

**Building, Block, Street**

*Residential Block Design*

by

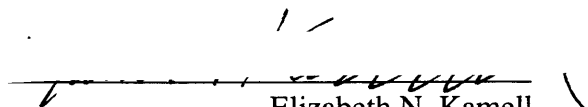
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MAY, 1996**

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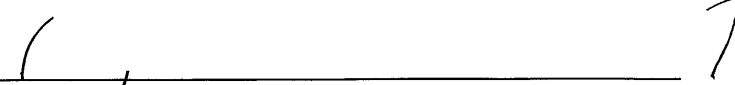
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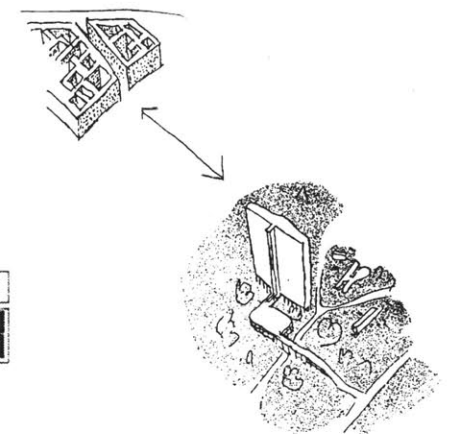
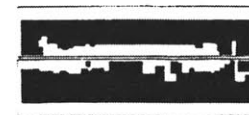
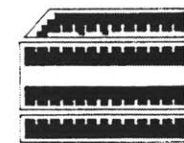
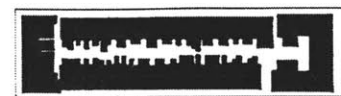
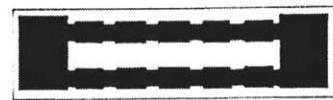
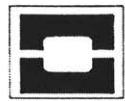
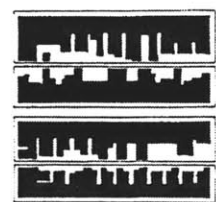
  
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# *Building, Block, Street*

*R e s i d e n t i a l   B l o c k   D e s i g n*

*Elizabeth Kamell*





## ***ABSTRACT***

Late twentieth-century housing, formed by economic and internally generated functional problems rather than by limitations imposed by traditional street pattern and block size, is fundamentally anti-urban.

Modern American housing of the post-World War II era, like any complex social phenomenon, was influenced by multiple forces. Among the most salient are single proprietary control of large parcels of urban land and pre-World War II stylistic trends / social ideals, both of which were reinforced by revisions to zoning regulations. The traditional relationship of the individual dwelling to the block and the street (as well as the individual to the community, as represented by a parallel, formal urban organization) is altered as a result of a changed urban housing configuration. Although the urban characteristics of traditional eighteenth- and nineteenth-century housing blocks remain viable, the dwellings of which they were composed were products of an economic and social structure whose housing requirements are no longer appropriate in contemporary culture. Modern housing, not limited by normative street and block configuration fulfills some of the economic and programmatic requirements of contemporary society, but because it is inherently anti-urban its presence is ultimately destructive of civic life.

Analysis of traditional residential urban blocks in terms of quantifiable urban characteristics provides a tool with which to measure and generate programatically modern housing determined by traditional urban constraints.

Thesis Title: **Building, Block, Street: *Residential Block Design***

by: **Elizabeth N. Kamell**

Thesis Advisor: **Prof. Michael Dennis**

Title: **Professor of Architecture**

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## ***ACKNOWLEDGEMENTS***

*For my mother and my father*

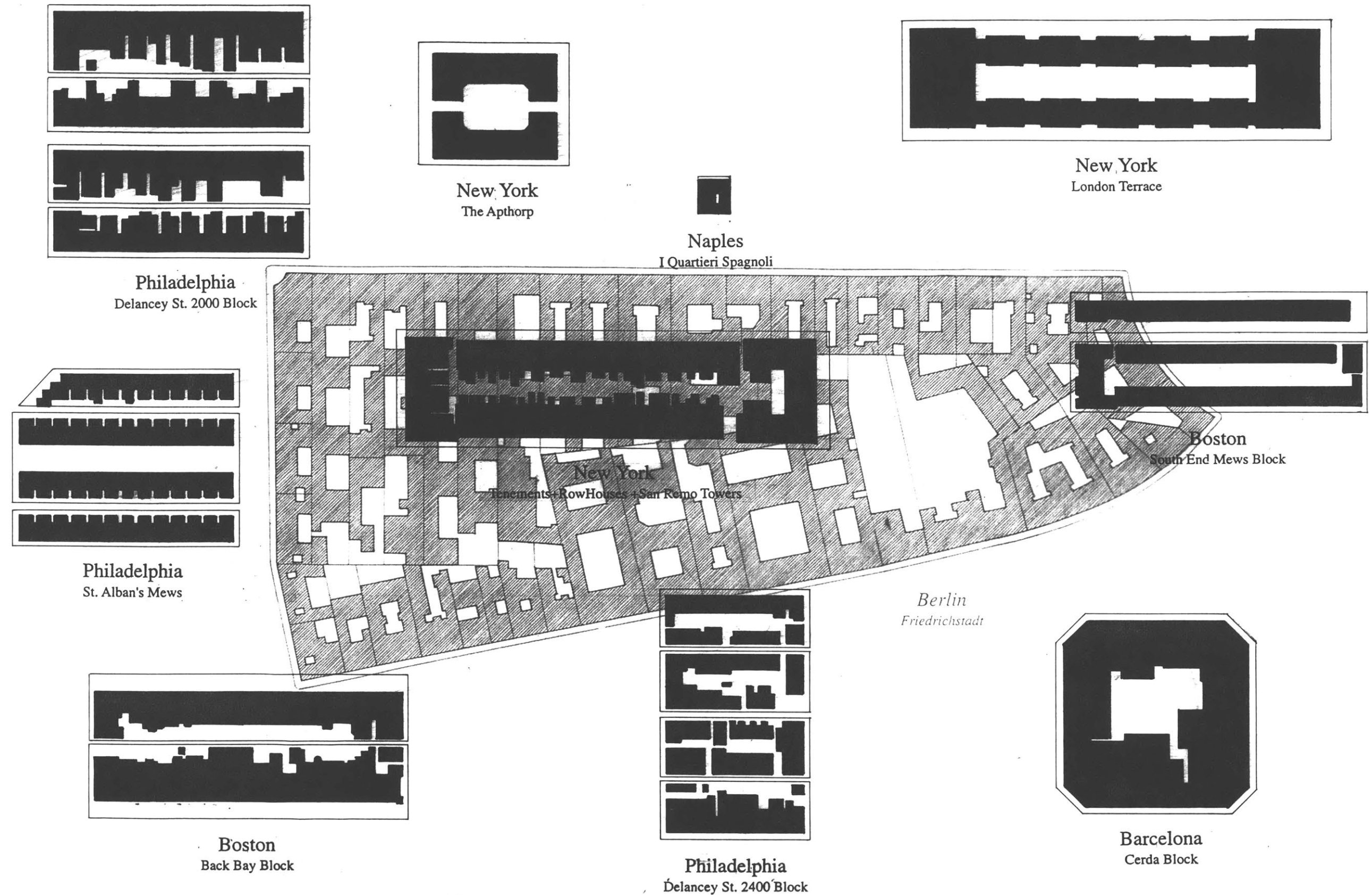
I owe untold gratitude to Michael Dennis for his inspiration, support, legendary sense of humor, Jobian patience, and the keys to his office. Jeffrey Klug and Pamela Butz provided both spiritual, and critical support as well as draughting assistance which neither they nor I suspected would require such protracted endurance. To both I am indebted.

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Philadelphia  
Delancey St. 2000 Block

Philadelphia  
St. Alban's Mews

Boston  
Back Bay Block

New York  
The Aphorp

Naples  
I Quartieri Spagnoli

New York  
London Terrace

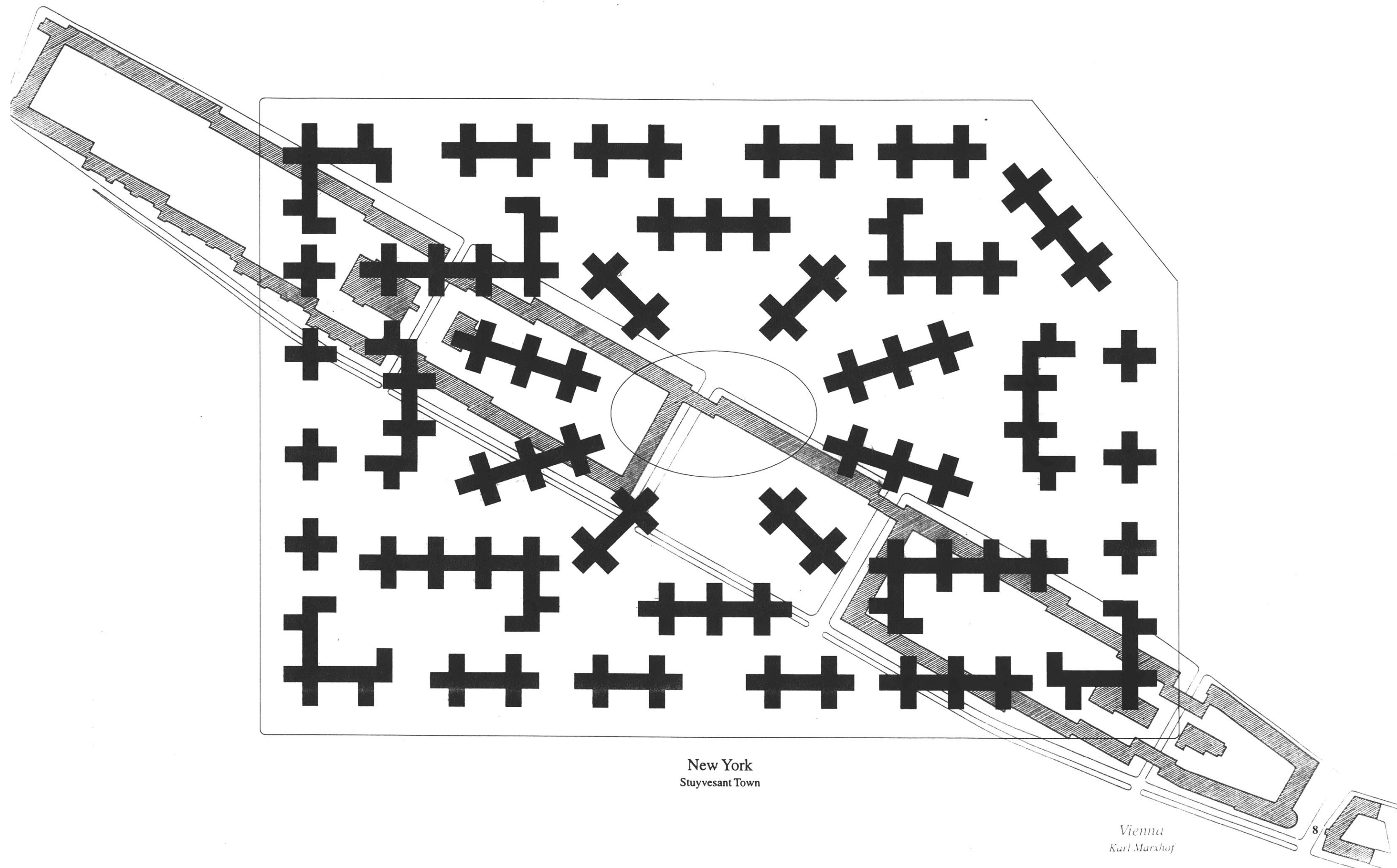
Boston  
South End Mews Block

Berlin  
Friedrichstadt

Barcelona  
Cerda Block

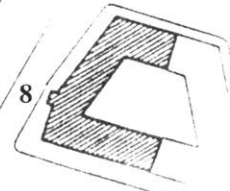
Philadelphia  
Delancey St. 2400 Block

PARALLEL OF RESIDENTIAL BLOCKS | at a scale of 1" = 200'



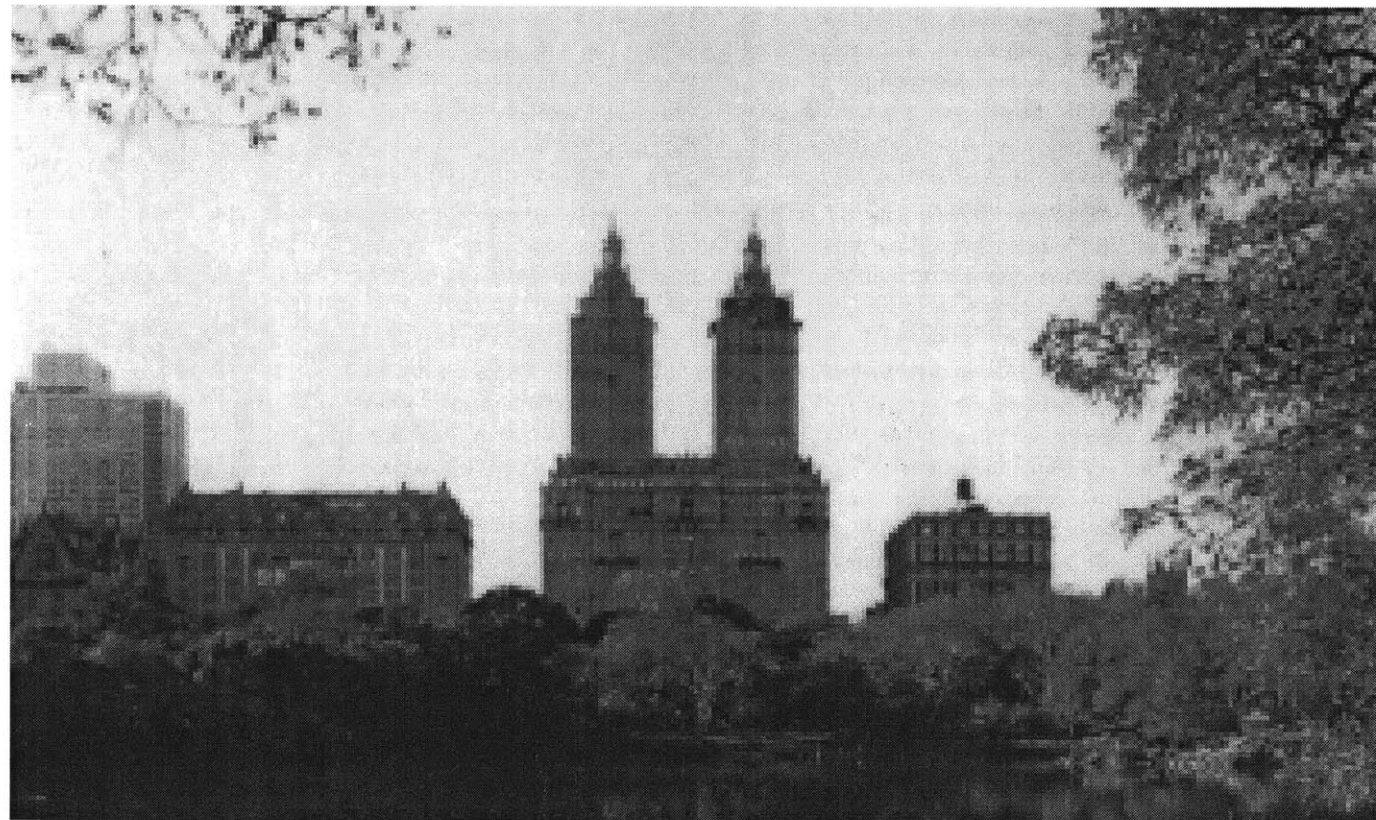
New York  
Stuyvesant Town

Vienna  
Karl Marxhof





## PREFACE



The goal of this study is to document the relative densities and other measurable attributes of known residential block types in order to compare quantitatively, the qualitative differences among them. Unlike many other building types in which qualitative difference is paramount and numbers are of little significance, except as they affect building cost, housing is ultimately a numbers game — and one with meaningful qualitative consequences. Unit densities, building heights, lot areas, building line setbacks, room size, wall opening allowances, and the ratio of built to open space are but a few of the items controlled by building codes and zoning resolutions. The best regulations strike a healthy balance among economic interests, requirements of habitation, public safety, and public open space. They all bear most immediately on the quality of individual residences but, they also have far-reaching public import. The numbers, both restrictions and allowances, matter to everyone. They describe the quality and form of communal space, the public streets and open spaces of villages, towns, and cities.

Housing is particularly suited to comparative, typological analysis. Universal requirements (the necessity for light and air, for example) tend to narrow the field of possible design solutions. In addition, among Western cultures, familial structure is similar and the basic requirements of everyday life do not change dramatically from place to place so programmatic eccentricities are rare. Thus, variation in housing type

is generated not by functional constraints but by other issues: the particularities of place, source of financing, economic class of intended occupants, and to a great degree by existing street layout and its cousin, zoning legislation.

Typological form is often used by architects, planners, and developers as both an analytical and a design tool, a generator of housing solutions. An initial design strategy then, is often limited by an *a priori* typological choice. When an analytical method becomes a tool of synthesis, issues not specific to the analysis, but of primary importance to architectural and urban development are often relegated to secondary importance, if they become issues at all. Here lies the problem. Housing studies commonly fall into one of three types. The first focuses on economies of housing, the second tends to stress style or decoration, and the third, most often associated with twentieth-century housing, categorizes buildings by circulation and unit type. Few studies, however, investigate urban housing in the formal context of the city, as both a private and public matter.

The preponderance of urban housing analysis (cum synthesis), focused on issues unrelated to formal traditions of streets and blocks, the fundamental elements of urban centers, has bestowed on twentieth-century American cities, and on the periphery of many European ones, a housing legacy independent, even destructive, of an important traditional, formal and social fabric.

Modern housing, especially in the U.S., was designed according to standards which it was believed would produce exemplary housing. Among them, percent of lot coverage (the ratio of open space to building footprint), building height to open space ratios, and unit per acre densities. These building parameters did not remain the province of academic architects, but were actively used to design many large developments. Carefully studied and calculated, the housing thus produced was often worse, not better, than the traditional residential blocks it replaced.

Traditional housing blocks were guided by different standards. Though modern and traditional housing have often been contrasted typologically, they have not been systematically compared using the same standard calculations. This study subjects traditional models to those same measures used to generate modern developments. It is a search for quantifiable urban principles of good urban housing models that may be actively employed to make new urban residential architecture.

In urban centers the block, which operates at a scale between individual dwelling unit and large-scale urban order, is crucial to the understanding of housing. Block size and lot structure are powerful factors not only of internal block and building layout but also in defining the character of urban open spaces and public streets. The building wall at the perimeter of the block is the one element that gives form to both worlds. Within urban block structure, a building wall simultaneously

assumes two roles. It is at once the wall of a public street and the wall of someone's bedroom. Neither one can be rationally considered without considering its effect on the other.

Until the middle of the nineteenth century, architects had very little to do with the design of housing. Important civic monuments and private houses for the elite were the focus of professional activity, theory, and commissions, but housing remained the province of builders and tradesmen. As a result, modifications to traditional unit plan configuration, and to construction and building methods developed slowly in response to societal needs. Urban structure changed incrementally as well. When in the nineteenth century housing theory evolved as a subject of academic interest (the result of a growing urban middle class in need of housing), traditional residential models began to change. In the wake of the Industrial Revolution and World War I, the emergence of a radical, modern aesthetic and shifts in social economies, early twentieth-century urban theorists radically revised the traditional idea of urban form and housing into one that is, ironically, anti-urban.

Addressing urgent problems with untested solutions, well-intentioned housing architects in the twentieth century failed to acknowledge the value and significance of traditional public spaces, especially the more prosaic among them, the residential streets in American cities. Focused on issues concerning the individual unit (a preoccupation that ran its course contemporaneously with the study of the suburban home's func-

tional optimization) rather than the relationship of that unit to a larger urban order, modern housing incorporated up-to-date conveniences, practical unit layouts, and affordability, but little in the way of traditional urban amenity.

Many modern-era projects have been torn down because, for many reasons, they were deemed no longer viable. Traditional nineteenth-century housing stock, however, often in internally reconfigured states, remains among the most coveted and expensive housing in many cities. As social customs shifted, smaller families (with fewer children and little or no extended family) required fewer rooms and most often did not require housing for live-in servants. Though nineteenth-century, single-family row houses were appropriate for extended families with staffs to care for them, converted units in traditional neighborhoods are often tiny (a result of overzealous landlords serving a changed community), have inferior layouts, and lack modern amenities. Small apartments, products of subdivisions of traditional eighteenth- and nineteenth-century buildings (both row houses and apartment buildings), though they now meet contemporary standards relative to family size, are by most measures inferior — especially when compared to newer units in modern apartment buildings, which were designed specifically to meet contemporary social and economic requirements. Subdivided apartments in traditional neighborhoods, however, compete favorably against units in modern apartment buildings because the urban order of streets

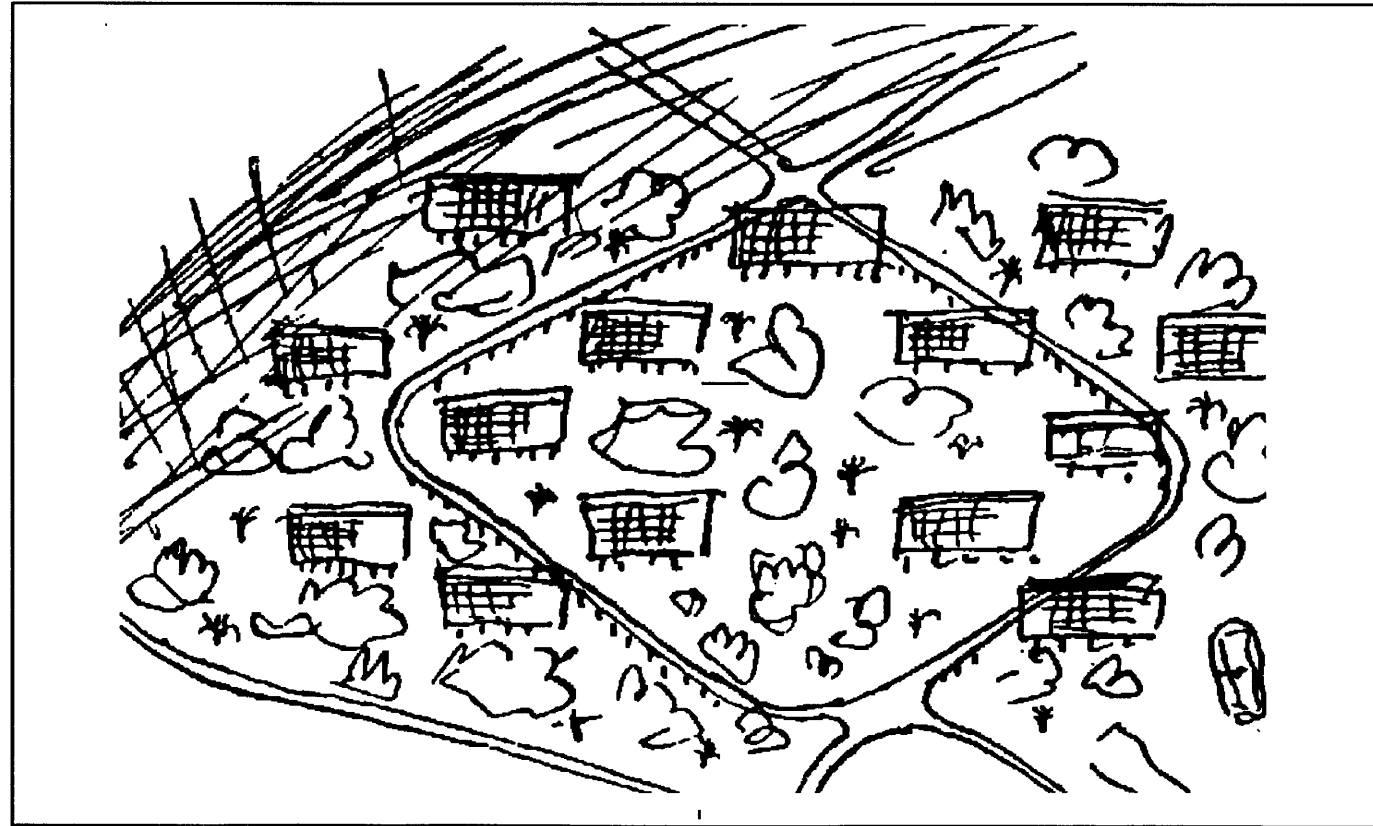
and blocks in traditional districts is clearly appreciated. The inadequacy of the living quarters in reconfigured traditional housing stock has not diminished their value.

While the inadequacy of traditional housing at the scale of the living unit is tempered, indeed compensated for, by the clear and lasting achievement of traditional neighborhoods, the legacy of modern housing is the opposite; units in most modern apartment buildings are functionally and spatially adequate, but in their urban dimension they fail demonstrably. Most modern projects are in fact anti-urban monuments to a failed experiment in urban housing form. Modern apartment towers were designed from the inside out: the primacy of the unit and the internal organization of the building generated plans that worked efficiently on the inside and the exterior configuration remained the result of interior organization. Both individual buildings and larger projects were rarely considered as integral parts of a wider urban order.

The abundant evidence of the failure of modern housing dogma requires us to reevaluate the success of traditional residential models, so that we can use the best of what traditional urbanism has to teach, combined with the best of modern architecture and technology. It is with the intent of practical application that this study was undertaken.

## INTRODUCTION

### *The Social and Political Context*



Modernist urban housing theory originated in Europe, but its greatest impact was on American soil, where the idea of the new metropolis had room to take root and spread. In Europe, where city centers were already densely built-up at the turn of the nineteenth century and zoning laws set limits for new construction, twentieth-century housing was relegated largely to areas outside urban centers. But in America, where history is short and economic and political forces conspired to accumulate large pieces of urban acreage, modernist housing was not limited to the urban periphery. American urban centers were the testing ground for many large-scale modernist housing schemes. Between 1920 and 1972, when the most aggressive public housing initiative in the United States ended, most major American cities became home to some modernist housing project, usually public, some private, executed according to the same anti-urban principles.

Modern housing has been attacked with great gusto on formal grounds, but the cause for its failure was social as well as formal. Often the two are difficult to disentangle. Misunderstood social conditions are frequently worsened by otherwise appropriate formal models. Where a housing type might work perfectly well in one instance, in another it is entirely inappropriate. A deteriorated social structure in turn, may be ameliorated by improved housing conditions. The equation between inadequate housing and social ills is well established.<sup>1</sup> While in Europe modernist housing fails predominantly on a

formal basis, in America severe socio-economic problems were only exacerbated by the imposition of urban housing types designed by architects who failed to recognize the further damage that urban discontinuity would cause.

Early twentieth-century European cities faced few of the social problems of expanding American urban centers. Long established inner city urban growth patterns formally unified urban centers even when social divisions were clearly understood. Within the unified urban fabric all classes coexisted, and most importantly, in Europe the city proper never lost its desirability or importance as the symbolic seat of the family residence. Traditionally, the urban residence as a symbol of wealth and political power was understood by location in the urban fabric. Even when aristocratic European families retreated to a country estate, they usually maintained an urban residence as well, and the elite of Europe still live in city centers. In America, however, the declining appeal of the city as a place of primary residence for a large proportion of the population reflects a growing dissatisfaction with urban life. This was not always the case. Until 1950 most American urban populations showed steady growth.<sup>2</sup> Between 1950 and 1990 most urban centers lost population, but 70–75% of the built fabric of most cities is still residential. Contemporary urban populations may no longer be composed of the wealthiest families, but cities are still places where people live, conduct business, participate in social events, and entertain themselves. And they

should be the place where those who have choices still want to live. Without a supportive and economically strong resident population, cities die. What makes a city livable is thus a question of fundamental importance.

The decline of the American city began with post-World War II suburban expansion<sup>3</sup> resulting from federal investment in highway construction, an effort that was heavily supported by the automobile and homebuilding industries. Abetted by the availability of federally guaranteed, inexpensive mortgages targeted at single-family home ownership, suburban development boomed and urban populations shrank. Instead of investment in public transportation, aimed at serving urban dwellers, construction of new roads and highways favored private transportation and suburban residential growth patterns.<sup>4</sup>

As exurban economies grew, they drew activity away from the city and depleted the urban economy. In the process, housing and the industries surrounding it have become a defining feature of the nation's economic health, which is now partially measured by new housing starts. The expanding growth of the suburbs was promoted not only by manufacturing and financial concerns, but by a particularly American preoccupation with single family home ownership. The mythological family of perfection did not live in the city. Comfort and livability were associated with a two car garage, a front lawn, and a barbecue pit in the back yard. An apartment on a beautiful street in a big city, a nearby park and the ability to walk to work were not part of the "American Dream".

Reasons for more recent decline of the American urban population are numerous, and can only be touched on here. The continuing trends must be acknowledged, however, because urban population decline is politically and socially relevant to any discussion of the viability of urban life. Urban investment and growth can be encouraged by means of economic incentives guided by a socio-political agenda. Expansion doesn't always just happen randomly. In twentieth-century economies, seeds are selectively planted in order to encourage specific types of economic growth. Refocusing the industry and a labyrinthine economic system that supports exurban development (including a tax system that unabashedly encourages home ownership) would require monumental social and political realignments. Though perhaps not easily accomplished, the adjustment can be made.

What must be battled contemporaneously, however, are current academic trends that tend to elevate the suburb as a new "urban" frontier — a clever misnomer that acknowledges the importance of urban culture in order to sell warmed-over suburbia. The study of suburban town-making justifies its efforts by accepting the popular appeal of exclusive suburban communities as a *fait accompli*, evidenced by the fact that currently over 50% of the American population now lives outside of urban centers. Invoking a fuzzy idea of "community," proponents of the new suburbanism argue that they are forming

new American communities complete with urban, or at least small town, amenities: the ability to walk to the corner store for bread and milk, streets without gaping garage doors at every house that are thus pleasant enough to inspire outdoor activity where chance encounters of the neighborly kind are possible, and zoning laws that control formal urban/suburban order.

Subdivisions designed according to the tenets of new urban ideas are indeed more dense than some suburbs, but at 4–5 units per acre<sup>5</sup> they fall far short even of the 8–14 units per acre common for most detached, single-family residential developments. It is also true that in general the lots are smaller, the houses closer together, garage access may be provided via a rear alley, a small general store may be within 10 minutes walking distance, and zoning laws may tend to encourage the look of a small town. And yes, there may be a light rail transportation link to carry residents to the shopping center. But these are still exurban residential communities that carry all the earmarks of the familiar type. They are reached by car, they are composed predominantly of single-family homes, there are few if any public institutions among the many private residences (there is certainly no subsidized public housing), they are privately developed and they are exclusive. Some are even gated, employing private police forces.

The fashionable academic study of the suburb should not obfuscate more important issues related to the improvement of urban life. New building developments and other studies gathered under the "New Urbanism" banner can be valuable exercises and real examples in the making of a better suburb, but a better suburb will not cure the societal ills brought about by their predecessors.

As Labor Secretary, Robert Reich, has noted,<sup>6</sup> the contemporary idea of community has changed from one in which there is a social net among all neighbors cutting across class lines, to one in which community is defined by families of like income and protection of assets is the goal. Increased urban crime and inadequate public schools are both cited as reasons for the exodus from urban areas. But the "get out and get safe" mentality is a short-term response to a long-term problem. Shifting assets from urban centers to the suburbs, while leaving the city to languish in poverty, will cost the escapees more in the long run.

Not only are suburbs exclusionary, but those who are excluded pay for their ecological costs. The necessary suburban appurtenance, the automobile, is a polluting machine; and the supply of public services to suburban populations is more costly than to denser urban neighborhoods. State and federal road-building and maintenance expenses are shared by urban and nonurban dwellers alike.

Finally, although this study is focused on the formal aspects of housing (and as these relate to larger issues of urban form), the problems of housing are not solely formal. The formal issues must be understood in the context of a larger social

agenda. The state of cities and the state of housing are political and economic issues, first and foremost. To separate the two (formal and socio/political) altogether is folly; to examine them independently is necessary.

The inner city has, in the minds of many, become home to only those who cannot afford to move elsewhere. It is thought to be place of crime, poor education, and expensive and inadequate shelter. While the reputation is understandable, many people choose to live in cities for other products of urban life: access to culture and education, facilitated social contacts, and access to other places. But even for those who leave, urban disintegration is not without cost. Everyone pays for the failure and ill health of other segments of society. It is in the interest of all to encourage the vitality of urban centers. One way to do that is to imbue cities with amenities that make them livable: among those is housing, affordable and appropriate to individual and community needs.

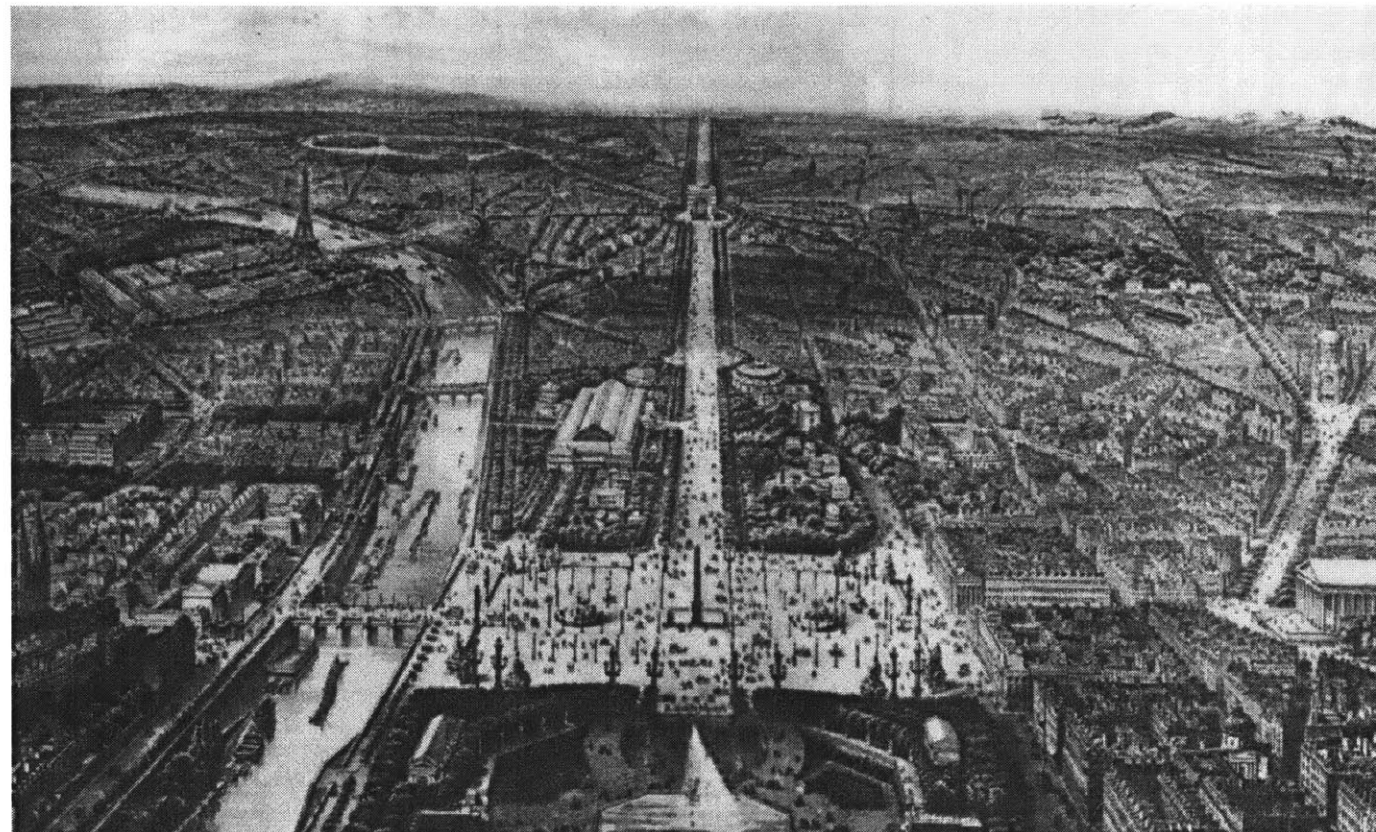
Although there are many factors that bear on the quality of urban life, this study examines in particular, the relationship of the individual living unit to the larger structure of streets, blocks, and open space, all of which are important to quotidian existence and the urban social fabric. It is assumed that the formal aspects of both private and public space and their relation to each other are among the many factors that render city centers amenable to the pleasures of human life. But the formal / functional relationship of housing to the urban landscape is not well understood. Given the predominance of housing fabric over other types of building, to a very large degree the kind and quality of housing is what gives form to the city: the quality of the public space, streets and open space, as well as private, habitable space.

1. A recent CIA study hypothesizes that poor democracies that don't improve living conditions are exceptionally vulnerable to political instability. Tim Zimmerman. "Why Do Countries Fall Apart? Al Gore Wanted To Know." *U.S. News and World Report*, Feb. 12, 1996.
2. David Rusk. *Cities Without Suburbs*, p. 5.
3. Rusk, p.7.
4. James Howard Kunstler. *The Geography of Nowhere*, chapter 8, "How to Mess Up a Town."
5. Urban Land Institute, v. 24, no. 16, "Kentlands, Gaithersburg, Maryland."
6. Robert Reich. "Secession of the Successful", *New York Times Magazine*, p.16, January 20, 1991.

## 1. RESIDENTIAL BLOCKS

*Eighteenth and Nineteenth Centuries*

### *European Precedents*



#### *The Traditional City: the block and plat planning*

Though some of the earliest settlements in America reflect the medieval planning influences of their European founders (e.g., Boston and New York), with few exceptions town planning in the United States emerged in its own right as distinct and particularly American.<sup>1</sup> The orthogonal town plan quickly emerged as the prevalent and pervasive design choice. As simple and uneventful as the typical gridiron may seem, cities in America exhibit enormous variety. Meaningful overall patterns do distinguish city from city, and differences at a secondary level of development reveal a rich variety of block types that imbue each city with distinct character. Changes in block size, dimension, and pattern of lot division all exert enormous control at a local level and infuse the broad pattern with detail and nuance. Especially as they control residential development, differences at the scale of the block are reflected in the larger understanding of urban order.

The original plats of most American cities consisted of streets and blocks laid out in regular, gridiron fashion (fig 1.1). Initially, blocks were divided into rectangular lots, each with the short side of the lot at the street front. Houses or small apartment buildings, sometimes with shops below, were located at the front of the lot along the street. Incremental growth of a block generally occurred lot by lot along the street, leaving the middle of the block open for private use (fig 1.2).

