INTO A SUBURBAN LANDSCAPE

A Proposal of Housing for the Future of the American Suburb

by

David Bailey

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

Master of Architecture

APPROVED:

David Lever

Gregory K. Hunt

Jaan Holt, Chairman

Fall 1998

Alexandria, Virginia

Abstract

Architecture is simultaneously a creative and a destructive endeavour. As mankind has become more aware of the natural cycles of creation and destruction, we have begun to perceive that building resources are not available without consequence. Urban development is also a complex construct which follows these cycles of creation and destruction. Unfortunately, the primary processes of urban development are far too often misunderstood. Fragmented and neglected areas have become commonplace throughout many cities as they undergo the continuous change which has become a seemingly inevitable part of modern society. As architects, we should focus our abilities on the more efficient and thoughtful use of land and existing infrastructures as a way of refining the cyclical patterns of contemporary urban development.

This thesis examines the possibility of repairing isolated and disjointed suburban development in and around American cities. We will explore how the continuous refinement of existing development might occur in just one example of a socially and functionally fragmented area of a city. A prototypical suburban housing block is proposed as the basic unit of repair for this particular suburban landscape. A building consisting of thirty-six housing units was designed to be constructed in an existing suburban business district, with the intent of creating the most positive impact on existing development with the least expenditure of energy and space. The architecture of the building itself arises from the following critical investigation into the fundamental elements of housing.

Into a suburban landscape

i **Title Sheet**

ii, iii **Abstract**

iv, v **Outline**

page 1 **Part One**
Introduction
Cycles of creation and destruction
page 2 Development
Density
Efficiency
The burden of architecture
A thesis proposal

page 3 Illustrations - Influences

page 4 **Part Two**
Evolution of the home
Privacy
A shelter for the mind
Urban versus suburban housing
Detached housing
Apartments
Condominiums, townhouses
page 5 Anonymous versus unique housing
The pedestrian
The surburbs
Components
Links
The automobile
Time, space, and memory
Public space
Zoning
page 6 The future of transportation

page 7 Illustrations - Site

page 8 **Part three**
The site
History
Land use
Regional functions
Form
History

page 9 Zoning
Abstraction
Buffers
Neighborhoods
The intent of the suburb

page 10 Illustrations - Proposed Housing

page 11 **Part four**
Intent
Placement
The ground plane
Parking
The proposed building
The building section
Page 12 The passage level
Public and private spaces
The apartments
Two-bedroom
One-bedroom
Page 13 Fenestration
Conclusion

page 14 **Sketches and models**
thru 19

page 20 **Final Drawings and models**
thru 35

page 36 **Appendix**
The Stair Tower
The Ground Plane
Other Sites

page 37 **Postscript**
About the Research
Bibliography

Page 38 **Index of Untitled Illustrations**

page 39 **Many thanks . . .**

page 39 **Vitae**

Part One

Stepping onto a small porch, I look up to the morning sky. The sun is still low and there is dew on the flowers. From an open window across the street, the smell of fresh coffee emerges and is carried along by a breeze. As I walk along, in the spaces between the homes I catch glimpses of the activities going on in the streets and buildings of the business district in which I live. The sunlight creates patterns on the pavement, and the sounds of the morning rush hour rise and fall.

The following paper describes a thesis and related design projects concerning the current and future state of dwelling in the American suburb, proposing a new type of building as a solution to some of the problems of suburban development. This paper is divided into four parts. Part One defines the precepts on which the thesis is built. Part Two examines the issue of housing, and the nature of building housing in the American suburban environment. Part Three is an analysis of Springfield, Virginia, (the site of the applied project). Part Four is a description of the thesis project itself.

In observing the natural world, one can readily perceive the cycles of creation and destruction with which the environment continually renews itself. Architecture is also inherently a process of creation and destruction. It is necessary that when man creates anything, he must destroy some portion of what was before, in order to bring a new thing into existence. Thus, destruction is an unavoidable process in the gradual evolution of the built environment; building materials must be harvested and then refined, and land must make room for some new presence in the form of architecture.

This process is often referred to as development, and can be recognized by increasing and (somewhat less often) decreasing densities. The density of development in terms of population per unit of area is an enlightening statistic to examine. The densest urban areas contain as many as 65,570 persons per square mile (Macao, in Eastern Asia), in contrast to the most sparsley populated rural areas which have as few as 2 persons on average per square mile (Western Sahara, in North Africa). Hong Kong contains approximately 14,000 persons per square mile, while the City of New York has a population density of 18,000 persons per square mile. The Washington metropolitan area contains roughly 4 million inhabitants, or approximately 4000 persons per square mile. Typical suburban development tends toward a density of less than 2000 persons per square mile.

As the populations of various contemporary suburban areas increase, there exists a tendency for development to spread out into zones of singular function, reducing undeveloped land, often leaving a wake of abandoned structures in the previously developed portions of a community. We can ill afford the consequences of such reckless land use. A concept central to the principal of efficiency is that of maximizing the use of energies expended. In the case of an automobile, efficiency can be measured in miles traveled per gallon of gasoline consumed. When analyzing the efficiency of complex entity such as the built environment, a possible measure could be the "sum efficiency" of the relative efficiencies of its various components. Increasing the density of building development, (including layered development over time in terms of adaptive reuse, etc.) in existing suburban areas could allow the more efficient use of resources such as fossil fuels and utility infrastructure. The thesis which follows proposes a new building type to be constructed on previously developed property, making use of existing underutilized sites and creating new amenities as efficiently as is practical.

The challenges of economy, comfort, and structure found in urban areas have resulted in several highly refined dwelling types. The urban rowhouse is the result of reducing the valuable street frontage to a minimum, maintaining natural light and ventilation of interior spaces, and preserving service access (at the rear alley); it basically modifies the freestanding rural house so as to maximize density, yet not detract from the basic needs of the occupant. It is possible to overdevelop such building types, the tenements of late nineteeth-century New York being a significant example. With the relative affluence of contemporary American society, such extremes of economy at the expense of safety and comfort are not necessary to pursue. It should prove fruitful to examine the potential evolution of the suburban dwelling types in response to the increased pressure of development of our suburban areas.

The burden of architecture is also its greatest asset as an art - architecture must be the place we dwell. It is too easy to forget during the energies of designing and building that the resulting structures will exist for years and decades, sometimes centuries and millienia, slowly aging as they are absorbed into the lives of people passing by or through them. Mankind lives in the cities we build. Such a short sentence to describe the billions of decisions that are made and questioned and possibly carried out in millions of offices around the world, celebrations in old bars or backyards, accompanied by musicians and dancing. Imagine all of these weddings and funerals and births, murders and accidents, surprise parties, broken hearts and apologies. Imagine all the tales and evidence of human action housed in a single city library, or of all the prayers

whispered in all the churches of Rome. Imagine all the memories of all the people who ever lived . . . so many of these meomories lingering in, through, and around the spaces of the built environment. Imagine an infinitely long string trailing behind you over the years, unbroken as it leads back through your life - spaces you passed through and spaces in which you paused - along highways and bikepaths, through buildings and parks and wilderness, classrooms and offices and shops and all the way back through your first grade class picture and into your parents' life before yours.

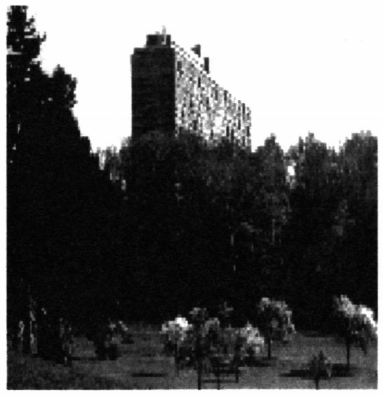
Those are the components which make up our neighborhoods, towns, regions, countries, and, ultimately, our world. So people live in this world we build, and we build it gradually, collectively, as we participate in this continuum as architects and contractors; as property owners and property managers; as handymen and clergymen and renters and newsstand vendors and policemen and cattle ranchers and homeless people and every other concerned citizen. Building cities is an activity in which many participate, though so few with a significant understanding of the responsibilities involved. Architects should bring toward this table a sensitivity to the burden of architecture which allows the less apparent human concerns to become a part of planning and building cities. Too often, economy, tax base, and special interests and subsidies override the basic rights and needs of people in planning and building our own environment. The tangible concerns of economy and ecology, somewhat at odds, must be balanced and examined in light of the somewhat less tangible concerns of architecture, mentioned above, even and especially in places as seemingly mundane as the new American suburbs. We do not build entire cities as was created the legendary phoenix, where each generation is born from the ashes of the old, but rather more like ourselves; whose generations overlap one other, so many beginings and endings gradually blurring into the passage of time.

With history as evidence of the various successes and failures of the use of architecture as an economic, social, and cultural instrument, I believe that a substantive thesis may be formed in proposing a solution of an increased density of development in terms of a prototypical building type. This idea is not a new one. Le Corbusier developed the *Unite d'Habitation,* (see page 5, Illustrations a, e, f, g, h, i, and j) in an effort to house an entire neighborhood in a single large building, allowing the ground to remain free for other uses. Paolo Soleri has made similar suggestions with the *Arcosanti* projects. These projects have met with varying results when constructed and more often imitated by less able designers in many different cities around the world.

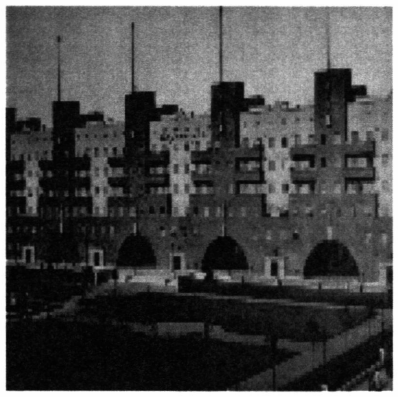
It is possible to create a home which bridges the gap between the detached house and the typical apartment, and makes some use of the largely undiscovered amenities of a semi-pedestrian existence in a suburban commercial area (for a description of some of those amenities, refer to Part Three). This will require effort in the (re)design of the existing landscape found in suburban commercial areas, as well as developing the home itself to successfully move into such an environment. A prototypical dwelling aimed at introducing the possibility of a semi-pedestrian existence in a suburban neighborhood will satisfy one area of the growing need for variations on the single family detached suburban home, presenting a model for creating and distilling new and relevant building types making use of past effort, in order to create new architecture of substance, rather than architecture produced in the pursuit of an absolute and frail originality. Therefore, the proposal which follows grows from an attempt to connect traditional urban architecture, and all of its lessons, with the as-yet-undecided future of our suburbs. There is a need for a housing type which recognizes that the cultures and economic groups who follow the affluent into the suburbs require an alternative to the automobile-dependent, hand-me-down housing stock presently available in the typical suburban area. Some members of these groups are young professionals not yet able to find or afford a singe family detached home of the design or quality they desire; others are lower income families which are not well accomodated in the various apartment types presently available. All deserve the opportunity to live in a home which is more than simply shelter.

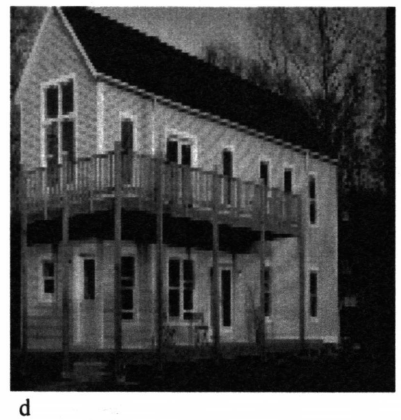
A building which will allow more efficient use of land, composed of thirty-six housing units will be designed to be inserted into an existing suburban shopping district, serving as a prototype to be studied for replication (with adjustments for differing sites) in other locations. In addition, the program includes a small branch of the public Library, and a recreational wing with a swimming pool for the residents of the neighborhood as well as the residents of the building. The project is not a grand revision of several square miles of existing city fabric, but rather a calculated intervention intended to have ramifications beyond its own physical dimensions by way of its use as housing and the resulting perceptions of such a use at this location. The architectural form of the building is relevant, but secondary to this concept. That is to say, form here is a means to an end, which is not the end at all, but rather a beginning.

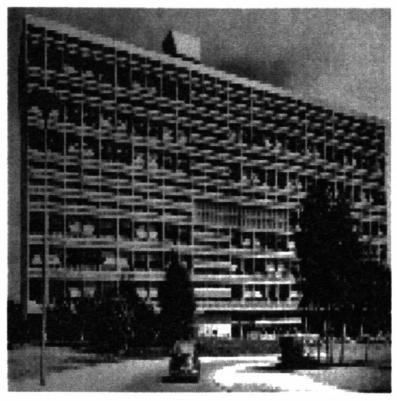
Passing the signs marking the entrance to one of so many subdivisions, one of many suburban commuters drove south on Backlick Road, by the Roy Rodgers and turned left, headed toward the Interstate. A cool grey concrete shape hovered over the nearby parking lot, winding slowly behind the Dunkin Donuts and the medical office building. A few people are visible in this serpentine building, having breakfast or walking above the courtyards toward the stairtowers.

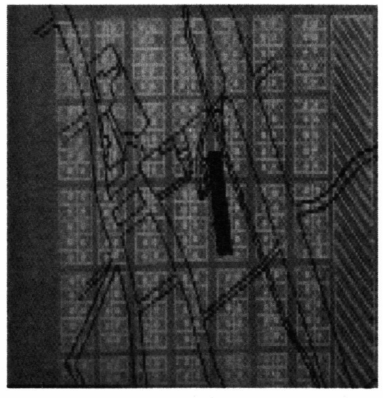

a

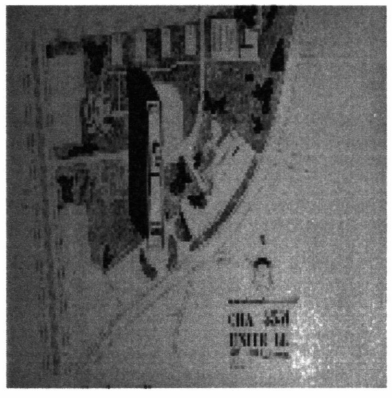
b

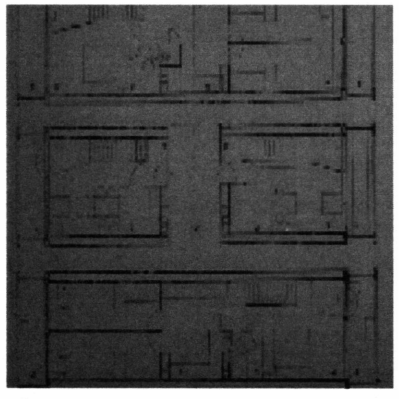

c

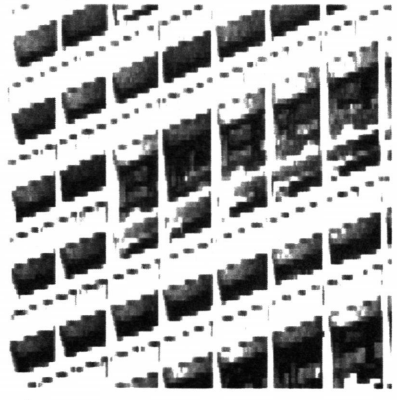

d


e


f

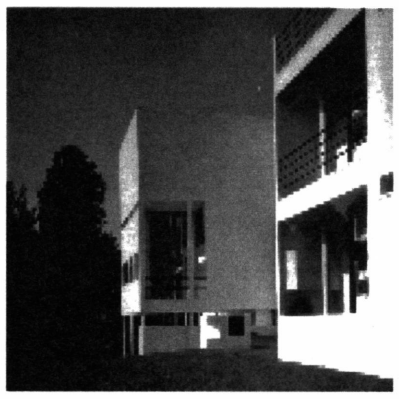

g


h


i

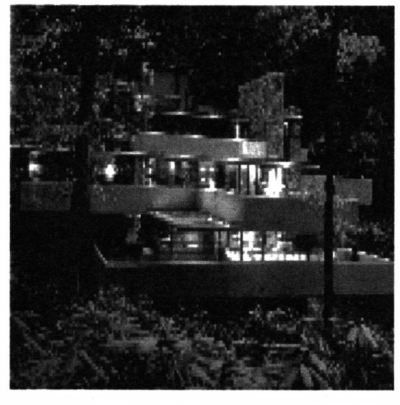
j

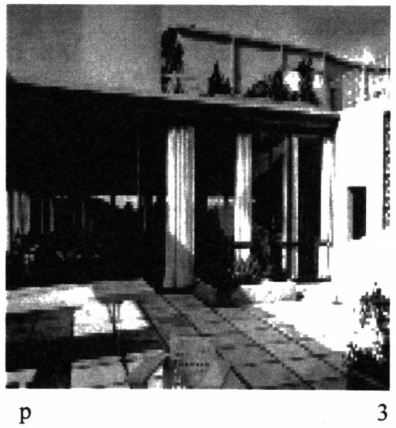
k


l

m

n


o


p

Part Two

I descend a few flights of steps to the ground and feel the cool morning shade of the building's belly as I get into my car. Some mornings, when I ride the bus, I pass through a small courtyard to the bus stop. Overlooking the courtyard are the balconies of a few of my neighbors. I smell doughnuts cooking in the shop around the corner.

To better understand the housing of today, one must examine the evolution of the home from the prehistoric long huts which sheltered entire villages to the individual, private dwellings of more modern times. One concern present throughout the history of human dwelling and related very closely to the concept of comfort is the idea of privacy. People seek out privacy for a variety of reasons - to sleep in security, to be naked without risk of embarrassment, to read in a quiet surrounding. The understanding of this concern for privacy is critical in understanding the modern home.

It is supposed that in the earliest communities, there were no architectural distinctions between public and private space. Over time, the space occupied by a family unit gained expression in the divisions of the long house. Eventually, the family space became a separate hut, which was arranged with other similar huts into a village. The single dwelling space common in early medieval manor houses provided an eating, sleeping, and entertainment space for a large group consisting of family and servants. Today, individuals within the family now typically command a separate bedroom and often a separate bathroom.

Questions about the origins of architecture itself usually fall into one of the two classic categories; the Temple (man builds because he is driven to build by some creative force in his mind), or the Hut (man builds simply because he needs physical shelter for his body). Which is the correct and primary concern is a debate which has occupied architects for centuries. Today, while the typical American dwelling is no longer literally a hut, I strongly believe that, in the case of modern housing, it is increasingly difficult to separate the mental and physical urges for building. Man's home is now a refuge from the pressures of a modern existence, a place for events of many kinds, sometimes a workplace as well as an expression of his philosophies and attitudes. Housing has become a shelter for the mind as well as the body.

