

**BUILDING AN IMAGEABLE URBAN  
ENVIRONMENT THROUGH  
ARCHITECTURE**

by  
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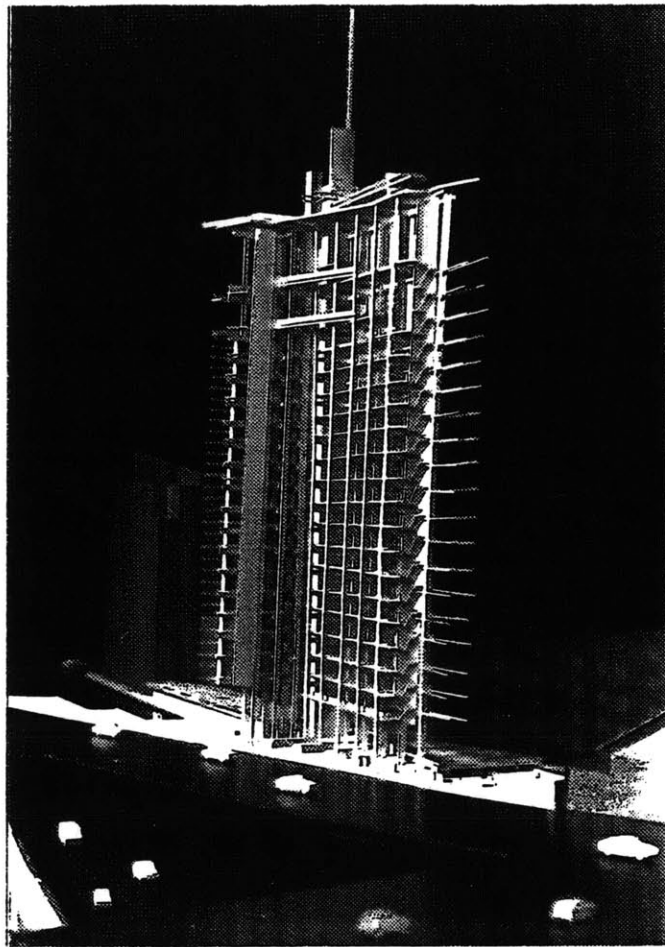
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# BUILDING AN IMAGEABLE URBAN ENVIRONMENT THROUGH ARCHITECTURE

by Charleston Yu

Submitted to the Department of Architecture  
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the Degree of  
Master of Architecture

## ABSTRACT

"Imageability" in a city serves the need to recognize our environment and identify our place in it. This thesis represents an on-going investigation and research into architecturally fostering a highly recognizable place in an unidentifiable urban space found in our city. This is done through analyses of perception and spatial cognition thereby endowing perceptually identifiable qualities to a new place in the city. A well-organized urban environment is crucial to improving the relationship between man and his environment, and in serving as frame of reference. To paraphrase Kevin Lynch:

*A highly imageable (apparent, legible, or visible) city...would seem well formed, distinct, remarkable; it would invite the eye and ear to greater attention and participation. The sensuous grasp upon such surrounding would not merely be simplified, but also extended and deepened.*<sup>1</sup>

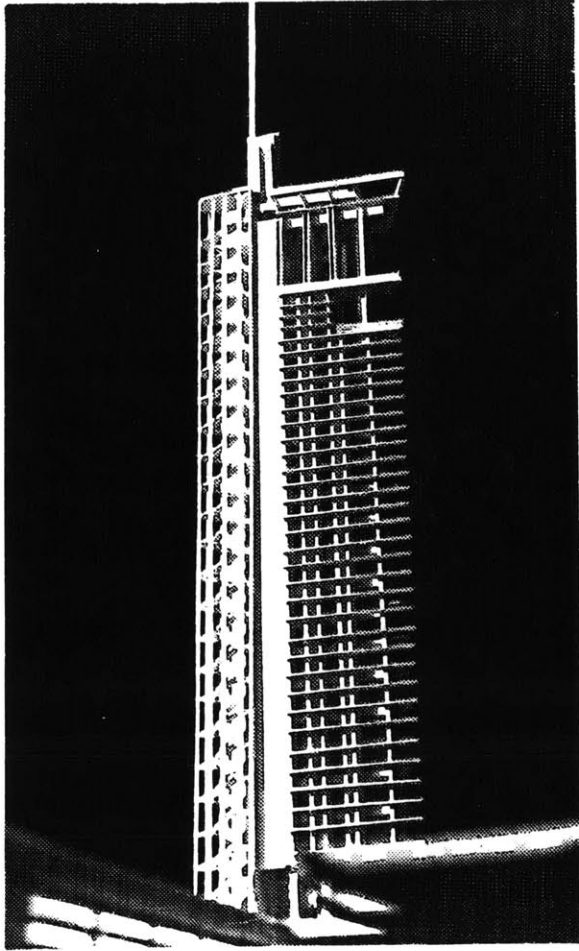
It is from this premise that this thesis sets forth to select a specific site, then to apply an architectural design strategy based on preconceived form while addressing the contextual relationship to the streets and surrounding urban fabric. The selected site is the area around the intersection of Massachusetts Avenue and Boylston Street in the city of Boston, a site which is one of several places in the city having poor imageability and representing left-over spaces.

The provisionally chosen form is that of a high and thin element over the highway, and a flat and wide form on the ground, which could be visually likened to as a Killer Whale with its tall dorsal rising out of the water. The architectural program of the new Boston Architectural Center / Berklee College of Music Student Center and its Temporary Housing Tower was organized with this visual image in mind so as to give rise to a highly recognizable form. Ultimately the goal is to create an ordered and imageable environment, and in doing so repair the deterioration in physical continuity in what is currently a highly disordered urban context.

**Thesis Supervisor:** Bill Hubbard Jr.  
**Title:** Associate Professor of Architecture

## **ACKNOWLEDGMENTS**

The author would like to express deepest gratitude to Professor Stanford Anderson and Professor Otto Piene who generously shared their time and suggestions. Most of all, endless thanks go to Professor Bill Hubbard for lending his support, criticism, and friendship, not only during the thesis period but throughout my years at MIT. Sincere thanks go to Scott Higgins of the Interactive Cinema Group in the Media Lab at MIT.



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## 1 Thesis Exploration

The issue of building a place that projects imageability or legibility in our city is explored in this design project. Through a highly recognizable building and its surrounds, new perceptions can be engendered of an area within the city, especially in today's 24-hour urban context. This approach to designing and building in the city raises questions and issues concerning the way architecture is related to the city, and to the idea of the city as a forum for larger architectural discourse.

The design of the project is developed from the projected image addressing the three levels of the site: image from the sidewalks, image from automobiles on Massachusetts Avenue and Boylston Avenue, and image from the Massachusetts Turnpike which at that point runs beneath the intersection. The form and the program is managed to engender a highly legible image to the area. The following analyses of the site were conducted to better appreciate the present condition of the site. First, using sound measurements the analysis of acoustic perception of the site is represented in an abstract model. In addition, several study models were constructed to capture the perceptual experience or the 'feel' of the site to further comprehend the urban complexity of the area. Next an analysis of speed and time perception of the site was recorded through the means of 'Video Streamer'

which provides video-taped images in three dimensional forms.

To further strengthen the investigation, all of the physical constraints present in the given context were taken into consideration in an effort to achieve a high level of reality in the project. This includes maintaining all of the infrastructures that are in place and, utilizing some parts of them as support for the this urban intervention. Other considerations are requirements of service access, circulation, security, and integration of existing streets.



## 2 Background

Founded in 1889 as an architectural society, the Boston Architectural Center presently has over 600 students. A professional degree in architecture as well as other design related studies are offered. The institution prides itself on a practical and hands-on approach to architectural training. Most of its students are employed by local architectural and interior design firms by day, and attend their classes at night. All of their instructors are volunteers. Thus the BAC is able to offer extremely low tuition. Attracted by inexpensive education and opportunities to work in the profession, the school attracts many students who commute from as far away as Maine and New York.<sup>2</sup>

The Berklee College of Music is internationally recognized as one of the leading schools of modern music. From its inception in 1945, it has produced many well known talents in all aspects of contemporary music from performance to film scoring. Presently, the school boasts a full-time student body of 2500 from the U.S. and over 75 countries. In addition, more than 350 ensembles and 800 performances by students, faculty and visiting artists are presented annually. Their philosophy of practical approach to musical education is identical to that of the BAC in that the Berklee College of Music does not offer a traditional college campus atmosphere yet provides the highest technical facilities.

Although the BCM provides housing for some of their students, it does not provide temporary housing for over 400 commuting students and an estimated 350 visiting scholars each year.<sup>3</sup>



### 3 Program

The projected image for this site is that of a "surfacing Killer Whale". The elements of this image that lend themselves to this site are: a high thin structure with a wide base suggesting hidden forms beneath the surface. As will be described in section 4, this site already contains sub-surface infrastructure.

The program is managed to give rise to a form suggested by the above image. This form is the new Boston Architectural Center / Berklee College of Music Student Center and Tower, consisting of a tower over the Massachusetts Turnpike and a sub-surface built form. The tower contains temporary housing, and the student center is below the surface such that both are physically connected on the same site between Boylston Street and the public alley.

Presently, these institutions could use such a building since they both lack temporary housing for commuting students and visiting scholars to the institutions. The BAC/BCM student center will provide temporary accommodation as well as common recreation and dining facilities. The BAC is seeking such a place where its students can gather conveniently without having to go out of the vicinity of the school.

However, as these two institutions represent a no-frills approach to education, the program was kept at its minimum in order to provide what is really necessary rather than

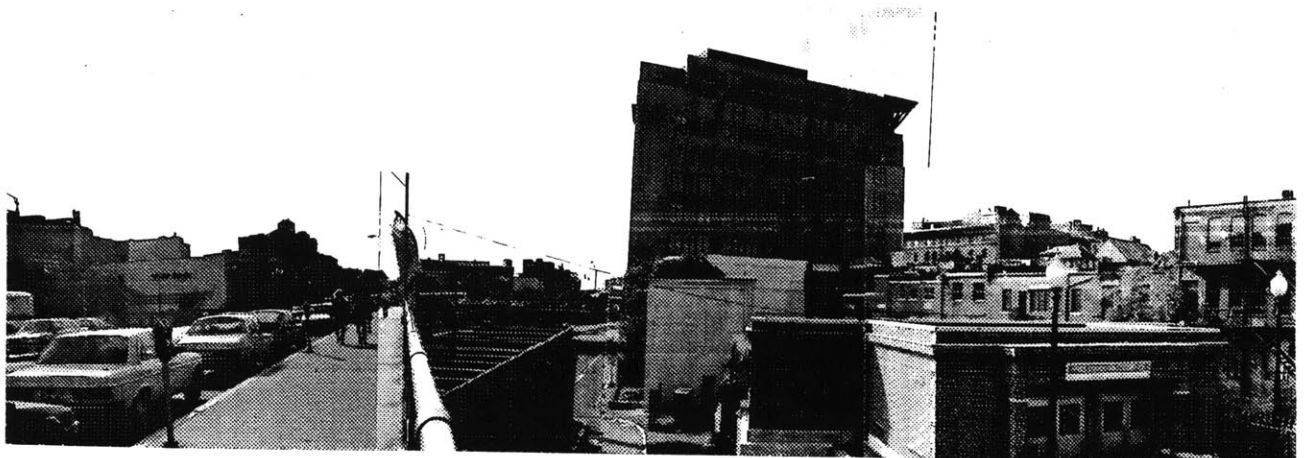
to cater to assumed wants. The following list represent the programmatic intentions of the BAC/BCM Student Center and its Tower.

Level 20-22	BAC/BCM Tower Café/Bar
Level 18-19	Conference Rooms
Level 1-17	13 rooms per floor Storage Space
Level 0	<b>Boylston Street</b>
Level -1	BAC/BCM Student Center Courtyard Cafeteria Reception 24 Hour Store Kitchen Locker Rooms Gym
Level -2	Storage Room
Level -3	5 Squash Courts Laundry Room Mechanical Room

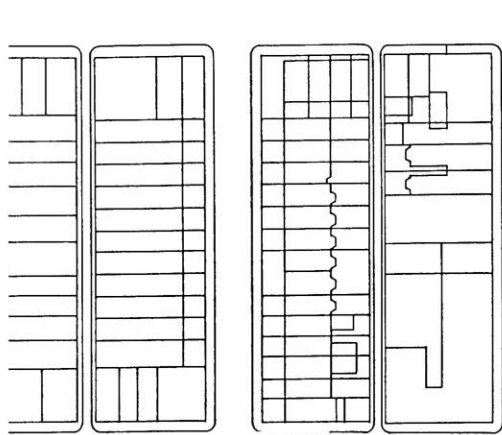
#### 4 Site Description

The selected site and its air right is located near the intersection of Massachusetts Avenue and Boylston Street in the city of Boston. Below, the Boylston street level of the site is adjacent to the Massachusetts Turnpike at the moment, and supports the Massachusetts Bay Transportation Authority (MBTA)'s Hynes Convention Center/ICA subway station on the Green line. To the south of the Massachusetts Turnpike, the Commuter Rail right of way cuts through the city. The sharp triangular shaped property extends from the edge of the '360 Newbury' (better known as the Tower Records building) to the Institute of Contemporary Art. Massachusetts Avenue and Boylston Street along the site are elevated by a bridge structure support twenty feet above the Turnpike level by massive reinforced concrete piers.

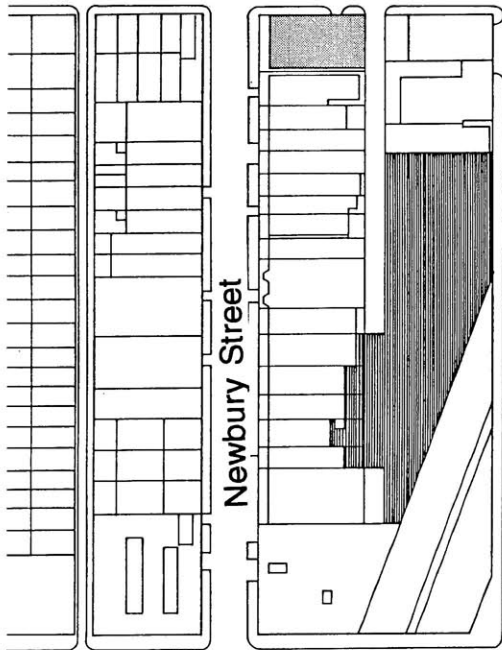
Due to its central location and being an active pedestrian zone, the new BAC/BCM Student Center will function as a primary cultural and orientation node, acting as the main transitional point between various major public institutions such as the Institute of Contemporary Art, Boston Public Library, Boston Symphony Hall, Hynes Convention Center, Copley Square, Fenway Park, Boston University, Boston Conservatory of Music, New England Conservatory of Music, Museum of Fine Arts, and the Christian Science Center.



Boylston Street

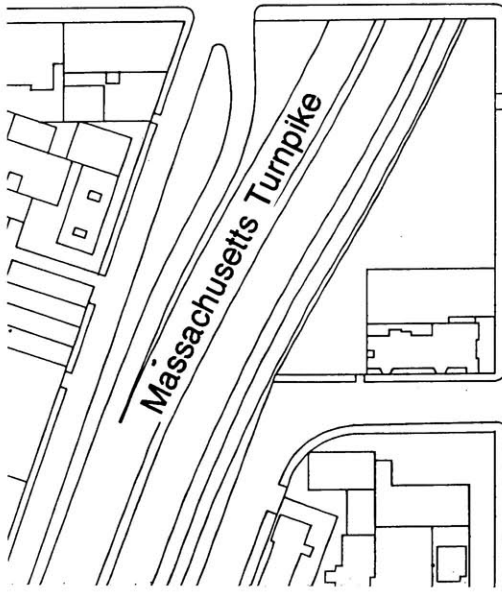


BAC

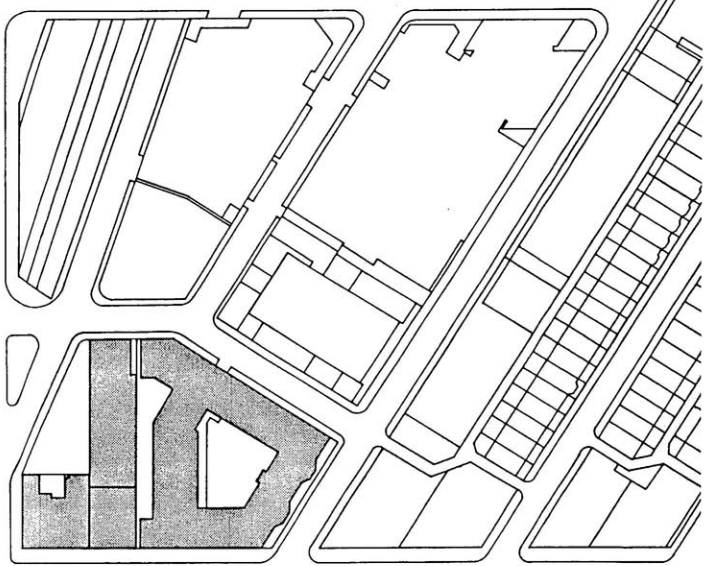
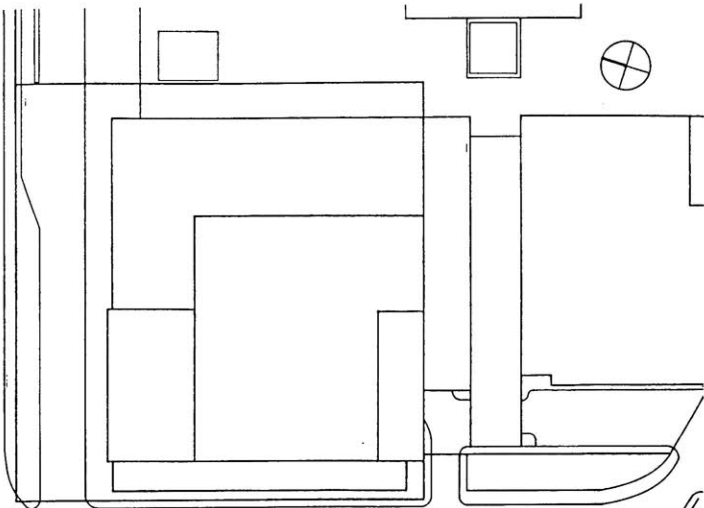


Newbury Street

Massachusetts Avenue

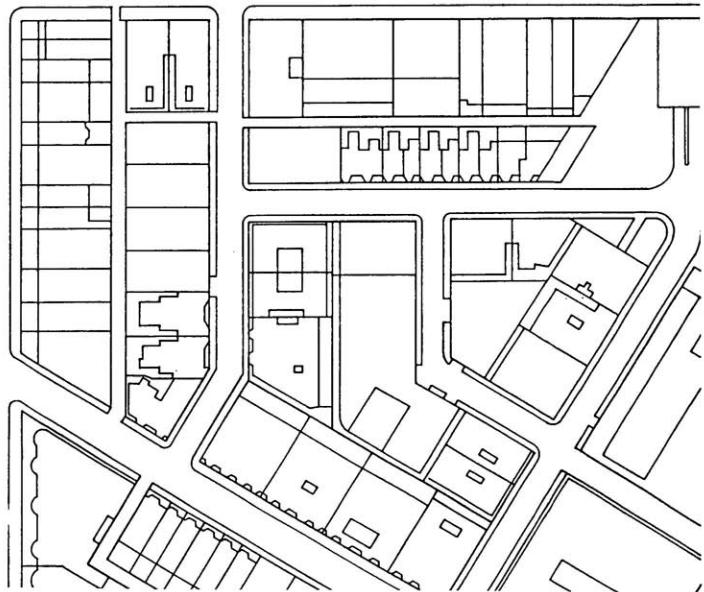


Massachusetts Turnpike



Boylston Street

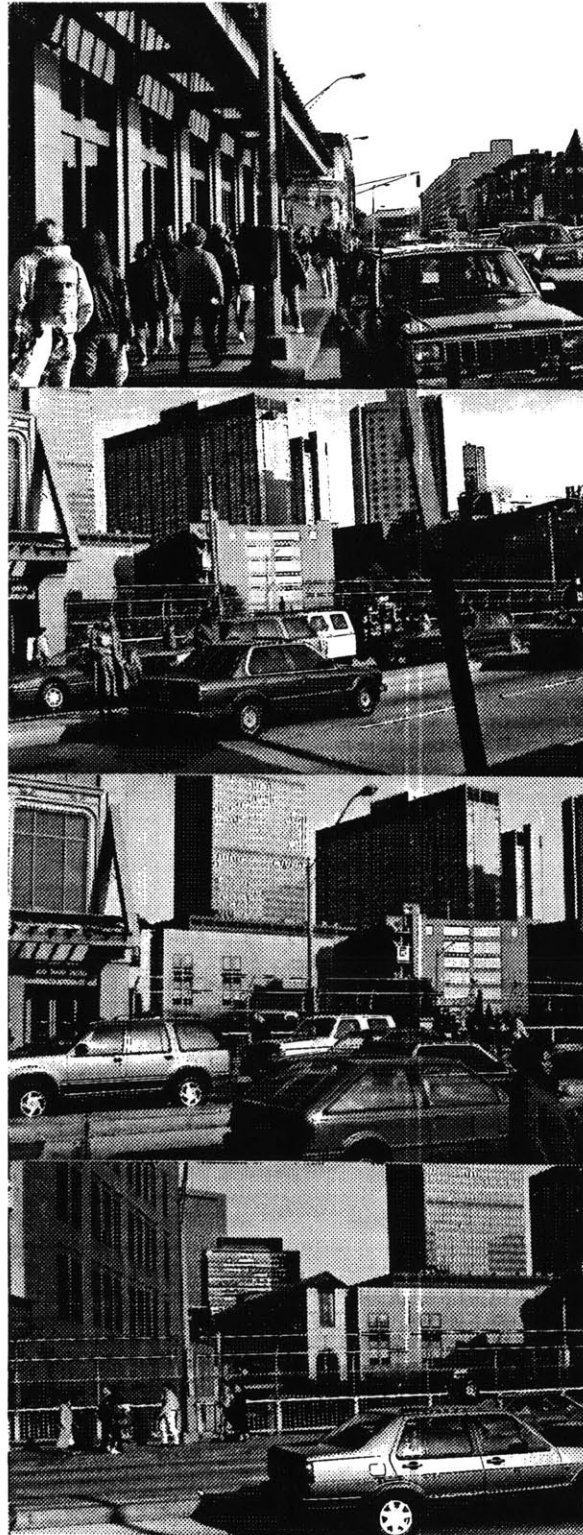
BCM



#### 4.1 Perceptual Description

Presently, the site exhibits a considerable degree of physical discontinuity between juxtaposed elements in the area. Viewed from Massachusetts Avenue and Boylston Street, the site represents a no-man's land between the Back Bay and the South End sections of Boston. Today, one comes away from this area with the impression of a confused and unidentifiable place, feeling lost and dissociated from the rest of the city. The factors that contribute to this are as follows.