With increasing population and building development, unoccupied lots were built upon in similar fashion. As building progressed along the front lot line, the street itself slowly acquired a high degree of definition: what once may have been a string of intermittent houses or individual buildings along an artery developed over time into a highly defined system of blocks and streets in which the public places of the city had distinct and definite form (fig 1.3). Though street layout and specific geographic history vary from city to city, the traditional pattern of development controlled by both economic and practical consideration resulted in a typologic consistency: apartment buildings and row housing that at once describe the block itself and the adjacent street or open space.

Though individual buildings were not always stylistically similar, such formal rules as existed, enforced via codified zoning legislation or by convention, tended to produce blocks of controlled urban uniformity. Available construction materials and familiar building methods placed further limits on typological variety. The length of available timber and traditional methods of framing window and door openings (which generally produce wall openings of approximately the same size), in addition to practical limitations in height, for example, generated typologically similar buildings. They in turn yielded blocks of highly defined identity, which accorded formal identity to surrounding streets.

Like residential neighborhoods in European cities, the

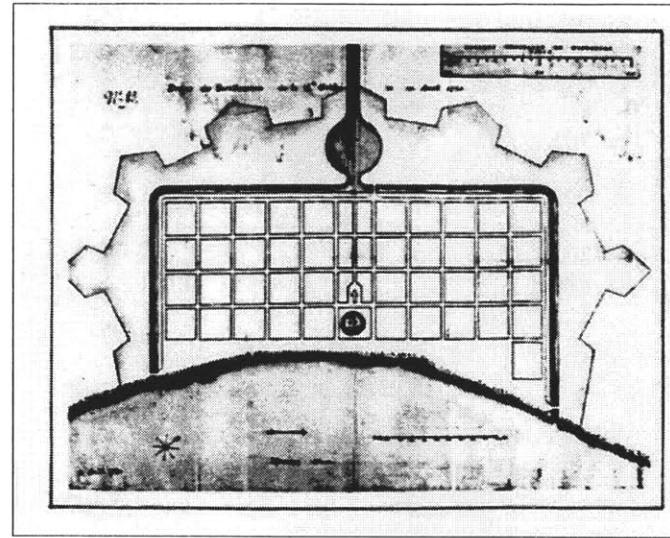


fig. 1.1 Typical American gridiron. New Orleans, LA.

ground floors of traditional American residential buildings were often occupied by retail outlets, offices, and various small businesses (fig. 1.4). But cultural and economic conditions of the twentieth century, accelerated by modernist planning theory and advanced transportation technology, resulted in neighborhoods separated by use.

### *Evolution of Type: precedents for American residential blocks*

Compared to European cities, American towns grew quickly. As they developed, they borrowed from Europe both fashion and form, transformed to meet the divergent social requirements of American culture. The influence of European architectural style and theory on American urbanism, especially as it applies to traditional urban residential architecture is direct. The terraced house of eighteenth- and nineteenth-century England and the apartment house of nineteenth-century France are the two most important models for pre-1930 urban American housing; American cities are filled with examples inspired by both types, and they remain among the best housing in the United States. Though they differ, both the English and French models represent urban ideals in which the public space of the city is a primary and constructed formal urban element.

As rapid influxes of immigrant populations to Ameri-

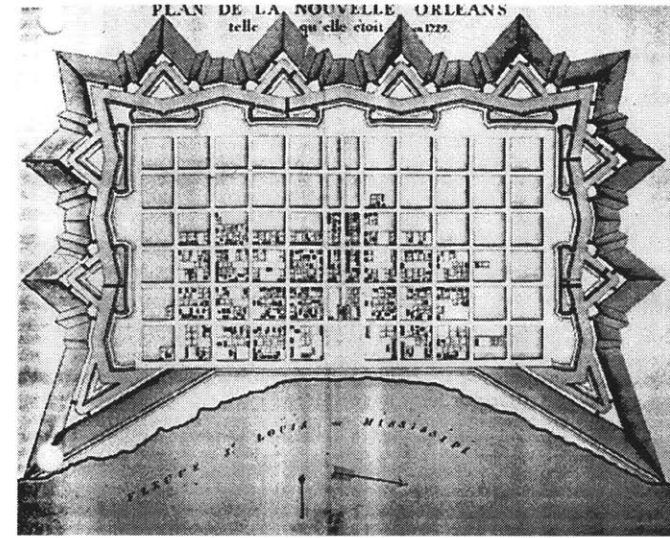


fig. 1.2 Initial lot line development. New Orleans, LA, 1729.

can cities created a high demand for housing early in America's development, many English inspired row houses were transformed into inadequate tenement buildings. Though apartment living was initially resisted when it was introduced, disaffection among the middle class with tenement life made the "French flat" look like an acceptably elegant alternative.

Post-1930s modern European housing style and theory left no less an impression on the American urban landscape than earlier imports. Modern European housing, however, is the antithesis of either English or French residential types of the eighteenth and nineteenth centuries. While the composition of traditional housing is based on an idea of the primacy of the block and the street, elements that define the structure of urban form, the formal properties of most modern urban housing are shaped by other determinants.

Fueled by European theories of mass production, clean and efficient living, and freedom from oppressive nineteenth-century tenement life, the design of housing in post-1930s America was primarily concerned with an internal organization of the living unit, a rational, mechanistic analysis of building circulation, and a solution to the ever-present problem of access to natural light and air for each apartment. The preoccupation with the functional arrangement of building corridors, location of apartments relative to public circulation, and the workings of individual unit layout precluded any concern for the form of traditional urban order. In fact, it was the

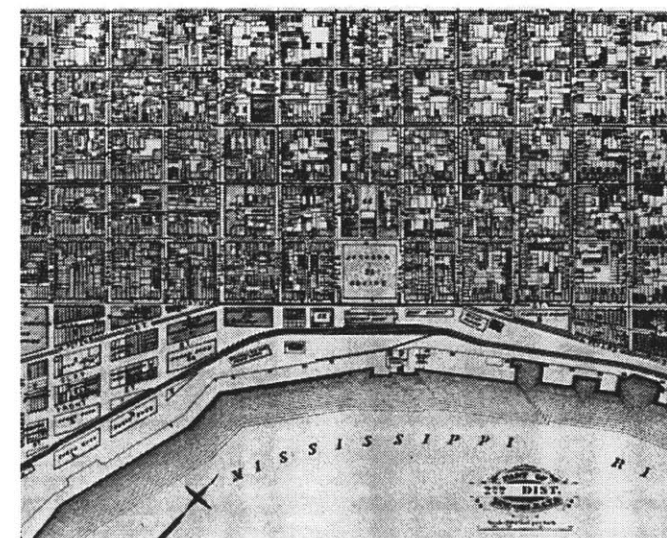


fig. 1.3 Block Development. New Orleans, LA, 1883.

traditional street that both planners and architects sought desperately to erase. Emblematic of the effort is Le Corbusier's sketch (figure inside front cover) of the old/bad and the new/good urban ideals.<sup>2</sup> The order of the traditional street and block, the public space of the city, diminished in importance and was replaced by a fixation on openness, gardens, and parks punctuated by tall buildings. The result is an architecture generated from the inside out, an architecture in which the building assumes an objectified presence and the street is nowhere to be found. It is an "urban" ideal that resembles urbanity only in the most remote sense.

In view of its many failings, it is easy to forget that modernist urban housing and planning theory arose out of a perceived need to reinvestigate the relationship of man to city, man to dwelling, and dwelling to city. In post-World War I Europe housing shortages in many cities were extreme (in Vienna alone, 64,000 apartment units were constructed between 1923 and 1934),<sup>3</sup> and the drastic modernist reorientation must have seemed like a good idea. Only after the storm is it possible to fully evaluate the damage the modernist urban tornado wrought — especially in light of what it replaced. From American cities, the cyclone took with it streets and blocks, traditions of American plat planning, and residential housing stock that had evolved from its predecessors, principally the traditional English and French models.

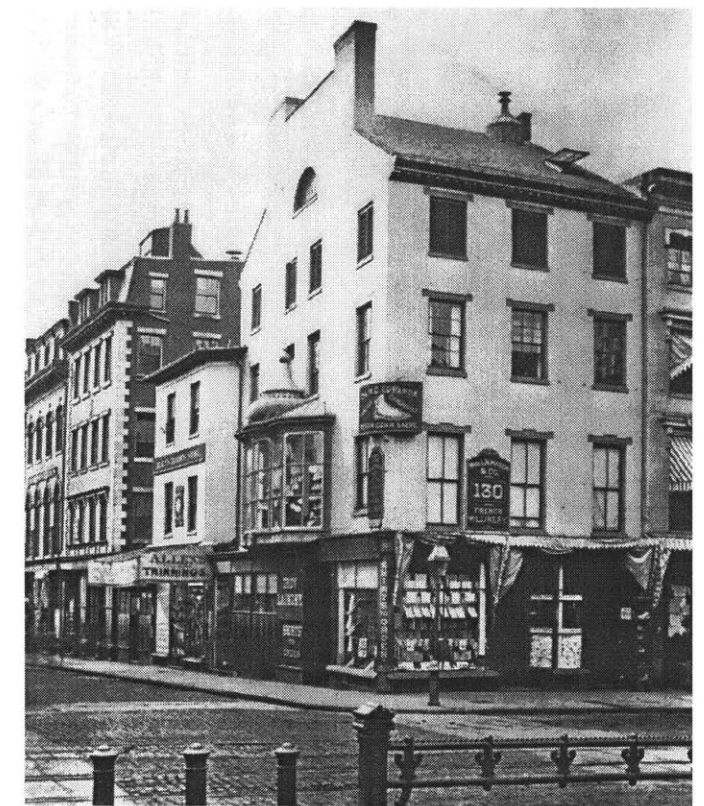


fig. 1.4 Stores at ground floor, Boston, 1880.

### *The English Terraced House*

Before the fire of 1660 (fig 1.5), London was a dense agglomeration of tightly packed burgher houses, with shops located on the ground floor and the residences of the shop owners above. Often, the uppermost floors were leased as offices or rented as residences to working class families. This socio-economic organization of privately owned small buildings assured that most neighborhoods included both commercial and residential activity and that most buildings contained a heterogeneous class mix. Class distinctions were manifest by vertical position in a conceptual cross section of the city: those at the bottom were the wealthy and landed classes, those at the top the poorest. The streets and squares were maintained by and in the interests of the shop owners and businesses spread throughout the town, so the entire city, both rich and poor alike, benefited from the maintenance of the public space.

By the middle of the eighteenth century, a changing economy and the emergence of a large middle class who did not work at home initiated a change in the social attitude toward traditional, house-bound family business. High social status became associated with the separation of business from residential activity, and family life gained importance as the pivot to social activity. Residences assumed a new identity symbolic of family structure and social position, which became manifest in the formal structure of English cities.

Whereas in other European cities the traditional arrangement of shops at the street level and residences above persisted, in England distinct residential neighborhoods grew in number. The emergence of the English row and residential square as distinct types within the residential morphology is unprecedented in European cities.

At the turn of the century London was already the most populous as well as the largest city in Europe. Between 1801 and 1917 the population of Britain expanded fourfold, from 9 to 36 million.<sup>4</sup> In the same time period the population of London alone jumped from just under 1 million to over 4½ million, increasing the need for housing commensurately.

Like most European cities, the center of London was divided into small lots and grew piecemeal, building by building and block by block. Outside the medieval core, however, large pieces of land were privately held by members of the aristocracy. Development of those parcels began in the mid-seventeenth century (Covent Garden in 1631 and Bloomsbury Square in 1660) and continued throughout the nineteenth century. Whereas land in and around other big European cities was more often under the control of either a governing municipal body or a monarch who had sufficient power to make autocratic decisions about urban expansion (and establish unified urban plans), development of London could move forward only with the cooperation of the owners of the great estates that surrounded the urban center. Consequently, building speculation occurred estate by estate, and each development established its own identity, often focused around a public space at its center (1.6).

Development of the lands surrounding London was a profitable, income-generating venture. Residential building speculation emerged in response to the need for new housing that could accommodate the requirements associated with upper-class identity. To compete for the wealthiest buyers, the best developments were constructed around elegant green squares and controlled by strict covenants that regulated the use of materials, width and height of surrounding buildings, and lot line setbacks. What happened beyond the facade and out of public view was of less concern. Compared to the elegant, ordered, and unified street facades, the backs of the houses were ragged and unimportant. Emphasis given to the image and richness of the public face, in conjunction with control of the neighborhood square by both visual and actual means, focused the direction of urban housing in England from the middle of the seventeenth century onward.

As the city grew more dense and less healthy and as transportation routes improved, London's upper class moved out of the city center, leaving the traditional, older town houses to be subdivided into tenements, which in turn were occupied by the lower classes. What has been referred to as the "failure of English urbanism"<sup>5</sup> resulted in a city divided geographically by social class. The public streets once maintained by the local merchants fell into disrepair, and as social distinc-

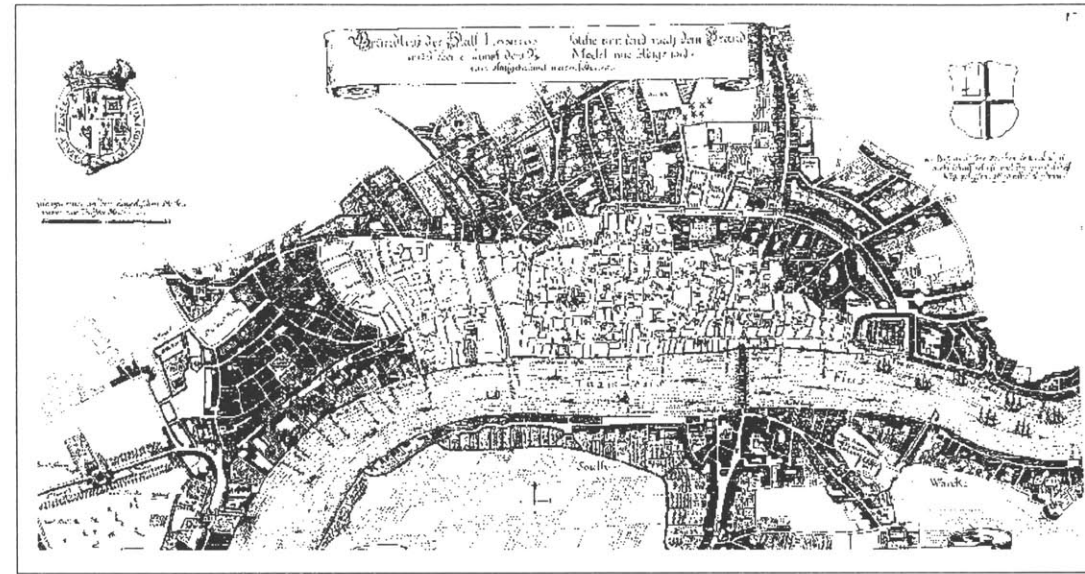


fig. 1.5 London, 1666.

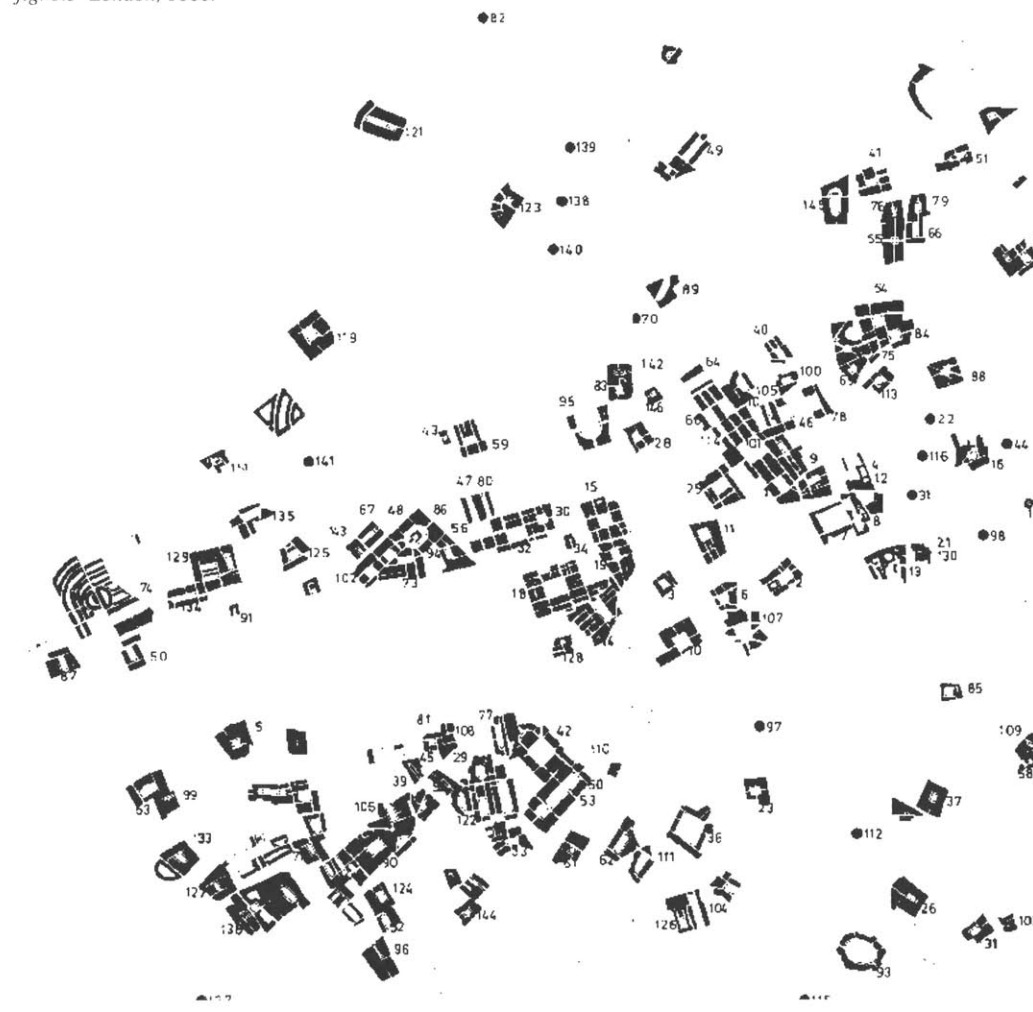


fig. 1.6 Residential Squares, London.

tions grew more acute, so did the neighborhood divisions. Neighborhoods of wealthy individuals who could afford to maintain the public space separated themselves from those that could not. What had once been a city divided vertically by class, in which public space was evenly maintained by merchants spread throughout the town, evolved into a city separated into distinct neighborhoods, identified by income and cared for accordingly.

The clear geographic separation by class was furthered by developers of the private estates. Vigorous competition impelled each developer to promote an elevated image of exclusivity and grandeur for the new, individually owned terraced houses: the more exclusive and aristocratic in style, the greater the commercial advantage. To promote the illusion of opulence, the earliest rows of attached residences, though developed for single-family occupancy were designed not to express the individuality of each owner but rather to project an imposing monumentality. This was achieved through a facade organization that required the block of individual houses to be read as a single building with a single facade (fig 1.7). Though the plans of each house might be identical, the center and the corner of the block were expressed as if they were each parts of a single, block-long mansion. In some of the earliest, wholly residential squares, a dominant row would be articulated by a pediment at the center of the block which might span several houses and the corners of the block would be identically articulated in a traditional palatial manner.

Many English terraced housing schemes were conceived in the tradition of the large, imposing family homes of the landed British aristocracy: the more unified and stately the facade, the greater the apparent importance of the building and hence its occupants. In exchange for the loss of discrete individual house identity, each family gained increased civic presence and by association, social standing. It is important to note, that, with few exceptions, the identity of the individual is never entirely lost. The individual unit is understood simultaneously as an integrated part of a single extended, palatial facade, as well as one of a string of independent pieces. Because each unit has an immediate visible and formal connection to the public space (a front door), its singularity is assured, at the same time that its civic presence as part of a continuous urban wall is also certain.

The urban significance, both real and symbolic, acquired through adjacency to a landscaped, open space (fig 1.8) increased the desirability of the individual unit. Though not under the sole proprietorship of any one family, the residential, public square is tightly linked to the housing block facing onto it. The "palace" and the green "forecourt" are one. The frontal dominance of the northern facade of Bedford Square, for example, is imposing enough to easily lay claim to the adjoining green and augment its public, urban significance. In return, the housing block itself is enhanced by the power of the open space (fig 1.9). The exclusivity of the entire area was

furthered by the control of the dominant public space at the center. The square was commonly maintained by the leaseholder of the land, not always the developer or house owner, for the private use of the residents. Gated or not, it provided identity as well as a sense of individual ownership greater than a thin slice of the surrounding block. The relationship between the building and the square, the perceptual ownership of the adjacent open space, as well as its real value as an urban amenity, are features that were reflected in rental and sale returns.

Typical housing blocks that did not benefit from adjacency to a public square maintained significance in the large-scale urban order by establishing sustained building, block, and street patterns — thus further sustaining the “influence” of the central square. In London, neighborhood identity is achieved not only by adjacency to the squares, but both architecturally and urbanistically, through repetition of stylistic detail and continuity of the street wall. Though the street emerged as an articulate entity worthy of architectural attention somewhat later than did the square, it too had significant influence on American urbanism. After the 1666 London fire, developers were able to command larger pieces of land in the city center, and though the design and construction restrictions on terraced houses were not as stringent as those placed on builders of individual homes in the estates, restoration guidelines often dictated floor heights and some structural dimensions in order to achieve a controlled uniformity within the block.<sup>6</sup> It was not until later, however, that a deliberate articulation of the residential street assumed urban importance. John Summerson identifies the work of John Wood in eighteenth-century Bath (fig 1.10) as the progenitor to the development of the residential street in London throughout the nineteenth century.<sup>7</sup>

The urban configuration of residential London, like that of many traditional cities, places emphatic importance on the primacy of public, open space of both streets and squares. Composed predominantly of repetitive perimeter block housing, in which the built fabric gave form to the street, the typical English block served as the preeminent model for eighteenth- and nineteenth-century American urban development.

### *The Parisian Apartment House*

As the terraced house typologically defined London housing, the apartment house evolved as the defining urban housing type in nineteenth-century Paris. As in Britain, the first speculative apartments were developed by wealthy landowners, usually aristocracy or royalty, just outside the dense inner city. In 1784 the Duc d’Orléans commissioned the Palais Royal, the first speculative housing venture in Paris (fig 1.11).<sup>8</sup> Similar in idea to the English residential square, the Palais Royal was designed as a unified and enclosed urban court: concealed behind the palatial facade are individual apartments. Just as the

English terraced house type was exploited first in an ideal condition (the square) and then adapted for use throughout the city in the service of streets of less singular importance, the French equivalent was transformed into a remarkably different housing type.

The Parisian apartment house evolved out of a complex set of circumstance and tradition having as much to do with land speculation, class, status, and housing requirements as with clear urban ideals. Prior to midcentury, when the idea of the apartment was firmly in place, multiple-dwelling apartment houses were thought to be, among other things, unhealthy, destructive of the sacredness and love of the family, and immoral.<sup>9</sup> But in the middle of the nineteenth century the *maison à loyer* gained at least provisional acceptance. It was César Daly who eventually justified the idea of the *maison à loyer* as a commonplace but economical alternative to the Parisian *hôtel*, a private, residential urban building type available only to the extremely wealthy. Especially in France, where social status was closely guarded and watched, a builder’s investment in either luxurious spatial arrangement or decorative detail had to bear the earmarks of social respectability. To overcome a social reluctance to apartment life, an appeal to the sense of status and elegance was integrated into the design. Among the many rooms dedicated to the service of social ceremony, Parisian apartments provided for separate servants’ quarters, private family rooms, and public reception rooms with views, light, and air (fig 1.12). Thus, out of economic necessity on the part of the occupant, who could afford neither to build a private *hôtel*, nor the disgrace of an everyday tenement, and a recognition on the part of builders that apartments for the bourgeoisie needed to accommodate a modified layout of the *hôtel* in all its decorous propriety, the apartment house gained a social acceptability among the urban middle class.

But it was not until Baron Haussmann began his crusade to remake Paris in 1853 that the Parisian *maison à loyer* became an instrument of urban design. His proposals for slicing through old Paris to create wide, tree-lined boulevards (fig 1.13) necessitated reconstructing the street wall with a building type and program capable of providing continuity and repetition of an appropriate monumentality.

The apartment house, which by that time had been elevated to an adequate level of bourgeois respectability and elegance, fit all requirements. Not only did it provide an endless supply of repetitious wall surface, but it attained social prominence by formal association with the new elegant promenades. It was this benefit of aggrandized individual identity within the context of urban uniformity that assisted in the wide acceptance of the nineteenth-century Parisian apartment house (fig 1.14). Hélène Lipstadt notes the irony of the success of the apartment house as a suitably bourgeois residential type.<sup>10</sup> Paris was traditionally a city where social classes were not strictly divided by geography, yet class distinction was impor-

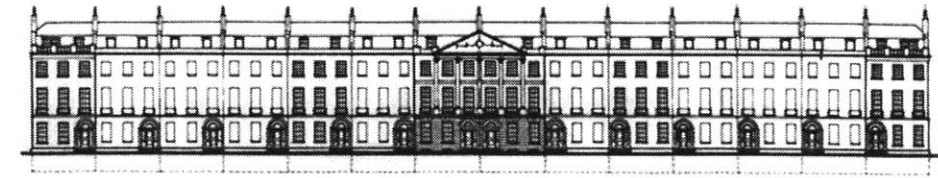


fig. 1.7 Elevation, Bedford Square.



fig. 1.8 Plan, Bedford Square, London.

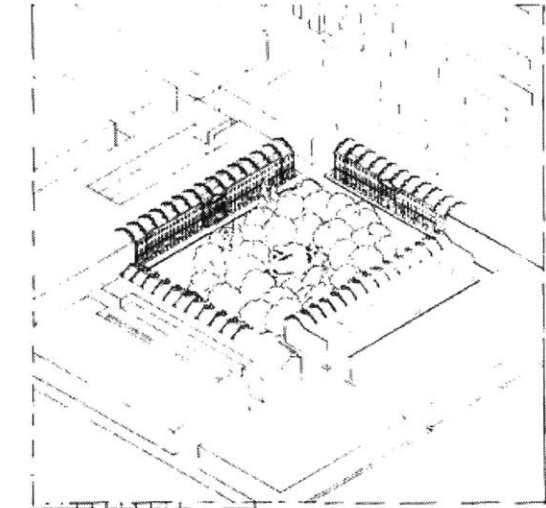


fig. 1.9 Bedford Square, London.



fig. 1.10 View of Bath, England.



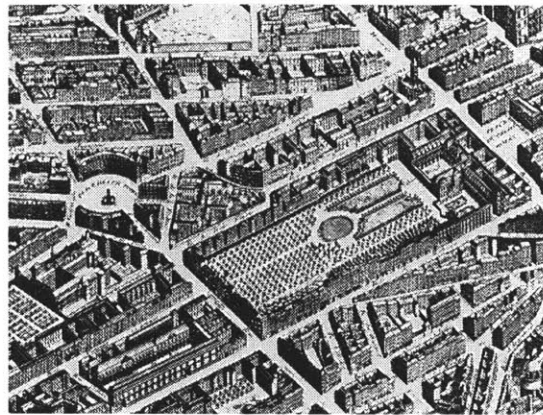


fig. 1.11 Palais Royale, Paris. Detail from Turgot plan, 1739.

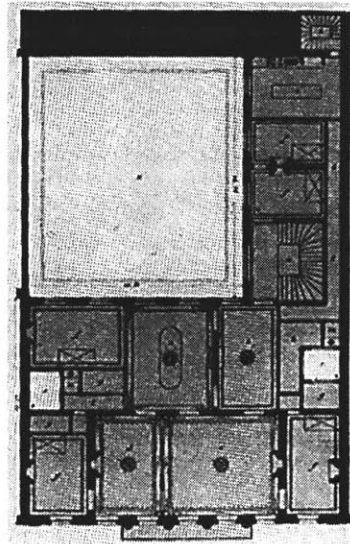


fig. 1.12 Plan, maison à loyer.



fig. 1.14 Rue Castagnoli, Paris.

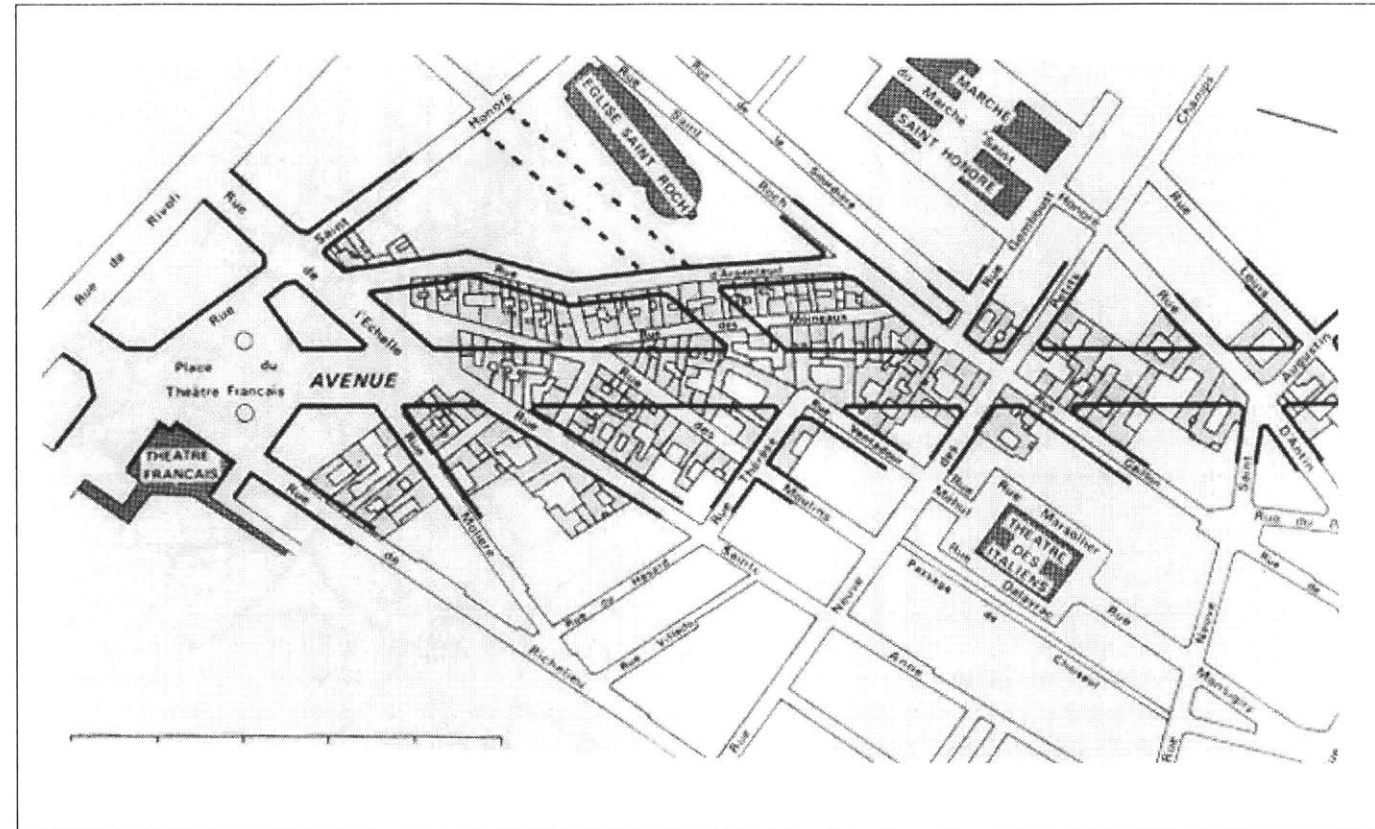


fig. 1.13 Haussman's plan for the Avenue de L'Opéra.

tant. The invention of the grand boulevard lined with elegant apartment buildings made it possible for the upper classes to identify their social position by geographic location. Because the social evolution of Paris did not require that the lower classes be constrained geographically in the mix of the city, the fact that their housing remained just beyond the lining of the grand promenades did not make the least difference to prominent Parisians. But, as in most big cities, that integration is now a thing of the past.

The significance of Haussmann's operations on Paris and his contributions to urban planning theory have been profusely noted elsewhere. The many Haussmann-inspired boulevards in other cities testify to his profound influence. But the significance of the boulevards as they affected individual blocks in Paris is less frequently examined.

Before Haussman, Paris was already a city of irregular blocks. To rationalize the overall plan into a place-to-place system of public streets and squares, he inserted long, straight, and wide boulevards that ruthlessly cut through existing fabric. Blocks, however, remained as irregular and irrational, as before. The preference for the ideal figure of the public space produced blocks, both new and repaired, whose shapes were each unique and whose lot divisions were accordingly problematic (fig. 1.15). It remained for the building plan to cleverly reconcile the difference between maintaining the ideal condition of the street wall and the highly irregular shaped blocks

that stood in relation to it (fig 1.16). The results, were buildings whose perimeter described the street, but that left the private interior of the blocks a random design. Thus, building plan could be nudged toward rationalization. Alternately, the interior of the block might achieve some degree of formal rationalization, requiring the building plan itself to make up the difference between two conformational systems (fig 1.17). The remarkable eloquence of such designs has been covered elsewhere. The immediate purpose here is to emphasize the relationship of the block, in this case an irregular one, to both the layout of the apartment building and the structure the urban plan.

1. John Reps, *The Making of Urban America*, p. 1.
2. Le Corbusier, *Concerning Town Planning*, p.71
3. Gunther Feuerstein, *Vienna Present and Past*, p. 41.
4. Stefan Muthesius, *The English Terraced House*, p.17.
5. Larry Ford, *Cities and Buildings*, p. 132.
6. Muthesius, p.
7. Summerson, *Architecture in Britain*, pp. 391-392.
8. Anthony Vidler, "Housing the Middle Classes," *Oppositions* 8, p. 33.
9. Hélène Lipstadt, "Housing the Bourgeoisie," *Oppositions* 8, p. 36.
10. Lipstadt, p. 44.



fig. 1.15 Lot division of irregularly shaped block, Paris.

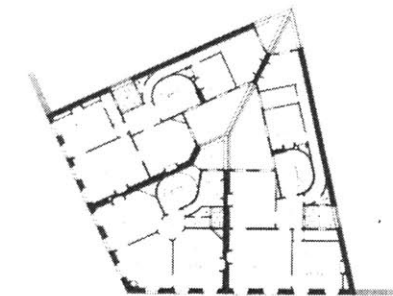


fig. 1.16 Upper floor plan, maison à loyer.

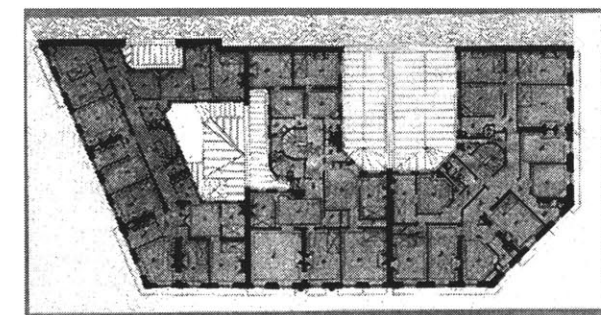
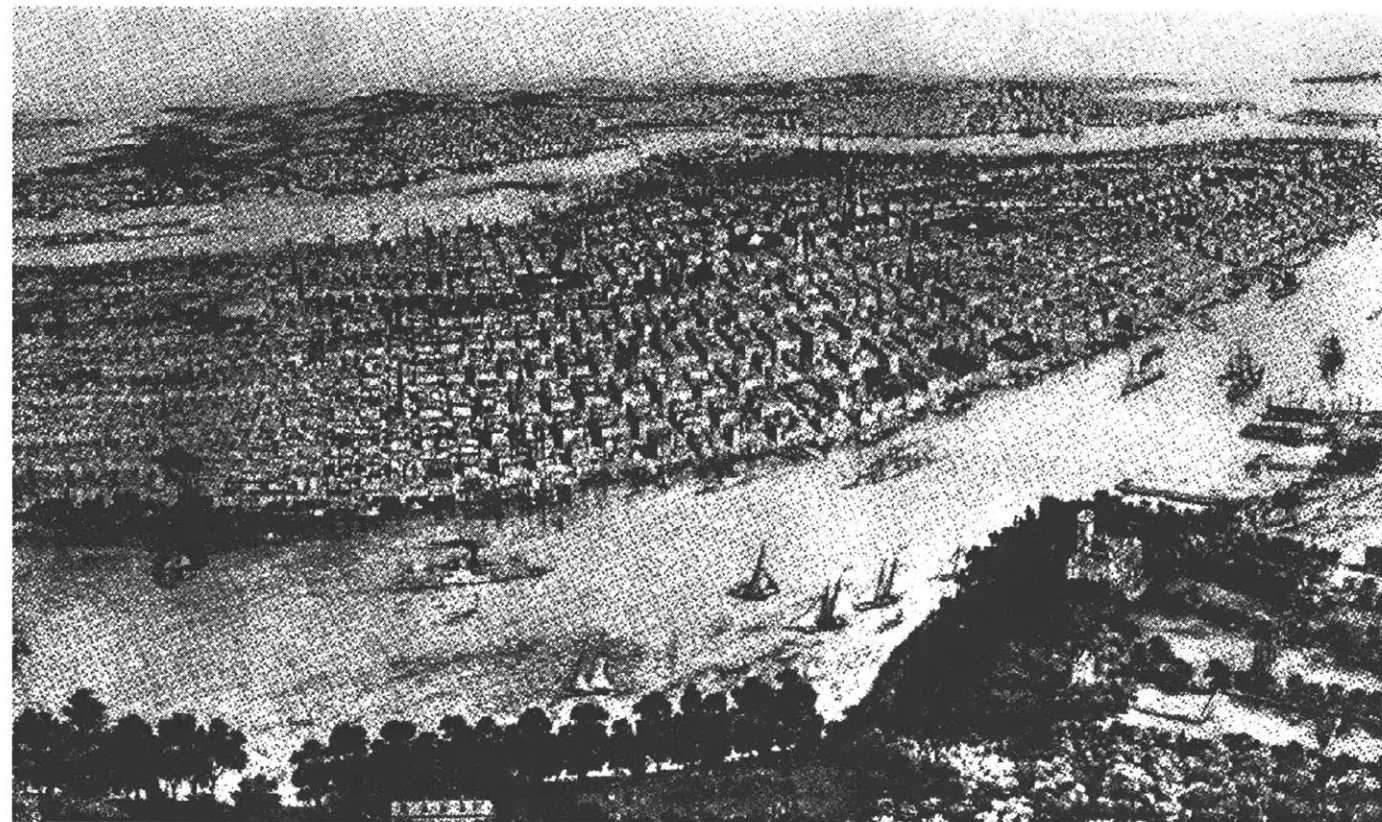


fig. 1.17 Building plan, Paris apartment house.