There are significant differences between the contemporary suburban detached house and traditional urban housing. Many of these differences involve relative cost, as it is of course possible to construct detached housing in urban areas, given enough money. Here I am concerned with typical conditions. (I am also momentarily suspending consideration of location, transportation, and the many social and cultural advantages gained with the typical density of an urban city). Examples include the private garage or carport, which serves both as shelter for the automobile and its occupants as they return/depart from the home, as well as extremely convenient storage, a workshop, a playroom, a place to put a deep freeze . . . and the yard, which is in effect a private park for outdoor recreating, relaxing, cooking, and eating. The yard provides a physical dimension of separation from the sight, sound, and smell of the neighbors. A yard also doubles as storage, and suburban-type gardening provides many people with recreation.

It is possible and desireable to create homes better suited to modern human life than those dwellings presently available, without expecting massive social adjustments on the part of the public to make the new architecture successful. The design concerns which I find most deficient in the typical apartment revolve around the amenity of private exterior space. I believe that human beings have a natural desire to be outside from time to time, and that all housing should accomodate such activities as outdoor cooking and sun/shadebathing. Private and secure exterior space also allows one to repot plants, hang laundry, wash dogs, and refinish furniture, among other things. A three-by-six foot balcony hung off the face of a twelve story apartment block will not accomodate these activities with any degree of sensitivity for the occupants.

The immediately significant limitations of the single-family detached home involve the economics of land, labor, and materials. It is simply more expensive to build and maintain two 1500sf single-family detached homes than a 3000sf duplex, for instance (assuming identical finishes, fixtures, appliances etc. and reasonably similar design). The added costs arise from the extra materials required for land, additional exterior walls requiring weatherproofing, set-up of different job sites, energy costs, financial arrangements, taxes, infrastructure, and utilities. This is a well understood concept in the building industry. Yet many people who could easily afford a large and luxurious condominium or townhouse prefer the independence and privacy of a detached home and willingly accept these extra costs.

It is difficult to reconcile the comfortably anonymous nature of the urban home with the incongruous attempts at uniqueness present in so many suburban tract houses today. Many of the differences between a suburb and a city are not purely architectural concerns, and those economic, social, cultural, and political issues which effect the suburban dwelling are important to consider. Unlike urban areas, the suburbs do not evolve "on top of themselves" but tend just to grow and grow as a single layer. One can easily draw the conclusion that the suburbs are composed of patterns not well understood by their creators. In studying the contemporary American suburb, it has become apparent to me that the typical suburb does, in fact, contain many of the physical components necessary and desirable for its population. There are homes and schools and shops and hardware stores and animal hospitals and banks and groceries and theatres and ballparks and restaurants and undertakers and town halls and bars and churches. A sense of community is often created by the various needs and activities of children. All of the components are there, spread out in a single layer, although some facilities are better adapted to the particular character of the suburban environment than others.

What the suburb consistently lacks is a certain quality of connections between these existing components. The link between the home and the ballgame, the link between the town hall and the zoo, the link between the police station and the donut, the link between the home and a jug of milk . . . The links which do exist are typically designed to meet (and not to exceed) the requirements of automotive transportation. Why is this the case? The automobile is one of the more notable and influential achievements of our modern world and the private car has become an inseparable part of American culture. The automobile allows millions of people the freedom to travel where they wish, when they wish. Much research and analysis has been devoted to the ubiquitous term of "the automobile". For the purposes of this thesis it is important to understand that there exists a difference between the actual assemblies of metal,plastic,and glass and the humans who pilot them, or some other entity generically referred to by disgruntled architects and armchair politicians as the "automobile." I do not believe that we should design solely around the operating characteristics of the Chevrolets, Dodges, and Nissans out there roaming the roads, but actually more so for the people inside these cars. I do not find it alarming that many people wish to be able to negotiate the Safeway parking lot with relative ease while driving an automobile. However, I will venture a guess that these same people would also appreciate a parking lot which does not sacrifice various pedestrian amenities, including safety and appearance.

And yet today the automobile has come to dominate our environment. Entire communities are designed and located around vehicular needs and traffic planning, most often to the detriment of all else. We pay an enormous price for the freedoms granted us by the use of the automobile. As with many modern conveniences, the expansion of an individual's world brings an exponential proliferation of expectation and responsibility. The ability to travel so easily seems to demand that we travel more and more, so that spending hours a day in an automobile is not uncommon. An interesting piece of information indicates that the average yearly cost of an automobile in the United States today is $6500 and that this translates into roughly $65,000 worth of housing in terms of a typical mortgage payment, leading to the suggestion that the answer to affordable housing lies not in houses built from beer cans but in creating communities in which the car becomes an option, rather than a necessity. This is a point worthy of consideration, and a significant motivation to the neotraditional town planning movement.

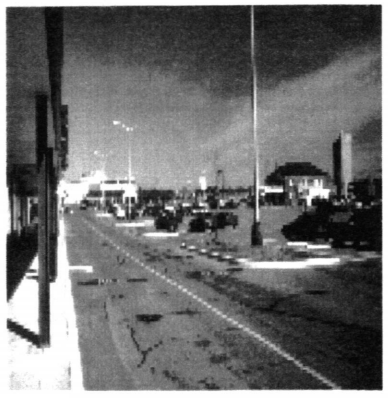
The automobile could be viewed as a sort of bubble of private space floating along in what used to be public space, so that the streets of suburbia rarely present us with the opportunity to interact with those around us, and as the value of private space has increased, a related trend may be seen in the atrophied value of public space. By *public space*, I mean gathering and social spaces at all public scales, from the front porch to town squares and city parks. I believe that public space is a necessary component of a free and democratic society. It could be argued that public space is now being accomodated in shopping malls, or even in cyberspace. We must consider the significant limitations of such environments before allowing them to be society's primary public domain. For though we live in an age when information and technology can supposedly erase the physical barriers of time and space, it has never been so easy to metaphysically isolate oneself from the realities of life and living as flipping a power switch . . .

How does one create a sense of place in this sea of franchise shops and restaurants? Presently, the only stimuli provided to provoke our remembering a specific place as 'home' in the suburb is the sign at the entrance to a subdivision, the sign at a city line, etc. Navigation in an area without traditional landmarks requires signs such as these. Advertising and signage have come to replace architecture as city landmarks. It is possible that architecture should lay claim to these increasingly important elements in our cityscapes. "Turn right at the McDonalds" . . . not turn right after the little brick box with a big front window and a red plastic roof . . . Are they Golden Arches or big yellow plastic fluroescent signage? Obviously, supra-architectural devices, such as the media of billboards, play a significant role in shaping the relationship of the populace to the suburban environment.

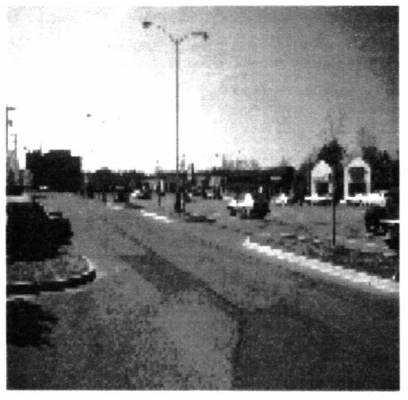
The zoning typical in mid twentieth century America along with the spending patterns of the federal government of that time such as purchasing new highways and infrastructure to support new outlying suburban housing rather than spending significant amounts of tax dollars on rehabilitating existing housing is to a large extent

responsible for the popularity of the suburbs with middle class Americans. The automobile as we know it today may not exist in twenty years due in large part to the limited availability of fossil fuels. However, the fundamental concept of private transportation is not flawed. Fossil fuel powered mass transit is not a solution to anything but traffic jams. Mass transit presently functions as a supplement to private transportation. The enormous amounts of energy commited to the private automobile in the form of roads, parking, and automobiles themselves, is not very likely to be wasted. Automobiles similar in size and function to those we drive today might be powered by anything from fermented turnips to cold fusion. It is still quite likely that private transportation will continue to have a major impact on housing in general.

So I live in a kind of inside-out apartment - open and airy walkways instead of the usual dark monotony. There is a variety in the relationship of exterior and interior spaces. Natural light comes from many directions into my home, and I can watch both the rising and setting of the Sun. I can walk to many of the nearby shops, and yet it takes little time to get onto the interstate and go into the city, or to one of the regional shopping centers. It is an evolving suburban landscape, one very worth exploring.

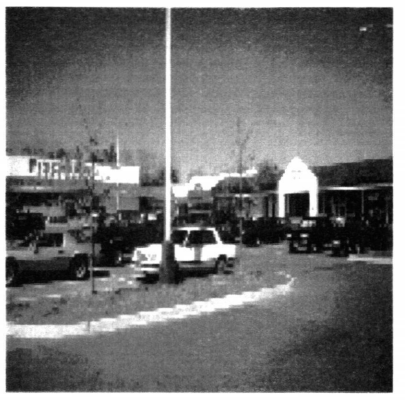


a

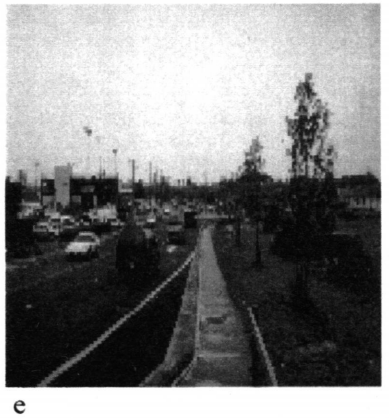


b

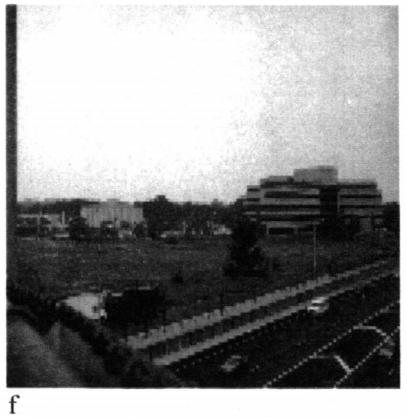
c



d

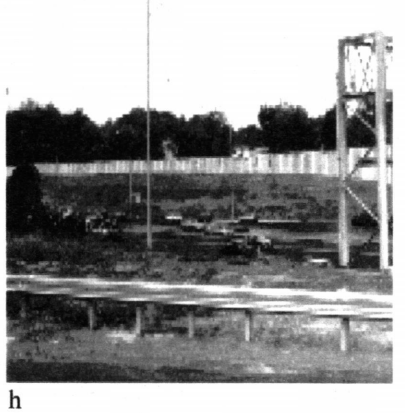


e



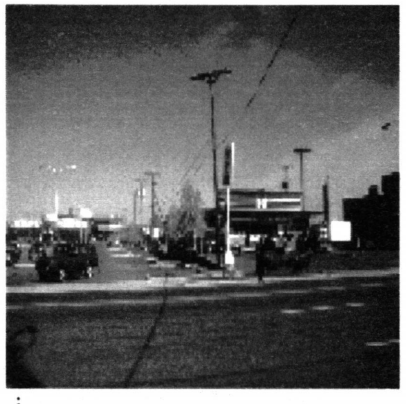
f

g

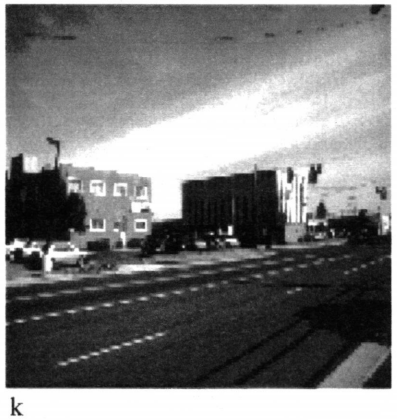


h

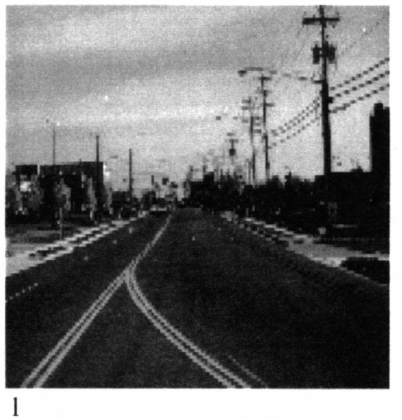
i



j

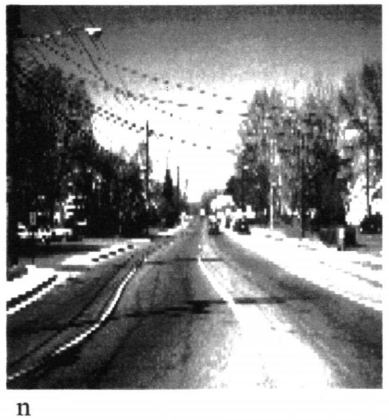


k

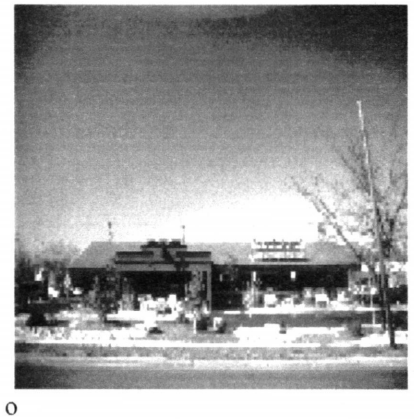


l

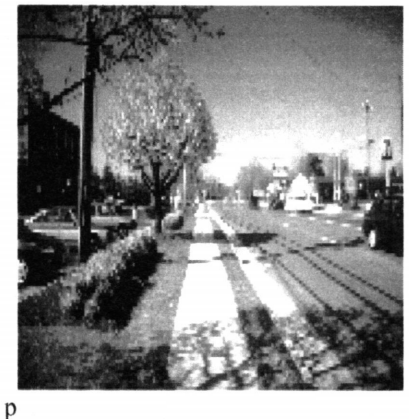
m



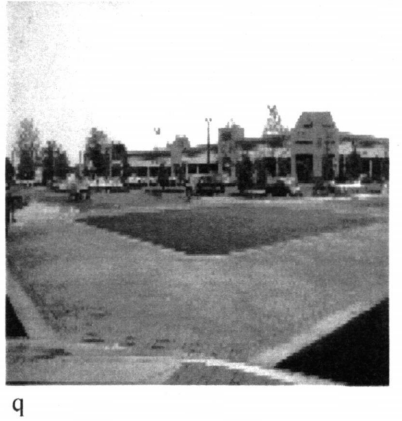
n



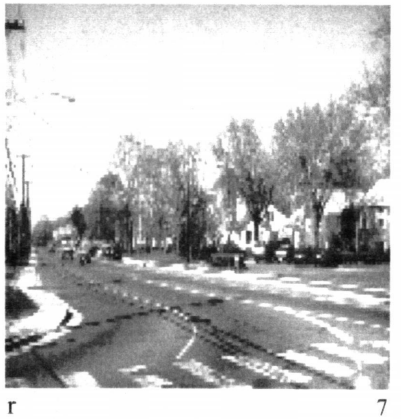
o



p



q



r

Part Three

The site I have chosen to study is located at the intersection of Interstates 95, 395, and 495 - roughly corresponding to the community of Springfield, Virginia. This site is of interest due to its being a typical example of a kind of community which has become increasingly common throughout the world in the last few decades. It is not urban, but rather sub-urban. It is not an edge city, nor is it just a commuter suburb. It is in large part comprised of commercial strips, residential subdivisions, office and industrial parks, and governmental facilities, with small pockets of other miscellaneous uses distributed between these. The whole community is assembled around routes of transportation.

Springfield appears to have been substantially developed within the last thirty or so years - probably subdivisions first with commercial development following. There are a few uses which evidently remain from a rural past. The housing is fairly stable, with related institutions well established (schools and churches). The commercial areas are currently in a state of rebirth, as newer and generally larger shops are built alongside the old. Presently, much of the available land is occupied in some way, its specific uses following crudely arbitrary zoning which has produced some problematic adjacencies and edge conditions. It is the links, joints, and transitions between the various land uses about which I am most curious.

The site does include a wide variety of land use in a fairly compact area. A brief survey reveals a community business center (including auto dealerships, animal hospitals, donut shops, undertakers), schools, several suburban residential neighborhoods, several major automobile paths and intersections, a sizable industrial park, a commuter rail line, many churches, and a few public parks. On the southern fringe of the site lies a regional shopping mall.

Examining how Springfield functions within the Washington Metropolitan Area, its location at the intersection of Interstates 95, 395, and 495 is significant. It is this location which has prompted the particular course of its development. [To a large extent, Springfield seems to follow the Political Ecology of a city as described by Bartelt et al., (though it is a description of an urban environment, it appears to be equally relevant in Springfield).] In terms of the residential portion of the community, the relative ease of access into the surrounding metro area combined with the usual amenities of suburban living in a detached dwelling are important. Schools and churches are located within the area, and the local service sector is growing in accordance with the postindustrial economy. The industrial section of the site provides work for a significant number of people - whether or not these workers live locally or commute from other places is unknown. There are also number of small office buildings and a few office parks sprinkled throughout Springfield. It is, however, unlikely that the entire population of the site is employed within the site itself. I imagine that there is a flow of people both into and out of the community during the work week. This would disqualify the community of Springfield being classified as an edge city. Also, though Springfield has grown quite rapidly, it does retain some sense of a history, however brief.

The site is free of an orthogonal grid of streets and boundaries, but is instead a patchwork of fluid shapes. These shapes may have their origins in the aesthetic of the English Garden, but their use is certainly bolstered by their compatibility with the motions of the automobile. This pattern is evident both at the scale of the community as well as in the distribution of buildings within a single block. There are no crisp intersections and the turning radii of automobiles is evident everywhere. This condition blurs the edge definition of the street, which is especially distressing to pedestrians as it seems as though the only safe haven is inside. Pedestrians for the most part avoid altogether the asphalt sea which laps against the buildings' walls. It is nearly impossible to cross the street due to the lack of any perceivable point at which to cross. Cars are coming from everywhere, which I find to be an unecessarily dangerous situation (see Illustrations a-r at page 7).

The suburban shopping strip is a sort of playground for the automobile. The horizontal expanse of streets and parking lots is the most easily recognized feature of a typical suburb. This single layer of land use is in stark contrast with the multi-layered organization of the traditional city. The suburb does not use land efficiently. As an example, the vast areas dedicated solely for the parking of automobiles is unacceptable. It would be revealing to compare the number of automobiles in regular use with the number of parking spaces existing in the United States today. There is a space at home, a space at work, a space at the mall, a space at the restaurant; though there is obviously some reliance on everybody not going to the mall at the same time, parking calculations are typically based on maximum numbers of expected customers, occuring on one or two days of the year. This means that for three hundred and sixty days a year, the parking lot will be at only partial capacity. Can we extract some other uses out of these areas?