First, the site represents a large perceptual and physical void between the edges of two different areas in scale - Back Bay and the South End. The Back Bay area is composed of residential scale buildings in uniform blocks characterized by long historical street façades from Beacon Street to Newbury Street. Although the South End has similar topological street patterns, they are less ordered, and the existing structures are more commercial and civic in scale. For instance, the immediate surrounding building on the South End side of the site are the Back Bay Hilton Hotel, Hynes Auditorium, Sheraton Hotel, Prudential Center, and Christian Science Center. Hence when we cross Massachusetts Avenue from Newbury Street to Boylston Street, we are effectively leaving one world and entering another.

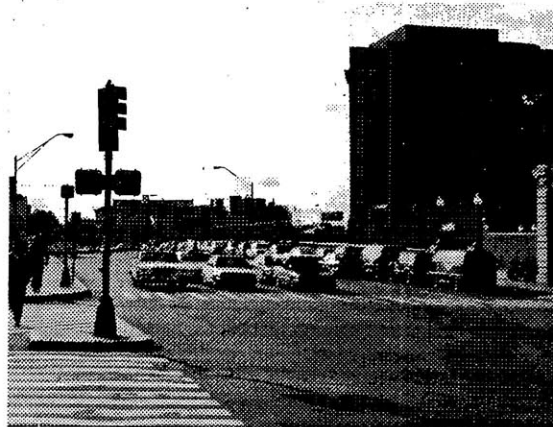


Massachusetts Avenue

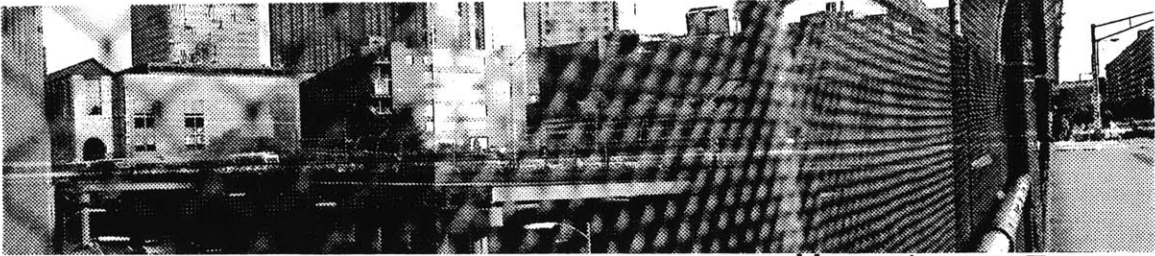
Second, our cognitive decision-making processes or inferential judgment breaks down when we walk across the Massachusetts Avenue and Boylston Street with Massachusetts Turnpike running diagonally below it, which suggests a completely different order in the structure of the city. In addition, the Massachusetts Turnpike represents physical rupture in the urban fabric—exposing all the different layers of underlying structure of the city. As a result we are confronted with a less than conventional, fragmented picture of the area. This is exemplified by one's difficulty in locating the true ground surface, since the street we had thought as a ground plane now becomes a bridge. Yet our cognitive process is still in an adjustment mode. It is only after having crossed Massachusetts Avenue over the Turnpike that we begin to realize that we have crossed bridge. A similar disjointed experience holds true on Boylston Street along the site. The discontinued urban fabric of Boylston Street further complicates a coherent reading of the city's structure.

Third, the Massachusetts Turnpike running along next to the site represents an acoustic obstacle in our effort to grasp spatial cognition. In another words, the highway traffic noises below the street level pose perceptual disruption to our operative mental sequence of urban knowledge or cognitive mapping. Again, it is only when we have traversed the Massachusetts Avenue

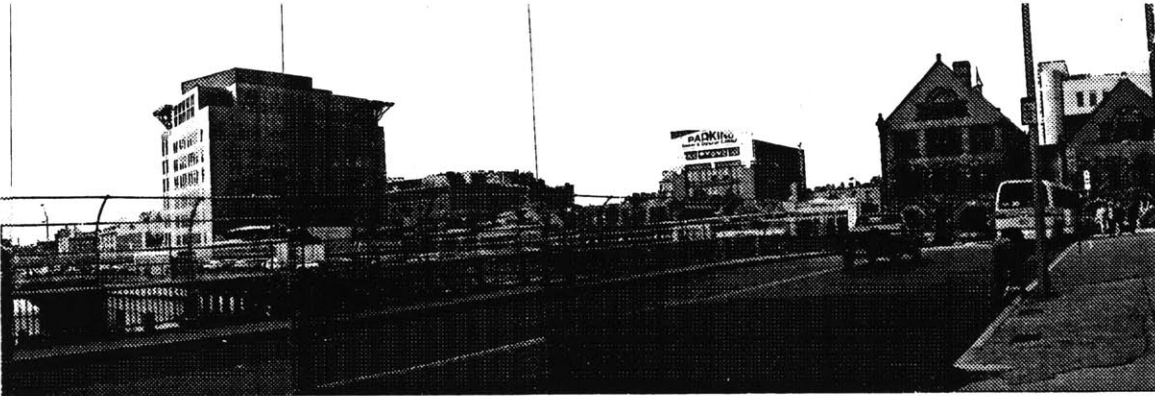
over the Massachusetts Turnpike that we come to realize what had just occurred.



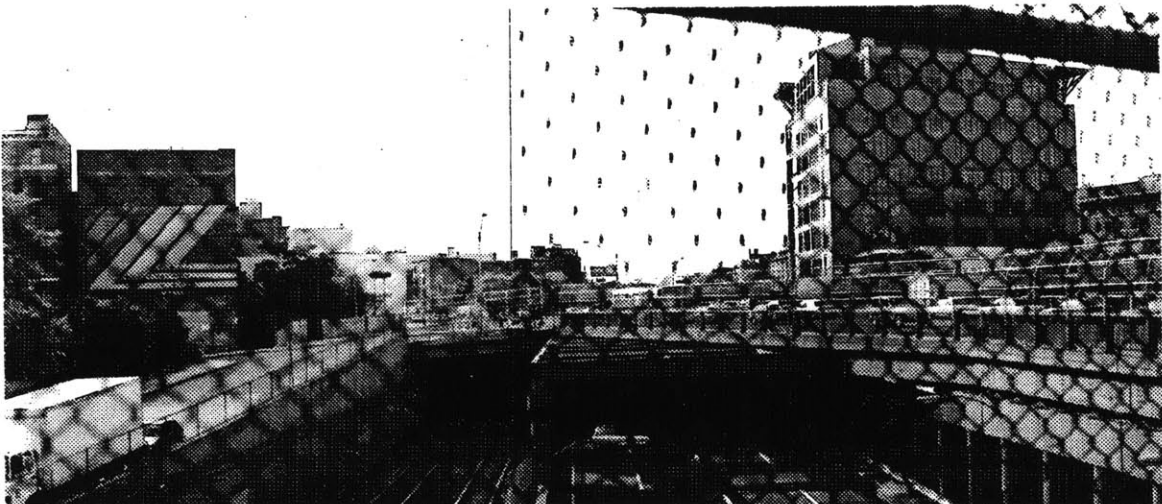
Boylston Street



Massachusetts Turnpike



Boylston Street



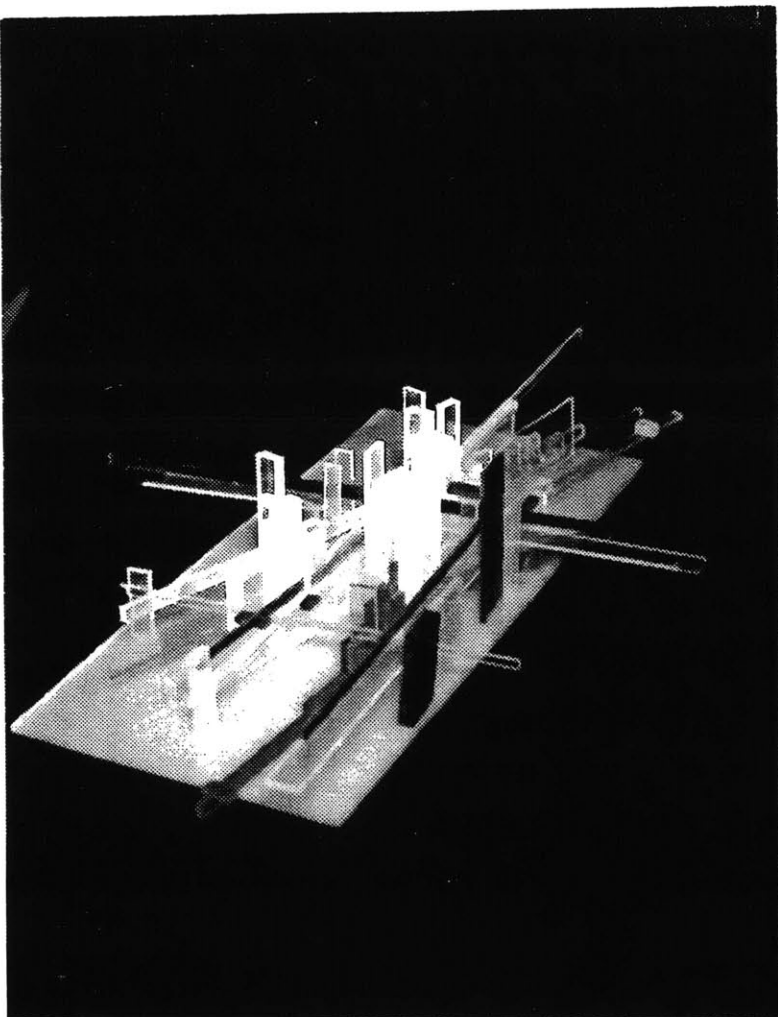
Massachusetts Turnpike

## **5 Site Analysis**

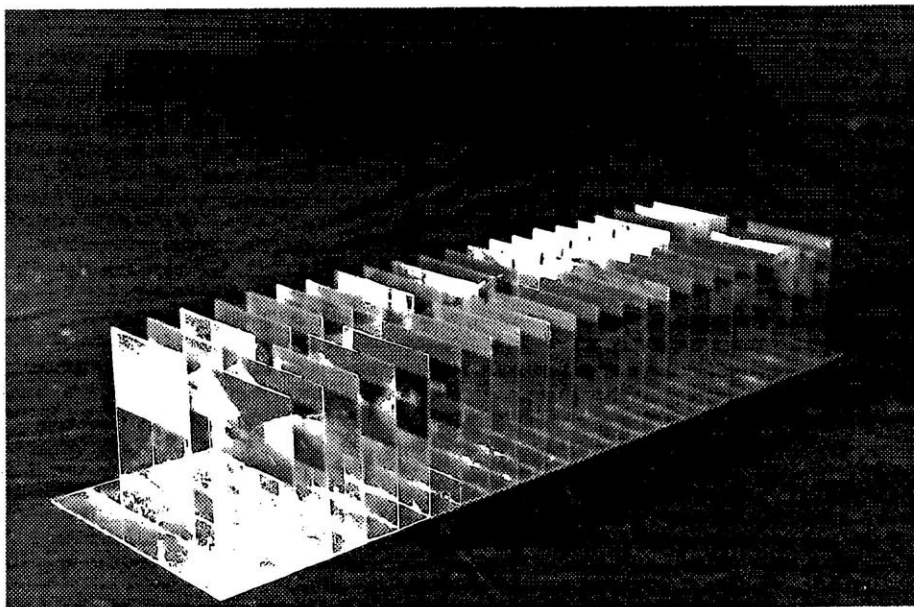
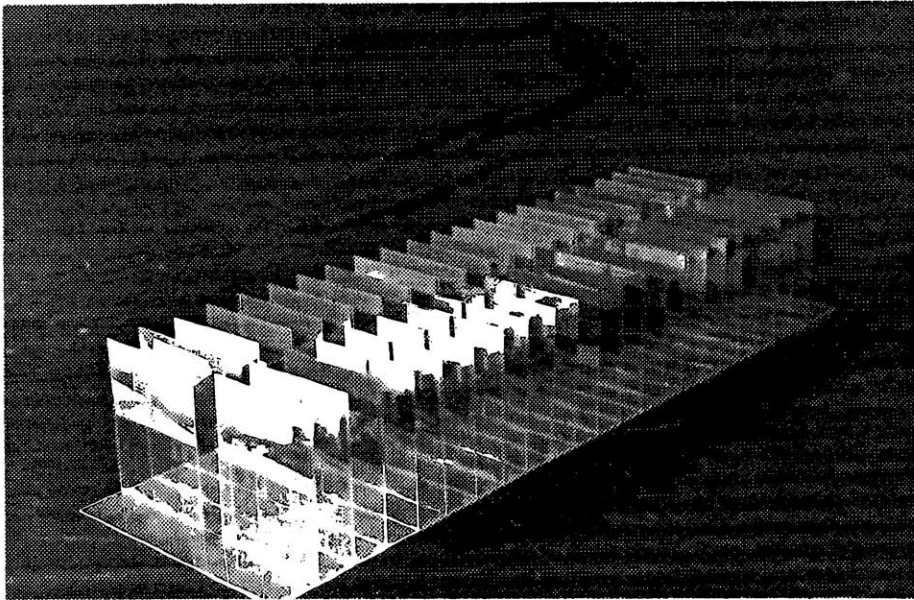
Analysis of a site serves our need to better understand and grasp the many conditions of an area at different levels. Traditionally, site analyses were conducted based on built forms viewed through graphic means - city blocks patterns, streets patterns, building heights, public space/private space, etc. Here however, as the primary issue is to deal with the cognitive perception of our environment through built form in the complex layers of urban structure, it was found necessary to comprehend the site through other techniques. In particular, the focus of these analyses was to see how we experience the present conditions of the context in regard to space and time. The following abstract models represent acoustic characteristics, space/time frame of the Massachusetts Turnpike, perceptual interpretation, and motion images of the site on Video Streamers. Some of the models presented here represent on-going investigations into the phenomena of space and time in respect to how we experience architecture and environment.



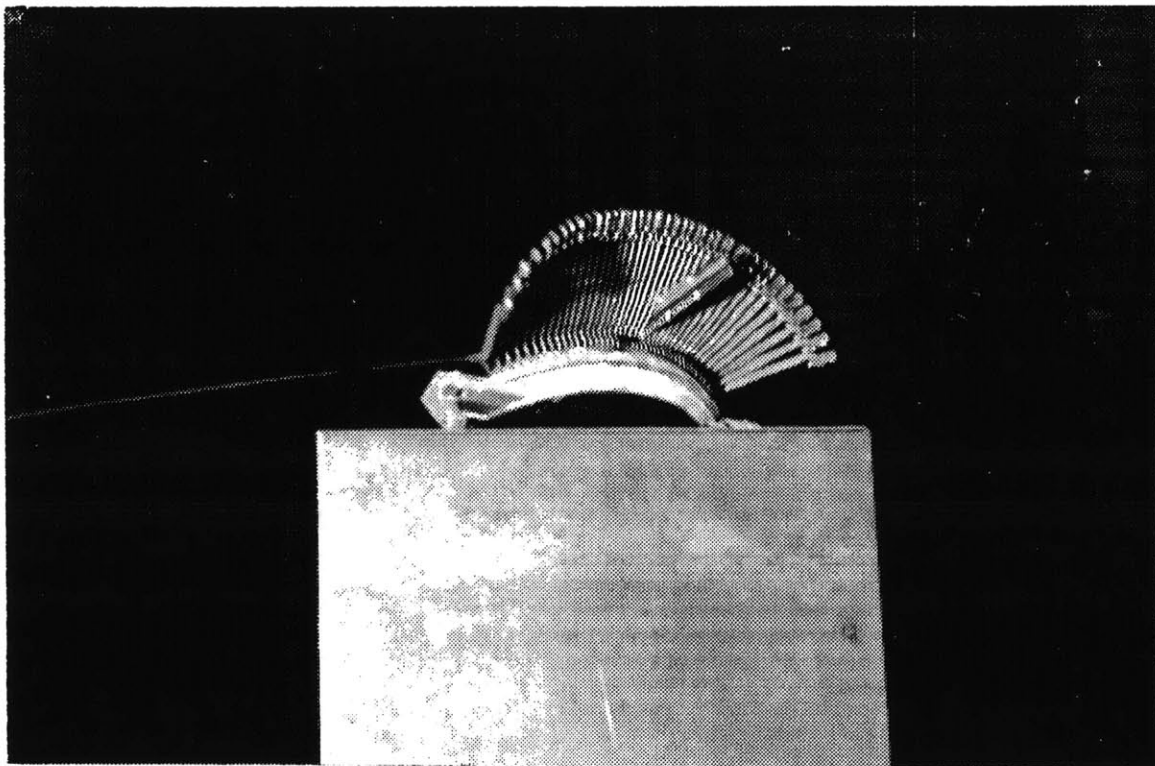
**Acoustic/Velocity Model:** This plexiglass model illustrates two existing phenomena of the site, that of perceived noise level and varying speeds. The vertical elements represent the recorded sound measurements of the surrounding areas where its intensity is expressed in their height and volume. The various existing speeds (cars, pedestrians, subway, commuter train) emerging around the site are shown by the horizontal piece, and color intensity of each pieces corresponds to the velocity experienced.

