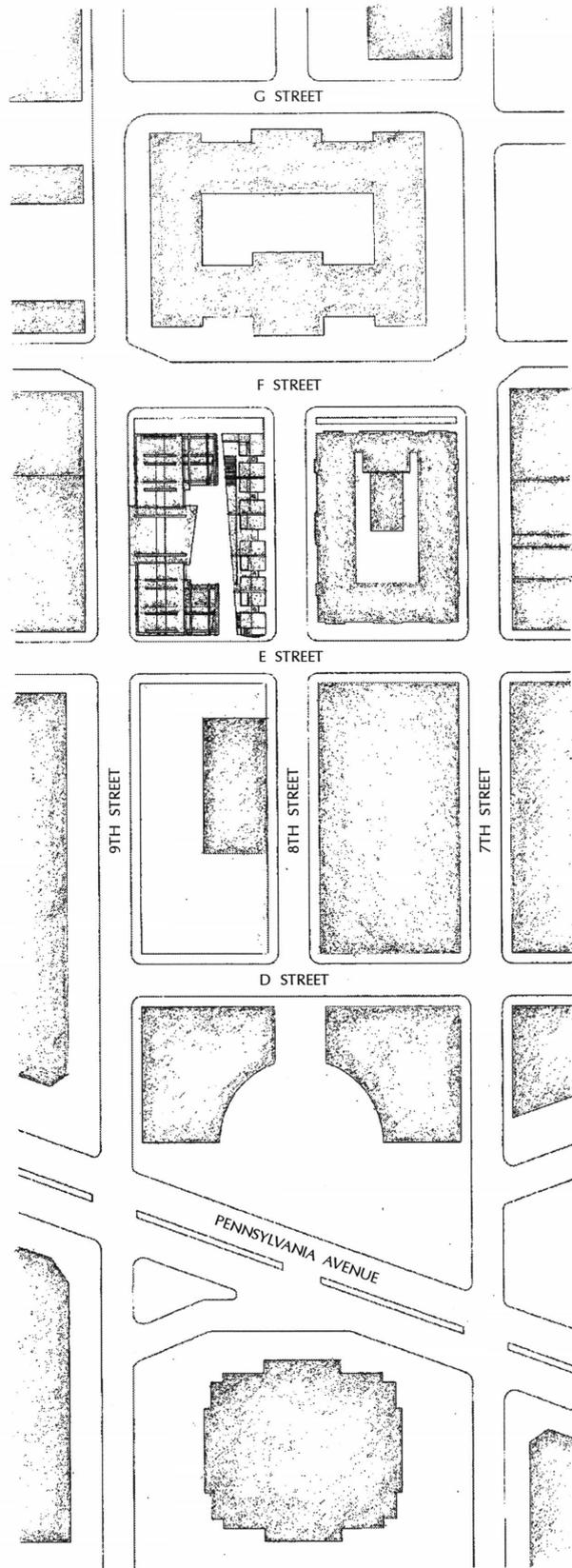


Weesperstraat Student Accommodation, Herman Hertzberger

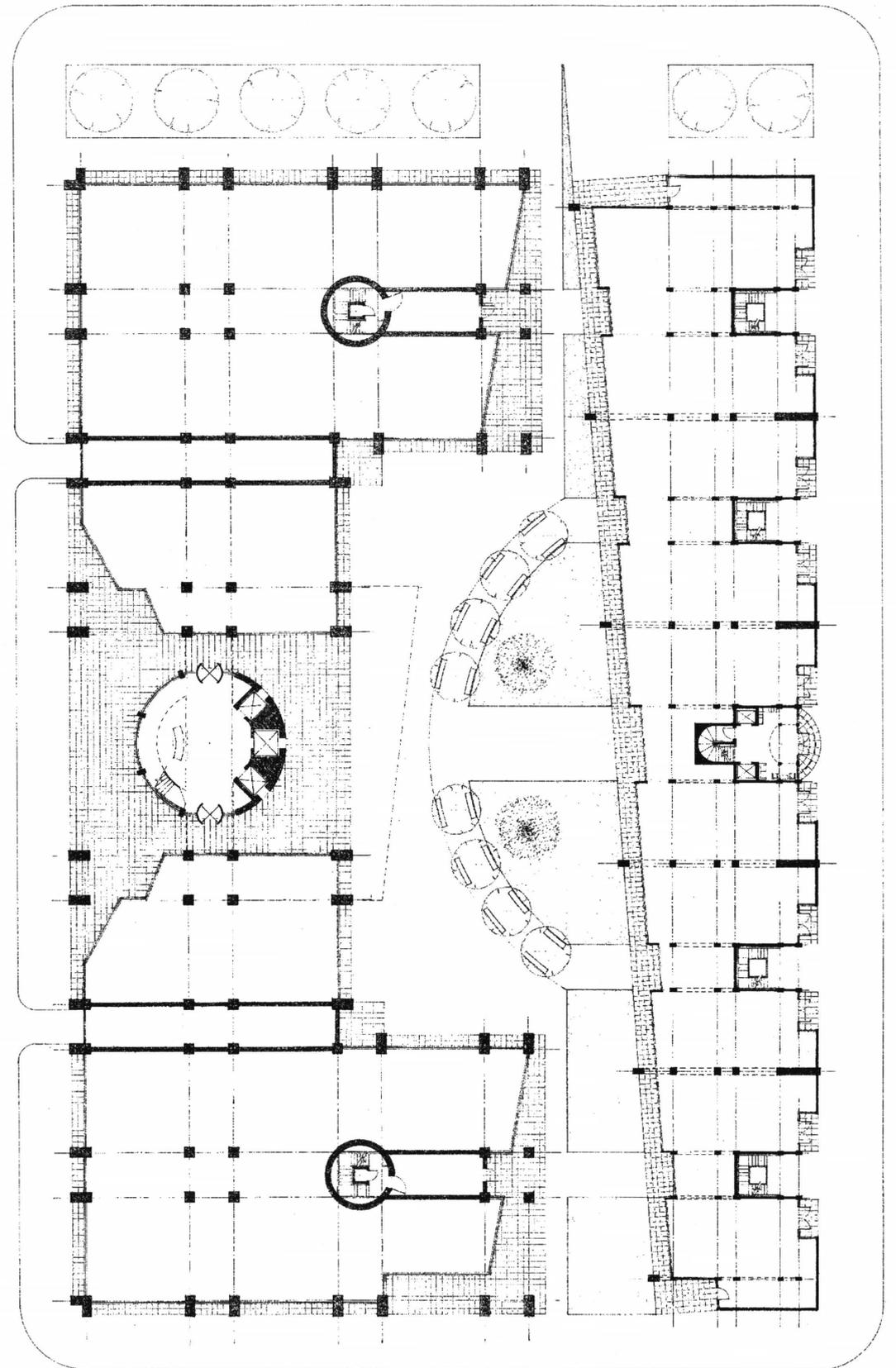
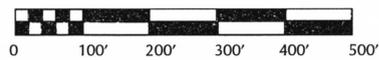