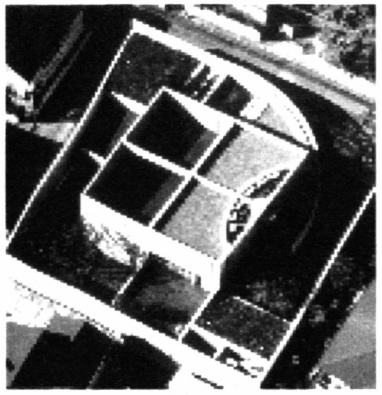
In Springfield, the abstract lines of Zoning on maps have translated into built form most often as insensitive and ambiguous "areas between" land uses. These non-places are themselves devoid of any value or function besides that of physical separation - in more politically correct terms they might be referred to as a Buffer.

> "The east side of the Backlick Road corridor in this sector is the location of a number of institutional and office uses which create concerns regarding compatibility with adjacent residential neighborhoods. The presence of open space buffers adjacent to these neighborhoods helps to ameliorate potential negative impacts from the mix of residential and non-residential uses."
> — excerpt from the Comprehensive Plan of Fairfax County

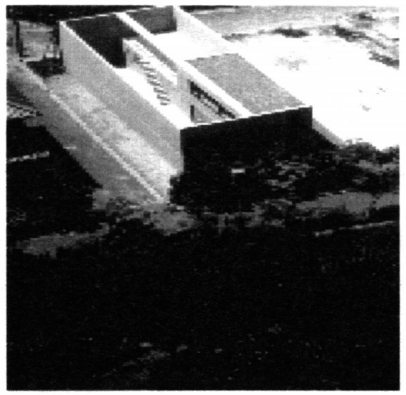
One wonders whether the author of this statement ever visited an older American or European city laid out and developed prior to 1950. Another major objective outlined in the Comprehensive Plan concerns the industrial area just north of the site, ensuring "appropriate transitions towards the periphery adjacent to existing residential development . . . " The language of the recommendations which follow this statement seem to indicate that the only way of avoiding this contamination of one land use by another is to separate them with physical distance, usually in the form of a vacant area of land. This attitude has lead to a community which is only navigable by way of the automobile. Is this kind of relationship between neighborhoods inherent and unavoidable in suburban communities which contain such a diversity of land use?

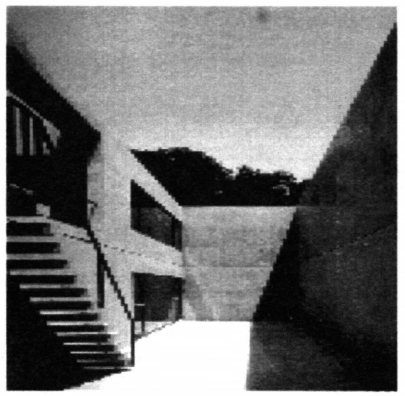
To answer this question, one must first evaluate what this cross-contamination involves, and whether the attempts to buffer all of the various zones from one another is in reality necessary. One of the most significant physical differences between an urban and a suburban community arising out of the buffer-type zoning is the unchecked horizontal expansion (edge cities are sometimes an exception) which mandate the use of mechanized transportation. Although frequently the distances between destinations are not so great, but rather the terrain which is to be encountered which defeats the pedestrian's attempts to move about comfortably. It should also be recognized that there are some desirable aspects to such a concept of buffered spaces, most notably the security (both real and perceived) provided by this fragmented condition. Even the boogey man has difficulty wandering about in the suburbs, whether from subdivision to subdivision on foot looking for the opportunity to commit crimes or just trying to peer into our private lives.

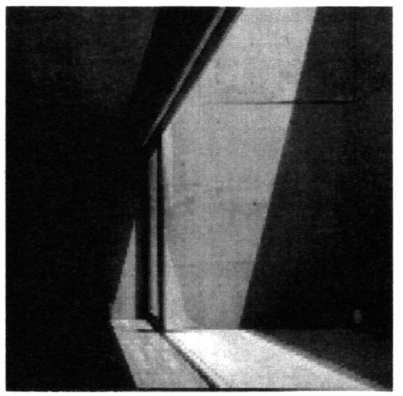
The sensation of escape provided to the residents of a home secluded from the gossips of the workplace and the rest of the world is important to most suburban dwellers. Understandably, for it is an often overwhelming world surrounding us and the knowledge that everybody in the neighborhood is at home, quietly relaxing, is somehow comforting. If it were indeed possible to combine these qualities of the protected personal domain with a more immediate and pedestrian sense of community than currently exists in many suburbs, the envisioned intentions of the suburbs combining the best of both rural and urban living might actually be within our grasp.

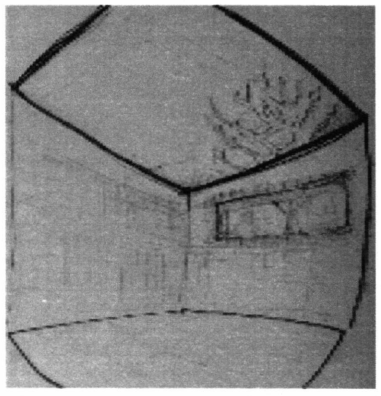

a

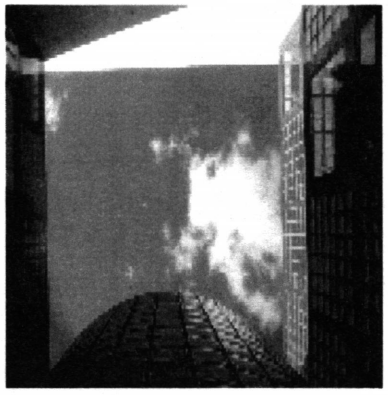
b

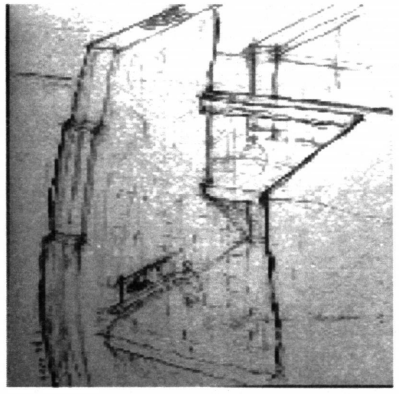

c

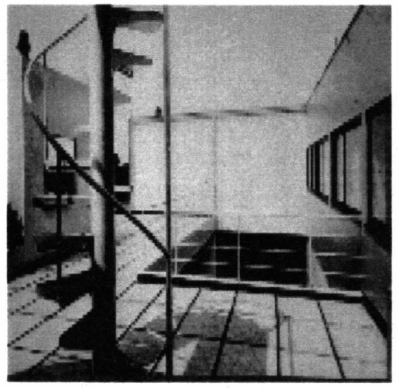

d

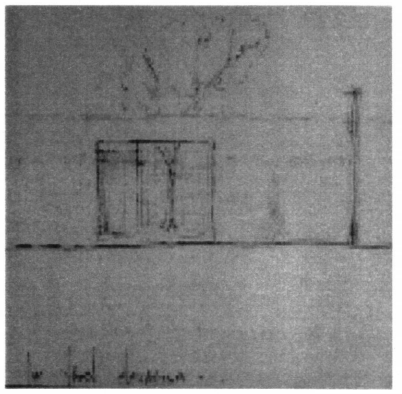

e

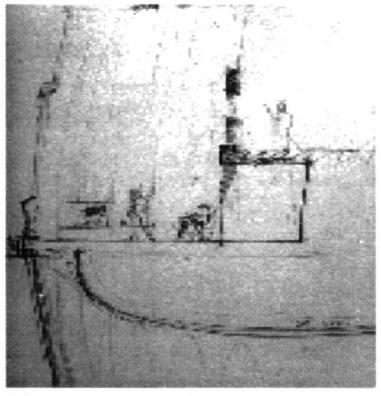

f

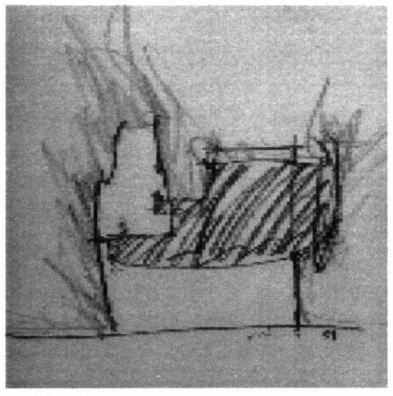

g


h


i

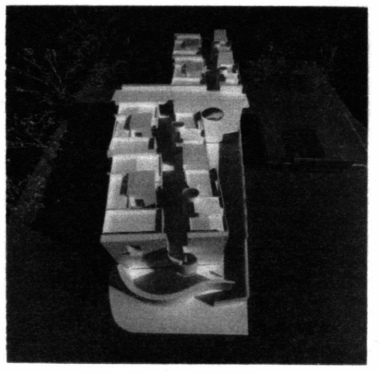

j

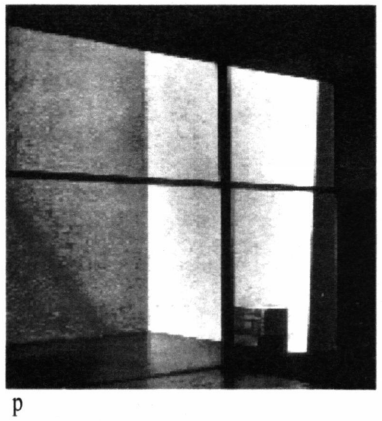

k


l

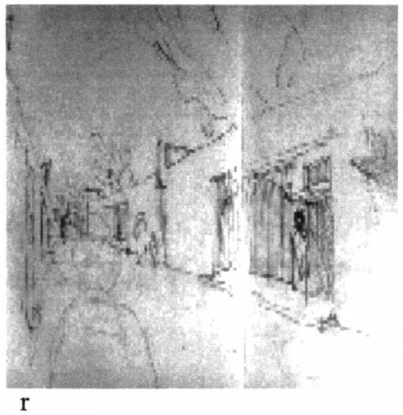
m

n

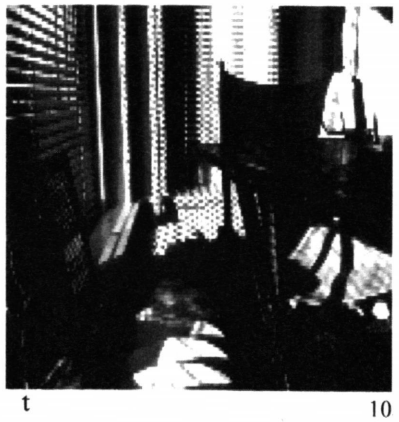

o


p

q


r

s


t

Part Four

Up to this point, I have discussed the incentives for creating an alternative housing stock for the future. The project itself addresses a need for variations on the detached suburban home. Location is of prime importance to any type of building and is the first unconventional aspect of the proposed building we will examine. Whether it be in relation to school districts, shopping centers, social status, mass transit, or automobile commuting access, location is an inescapable and economically significant component of housing. And as previously mentioned, the terrain encountered in a walk through a suburban business area is the usual limitation to a pleasant pedestrian experience, not the actual distances to be covered between locations. The areas of in-between created by bubble map style zoning practices are the most difficult items to deal with architecturally. One solution is to begin adding more layers onto the existing suburban landscape, overlapping and interlocking rather than butting the various land uses, and creating richer, more sensitive links in the suburban environment. In general, the proposed building is intended to allow the maximum use of the locale by those living or working in the immediate vicinity, encouraging a sense of attachment to the surrounding area, and in turn, evoking notions of the individual citizen's rights and responsibilties within the life of a community. The main formal concern here is with connections or links; I have perceived a lack of concern for the "in between" spaces in Springfield. These spaces, intended to mediate differences in land use, in practice tend to amplify the those differences. Rather than designing what is in effect non-space, it is possible that joints, filters, screens, gates, and other architectural devices, at a variety of scales, might be better suited to offer a solution to the problems of marginal development in the suburbs.

As the first of several steps aimed at increasing the efficiency with which suburban areas are occupied by their populations, this thesis proposes a slender curve of housing, gliding back and forth over the presently underutilized parking surfaces. The thousand-foot-long building is raised above the ground to maintain sightlines, quite vital to commerce, from pedestrians and people in automobiles to the shops, and winds around existing buildings or natural features. The refined bulk of the building provides a sort of backdrop to the existing object oriented suburban stage (see bottom Illustration on page 16). Looking to the urban landscape, we find that a typical street or public space has a foreground, a middleground, and a background. It is possible to look twenty, even thirty blocks along a street, but usually the effective background is too close to allow our eyes such free range. This is not often the case in suburban environments, and lacking a background our eyes cannot easily make sense of the scene before us. The proposed building is a background to the many objects strewn about the perceptual field of the shopping center. The scale of the building and its cast-in-place concrete piers and cool, curved horizontal spans armor its function as it is set into the commotion of a suburban commercial business district.

The ground plane existing prior to the building's arrival will remain largely intact. The installation of foundations will temporarily disturb some existing areas; these adjacent surfaces will be restored to their existing states as much as possible. Approximately twenty percent of the building's aerial area will be permanently developed on the actual ground plane. This is for stair and elevator towers, utility functions such as dumpster enclosures, formal facades and street-front entrances where appropriate. For the larger buildings, small libraries, swimming pools and other recreational or public functions could be constructed at grade (see pages 18 and 19).

In a typical urban environment, there are various types of parking available to residents and other users of a neighborhood. Some is utterly private, as with a private garage or private driveway. Other parking is very much public, as with unregulated streetside parking. There are stickers and ordinances and signage controlling the public parking (time restrictions, meters, etc.) on a spectrum heading toward the almost private ("residents only") to the aforementioned "reserved" parking place. The suburbs, however, generally have one of two conditions - either private parking or such an abundance of public parking that there will rarely be a problem finding a place to leave an automobile. The goal of utilizing solely these two types of parking is to eliminate the possibility of having to walk an great distance. This tendency has rather significant effects on the physical features of the suburbs, the most obvious being the density of development. I propose reserving only those spaces immediately below the building insofar as them being marked "Reserved", and making some use of the existing shopping center parking for overflow. It is realized that a few times a year, parking may become a headache for the residents of the building, as their buildings parking is filled by overzealous holiday shoppers overflowing the commercial lots, but this is considered to be an acceptable price to pay for the benefits of the location and resulting density added to the area, much the same as this situation is treated in urban areas.

Examining the building more closely, the vertical circulation through the building is somewhat unusual; proceeding from the ground into an apartment, one takes either a stair or an elevator up to a corridor on the third level, where entry doors open from a pedestrian walk, and then one descends back down to the second level after entering

an individual apartment. The double-loaded corridor or pedestrian walk, open to the sky (see Illustration r on page 10), is an effort to improve upon the dark, forboding corridors common to multistory apartment blocks and the placelessness of single-loaded exterior motel-type corridors. The pedestrian walk follows the curve of the building, opening over private courtyards, with occassional views to the outside. It is a semi-public space, intended to be used by all the building's occupants. Roof gardens and tall planters punctuate the silouette of the edges of the pedestrian walk against the sky. The curve of the building hides the vanishing point of the walk, so that one is presented with only approximately one hundred feet of view ahead at any one point. The intent here is to avoid the impersonal quality of the long corridors typical of large apartment buildings. The frequent openings and fenestrations facing the walk preserve a sensation of security, and allow the subtle variations in window treatments or planting to identify sections of the walk as unique. The curve is created without the use of curved walls, but instead by way of slightly rotating and offsetting one bay of the building to the next. This preserves the orthagonality of the interior spaces. The knuckle-jointed plan obscures the exact point of rotation so that instead of adjacent bays appearing to be butted together, they seem to overlap one another.

The plans of the one and two-bedroom units are conceptually two rowhouses wrapped together in three dimensions (see page 17), so that "neighborly interaction" would have a similar air to that of a traditional urban rowhouse. For example, the noises transmitted through open windows, floors, and walls would be a part of the occupants' experiences. Masonry, cast concrete party walls and insulated floor/ceiling assemblies would minimize the unpleasant sensation of excessively loud neighbors, but not to the extents found in a single family suburban home on a large lot. The shared walkways and views into and out of the courtyards and front stoops would allow the possibility of casual conversation and spontaneous interaction. Following convention, I distinguish between the two types of apartment units according to the number of bedrooms included. Stepping from the passage onto a small porch (see Illustration j on page 10, and page 16), one enters the two-bedroom apartment, which occupies a total of 1380 square feet, not including 560 square feet of exterior space. This is commensurate with the size of detached houses in the area. The passage level of the two bedroom apartment is comprised of the the semi-public spaces of the home. Going down to the second level, one finds private spaces such as bedrooms and a bathroom, and also courtyards open to the sky. The one-bedroom unit is organized and entered in a similar fashion. Off the pedestrian passage, there is a stoop, from which one enters the one-bedroom apartment. The one-bedroom unit occupies a total of 930 square feet, not including 375 square feet of exterior space.

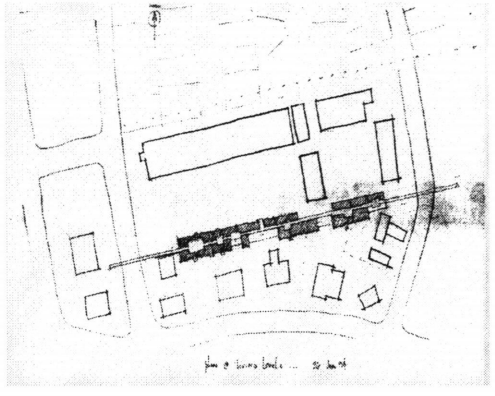
Analyzing a traditional urban rowhouse from a non-resident's point of view, we are presented with various views into the semi-private and private spaces of the rowhouse as we move through the city. The placement of the semi-private spaces, such as the living room, are typically on the street frontage. Bathrooms with controlled glazing and kitchens are also often facing main traffic paths. However, unless "protected" by height, at least a story or two above grade, bedrooms are not often placed directly against the street. Rowhouses derive privacy from the proportion of a narrow street frontage to a significant depth of floor area, at the expense of views from interior to the exterior. This is in contrast to the orientation of the proposed housing units, that have their long sides exposed and their short sides butting to the adjacent units. The width of the proposed building is generated by the dimension of two parking spaces and a reasonable cantilever over parking circulation, or approximately thirty-six feet. This dimension will allow the building to be placed in or onto sites with the minimum of disruption to existing functions, thereby increasing the efficiency of the use of land in such suburban areas.