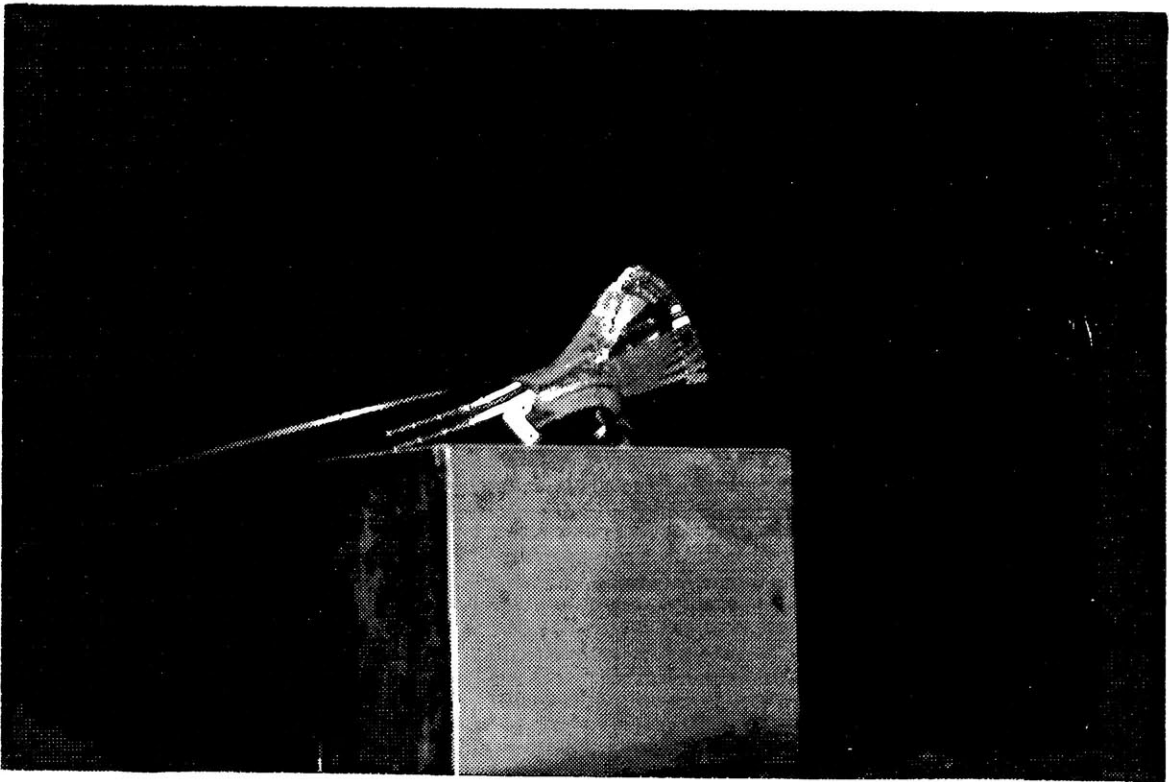
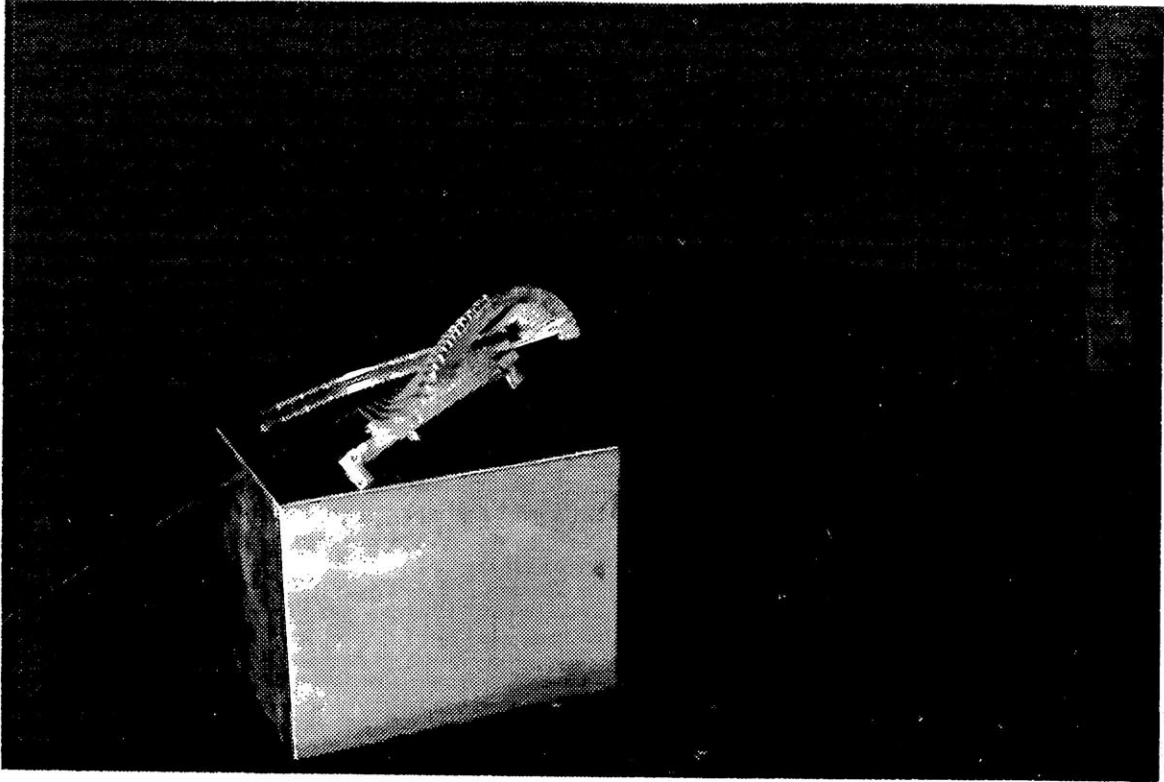


**Space/Time Frame Model:** The experience of driving through the Massachusetts Turnpike was captured in this linear model based on sequential photographs. Its main intention was to see how and precisely where the chosen site comes into view on both sides of the highway and how it is perceived at that level.

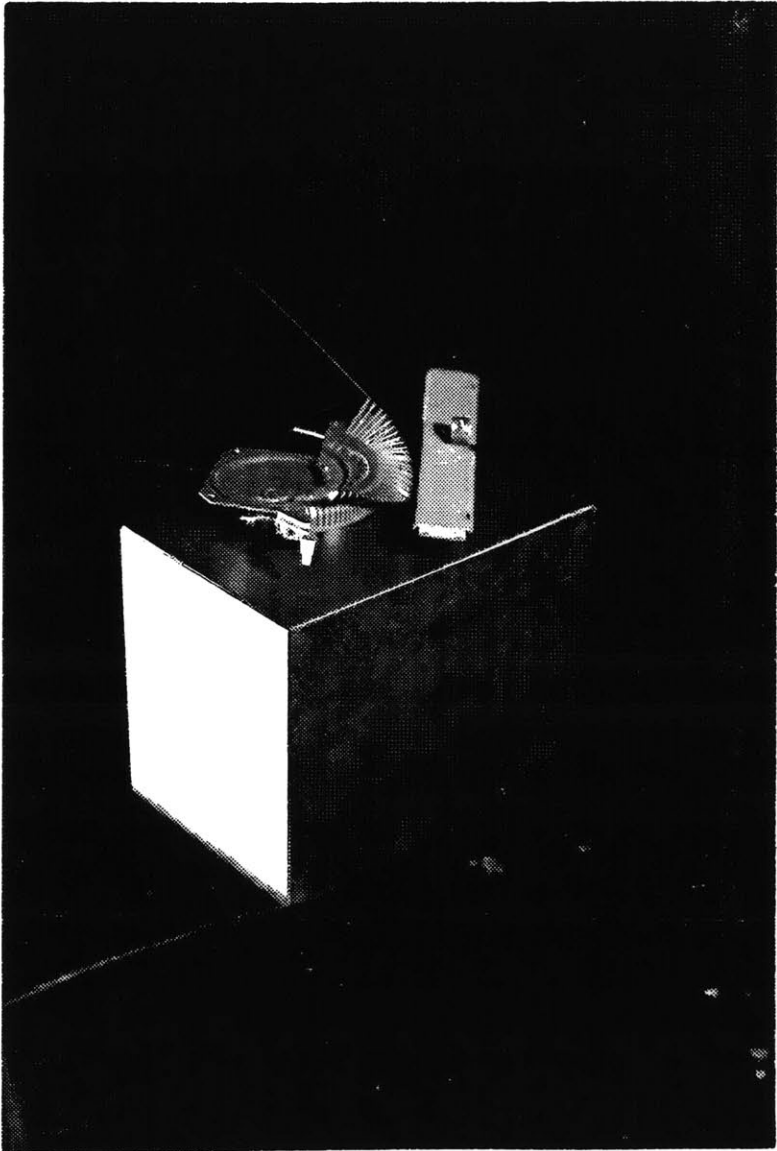


**Perceptual Model No. 1:** This abstract model expresses the cognitive impression of the Massachusetts Turnpike tunnel entrance near the site that one might experience crossing the Massachusetts Avenue. It expresses how the noise of cars on the highway dominates the ambient noise at street levels above.

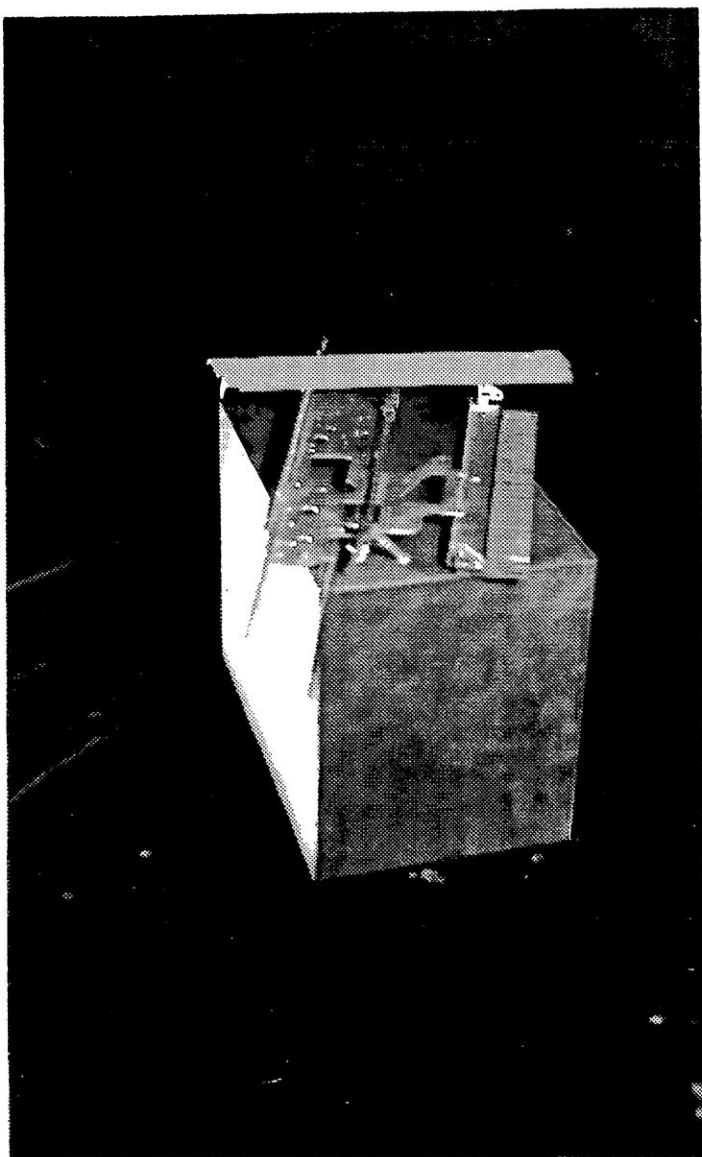




**Perceptual Model No. 2:** Similar to the earlier model, it describes the experience of walking across the Boylston Street next to the site, where the car noises on the highway below predominates over the street.

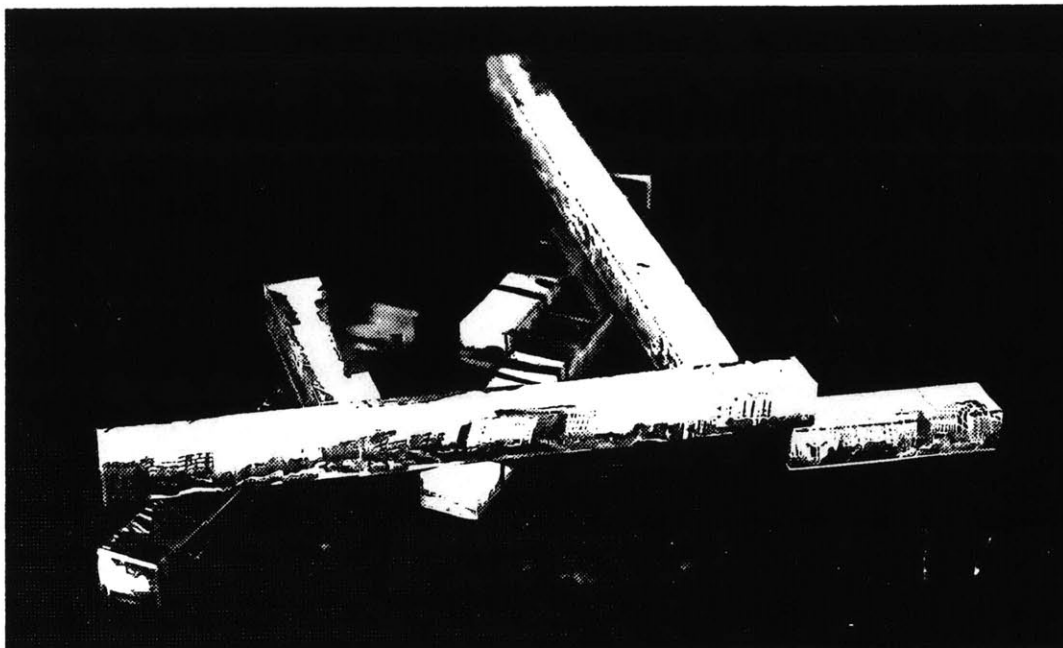


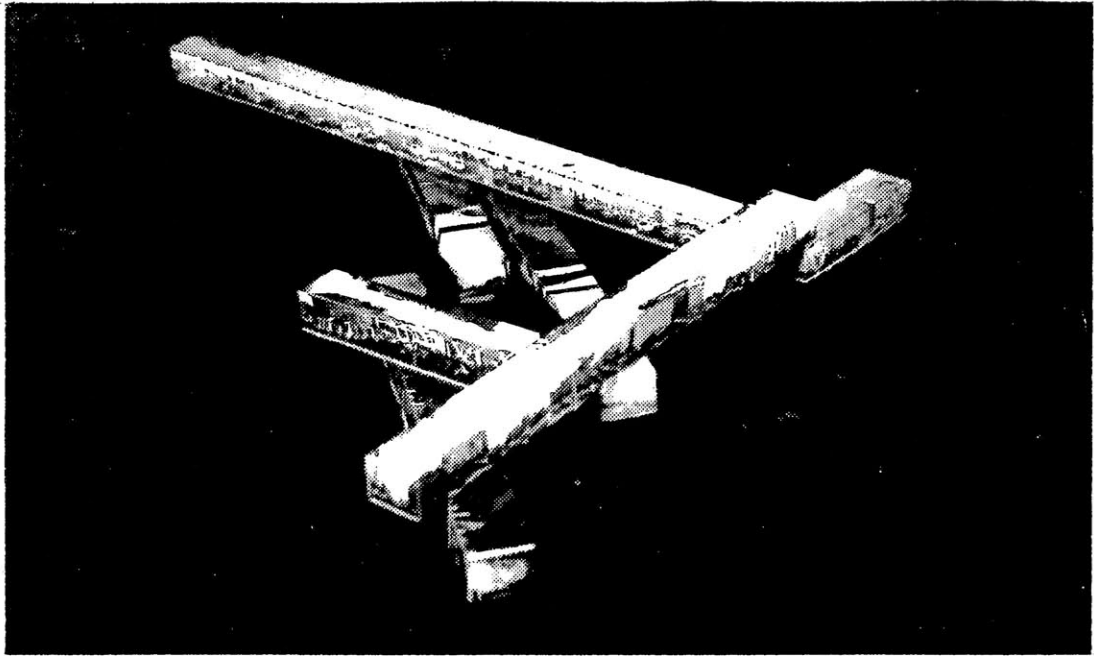
**Perceptual Model No. 3:** This model literally illustrates the superimposition of two different orders existing in the urban structure of areas around the site.



**Video Streamer Model:** The Video Streamer presents motion picture time as a three dimensional block of images flowing away from the viewer in distance and time. With this new motion picture editing tool, video movie was shot around the all levels of the site by driving and walking and, even taking the subway. Next, all the recorded images were edited and transferred to the Streamer program and printed on photographic paper by video printer. Through this model one can readily grasp how one experiences the site whether walking or driving. Furthermore, one can effectively measure elapsed time of movement through space.

By the use of these models I was able to gain insight into the complexity of the site, and to more effectively translate characteristics of the site into the design process.







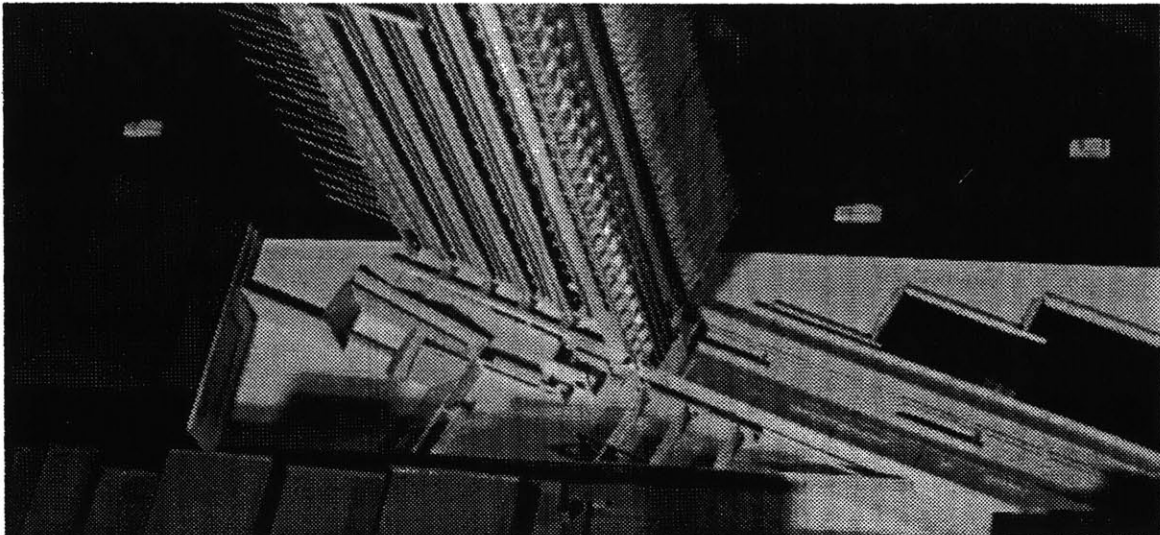
## 6 Design

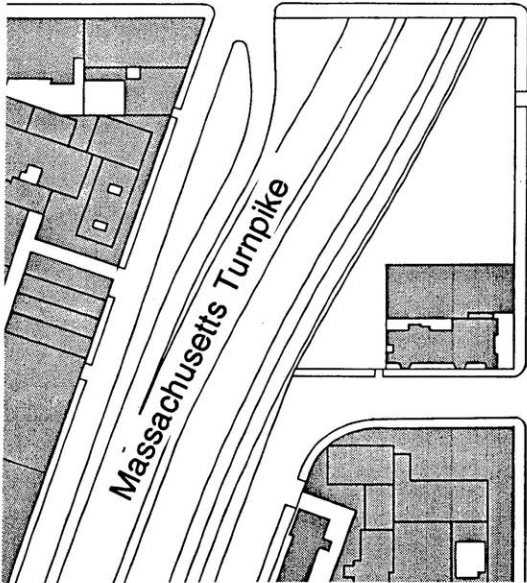
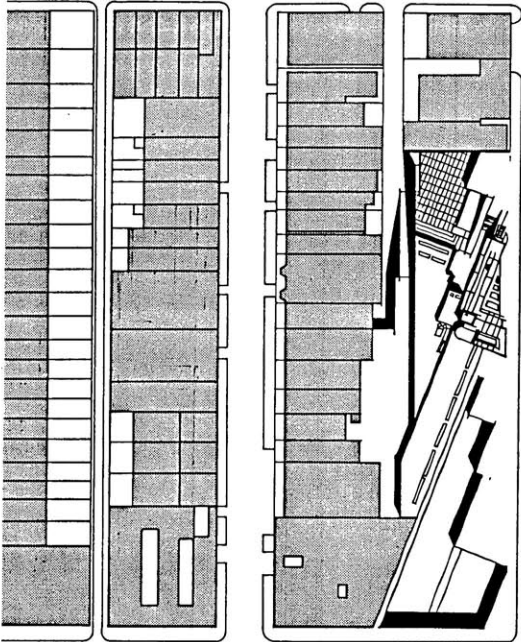
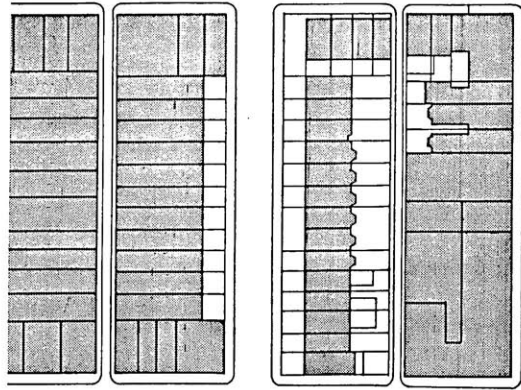
After completing the site analysis and observation through several conceptual models that interpret the perceptually complex conditions of the site, I decided to begin the design process by volumetric-modeling of the building and inserting it into the site model. This allowed rapid understanding of scale and relationship to other buildings in the immediate area. This modeling process caused me to investigate the following : how the new building relates to the existing subway line, what kind of relationship the new building will have with the street, especially with Boylston street and how do the BAC/BCM Student Center and its housing relate to each other. Strictly following the tenet of this investigation, the next design decisions were made.