Haarlemmer Houttuinen Housing, Herman Hertzberger

photos by Herman Hertzberger

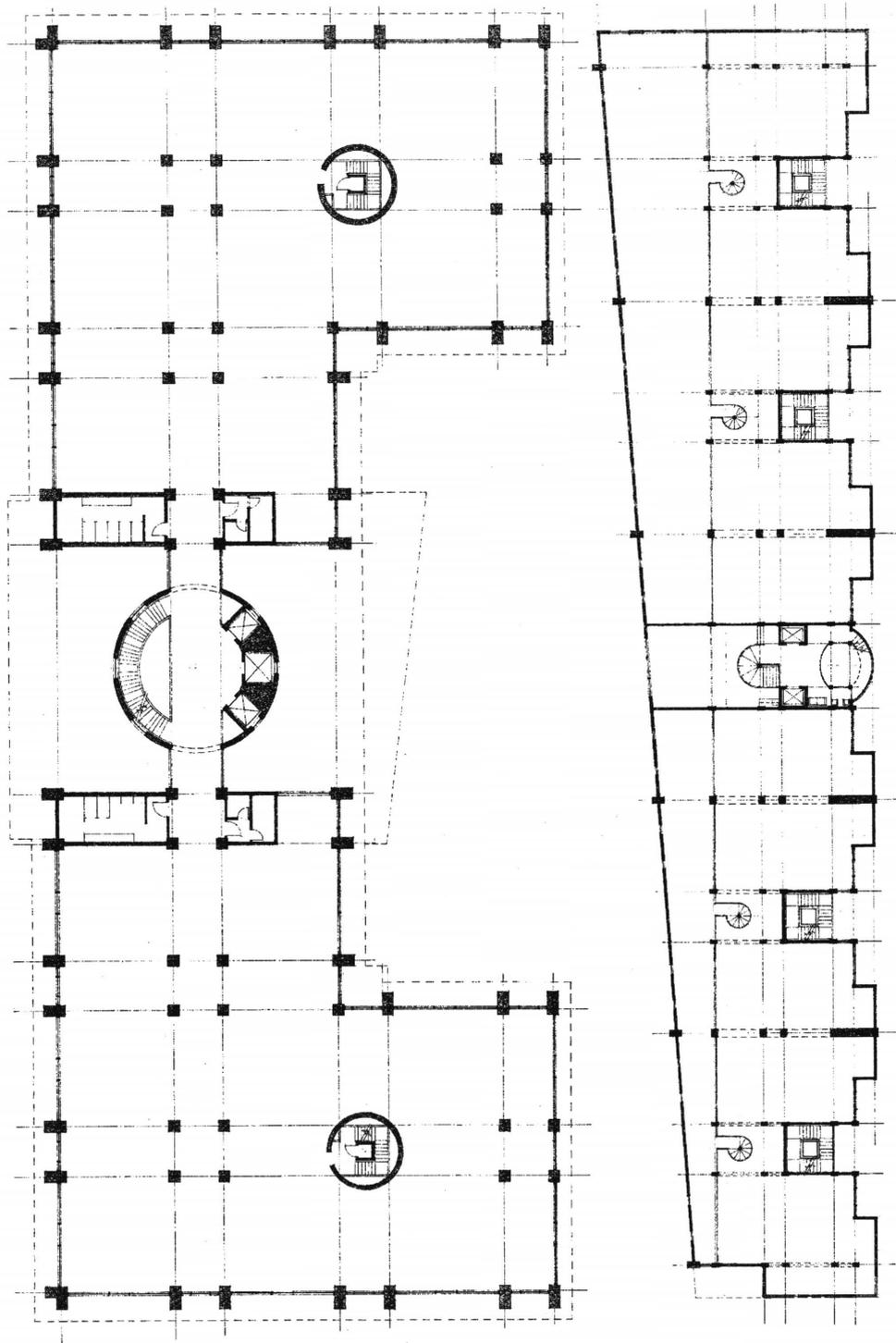