The restricted spaces typical of an urban area, and the relative commotion occuring in the streets also increase the privacy available to the urban resident. As the non-residents focus is often directed to the events in the public spaces, views are often restricted to no longer than a hundred or so feet. This reduces the perceived exposure that the residents of rowhouses and urban apartment blocks typically feel. Most of the efforts to increase privacy in the urban environment address views to and from dwellings across a street or alleyway. It is the neighbors who have the time to peer deeper into the adjacent residences. However, in the case of the suburban dweller, it is the public who is the primary concern in terms of privacy, and this is the case in the thesis project. The setting of a midrise residential building into a commercial area, with parking and public shopping facilities most closely adjacent, could inadvertently place the residents on display, much like the specials at the hardware store next door. The first method in which this concern is addressed is in terms of the plan. The use of courtyards allows the units to have large, unrestricted openings to the exterior. The walls fronting the commercial area may then have clerestory openings and other fenestration with screening or shutters. Another device used in the design of fenestration is shading. By recessing the glazing deep into the exterior walls, shadow increases the privacy of the occupants.

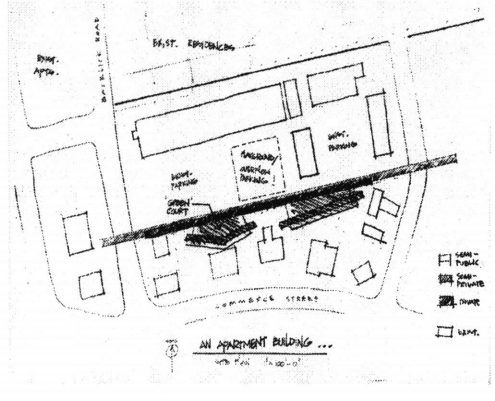
The concerns of privacy are somewhat complicated with the setting of the sun. Without the significant difference in the levels of light from inside (relatively dark) to outside (relatively bright), which characterizes conditions during the day; occupants of lighted spaces (interior) become exposed to those in darker spaces (exterior) at night. Conventional blinds, drapes, operable screens and even electronically polarized glazing could be used to address this situation, without resorting to the creation of spaces with poor natural lighting during the day in order to preserve privacy at night. So the relationship between the residents of the project and the outside world through fenestration is fine tuned with the use of shutters, shading, screens, brise-soleil, and careful location of glazing (see page 15). It is this concern which defines the greatest difference between the site of the suburbs as compared to an urban area.

The fenestration is very carefully located, as a response to light, ventilation, privacy, security, and view. The surrounding parking areas and commercial buildings will be the source of significant smells, sounds, glare, and people who are curious about the interior of the dwellings. The windows, courtyards, and balconies are designed in an attempt to mitigate the more significant problems with such surroundings. However, in order to give the residents control over the degree to which they are exposed to the smell of cooking doughnuts, glare from automobile windshields, and prying eyes, operable windows, shutters, adjustable screens, and/or curtains are installed at many locations. Small apertures allow one to see who is ringing the doorbell when in the kitchen, or what the weather is like from the bathroom. Higher windows catch breezes, and in conjunction with lower windows, act as thermal chimneys for cooling. Of note, and one of the primary motives for the courtyard plan, is that each apartment has at least one window facing each of four directions. This is a great improvement over the typical apartment which is unusual if it has windows facing more than two directions, and even rarer still if windows have two orientations in a single space. Many of the windows in the units open onto each unit's own private courtyard (see Illustration f on page 10), making it likely that these windows will not be the victims of permanently closed blinds. Keeping in mind the the amount of time passed indoors today, this amenity cannot be overstated in terms of pyschological value to the residents.

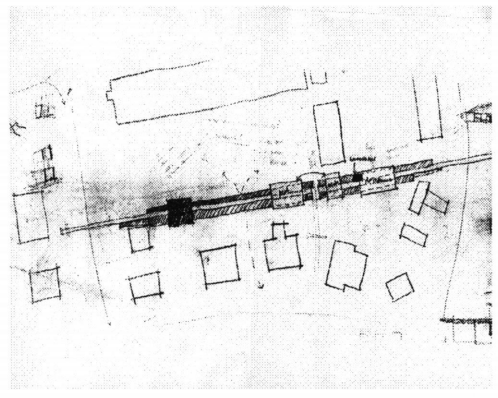
The existing alternatives to detached housing that are found in urban areas serve to enrich the many types of neighborhoods which compose traditional cities. We have examined some urban building types and considered new building types designed specifically for suburban conditions. The creation of new building types could maximize the conveniences of the automobile without destroying the sense of community which is largely the result of regular pedestrian interaction. The following sketches, drawings, and models describe a proposed apartment building designed for a particular site in Springfield, Virginia. Similar dwellings could be constructed in larger or smaller existing parking areas, or on open or wooded properties. The basic module of two housing units can be repeated and assembled in many configurations, in response to the particular site chosen. This prototypical building, an evolution of the suburban home, is not intended to replace the detached house. It is suggested as an alternative type of housing, useful in repairing some of the marginalized conditions too often present in the contemporary American suburb.



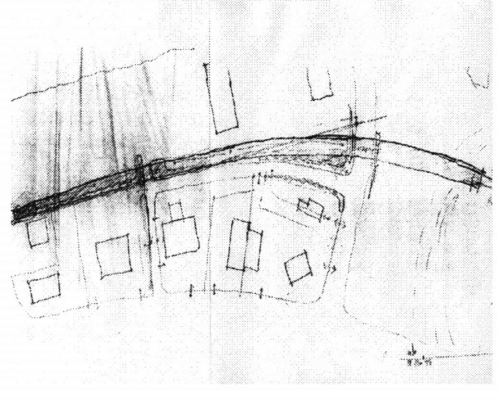
Early conceptual site plan indicating a common courtyard-type organization of the apartments.



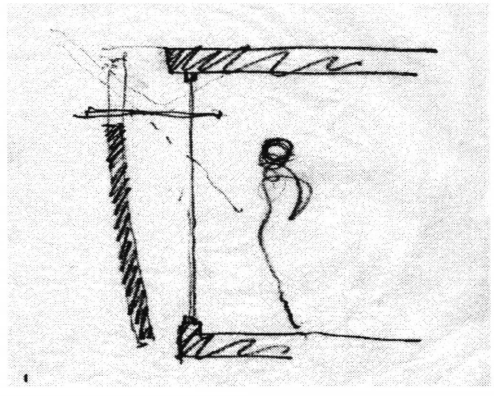
Conceptual site plan with single-loaded pedestrian walkway
(see section on page 15).



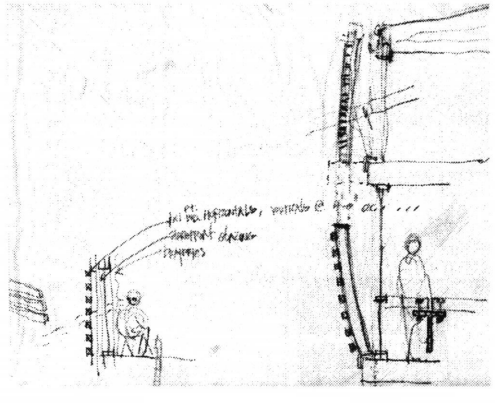
Conceptual site plan with double-loaded pedestrian walkway, and common areas.
(See section on page 15).



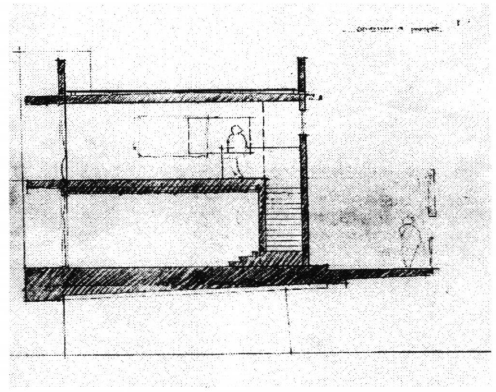
Later conceptual site plan showing curved building, with bridge across
a secondary street.



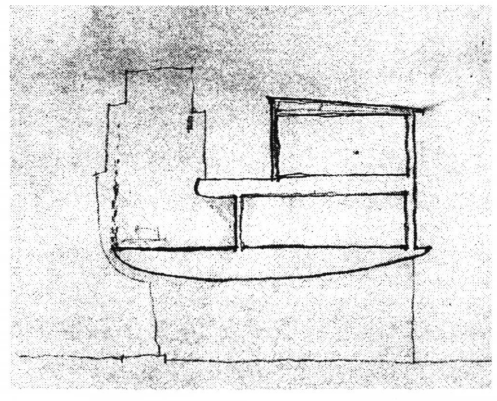
Early section of a screen and light shelf.



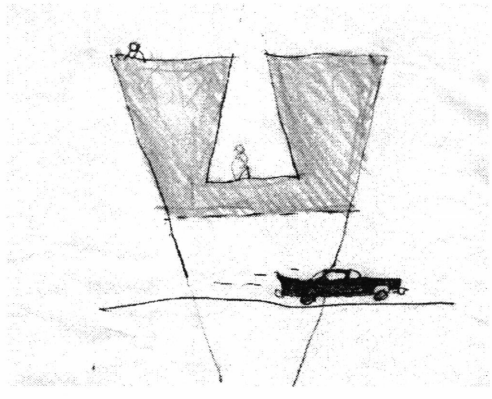
Section of brise-soleil and glazing.



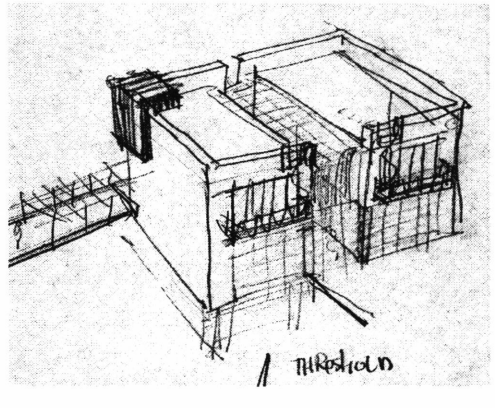
Early section showing single-loaded walkway.



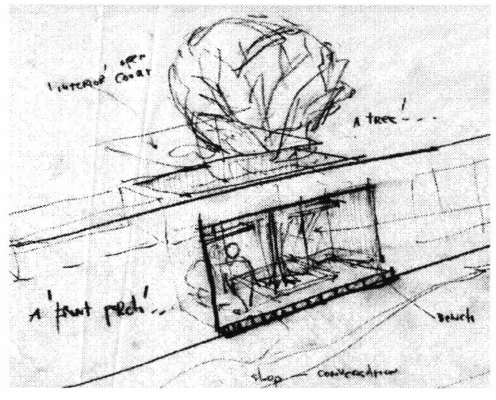
Later section showing upper level, double-loaded walkway.



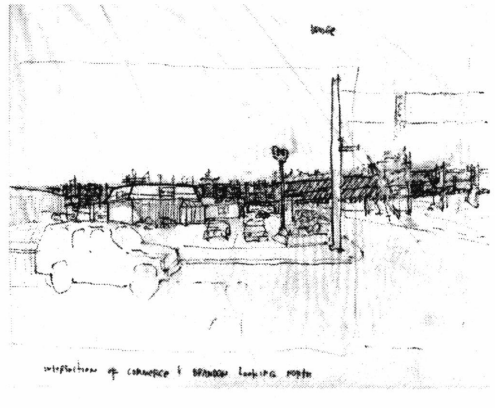
Conceptual section illustrating relationship of pedestrian walkway to ground plane.



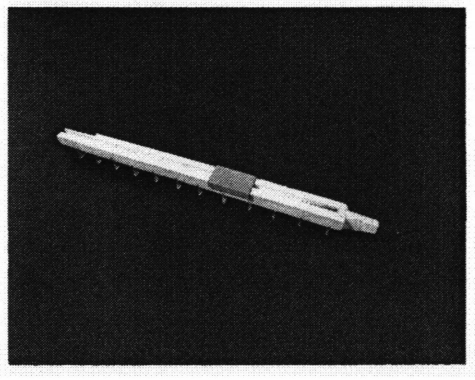
Early sketch of an apartment unit with glazed atrium space at center.



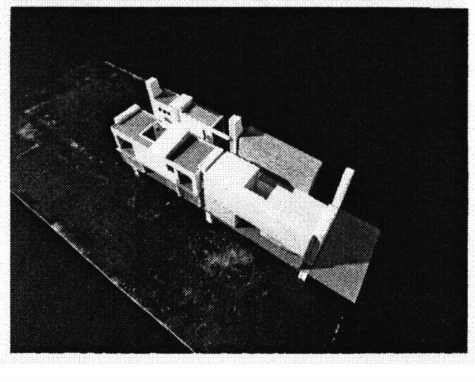
Sketch of the two-bedroom unit showing the stoop with a garden on the walkway.



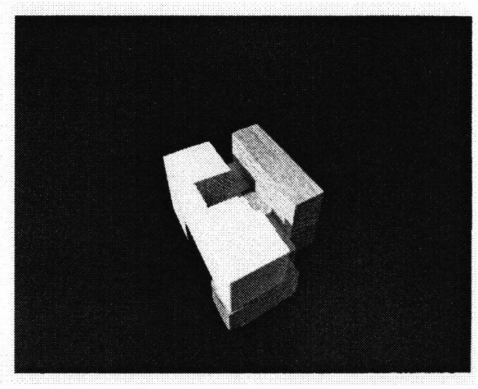
Sketch of the building as seen from an adjacent street - the building becomes a background to the objects in the middle field.



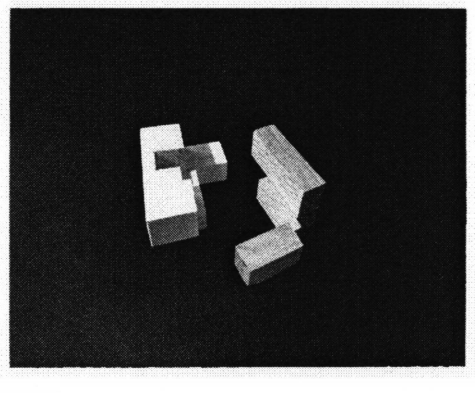
An early model of the building showing the concept of the floating "bar" with a central open circulation path. The dark area represents a public function.



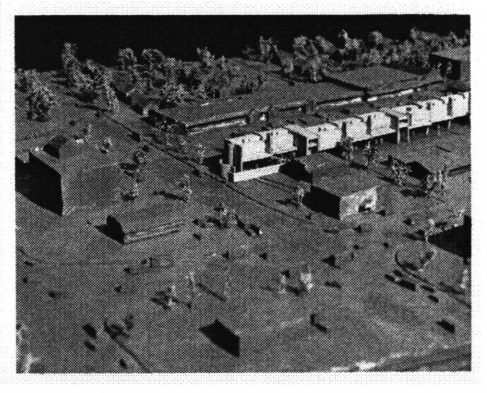
Model of a portion of the building which examined the idea of bays containing two apartment units each, wrapped around each other in three dimensions.



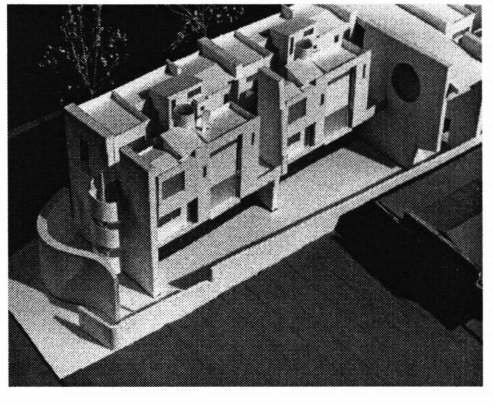
Piece of the above model which pulls apart to depict the relationship of the two apartment units.



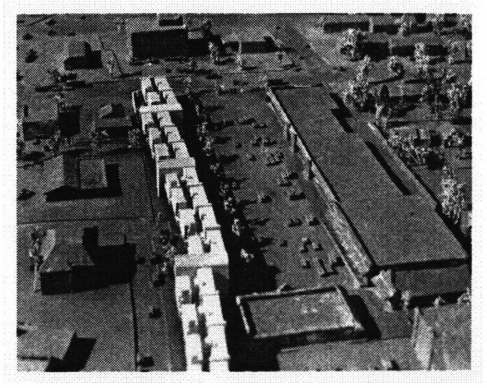
Model of the two apartments pulled apart from each other.



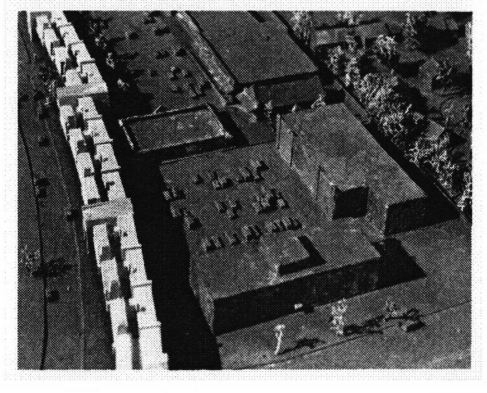
View of the final site model from the southwest. This is the main street "address" facade of the building, with the a small courtyard at grade which provides a place for occupants of the building to wait for public transportation.



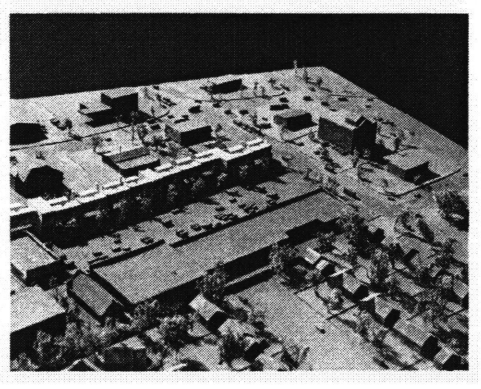
Detail of the view above. The oculus at the stair tower frames views from the end of a segment of pedestrian walk.



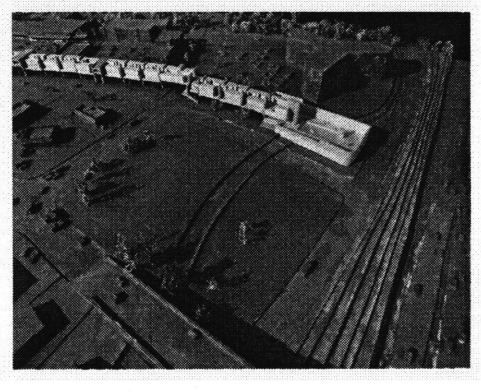
View from the east. The stepped walls of the building, in combination with the new landscaping, are intended to soften the presence of the building and allow it to become a perforated "middleground" which adds a third edge to the existing parking area.



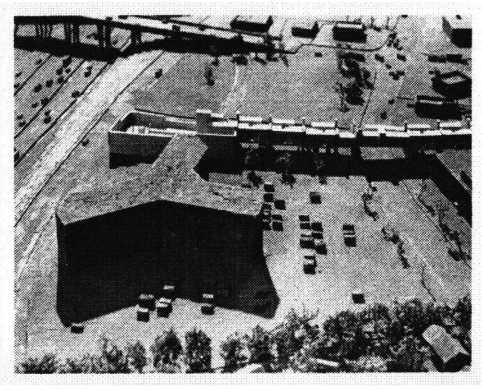
View from the east. In this smaller existing parking area, the building is the fourth edge of the space. The scale of this space is compatible with a secondary use such as basketball courts or an exterior public meeting place.