### 6.1 BAC/BSM Student Center

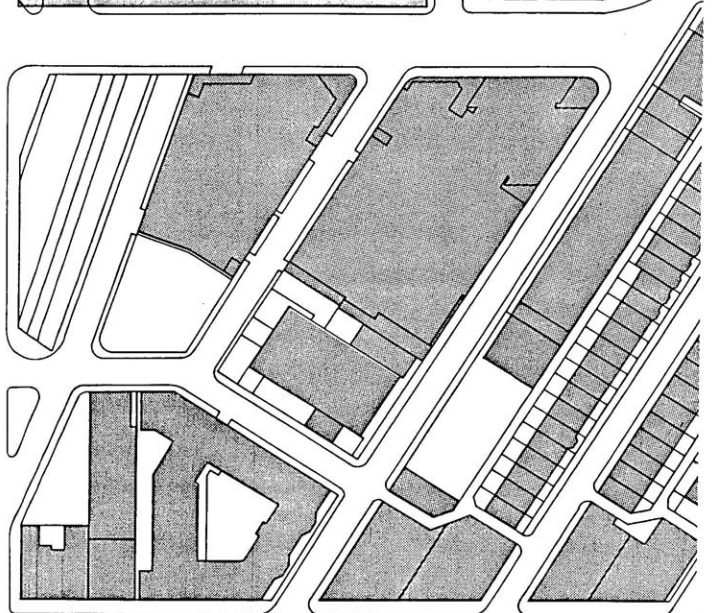
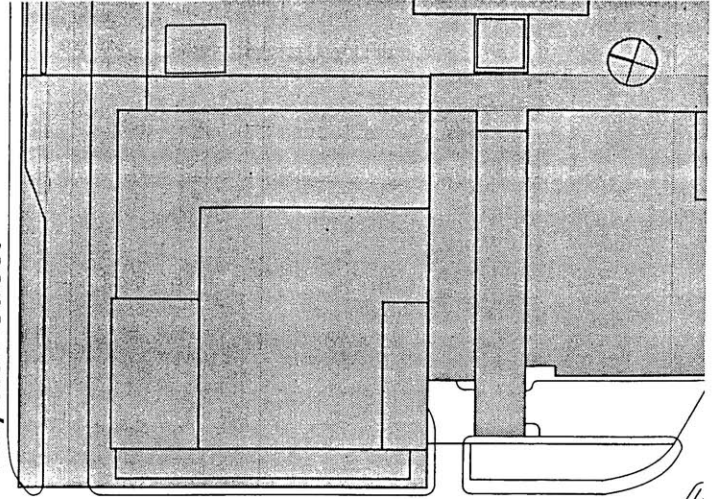
#### Organization

The project dug beneath the city surface to find its own order in the structure of the city which could be developed into bridging and mending of fragmented urban edges, thereby constituting solid physical grounding of the project. The deciding factors in the selection of architectural programs for these floors are based on existing constraints of site, the needs of the two institutions, and abstract interpretation of the site. For instance, the choice of squash courts on the level -3 are in direct reflection of the acoustic and velocity characteristics of the Massachusetts Turnpike and subway that are running alongside. More importantly, the Student Center is seen as being the support system for the people who will be utilizing the temporary housing accomodation of the Tower by including cafeteria, recreation facilities, laundry, and 24 -hour store.

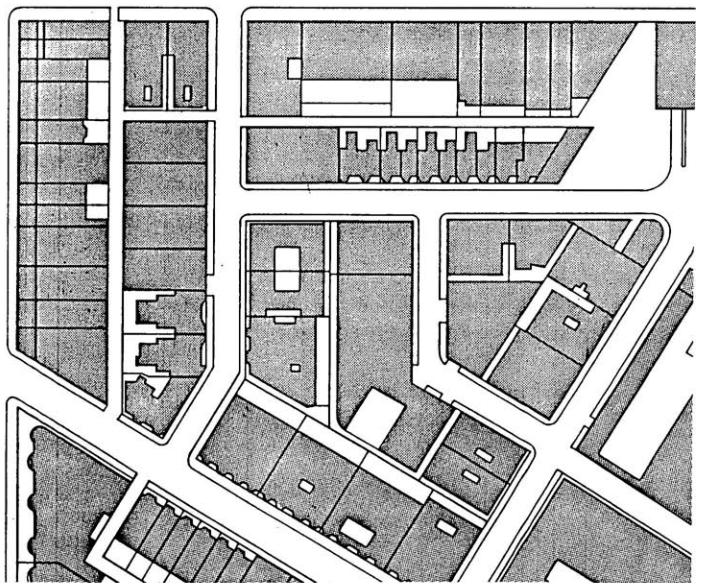




Boylston Street



Massachusetts Avenue

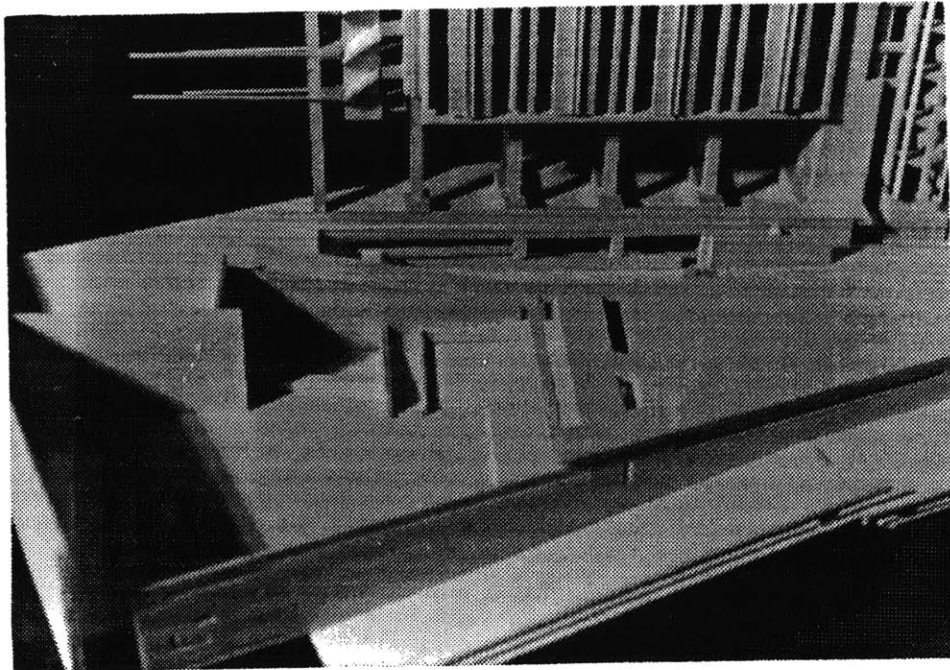


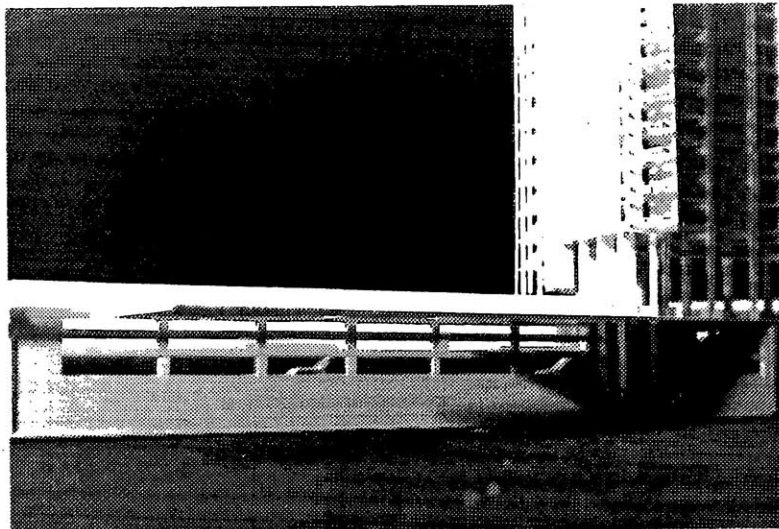
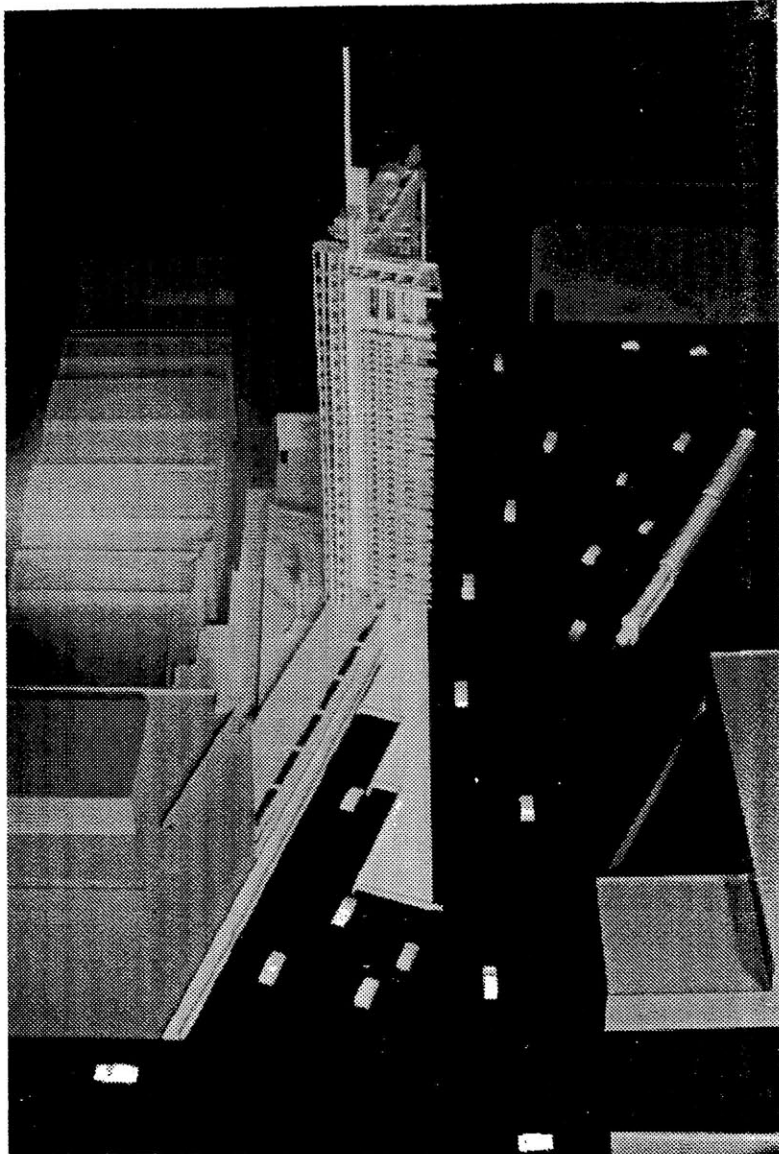
Site Plan

The main entry and reception to the BAC/BCM Student Center is positioned one floor level down, off from the Boylston Street level next to the 24-hour convenience store. The reception area is seen as central controlling point of pedestrian traffic. The store is placed next to Boylston Street to invite public into the courtyard space below, which may support a variety of public activities and happenings from the students of both schools. The dining area of the cafeteria faces into the courtyard and to which it allows direct access. The public alley ramp which services the buildings on Newbury Street is maintained, and also used, to serve the Student Center.

### **Structure**

Through an excavation below the Massachusetts Turnpike level of the site, the decision was made to incorporate the existing south wall of the T station from level -3 to level -1 of the BAC/BAM Student Center. Acting as the spine for the building, this wall establishes spatial orientation and movement throughout the building, and provides a basis for space making conditions. Other walls are composed of reinforced concrete which reflect the massiveness of the earth-bound infrastructures around the site, and establish strong contrast with the light and tensile structure of the Tower above.

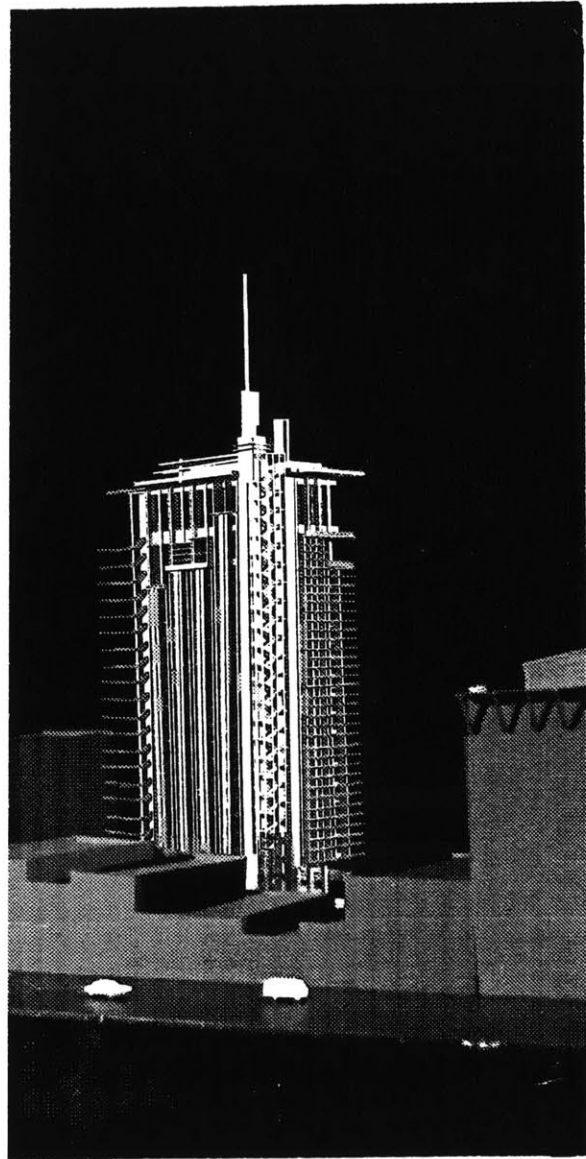




## 6.2 BAC/BCM Tower

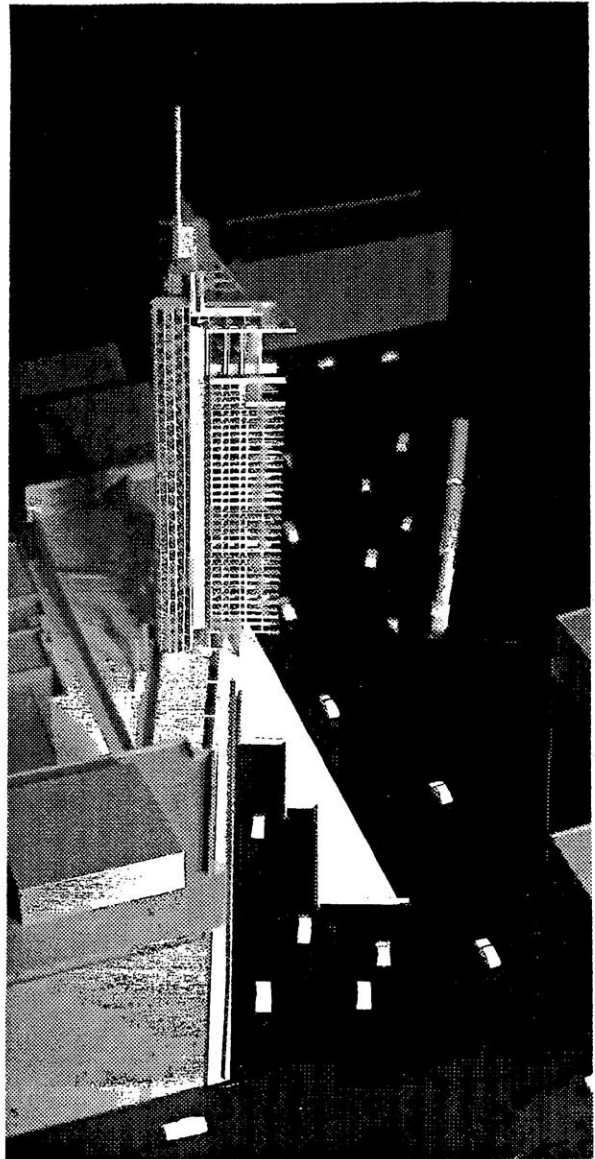
### Organization

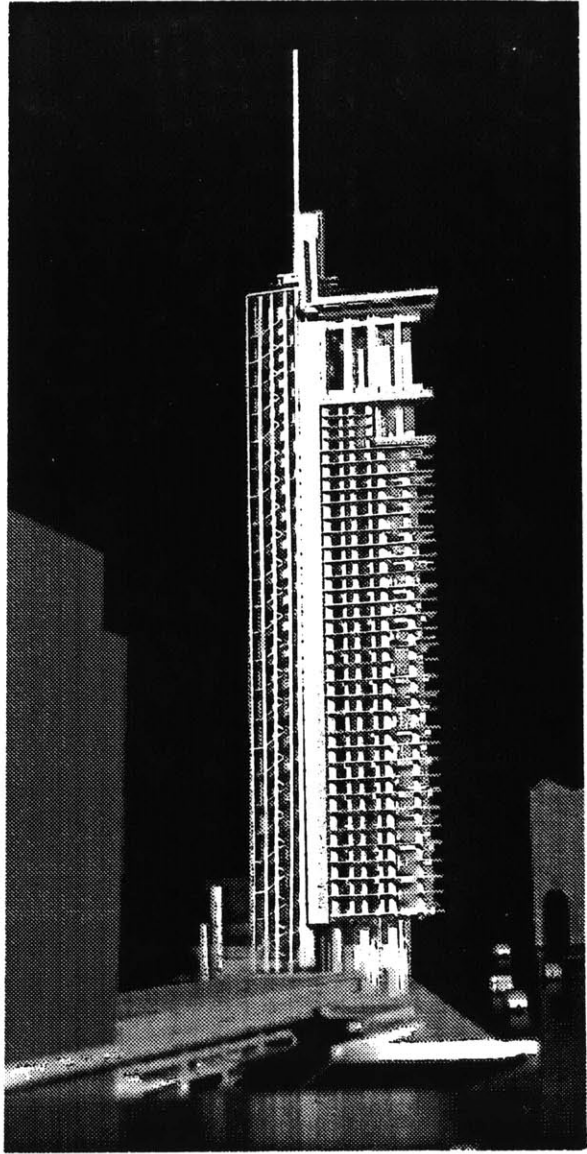
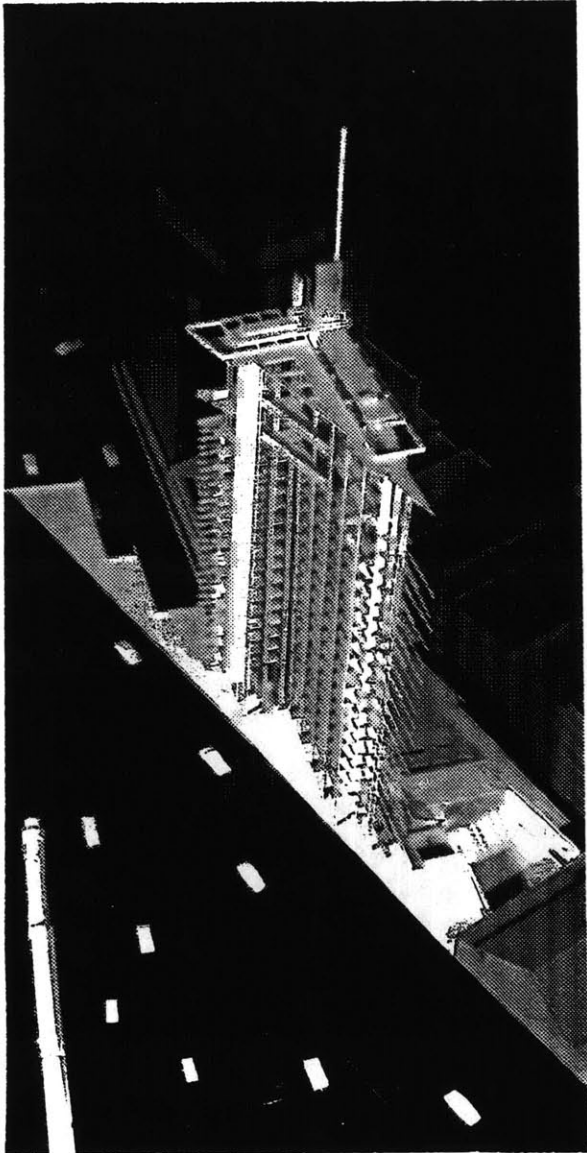
The design attitude of the Tower is that of an assemblage of various volumes in the building mass. Starting from the elevator/utility core, other volumes and elements are put together expressing the internal functions. The Tower is situated on Boylston Street, situated directly over the BAC / BCM Student Center and connected via a central elevator/utility shaft. Having the Tower raised on massive steel columns affords opening of public spaces on the Boylston Street level and provides acoustic protection for the rooms on the lower floors. The typical floor contains 11 rooms with minimal interior features such as shower/toilet unit, sink, closet, and built-in sofa/bed. Each room represents a cell unit which is to serve as a temporary urban accommodation. Overlooking the Charles River and Cambridge, the rooms on the north-south orientation are organized linearly with the corridor running along the south façade. At the top of the Tower double-height spaces support a café/bar above and a conference room below with a terrace.