Site Plan

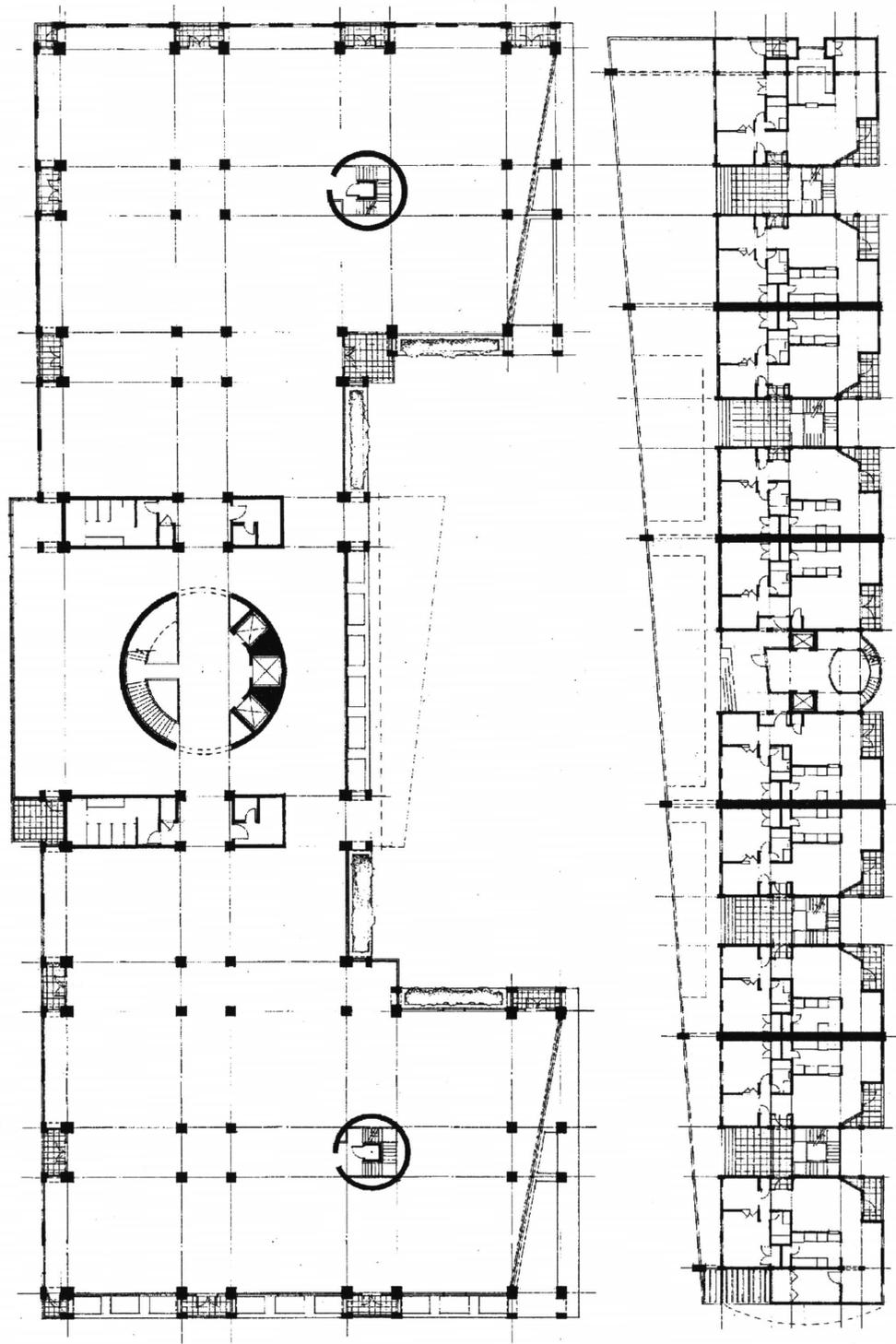


Ground Floor Plan



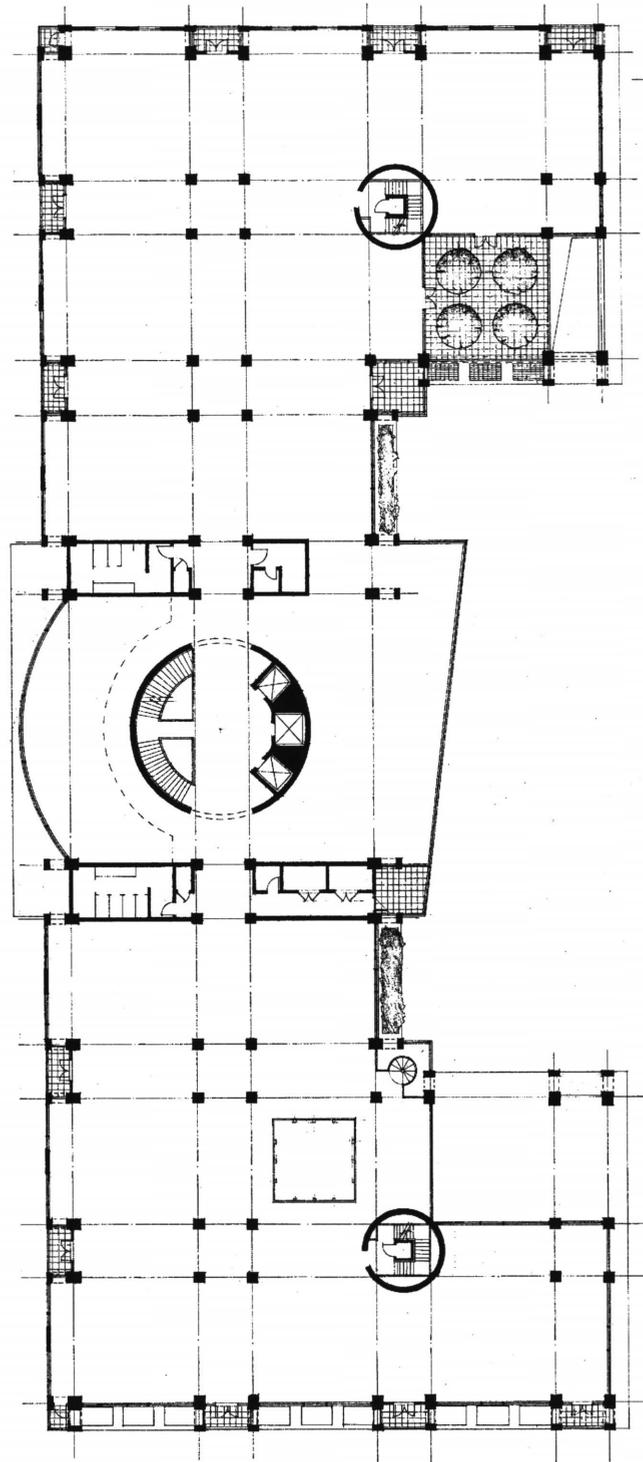