### *Three American Cities*



The American cities chosen for examination in this study contain residential buildings that share morphological similarities inspired by English terraced housing of the eighteenth and nineteenth centuries and Parisian apartment houses of the second half of nineteenth century. American interpretations of both the English and French models have significantly shaped residential districts of many American urban centers. Philadelphia, Boston and New York City contain abundant examples of English-inspired row house blocks. Of the three cities, New York contains the most prominent examples of American apartment buildings. Though the pedigree of the French model is less recognizable in its American version, derivatives of the English type are clearly evident in all three cities. Local urban configurations, however, generated variations of the type that made each city distinct. A cursory glance at street views of Philadelphia, Boston and New York reveals marked differences among them. Though they are vastly different environments, of the three only New York remains exceptional in every way. No study of American housing could be complete without it. By virtue of its location, confined boundaries, cultural and economic activity, and importance historically as a place of immigration, almost everything there is intensified. Boston and Philadelphia are less densely populated than New York City and are more typical American urban centers. Both, however, are unique urban plans, and for comparative purposes are instructive examples.

The ubiquitous rectangular form of the American block to a large degree controls and sets apart the American versions of both the terraced house and the apartment building from its European parents. The American urban grid, as uniform as it may appear in plan, has produced an enormous variety of housing. Both the standard English terrace house type and the Parisian apartment house, transplanted to the American urban landscape and composed, except in very few cases, of rectangular blocks and straight streets, reveal a flexibility that make them appropriate models for exploitation by contemporary architects and planners.

#### *Philadelphia*

Based typologically on the English terraced house, a preponderance of residential blocks in both Philadelphia and Boston are composed of party-wall row houses. All of Philadelphia and selected areas of Boston are exceptional examples of plat planning, in which the generating concept for neighborhood development was inspired by London estate plans, in particular by the residential square and its surrounding street structure. The planning and evolution of each city, however, is unique.

At a time when the English monarchical blessing was still crucial to settlement and support of towns in America, so

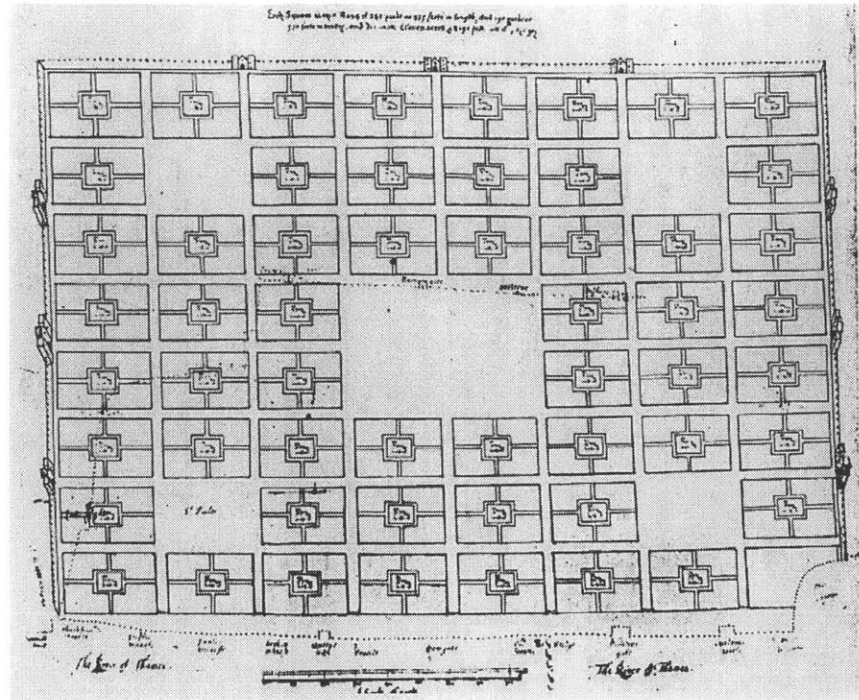


fig. 1.18 Reconstruction plan for London by Richard Newcourt, 1666.

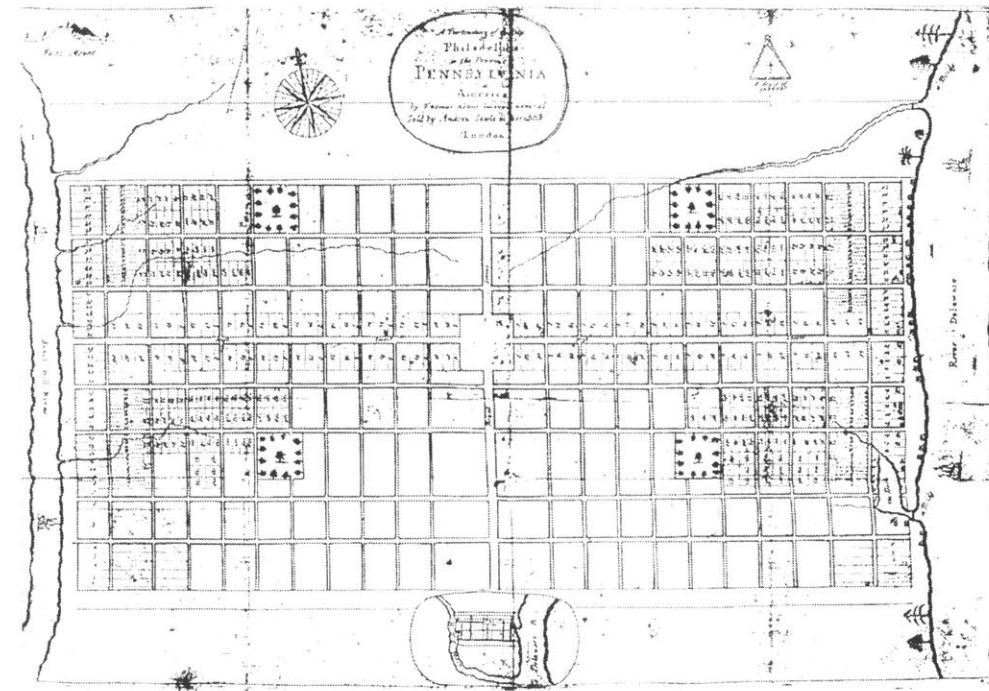


fig. 1.19 Plan of Philadelphia adopted in 1682.

the story goes, the King of England handed the founder of Philadelphia, William Penn, proprietorship of a yet to be located town. For this the monarchy received in exchange the erasure of debt the crown owed to Penn's father.

Though many of the first American settlements were small villages planned around a central green, the earliest plans of Philadelphia reveal a specific intent for expansion and growth. Penn's original plan for the city showed a continuous grid of large, squarish, and undivided blocks each with a house at the center. The division of land into big blocks each owned by a single family is a particularly agrarian notion of urban life, but according to John Repts, the unexecuted plans for the reconstruction of London proposed after the fire of 1666 (fig. 1.18) were the basis for the plan of Philadelphia.<sup>1</sup> Though the single house surrounded by agrarian fields concept was short-lived, the plan that was later approved reveals most of the elements of Penn's original plat (1.19). Pivotal to the birth and urban evolution of Philadelphia is the degree to which a preconceived planar notion was established and carried out.

Philadelphia, like many American cities to follow, was originally laid out in a uniform grid with two main perpendicular streets that crossed at the geographical center of the city, where the principal public buildings were to be located. The resulting quadrants of the bisected grid each had, at its center, an open, green square, similar in spirit to the residential squares of London. Any typological resemblance to contemporary

Philadelphia, however, begins and ends with local compositional issues related to a public, open space at the center of each neighborhood. Whereas the gradual, estate-by-estate growth of London still in evidence distinguishes its urban development and defines its districts, making London a city of various pieces, it is the unitary, continuous grid of Philadelphia, divided into quadrants, that individuates its plan. The contemporary plan of Philadelphia is due as much to its initial growth and pattern of land subdivision as to Penn's original proposal.

Although the American version of the residential square is not typologically different from its English counterpart, it less frequently is a repetitious composition of individual house facades that together form a continuous, wallpaper-like lining of the public space. In fact, though repetitive housing blocks appeared early in American urban residential development, the residential square appears only occasionally in the American landscape: the four original squares of Philadelphia, Washington Square (1.20) and Gramercy Park in New York, Louisburg Square, Pemberton Square (fig 1.21, no longer extant), the Tontine Crescent (fig 1.22, no longer extant), and Union Park in Boston, and the many district squares in Savannah are among the notable American examples. Rows of repetitive, adjoining houses are more commonly found on typical straight streets, segments of the undifferentiated grid for which American planning is so well known.

Penn's plat plan, full of similarly sized and proportioned blocks, was conceived as a grid of oversized urban homesteads (ranging in area from approximately 5 to 8 acres), but the plan that was drawn, surveyed, and adopted in 1682, showed large blocks to be subdivided such that parcels could be individually sold (fig 1.20). Though the lots varied in area, they were typically long and rectangular, with the short side located at the street front. The large size and the near equal-sidedness of the original blocks in Philadelphia set it apart from other American cities and are what makes its later residential development particularly interesting.

Though individual lots were deep, the first residences were conventionally located at the front lot line, forming, as empty lots were built on, continuous street walls in a traditional manner (1.23). As land in the city center became more valuable, however, the long lots were often subdivided and the back alleys, originally intended as accessory streets serving rear entrances, became secondary public streets, thus in effect doubling the unit density and building coverage of the block. Further lot subdivision resulted in increased block density: where smaller houses could be squeezed in, they often were, some having only one room per floor on each of three floors, (hence the name Trinity House). What came to be known and legitimized as an identifiable residential type was initially only the result of an effort to squeeze more housing out of big and deep blocks (1.24).

While the large street grid of the original blocks controls the overall organization of the city, the secondary system of minor streets exists independently of it. These small streets, though public, are fundamentally local, useful only to pedestrians and the residents of the block. The resulting overlay of systems is a direct product of the original plan, in which the frequency and size of the street grid created blocks of a dimension that demanded subsequent subdivision, to accommodate extended street frontage. Had another house type emerged, one more suitable for deep blocks (pre-World War II Berlin apartment buildings, for example), the secondary block division would not have been necessary. But the party-wall row house can effectively be only so deep without having to undergo typologic transformation in order to make it livable. The relationship between the two, house type and block type, is what determined the evolution of the secondary street order.

Unique to Philadelphia is the degree of importance the system of secondary streets has gained. The variations of primary block subdivision, have produced over the years a discontinuity in which small fields of urban fabric are understood as circumscribed neighborhoods by virtue of their continuity relative not to the primary grid, which is ubiquitous, but to the secondary divisions, which are finite. Each building belongs to a neighborhood identified by local street subdivisions and architectural order. By the same token, every block is also an integrated segment of the city, defined by the continuous, large-

scale order of the original estates. Where the uniformity of the primary street grid provides continuity, the secondary system, because it is discontinuous and fragmented, breaks the large urban order down into smaller neighborhoods. It is a highly flexible system, allowing for great variety within a highly ordered urban grid, and in one sense has created a second city which lives inside the first one (fig.1.25).

What once were the important, elegant streets of the Philadelphia grid, lined with single-family homes, are now mostly commercial, and lined with apartment buildings or houses that have been converted into apartments. The narrow interior streets, where traffic passes slowly and activity is diminished, are home still to many large, single-family houses, and they are some of the most elegant, coveted streets in the city. This inversion is made possible by the flexibility of the secondary street system, which responds to a set of minor conditions, ordered by the grid of extra-large, squarish blocks that preceded it.

North of Center City, much of Philadelphia was built by individual developers; typically of many developer-financed housing schemes, a single house plan was repeated, filling the block as necessary. The repetition of a single facade formed an uninterrupted and continuous street wall like many London streets. Unlike the unified rows in London, however, which frequently are bracketed by exceptional corner conditions that make the entire set reminiscent of a large aristocratic manse, here exceptional detail is rarely found on buildings at the ends of the block. The row house block of America, though often repetitive and composed of highly formal individual building plans, is for the most part a less aristocratic urban affair. Still, the urban intention of their designers (like their English predecessors) is clear: public spaces of the city are of primary importance; private habitation, though no less designed, is nonetheless secondary to urban order.

### Boston

A comparison between Boston and Philadelphia is revealing. Despite of their common heritage, profusion of a shared housing type, and proximity in age, the two are in style and character entirely different cities. Although strategic street- and block-making rules are similar, the distinguishing characteristics of the urban plan in each city markedly change the character of the streets. Additionally, local variations in row house style affect the relationship of the building to the street.

The seventeenth-century settlement of Boston, located on a peninsula between the Charles River and Boston Harbor, grew as organically as any medieval European city. Early urban development remained without predetermination until the middle of the nineteenth century, when drastic and willful acts added to the peninsula many acres of land that took the form of highly planned neighborhoods. Often referred to as the “most

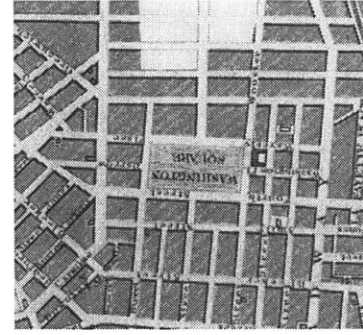


fig. 1.20 Washington Square, New York City, 1840.

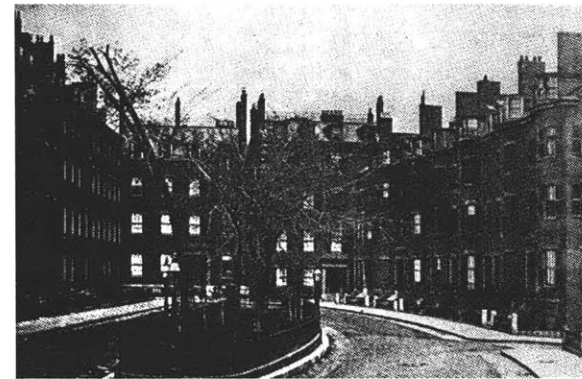


fig. 1.21 Pemberton Square, Boston.

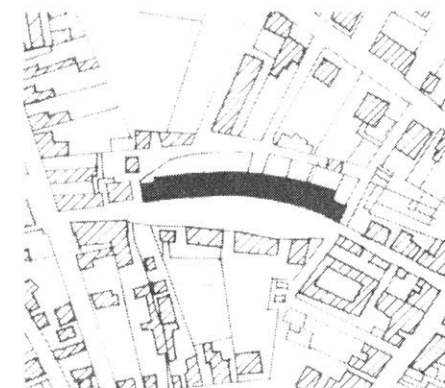


fig. 1.22 The Tontine Crescent, Boston

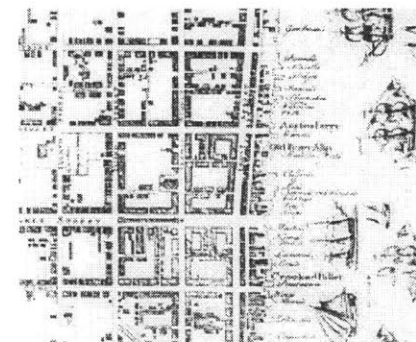


fig. 1.23 Detail of Philadelphia, 1762

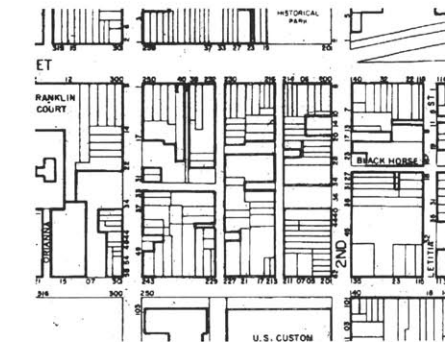


fig. 1.24 Detail of Philadelphia, 1995.

European of American cities” for its irrational plan and picturesque quality, Boston is unique among American urban centers. Lacking the coherence either of a traditional European city composed of irregular blocks and highly defined public spaces or that of a controlling, unified grid, instead it is a city composed of highly identifiable separate neighborhoods each of which is a complete district in itself (fig 1.26). The two largest areas, the South End and the Back Bay, have blocks that exhibit qualities similar to those in both Philadelphia and New York.

Nineteenth-century housing in Boston consisted predominantly of row houses in typical party-wall conditions. Though some of the blocks were financed by developers and erected simultaneously, more often than not individual builders obeyed rules of traditional block and street conformity similar to those of their English predecessors: often controlled by uniform setbacks, front building walls aligned with and abutted one another, protrusions from the front facade were similar from house to house, and building heights remained constant within the block, if not also within a wider district.

In all, there existed a tacit if not explicit, idea about conformity and the importance of collective contributions to the making of public space: all these rules applied not to the back alley side of residential blocks, but to the public street. Though conformity was often generated by a need for social acceptance rather than explicit sense of purposeful civic design, all the same, social conformity engendered streets in which no individual asserted his presence more aggressively than another. Similar to the English tradition, the individual is supportive of the whole, and the unity of the whole aggrandizes the individual. Boston is replete with examples of English inspired row houses that exhibit the traditions of building conformity. In deference to the public streets and squares, individual houses are insignificant. Many such examples in the Back Bay, the South End, and on Beacon Hill are typical of the kind. Like the streets and squares of London, the blocks of row houses reveal varying degrees of repetition and architectural cohesion, but always the bond between the public and the private worlds is symbiotically beneficial.

The reclamation of South End waterfront in the mid-nineteenth century,<sup>2</sup> around what used to be the neck of land connecting Boston proper to the mainland, was one of the first large-scale extension and planning efforts in Boston. Predictably, the area was laid out in a grid of regular streets and blocks, making adjustments for existing circumstance near the shore line (fig 1.27). Though some houses in the South End were individually built on single lots, many entire blocks were speculatively developed in a single stroke by builders (1.28). Those streets, still extant, are outstanding examples of repetitive, uniform housing controlled by traditional building regulations. Variations from street to street exhibit peculiarities of the row house theme unique to the city.

Notably, the “Boston Bump,” the city’s interpretation

of the traditional bay window carried to an extreme, at once engages the public street by literally pushing into it, mellifluously unifies the block, allows for singular identity of each building within the overall structure, and on the interior yields a particular interior room type. Exceptionally high front stoops on several South End streets produce identifiable rhythm within the block, and set the principal entry floor almost a full story up from street level. Compared to Philadelphia buildings, which are commonly entered from or near sidewalk level, the effect of the tall stair and its various appurtenances (railings and guards) is striking. Sociologists have amply expounded on the cultural importance of front stoops, however, it is sufficient here to note the formal integration between the public street and the private building interior. Whereas in Philadelphia the division between public and private produced by the often uncompromised building wall is absolute, in Boston the intermediate steps (both literal and figural) blur and midulate the transition from inside to outside.

Exceptional in the South End are a series of residential squares, the first of which were laid out by the city in 1850 to stimulate neighborhood growth.<sup>3</sup> Chester Square, Worcester Square, and Union Park (fig 1.29), whether developed by individual lot owners or by developers, all conform to the same urban principles; they are highly defined public spaces (like the English squares), typified by a repetitive and uniform building wall composed of individual, abutting row houses, which are consistent in detailing and materials. The rear, service alleys are accordingly irregular, and allowed to vary in ways that the public side is not.

Among the more successful and remarkable planning events in Boston's early history, was the filling of the Back Bay (fig 1.30). Not only did it increase the land area of Boston by close to one-third, but it put an end to the organic growth of the seventeenth- and eighteenth-century peninsula. A remarkable engineering achievement<sup>4</sup> though it was, the urban concept for the Back Bay was simple: a regular grid of rectangular blocks, articulated by one exceptional avenue 220 feet in width. Each block was divided by an alley that ran down its center lengthwise, separating lots on either side of the block (fig 1.31). Lots were roughly equivalent in width, a planning device that, in spite of a stylistic variety from house to house, creates a rhythm throughout the Back Bay that distinguishes it from surrounding areas. Intended as an upscale neighborhood for wealthy Bostonians, its development was carefully restricted via institutionalized zoning codes from its inception. The character of the street was described through the exploitation of quantifiable and descriptive covenant in the interest of civic order. Requirements stipulated a 20–22-foot setback from the front lot line, and maximum width, depth, and angle of projections, and a maximum plan dimension for bay windows (fig 1.32). The original 25- and 26-foot repetitive lot width requirement was an important regulatory device — unity of the street wall was achieved not only by controlling setbacks and limit-

ing facade projections, but by an equally effective means: maximum building width. Building codes enforced after the fire of 1872 required further conformity: mansard roofs could not exceed more than a story; exterior trim 45 feet above ground level had to be made of, or covered with, noncombustible material; above the second story, bay windows could not be constructed of wood; masonry corbels had to separate cornices between houses; and party walls had to extend a certain height above the roof line.<sup>5</sup>

Though written strictly as building codes to prevent the spread of fire, the effect of these regulations was notably more than public safety. The building codes in the Back Bay, as well as in many other villages, towns, and cities, did prevent the rapid spread of fire, but also protected the quality of the public space.

Early photographs of the Bay Back showing the first single-family houses standing sadly but optimistically alone (fig 1.33) reveal a remarkable commitment on the part of the initial investors to the completed formal idea. The hopeful faith expressed in the restraint of each building engenders now nothing but awe. Suppression of individual expression in favor of the whole is not a trait of either modern culture or urbanism.

Whereas Philadelphia is a city unified and understood by a single continuous system, it would be difficult to imagine the urban totality without its various neighborhoods identified by secondary and tertiary circumstance. As one moves from neighborhood to neighborhood, the boundaries do not seem all that clear. Rather, they are subtle and seamless. Boston, on the other hand, as an urban totality, is identified exclusively by its distinct neighborhoods. Each can be described by physical boundaries, change in the texture of urban fabric, block layout, and architectural style. The success of Boston is based on the individual integrity of its many distinct neighborhoods, rather than on any unified urban identity.

### New York City

The historical relevance of New York City housing in both formal and social terms is matched by no other American urban center. Though neither as densely populated nor as diverse in housing type, other American cities, however, do share aspects of its multifaceted housing history. New York has always been an active point of entry for immigrant populations, and so a city of intensified housing problems, especially for the working and poor classes. In response and out of need to provide adequate shelter for its resident populations, the city has emerged as a kind of laboratory of housing experimentation. As a testing ground, New York City contains examples of both the successes and failures common to American urban housing. Its housing experiments, produced out of need and perhaps at times in desperation, were often later accepted and employed elsewhere. Both the successes and the failures were

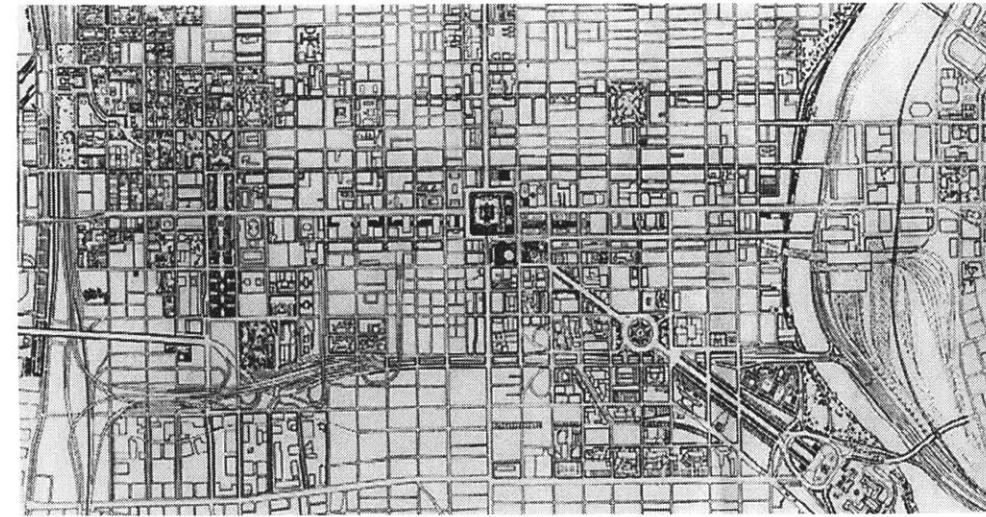


fig. 1.29 Plan of Philadelphia, 1972.



fig. 1.26 Plan of Boston, c. 1990.

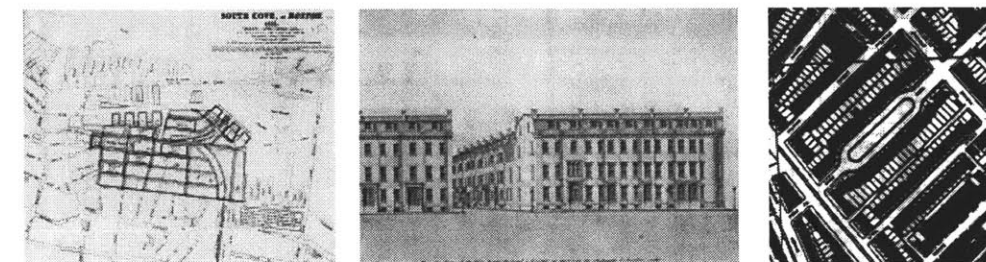


fig. 1.27 South Cove, Boston, 1835    fig. 1.28 South End blocks, nineteenth cent.    fig. 1.29 Union Park.

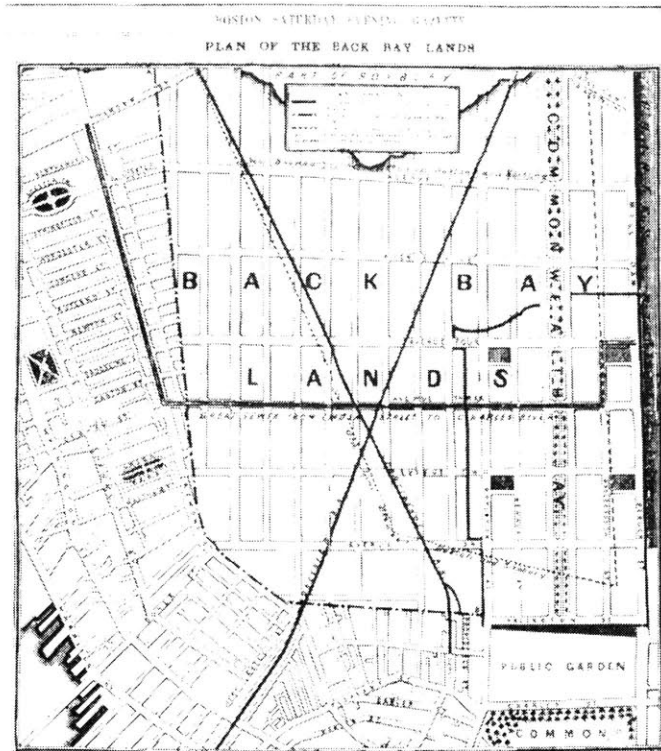


fig. 1.30 Plan for the Back Bay lands.

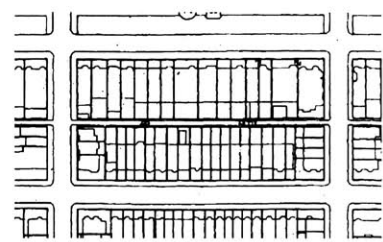


fig. 1.31 Typical back Bay Block.

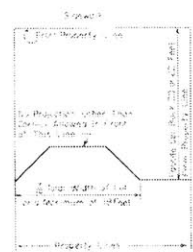


fig. 1.32 Back Bay zoning.

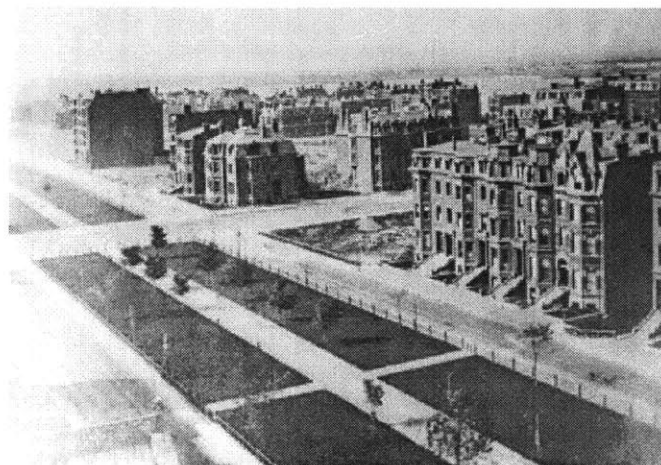


fig. 1.32 Commonwealth Avenue the Back Bay, mid-1870s.

influential.

Though we now think of Manhattan as nothing but rectangular block upon rectangular block, the earliest colonial settlement at the tip of Manhattan Island was highly irregular, composed of streets and blocks whose pattern was determined predominantly by natural features and existing paths (fig. 1.34). Small gridiron expansions extended the settlement piecemeal, but the 1811 northern expansion of Manhattan willfully reorganized the urban order of the city, changing it from a pattern of shifting geometries into a simple and relentless orthogonal grid of rectangular blocks measuring roughly 200 by 800 feet (fig. 1.35). Each block was divided into lots 25 feet wide by 100 feet deep, a pattern for development familiar to the Dutch immigrants, the first group to establish a settlement on the island. The plan called for the short side of the blocks to face the north-south avenues, which, based on their length, were accorded greater significance and made wider. The importance of these few but crucial planning decisions on both the development of the city in its entirety, and the typological evolution of its residential blocks is notable. From its inception to the present, housing development on the island, in one way or another, grappled with the restrictions imposed by the 1811 grid.

The long, narrow rectangular blocks, and the importance assigned to the north-south avenues distinguish the Manhattan grid from the gridirons of other cities. The elevated importance of the avenues, which are typically one hundred feet wide, compared to the cross-town streets, which are sixty, precipitated a lot layout that easily accommodated formal acknowledgement of the aggrandized avenues: lots at the east and west ends of the block, though no bigger than the ones owning street addresses, were rotated so that the narrow building front could address the avenue (fig. 1.36). This configuration of lots also solved a problem common to row house block corners: if the street row is continued to the end of the block, the corner building has two exposed faces, only one of which is typologically defined. Where in most circumstances the opportunity to exploit the odd condition would be welcomed, row houses, especially on long narrow lots, are not easily reconfigured to fit a corner condition. Often, attempts at a clear architectural resolution are abandoned, leaving the block end looking like it has been abruptly sliced off, and from the street the private interior of the block is visible. On smaller streets of lesser importance the raw end may be acceptable, but on grand avenues, it is destructive of the latter's intended urban significance. Boston, Philadelphia, and Brooklyn, are full of abruptly finished blocks, but in Manhattan, where the lots on the end of the block are turned to address the avenue, the problem is adeptly avoided. Here the last house in the row falls well before the end of the block, is typologically consistent with its neighbors, and is usually separated from the avenue buildings by a small alley sometimes allowing for access to the rear of buildings facing the avenue.

Although initially the avenue lots were equal in dimen-

sion and area to street lots, the clear distinction between the two, particularly in potential commercial value, precipitated the single-handed development of multiple lots along the avenues for both residential and nonresidential uses. In a consistent extension of urban order, lots along the avenues were frequently merged and eventually were allowed increased bulk. Formal development of the typical New York block, with big buildings at the ends and smaller buildings lining the narrower streets, is a direct result of the original lot layout with respect to the urban plan.

In Boston's Back Bay, where similar-shaped row house blocks were planned with the long side facing the important streets, the side streets remain back doors to the interior of the block, as few adjustments at corner lots were made. Though often the end lots are wider than those at the interior and buildings on the corners are often articulate in their attempt to reconcile the generic, midblock rowhouse type to a corner position, the urban preference for the main street has not appreciably changed the way the blocks are understood. In comparison with New York's four-sided blocks, Back Bay blocks are two-sided.

In Boston's South End, where the four-sided block reigns supreme, the short ends are still predominantly row houses, the end lots having dimensions similar to those on the side streets (fig. 1.37). Consequently, in spite of a shift in orientation, building type and bulk remain unchanged. Even though the wide, main thoroughfares are addressed, their formal qualities have had little influence over the typological character of adjacent buildings. Because buildings and lot sizes do not typically vary within a block, neighborhoods tend to be formally homogeneous in spite of a clear street hierarchy.

But in New York, there are many examples of blocks in which hierarchy of streets directly informs adjacent building type. As residential building typology changes within a single block, there is at least the potential for a wider mix of economic classes within it. Blocks composed of similar lot and building types tend to be more homogeneous by class compared to neighborhood in which building type is mixed: Beacon Hill in Boston is a good example. Not exceptional to Manhattan are blocks like the one in which the San Remo sits (1.38). On that block, the end facing Columbus Avenue is faced by six- and seven-story tenement buildings of no distinction, the middle of the block is lined on both sides by very elegant and exclusive four- to five-story row houses, and the end bordering Central Park West and overlooking the park is one of the most exclusive apartment buildings in Manhattan. Though the tenements on Columbus Avenue are not occupied by low-income families (the class mix of the block does not go from the top 1% to the bottom 1% of income levels), neither are their occupants anywhere near the economic class of the people who own apartments in the San Remo. Although it is still an upscale part of the city, the combination of building types does allow for the neighborhood to be somewhat less exclusive.

Though the plan of Manhattan was accepted at the beginning of the nineteenth century, real growth occurred incrementally. Limited by the ubiquitous 25 x 100-foot lot configuration, the first small buildings and single-family houses generally obeyed residential building tradition: the front facade was built out to align with adjacent buildings in order to form a continuous street wall, the lot was fully covered from side to side and to about 50 or 60 feet back, and the height of the building was restricted by conventional construction methods as well as building codes aimed at safety and block uniformity (fig. 1.39, no. 1). But what seemed to satisfy requirements for housing in other cities fell woefully short of meeting demand in New York, and problems related specifically to the typological fit between building plan and block quickly grew acute. Unlike other cities, in New York, pressure to increase building area on lots already containing single-family homes, intensified housing problems and the search for solutions.

A typical 50- or 60-foot building depth left enough open space at the rear of the lot for gardens and other outdoor activities. In this configuration, with a lot coverage at about 55%, penetration of natural light and air was often limited to rooms in the front and back of the building: the stair and small rooms of lesser importance were often located in the center, where direct access to light and air, was not an essential requirement. For an extended family living on three or four floors, the plan served well. Each room was accessible from a public hallway (which provided adequate privacy), and each room had one exterior wall with windows, looking onto either the street or the garden (fig., 1.40).

Later, as single-family houses were converted into multiple-family residences and speculative tenement buildings emerged as the predominant housing type by the middle of the nineteenth century, the traditional limits that governed construction of residential buildings on 25-foot-wide lots began to change. Although practical, structural constraints, as well as the traditional practice of building lot by lot, still limited the width of most buildings to 25 feet, no such requirements, either practical or legal, were placed on building depth. As a result, tenement buildings grew to be long and narrow, covering up to 90 percent or more of a 2,500-square-foot lot (fig. 1.39, no. 6).<sup>6</sup>

The transformation of the single-family row house into an overcrowded, scarcely inhabitable tenement is chronicled in detail by Richard Plunz, but cursory review of the salient stages of the metamorphosis, especially as they relate to later development in building plan and lot configuration, are worth noting.

A typical tenement building was planned to include two apartments per floor, each stretching from the street wall to the rear of the building. In that sense, it was similar to most single-family row houses, and in similar fashion only the two end rooms could be directly ventilated. Of those, only the one facing south received direct sun light (if the adjacent street or



fig. 1.34 New York City, c. 1767.

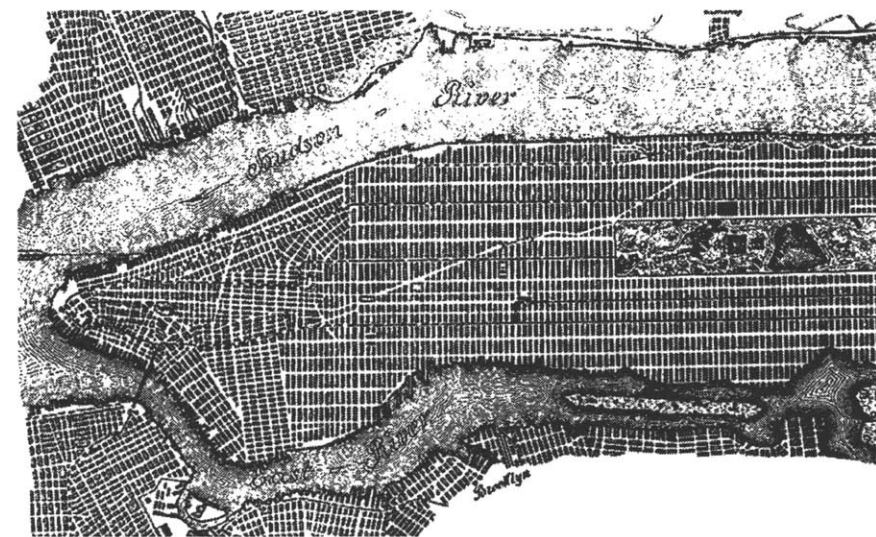


fig. 1.35 New York City showing grid of 1811.

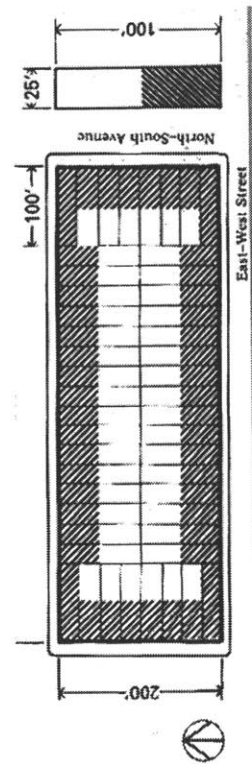


fig. 1.36 Typical nineteenth cent. block in New York City.

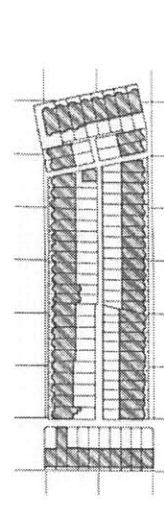


fig. 1.37 Typical block in the South End, Boston.

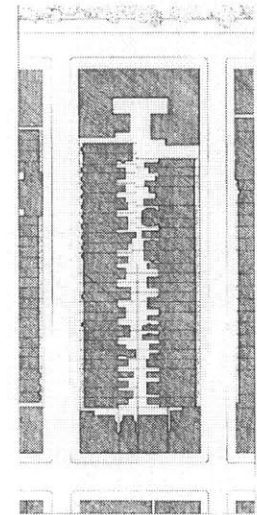


fig. 1.38 Typical twentieth cent. block in New York City.