## Street

The site is already an active pedestrian zone with many civic institutions in the immediate area. Presently on the intersection of Massachusetts Avenue and Boylston Street, are found a dozen vendors which support an active and diverse street life. To further activate these types of street activities, the leftover bridge infrastructure on Boylston street is utilized to extend the pedestrian space. In addition, the new pedestrian walkway connects the BAC/BCM Student Center and the Tower Records building to provide direct access from the street level, and to further generate pedestrian traffic on the site.



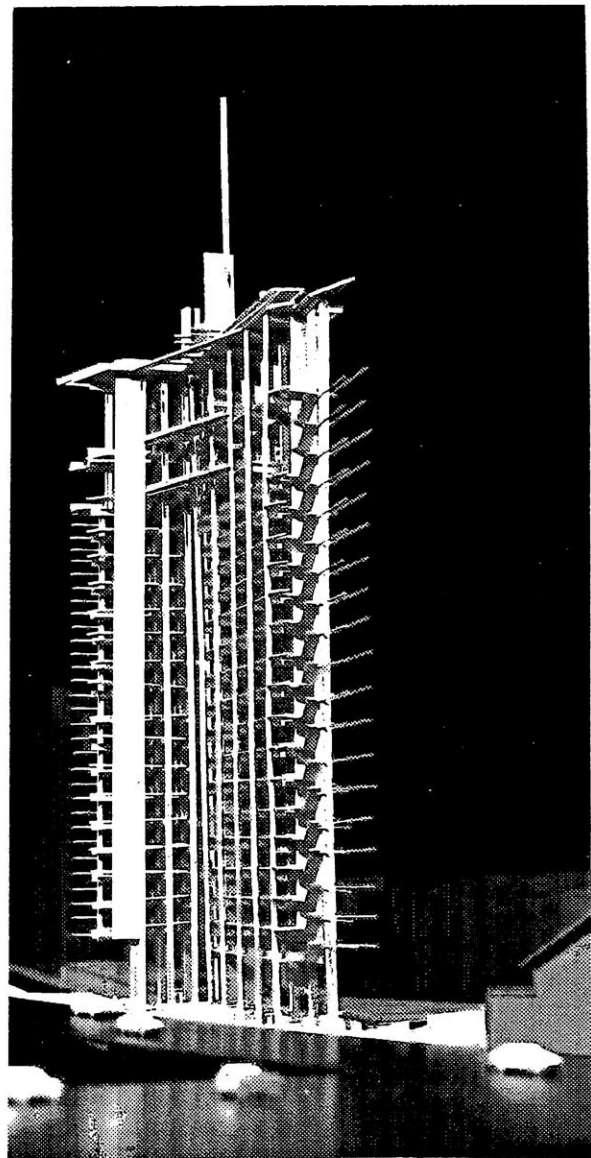


## Façades

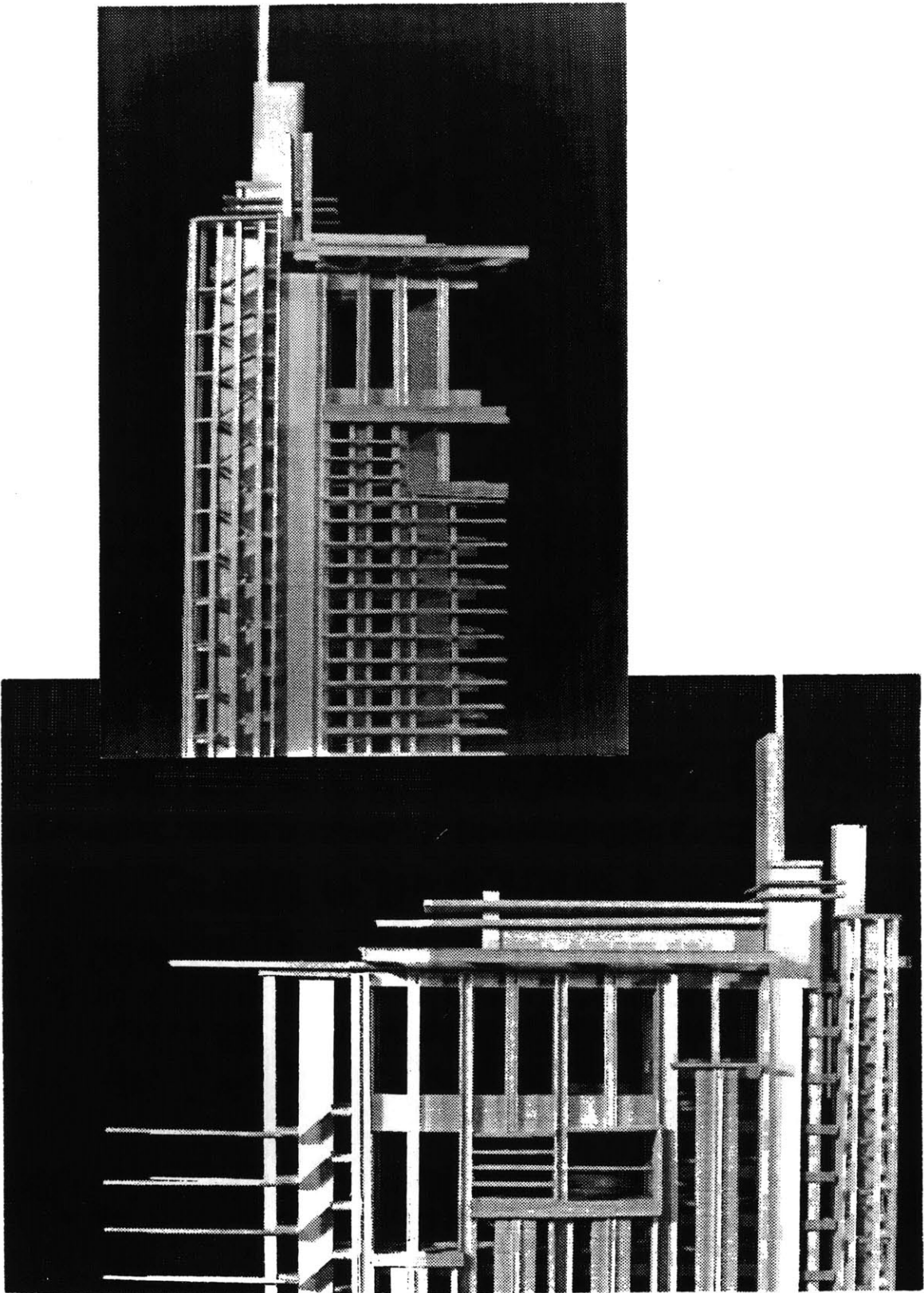
Two ideas are behind the design of the façades of the tower facing the Back Bay, South End, and the Massachusetts Turnpike.

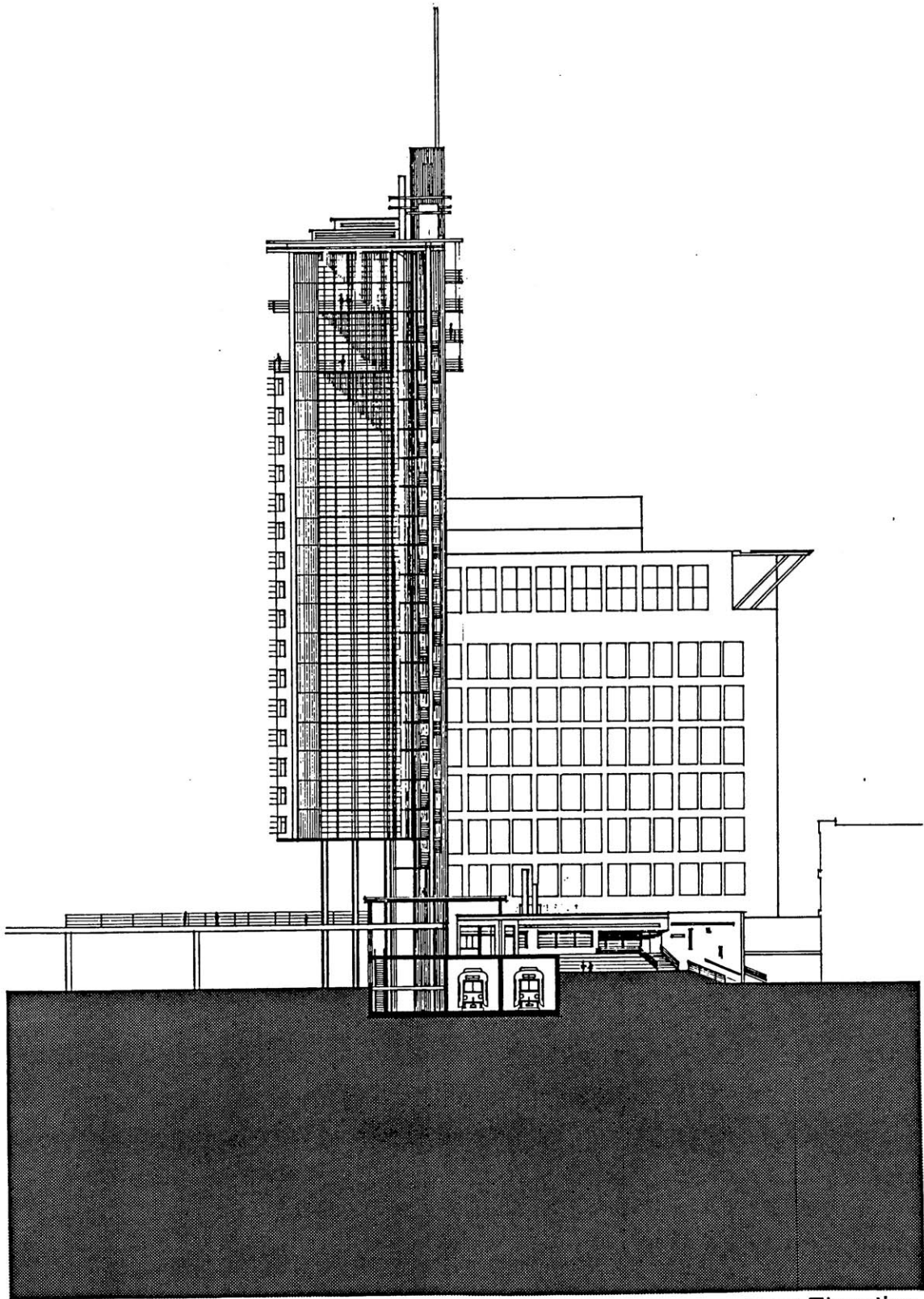
The first idea is based on the notion that each side of the building should address the area that it is facing in terms of its scale and through some expression of the internal functions. Since the project straddles the Back Bay and South End areas of Boston, it was important to reflect its environment. The divisions of the north façade that faces the Back Bay area are broken down from the major structure to individual room to domestic scales that are similarly found in the Back Bay area. The South End façade is treated as a transparent surface, like a lit glass box through which the interior of the building is seen. The division of curtain wall is composed from the structural columns that runs from the ground plane to the top of the building and concrete floor slabs, in effect creating a wall that responds to other urban scale public institutions around the area. Inside the curtain wall, the structural columns support *brise-soleils* on all the floors which run along the hallways to effectively cut down on the amount of heat generated by direct southern exposure. The west façade over the Massachusetts Turnpike is treated with *brise-soleils* on the exterior surface as it faces late afternoon sunlight penetrating into the building

Second, the projected image, "Killer Whale rising out of the water." is maintained and echoed in the north and south façades, particularly when viewed from the ground level. The tower's upper level façade is stepped back to the central core of the building, suggestive of the fin of the whale.

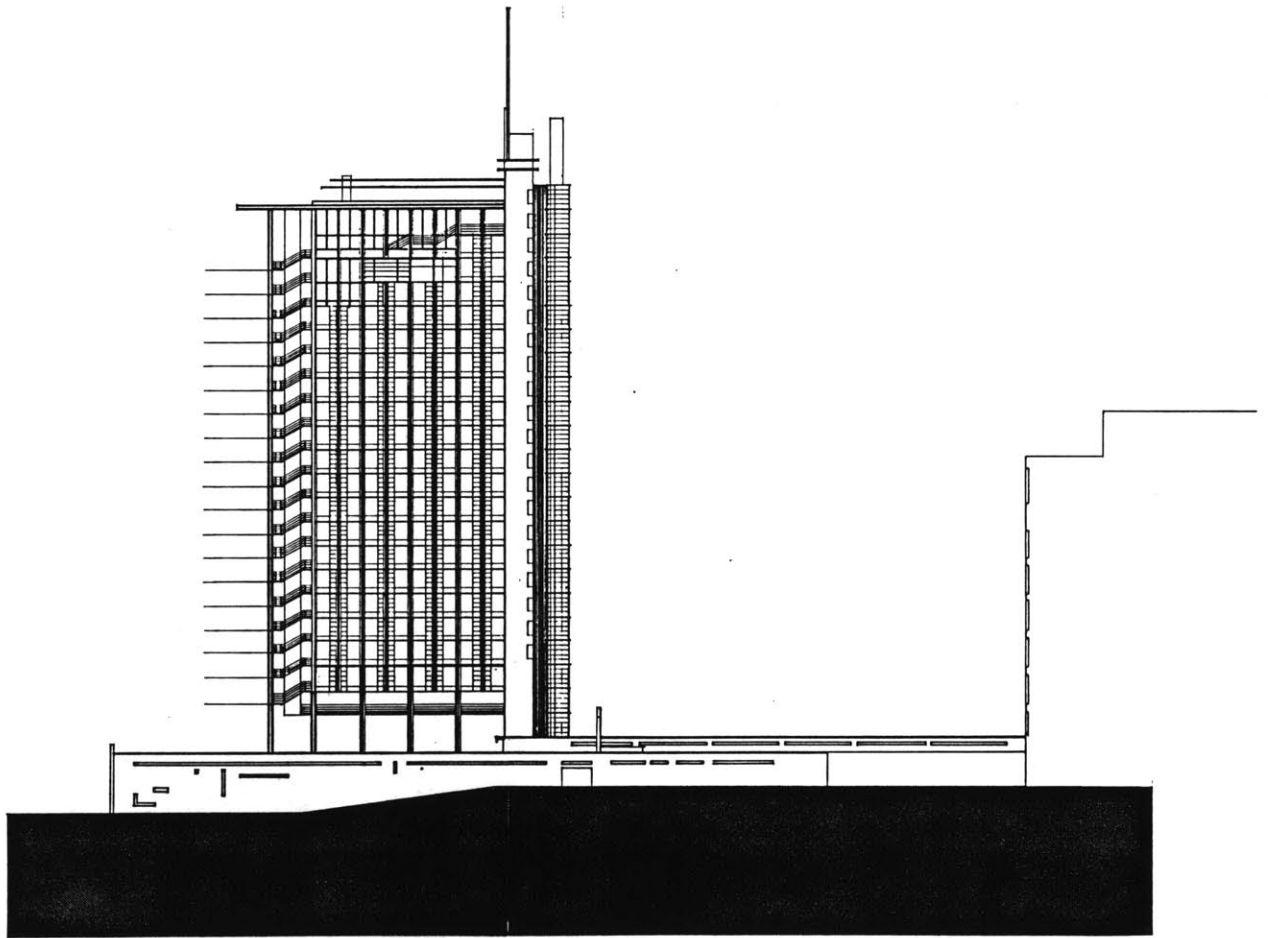








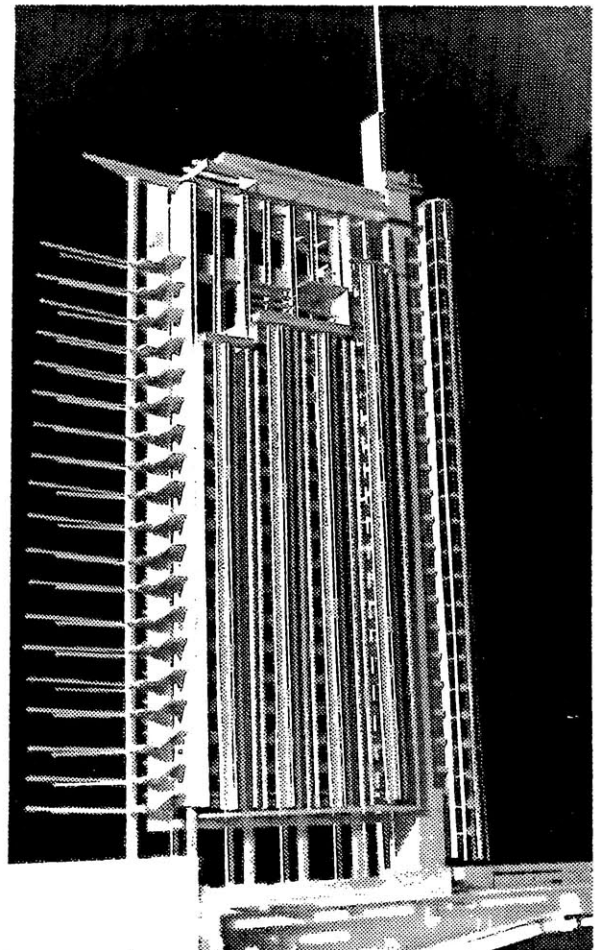
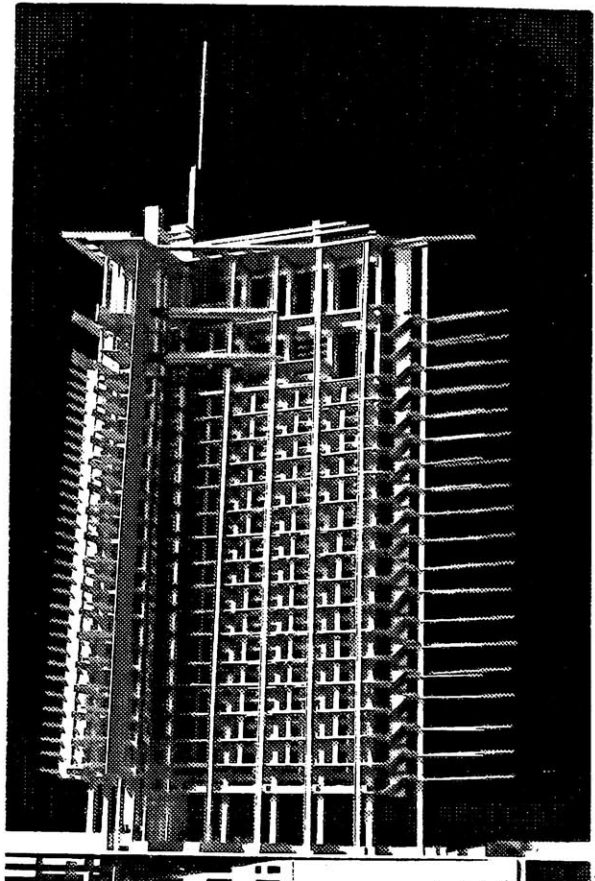
East Elevation