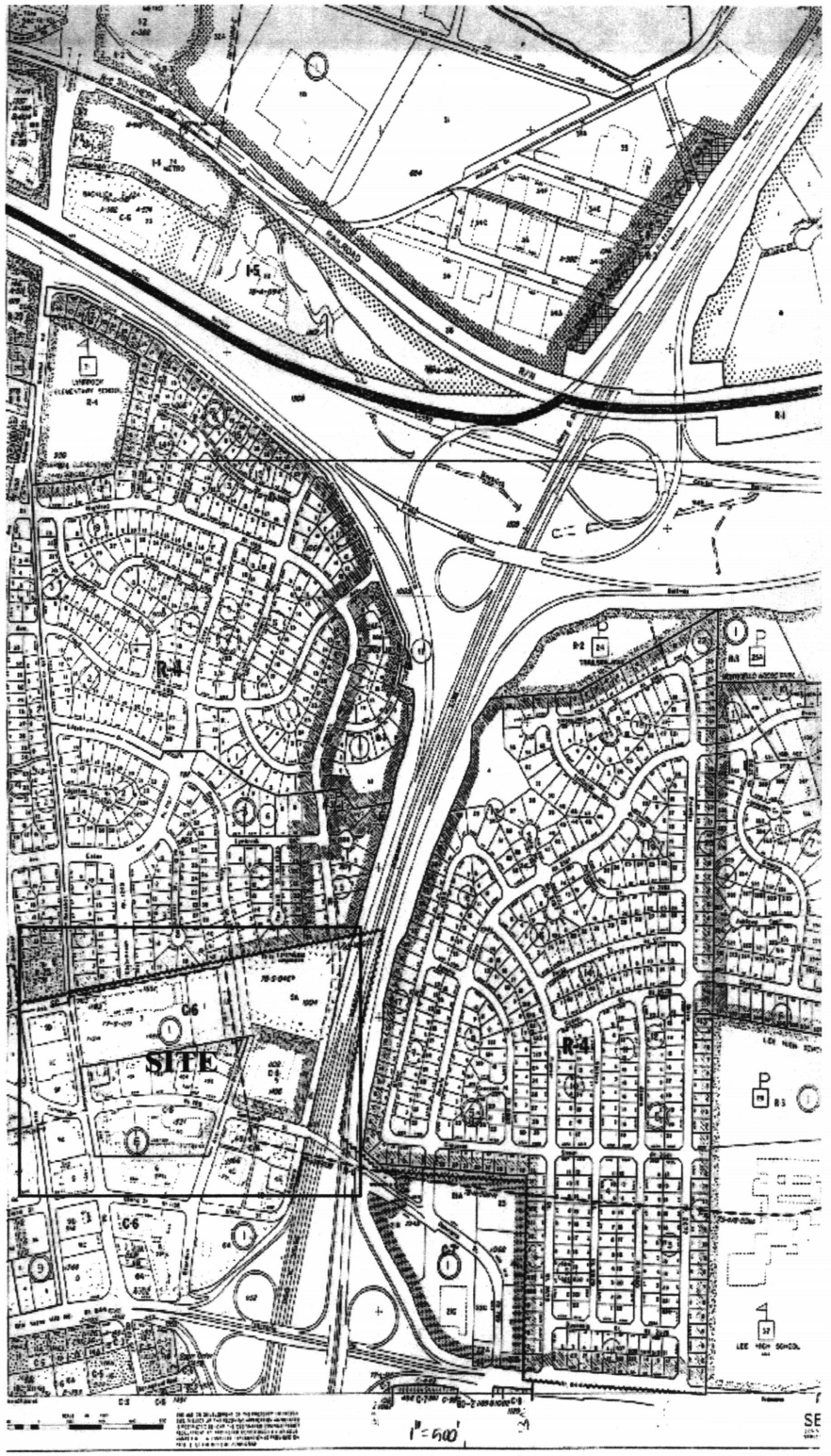
View from the north, showing the relationship of the building to the adjacent existing shopping center, and the existing detached housing beyond.



View of the pool complex from the southeast. Interstate 95 runs along the right edge of this image. A high wall steps down as it wraps from the northern to southern edges of the pool deck.

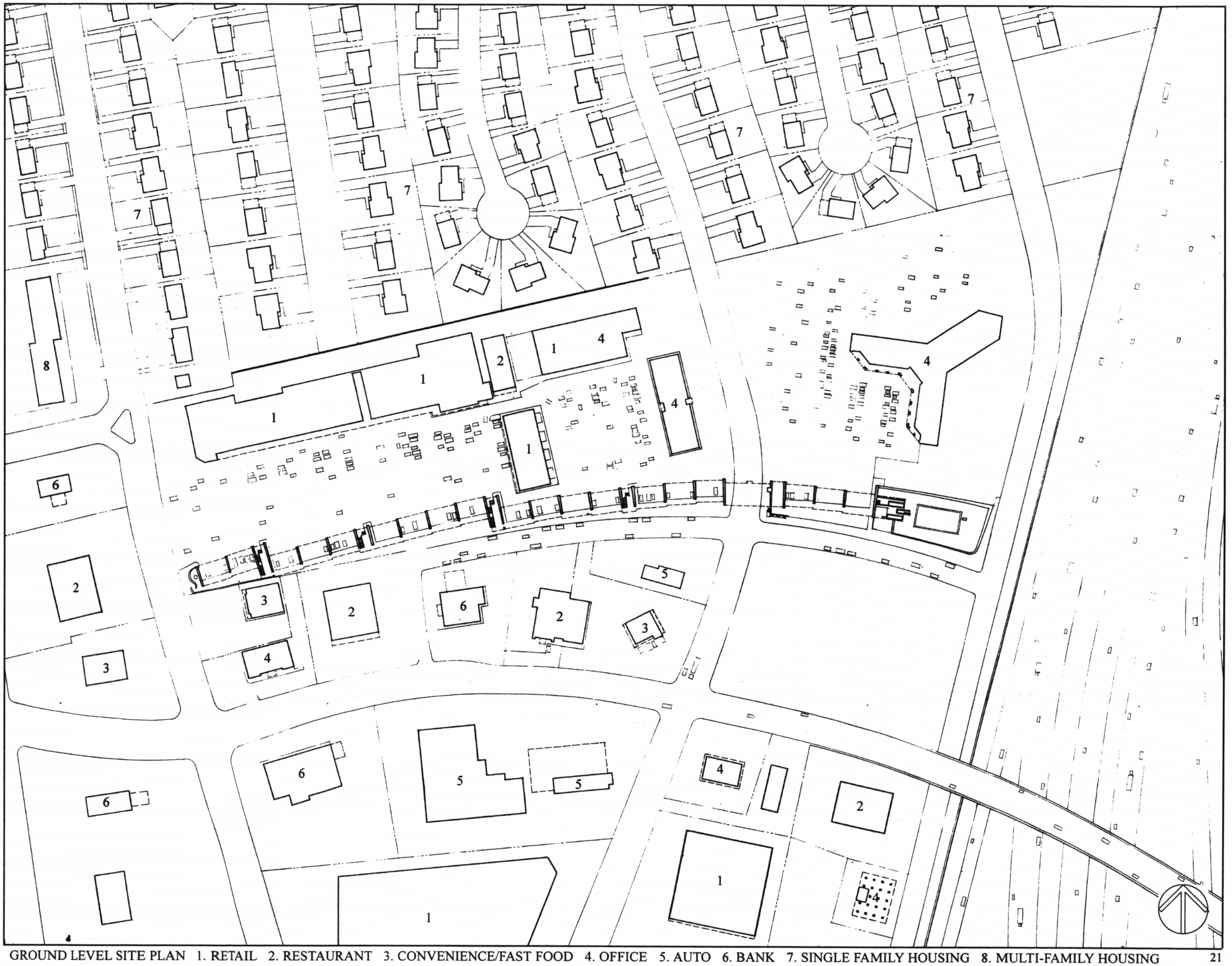


View of the pool complex from the north. Interstate 95 runs along the left edge of this image. The portion of the building bridging over the minor street (to the right of center in this image) houses a branch public library.

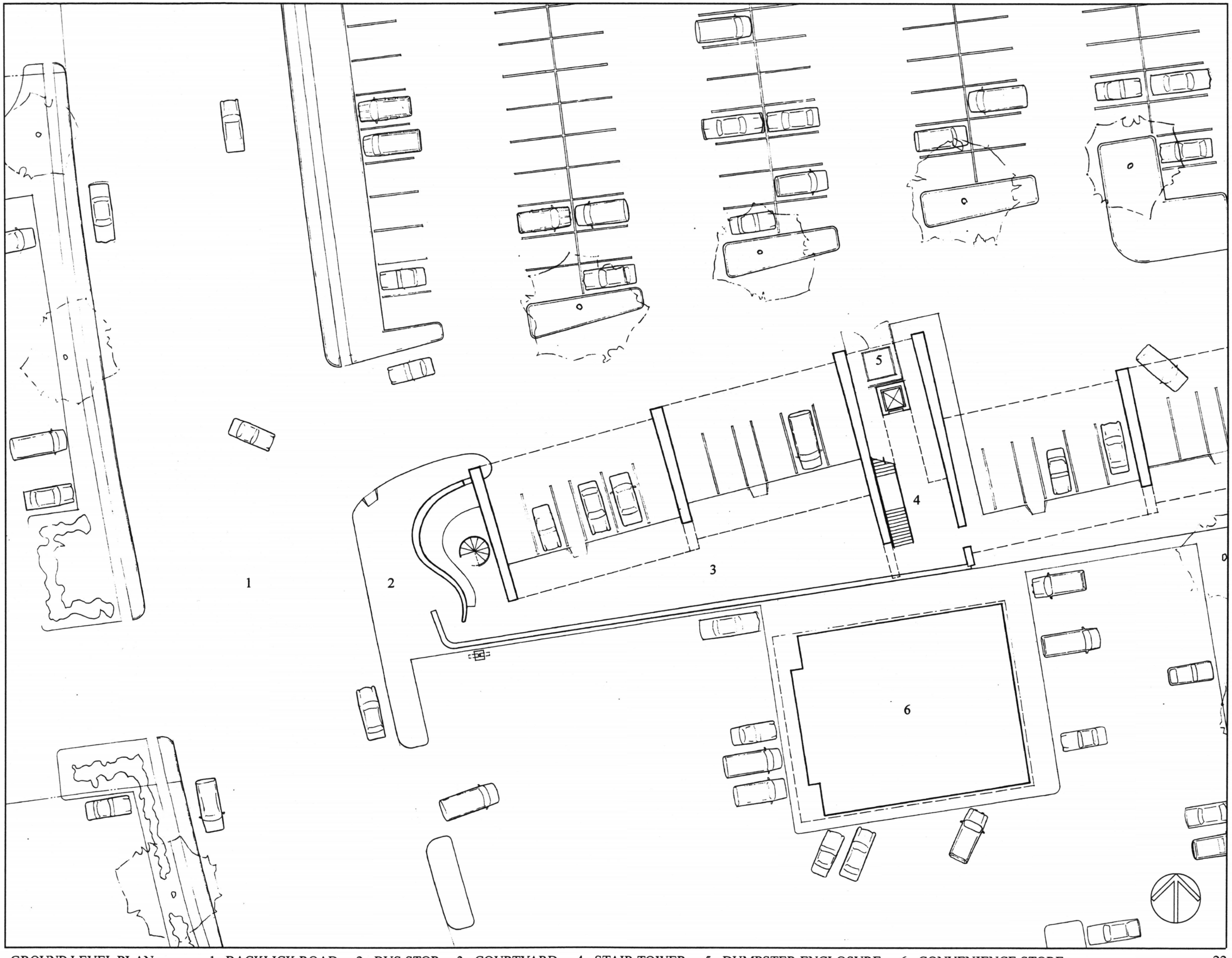


Zoning Map of extended site showing the intersection of Interstates 95 and 495. The Springfield Central Business District is at lower left, with the site plan outlined, (see page 21).

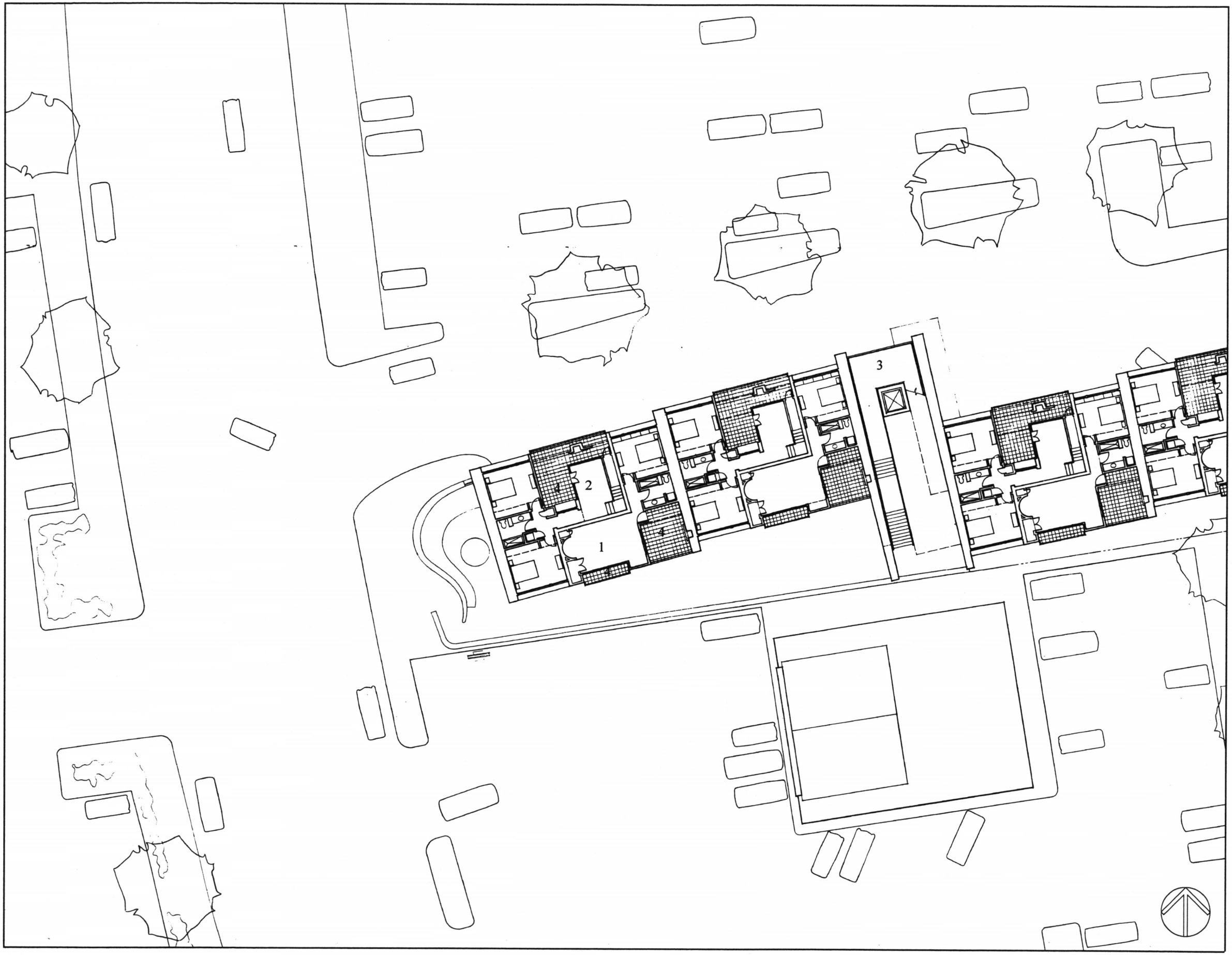
North



GROUND LEVEL SITE PLAN 1. RETAIL 2. RESTAURANT 3. CONVENIENCE/FAST FOOD 4. OFFICE 5. AUTO 6. BANK 7. SINGLE FAMILY HOUSING 8. MULTI-FAMILY HOUSING