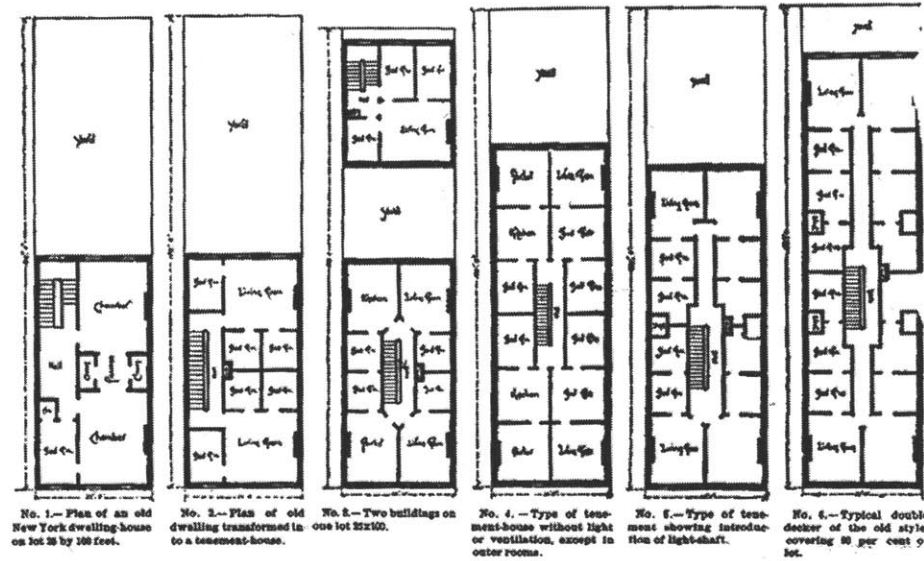


fig. 1.39 Evolution of lot coverage and tenement building for 25 by 100-foot lot.

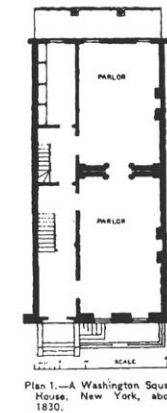


fig. 1.40 Single-family row house.

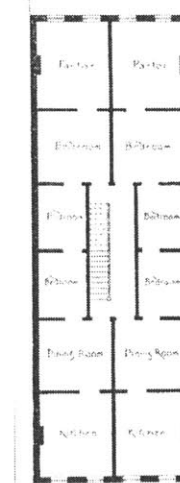


fig. 1.41 Tenement plan without windows at interior rooms.



fig. 1.42 Overbuilt block.

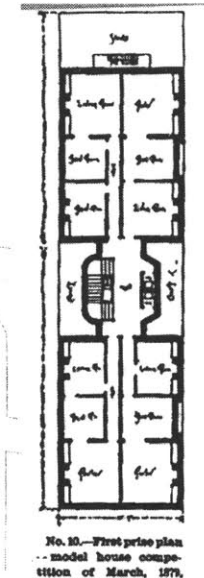


fig. 1.43 "Dumbbell" tenement plan.

alley was wide enough to permit it). As buildings grew deeper, in efforts by developers to squeeze in more families and raise revenue, the area in the middle of the building grew even darker and more dank. Rooms caught in the middle, often also serving as corridor, had neither direct access to light and air nor any privacy (1.41).

Increased population, together with increased population density, aggravated already inadequate tenement living conditions for the poor and working-class. To squeeze even more apartments into one building, floor-through apartments were often divided in two, back and front. Each of these units had access to light from only one direction. By 1865, further increases in both population and building coverage resulted in unprecedented overcrowding. Though the buildings on some of the most densely built-up blocks were never intended for multiple-family use, over time they came to be occupied as such. Typical of many poor sections of the city, lots had been filled out, leaving little or no open space in the rear, thus minimizing the supply of outside light and air (1.42). Immigrant families often lived together in two-room apartments, and flop houses sold space on the floor on a nightly basis. Not only were grossly overcrowded conditions hospitable to disease, but the dilapidated state of the structures made them prone to collapse and fire.

When publicly exposed, exploitation and overcrowding spurred government agencies to begin what was to become

an active, ongoing process of legislative control of construction in New York. Although various building and zoning laws linked to sanitation and health had existed as early as 1624,<sup>7</sup> not until 1866 was significant regulation aimed at bettering housing conditions out of a sense of social responsibility (rather than for the protection of upper-class landowners who feared fires burning out of control, might spread to their homes as well). That year, the state passed comprehensive legislation that set standards for building construction. A year later, the 1867 Tenement Act placed further limits on housing design and assigned the first legal definition to the term "tenement." This first of a long succession of reforms required that there be no more than twenty tenants per water closet, prohibited cellar dwellings unless they were at least one foot above grade, and set requirements for fire escapes on combustible buildings. Little changed, however, in terms of living conditions, especially for the poorest and most exploited residents. None of the most egregious problems concerning overbuilding were addressed. At that time, neither lot coverage and total building area nor accessibility to light and air were monitored by law.

The latter conditions were first addressed in the 1879 Tenement Housing Act. This stipulated plainly that all habitable rooms in residential buildings required at least one window, that sanitary facilities were to be provided inside the building, and that natural light was required in all public hallways. In addition, the 1879 Act required that all tenement building

must have a rear yard.<sup>8</sup> In response to the law, numerous variations of traditional tenement house plan types were proposed, most of them based on the ubiquitous 25 by 100-foot lot, or multiples thereof. And most solved the problem of illumination by creating a light well on each side at the center of the building. The dumb bell scheme, so named because of the relative narrowness of the center of the building, emerged as the prevalent tenement building type in all sections of New York (fig 1.43).

Despite small improvements, for the most part poor sanitation, unhealthy conditions, and overcrowding persisted. To a great extent, the further typological evolution of urban housing was driven and legitimized by the search for solutions to these same problems.

Perhaps no single issue continually dominates both formal and social aspects of housing design than the provision of light and air to tenement and apartment buildings. From the middle of the nineteenth century until well into the twentieth, regulatory and formal design responses were initiated in order to satisfy the problems of ventilation and access to natural light. In many cases, a plan solution that assured access of natural light and air to both streets and individual housing units was enough to justify a design proposal. These solutions, often predicated on designs of unvarying apartment type, low site coverage, and later, formal disengagement of the building(s) from the surrounding neighborhood, though they may have allevi-

ated the problem of access to light and air tended to create other problems. At the time, however, decreased building coverage and increased open space of any configuration were heralded by their proponents not only as solutions to the problems of ventilation and solar orientation, but as superior urban schemes capable of solving social ills as well as formal ones.

The first such plans appeared in New York in the early 1920s. Predominantly targeted at middle-class families, most of the new "garden apartments" rose in the outer boroughs, where land could be had less expensively than in Manhattan. Between 1921 and 1929, 420,734 new apartments, 106,384 one-family houses, and 111,662 two-family houses were constructed throughout the five boroughs of New York, representing the largest-ever production of housing units in the city, unmatched even by the 1960s boom.<sup>9</sup> Made accessible by the newly completed subway system, garden apartments grew more popular as immigrant families achieved middle-class status and tenement life loomed as an unattractive alternative.

The actual form of garden apartments varied, but characteristic of each was reduced building footprint and an open space in the middle of the block (fig 1.44). The earliest developments were simple, perimeter block designs, with drastically reduced coverage, compared to the typical tenement block. But as the type evolved, the strict form of the perimeter block building was eroded both from the inside and the outside, a result of numerous studies relating cost, coverage, building



height, and at times health. Toward the end of the decade many garden apartment proposals, though still low in coverage, barely resembled the original projects typologically (fig 1.45). Gone were the perimeter blocks. In their place were oddly angular, orthogonally rotated buildings with as much open space outside the building as in the interior of the block.

The development of the garden apartment represents the first step in the evolution of New York City housing toward the eventual dissolution of the street and the block, the necessary formal building parts of all cities.

Parallel to the rise of the garden apartment, developed to alleviate inadequate housing conditions of the lower to middle classes, there evolved an equally important multiple apartment housing type for the wealthy. But the latter were slow to accept apartment life, however luxurious, and whatever the advantages. Often thought of as a particularly New York phenomenon because the type has now been so thoroughly absorbed there, the apartment house is a French invention. In recognition of their predecessors, the apartment buildings that lined elegant Parisian boulevards, the earliest large apartments intended for American middle- and upper-class consumption were called "French flats." But, in spite of the attraction of things European, Americans who could afford it still preferred single-family homes. The same prejudices that affected the acceptance of apartment life in French society infected Americans as well: the fear of destruction of family life and adultery, among them.<sup>10</sup> Giving up, literally, the family facade signified a loss of social distinction.

Nonetheless, as early as the 1880s when elevators were first installed in residential buildings,<sup>11</sup> upper-class families began to give up their single-family residences for the amenities provided in luxury apartment buildings. Not only did electric elevators become commonplace, but steam heat, central refrigeration, electricity, and telephone service to each apartment (conveniences that were still not routinely available in single-family homes). In addition to the basic services, some developers provided luxurious toys like pneumatic mail delivery systems, laundry services, private dairies, barber shops, swimming pools, and baths. The Ansonia, one of the most exclusive apartment buildings in New York at the time of its construction, included all of these and more. "French flats" offered safety, views from the top floors, distance from noise and grime of the street, an assortment of help (door, hall, and elevator men), extravagance in materials and detailing, and, as the French had established, enormous living spaces equal to or greater than those of a single-family house, and all on one floor. Like the Parisian models before them, many of the new apartments included enough bedrooms for large, extended families, separate servants' quarters, and a full array of receiving rooms, salons, and dining rooms required by social custom. By the early 1930s, many of what we now recognize as New York's most luxurious and exclusive residential buildings were lining Central Park West, Broadway, and Park Avenue.

Although later New York apartment plans departed stylistically from French models, the early ones resembled Parisian apartments in both layout and style (1.46). Discrete rooms were carefully composed and connected by corridors allowing each room to be used independently. In the French models both public and private stairs were often notable for their specialized plan shapes. In the American versions, stairs were similarly eventful, even when a straightforward approach would easily have served the purpose. And of course servants' quarters were always off in a service wing close to the kitchen, pantry, and laundry rooms. Though by the time New York was ready for the apartment house elevators were just becoming common, but in almost all other ways "French flats" really were slightly straightened-out versions of the Parisian model.

Though architecturally not of particular interest, urbanistically most of these bulky turn-of-the-century apartment buildings are without equals. Conceptually similar to late nineteenth-century French apartments, the American version maintained, with exceptions, a continuous exterior that aligned with the block perimeter, leaving the sides facing the interior of the block open and less regular. Facades are generally repetitive, and adorned (some abundantly so); all bear witness to an acknowledged importance of the public street, as do their French predecessors. These are not buildings that insistently defy the logic of the street layout in order to proclaim their importance (1.47). Rather, they are urbanistically conforming, and they solve the problems of access to ventilation not by gyrating building volume within the site but by other means.

What is equally relevant, however, is that at a time when architects who designed housing for the lower classes were obsessed with the reduction of lot coverage and increased nonconformity with the traditional street layout in order to alleviate problems associated with tenement buildings, architects of the most elegant apartment buildings in the city were doing just the opposite. Whereas lot coverage of garden apartments averaged around 50% and aimed to be lower (many were), typical coverage for block-conforming, luxury apartment buildings ranged generally from 70 to 80%. In addition, the ratio of total floor area to lot area in apartment buildings was two and sometimes almost three times as great as that of both garden apartments and standard tenement housing. The discrepancy is notable, for though low-rise, low-coverage, low-density housing was seen as the answer to working-class urban housing problems, high-rise, high-coverage, high bulk was the answer for the wealthiest of New Yorkers.

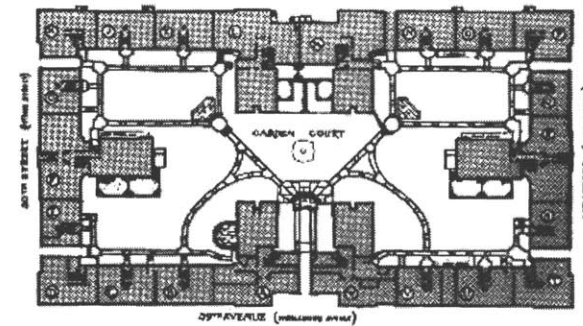


fig. 1.44 Garden apartment defined by urban grid.

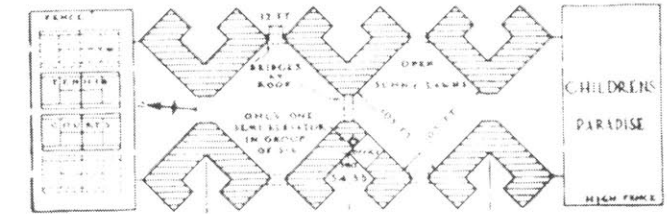


fig. 1.45 Garden apartment plan with rotated 45 degrees from urban grid.

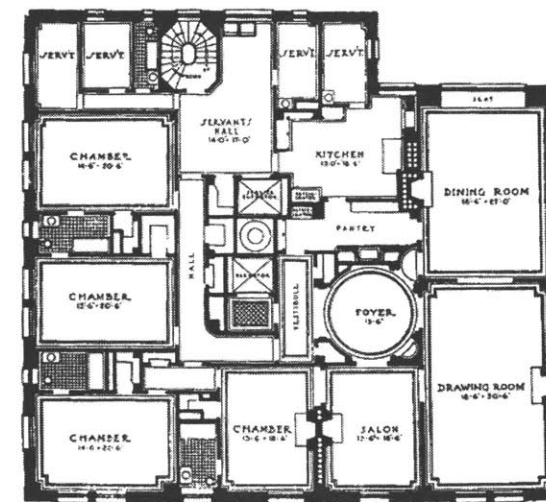


fig. 1.46 Luxury apartment plan, 635 Park Ave., 1912.

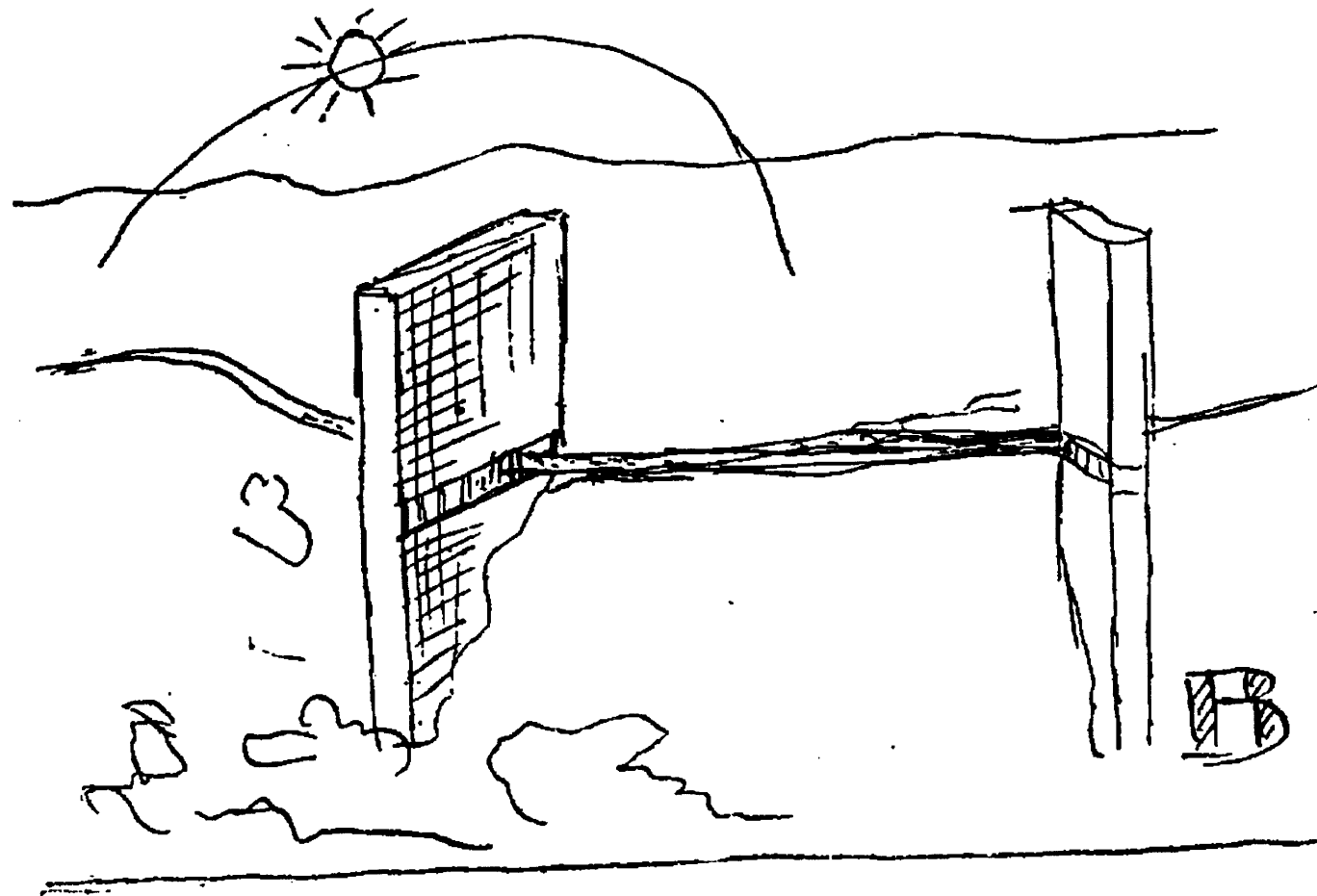


fig. 1.47 The Beresford, New York City, 1929.

1. Melville C. Branch, *Comparative Urban Design*, p.102.
2. Walter Muir Whitehill, *Boston: A Topographical History*, p. 122.
3. Whitehill, p. 127.
4. Whitehill, pg.
5. Bunting Bainbridge, *Houses of Boston's Back Bay*, pp. 250-255.
6. Richard Plunz, *A History of Housing in New York City*, p. 13.
7. Plunz, p. 1.
8. Elizabeth Collins Cromley, *The Development of the New York Apartment, 1860-1905*, p. 53.
9. Plunz, p. 122.
10. Plunz, p. 62.
11. Plunz, p. 69.

## 2. MODERNIST HOUSING THEORY AND URBAN FORM

*Twentieth Century Theory and Practice*



The emergence of modernist urban housing theory after the turn of the twentieth century evolved in response to a complex set of circumstances. Growing populations in most large cities strained the capacity of existing housing and dissatisfaction with living conditions loomed large. At the same time, emergent industrialization provided the means for mass production of new building products. Assembly line produced housing of all kinds provided the answer to economic and social problems: both rich and poor would be housed in new, gleaming buildings, cities would continue to grow and prosper, and industry would march on. Propelled by social ideals and financial incentives, private businesses and public institutions forwarded the construction of new housing both in and outside of city centers until the early 1970s.

Largely as an extension of New Deal economics established to encourage development, in the 1930s the federal government created agencies whose mission it was to finance housing. The National Industrial Recovery Act (1933), the Federal Home Loan Bank Board (1932), the Reconstruction Finance Corporation (1932), the Federal Housing Administration Loan Guaranty Programs (1934), and the National Industrial Recovery Act (1933), each contributed in various ways to finance home building and purchasing. Some of the programs were short-lived and taken over by subsequent corporations. Nevertheless, the collective aim of the federal agencies was to provide development incentives, targeting urban housing for

low-income families, and suburban house building for middle-income families.

The middle-class in search of the American dream moved out of urban areas and suburban development flourished. In city centers the poor got a retooled vision of the future: in place of traditional small blocks, streets of definite shape and form, and neighborhood stores at ground level that at one time serviced the neighborhood, vast, multiple block developments sprouted up everywhere.

While American metropolitan areas were expanding horizontally in the twenties, marked by garden cities like Radburn, New Jersey, and quasi-urban developments such as Sunnyside Gardens (in 1920, of total housing production 82% of the units were single-family houses; by 1925 the rate had dropped to 61%),<sup>1</sup> European visionaries were plotting revolutionary housing and urban reform that soon had effect in America as well. Earlier housing trends of the teens and twenties in New York City, had produced some of the best examples of urban residential architecture for both the rich and the poor. Both its luxury high rises and its early garden apartments were arguably products of a specific place, time, and culture (as were the terraced house developments of England). But the products of modernist dogma, though firmly rooted in a specific era, were particularly unrelated to place: it made little difference whether the new schemes for housing were in Paris (as Le Corbusier proposed), Rome, Peoria, or New York City.



fig 2.1 Plan of lower East side of New York City with many low-income developments.

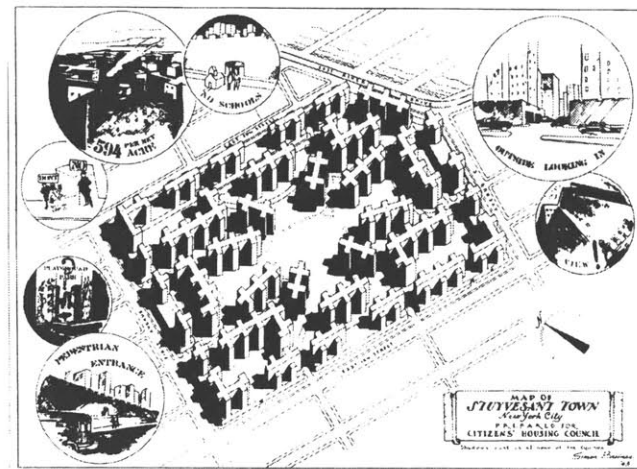


fig 2.2 Stuyvesant Town: poster decrying ills of the project.

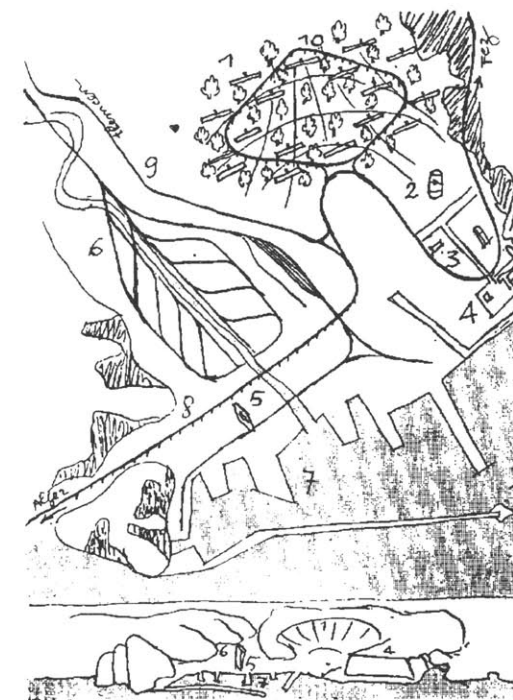


fig 2.3 Le Corbusier sketch of Nemours, 1934. Hailed at CIAM as a pure expression of the Athens Charter, showing separation of functions.

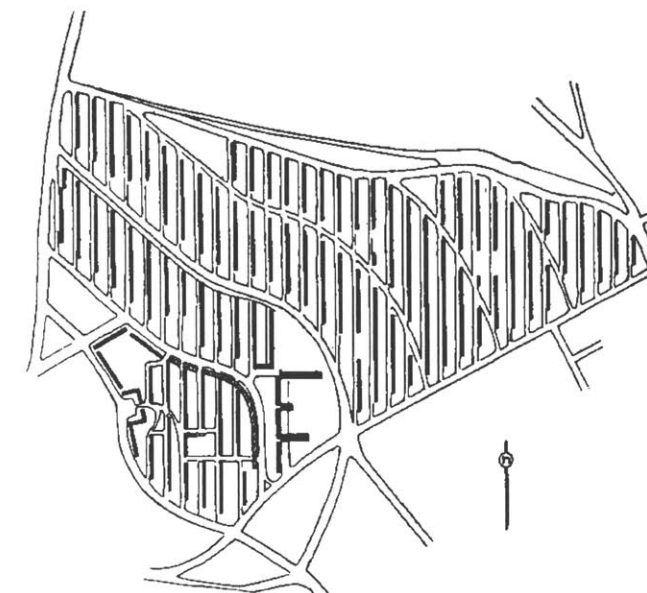


fig. 2.4 Plan of Siedlung published in *The International Style*.

They all grew out of the same stylistic tree and were born of the same urban ideals.

Architects and planners, influenced by a Corbusian urbanism of clean and healthful living, functionalism, the idea of European social housing, and an aesthetic based on rationalism and mechanization, gave form to the future city. It is a simple task to pick out of any city plan the apartment buildings built between 1935 and 1975 — they are unmistakable. The developments do not conform to the existing layout of the city; instead, most of the “towers in the park” are isolated and highly identifiable, objectified figures (fig. 2.1). They are islands in the urban texture. Stuyvesant Town (fig. 2.2), the largest development in Manhattan is emblematic of the type, but others like it exist everywhere.

Until 1933, modern urban academic discourse remained for the most part theoretical. But the focus at CIAM (Congrès Internationaux d’Architecture Moderne) in that year changed from ambitious theory to issues of a more practical nature. Before the conference began Le Corbusier issued a housing questionnaire that stressed housing as the primary urban component. The issues he addressed concerned not the methods by which various functions of the city might be better integrated, but instead the segregation of functions, the proper relation between the house and the place of work, and the relationship of natural environments to the city (fig 2.3). He concluded that “private interest and private property were

the major obstacle to the biological harmony and proper transparency between form and function of the modern city.”<sup>2</sup> The Athens Charter, a much debated and negotiated document issued a year after the Congress incorporated several of Le Corbusier’s ideas concerning the function of the modern city: “the need for the segregation of housing, work, leisure and traffic and the necessity for the suppression of private interest in favor of the larger public good.”<sup>3</sup> The formal description of Le Corbusier’s ideas were represented by his proposal for the Ville Radieuse. But all the participants (some represented by their proposals for the Palace of the Soviets Competition), sought “an internal functional logic within the language of Modernism with little thought to the disposition of the buildings on site or in the city.”<sup>4</sup>

In spite of the many reservations expressed at CIAM, the prevailing sentiments, and certainly the most influential where those associated with the Corbusian vision. Influenced by European urban theorists (Le Corbusier, Gropius, Perret, and Hilberseimer, among others), American urban reformers and architects of the 1930s dedicated their attentions to issues promulgated by the leaders of the modern movement, in which they saw the answers to problems of housing plaguing American cities. Modernism’s success in Europe was promoted in the U.S. by the Americans Phillip Johnson and Henry-Russell Hitchcock in their now-infamous exhibition at the Museum of Modern Art and the accompanying book *The International*

*Style*, published in 1932.

Its impact on architects and planners of the era was to dramatically change the conception of housing as a building type consigned to conformity into one that could “offer so many opportunities for arbitrary choice that it may become architecture.” This reformulation of the idea of housing as capable and worthy of expression, in which the execution of “arbitrary choice” transformed banal blocks into art, coupled with the Corbusian image of apartment towers unbound by the constraints of traditional urban structure, revised the methodological approach to housing design for the next forty years.

Hitchcock and Johnson argued that though “the individual minimal dwellings provide for a function so simple and so little specialized that they are well within the realm of building [i.e. are not architecture],”<sup>5</sup> the arrangement of a collection of buildings composed of minimal units qualified as art. In theory, the elevation of housing construction to “architecture” could only be achieved at a large scale. Since the habitable unit itself was deficient in particularity and idiosyncrasy and required only functional unit plan adjustment, it could never be raised to the level of “architecture.” The German Siedlungen (extensive housing projects generally on the periphery of urban centers), on which their argument is based, included public buildings (e.g. schools, community centers) in addition to housing. According to Hitchcock and Johnson the German projects were exemplary housing developments in light of their

potential for formal expression. “The principle of regularity imposes a general order while the provisions for the exceptional public functions of a complete Siedlung give variety and emphasis. The relation of the repeated units of actual housing to the special units serving the whole community is analogous to the relation in a hotel of the single guest rooms to the public rooms.”<sup>6</sup>

If the description of the relationship of public buildings to private residential fabric sounds familiar, it should: the relationship of housing blocks to public buildings in traditional European cities is often characterized in similar fashion. Apart from style, the Hitchcock-Johnson description of the urban form of modern European communities is an altogether traditional one:

*Theaters, cafes, churches and schools will stand out. Because of their greater scale it is possible to give them a more architectural character than the ordinary surrounding buildings. Emphasized by the idiosyncrasies of their function, they symbolize group activities. Because they break the particular system of regularity of the surrounding housing, they constitute points of climatic interest. The more of such communal functions that can be incorporated in the same general plan, the more interesting and architectural will be the resultant Siedlung.*<sup>7</sup>

But the accompanying drawings, perhaps more influential than the text, belie the traditional urban qualities suggested by their

description (2.4). Furthermore, the European models were exurban developments logically requiring all manner of community functions. Although Hitchcock and Johnson's stylistic prescriptions were generally understood by an American audience, the idea of the *Siedlung* as both a social and formal model, especially when placed in an urban context, was not.

The conditions for convention and repetition were easily met in both vertical articulation and plan: a multi-unit housing program provides them automatically (2.5). Under most circumstances, economic and construction dictates alone require repetition of form and building parts. Most housing developments are marked by repeated unit plan configuration as well as window uniformity. But in the American version of the *Siedlung*, the requirement for emphasis and variety could not be similarly plucked from the program, and used as formal exceptions within the plan. Most American projects consist exclusively of housing. Post-*International Style*, large-scale urban housing developments all over America incorporated neither variety nor emphasis, either by inclusion of exceptional community functions or by responding to existing public buildings against which new housing could play the traditional formal role (regularity). To achieve the status of "architecture" in Hitchcock's and Johnson's terms, the housing program alone had to perform dual and opposing formal roles, serving as both the exceptional condition and the regular and repetitive one. In addition, the theoretical condition of "arbitrariness" had somehow to find its place in the scheme. In order to accomplish this, new developments in their entirety served as the "exception" within a larger urban context. By willfully divorcing a project from the surrounding, regular urban structure, two goals were simultaneously achieved: emphasis and arbitrariness. Repetition of form was easily achieved: the scale of most American housing developments guaranteed it (fig. 2.6).

Superblocks, equal in area to six to eight or more traditional city blocks, allowed for the possibility that buildings would not have to conform to an established urban structure in order to reach a given density. In theory, the resulting discontinuity between the new housing, which was often set at an arbitrary angle scattered on oversized blocks, and the existing urban fabric created the prescribed emphasis (Stuyvesant Town and Jacob Riis Towers are typical). What could not be achieved at a local scale, for lack of programmatic variety, could theoretically be accomplished on a large-scale urban order. But theory mistakenly applied can have disastrous results. In the context of many low-income housing projects, discontinuity within the traditional urban texture served only to formally isolate the new development, and consequently to socially isolate the occupants, who were already economically stigmatized.

As blocks in most American cities, particularly the older ones, were initially divided into smaller lots, and patterns of acquisition tended to reinforce lot-by-lot develop-

ment, until the onset of the modern era property ownership was limited to single city blocks at the very most. But, as entire urban neighborhoods fell into ever more serious states of dilapidation, the urgency of the search for a fix grew proportionally. The answer to some problems lay in the ability to amass many city blocks, even entire neighborhoods, under single proprietorship. Though wholesale land acquisition clearly meant that existing patterns of growth would be disturbed, the idea of quick and easy broad-based urban renewal was bolstered by three things: the growing size of corporations (public and private) able and anxious to acquire sites equal in size to many city blocks, theoretical proposals à la Le Corbusier that posited enormous tracts of urban land as a requirement for new development, and the willingness of city government to exercise its right of eminent domain. Though municipalities routinely took control of private property from as early as 1926, the government's power to annex land specifically for housing purposes was not constitutionally approved in the form of the Federal Public Housing Act until 1937.<sup>8</sup> Having eliminated the obstacle of piecemeal acquisition, cities were able to take control of entire neighborhoods. What were seen then as blighted sections of the city, prime targets for remedial modernist care, were often torn down. Small parcels of land that had been apportioned and built on incrementally by individual owners over many years were now made available for development and purchase in large tracts. The theoretical constructs of Le Corbusier could never have been put into practice without either the simultaneous growth of large corporate entities and associated economic power, or government assistance.

Annexation of large parcels of land provided states and local government the opportunity to supply subsidized housing to the urban poor in ever increasing volume. However, either by tacit agreement or by accident, it also provided ample opportunity for ghettoization. Rather than integrating diverse economic classes in a single neighborhood, poorer classes were isolated in less visible, less accessible, less important parts of the city. Although neighborhoods had tended to be segregated by class since the middle of the nineteenth century when governments began to support and then build subsidized housing, public agencies were able to carefully select housing project sites. Any initial social commitment to assistance that may have existed was defeated by the method of implementation. Most areas selected for large-scale housing development were out of the way, generally inaccessible, and served only to further isolate already disengaged communities (2.7). But it did get them out of sight, at least for a while.

The existence of large urban parcels under single ownership, uncontrolled by traditional economic consideration with relation to the formal use of the lot, opened the door for Corbusian, "tower in the park" planning. In New York City, even though many such developments were erected prior to

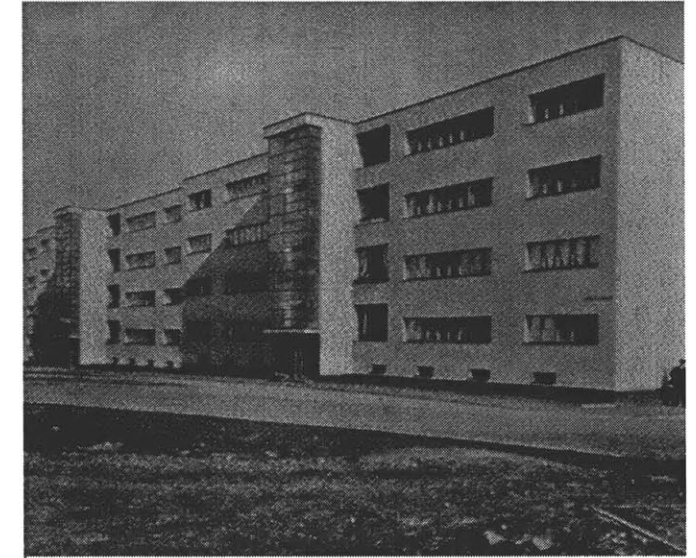


fig. 2.5 *Siedlung Rothenberg, Kassel, Germany. Facade and building repetition.*

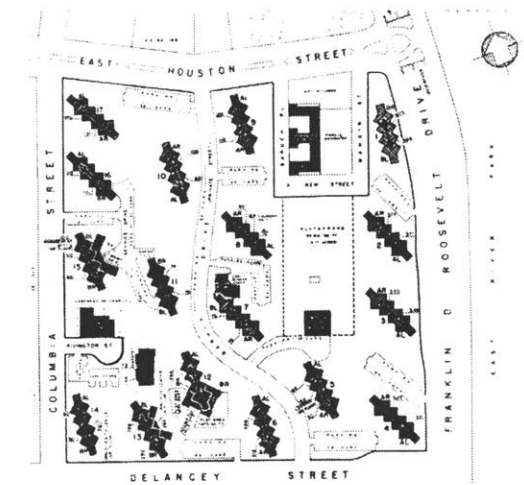


fig. 2.6 *Arbitrary urban plan, Baruch Houses, New York City.*



fig. 2.7 *Brownsville Houses and Van Dyck Houses, Brooklyn.*

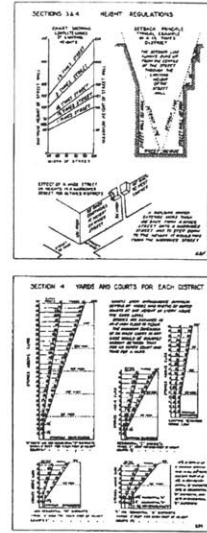


fig. 2.8 1916 Building Zone Plan.



fig. 2.9 Park Avenue, 1920.

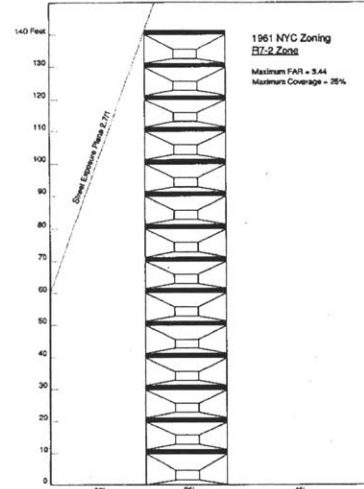


fig 2.10 The 1961 Zoning Resolution encouraged tall buildings set back from the street.



fig. 2.11 Fifth Avenue and 112th Street looking North, 1902 and 1975.



1961, revisions to the zoning resolution in that year codified the bias toward low coverage, high density housing projects. The Zoning Resolution of 1961 replaced the 1916 Building Zone Plan that regulated building bulk and height relative to adjacent street width — West End Avenue (fig. 2.8) and Park Avenue (2.9) in the 1920s are examples of development generated under its provisions. But the 1961 resolution restricted total building area with standards that had nothing to do with formal properties of the street (2.10). Instead, Floor Area Ratio (FAR) was introduced as a means for calculating permissible building bulk — an equation that encouraged reduction in lot coverage by allowing taller buildings in exchange for a reduced footprint. Plunz notes, “Unfortunately, the new zoning resolution not only helped tear apart the fabric of low-rise, high-density areas, but also contributed toward the stagnation of private housing production. Only large-scale interventions were encouraged, wiping out the more incremental small-scale private development of the past.”<sup>9</sup> Though the 1961 zoning resolution and the building type it legitimized promoted an increased quantity of public open space, the quality of that open space degenerated to such a degree that it was virtually useless. In addition, compared to the density of traditional fabric, unit density only marginally increased. The gain of a few units hardly merited the loss of entire neighborhoods. The vast, formless open spaces, the leftovers of planning and design focused on the building object, were destructive of neighborhood and “community” as public streets were replaced with unidentifiable and formless areas between buildings (fig. 2.11).

The obsession with the form of individual buildings was a consequence not only of Corbusian vision but of the related issues of production, mechanization, and conditions necessary for optimal functional operation — an interest that then predominated in many fields of research. Architects focused on housing not within the framework of traditional blocks and streets, but rather as a system of individual living units — highly functional dwellings that solved many of the problems of traditional tenements. These ideas were manifest in two distinct domains: that of construction and economy of materials, and that of the functional and mechanical relationships of the inhabited building. In the context of the plan, Le Corbusier’s call for “a machine for living” was quite literally understood. Architects of both suburban single-family homes and urban apartment buildings were taken with the idea of, “a maximum relaxation of domestic constraints (especially for the housewife) and provoking a real fulfilment of family life.”<sup>10</sup> Ideals of efficiency took on new meaning in the context of familial happiness.

In an era of rationalization, apartment layouts were designed for efficiency of lifestyle and economy of construction. Layouts were principally based on the factors of functional and spatial requirements, solar orientation, ventilation requirements, and circulation within the unit itself. Public circulation (corridors, elevators, stairs) was subject to the same

constraints. Examination of analyses of modern housing typologies often reveals the manner in which they were conceived. More often than not, they are grouped by circulation configuration and apartment type: functional arrangements that are determined by internally generated problems. Typically, the length and disposition of corridors in modern apartment buildings is determined by fire code, egress requirements, and apartment distribution.