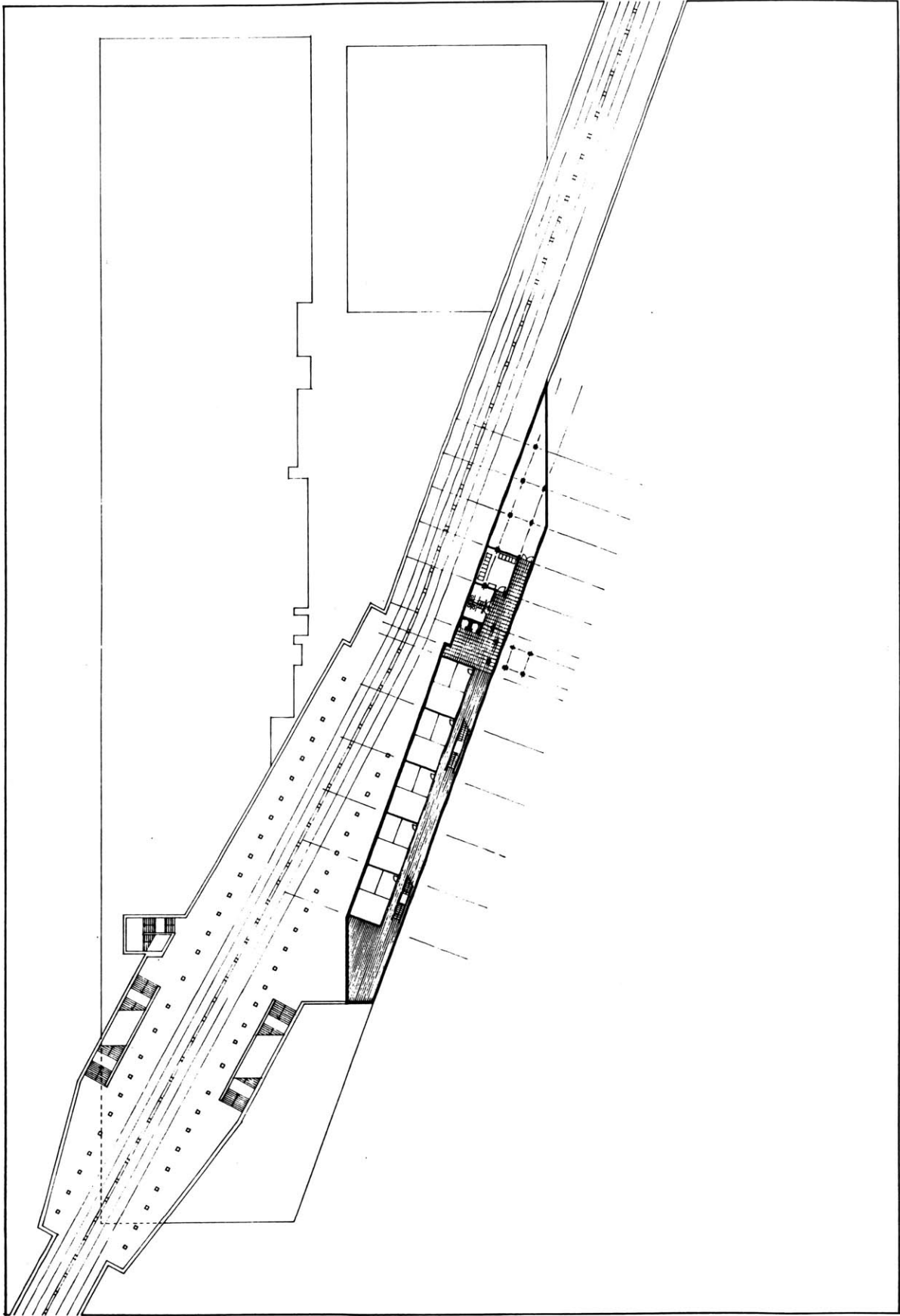


North Elevation

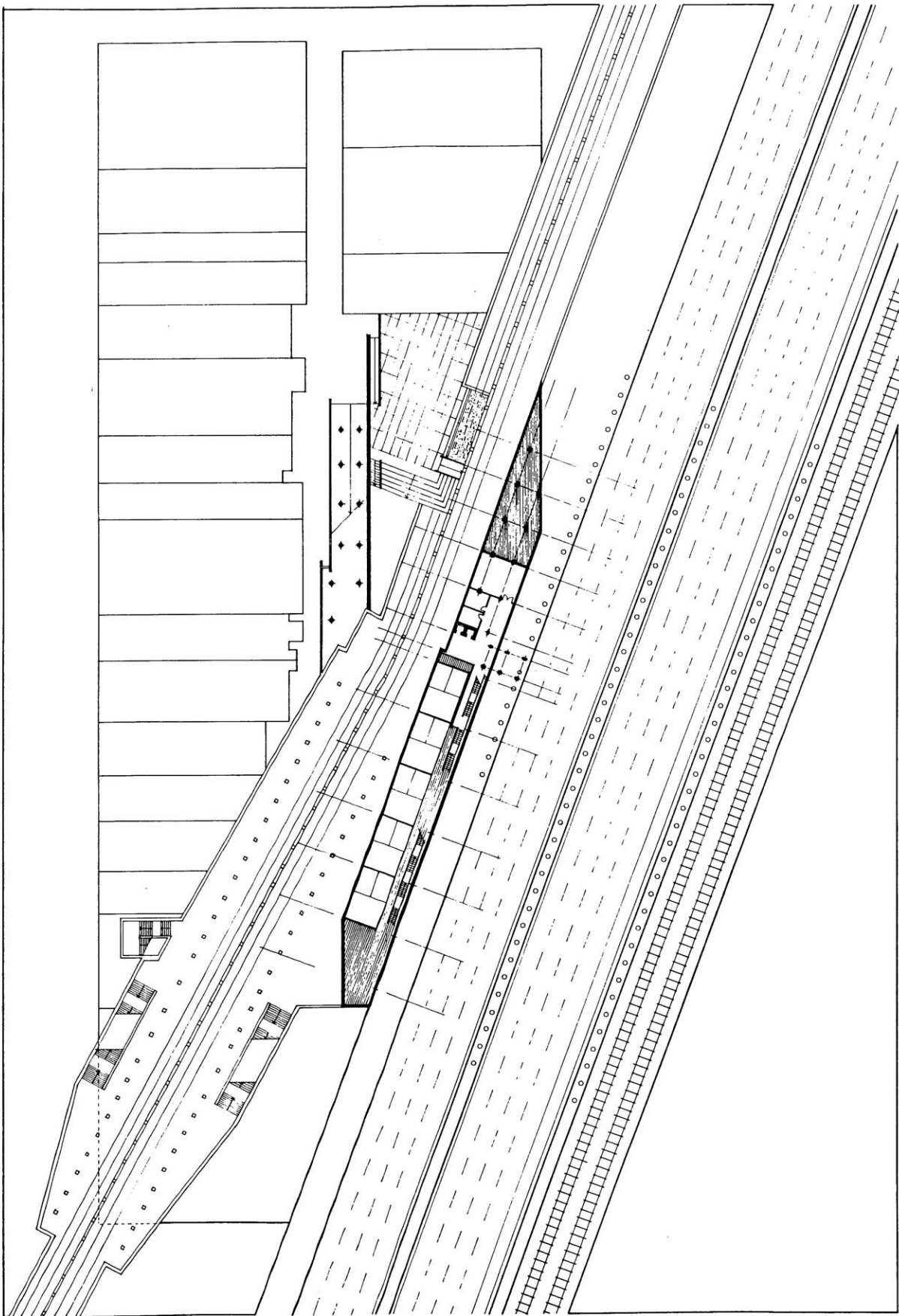
## Structure

The structural support for the Tower consists of steel column supports and reinforced concrete slabs of the elevator shaft. By raising the Tower, the street below is more liberated and opens up to the view of the active courtyard space below. The vertical and horizontal loads are transferred to the foundations by main party walls which run perpendicular to the direction of the building. The corridor walls act as beam to distribute loads along their length. Horizontal shear is carried by the south wall. To eliminate torsional effect on top of the Tower, terraces are placed on levels 20 and 22 that act as joints between two building masses.

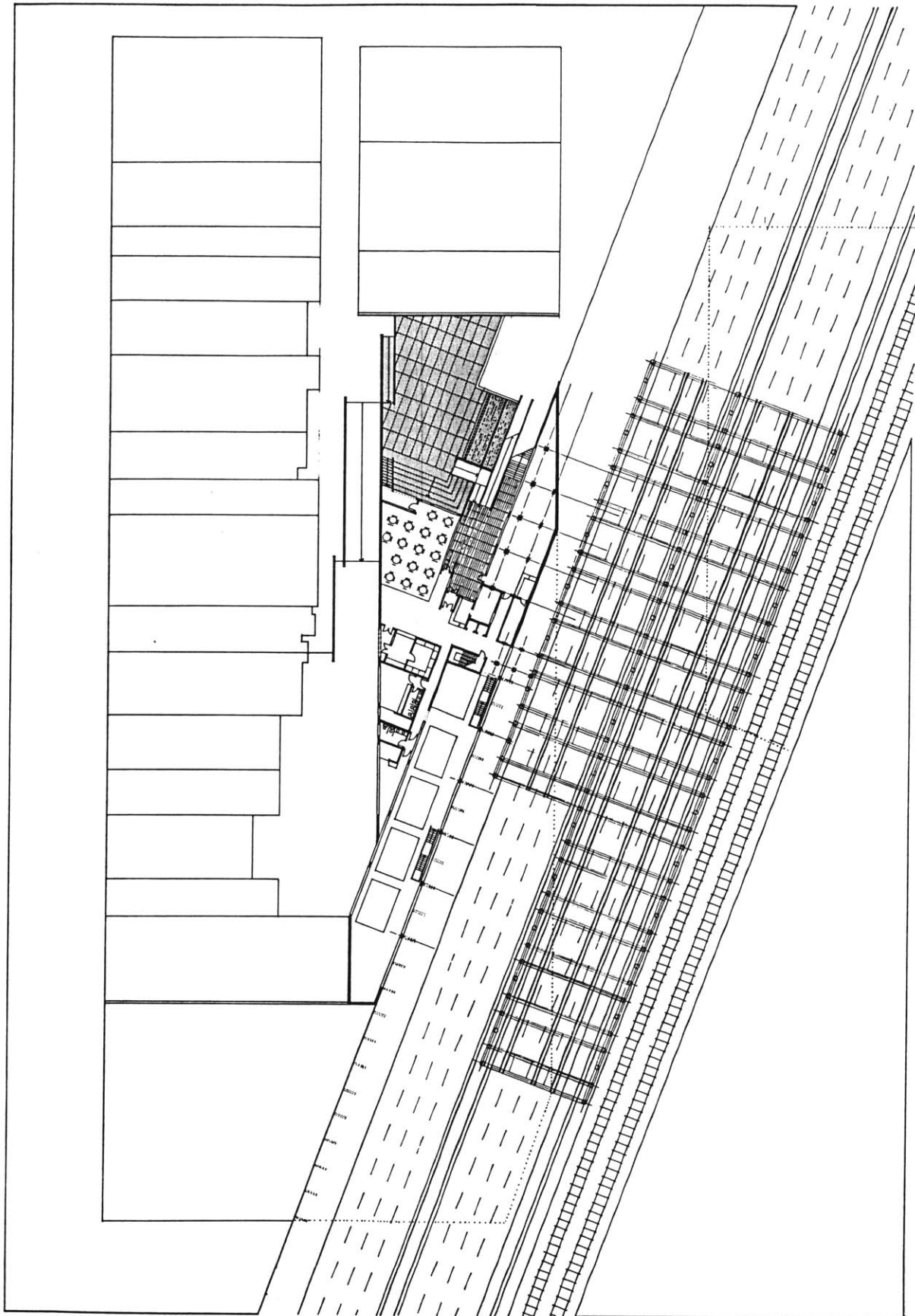




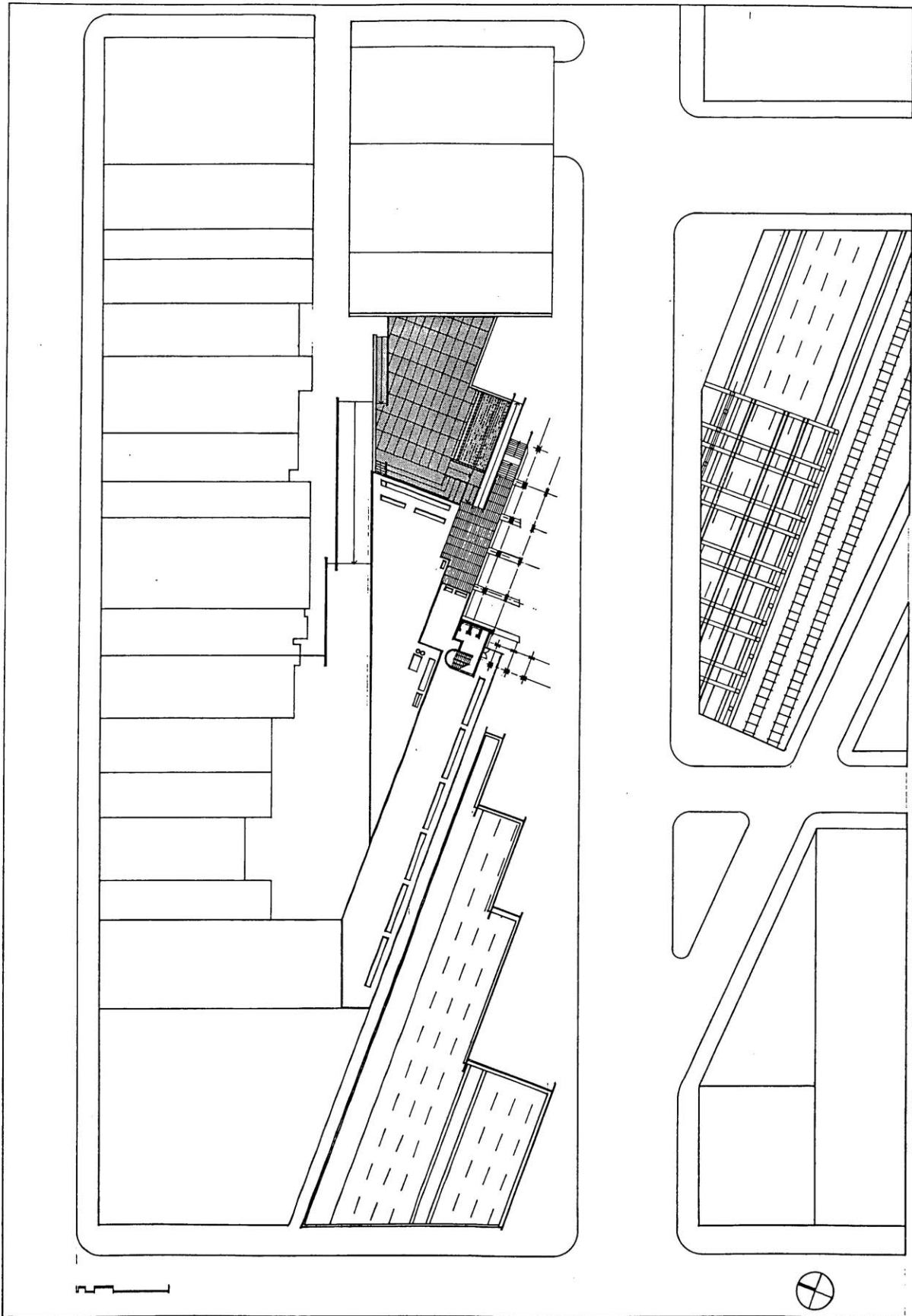
Floor Plan Level -3



Floor Plan Level -2

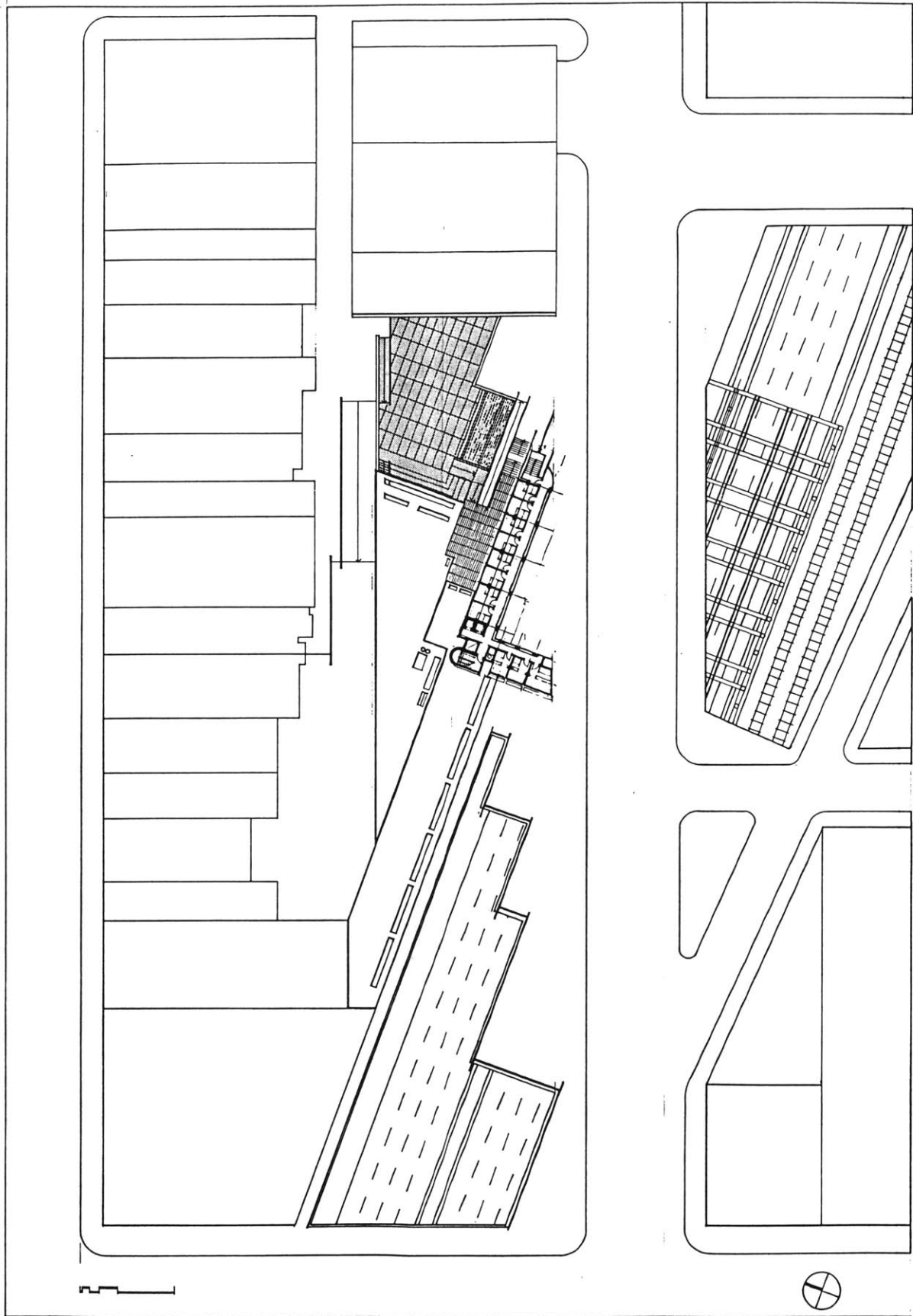


Floor Plan Level -1



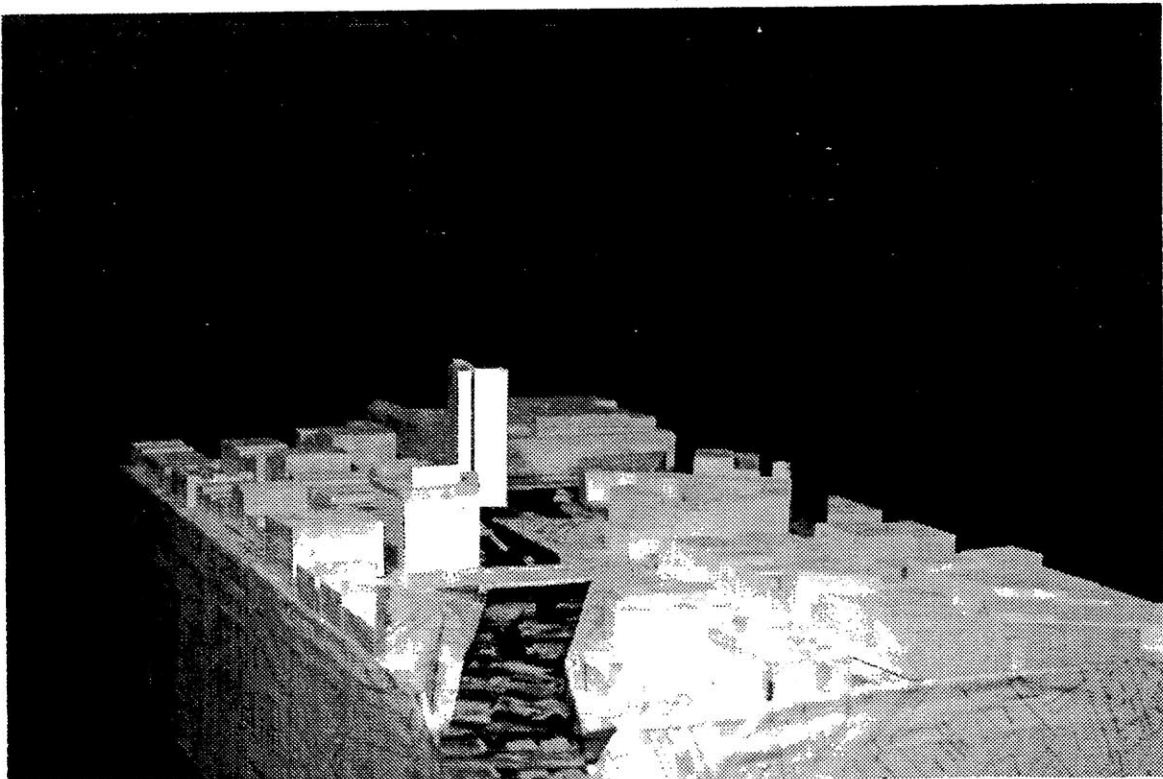
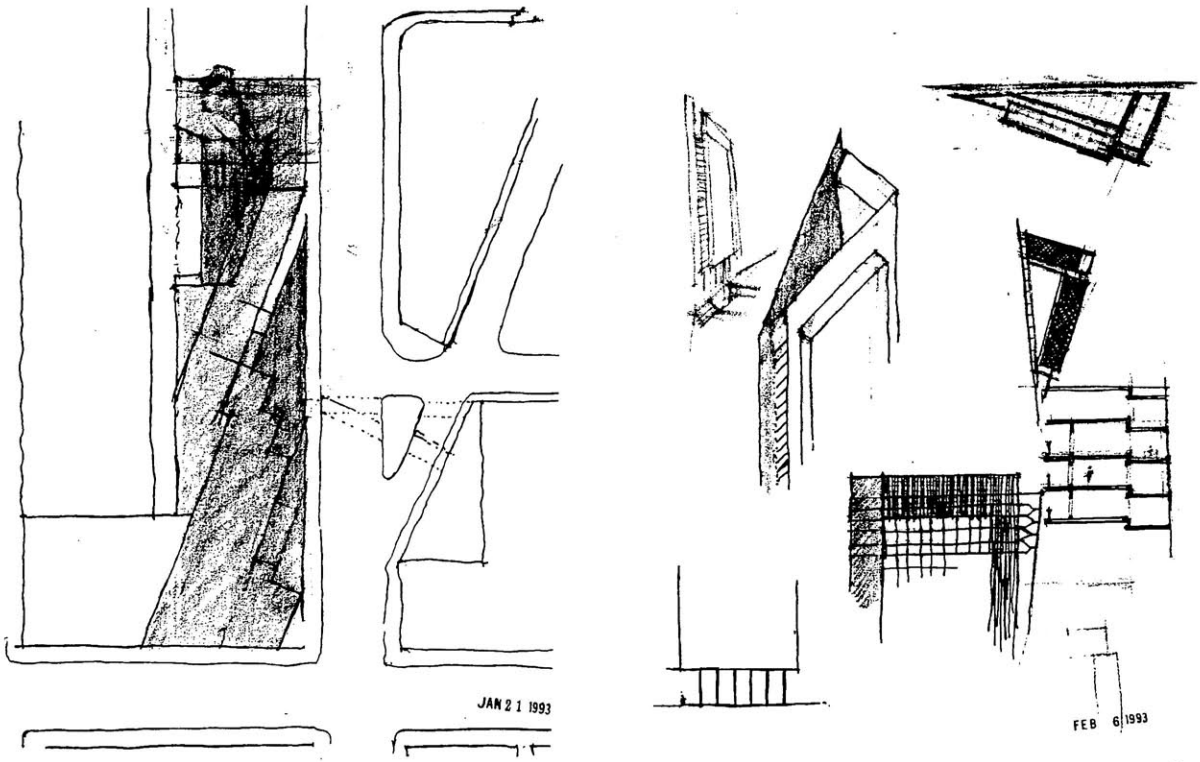
Floor Plan Level 0