2nd Floor Plan

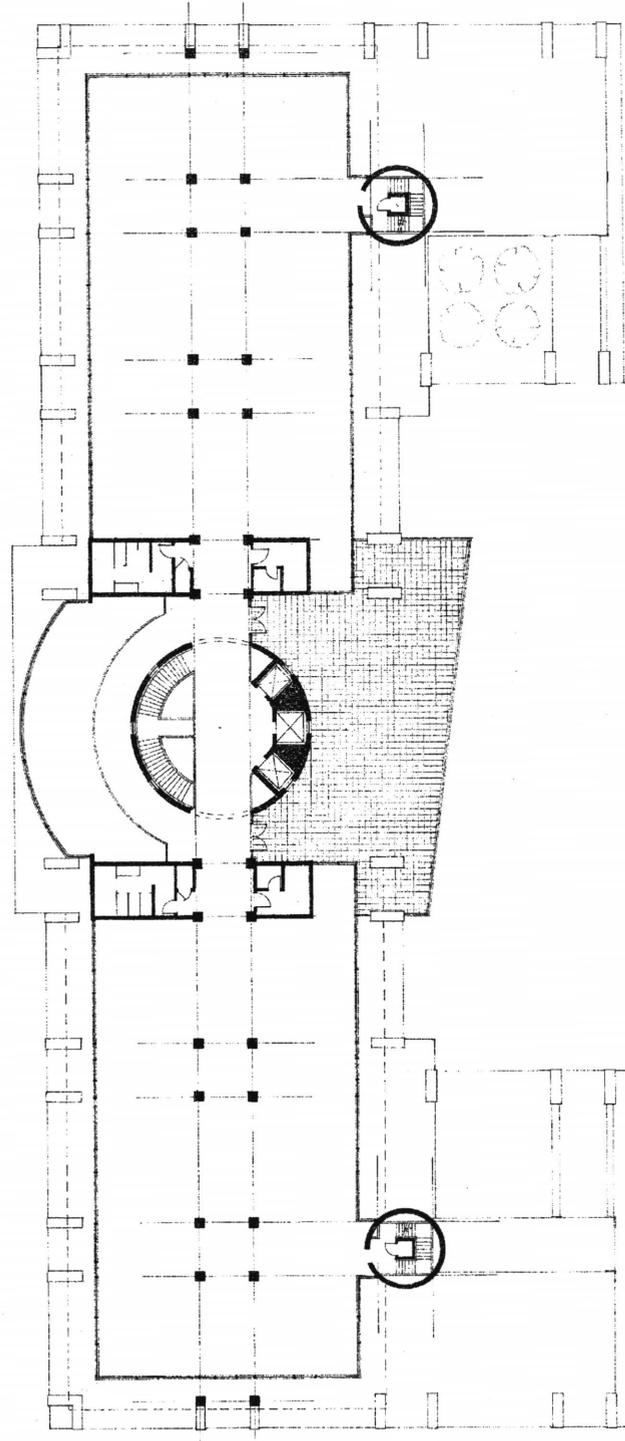
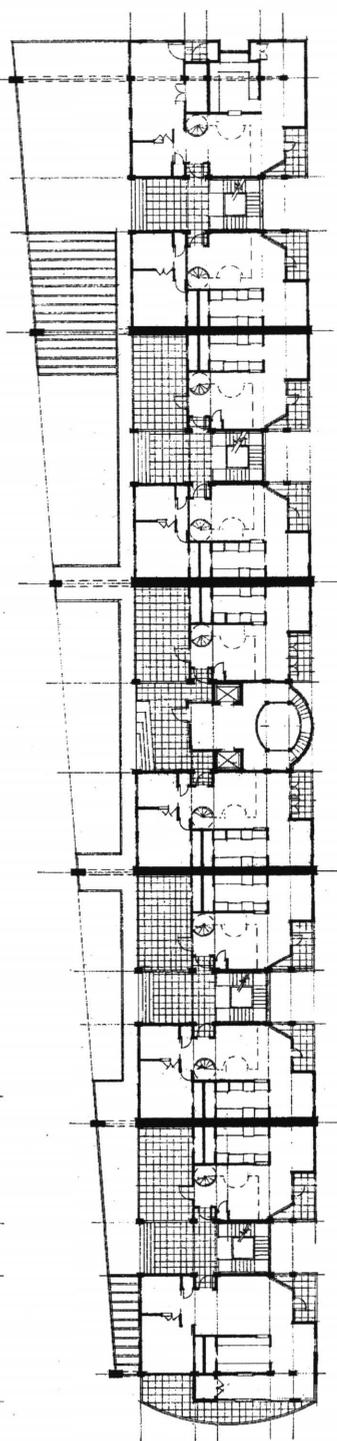