The now infamous Walter Gropius diagram of 1931 (fig 2.12) that describes the relationship of building height and urban arrangement to apartment illumination, influenced the course of housing development everywhere. The diagram was an illustrative plea in favor of widening the space between buildings to allow light to penetrate evenly into every floor. The idea of the diagram literally translated into realizable urban schemes produced long, straight “slab” buildings set far apart from one another. Each apartment, however, was presumably well lit. versions of the diagram (fig. 2.13) appeared in academic and trade journals, and were used to legitimize modernist housing schemes from then on.

Primary design decisions focused by the relationship of the living unit to a central distribution core and by solutions to the traditional problems of illumination, rather than by constraints generated by the urban context, produce buildings whose external form is the result of a rationalized internal organization and performance. Plan Voisin-inspired housing (though the scheme may have been misunderstood<sup>11</sup>), towers built in the center of large blocks, left areas of unformed open space between the street and the building. What was supposed to be “nature” in the city, an idyllic and egalitarian public space, served only in formally established American cities, to isolate housing towers from surrounding streets and blocks. In the “tower in the park” syndrome, the traditional street and block, formal elements that define the quality of the urban environment, no longer are accorded urban importance (fig. 2.14, and fig. 2.15).

The form of the traditional street suffered the attack not only of Le Corbusier, who in 1924 had published the English translation of *The City of Tomorrow* (which included schemes for the Ville Contemporaine, the Voisin scheme for Paris and the City for Three Million), but also from other quarters. The traditional urban street was alternately assessed as having too many intersections, being bad for traffic, lacking open space, lacking differentiation in function and orientation for housing, and possessing a tendency to monumental effect. The criticisms, biased by contemporary trends toward rationalization and scientific planning, heralded the new street as “a traffic machine.”<sup>12</sup>

As the building wall had been effectively removed to remote ground, fences and rails were installed to define the streets of the new projects. Recognition of the traditional urban block pattern, where traces of it remained at the boundaries of housing developments, was achieved through articu-

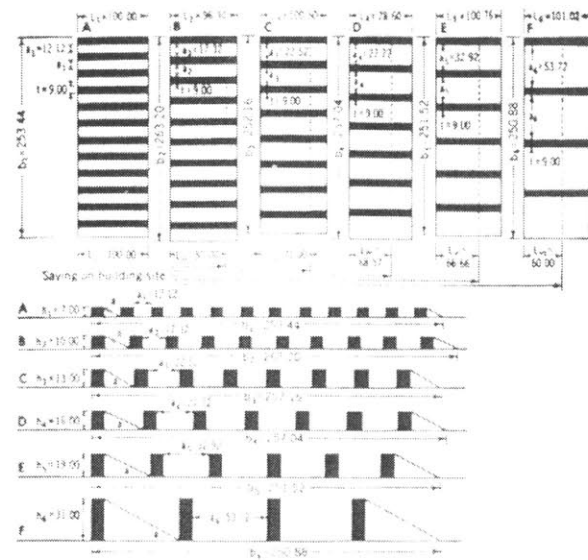


fig. 2.12 Urban plan and illumination. Walter Gropius, 1931.

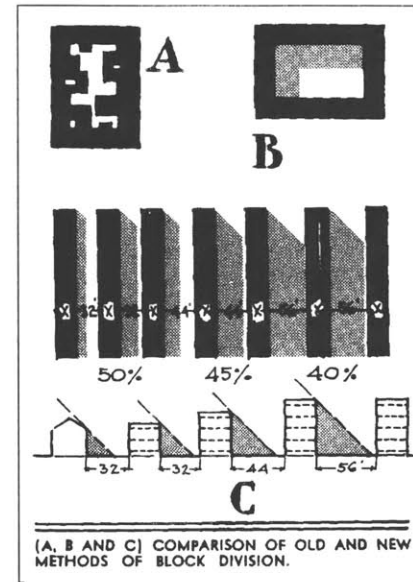


fig. 2.13 Urban plan and light diagram by Henry Wright, 1935.

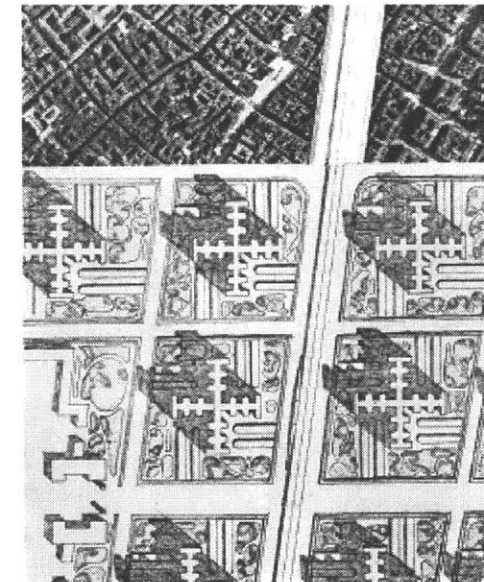


fig 2.14 Le Corbusier, Plan Voisin scheme for Paris.

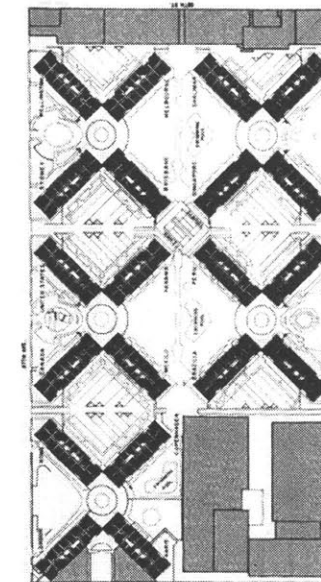


fig.2.15 Lefrack City, Queens, by Arch. Jack Brown, 1962-1967.

lation of the sidewalk curb. Via erasure of the defining pieces of urbanity, the street and the block, something else was created. And it was antagonistically anti-urban in its defiance of traditional street and block organization.

Especially in projects intended for low-income occupation, it is possible to predict, due to an unvarying regularity, the architectural characteristics of circa 1950–1975 housing developments: light-colored, running bond brick, one or two types of windows, no cornice treatment at the roof line, unarticulated entrance lobbies that don't face the street because there isn't one, and cantilevered concrete balconies with metal railings. Apartment towers intended for the upper classes had more elaborate lobbies and perhaps were sheathed in finer materials. But it is not the stylistic character of such housing developments that sets them apart so forcefully from their surroundings. Rather, it is the formal manifestation of a particular urban theory, combined with a functionalist architectural methodology that pointedly defines their origin.

Where towers and parks replaced blocks and streets, cars also replaced carriages, and the widespread ownership of the private automobile was accepted as integral to the futurist vision. Promoted by automobile manufacturers, federally financed highway construction grew. As railroads had opened the city to distant economies, so the automobile opened surrounding land to development. You could get here from there and you could do it quickly, within the privacy of your own

automobile, if of course you could afford it. For many middle-class Americans the cost of a car was not out of reach, and the automobile brought the suburban house of the American dream within easy distance of the city center. If you could get here from there with speed, you could work here but live there. Encouraged by economic incentives, suburban home ownership became a reasonable alternative. Accommodating the car in suburbia was necessary, but in the city, especially one not planned for automobile traffic, it was and still is problematic.

At the beginning of the modernist era architects and planners assumed that reformed urban housing ideals would transform the city. They were right. It did — in many instances. But modernist urbanism did not change cities for the better. Many families have suffered because of it. In some sense everyone does as urban populations grow poorer and the suburbs grow richer. The products of modernist urban theory did not make the city a more livable place. With few exceptions the large, modern housing developments that were built all over the country housed only low-income families who could afford nothing else. The modernist vision of urban populations living among parks and towers, proved more difficult to realize.

1. Peter G. Rowe, *Modernity and Housing*, p. 103.
2. Graham Shane, "The Street in the 20th century: Three Conferences: London, (1910) Athens, (1933) Hoddesdon, (1951)," *Cornell Journal* #2, p. 33.
3. Shane, p. 33.
4. Shane, p. 35.
5. H. R. Hitchcock and Philip Johnson, *The International Style*, p. 90.
6. Hitchcock and Johnson, p. 90.
7. Hitchcock and Johnson, p. 92.
8. Rowe, p. 90.
9. Plunz, p. 285.
10. Le Corbusier, *Concerning Town Planning*, p. 67.
11. Le Corbusier, *The City of Tomorrow*, p. ix.
12. Le Corbusier, *City of Tomorrow*, p. 131.

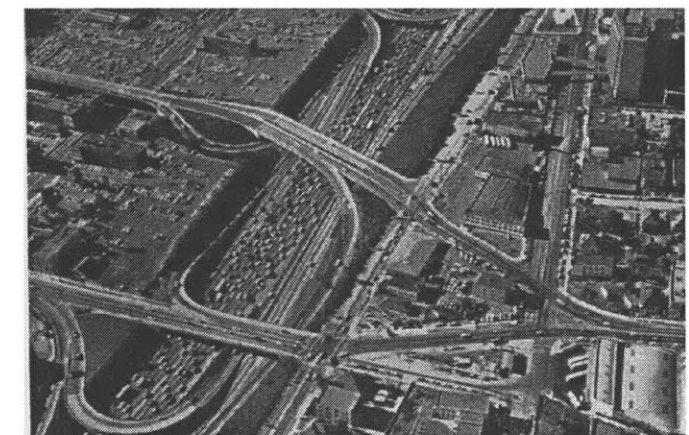


fig 2.16 Los Angeles freeway development.



### *Stuyvesant Town, New York City*



Within the context of a typological discussion of housing and urbanism it is instructive to examine a specific case. To this end, a project on the east side of Manhattan will serve. Stuyvesant Town is typical of many low-income projects constructed from the thirties onward in both type and style, but atypical in other respects: its financing and tenant population were exceptional compared to similar projects. Where other projects have proven unmitigated failures, Stuyvesant Town has met with arguable success, however, and the development was, from its birth the focus of intense public debate. A *New Yorker* magazine editorial by Lewis Mumford engendered an angry response from Robert Moses, then the City Construction Coordinator<sup>1</sup> (and responsible for its existence) that focused on both practical and academic questions of urban housing, in particular the role of “tower in the park,” Le Corbusier-inspired projects.

The tenets of modern dogma, both urban and stylistic, are evident in the design of Stuyvesant Town. For that reason it is emblematic of modern-era housing projects, most of them subsidized housing intended for low-income families. It was begun in 1943, but activity on the project ceased during World War II; construction resumed after the War and was completed in 1949. Among the many enormous housing projects in Manhattan, the almost eighteen-square-block site of Stuyvesant Town is the largest. Few projects anywhere occupy more area. Like many modern-era American housing

developments, it breaks the traditional block and street grid of the city; neither the site nor the buildings themselves are bound by the rules of the surrounding gridiron (fig. 2.17). It is formally isolated from the traditional fabric in every sense, not unlike Le Corbusier’s *voisin* scheme for Paris.

The early history of Stuyvesant Town must be understood in order to realistically evaluate its contemporary status. The area east of First Avenue running to the East River and bounded roughly by Fourteenth and Twenty-third streets was, previous to its current incarnation, an approximately twenty-four-block area known as “Gas Town” (fig. 2.18). Scattered among the traditional tenement and row house buildings were several gas storage tanks, various warehouses, some light manufacturing, a few lumber yards, small businesses, at least two bakeries, several schools, and at least two churches. Within the typical New York 200- by 800-foot urban block structure, most of the residential buildings occupied lots 40 to 50 feet wide and 100 feet deep. Though poor (Moses referred to the preexisting residential stock as “rookeries”), it was, with the exception of the gas storage tanks, an average mixed-use community.<sup>2</sup>

The metamorphosis of Gas Town into Stuyvesant Town began in the early forties, when Robert Moses exercised his legendary power and claimed the city’s right to eminent domain in order to facilitate the acquisition, sale, and development of the area. It was, according to Plunz, Moses’ first

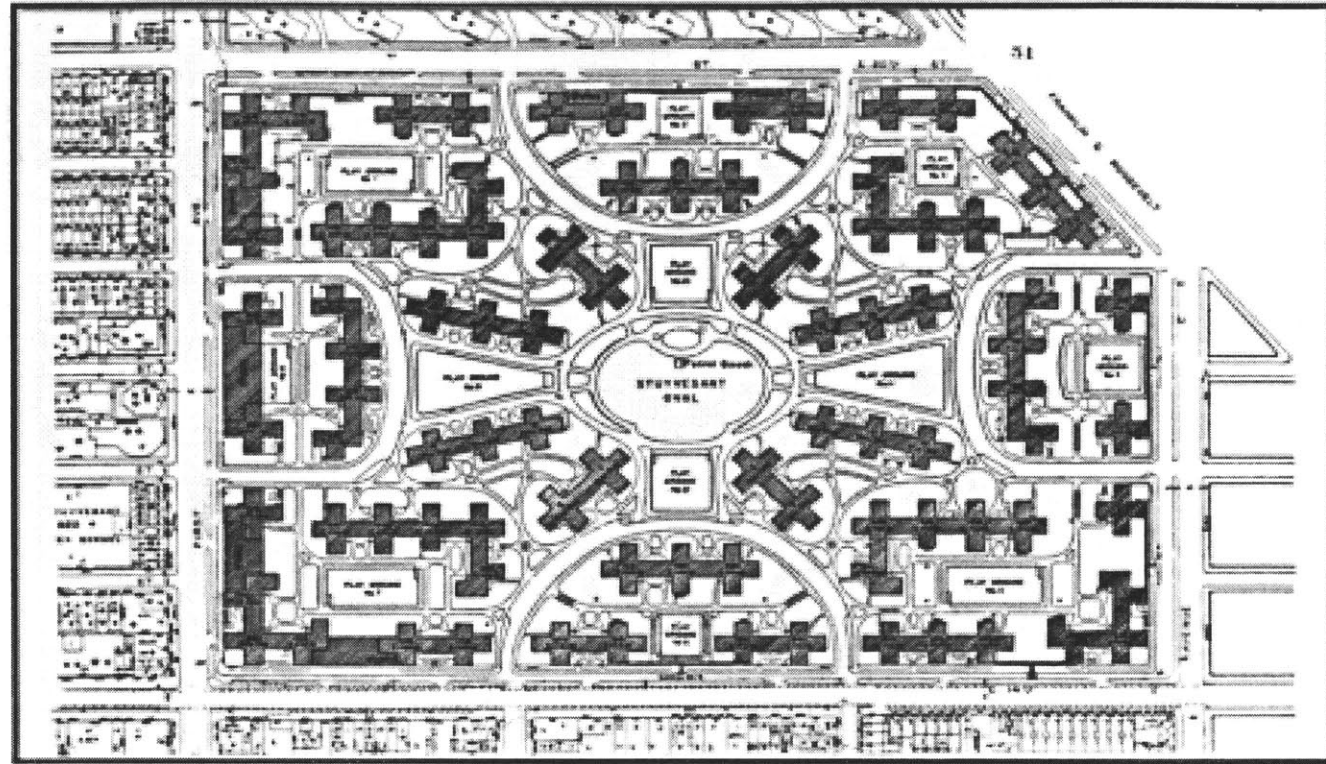


fig. 2.17 Stuyvesant Town plan..

demonstration of the “bulldozer approach” to urban renewal<sup>3</sup> — an approach bolstered by believers in modernist urban theory.

In collusion with Moses, the Metropolitan Life Insurance Company planned to develop the site with over 8,700 housing units. In return for development of the site, the agreement between the Metropolitan and the city included a tax waiver spanning twenty-five years, possession of 16.9 acres (over 20% of the site) of the once-public streets for private use, and additional city-owned property. The single concession to the city stipulated that the streets around the site would be widened (what actually was installed were 5.4 acres of median strip that provided two extra lanes of parallel parking in the “extra-wide street”). In spite of the subsidies provided by the municipality, which allowed rental prices to remain below average for even typical low-income public projects, Moses extracted no promise that any of the units would be rented to low-income families. Nor were provisions provided to the families displaced by the city’s usurpation of the land. Instead, tenant selection was a monitored process in which middle-income, white families were given priority.<sup>4</sup> The select tenant population set Stuyvesant Town apart from similar developments, and it is speculated, contributed to its popularity.

Formally characteristic of low-income, publicly supported housing projects, the development was composed of

12- to 13-story, cross-shaped towers, some of them attached to one another, all of them red brick. In typical modernist form, no elevational relief or detail is provided. The architecture is relentless in its stripped-down character, so much so that Mumford described it scornfully as, “absolutely uniform in every detail, mechanically conceived and mechanically executed, with the word ‘control’ implicit in every aspect of the design. This, I said to myself, is the architecture of the Police State, embodying all the vices of regimentation one associates with state control at its unimaginative worst.”<sup>5</sup>

Little in the buildings was given over to even small public amenities. The entrance to each tower is jammed into a corner of the building closest to the elevator so as not to sacrifice leasable apartment area. The results are rat hole-like inconsequential public entrances to the elevator waiting areas and stair. This setup is not uncommon in public housing, and it is a feature that diminishes the possibility of any graceful and positive public connection that a main entry can make with adjacent public space. To access the entries of buildings that face onto exterior public streets, one proceeds down into a pit from street level before reaching the ubiquitous corner (fig. 2.19). These are not entrance details of even middle-income developer buildings in other neighborhoods; they belong to low-income housing design.

Yet, in spite of its genetic similarity to other low-income projects of the postwar era, Stuyvesant Town succeeds

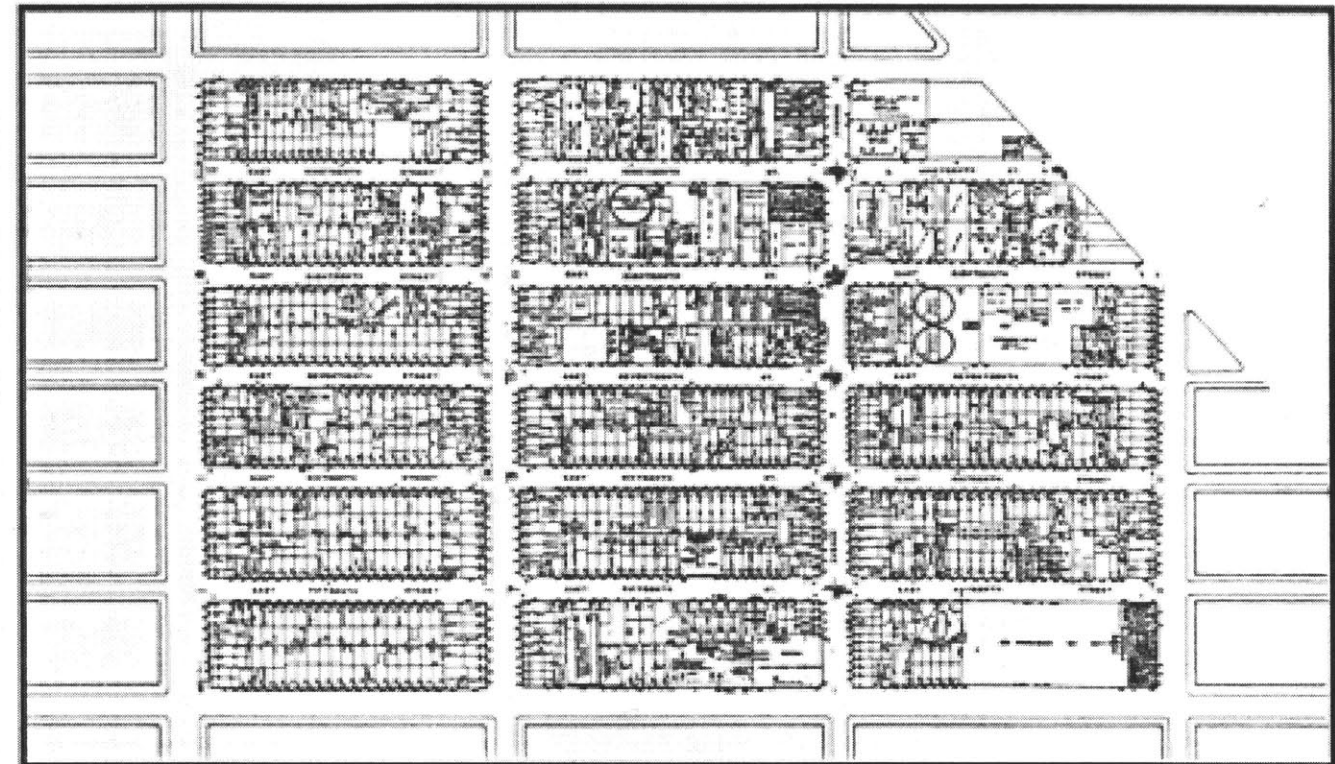


fig. 2.18 “Gas Town”, the site for Stuyvesant Town, 1920.

both socially and financially where others have failed. Though neither the apartment units themselves (fig. 2.20) nor the site location can account for its unusual success, there are important formal and social characteristics that contribute to its ongoing desirability. All of them are exceptional qualities for projects of its kind.

As noted, the original tenant population was selectively chosen. It still remains predominantly white working-to-middle-class; unusual, especially when compared to formally similar projects. But Stuyvesant Town is privately owned (in spite of generous public subsidy). Although requirements for tenancy have changed since its inception, rules of public housing do not apply. The selected population is not economically segregated from the city in the same way that most low-income residents of public housing are.

Secondly, Stuyvesant Town is abundantly landscaped (fig. 2.21). The interior, curved streets are tree-lined, between the paths are grassy lawns, and the playgrounds, though hard-surfaced, are well cared for. Stuyvesant Oval, the centerpiece of the development, is the kind of grassy spread found not in urban housing projects but in suburban developments. Complete with a geyser-like fountain and police station at the center, it is a private oasis for Stuyvesant Town residents.

Together with the trees and grass, there is a carefully realized set of topographic changes that closes off the entire development from the surrounding neighborhoods. Gaps be-

tween perimeter buildings are filled with either entrances to garages or single-story retail outlets, leaving only eight entrances to the interior of the development, two at each side to the sixteen-acre site. On top of the garages are play areas, which are accessed from the grounds by means of a series of stone steps and paths. Plunz notes:<sup>6</sup>

*Another important contrast between Stuyvesant Town and public housing tower projects concerned the interpretation of the “park.” In middle-class Stuyvesant Town, the park simply reinforced the role of the tower as a symbolic and secure residential fortress, in the tradition of fortress towers for New York’s affluent since the 1880’s. For public housing the park also reinforced the fortress aspect of the tower, but it came to symbolize the antithesis of security, which was the containment rather than the protection of the tenants. The “tower in the park” was emblematic of a new era of racial and economic disparity, isolating the differences rather than similarities in society.*

In Stuyvesant Town, the closed perimeter reverses the “fortress / containment” reading common to most “tower in the park” projects. In every sense it resembles a suburban gated community, minus the security pass and private police force stationed at the gate. Stuyvesant Town is one of the few housing projects focused on keeping others out rather than keeping the tenants in.<sup>7</sup> It is also one of the few that is carefully landscaped. The leftover spaces between buildings that plague other





fig. 2.19 Typical building entry at Stuyvesant Town.

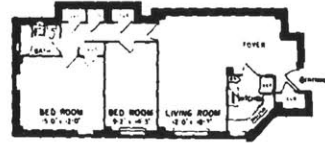


fig. 2.20 Typical apartment, Stuyvesant Town.

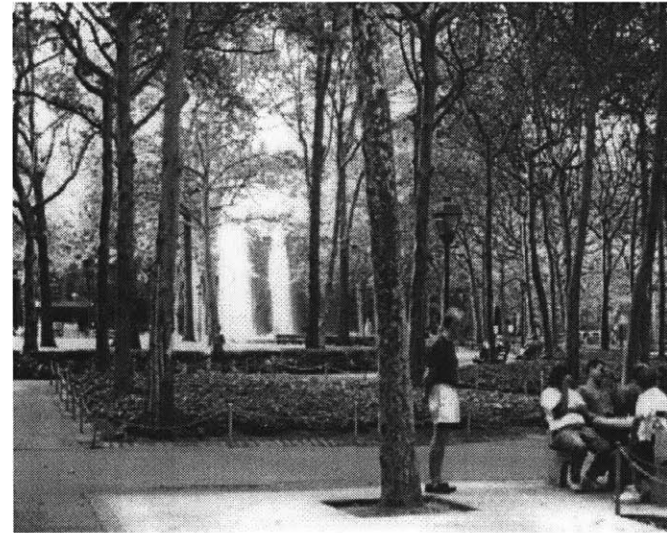


fig. 2.21 Stuyvesant Town Oval.

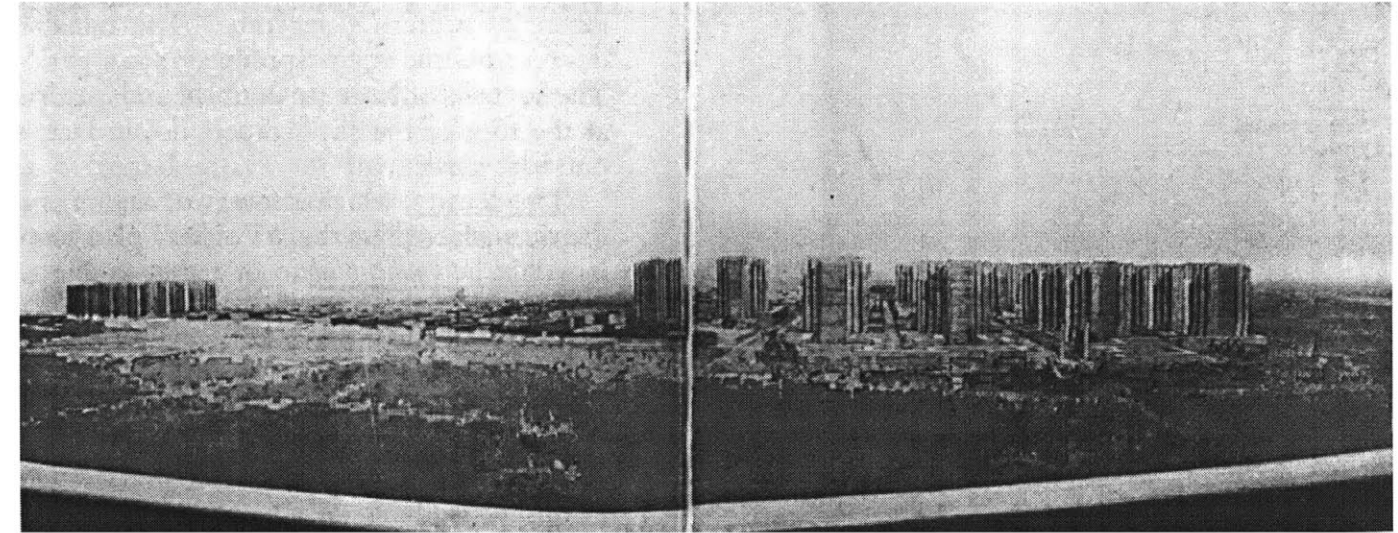


fig. 2.22 Plan Voisin scheme for Paris by Le Corbusier, 1925.

urban developments are at Stuyvesant Town, more thoroughly considered.

If all this seems like a reasonable alternative to generic housing developments, and if what Lewis Mumford acknowledged is true, that the apartments are small but adequate by New York standards, then what had he to complain about? In spite of what Mumford referred to as “an unrelieved nightmare,”<sup>8</sup> the lasting success of the development gives one reason to pause long enough for reevaluation. But Mumford’s concerns were more than specific to this one project addressing broader issues of urban planning and design. Foremost in his protestations were the need and the means for achieving a density of roughly 393 people per acre, and the regimentation of “police state” architecture — an architecture and urban design that, if employed in the rebuilding of the entire city, Mumford speculates, might cause “even Mr. Robert Moses, who has had a lot to do with setting this pattern in housing, [to] perhaps cry ‘Uncle!’”<sup>9</sup>

Building coverage of Stuyvesant Town is extremely low at 23% of ground area, unit density is high (119 units per acre), and the FAR checks in at 3.23. By modernist standards these numbers represent unqualified success: the ground plane in unencumbered by building footprint, more than half the area remains parkland, and because the buildings are each separated from one another, the apartments all receive natural light and sufficient ventilation. In the streets and blocks Stuyvesant

Town replaced, coverage equaled roughly 50%, density of units was an estimated 88 per acre, and the FAR was 2.36. It is difficult not to speculate what the area might have been like without wholesale renewal, but instead with an equal injection of funds intended to upgrade the existing community. In view of the long-term cost to the city in lost tax revenue (53 million dollars over 25 years), the investment does not seem unrealistic. But at the time that Stuyvesant Town was proposed, the value of traditional fabric was challenged by the appeal of modernist form.

Stuyvesant Town is a paradigmatic example of what happened on large urban sites under control of a single owner advised by architects who, under the spell of Corbusian city planning, believed that problems of tenement blocks could only be solved by an Americanized version of the Plan Voisin (fig. 2.22). But “tower in the park” developments are not the only alternative to housing 24,000 people on one 61.3-acre lot.

Mumford argued that the typical Manhattan block was designed for a residential occupancy rate of 70–90 people per acre. Robert Moses countered that adequate apartments with light and air, even at 393 people per acre, was a solution worthy of merit, especially in view of the fact that that number “is less than that of the finest hotels and apartment houses fronting on Park and Fifth Avenue, where the coverage is more than twice as great and the average height much greater.”<sup>10</sup> Re-

grettably, Mumford seemed to think the older buildings less than exemplary models; in a later article he cited Fresh Meadows housing in Queens as more livable (acknowledging that although it is less dense by two-thirds, it is a suburban development).<sup>11</sup> However blind to some of the truly objectional qualities of Stuyvesant Town Moses may have been, on this point he was correct: a measure of people per square acre is insufficient evidence on which to evaluate any housing. Other factors like coverage and FAR are crucial.

In fact, lowering the density of people per acre would not guarantee a more hospitable environment. Certainly there would be fewer people to share the green spaces and playgrounds (a Mumford requirement under optimal conditions), but, in regard to larger issues of urban design, little would necessarily change. A simple decrease in population might be accomplished by making each of the apartments larger, or, if apartment sizes were to remain the same, by reducing each building by several floors. Neither solution solves the serious urban design problems of Stuyvesant Town or like developments. Rather, it is the size of the lot, the disruption of the surrounding fabric, and the disposition of the buildings themselves that together were responsible for Mumford’s urban nightmare.

The exaggerated lot size, all eighteen city blocks of it, not only wipes out several acres of once public streets (for which as Mumford noted, the city was not paid), but what the

community gets in return are reconfigured streets and avenues surrounding the project that are no better, and arguably worse, than what they replaced. The traditional street wall composed of tenements and small buildings, each of which had a public face, was traded for avenues defined by faceless and ragged buildings, some of which have their backs turned to the public street (fig. 2.23). It is the block and lot size that allows for the inversion of the traditional disposition of public and private faces. Smaller blocks generally demand entry from the public street, for example, thereby generating an active civic dialogue between public space and private interior. In addition, because the block is so vast, buildings can easily be of any shape and located in plan without restriction. In theory, the lack of limitation need not produce anti-civic, anti-urban plans. Unfortunately, recent history shows that, at least within the context of modernist urban theory, it does. The purposeful lack of conformity within the traditional urban grain renders the development not an exceptional improvement on the grid, but a disengaged, intrusive element.

However unlikely the prospect, it is frightening to speculate what an entire city of projects like Stuyvesant Town would look like. There would be few public streets, and the infrequent ones would all be wide and not very well defined. The open space, except for the streets themselves, would consist of private playgrounds for residents only. The buildings would be duplicates of one another, repeated block after block;



fig. 2.23 First Avenue and 14<sup>th</sup> Street, 1995.

though the repetition in itself might not be a bad thing, in this case of determinately stripped down architecture, it would be oppressive. There would be no schools or libraries, not a church or civic center, not a theater, a clinic, a hospital, or even a corner bakery.

Though Moses defends Stuyvesant Town largely on fiscal terms (many people housed inexpensively), claiming ignorance on aesthetic grounds, the two, architectural articulation and expense, are related. While architectural expression is not strictly limited by cost, in the case of large housing projects cost is a defining factor. Where repetition and lack of detail are a means of economy, the architecture will reflect it — especially where developers or municipalities have no incentive to create demand. In the case of affordable housing, in which need far outstrips supply, many families simply have no choice. Stripped-down and inexpensive prevails. Reductive, minimal architectural styles are not intrinsically without merit; in the era of modern urban planning, however, urban theory based on reduced coverage, free-flowing automobile traffic, and reformative social ideals conspired to form an urban domestic architecture that, as the intervening years have shown, produced only poor results.

Stuyvesant Town was one of a plethora of projects erected according to the tenets of modernist urban theory, but the debate between Moses and Mumford over its specific attributes set the ground for further development of an argument

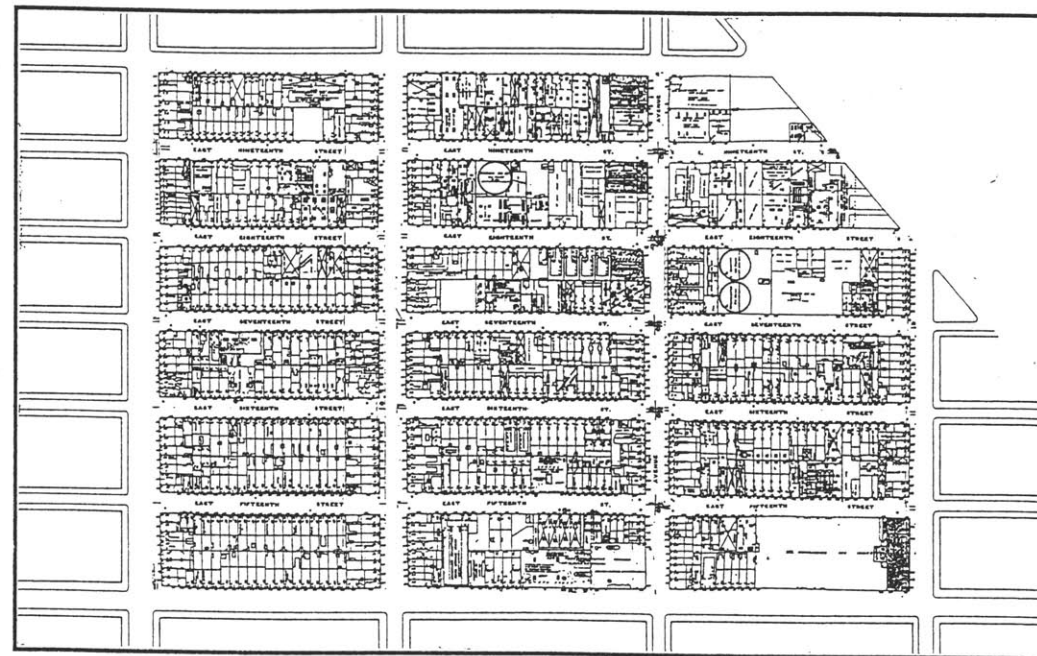
that had just begun. What may at the time have seemed like two appropriate alternatives to urban housing problems (Mumford's quasi-suburban American dream and Moses' as evidenced by Stuyvesant Town) by no means exhausted the possible solutions. It is within the context of a specific site, and against a given housing block type, that other familiar urban housing types can be tested. Through such a comparison to the known, new insight is gained.

1. Lewis Mumford, "The Sky-Line: Prefabricated Blight." *The New Yorker*, October 30, 1949, and "Sky-Line: Stuyvesant Town Revisited," *The New Yorker*, November 27, 1948.
2. Based on Sandborn Map Company survey, Nov. 27, 1948.
3. Plunz, p. 255.
4. Plunz, p. 256.
5. Mumford, "The Sky-Line: Prefabricated Blight."
6. Plunz, p. 256.
7. Plunz, p. 256.
8. Mumford, "The Sky-Line: Prefabricated Blight."
9. Mumford, "The Sky-Line: Prefabricated Blight."
10. Robert Moses, "The Sky-Line: Stuyvesant Town Revisited", *The New Yorker*, November 27, 1948.
11. Lewis Mumford, "The Sky-Line: From Utopia Parkway Turn East," *The New Yorker*, October 22, 1949.

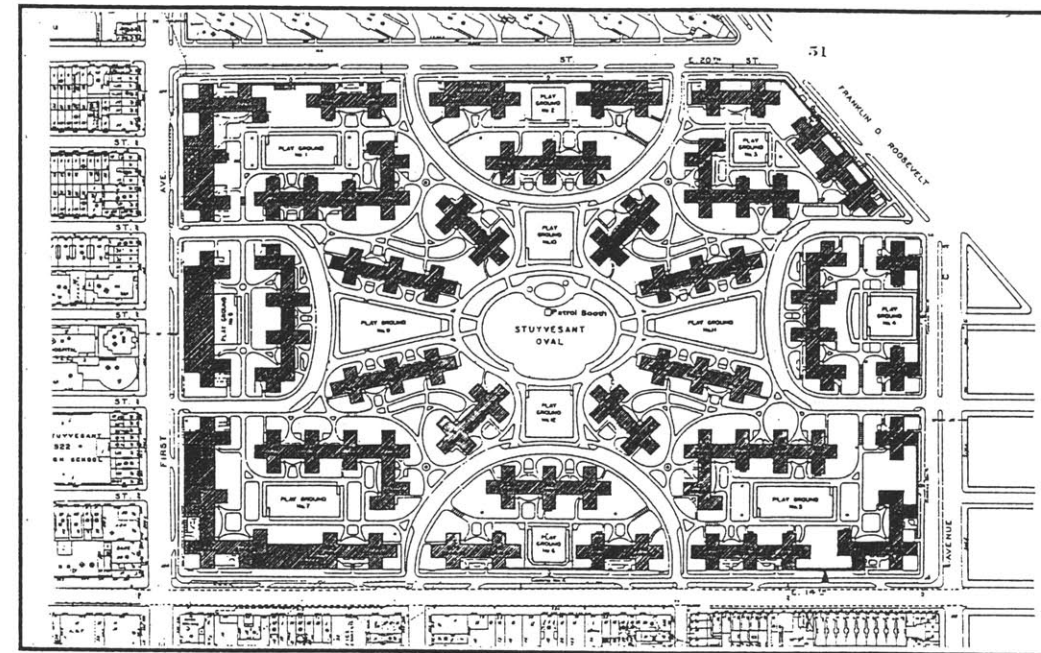
# STUYVESANT TOWN

The following comparative plans were speculatively executed. With the exception of the Marcel Breuer proposal of 1944 for the Stuyvesant Town site, each of the collages is composed of plans of existing residential blocks or pieces thereof. The purpose of the exercise was to reveal by comparison to Stuyvesant Town, the relative unit densities, building coverages, and Floor Area Ratios of known pre-modernist era housing types on the same site.