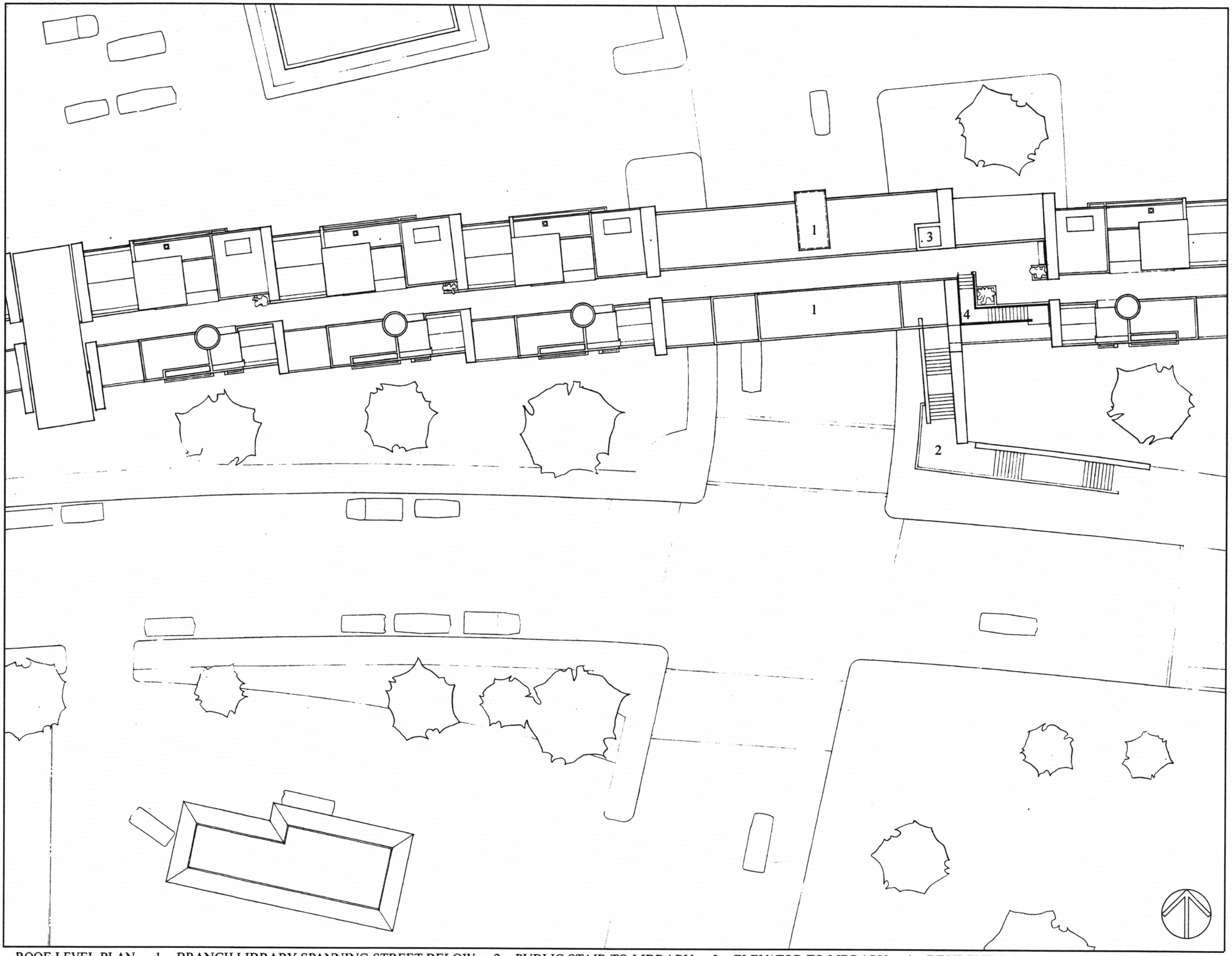


GROUND LEVEL PLAN 1. BACKLICK ROAD 2. BUS STOP 3. COURTYARD 4. STAIR TOWER 5. DUMPSTER ENCLOSURE 6. CONVENIENCE STORE

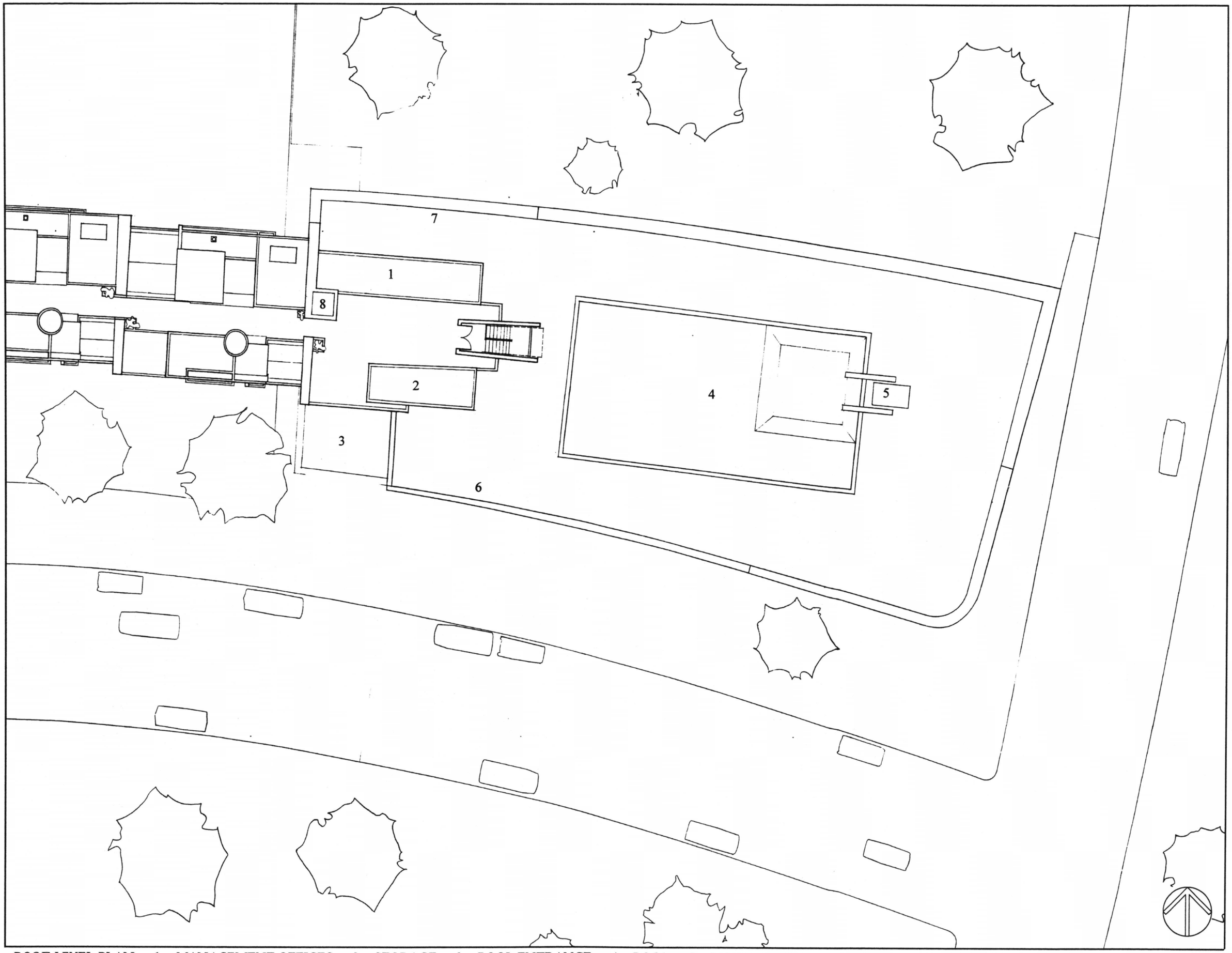


FIRST LEVEL PLAN 1. TYPICAL ONE-BEDROOM UNIT 2. TYPICAL TWO-BEDROOM UNIT 3. STAIR LANDING 4. OPEN AIR BALCONIES OR COURTYARDS

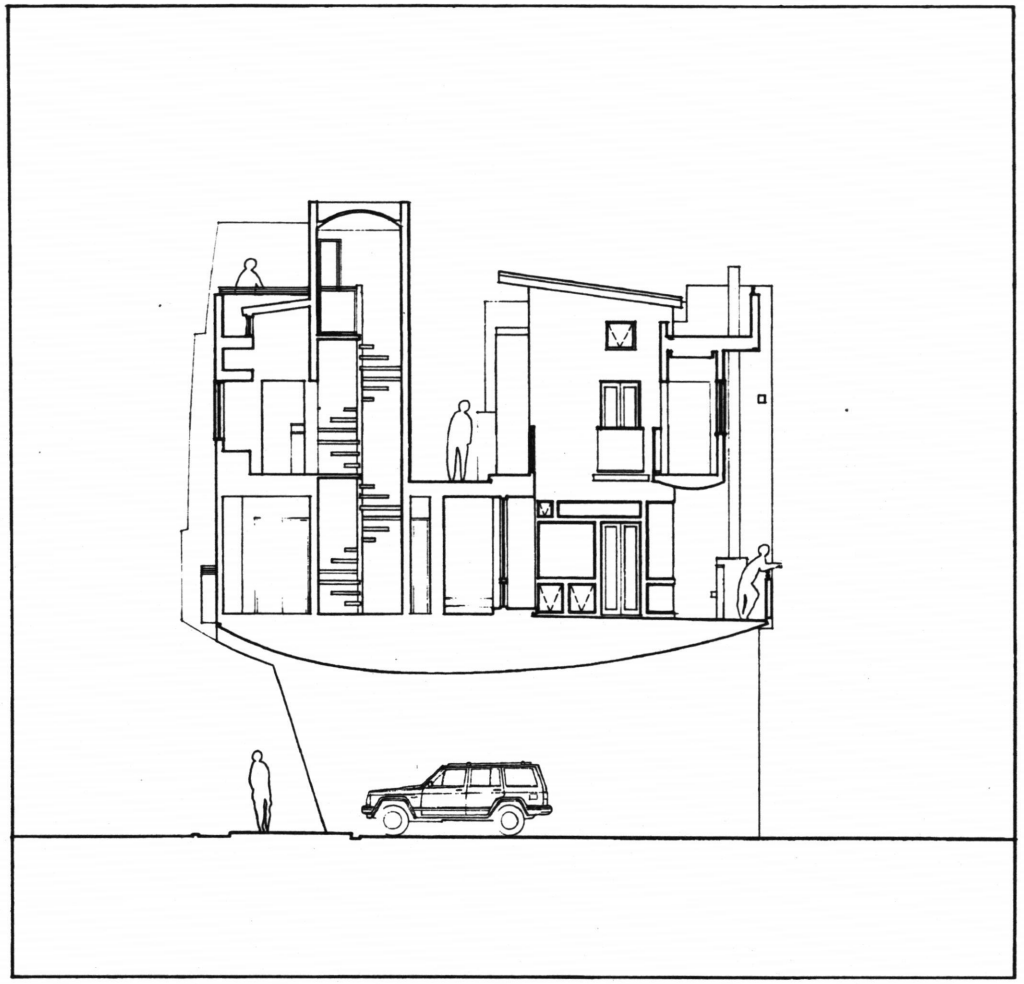
PASSAGE LEVEL PLAN 1. PASSAGE OR PEDESTRIAN WALK 2. TYPICAL ONE-BEDROOM UNIT 3. TYPICAL TWO-BEDROOM UNIT 4. OPEN-AIR COURTYARDS



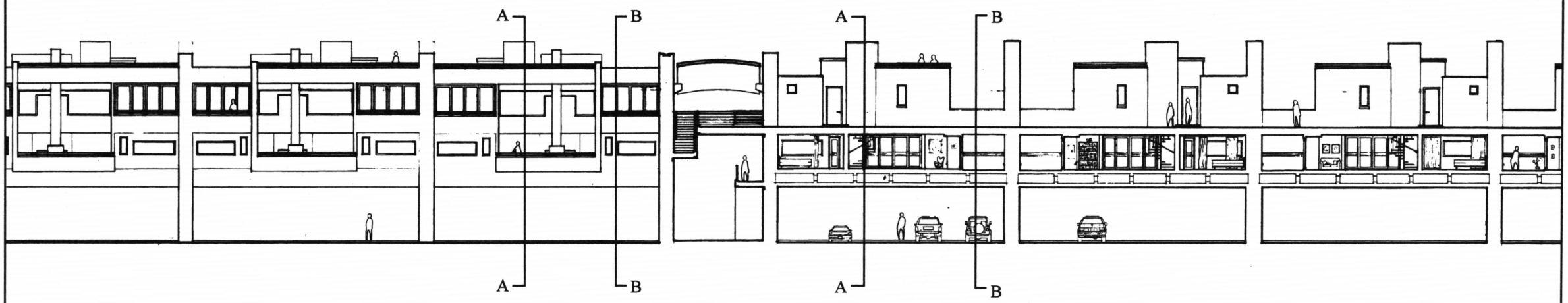
ROOF LEVEL PLAN 1. BRANCH LIBRARY SPANNING STREET BELOW 2. PUBLIC STAIR TO LIBRARY 3. ELEVATOR TO LIBRARY 4. RESIDENT'S STAIR TO LIBRARY



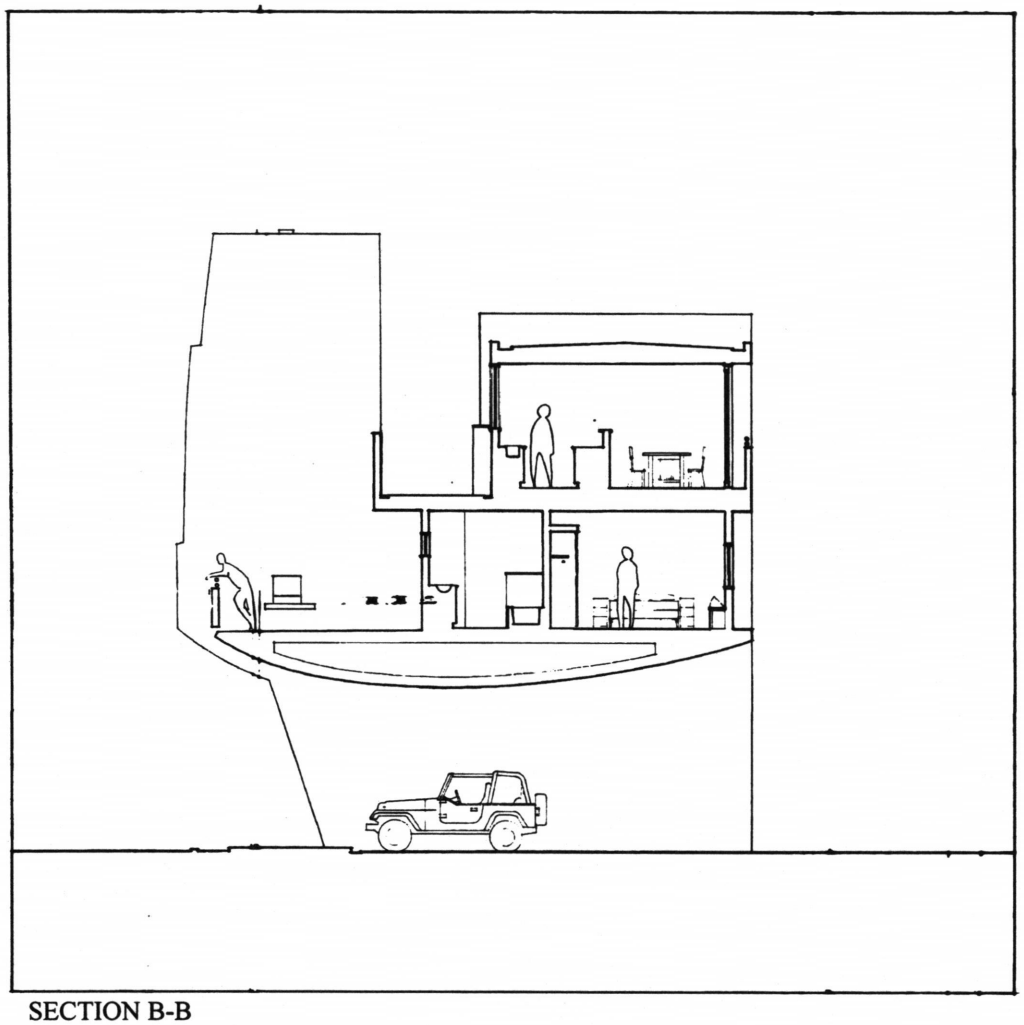
ROOF LEVEL PLAN 1. MANAGEMENT OFFICES 2. STORAGE 3. POOL ENTRANCE 4. POOL 5. DIVING BOARDS 6. 5' WALL 7. 12' WALL 8. ELEVATOR



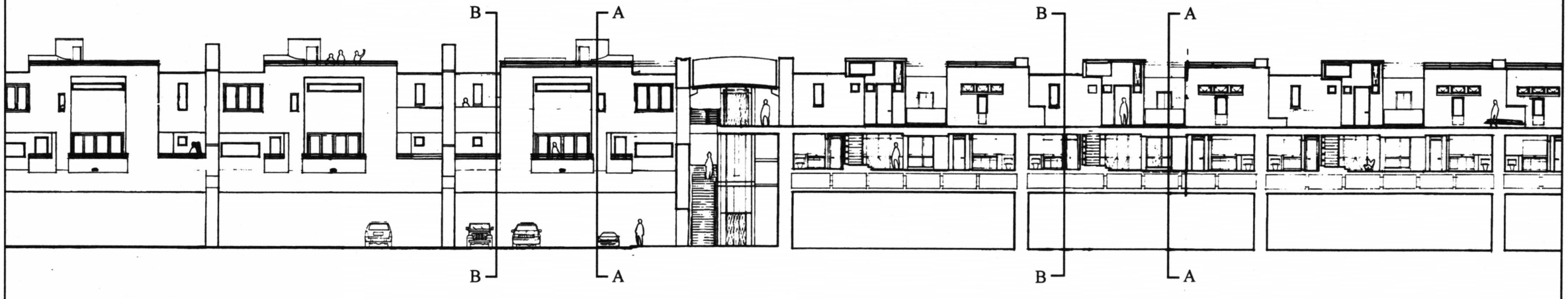
SECTION A-A



ELEVATION OF THE NORTH FACADE AND LONGITUDINAL BUILDING SECTION THROUGH THE PASSAGE/PEDESTRIAN WALK

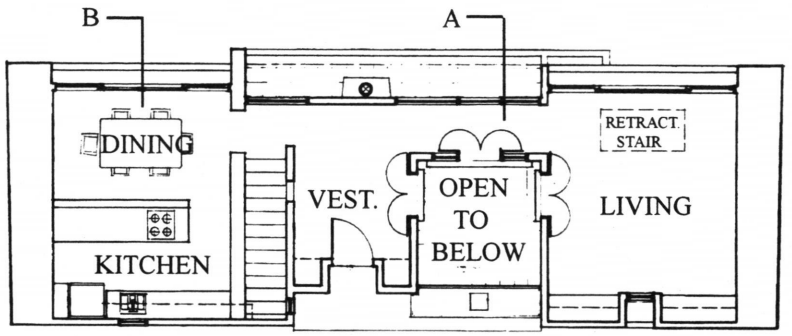


SECTION B-B

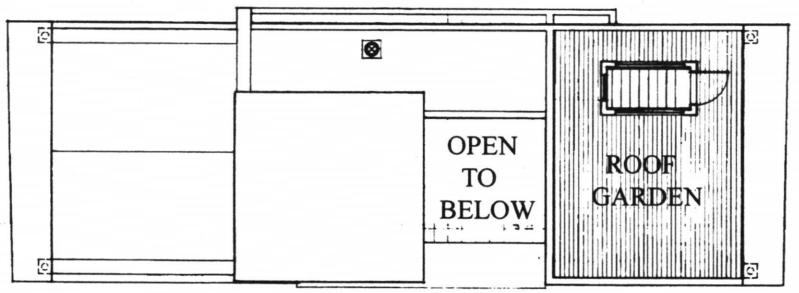


ELEVATION OF SOUTH FACADE AND LONGITUDINAL BUILDING SECTION THROUGH THE PASSAGE/PEDESTRIAN WALK

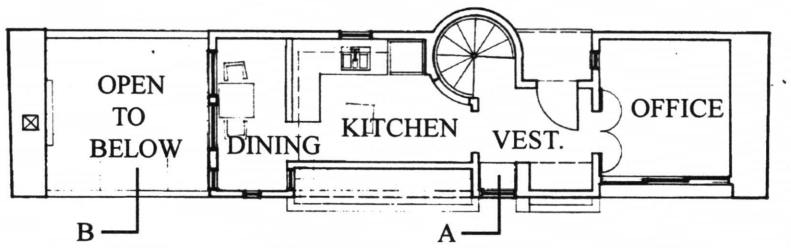
P. 27



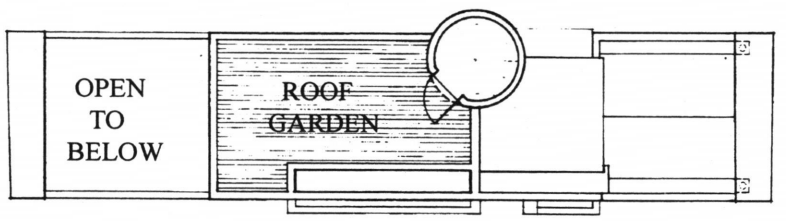
PASSAGE (OPEN-AIR PEDESTRIAN WALK)