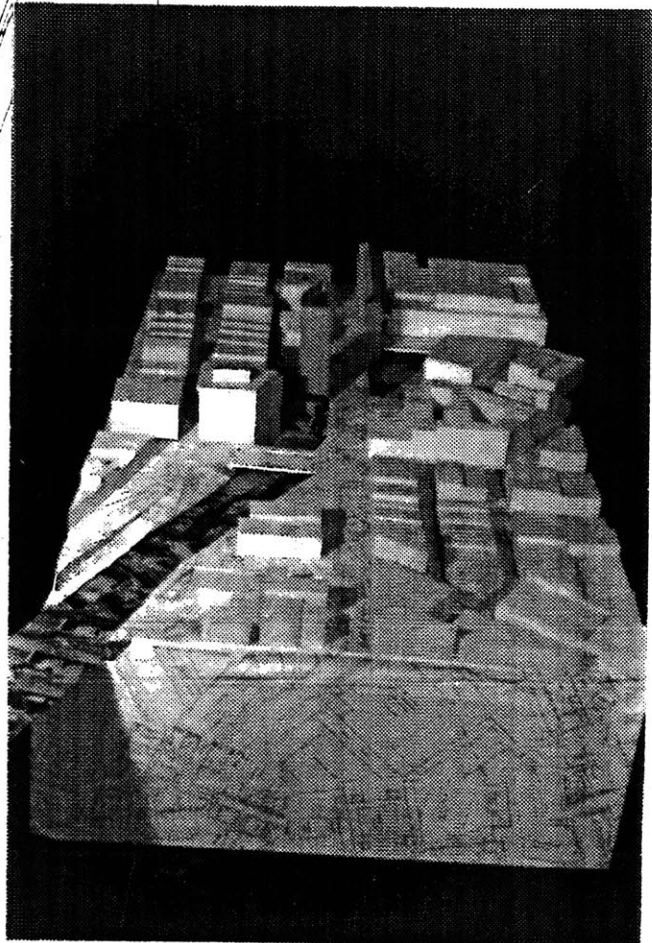
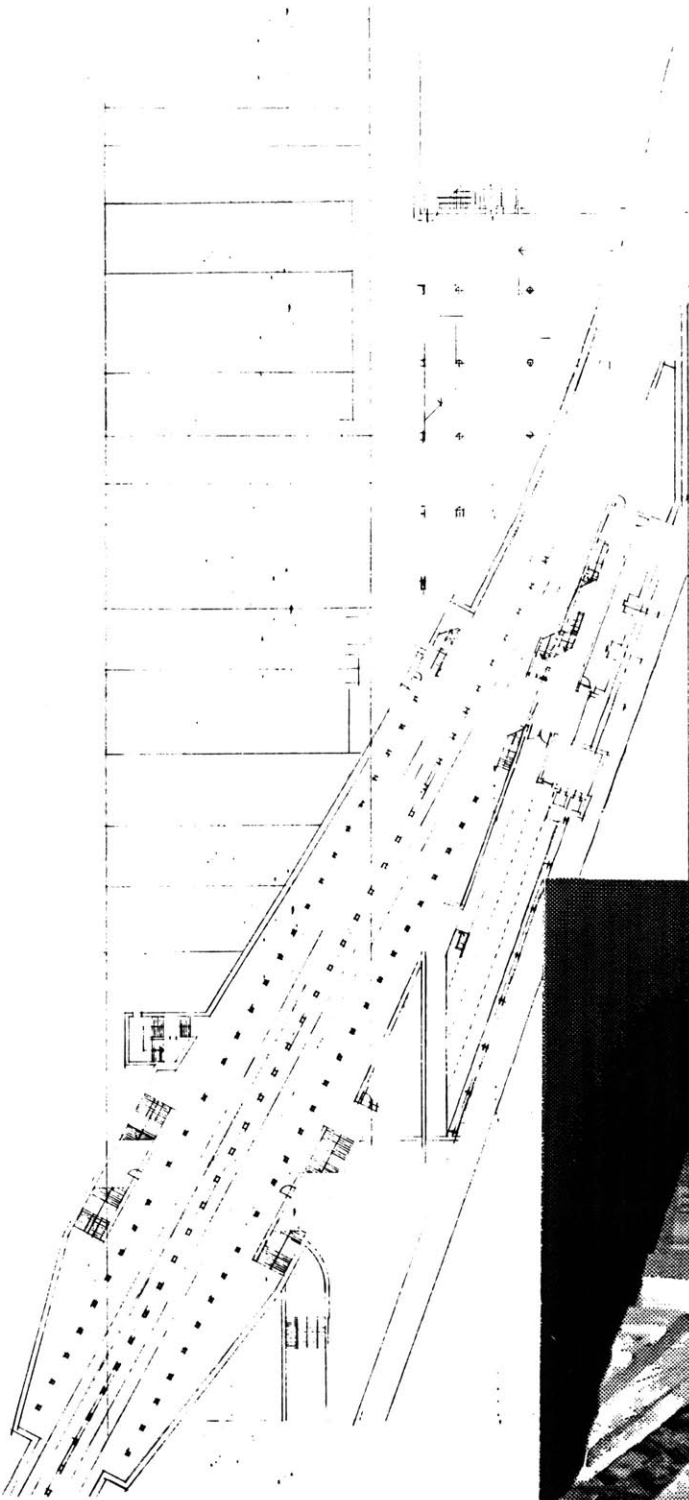




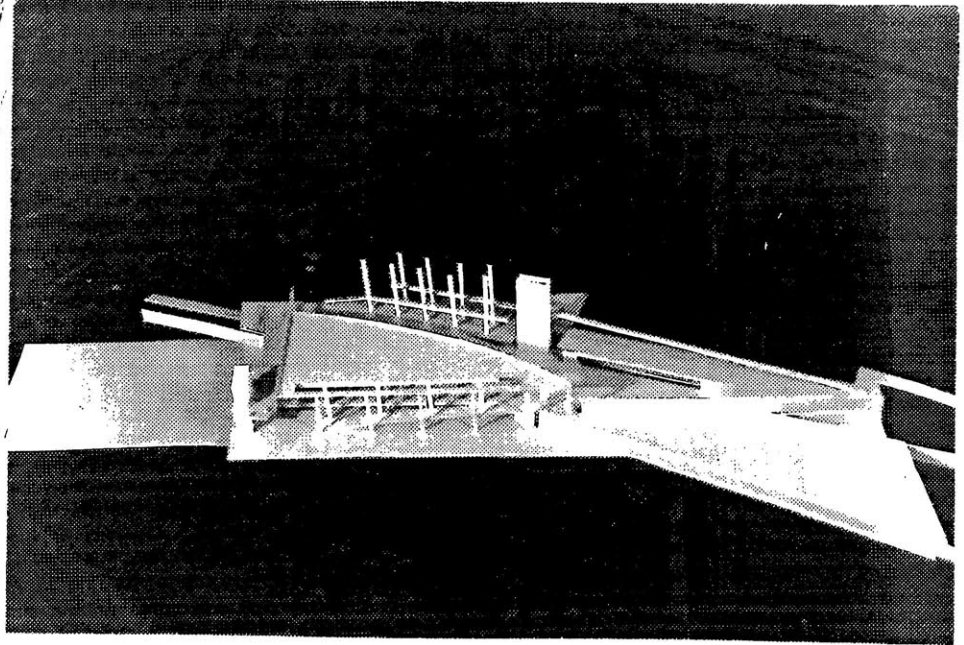
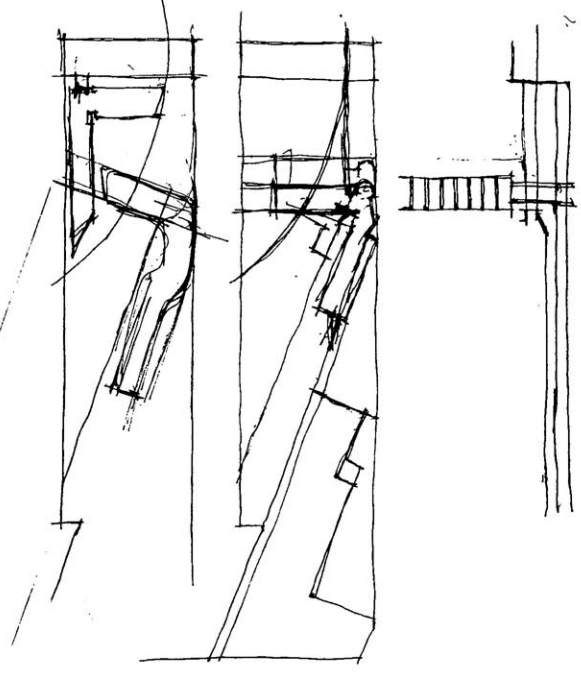
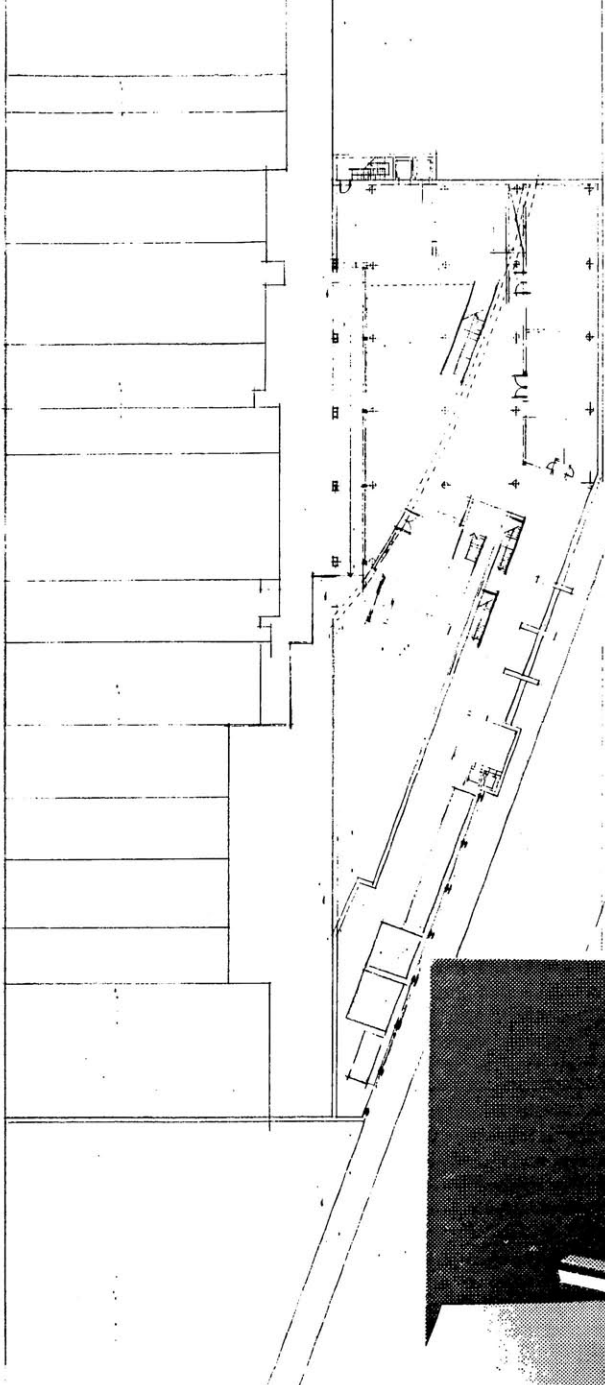
Floor Plan Level 1-20

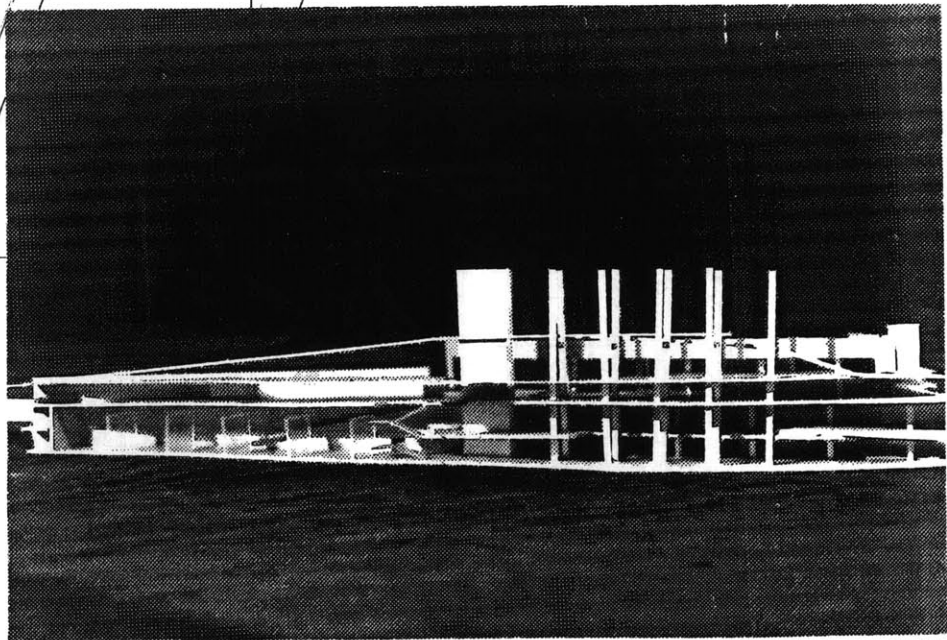
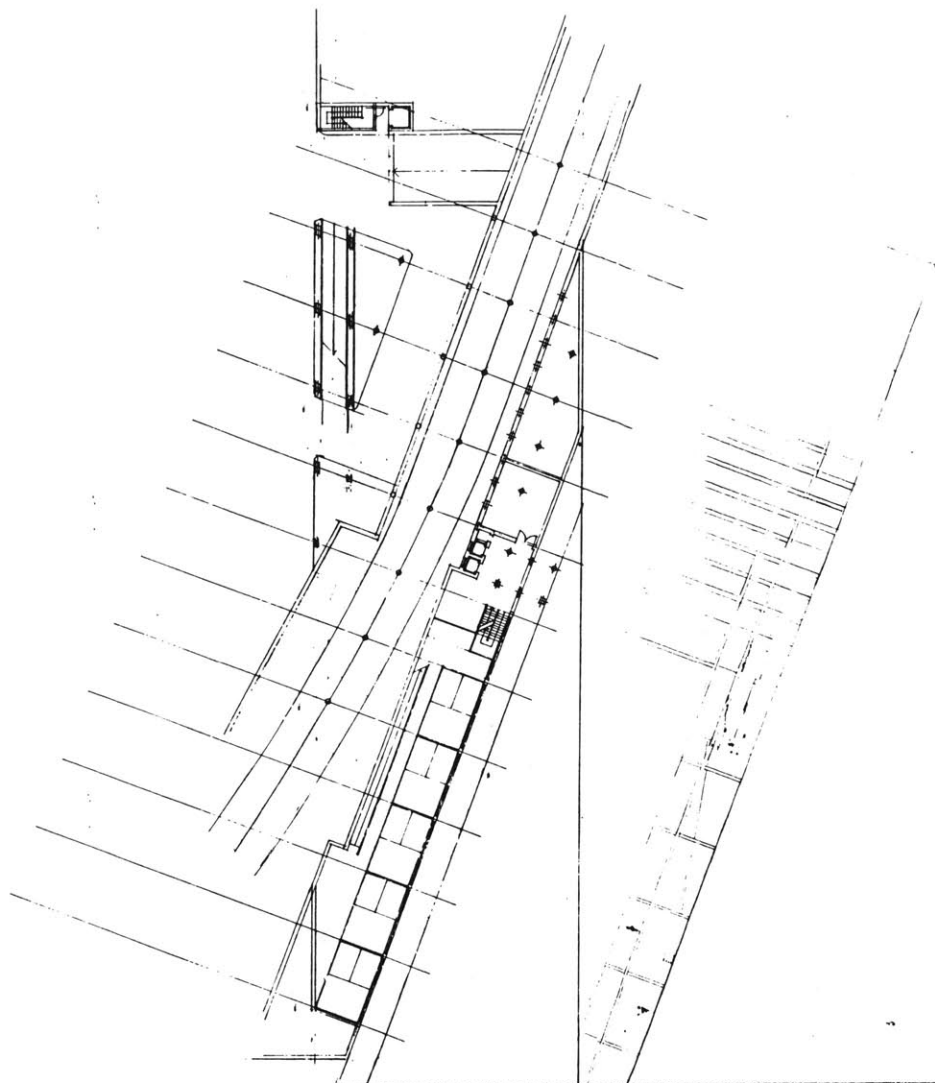
7 Process

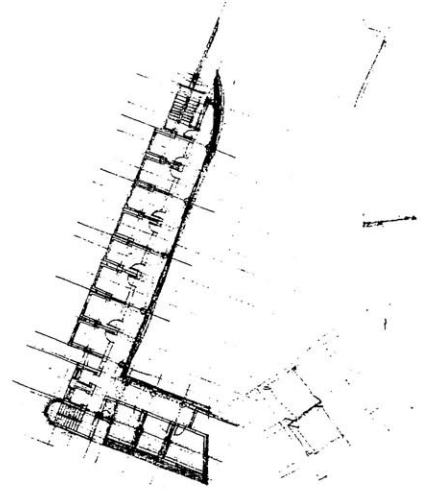
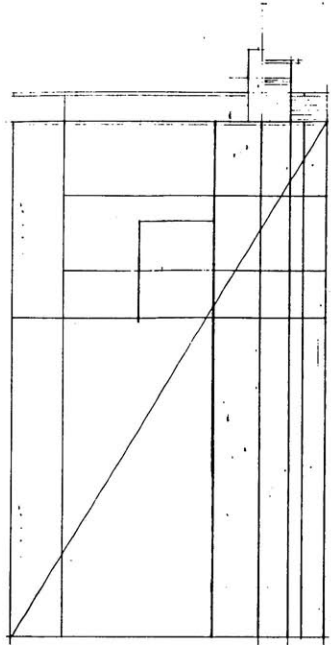