These collages were not executed with the intent that they be understood as realistic proposals. They are not. No rigorous or scientific methodology was imposed on their production. Rather, they are hypothetical propositions — tests of urban schemes that may be statistically compared and imagined in the mind's eye.



"GAS TOWN", 1920  
(Site of Stuyvesant Town)

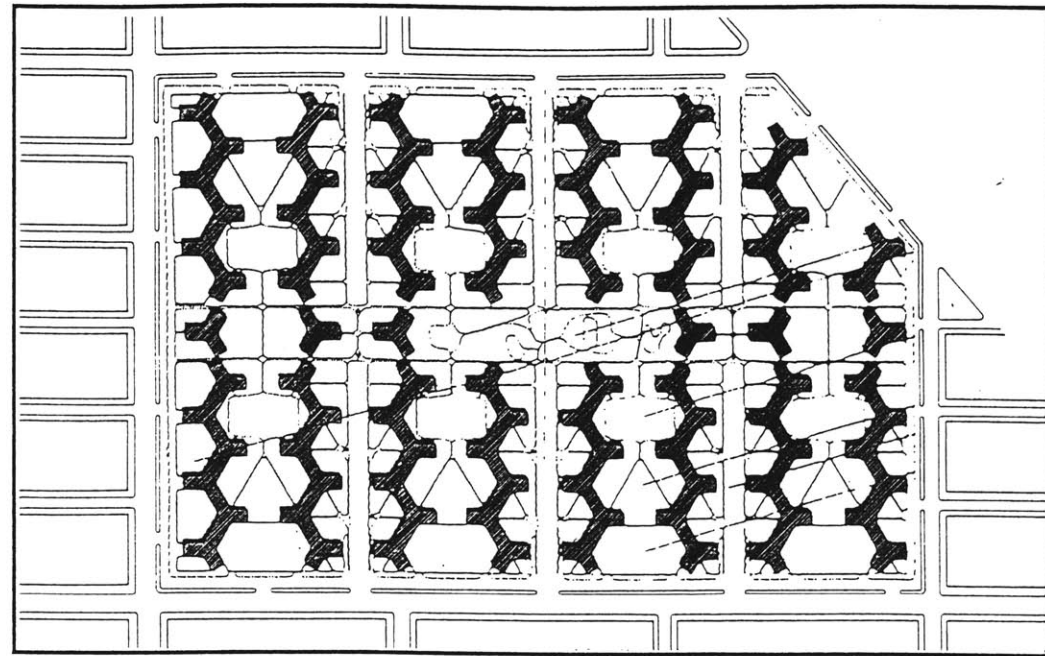


STUYVESANT TOWN, 1949

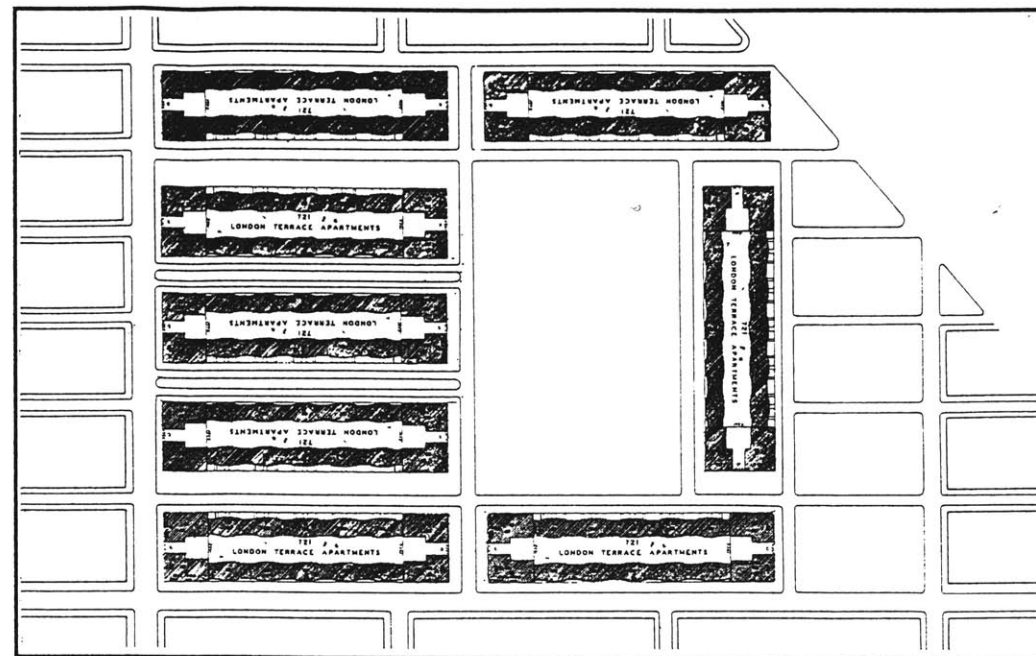
<i>Blocks / Acre</i>	0.24
<i>Building Coverage of Block</i>	50%*
<i>FAR</i>	2.36*
<i>Number of Units</i>	6496*
<i>Units / Acre, (to c.l. street)</i>	88*

<i>Blocks / Acre</i>	0.014
<i>Building Coverage of Block</i>	23%
<i>FAR</i>	3.23
<i>Number of Units</i>	8755
<i>Units / Acre, (to c.l. street)</i>	119

\*estimated, based on typical block at corner of First Ave., and Fourteenth Street, (see Comparative Block Densities, New York, Gastown, 1920).



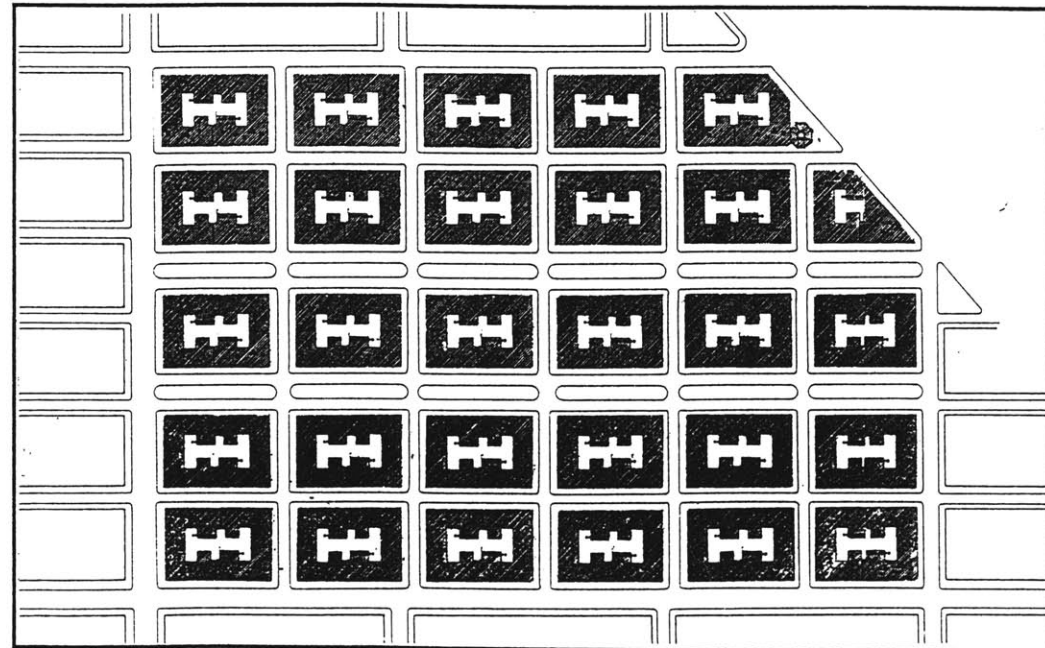
M. BREUER: STUYVESANTTOWN PROPOSED PLAN



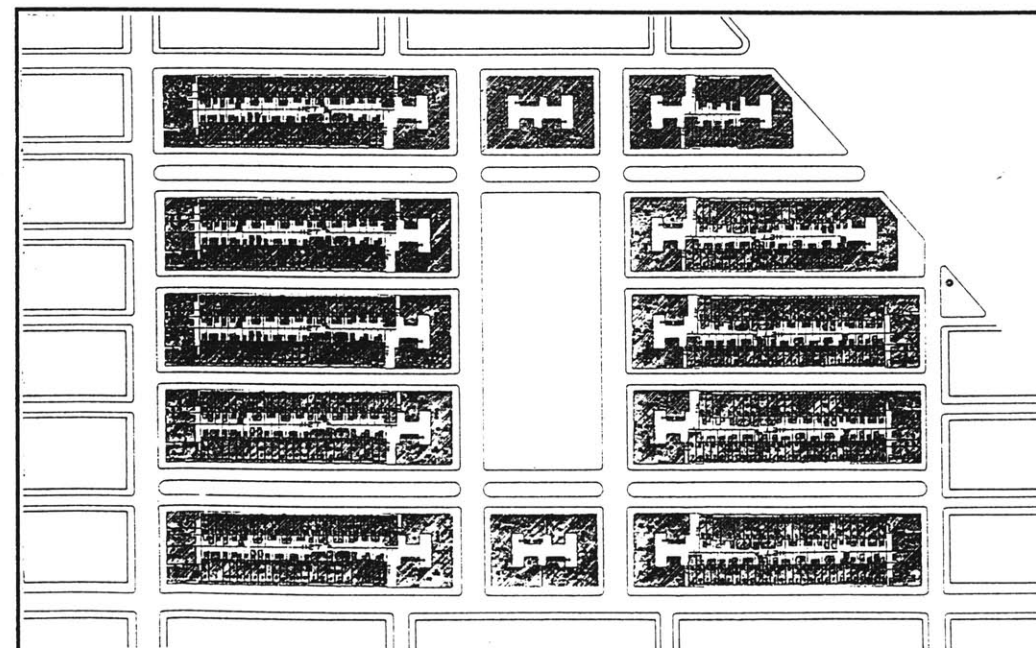
LONDON TERRACE

<i>M. Breuer: Proposed Plan, 1944</i>	<b>New York</b>
<i>Blocks / Acre</i>	0.014
<i>Building Coverage of Block</i>	18%
<i>FAR (assumed 12-story avg. hgt.)</i>	2.50
<i>Number of Units</i>	8730
<i>Units / Acre, (to c.l. street)</i>	118

<i>London Terrace</i>	<b>New York</b>
<i>Blocks / Acre</i>	0.19
<i>Building Coverage of Block</i>	30%
<i>FAR</i>	3.43
<i>Number of Units</i>	13,248
<i>Units / Acre, (to c.l. street)</i>	180



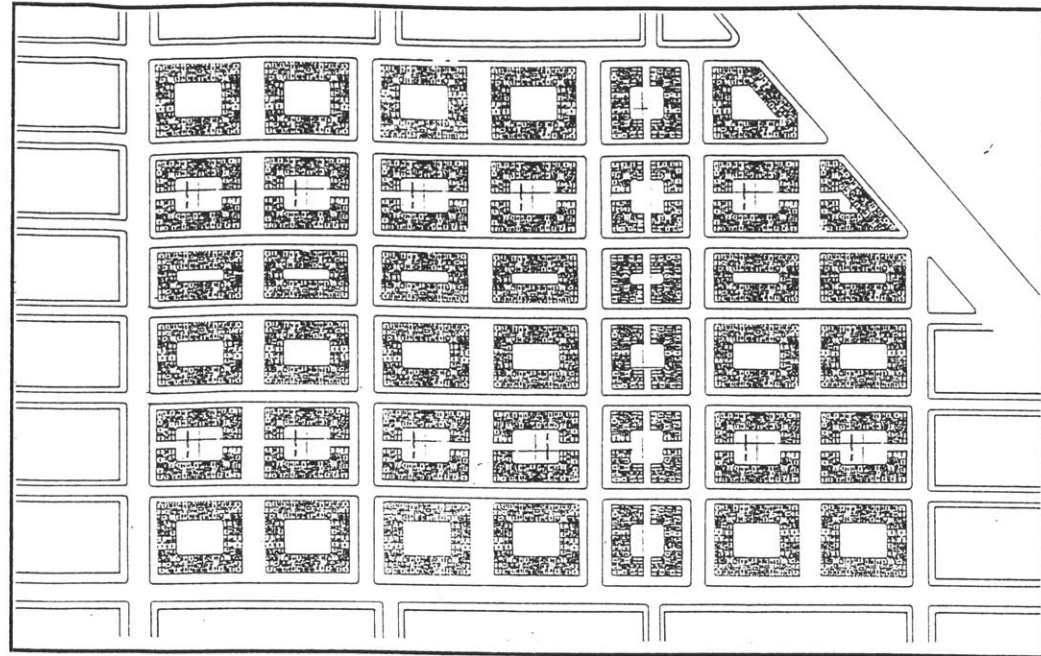
SAN REMO TOWER



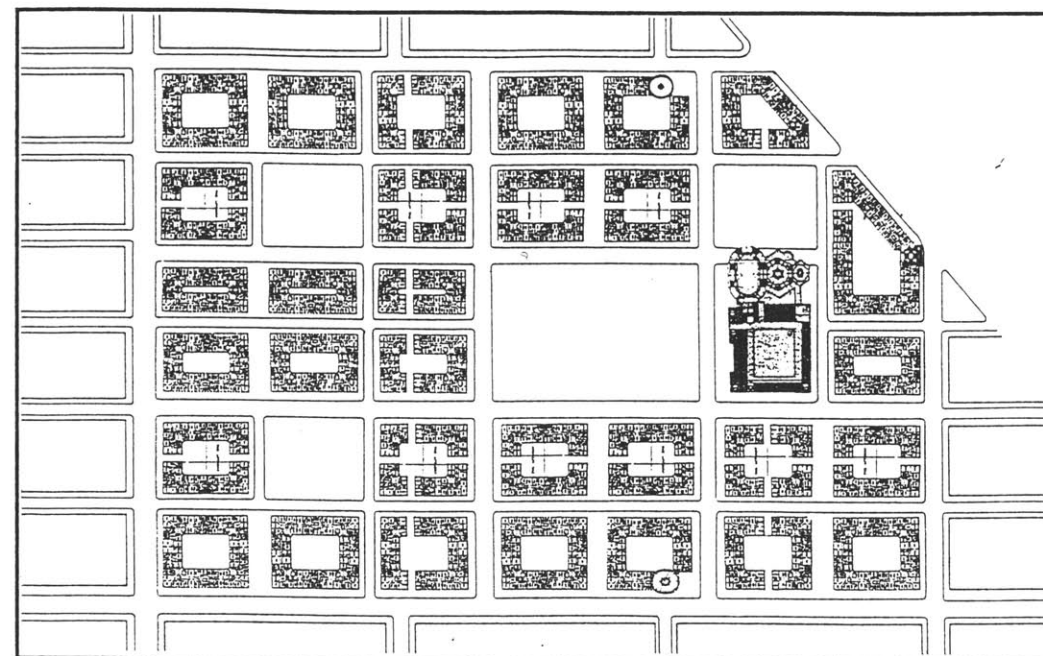
SAN REMO BLOCK

<i>San Remo Towers</i>	<b>New York</b>
<i>Blocks / Acre</i>	0.39
<i>Building Coverage of Block</i>	47%
<i>FAR</i>	7.13
<i>Number of Units</i>	8322
<i>Units / Acre, (to c.l. street)</i>	113

<i>San Remo Block</i>	<b>New York</b>
<i>Blocks / Acre</i>	0.18
<i>Building Coverage of Block</i>	40%
<i>FAR</i>	3.42
<i>Number of Units</i>	4635
<i>Units / Acre, (to c.l. street)</i>	63



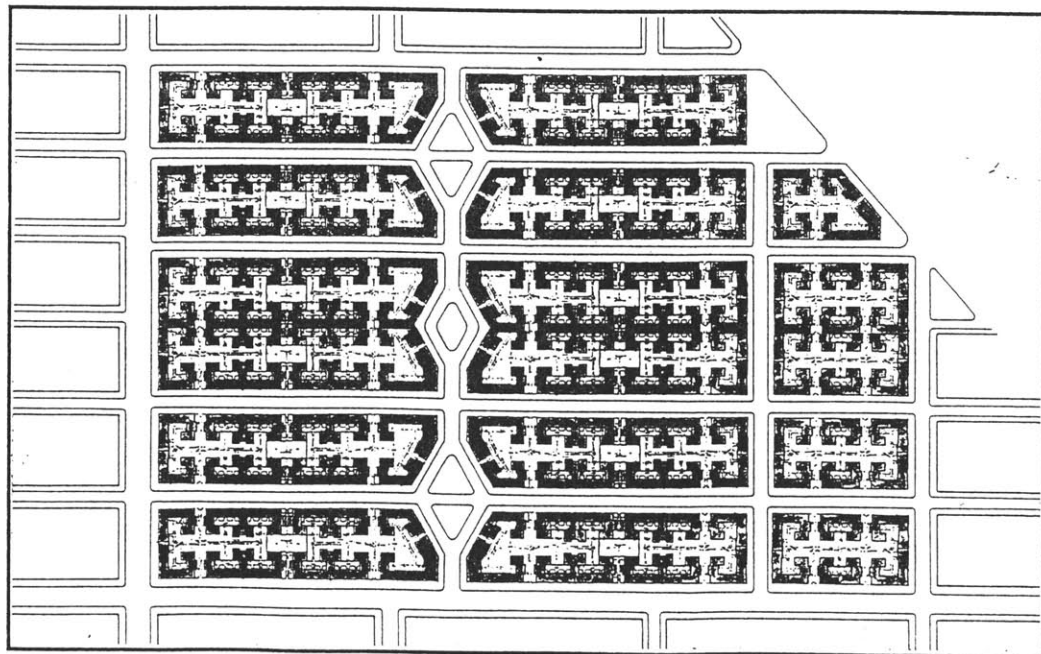
THE APTHORP



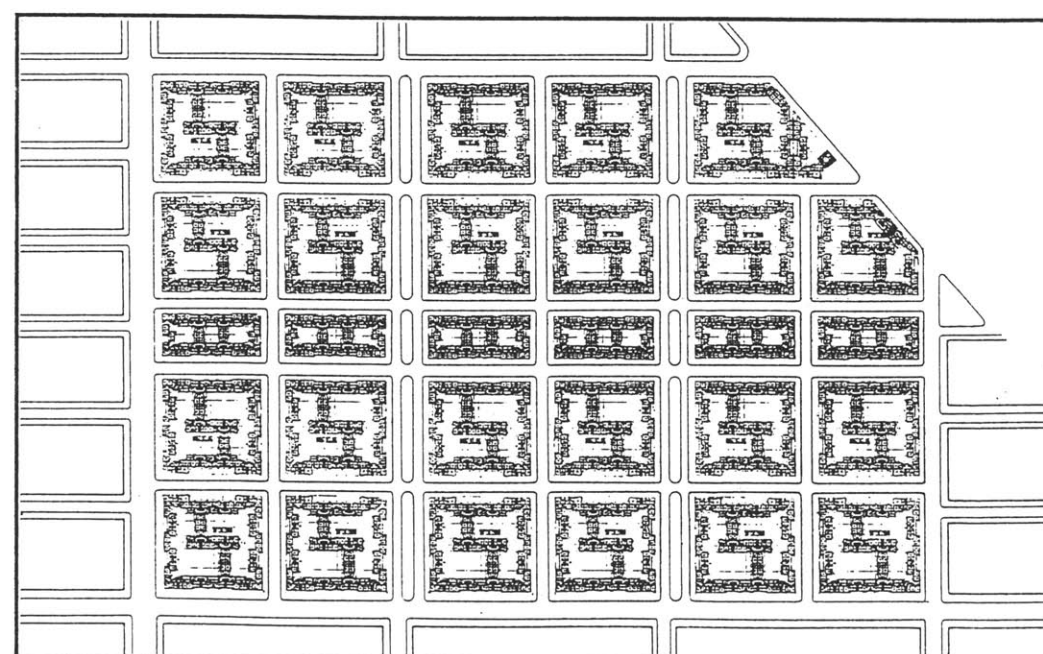
THE APTHORP

<i>The Apthorp</i>	<b>New York</b>
<i>Blocks / Acre</i>	0.32
<i>Building Coverage of Block</i>	53%
<i>FAR</i>	6.65
<i>Number of Units</i>	6546
<i>Units / Acre, (to c.l. street)</i>	89

<i>The Apthorp</i>	<b>New York</b>
<i>Blocks / Acre</i>	0.35
<i>Building Coverage of Block</i>	45%
<i>FAR</i>	5.50
<i>Number of Units</i>	5164
<i>Units / Acre, (to c.l. street)</i>	70



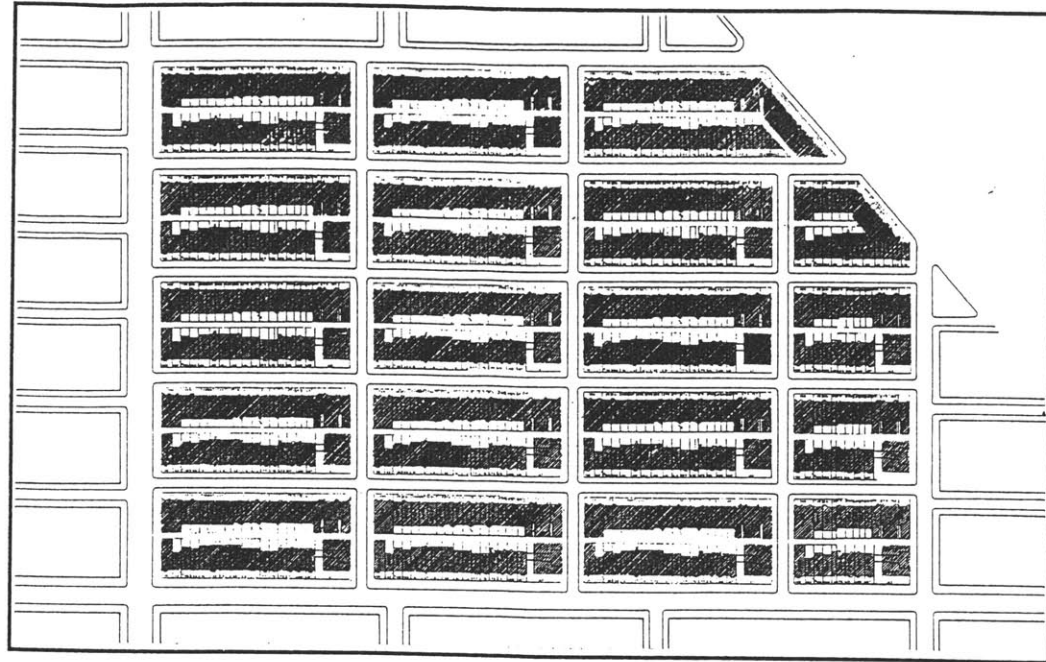
DUNBAR APARTMENTS



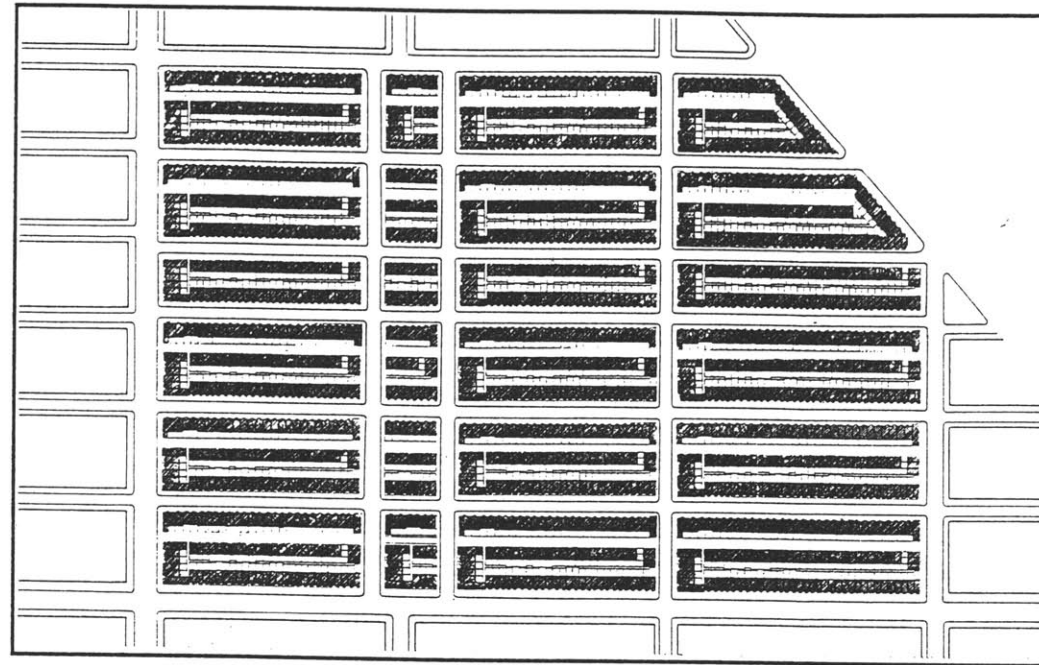
SCHUTTAUHOF

<i>Dunbar Apartments</i>	<b>New York</b>
<i>Blocks / Acre</i>	0.19
<i>Building Coverage of Block</i>	37%
<i>FAR</i>	1.93
<i>Number of Units</i>	7247
<i>Units / Acre, (to c.l. street)</i>	98

<i>Schuttauhof</i>	<b>Vienna</b>
<i>Blocks / Acre</i>	0.39
<i>Building Coverage of Block</i>	33%
<i>FAR</i>	1.90
<i>Number of Units</i>	8034
<i>Units / Acre, (to c.l. street)</i>	109



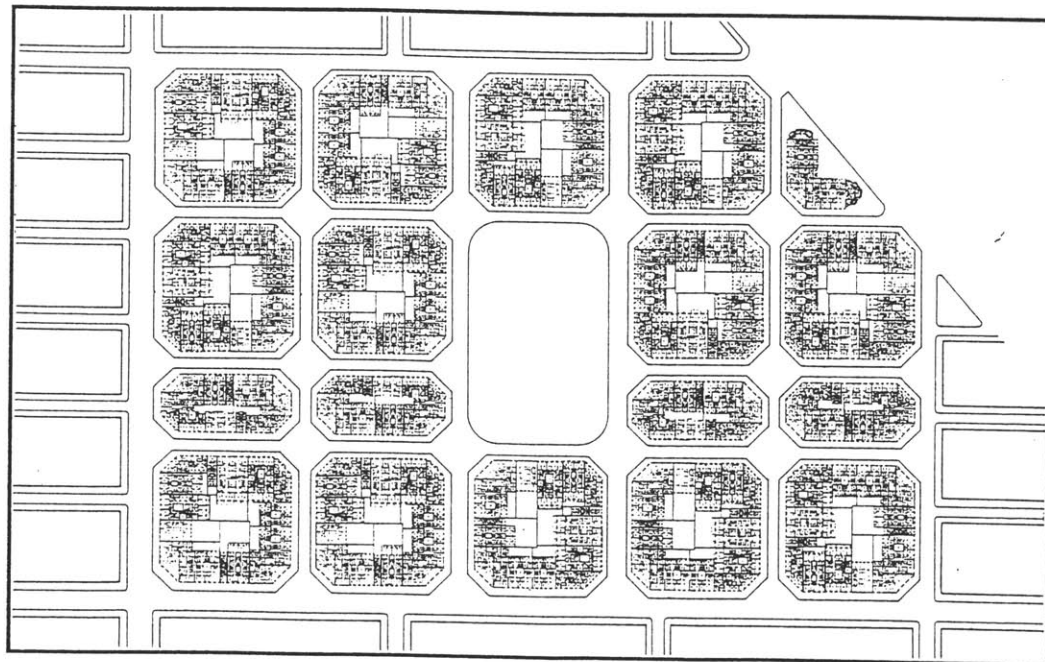
BACK BAY BLOCK



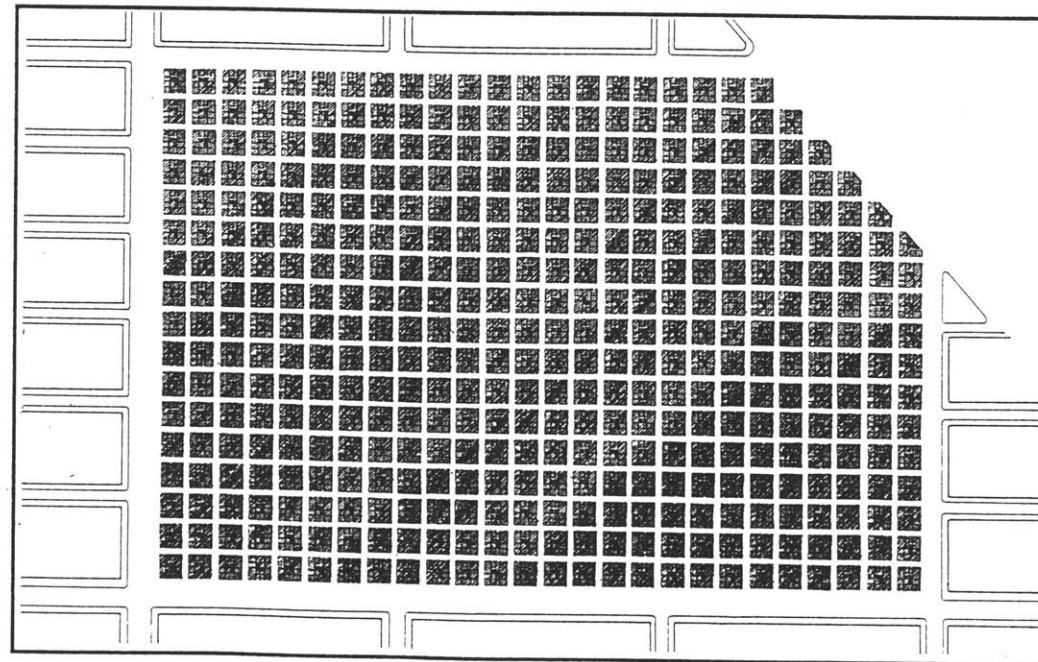
SOUTH END BLOCK

<b>Back Bay Block</b>	<b>Boston</b>
<i>Blocks / Acre</i>	0.26
<i>Building Coverage of Block</i>	47%
<i>FAR</i>	2.90
<i>Number of Units</i>	6621
<i>Units / Acre, (to c.l. street)</i>	90

<b>South End Block</b>	<b>Boston</b>
<i>Blocks / Acre</i>	0.33
<i>Building Coverage of Block</i>	46%
<i>FAR</i>	2.16
<i>Number of Units</i>	5580
<i>Units / Acre, (to c.l. street)</i>	76



CERDA GRID BLOCK

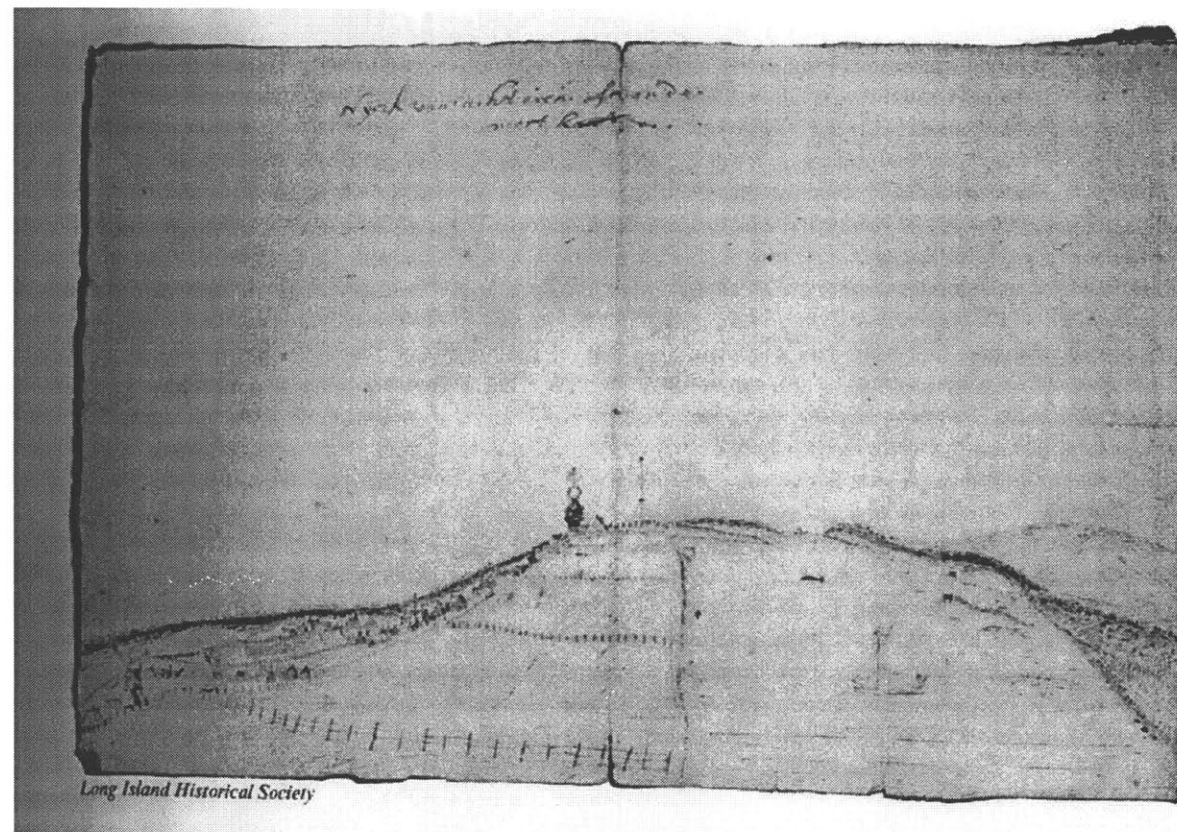


I QUARTIERI SPAGNOLI

<b>Cerda Block</b>	<b>Barcelona</b>
<i>Blocks / Acre</i>	0.26
<i>Building Coverage of Block</i>	55%
<i>FAR</i>	2.80
<i>Number of Units</i>	2235
<i>Units / Acre, (to c.l. street)</i>	30

<b>I Quartieri Spagnoli</b>	<b>Naples</b>
<i>Blocks / Acre</i>	5.79
<i>Building Coverage of Block</i>	65%
<i>FAR</i>	3.38
<i>Number of Units</i>	3412
<i>Units / Acre, (to c.l. street)</i>	46

### 3. URBAN PRINCIPLES



In the years since the 1970s dramatic decrease in public financing of urban housing, and the continued growth of the suburbs and gated communities, small glimmers of public concern for the health of cities also emerged. As the “inner cities” seemed to grow more dangerous and less hospitable in the 1980s and 1990s, concern grew even more acute. The viability of life in urban America in the 1990s and beyond is an issue of intense public debate, and though there is little dispute that cities and urban populations will remain an important part of the American culture and economy — for better or worse — the course and direction that the life of cities should take is less certain. But cities and the people that inhabit them cannot be abandoned. Rather, urban centers and the life they support should be preserved and strengthened. How and where to invest public funds, or how to encourage private investment are large issues.

The future of the city is imperiled. At the dawn of the twenty-first century, commitment to reinvestment in cities and urban life — to public life and civic culture is crucial. In light of the mistakes that modernist urban theory and practice have wrought, less radical and less destructive development should be established. If urban economies are to prosper and life in the city is to remain a viable option for not only the very rich and the very poor, but for the middle- and working-classes, quality of life issues must be addressed: among them, quality of housing and neighborhood streets. Cities are inhabited by

people who live both public and private lives. Both must be accommodated. Housing, the architecture of public space and the shell of private life, must be understood as neither one nor the other, but as both — one in which density and public streets are positive rather than negative attributes.

Given the systemic failures of the recent past, manifest in an affliction of the skeletal street structure and the ligature of urban fabric, a new tack is required. Without a clear understanding of the urban present or a vision of the future — indeed faced with an abandonment of the city by both academics and politicians (despite expedient political rhetoric) — future investment in urban housing will be prone to result in versions of the same ideas that gave New York Co-op City, St. Louis Pruitt Igoe, and Boston Columbia Point.

It would be folly to submit in Corbusian-fashion, a manifesto for consumption, a *recipe* for consideration. Rather, an understanding of the principles that have produced livable and healthy urban environments is necessary. It is the underlying structure, rather than fashion, that dictates success.

The traditional American grid, the formal structure of most American cities, possesses a tolerance for variety and architectural expression. Within a simple underlying structure, there is ample room for variation, and contemporary architecture can be absorbed within a clearly understood system of streets, blocks, and open space. It is only when the structural bonds of the urban fabric are severely compromised that for-

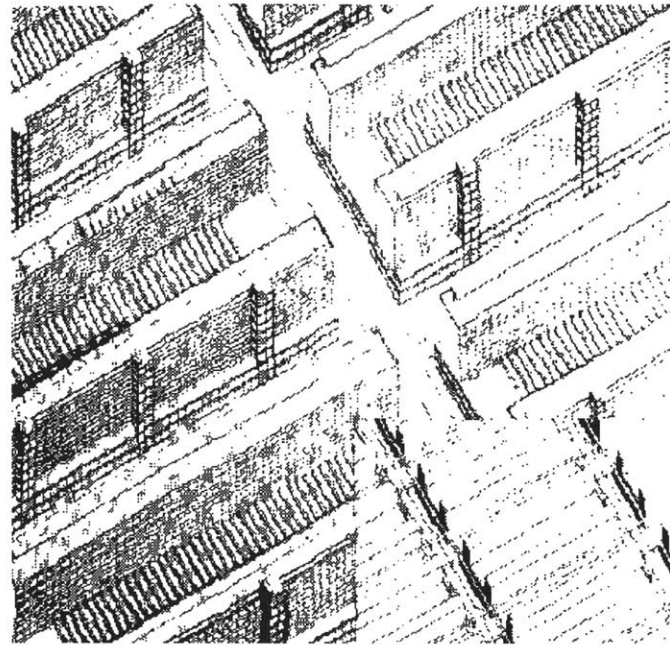


fig. 3.1 Slab apartment blocks. Ludwig Hilberseimer.