OPEN TO PASSAGE BELOW

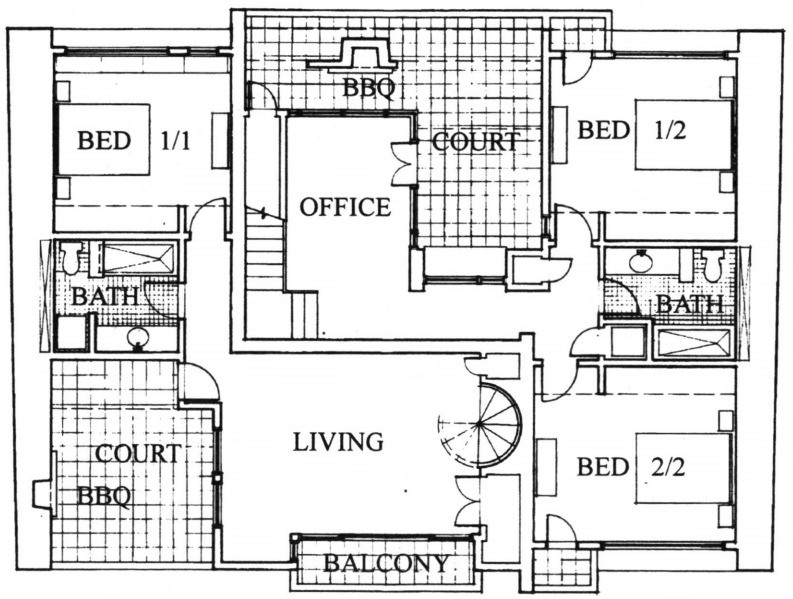


PASSAGE

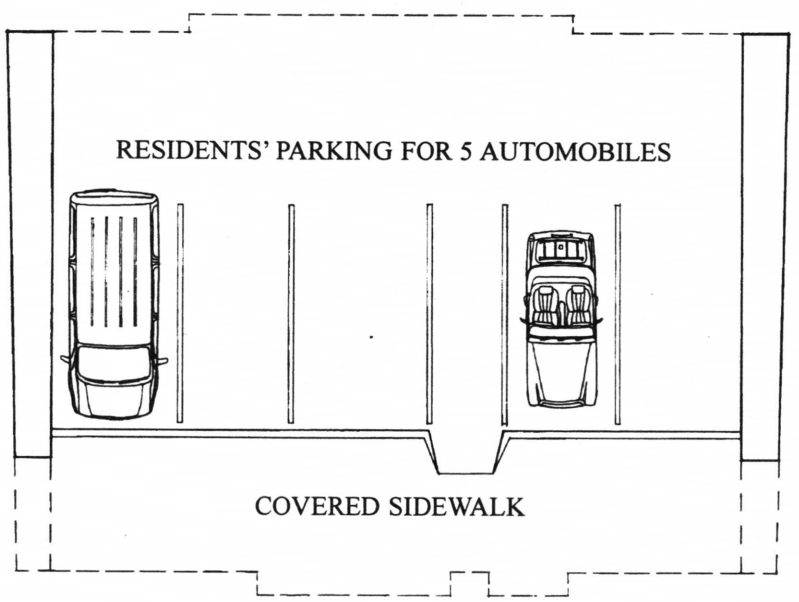


ROOF

P. 28

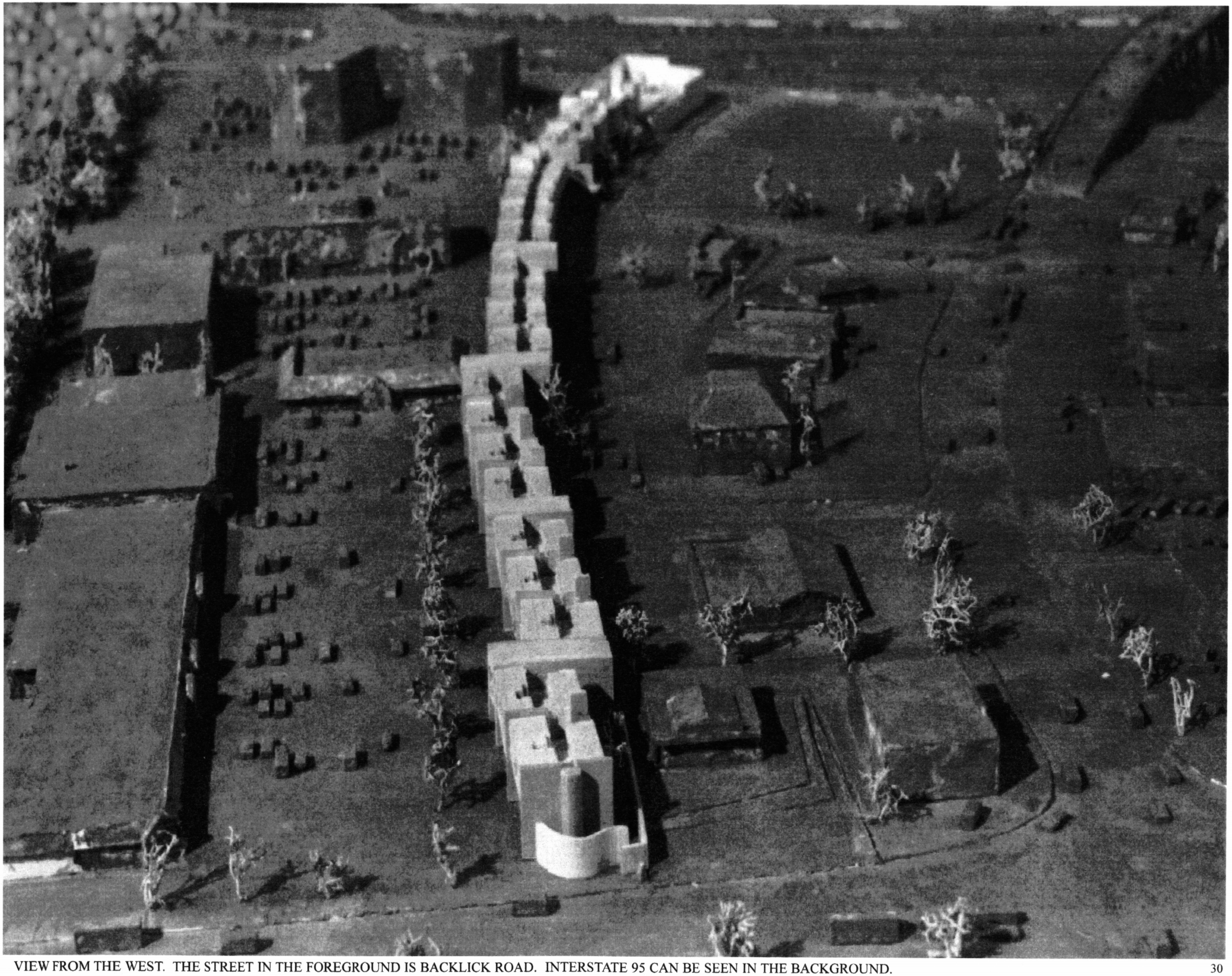


FIRST

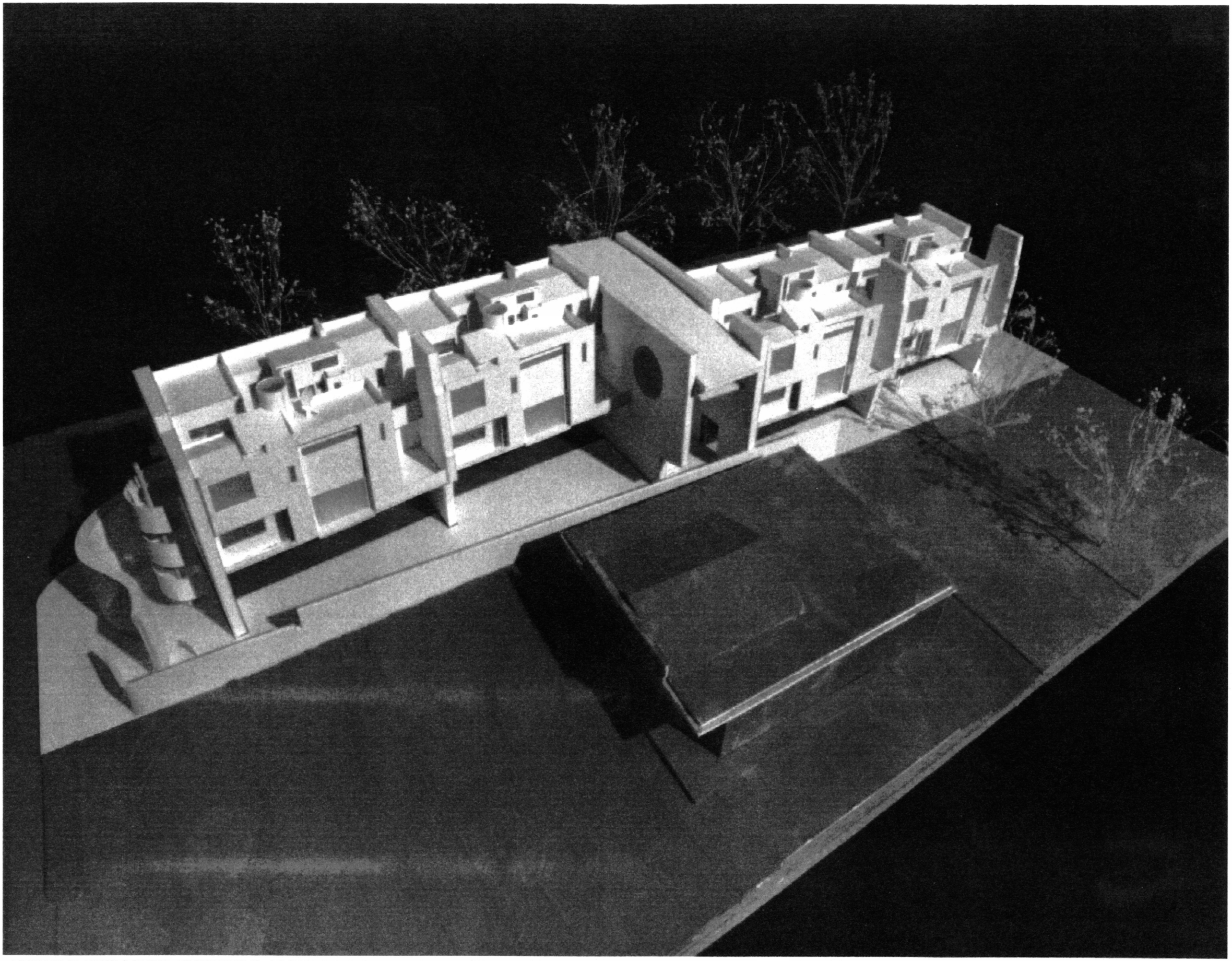


GROUND

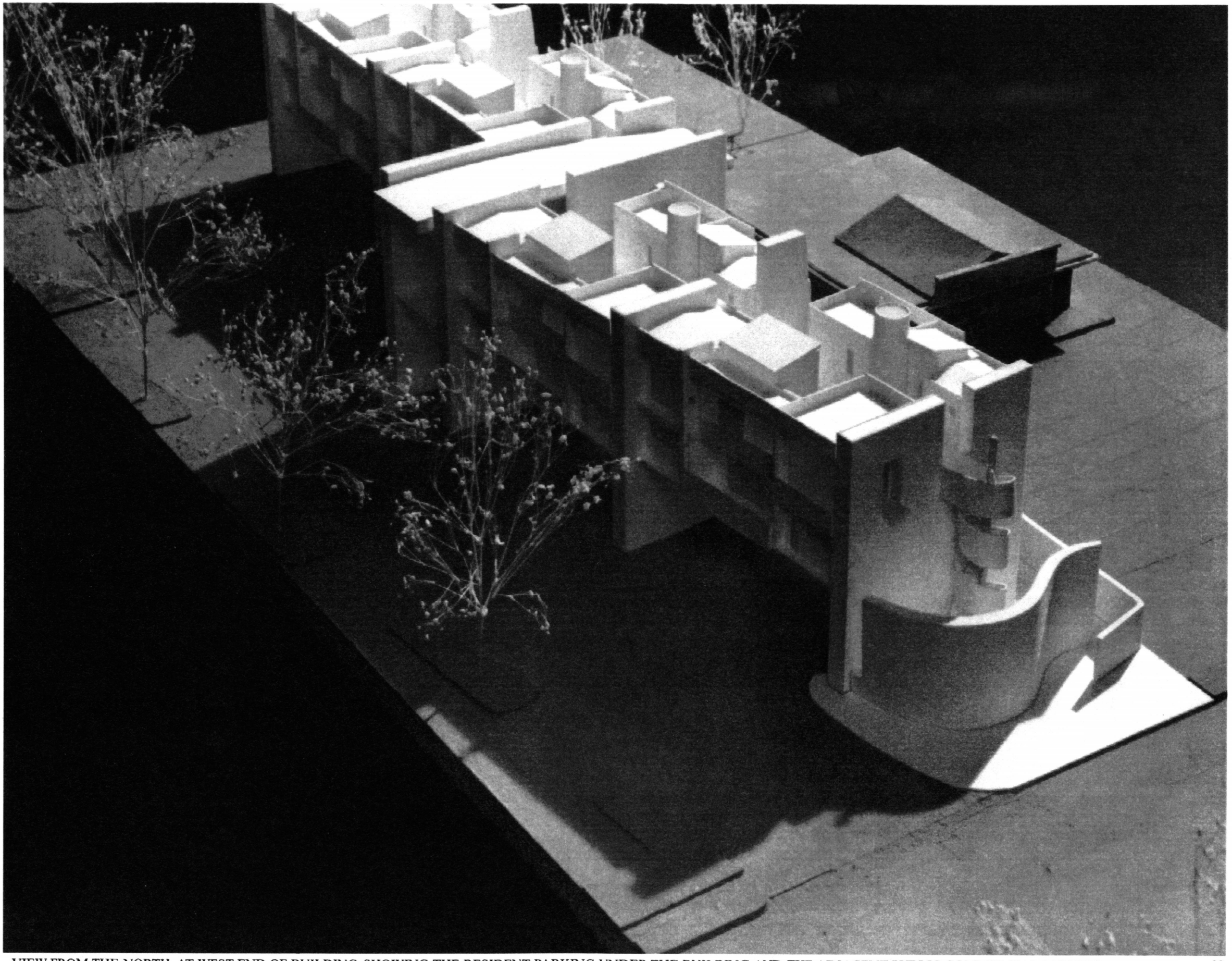
TYPICAL FLOOR PLANS - EACH BAY CONTAINS ONE (1) ONE-BEDROOM AND ONE (1) TWO-BEDROOM UNIT. (THE PASSAGE IS ALSO REFERRED TO AS THE "WALK" AT TEXT).



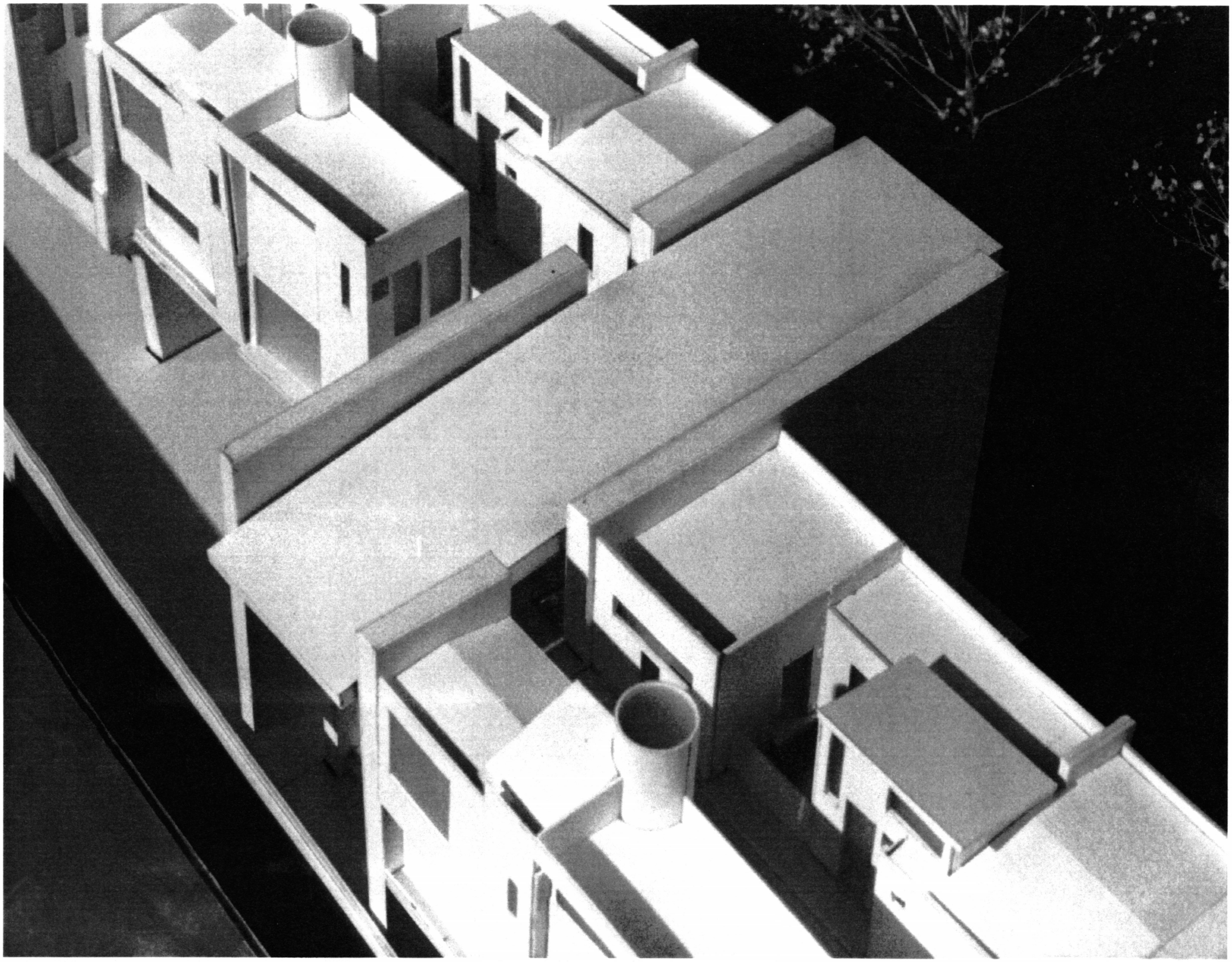
VIEW FROM THE WEST. THE STREET IN THE FOREGROUND IS BACKLICK ROAD. INTERSTATE 95 CAN BE SEEN IN THE BACKGROUND.