3rd Floor Plan

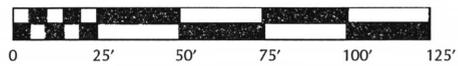
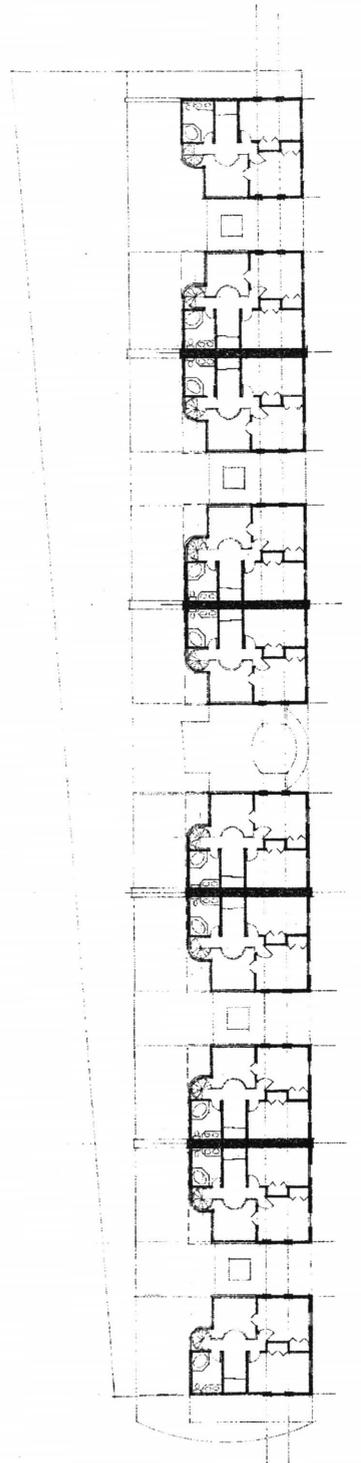