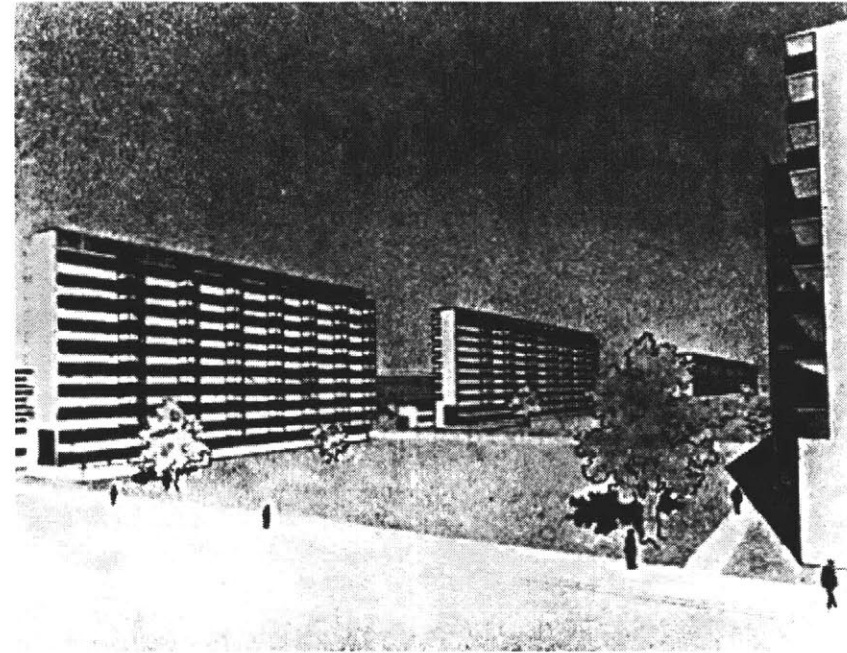


fig.3.2 Slab apartment blocks. Walter Gropius, 1931.

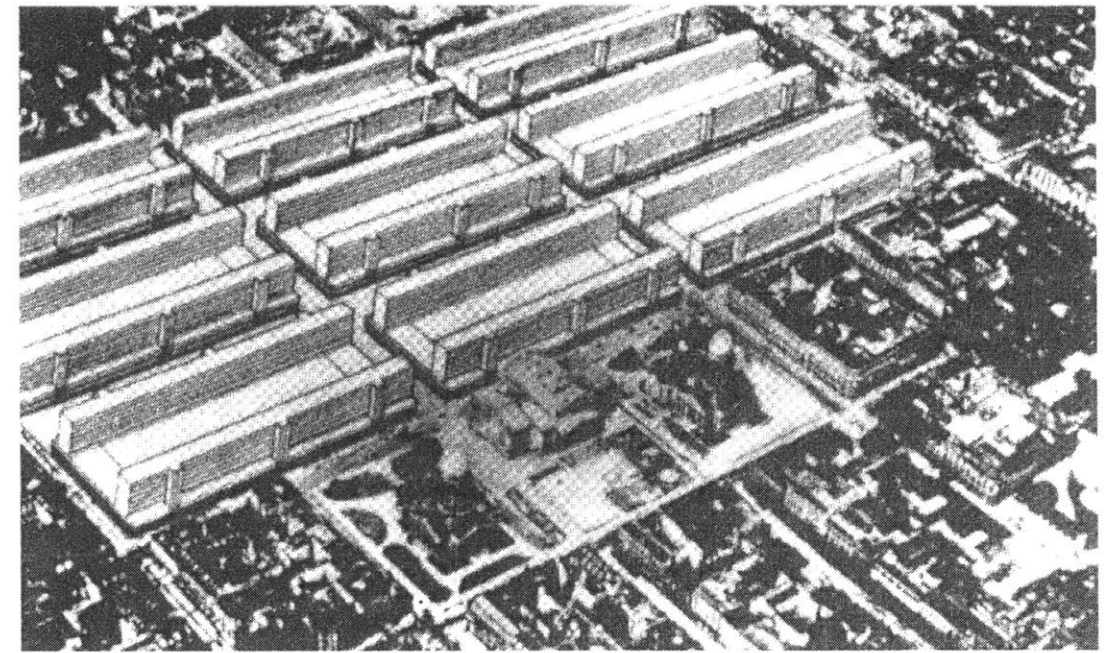


fig. 3.3 Unter der Linden, Berlin. Ludwig Hilberseimer.

mal chaos ensues. It is as if bones were to be removed from a skeleton. Take away a few and something else will make up for it. Take away a lot, and the whole thing is rendered inoperable.

The structure of the city, perceivable or not, establishes an order within which interdependent systems work. It is this structure that controls the individual parts. The relationships of urban form and topography, of built fabric to open space, of housing to institutional buildings, of public and private transportation systems, and of pedestrian patterns to each all them, are separate but dependent aspects of every urban organism.

### The Cell and The City

A conceptual understanding of the complex relationship between a dwelling unit and urban form is necessary for an understanding of urban housing. The structure of the city cannot be meaningfully evaluated without an idea about how the habitable unit operates within it, and how both are linked at an intermediate scale by the block.

If we allow that seventy-five percent of the constructed footprint of most cities is composed of residential stock, then, at least in terms of quantity, the association between the dwelling and the city is clear. The city, composed of

so much housing mass, must be a product of the stuff of which it is made; conversely, urban form affects unit type. Together with zoning laws, the layout of blocks, their size, shape, and orientation, lot size and form, as well as the dimensions of the street, each impose certain constraints on building and unit type. Though urban housing is often studied independently of urban form, the living unit and city are symbiotic codeterminants. Any *a priori* condition of either, including lot division, is automatically a determinant of the other. It is difficult, if not impossible, to disassociate formal aspects of the unit from urban order, or urban plan from the housing it contains.

Few have ruminated on the interdependence of the unit and the city, for it appears an elusive association. Of all unlikely sources for such speculation, Ludwig Hilberseimer is perhaps the most unlikely. Yet his evaluation, though problematic, is eminently insightful.

Focused by contemporary debate centered on revisionist urban theory and modern housing proposals, Hilberseimer recognized both the formal and social relationship between a room and its urban context:

*The architecture of the large city depends essentially on the solution given to two factors: The elementary cell and the urban organism as a whole. The single room as the constituent element of habitation will determine the aspect of the habitation, and since the habitations in turn form blocks, the room*

*will become a factor of urban configuration, which is architecture's true goal. Reciprocally, the planimetric structure of the city will have a substantial influence on the design of the habitation and the room.<sup>1</sup>*

In his discussion of "radical" architecture, Manfredo Tafuri notes that "Hilberseimer did not offer 'models' for designing, but rather established, at the most abstract and therefore most general level possible, the coordinates and dimensions of the design itself."<sup>2</sup> While this is true of his texts, Hilberseimer's drawings are specific, at least in their description of an urban model (fig. 3.1). Additionally, they share conceptual ideals and stylistic similarities with his contemporaries Mies and Gropius. However more cogent an analysis of the city/housing equation. Hilberseimer may have been able to provide, they were all working within the same idealistic framework, and the product, especially as concerns an image of urban form, is similar: it was based on the idea of mechanization, and mass production of the *cell* (unit), which was subject to requirements that it include access to light and air among other things (3.2). The images of model housing schemes reveal, for the most part, unrelieved homogeneity. Within the limits of Hilberseimer's logic, with mechanization and production (absolute sameness), chosen as the method by which unit design would be conceived, formal urban expression is constrained but not necessarily determined. But as far as can be extrapolated from drawn evidence, mass production of the

cell could produce only one urban type. The drawings reveal an absolute state far less abstract in nature than Tafuri would have it be.

As Tafuri notes, "For the lucidity of his exposition and his reduction of the problems to their essentials, what Hilberseimer wrote on the relation between the cell and the urban organism is exemplary."<sup>3</sup> The typological interdependence of the living unit or room ("cell") to urban order is clear. But the question still remains: what kind of city, what cell type? The idea of a mass-produced cell does not necessarily beget only one urban type. But in Hilberseimer's case, there appear no variables. The idea for the city begins with the cell as a highly functional entity requiring, among other things, maximum light and air, and follows with buildings that are rigid, additive, and repetitive layouts of the unit. The street and other public places of the city were understood simply as the spaces between: those areas given over to the movement of cars and trucks. The urban plan, ascribed little importance as a generator of form, is no longer a determinant in the process of design, as Hilberseimer suggests it naturally might be. Instead, it is the result of an aggregative process determined by the requirements of the cell (fig.3.3).

The process by which Hilberseimer and like-minded architects of the twenties determined urban plans is contrary to the method employed for example, by Haussmann. Where one begins with the unit, the other begins with the broadest



idea of urban arrangement (fig. 3.4 and fig.3.5). Where the first was inspired by mechanization and industrial production, the second was inspired by the formal urban and the functional elegance of the boulevard. Whereas the former approach begins with the detail, the latter is focused initially by a large-scale urban idea in which the unit must conform to a predetermined urban order.

Hausmann's approach, or any other, for that matter, in which the streets and blocks are given precedence, is by definition urban. Hilberseimer's method for housing propagation is one that ultimately results in anti-urban formal expression. That the most cogent of statements regarding the relationship of the room to the city would spring from an architect of Hilberseimer's ilk is not without irony.

Together with Le Corbusier and Gropius, Hilberseimer produced some of the most conspicuous (and influential) images for twentieth century housing, whose American issue, at the very least, has proved to be uniformly hostile to urban life. Hilberseimer's housing proposals, like many of the era and even more that it inspired, understood housing as a collection of so many units aligned to form slabs, not necessarily limited by block constraints determined by the necessity of moving through a city on foot, but by practical constraints (such as they were) governed by automobile operation. What remnants of the idea of streets and blocks there may have been were in fact so altered that they were assigned new names in modernist lingo: transportation corridor, traffic-bearing ribbon.

A vision of a city in which urban order is based on cellular requirements for light, air, and functional requirements of traffic control were realized, at least to some degree, in the work of many architects on both sides of the Atlantic. Few of the attempts were successful. Most suffered from a single-minded focus on the living unit as a cell that could be replicated and joined together into versions of simple bar buildings that were terminated, not for some overriding spatial idea, but to make way for cars.

In his analysis of Hilberseimer, Tafuri notes that "the single building is no longer an 'object.' It is only the place in which the elementary assemblage of single cells assumes physical form." And specifically in explanation of Hilberseimer's housing proposals: "Since these cells are reproducible *ad infinitum*, they conceptually embody the prime structures of a production line that excludes the old concepts of 'place' or 'space.'"<sup>4</sup> If, as Tafuri notes, the traditional urban concepts of space and place are contrary to an idea of repetitious production (Hilberseimer's proposals for Berlin seem to bear this out), then the opposite must also be true: that a city based on traditional ideas of space-making is unable to accommodate standardized housing repetition.

But then how to account for the urban structure of London and Bath (fig. 3.6 and fig. 3.7), whose identity is defined by both repetition of unit *and*, as far as Hilberseimer was

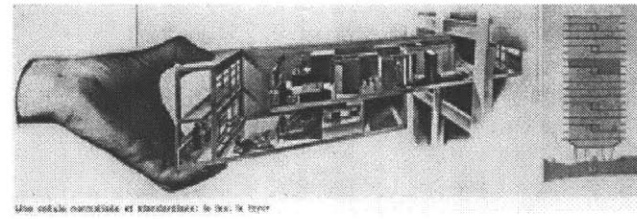


fig. 3.4 The importance of the standardized unit. Le Corbusier.

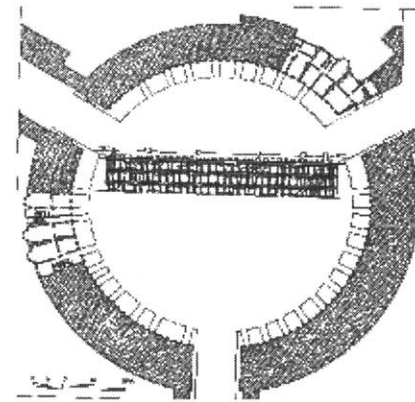


fig. 3.6 Plan of the Circus, Bath.



fig. 3.8 Park Avenue and 57th Street looking South.

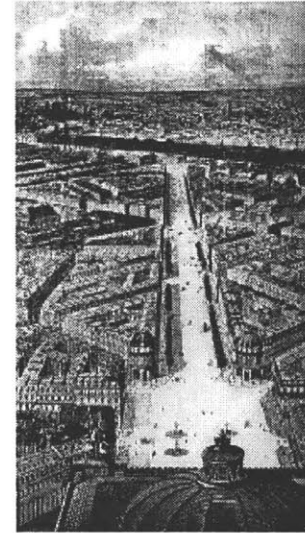


fig. 3.5 Avenue de l'Opéra. One of Hausmann's many Parisian boulevards.



fig. 3.7 View of the Circus, Bath.



fig. 3.9 Eighth Avenue and 111th Street, New York City looking North.

concerned, traditional ideas of urban space-making? What is missing from Hilberseimer's equation is an intermediate step. If, between the habitable unit and the city structure, there is a clear definition of the block as a form-determining element that operates as mediator of the two orders, the connectedness of the relationship begins to make more sense. The form-determining rules governed by the definition of block type are crucial to a complete understanding of the urban structure. Thus, Hilberseimer's statement "The structure of the city, by dictating the laws of assemblage, will be able to influence the standard form of the cell"<sup>5</sup> is incomplete.

While the overall strategic structure of a city does dictate the laws of assemblage insofar as the location, size, and shape of blocks and streets are concerned, the character of those streets as they are fashioned by surrounding buildings is defined by both zoning laws and architecture. Though the block plan of Manhattan is uncompromisingly uniform, the character of each distinct area is described by the architecture of the block (fig. 3.8 and fig. 3.9), which in turn directly affects the design of the cell. Without a descriptive architectural clarification and zoning description relative to the block, as well as a volumetric definition (if it is not already "structurally" integral), the cell might be developed in a variety of ways. As a direct function of the structural grid of Manhattan, an apartment in an early twentieth-century Upper West Side apartment block is no different from an apartment in a tenement on the Lower East Side. Further typologic classification, however, naturally places limits on possible unit permutations. It is the description of the block, the volume of construction, the size of the building (as a function of zoning regulation), and the architectural expression that define the individual character of both public streets and the private cell. The nature of the city and that of the unit are typologically intertwined by way of the street, the block, and the building.

Within every city, each neighborhood, controlled by a different set of economic, cultural, and geographic circumstance yields a set of typologically diverse blocks that at once define and are themselves defined by the large urban order. But it is the block, as the crucial mediator between the urban scale and the unit, that to a great extent is the controlling factor in urban development. Even small adjustments to the rules governing architecture and planning of the block will markedly alter the nature of both street and the urban texture.

Lot division alone, given the same block size and house type, is enough to significantly modify urban character. One need only compare individual blocks of the Philadelphia gridiron or blocks in the Back Bay and South End of Boston to realize the importance of subtle block distinctions.

## The Plat vs. The Unit

The nineteenth-century American predisposition to plat planning is evident, as is the Corbusian-Hilberseimerian aversion to the same. Early twentieth-century interest in the unit and multiples thereof inverted the idea and the method by which the modern city was to be made, from a composition of blocks and streets to one infatuated with the logic of the unit. The traditional, conspicuous prominence of the street was displaced in the twentieth century by a thorough dominance of the apartment. Though an overzealous focus on the street, it might be argued, produced apartment types that were required to accommodate odd conditions, the alternate, it might be equally argued, produced a city void of public amenity. Though neither is convincing in the absolute, the idea of a city built according to principles focused primarily on the individual is at odds with its defining purpose: all pretense to civic, public, and “urbane” life would have to be extinguished.

If the eighteenth-century expansion of Berlin, as represented in the Mehring Platz perspective (fig. 3.10), illustrates an extreme development of one condition, then the model of Skidmore, Owings, and Merrill’s (SOM) North Harlem public housing represents the other (fig. 3.11). One is all public, the other predominantly private. The attenuated perimeter blocks in Berlin, plan figures left over as a result of an interest in highly figural public spaces, required that apartment buildings be tailored to fit the block. Especially as the interior gardens were replaced with apartment houses, large, odd-shaped blocks demanded individual attention for every building. And because preference unquestionably belongs to the street, some flats were probably not exemplary in layout. The SOM North Harlem apartments, however, with three basic apartment types, all work well, and only had to be designed once as no conditional problems needed to be resolved (fig. 3.12). Because it is independent of site, the SOM building as designed presumably could be repeated *ad infinitum*: and probably would have been, had the site allowed. The apartments in the SOM design may be of exemplary design and accommodating of private lives, but the public space within the project, the space that surrounds the buildings, is not amenable to public life.

Though in America the layout of streets and public spaces has only rarely achieved the figural quality of Mehring Platz or the open space of Paris, urban gridiron plat planning does place primary importance on the structure of the public space: the streets and public open areas. Limits to housing development in eighteenth- and nineteenth-century neighborhoods were guarded by an overriding dominance of the concept of street. Modern housing development guided by the supremacy of the unit, however, has no such public priority; the inner workings of the building alone, without any particular relationship to other urban structure, takes precedence.

## Repetition

The idea that housing is by definition repetitive is something we take for granted — and largely it is, both in plan and elevation. Industrialization in the late nineteenth century accelerated the production and increased the availability of building materials. The means, together with an increased fascination for the aesthetic of large-scale production (applied to housing, as well as to a plethora of other products), resulted in the realization of large-scale, repetitious housing projects, both urban and suburban. Economy of production further encouraged repetition not only of individual building parts, but also of building form. Le Corbusier’s fascination with the “cellular system,” geometry, standardization, and the means for achieving it had far-reaching influence. As he saw it, “as a consequence of repetition, the *standard* is created, and so perfection (the creation of types).”<sup>6</sup> According to the rules laid out in *The City of Tomorrow*, the means for achieving perfection, at least as far as housing is concerned, could only be found by building on clear sites and on a large scale. The paired importance of economy and production follow naturally, for “repetition dominates everything. We are unable to produce industrially at normal prices without it; it is impossible to solve the housing problem without it.”<sup>7</sup> Where previously, in Vienna for example, great pains were taken, even with minimal means, to deemphasize the effect of mechanistic repetitiveness in large-scale housing developments (fig. 3.13), Le Corbusier elevated the idea of industrial production and formal repetition at an urban scale to one of social importance (fig. 3.14).

Le Corbusier’s arguments for repetition and mechanization, unconvincing at the urban scale even by his own numerous sketches, made manifest by hands less talented than his own, have yielded projects far from his envisioned state of perfection. In spite of many illustrations of the successful employment of repetition in architecture and urban design, modern examples of repetitive unit housing developments throw into doubt the notion that formal repetition is either architecturally or urbanistically desirable. In fact, within the context of modern housing, the repetition of building form and block is often uneventful, and seems the result of thoughtless production.

But neither the notion nor the employment of repetition is objectionable in itself. Nobody complains about the highly repetitive block form of the Cerda grid (fig. 3.15), Philadelphia, New York, or the Back Bay, the seemingly endless profusion of loggia lining the streets of Turin, nor the repetitive disposition of windows on the Rue de Rivoli (fig. 3.16) or the Procuracies of San Marco. To the contrary, they are all examples of architecture and urban design in which repetition is specifically exploited to the benefit of the compositional whole. To the same end, it is important to note that repetition and rhythm are exploited in all arts: music, poetry, painting, and oratory are obvious examples.

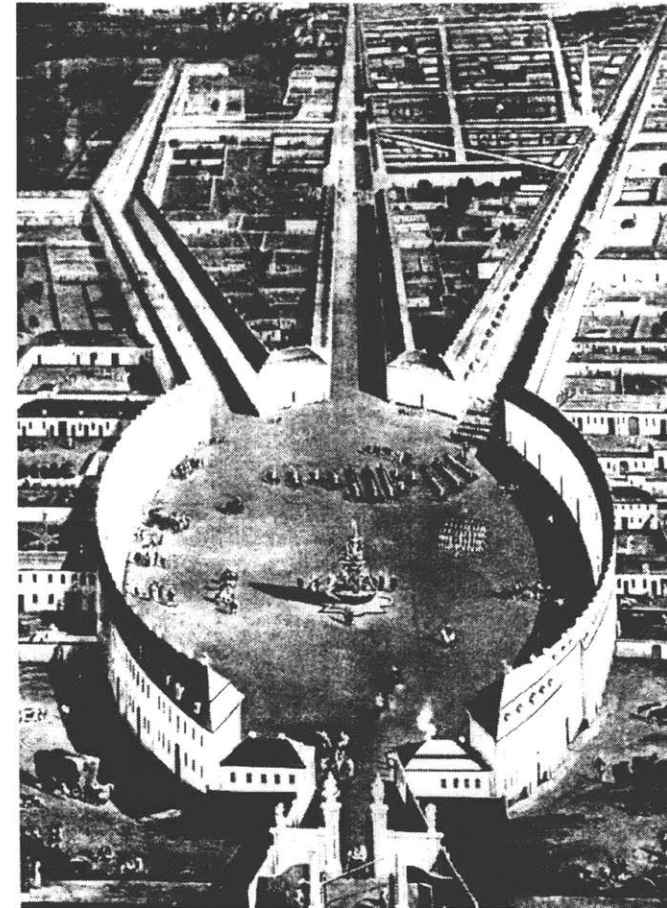


fig. 3.10 Mehring Platz, Berlin. The preeminence of public space.

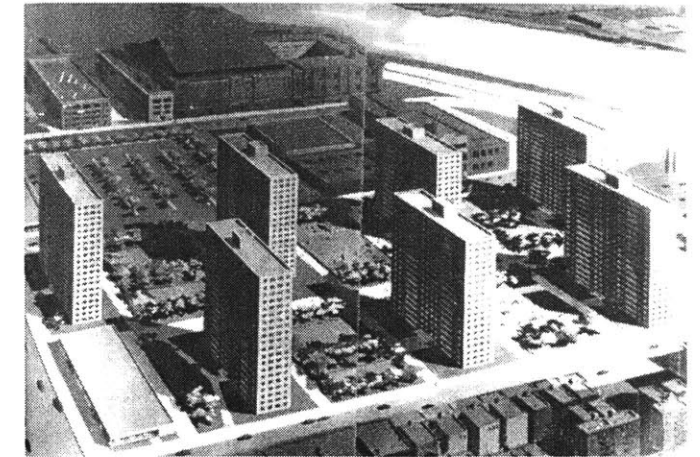


fig. 3.11 Prototypical public housing proposal for New York City, 1951. Skidmore, Owings and Merrill.

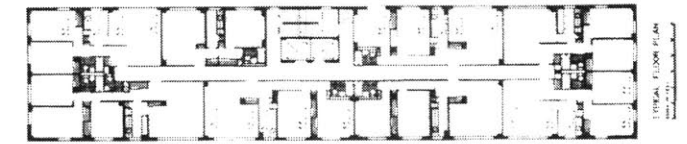


fig. 3.12 Prototypical building plan for public housing, New York City, 1951. Skidmore, Owings and Merrill.



fig. 3.13 Schuttaufof, Vienna.

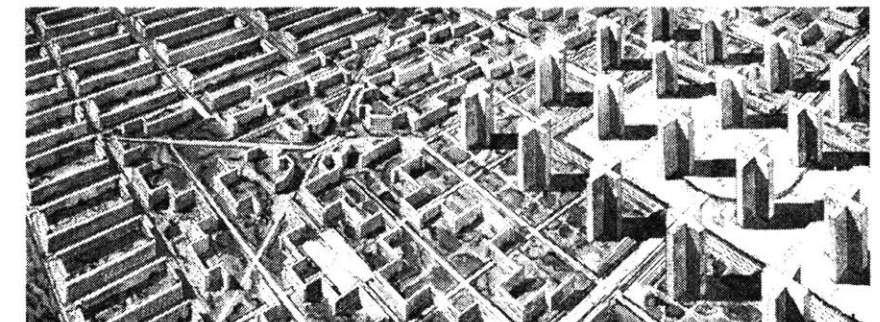


fig. 3.14 Ville Contemporaine



fig.3.15 Aerial view of Barcelona.

In architecture and urban design however, the list of modern examples, is short. If earlier examples exploit the idea of repetition to their advantage, the problems of modern developments must lie elsewhere: either in the urban plan or in the particulars of architectural expression.

Although Le Corbusier cites the Procuracies of San Marco, the Place des Vosges, and the Place Vendôme as paradigms of “uniformity,” the legitimizers of repetition (which are also places of “foliage, lawns and flowering plants,”<sup>8</sup> in the Parisian examples), he fails to acknowledge their common and significant urban importance: each is an *exceptional* space within the structure of an *urban uniformity* of blocks and streets. The repetition of uniform fabric serves an important function: it sets the ground for the understanding of the exceptional. And though it is perfectly evident that Le Corbusier does realize the significance of open spaces in comparison to a heterogeneous fabric, where it proves expedient, his own earlier observations are ignored: “In Venice the common measure of the ordinary quarters of the town causes the more splendid squares and places to ‘stand out’ in a lively fashion.”<sup>9</sup> As an example of the effectiveness of repetition in housing, Le Corbusier’s preference for the image of Place des Vosges that isolates the interior wrapper so that it might be interpreted as a linear (albeit repetitious) object is at best misleading. But to use it as a model for linear housing schemes based on the cellular system is absurd (fig. 3.18 and fig 3.19). The success of a repeti-



fig. 3.16 View of Rue de Rivoli, Paris.

tious architecture in the Place des Vosges can only legitimately be understood within the context of its exceptional status in a larger urban order.

While it is accurate that here “the old corridor-street has given way to wide, noble and cheerful spaces,”<sup>10</sup> without those old corridors, there would be nothing to give way to. However flawed Le Corbusier’s argument concerning urban design and repetition of building form was, it had profound effect in 1929, when *The City of Tomorrow* was first translated into English. And the evidence is now all around us. The exploitation of mechanized repetition in modern American housing projects, in which it represents nothing greater than economic austerity, begs an understanding of the use of repetition in traditional housing like the Place des Vosges or the Procuracies in Venice: in both, an alliance between the building and open public space defined by a continuous and articulate wall surface serves to further an idea of noble extravagance.

Based on traditional examples, it is not difficult to make a convincing argument for the importance of block repetition, especially as it functions in establishing neighborhoods. The more important question, however, is to what extent block repetition is useful, and at what point it becomes exaggerated and / or destructive. There are no sure answers to the question, but there are examples that may be examined.

The relatively small and circumscribed neighborhoods

of Boston, consistent in plan, building type, and style, stretch for no more than eight blocks by four blocks in the case of the Back Bay, and roughly fourteen by four blocks in the South End. Neither is exceptionally large, and in both, though the urban plan exhibits uniformity, individual buildings are varied within an overall pattern. The extent of the block repetition is neither too exaggerated nor too small, and each neighborhood is defined by distinct boundaries. But the plan of Boston is unusual. The uniform grid of New York is broken down by a completely separate set of conditions, which are somewhat less cogent but nonetheless recognizable.

To guess, from plan information alone, where one neighborhood begins and another ends in New York, would be impossible. Though the regular grid, broken only by Broadway, gives no indication of the variety of distinct districts, qualities other than block and street size — rhythm of the street, style and material of buildings, building height and use, boundaries demarcated by large streets and avenues, and proximity to open space — all formally contribute to the distinguishing character of each neighborhood. While order is provided by continuity of the simple orthogonal layout, secondary order and subdivisions are created by qualities independent of block size and dimension.

Not only are a diverse assortment of residential neighborhoods possible, but even within the strict limits of a highly defined and continuous order, urban monuments of the tradi-

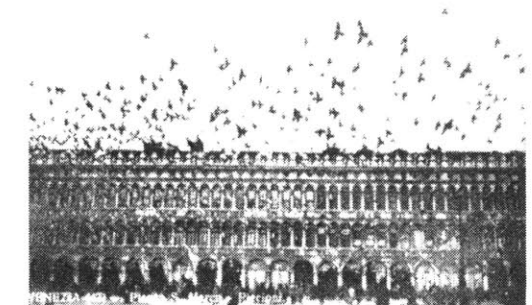


fig. 3.17 The Procuracies of Piazza San Marco, Venice.

tional variety can be integrated. The formal urban elegance of St. Patrick’s Cathedral (fig. 3.20), for example (it is both an exception to — and a continuous piece of the grid), has been noted elsewhere.<sup>11</sup> Its similarity to the traditional setup in the fortified town of Montpazier, France (fig. 3.21), is worth noting, not only for comparative purposes but as an example of the interpolative and subtle flexibility of the continuous grid-iron in both thirteenth-century and modern idioms.

Though prodigious variety can be sustained within a repetitive grid, the same cannot be said for a plan like Co-op City (fig. 3.22), which encompasses over 400 acres of recovered landfill in the Bronx. No amount of architectural variety or stylistic improvement could overcome the inadequacy of the urban plan there, which provides neither order nor meaningful discontinuity. If Manhattan appears too much of a good thing in plan (never ending perimeter block housing and defined public streets), then Co-op city is the apotheosis of too much of a bad thing. It does not even succeed at sustained confusion. Other examples, however, are less clear: the early-twentieth-century developments of Amsterdam (fig. 3.23) or Bruno Taut’s enormous housing developments in Berlin, though perhaps too large, are not without either urban or architectural merit. Though repetitive in style and building plan to an extreme, the urban plans often exhibit enough block and street integrity to justify sustained interest.

### Street Wall: Building, Block, Street

The building wall, at once the limit of interior space and the space of the street, is not frequently examined as a segment in the broad continuum of urban fabric. The idea that a building face represents what it contains is straightforward. What is more difficult to clarify is the relationship of a facade or a series of building faces, and to the overall meaning of a city, especially a large and complex one. But in the context of a small town, the relevance of each building and every facade is immediate and the concept may be clearly explained. Small-town streets are typically a mixed collection of civic buildings, stores, and private houses. Each building is located on its own lot, and each faces onto the public street. The collection of both public and private buildings whose fronts align, circumscribing the public space, furnishes exclusive identity to the town:

*On traditional Main Street the false front was imbued with meaning beyond its own existence. Main Street represented urbanity, symbolically assuring the inhabitants and visitors of the presence of civilization as they know or imagined it to be. In order for the daily rituals of town and city life (and therefore a civilized identity) to be preserved in frontier conditions, it was necessary first to perceive a town, or at least its main street: substantial-looking facades with lots of windows forming the two walls of a street, with porches running along them.<sup>12</sup>*

The association of the individual (both person and building) with the collective, particularly the individual as one of many that together imbue a significant place with formal meaning, is important to the understanding of urban housing. The formal relationship between an individual building and the public space of a one-street town is mutual; each is defined by the other. The same is true of a more densely built-up street in which lots are small, buildings form a continuous wall, and each building is identified by at least a door. But as lots get larger and a single building may contain several units, the direct, one-to-one relationship between part and whole changes. If the street and block have legible form, however, and are integrated parts of the city fabric, identity is maintained via connection to the urban order.

Traditional housing blocks, whether row houses, tenement buildings or apartment houses, all conform to the block perimeter giving the street an identifiable form. The facade of a building may be simultaneously understood both as a form-giving element to the street and the exterior wrapper to the housing beyond. The design of the street wall as a positive construct of urban form is vital to traditional urban design. Implicit is the acknowledged importance of the street as a piece of civic architecture in which the design of the public space is as important as what goes on behind the building face. But the idea that the street should be the focus of attention — architecturally discrete and crucial to the overall organization of the city — was not well considered either by the architects or

the clients of most modernist housing.

Post-CIAM 4 urban theory focused on the city as a machine and streets as a means to get from one place to another, preferably in a car. As the meaning and form of the street changed from a civic structure of urban importance to a transportation-only thoroughfare, the street wall composed of house and apartment facades lost significance. Neither the building itself nor its occupants were thereby accorded an importance in the physical civic structure, and by association the social structure of the urban totality. The fundamental idea of the identity of the individual as an integral and significant part of the urban fabric, so crucial to the identity of a small town, was disposed of in favor of a preference for the legibility of technology.

Maintenance of the street wall is significant not only as a tool of formal unity, but as an instrument of civic culture. Without public space, which is the connective tissue both of buildings and of the people they represent, there is no civic life.

### Density

Despite the common assumption that low-density residential districts are exclusive and in high demand — that less building increases value, is not always true. Whereas the suburban ideal is predicated on the notion of increased open space in proportion to building area, in urban centers that relationship is not plainly evident. In fact, there is sufficient evidence to conclude otherwise.

From the early twenties on, building coverage and unit densities were the subject of frequent housing analysis. For several consecutive years, *Architectural Record* ran an annual issue dedicated exclusively to housing, much of it devoted to residential planning theory and analysis of the economics of construction, maintenance, and site coverage (3.24). The debate carried on in these issues over optimal form and lot coverage of garden apartments was ultimately inconclusive. But for high-rise apartment buildings, especially those intended for low-income residents, the goal was clear: reduced site coverage, increased "park" area, and increased unit density. In pursuit of the Corbusian ideal, floorplates of residential towers grew ever more compact.

But apartment buildings of the upper classes, especially the older examples, defy the notion that reduced coverage is advantageous, or even desirable. The Aphorp (80% lot coverage) and the San Remo (70% lot coverage) are two of the most elegant buildings in New York City. Though apartments in both buildings are palatial by any standard, thus low in unit density, FAR reaches 8.8 for the Aphorp and 4.7 for the San Remo. By comparison, Stuyvesant Town, typical of many low-income housing projects, achieves a reduced lot coverage of 26% and an FAR of 3.23. Judging from these num-

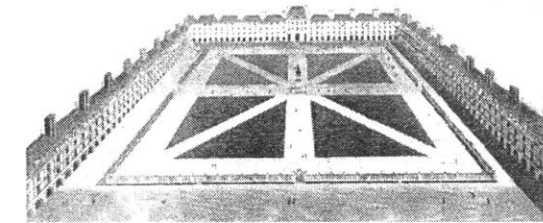
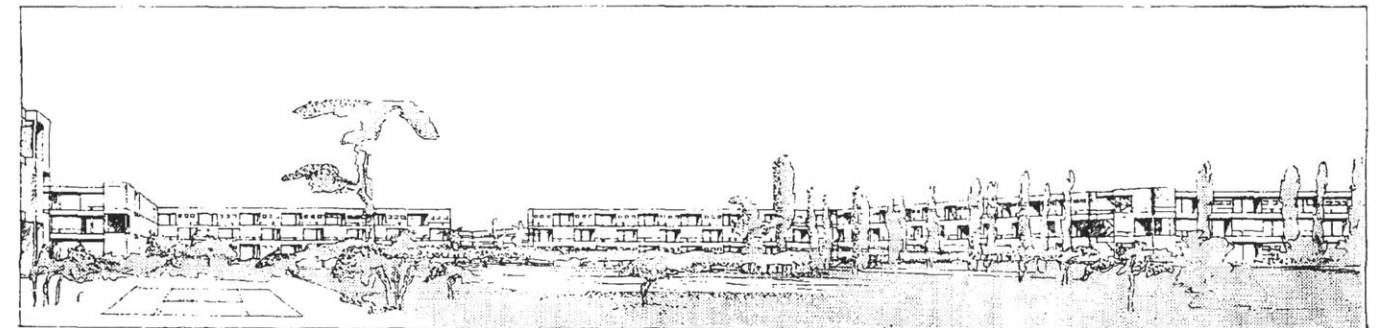


fig. 3.18 Le Corbusiers version of the Place de vosges.



A HOUSING SCHEME ON THE CELLULAR SYSTEM  
*A rational utilization of the ground area. An eminently architectural solution.*

fig. 3.19 Proposal for cellular housing, Le Corbusier.

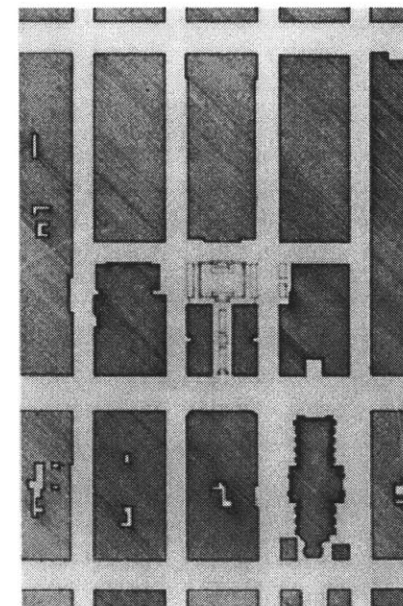


fig. 3.20 St. Patrick's Cathedral, New York City.

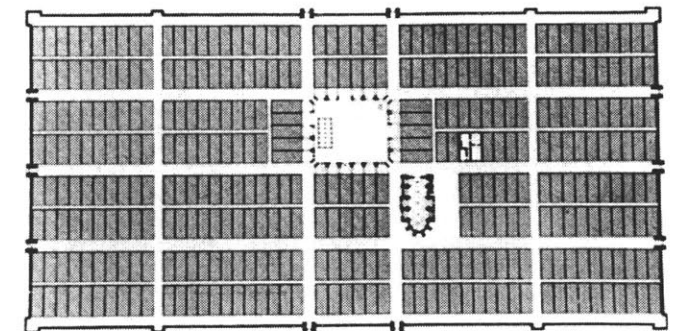


fig. 3.21 Monpazier, France.

bers, one would have to conclude that elevated FAR and increased coverage produce better buildings.

Because unit size varies from building to building and is dependent on building type rather than a simple calculation of plan area, direct comparison of units per acre is not an accurate measure of comparative density. For the sake of speculation, however, and assuming that Stuyvesant Town-size apartments could be easily integrated into a building of Apthorp-like bulk, the resulting unit density would be 2.7 times as great as at Stuyvesant Town itself, a whopping 389 units per acre (compared to Stuyvesant Town's 143).

Statistical comparison of row house blocks in Philadelphia reveals similar results: the more elegant blocks in exclusive areas of the city are those that are higher in FAR and higher in building lot coverage. For example, of the three blocks included in this study, the poorest, St. Alban's Place, is also the one with the lowest coverage (greatest amount of open space) and the lowest FAR. Though the average unit on the 2000 block of Delancey Place is 1.7 times as large as a unit on St. Alban's Place, the number of units per acre (to c.l. street) is not significantly different. Though an increase in bulk is usually imagined to be less desirable, in fact the increased bulk of the 2000 block changes the proportion of the midblock street for the better.

The idea that lower coverage and lower FAR make better urban housing is simply not supportable. Related factors are equally important, and neither can be rationally exploited independent of the others: size of block, lot division, bulk, and units per acre must all be considered part of the same equation. Decreased lot coverage alone, the mantra of modernist housing exponents, is insufficiently descriptive to balance complex requirements of unit, building, and street.

## Zoning

The importance of zoning as an instrument not only of formal but social and economic control cannot be overemphasized: it is the embodiment of the expressed will of both an architectural-planning agenda, and a social one. Economic security of suburban towns and villages is established in no small part by zoning law, and though zoning tends to be enormously complicated in urban centers, it is employed there with equal social, economic, and political intent. Formal controls, intended as they might be to support long-term quality of life issues, are under constant pressure by economic interests. And though those interests are not always at odds with the former (like the adjustments in New York zoning law that allowed and encouraged increased bulk in 1916 and resulted in West End and Park avenues), a constant balance must be maintained. Seemingly innocent restrictions like limits on density and lot size may be employed to maintain urban continuity, but can also increase land value, therefore limiting the population of the area to a

given class.