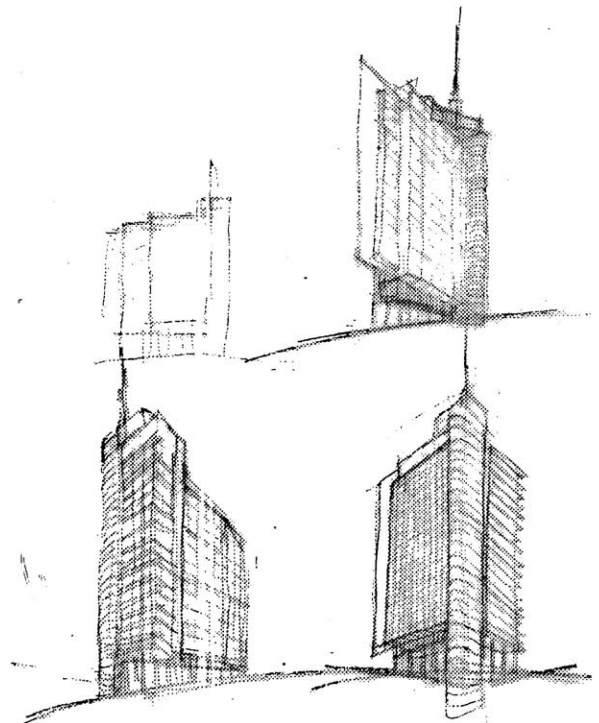
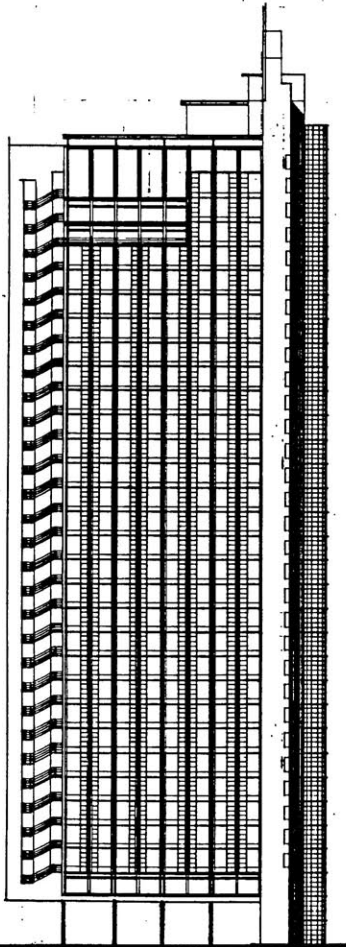
MAR 25 1993



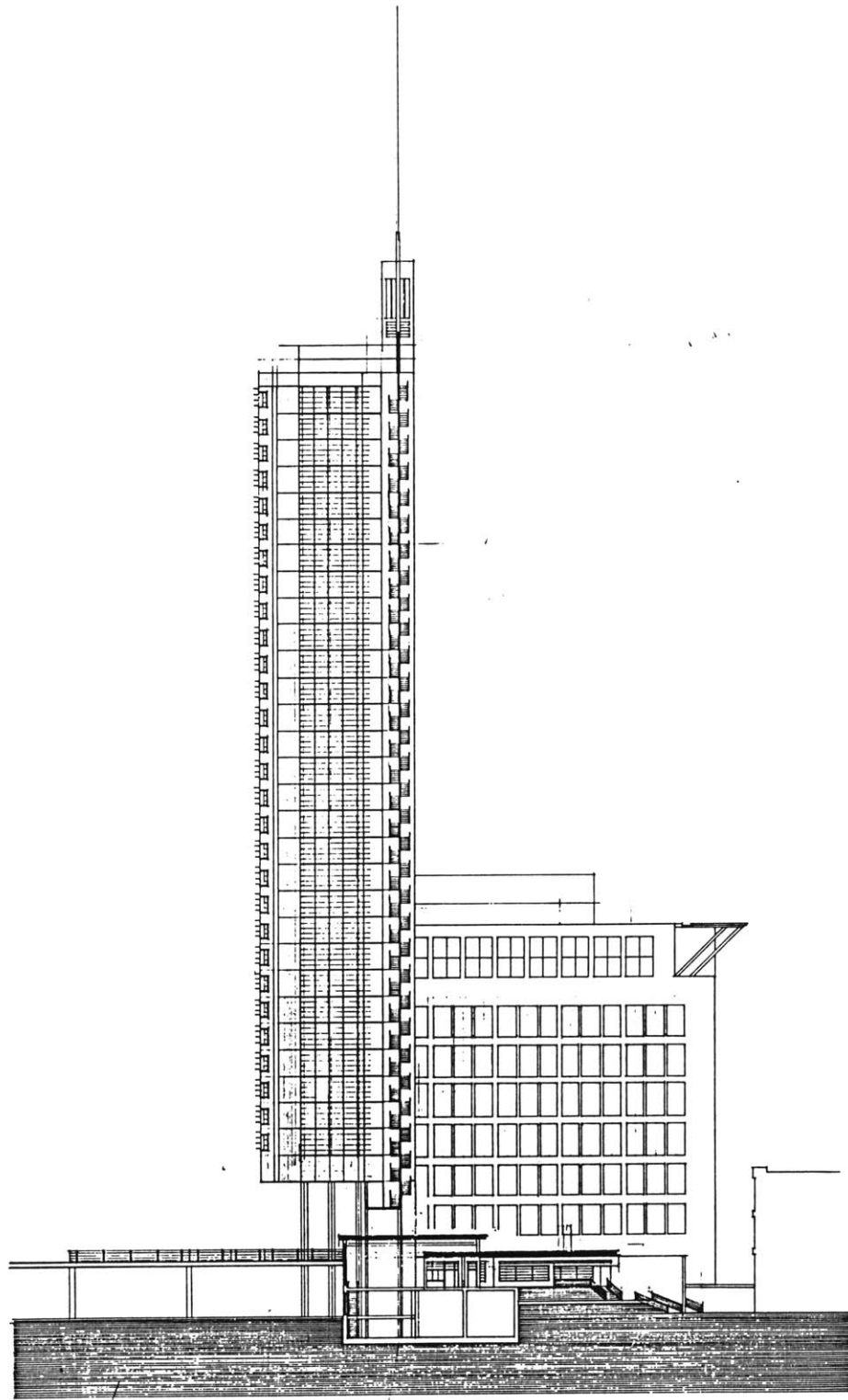




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2 ↓

Section 1



## **8 Conclusion**

This thesis was an attempt to understand the role of a building beyond its usual functional demands, and prior to the design was posed one important question. Can a strong image of place be built through highly recognizable architecture? Through the process of designing this project, it was found that a building that has legibility and recognizable quality, (ie., imageability) could engender memory of a place.

However, unless the relationship between the building and its surroundings, vis-a-vis streets, is resolved and supported and made apparent to an observer, one cannot expect him to fully grasp, comprehend and carry away the overall image in his mind.

In effect, a truly imageable place is created by using a built form while perceptually clarifying the overall image of the form amidst its surroundings.

This thesis has explored a non-traditional design method. This site suggests an image, the image becomes a form appropriate to the site. A program is found that gives rise to the form suggested by the image. It was found that this method of design was well suited to constructing an imageable place.



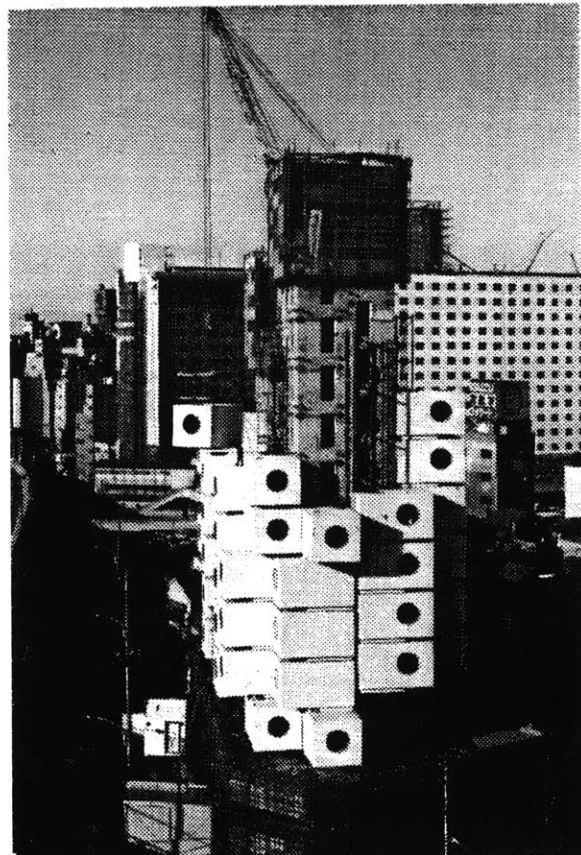
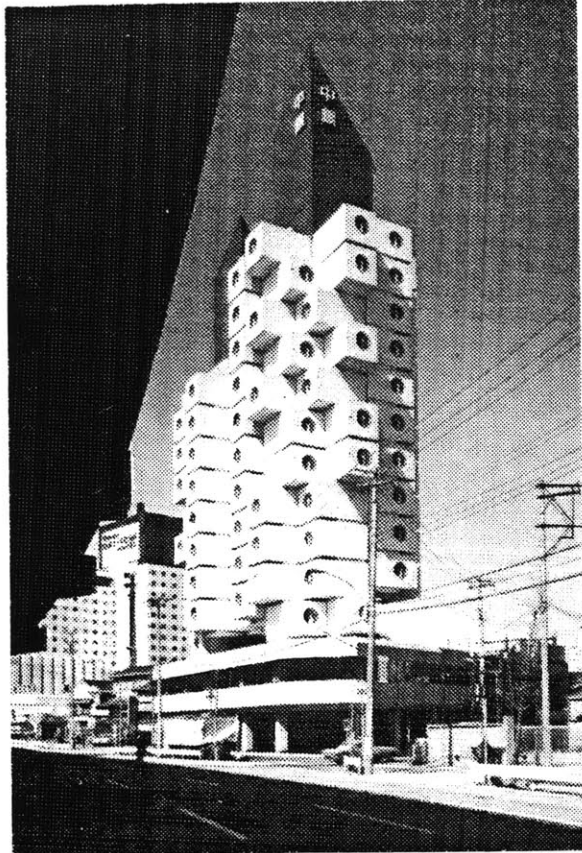
## References

Nakagin Capsule Tower

Tokyo, 1975

Kisho Kurokawa

*The main objective of a capsule architecture is to achieve one hundred percent mass production of living units by creating a new understanding of the house as a community of individuals. The Nakagin Capsule Building represents the first link in such an architectonic community; one that would be composed of towers in variable heights interconnected by pedestrian bridges, with personalized capsules clustered around each other. To achieve such a community of individuals it is necessary to give a life to the capsule by joining it to a mother-ship that will provide the water, oxygen, and power supply essential for its functioning. This need generated a system of construction that combines prefabricated components with the more familiar elements of traditional construction. We call these "mixed systems." 4*



Mozart Square Building  
Paris, 1953  
Jean Prouvé and Mirabeau

*A curtain wall must solve a number of problems: thermal insulations , lighting, controlled ventilation and protection against sunlight. The solution must have an architectural bias, so that the façade can come alive. <sup>5</sup>*

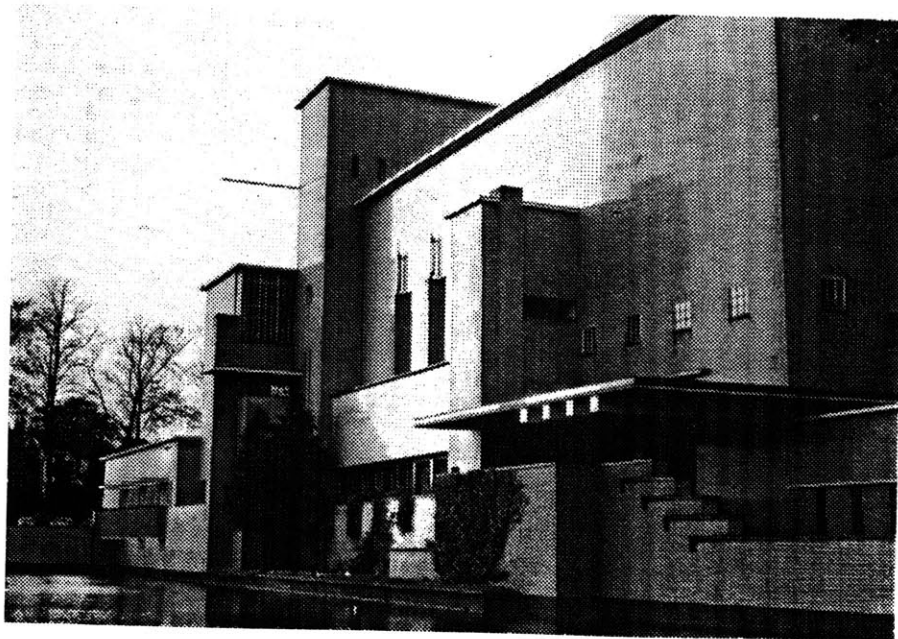
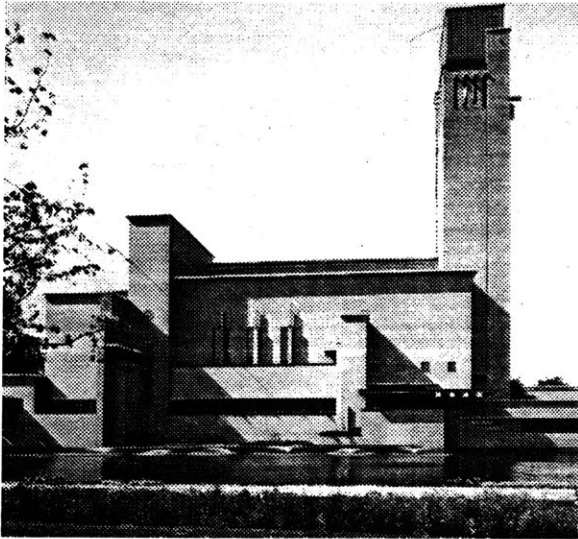


Town Hall

Hilversum, The Netherlands, 1924-1930

W. M. Dudok

*The building, rising in stages from its parklike surroundings and culminating in a high tower, was designed from the perspective drawings. <sup>6</sup>*



Store for C.A. Herpich Furriers, 1924

Berlin

Erich Mendelsohn

*The façade hung from the structure so that its glazed surface can be extensive. But it would remain flat and two-dimensional were the side section not attached by mediating projections which, when viewed from the street, seem to turn the corner. <sup>7</sup>*



Deukon Haus, 1927

Berlin

Erich Mendelsohn

*Mendelsohn articulated the façade vertically, and folded the vertical band of Deukon Haus sign to form the entrance. The building has a remarkable effect in day-light, perhaps even more so by night. <sup>8</sup>*



Cooperative Society 'De Volharding,'

1927-28

Den Haag, The Netherlands

J.W.E. Buijs and J.B. Lürsen

*The building was to accommodate offices, stores, a dental clinic, and shops. Another condition was that it offer as much opportunity for advertising as possible; this was to determine its outward appearance. In its use of glass, the Volharding is one of the earliest examples of building with glass and light. When lit up in the evening the building becomes a gigantic luminous billboard.<sup>9</sup>*



Philadelphia Saving Fund Society

Building, 1928-1932

Philadelphia

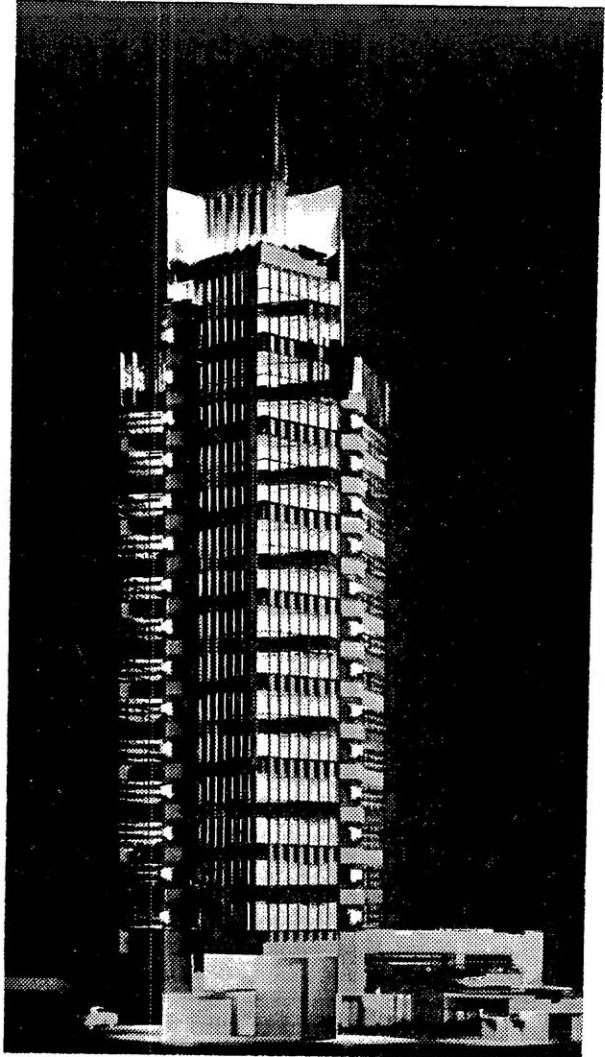
William Lescaze

*P.S.F.S. building by Howe and Lescaze is total work of art. The descendants of these buildings are the largely unloved flattops and glass boxes relieved by an occasional modern master piece.<sup>10</sup>*



Price Tower, 1953  
Bartlesville, OK  
Frank Lloyd Wright

*The first expression of a tree-like mast structure was designed in a project for St Mark's-in-the-Bouwerie, New York, 1929. The skyscraper is indeed the product of modern technology, but not suitable if it increases congestion. It inevitably would unless it could stand free in the country. This was the one planned as a feature of the model Broadacre City so those from the city wouldn't feel lost in that vision of the country, and the Johnson Laboratory Tower is another such. ... The urban skyscraper, unintentionally, has hastened the process of decentralization. But, to the rolling plains of Oklahoma it goes as a fresh realization of the advantages of modern architecture yet unknown to the great city. As a tree crowded in the forest has no chance to become a complete entity standing free, it may establish identity and preserve it. <sup>11</sup>*







## Notes / Illustrations

- 1 Lynch, Kevin. *The Image of the City*. Cambridge,MA. The Technology Press & Harvard University Press. 1960.
2. Terrien, George. *BAC*. Boston Architectural Center. Boston,MA. 1992. pp. 3-9.

*Our approach to learning provides you with the opportunity to work in office during day practicing your intended profession while attending school at night to learn what practical experience can not teach, and to get degree credit for both. The members of our faculty are practicing professionals who volunteer their time. Our tuition is very low. You can afford to support yourself in school while working for credit and salary. Anyone with a high school diploma can enter a degree program at the BAC. Our mission is simple: prepare professionals for practice. At the BAC, "real world" experience counts. Finally, attending the BAC provides a reality check that many have appreciated.*
- 3 Berklee College of Music. *Berklee College of Music 1993-1994 Catalog*. Boston,MA. BCM. 1992.pp.9.

*Berklee's urban site in Boston's historical Back Bay section has no grassy quad. It does have three comprehensive synthesizer laboratories where students learn the intricate art of music synthesis. There is no Berklee chapel with stately spire. There is, however, a Seven-studio/recording complex including 24-track Studer tape recorders with automated mixing, video synchronization and digital recording capabilities. There is no campus movie house. There are six laboratories for the study of film scoring equipped with 16 and 35mm Moviolas, streamline scoring workstation, computer MIDI sequencing, JVC and Sony VCRs and Nagra and Otari recorders with SMPTE interlock via Linx Time-line Synchronization System.*
- 4 Kurokawa, Kisho. *Matabolism in Architecture*. London. Studio Vista. 1977. pp18.
- 5 Prouvé, Jean. *Une Architecture par l'industrie*. Les Edition d'Architecture Artemis. Zurich. 1971. pp 88.
- 6 Cramer, Max. *W.M. Dudok 1884-1974*. Stichting Architectuur Museum. Amsterdam. 1980.
- 7 Zevi, Bruno. *Erich Mendelsohn*. Architectural Press Ltd. London. 1985. pp.68-69.
- 8 Zevi, Bruno. *Erich Mendelsohn*. Architectural Press Ltd. London. 1985. pp.76-77.
- 9 Groenendijk, Paul. *Modern Architecture in the Netherlands*. Uitgeverij 010 Publisher, Rotterdam. 1987. pp194-195.
- 10 Huxtable, Ada Louise. *The Tall Buildings Artistically Reconsidered: The Search for a Skyscraper Style*. Panthon Books. New York.1982. pp 47-49
- 11 Wright, Frank Lloyd. *The Story of the Tower: The Tree That Escaped the Crowded Forest*. Horizon Press. New York. 1956. pp 13-19



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