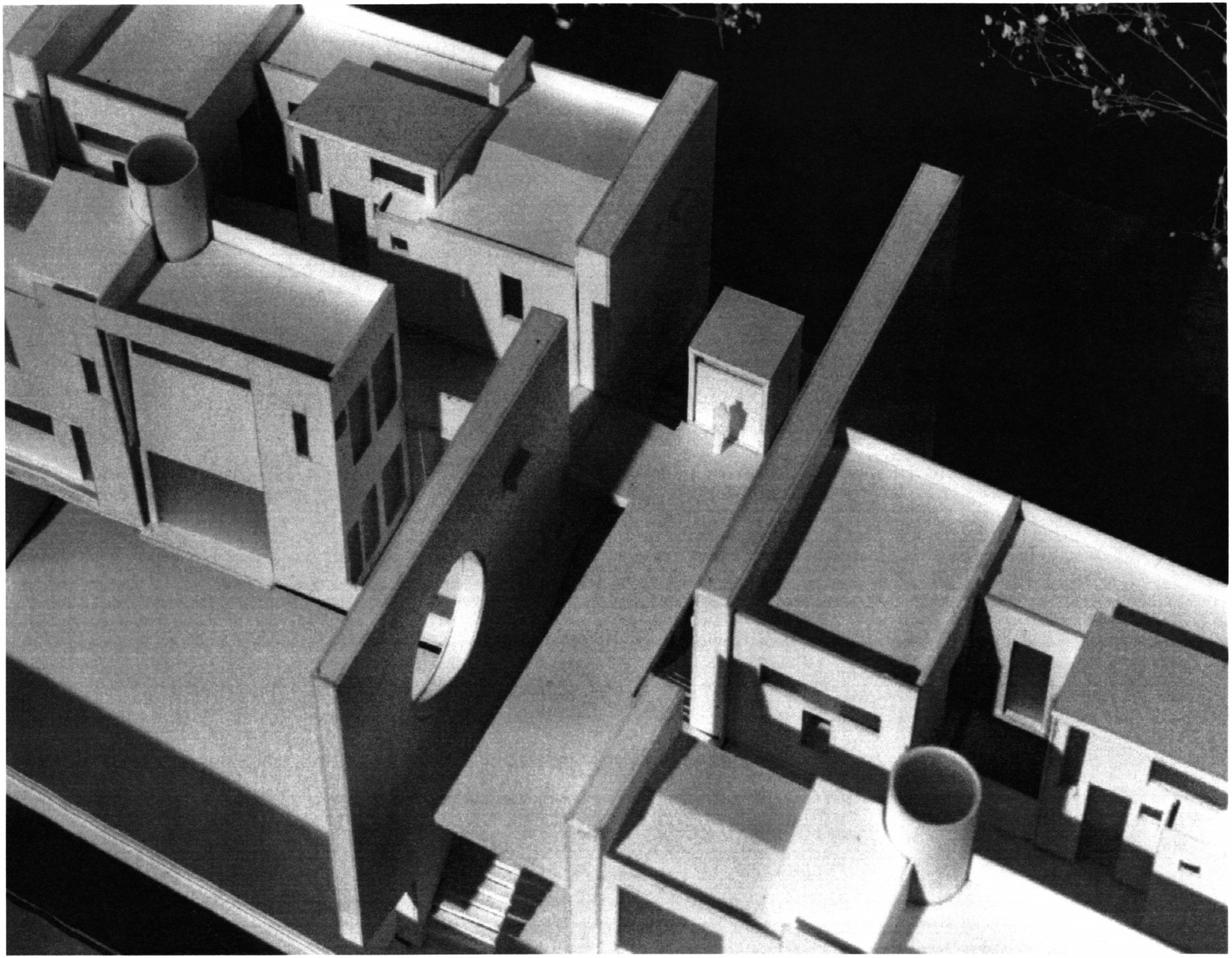
VIEW FROM THE SOUTH, AT WEST END OF BUILDING, SHOWING THE BUS STOP AND COURTYARD. THE STRUCTURE IN THE FOREGROUND IS A CONVENIENCE STORE.



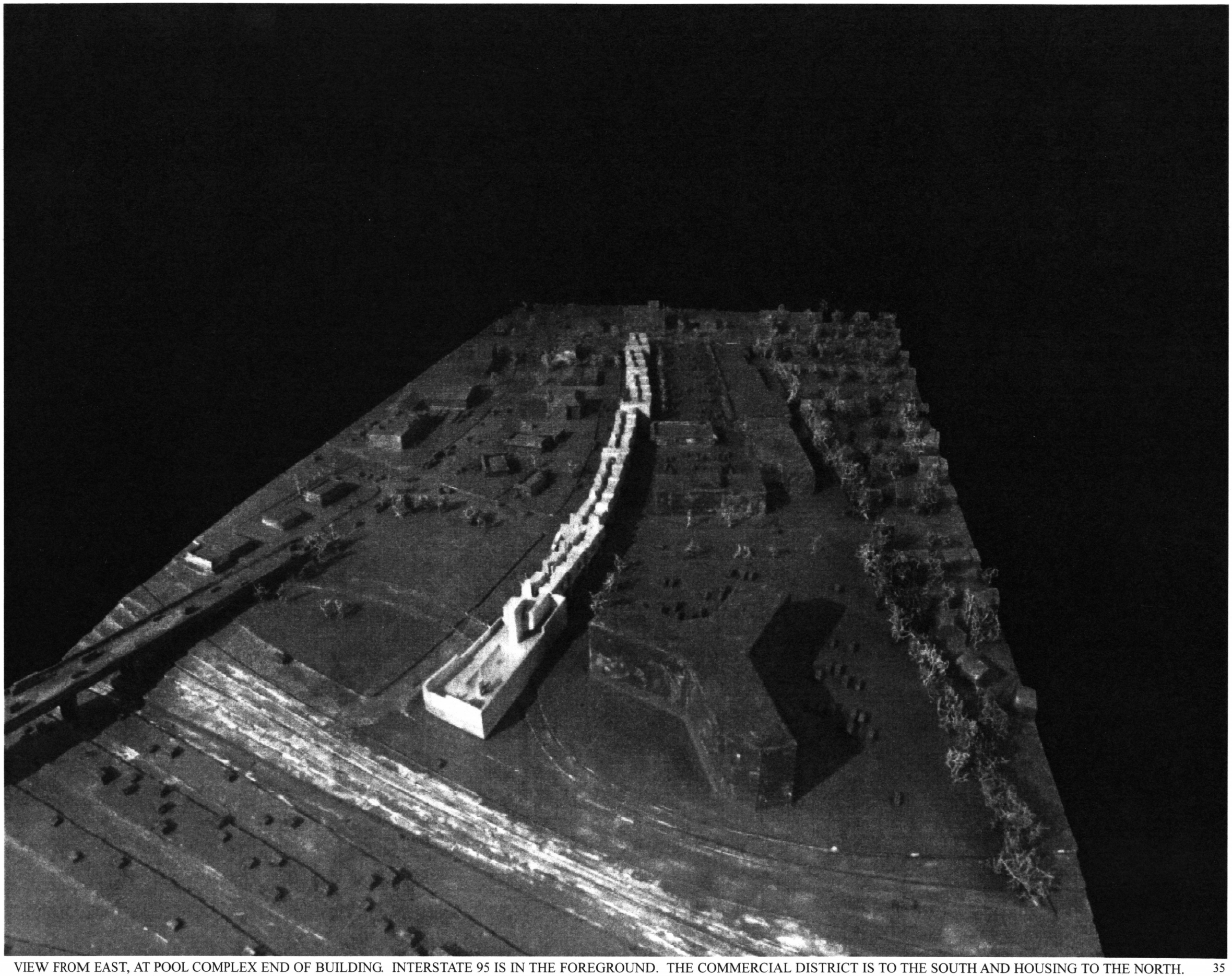
VIEW FROM THE NORTH, AT WEST END OF BUILDING, SHOWING THE RESIDENT PARKING UNDER THE BUILDING AND THE ADJACENT PUBLIC COMMERCIAL PARKING



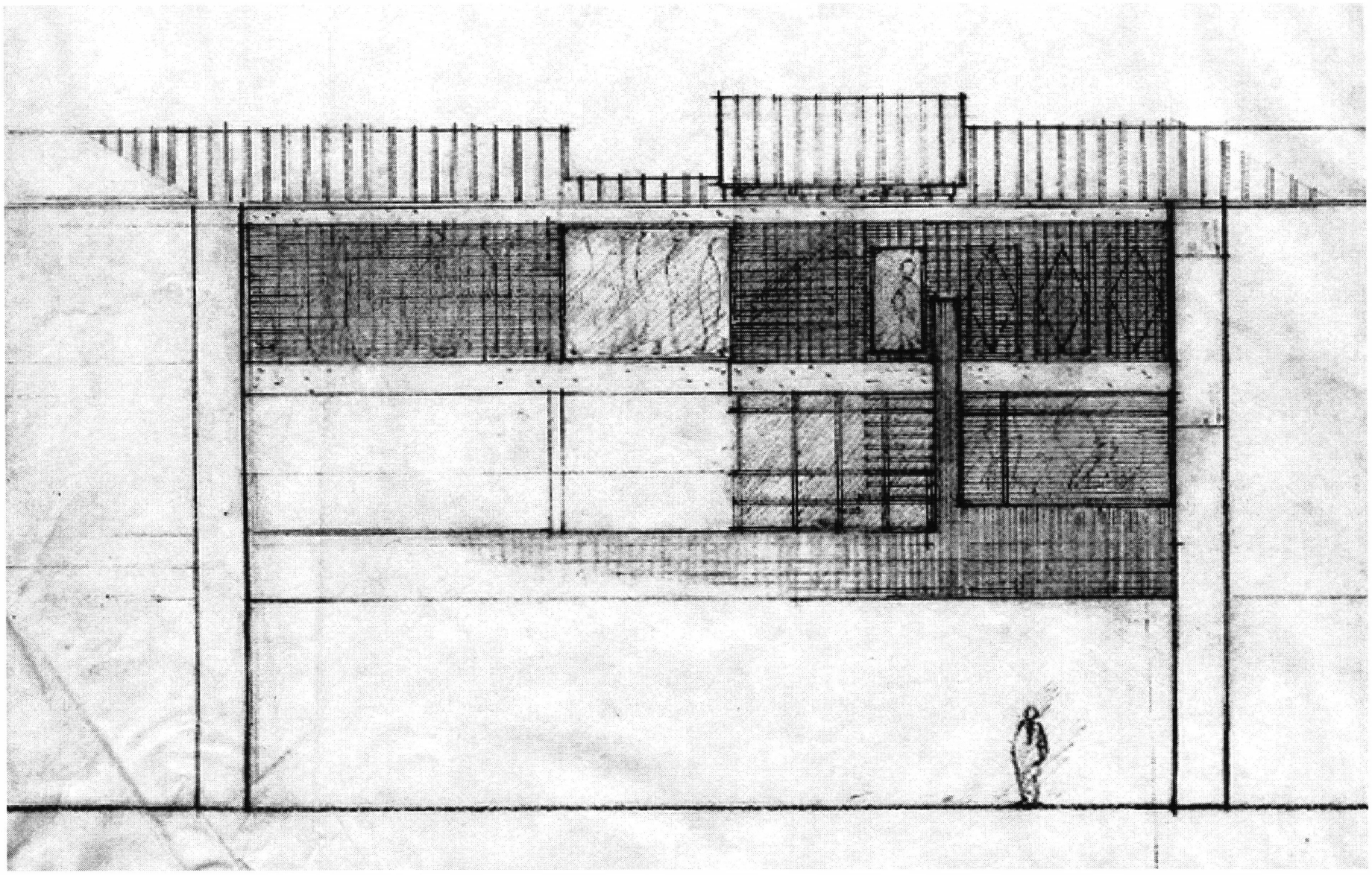
VIEW FROM THE SOUTH OF A TYPICAL STAIR TOWER AND OPEN AIR PEDESTRIAN CIRCULATION.



VIEW FROM NORTH OF TYPICAL STAIR TOWER (WITH ROOF REMOVED) SHOWING OCULUS AT LANDING AND ELEVATOR TOWER.



VIEW FROM EAST, AT POOL COMPLEX END OF BUILDING. INTERSTATE 95 IS IN THE FOREGROUND. THE COMMERCIAL DISTRICT IS TO THE SOUTH AND HOUSING TO THE NORTH.



Appendix

A few thoughts on the unexplored potential of this project seems an appropriate way of closing the book.

As presented, the link between the residents automobiles and the pedestrian street could be developed into a more pleasant and interesting sequence. The building as designed has a limited impact on the existing ground plane, which was a decision made in order to strengthen the perception of a curving mass floating above the existing hard landscape. It would likely be fruitful to examine some kinds of new landscaping or architecture on the ground, to be installed in conjunction with the building. A more radical intervention in this aspect of the project could precipate a new generation of parking lots to accompany the proposed housing.

The stair tower could be developed beyond mere vertical circulation. There are some apertures defining particular views of the site, and a certain sensitivity to the materials and details of the stair tower and elevators, but the result thus far is only an architecturally dramatic, pedestrian-safe stair and elevator construction, rather than something which would strengthen the project in terms of urban planning.

Other planning concepts not fully explored are the multiple and enhanced uses for the parking lots around the proposed building, which could be developed as a significant component of the project. Here could be found a gritty evolution of the small neighborhood park, possibly using the street parks of New York City as an inspiration.

Postscript

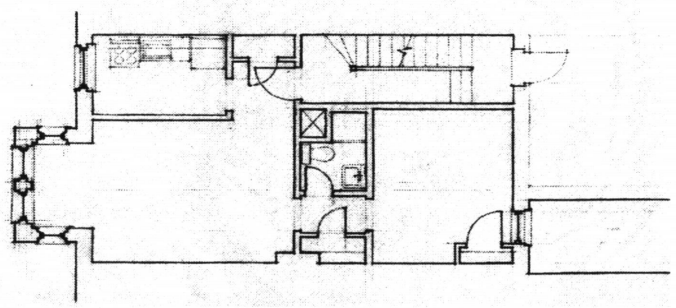
Much of the research completed during the course of this thesis was accomplished by directly observing the built environment. Thirty minutes walking to and from work, five times a week, in Old Town Alexandria; regular trips by automobile around Fairfax and Arlington counties; a few trips a month into Washington D.C.; and many journeys to places more distant were wonderful sources of information and inspiration. Architects need not rely soley on second hand accounts of what it is we study - architecture is all around us.

So while books are a indispensable part of any scholarly endeavour, this direct observation and participation - enhanced by way of sketching, discussion, note-taking, and immersion into the world outside the walls of the studio - is vital to the development of the sensitive and relevant architect. Ultimately, the essence of architecture is out there under the moon and stars, enduring the ages for better or for worse. Of course, books and other media are sometimes the only practical way to study those things made inaccessible by the economies of time, distance, or finance.

Bibliography

The sources used to compile this paper include:

Course lectures by David Lever at the WAAC, 1993-5
Communities in Transition . . ., W. Van Vliet and J. Burgers
Edge City, by Joel Garreau
Islands in the Stream, by David Bartelt et al.
The Comprehensive Plan for Fairfax County, Virginia
The Symbolic Ecology of Suburbia, by Albert Hunter
Variations on a Theme Park, edited by Michael Sorkin
A lecture by Andres Duany at the University of Maryland (1993-94)
Home, by Witold Rybczynski
Housing, edited by Lisa Taylor
The Place of Houses, by Charles Moore, Gerald Allen, and Donlyn Lyndon
Modern Housing Prototypes, edited by Roger Sherwood
Barragan, photographs by Armando Salas Portugal
Inside Today's Home, by Ray Faulkner and Sarah Faulkner
Tadao Ando (Architectural Monographs 14), Academy Editions



Second Floor Plan of 911 Prince Street
(Apartment 3 of 5 on 3 floors)

Some of the buildings, projects, and areas studied include:

several housing projects by Le Corbusier
M. Escherick House by Louis I. Kahn
Huntingdon Gateway projects on route 1, Alexandria, Virginia
window walls, screens, and shutters on various buildings designed by Jean Nouvel
Hollin Hills subdivision in Alexandria, Virginia designed by Charles Goodman
911 Prince Street, Alexandria, Virginia (my place of residence during the research, design and oral defense of this thesis)
Routes 1 and 7 in Alexandria, Virginia
Urban, suburban, and rural neighborhoods in Northern Virginia and elsewhere

Index of Untitled Illustrations

Page		
iii		Site model of Proposed Apartment Building
3	a	Unite d'habitation - Le Corbusier
	b	Fallingwater - Frank Lloyd Wright
	c	Karl Marx Hof - Karl Ehn
	d	Prefabricated house - designer unknown
	e	Unite d'habitation - elevation
	f	Unite d'habitation - conceptual plan showing comparitive land use of single family houses to the apartment block
	g	Unite d'habitation - site plan
	h	Unite d'habitation - apartment unit plans
	i	Unite d'habitation - detail of elevation
	j	Unite d'habitation - detail of elevation at grade
	k	Looking out of the Piazza dei Signori, Vicenza, Italy
	l	House in Old Westbury, New York - Richard Meier
	m	Homeless camp - photographer unknown
	n	Advertisement (from Housing, edited by Lisa Taylor)
	o	Fallingwater
	p	Villa Savoye - Le Corbusier
7	a-t	Various photographs of the central business district of Springfield, Virginia
10	a	Kidosaki House - Tadao Ando
	b	Kidosaki House - Tadao Ando
	c	Nakayama House - Tadao Ando
	d	Nakayama House - Tadao Ando
	e	Nakayama House - Tadao Ando
	f	Sketch of proposed Apartment Building - courtyard of two-bedroom unit
	g	Glass Block House (Ishihara House) -Tadao Ando
	h	Sketch of proposed Apartment Building - courtyard of one-bedroom unit
	i	Villa Savoye - LeCorbusier
	j	Sketch of proposed Apartment Building - stoop at pedestrian walkway (two-bedroom unit)
	k	Section of proposed Apartment Building through courtyard of one-bedroom unit
	l	Section of proposed Apartment Building through courtyard of one-bedroom unit
	m	Unknown
	n	Street in the Weissenhof, by the German Werkbund (Mies Van Der Rohe and others), Stuttgart, 1927
	o	West end of proposed Apartment Building
	p	House for Luis Barragan - Luis Barragan
	q	Galvez House - Luis Barragan
	r	Perspective sketch of pedestrian walkway (proposed Apartment Building)
	s	Detail of steps on Prince Street, Alexandria, Virgina
	t	Bay window at 911 Prince Street #3, Alexandria, Virgina

The vita has been removed from the scanned document