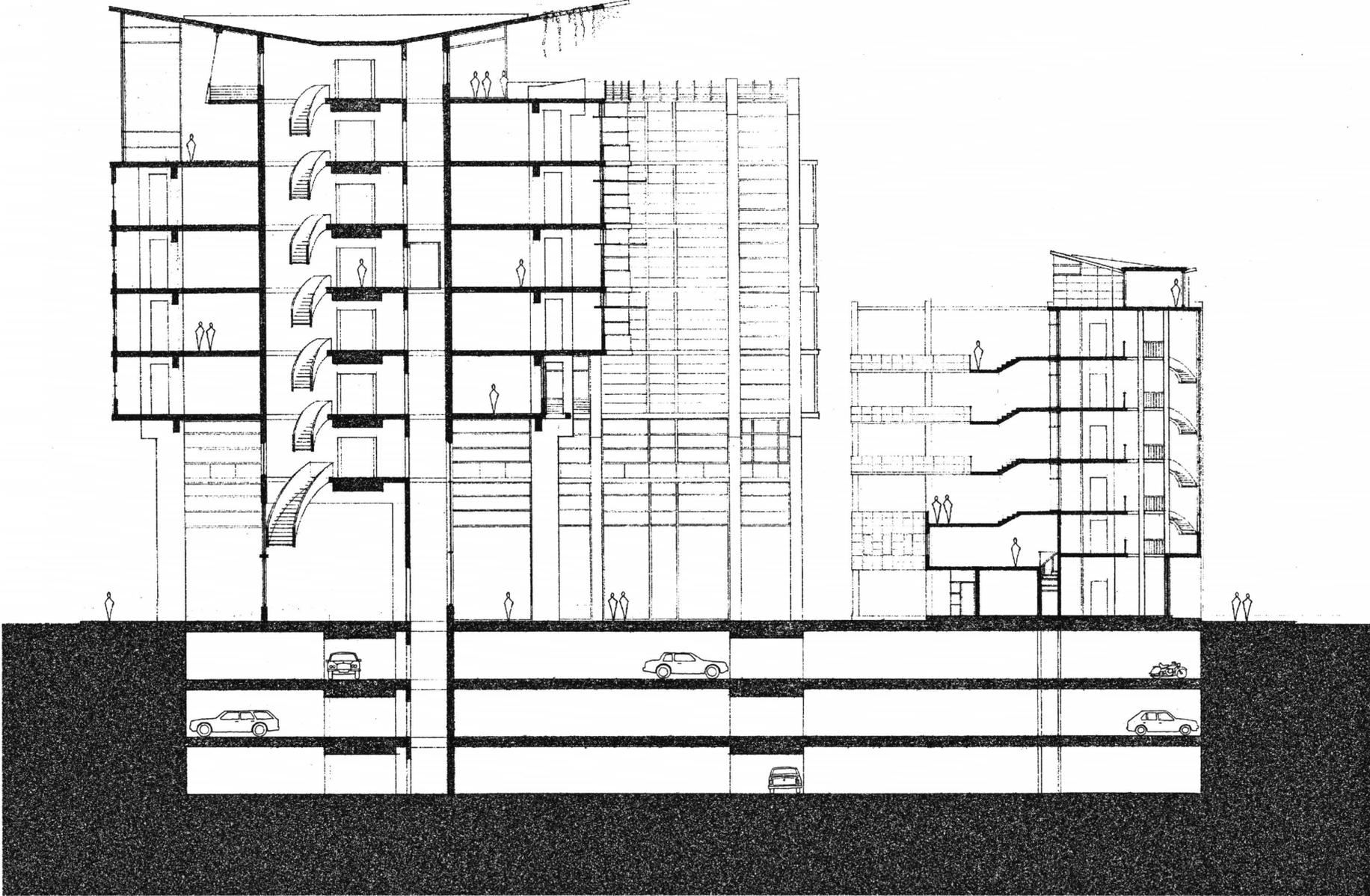


7th Floor Plan



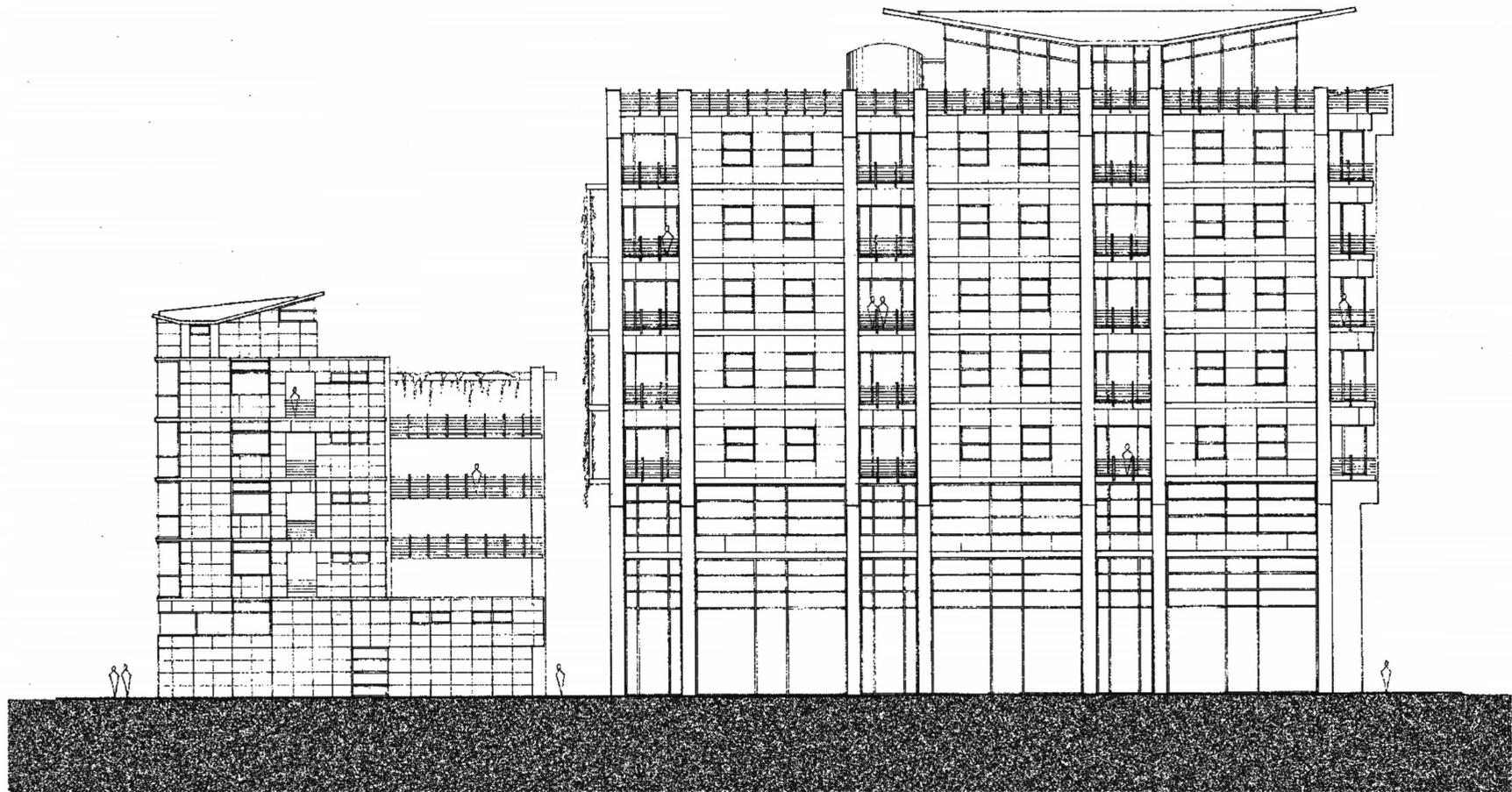
8th Floor Plan



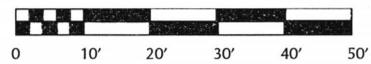


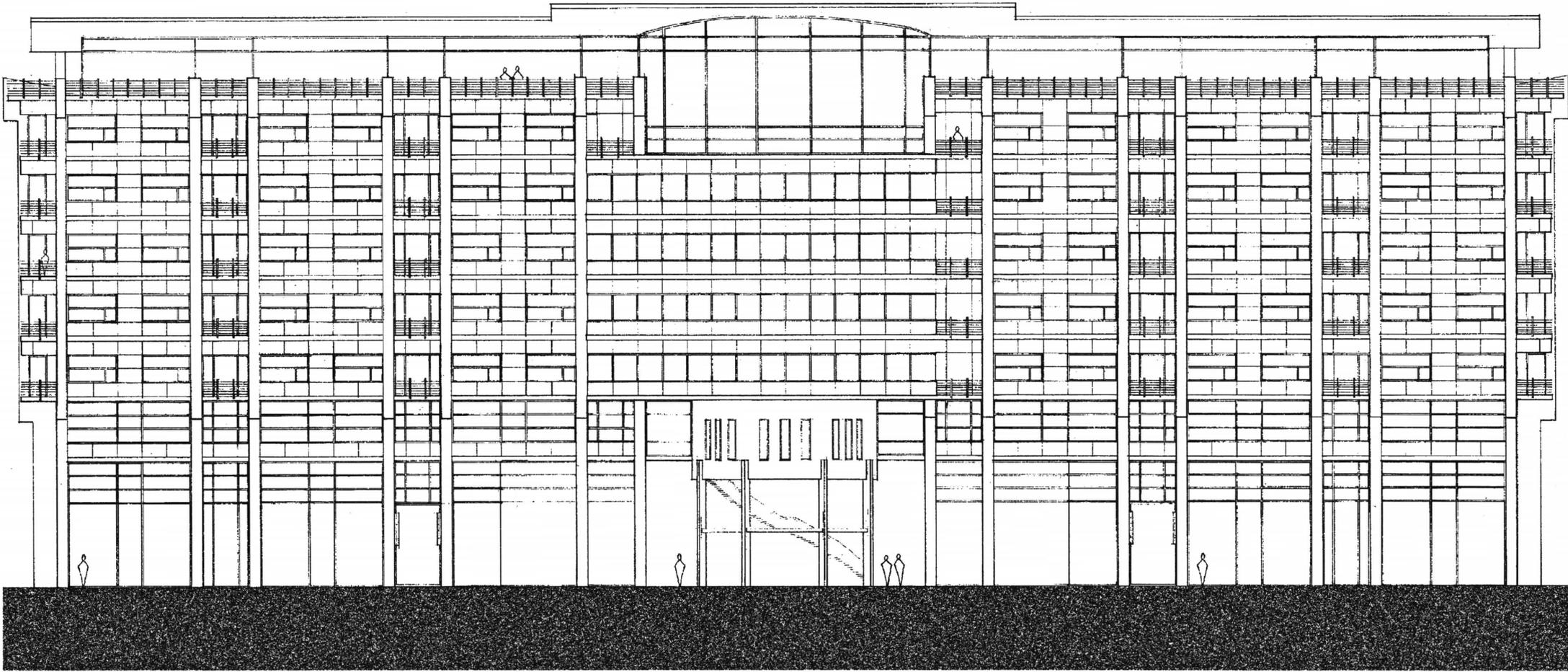
East-West Section-Looking North



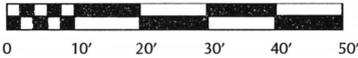


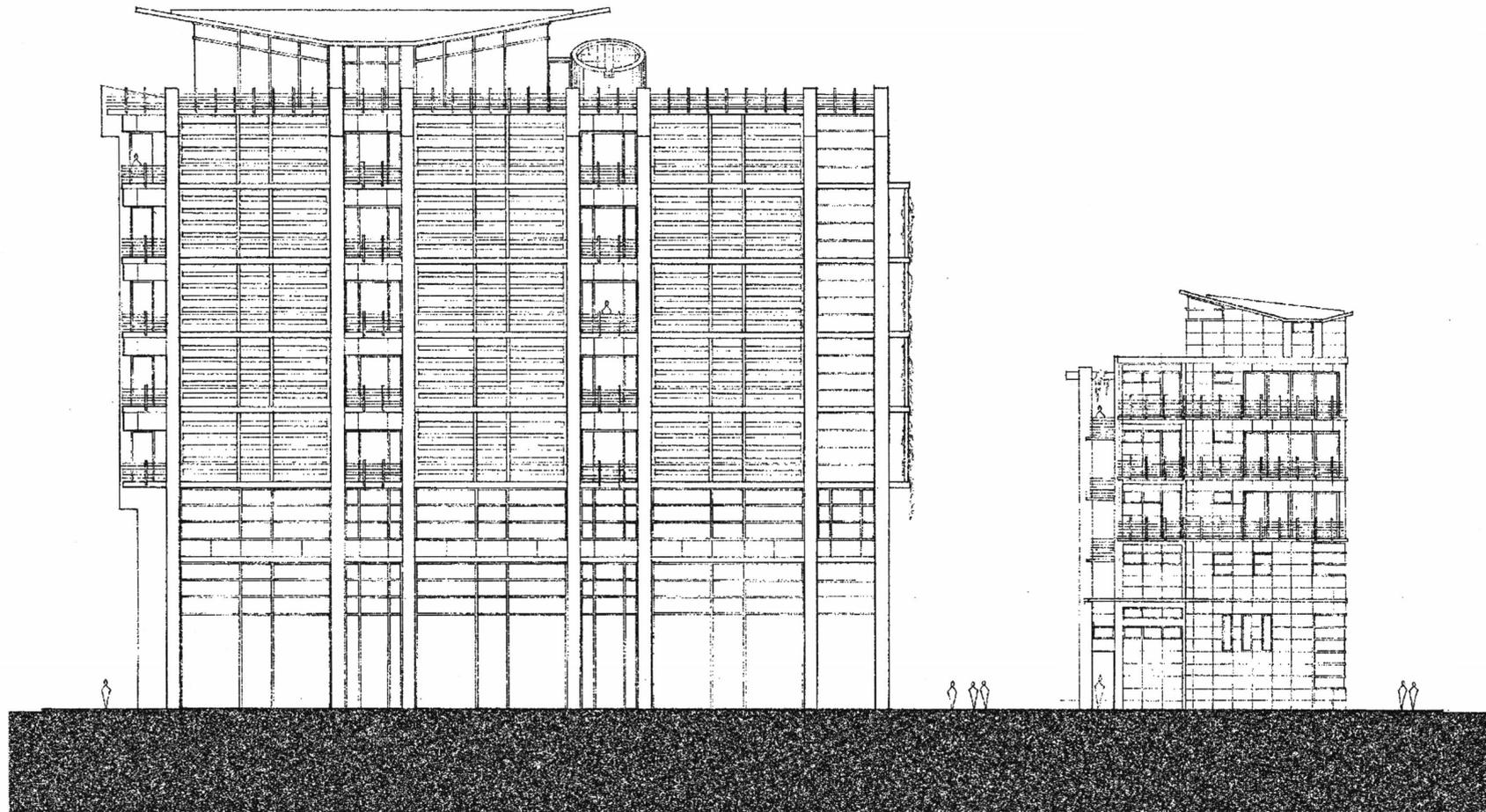
North Elevation



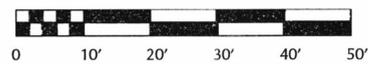


West Elevation





South Elevation



What has been presented here should not be viewed as the “answer”, or even a model to emulate.

Rather, this research and design thesis should challenge architects to further explore what are
some of the most critical architectural issues of our time:

How to improve the environments where we work.

How to improve the environments where we live.

How to improve the way these two environments exist together,
so we can begin to improve our cities.

It is clear that architects can play a key role in society, and that the architecture itself can shape
and enhance our lives.

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