The idea that zoning legislation can be used as an urban design tool, established with explicit formal intent is not new. The power of zoning codes to control the structure of public space has renewed interest in their application, especially in the development of new towns. As a model for new zoning, the Back Bay in Boston represents only one instance of the formal achievement of even minimal zoning regulation. Rules that controlled individual lot line setback and maximum bay window projections, elegantly and simply established the wall, and the formal identity of the public space. The same is true of the Building Zone Plan of 1916 in New York City: height limits placed on building walls along streets established a proportional relationship between the street width and its height, giving a identifiable form to the public space.

The New York City zoning resolution of 1961 was established with equal formal intent. It was written to codify a spatial and theoretical preference for towers that occupied positions in the middle of the block rather than at the block perimeter, and to do away with the formally identifiable space of the traditional street. The 1961 code promoted large-scale modernist developments, by encouraging open space in front of and around the building, in exchange for taller and thinner buildings with greater total floor area. The intent of the code was in perfect agreement with the agenda of the modernist movement: it shifted legal limits to development from those based on the shape of the street, to restrictions tied to the area of the building object (calculated by a complicated set of factors).

As an agent of benevolent forces, zoning legislation is a useful and important tool. Its established purpose, that of protecting overbuilding, and uncontrolled growth, is witness to its useful potential. But it can also be destructive of urban fabric, streets, public space, and ultimately civic life.

## Conclusion

It is too easy to dismiss modernist housing without qualification. Smaller apartments for poor and middle classes that were well lit and well ventilated filled an urgent need. If housing can be analyzed by two sets of interrelated standards, one urban and one having to do with the quality of the habitable unit, then it is possible — and necessary — to identify successful characteristics of modern examples. To produce housing that is responsive to both criteria, each must be simultaneously considered: the two are not exclusive either conceptually or in reality, and there are many well conceived residential blocks that may be employed as models.

London Terrace in New York City (see "Comparative Block Designs") was described at its completion in 1930 as "the greatest single residential development the world has ever seen."<sup>14</sup> Hyperbolic though that statement may now seem,

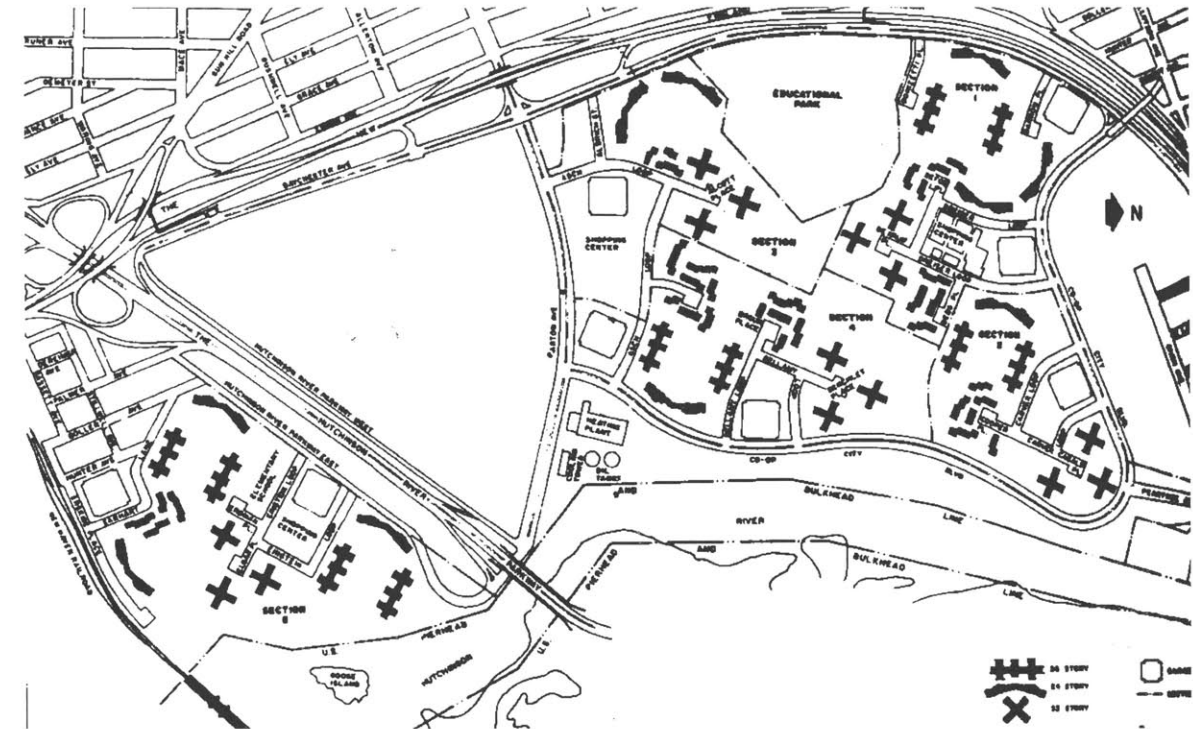


fig. 3.22 Co-op city, the Bronx, completed 1968-70.



fig 3. 3.23 Amsterdam South, 1930s.

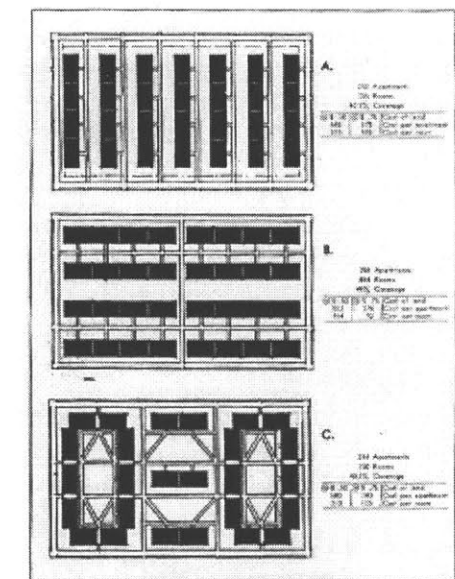


fig. 3.24 Comparison of site coverage, cost, and housing maintenance.

the project deserves more attention than it has received. The distribution of both small, repetitive apartments and relatively palatial units, complete with outdoor roof gardens, is unusual even in large developments. Designed as fourteen separate buildings (fig. 3.25 and fig. 3.26), each with a single entrance, over time the development has changed from one in which all units were leased into one in which the buildings on the corners that contain the larger apartments are cooperatively owned. The ten repetitive, midblock buildings, containing smaller apartments, are still all rentals. The flexibility inherent in the original design, in addition to a large assortment of apartment sizes, has allowed, perhaps encouraged, a mix of social and economic classes in a way that few buildings do. And despite its extremely high density (288 units/acre), the development has maintained its original popularity, in part because of its adherence to the traditional urban structure of the city. Of the communal functions built at the time of the building's inception, only the central garden is still accessible to all tenants. Unfortunately, the pool and sun deck have been cooped by the privately held towers; however, they are still in use and well maintained.

The full-block building, seemingly simple, is by many measures urbanistically sophisticated (fig. 3.27). Though it is an extremely bulky building and almost symmetrical, the subtle difference between the setbacks on Twenty-third and Twenty-fourth streets reveals a sensitivity to existing urban conditions not often found in projects of its size. The Twenty-third Street midblock buildings are pulled back from the lot line to allow for small gardens similar to the row house gardens across the street. Not only is the development unusually dense, but in addition to the residential units the ground floor is given over to commercial and professional uses. While the corner buildings contain retail outlets, a restaurant, and a post office, the midblock buildings are home to small professional practices. Thus, the traditional relationship between business activity and the street is well maintained. Though London Terrace is perhaps not a suitable model for every city, other developments equally demonstrate the same principles: urban block and street conformity, a mix of residential and other uses, residential unit variety, and an economy of construction as reflected in the repetition of building form and repetitive parts.

That a development like London Terrace was completed in 1930 at the dawn of the International Style onslaught is striking, for by 1930 the work of Le Corbusier, Gropius, and Breuer had already seriously challenged traditional urban theory, at least in Europe; barely a year later, Howe and Lescaze proposed the first large-scale modernist housing project in New York City on Chrystie Street (fig. 3.28 and fig. 3.29).<sup>15</sup>

London Terrace remains a reminder, of the avenue not taken — a modern typological rarity that emerged as a kind of overblown version of earlier garden apartment blocks. Before a fixation with reduced coverage aimed for an absolute minimum, and a penchant to set buildings at odd angles grew

fetishistic, full-block housing developments were often small versions of London Terrace. Buildings clung to the block perimeter and included open garden spaces in the center; but they were generally located outside the densest part of Manhattan. The nineteen stories of London Terrace were a necessary response to the relatively high land value of centrally located Manhattan property.

It is to precedents like London Terrace that we should turn our attention.

If we are to invest in cities once again, as we must, it is imperative that we understand that the life of every city depends on the activity of the people who must and do live there. Housing is an integral part of the economic and social growth of every city. With commitment and investment we must look to housing models that succeed on a number of levels, both social and formal. Demonstrated urban failures of the modern movement should be sufficient to warn against future housing development of a similar kind. Instead, we should be looking at the type of urban neighborhoods that integrate rather than isolate communities, both formally and socially. Though solving the formal issues of urban housing becomes more complex as social issues are loaded on top, integration of new housing into existing neighborhoods does not require mimicry. Planners and architects of the mid-twentieth century may have been off key in their blinded commitment to a reductive style, but simulated traditional style is no better. Without a complete understanding of an original urban type, the copy rings false.

Understanding the importance of streets and blocks, and the importance of urban fabric, does not oblige either architect or planner to any particular style. In fact, execution of traditional urban types within a modern stylistic idiom is what is called for. Communities transcend style. Cities do not transcend cogent urban unity.

1. Ludwig Hilberseimer, *Grossstadtarkitektur*, from Manfredo Tafuri, *Architecture and Utopia*, p. 104.
2. Tafuri, p. 106.
3. Tafuri, p. 104.
4. Tafuri, pp. 104-5.
5. Tafuri, p. 105.
6. *City of Tomorrow*, p. 220.
7. *City of Tomorrow*, p. 220.
8. *City of Tomorrow*, p. 237.
9. *City of Tomorrow*, p. 76.
10. *City of Tomorrow*, p. 237.
11. Colin Rowe, "The Present Urban Predicament," *The Cornell Journal of Architecture*, 1.
12. Klaus Herdeg, *The Decorated Diagram*, p. 20.
13. Shane, p. 35.
14. Andrew Alpern, *New York's Fabulous Luxury Apartments*, p. 124.
15. Plunz, p. 190.

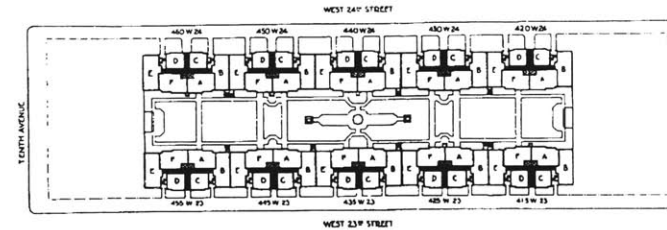


fig. 3.25 London Terrace schematic plan.

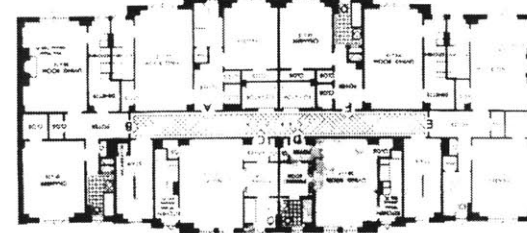


fig. 3.26 London Terrace floor plan detail.

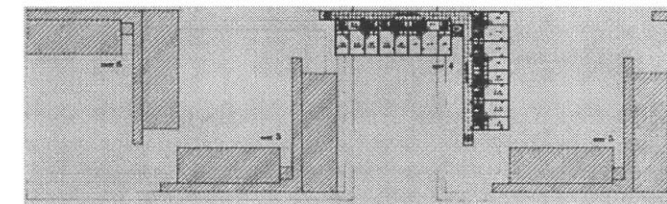


fig. 3.28 Plan of Howe and Lescaze Chrystie-Forsyth housing, 1931.



fig. 3.27 View of London Terrace.

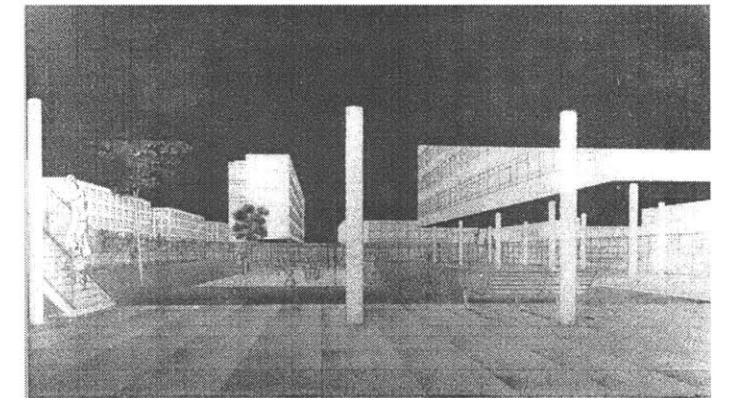
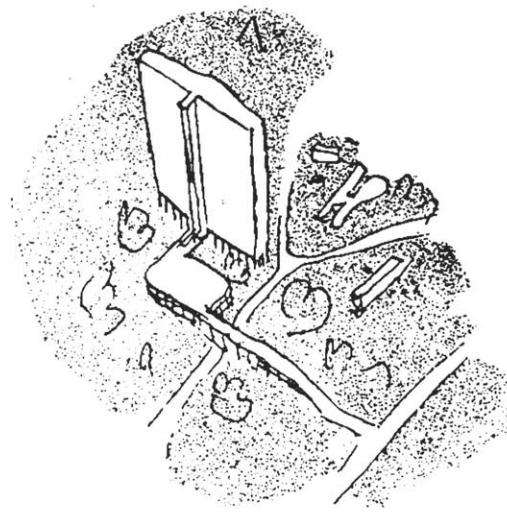
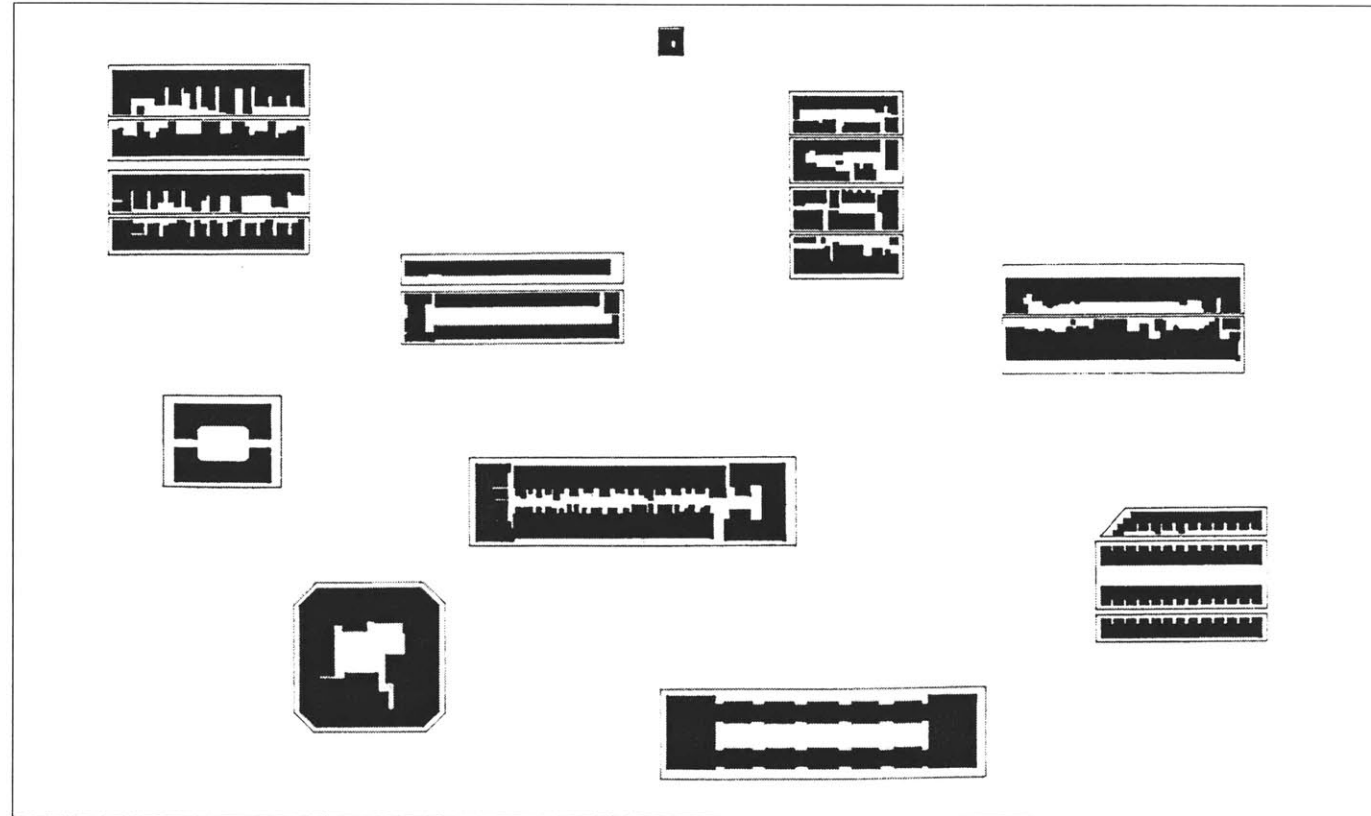


fig. 3.29 Howe and Lescaze Chrystie-Forsyth Street housing proposal, 1931.



#### 4. COMPARATIVE BLOCK DESIGNS

*Residential block plans at a scale of 1"=100' with building plans and block sections at a scale of 1"=64'*



These studies of housing blocks were assembled so that differences and similarities among them might be directly compared. Each describes a residential block both as a component of the greater urban fabric, and as a collection of residential units, for neither the dwelling nor the urban plan can be sufficiently understood in isolation.

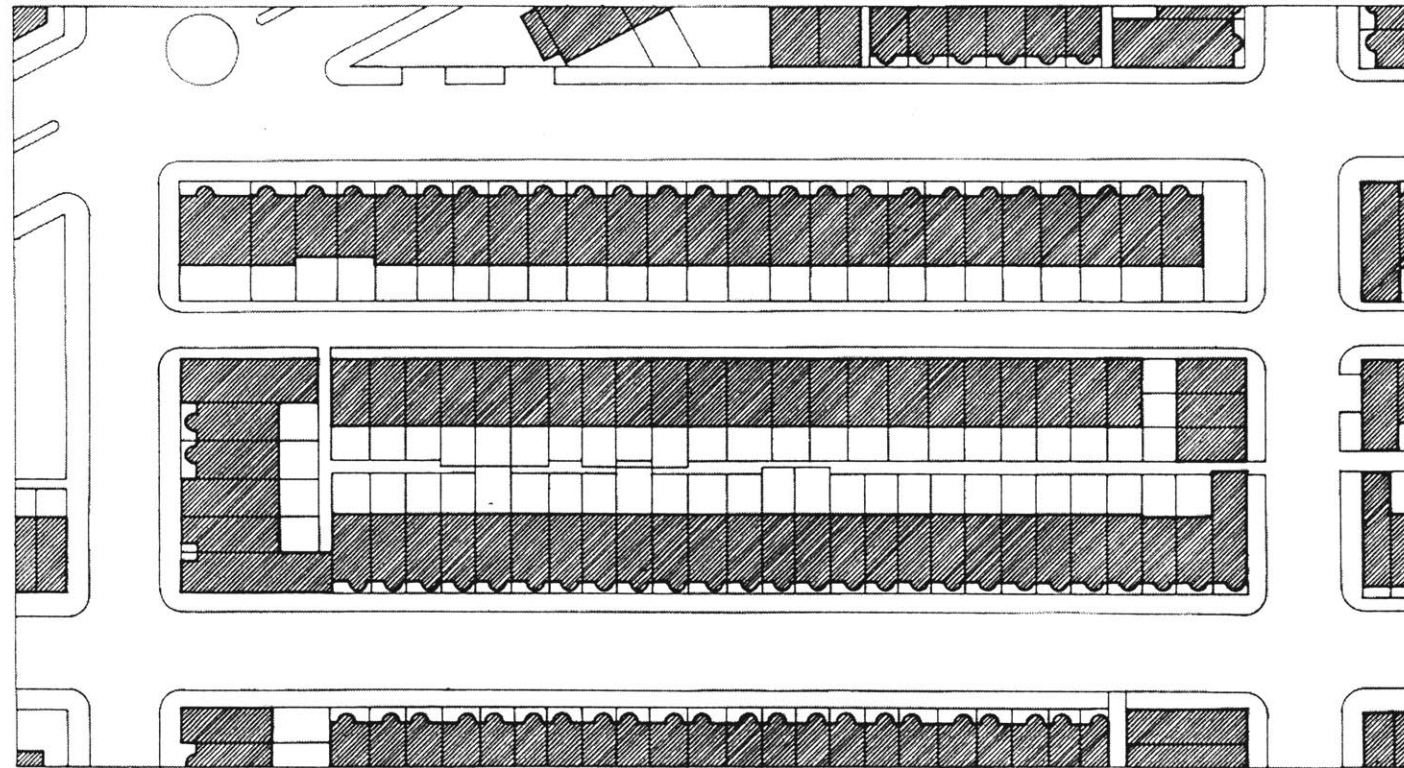
Though by no means comprehensive, the eleven selections presented here represent a range of residential block types; the seventeenth-century blocks of *I Quartieri Spagnoli* in Naples at one end of the spectrum, and the Stuyvesant Town mega-block at the other. The blocks of Boston, Philadelphia, and New York are typical of others in those cities, and similar to residential blocks in many American urban centers.

Comparison in form graphically represented with equal detail and at the same scale, enables a kind of typologic comparison that is otherwise difficult to make. These plates are presented as a tool to be exploited in the production of new urban housing. It is relative to things familiar, that value and meaning can be drawn

- Boston**.....*South End*  
*Back Bay*
  
- Philadelphia**.....*St. Alban's Place*  
*Delancey Place, 2400 Block*  
*Delancey Place, 2000 Block*
  
- New York**.....*The Aphorp*  
*The San Remo*  
*London Terrace*  
*Stuyvesant Town*
  
- Barcelona**.....*Cerda Grid Block*
  
- Naples**.....*I Quartieri Spagnoli*

**South End 1868-1910**

<i>Block Area, (to c.l. street)</i>	3.86 acres
<i>Block Dimension, (inc. sidewalk)</i>	235' x 572'
<i>Blocks / Acre</i>	0.26
<i>Public Area of Block, (to c.l. street)</i>	41%
<i>Total Lot Area</i>	2.27 acres
<i>Building Coverage of Block</i>	49%
<i>FAR</i>	3.17
<i>Units / Acre, (to c.l. street)</i>	78



**ROW HOUSE MEWS BLOCK**  
BOSTON

FEET 0 25 50 100 200





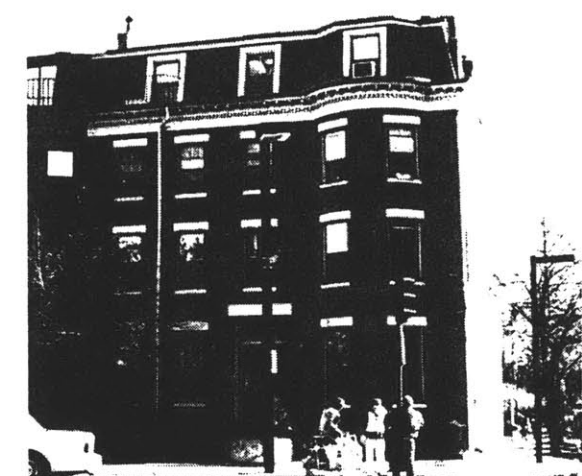
Appleton Street



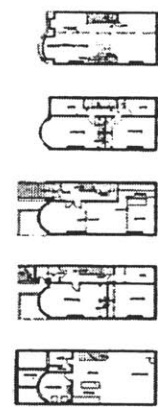
Mid-block alley



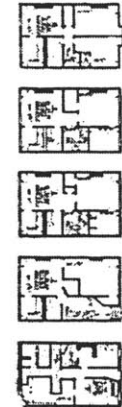
Lawrence Street



Chandler Street at Dartmouth Street



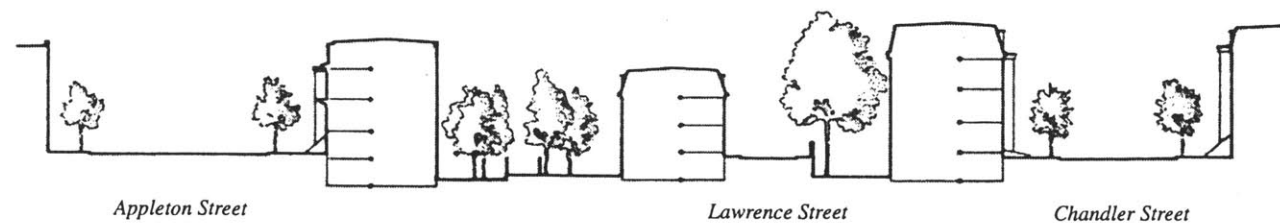
Plans  
105 Appleton Street



Plans  
35 Lawrence Place



Plans  
104 Chandler Street



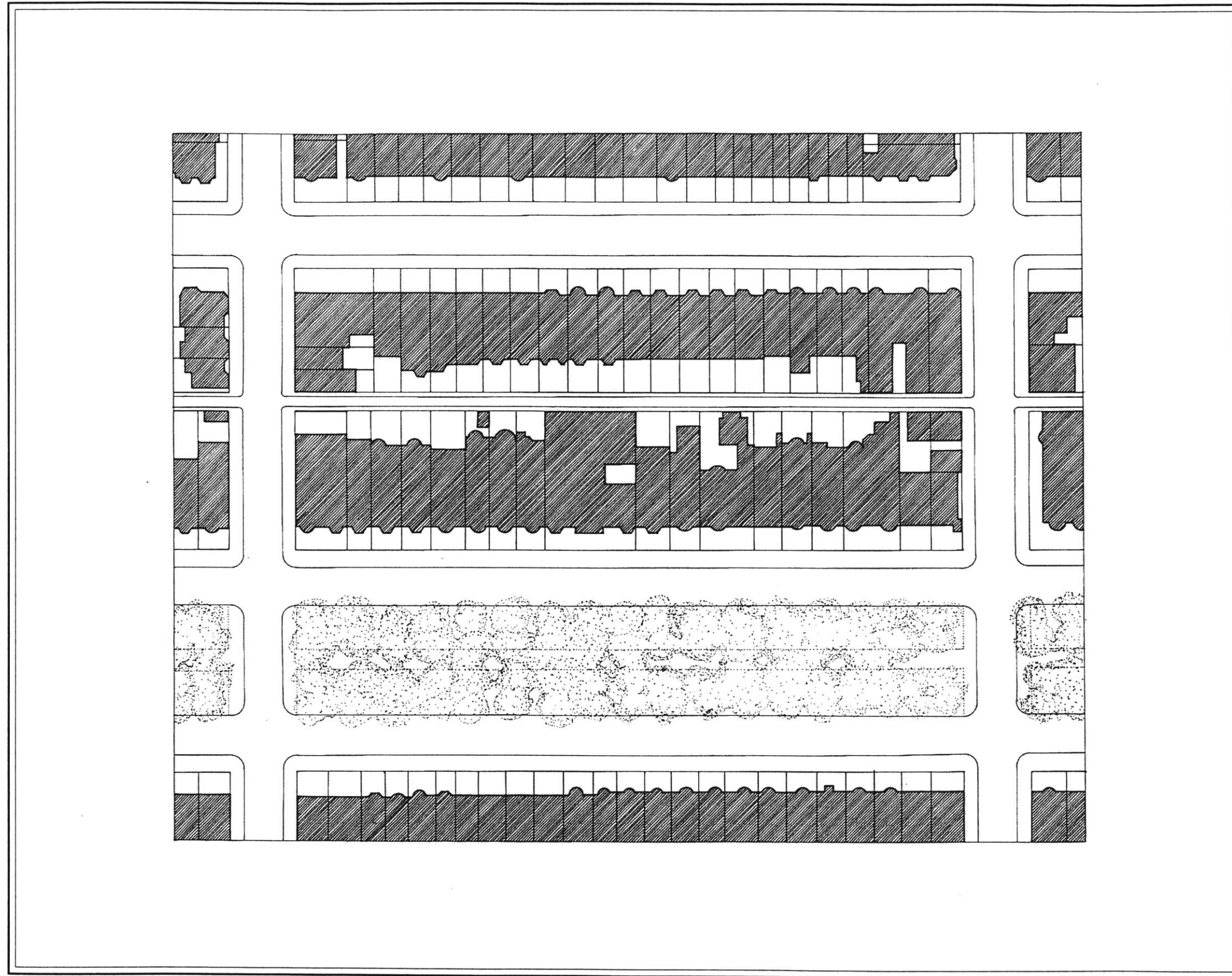
Block Section

SOUTH END MEWS BLOCK  
BOSTON

FEET 0 8 16 32 64

**Back Bay** **1872-1900**

<i>Block Area, (to c.l. street)</i>	6.20 acres
<i>Block Dimension, (inc. sidewalk)</i>	280' x 622'
<i>Blocks / Acre</i>	0.16
<i>Public Area of Block, (to c.l. street)</i>	47%
<i>Total Lot Area</i>	3.26 acres
<i>Building Coverage of Block</i>	50%
<i>FAR</i>	2.99
<i>Units / Acre, (to c.l. street)</i>	45



**BACK BAY ROW HOUSE BLOCK**  
BOSTON

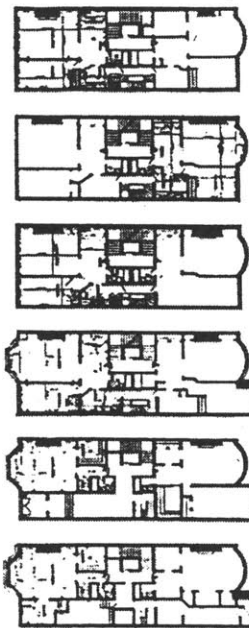
FEET 0 25 50 100 200



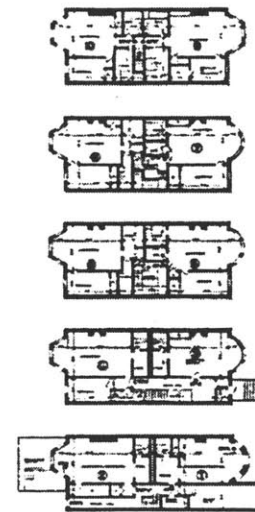
Commonwealth Avenue



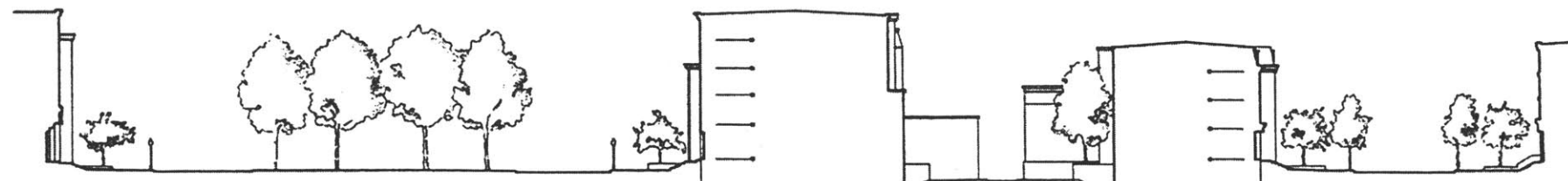
Marlboro Street



Plans  
233 Commonwealth Avenue



Plans  
246 Marlboro Street



Commonwealth Avenue

Block Section

Alley #426

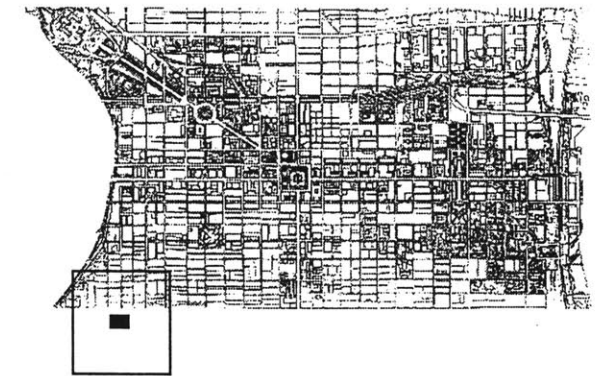
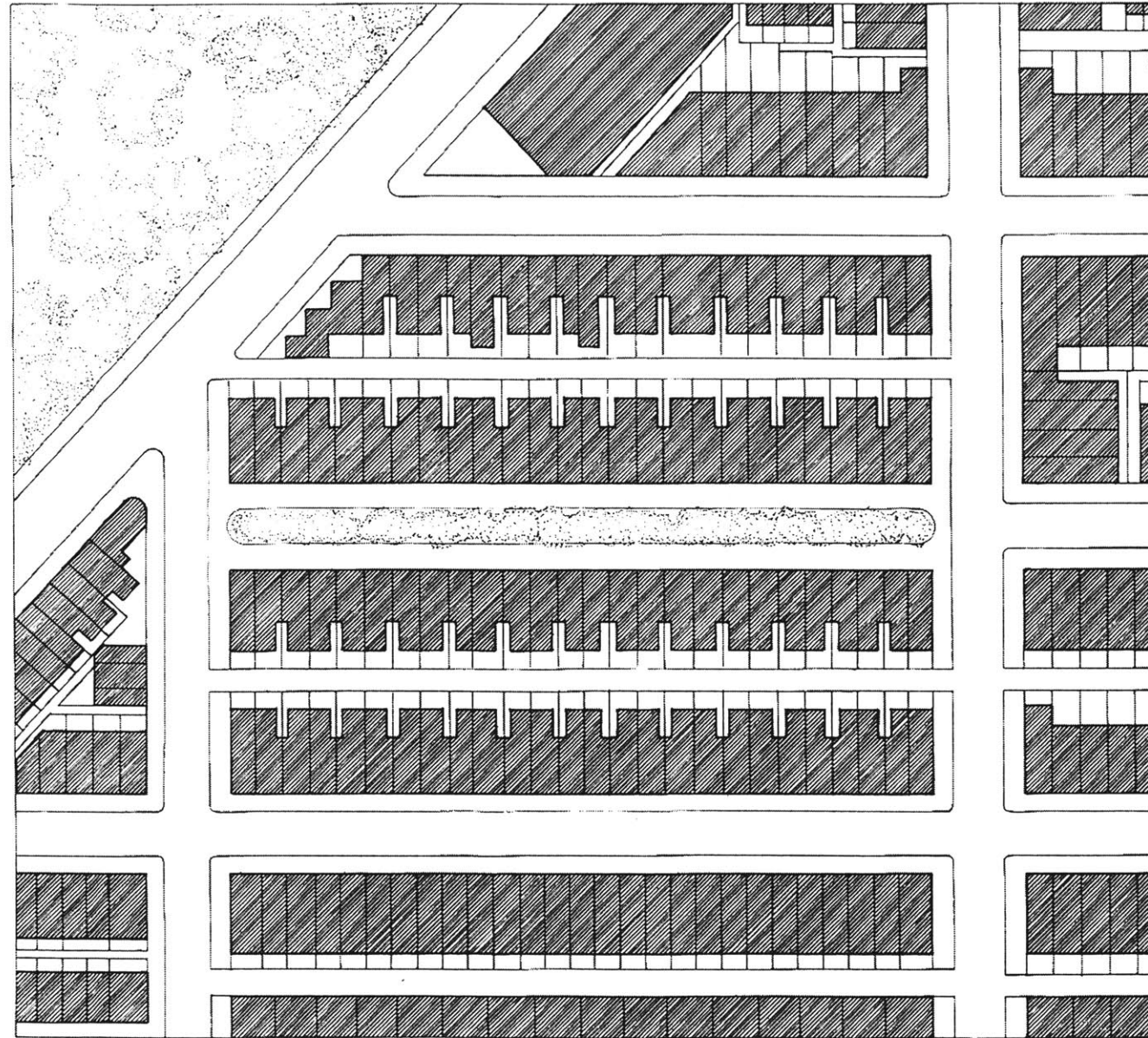
Marlboro Street

BACK BAY BLOCK  
BOSTON

FEET 0 8 16 32 64

*St. Alban's Place* late 19th c.

<i>Block Area, (to c.l. street)</i>	3.83 acres
<i>Block Dimension, (inc. sidewalk)</i>	440' x 343'
<i>Blocks / Acre</i>	0.26
<i>Public Area of Block, (to c.l. street)</i>	40%
<i>Total Lot Area</i>	2.27 acres
<i>Building Coverage of Block</i>	48%
<i>FAR</i>	2.13
<i>Units / Acre, (to c.l. street)</i>	35



ROW HOUSE MEWS BLOCK  
PHILADELPHIA

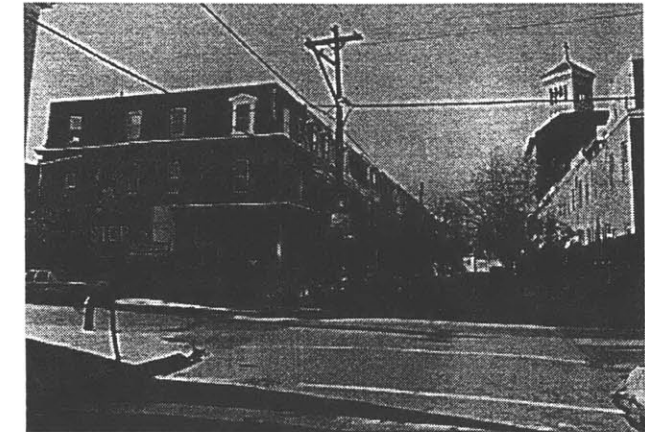
FEET 0 25 50 100 200



Clymer Street (alley)



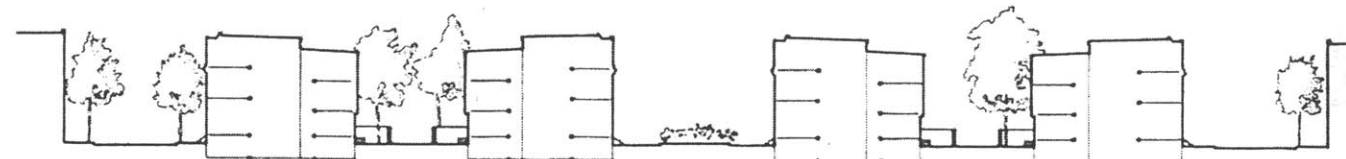
St. Alban's Place



Fitzwater Street



Typical House Plans



Catherine Street

Fulton Street

St. Alban's Place

Clymer Street

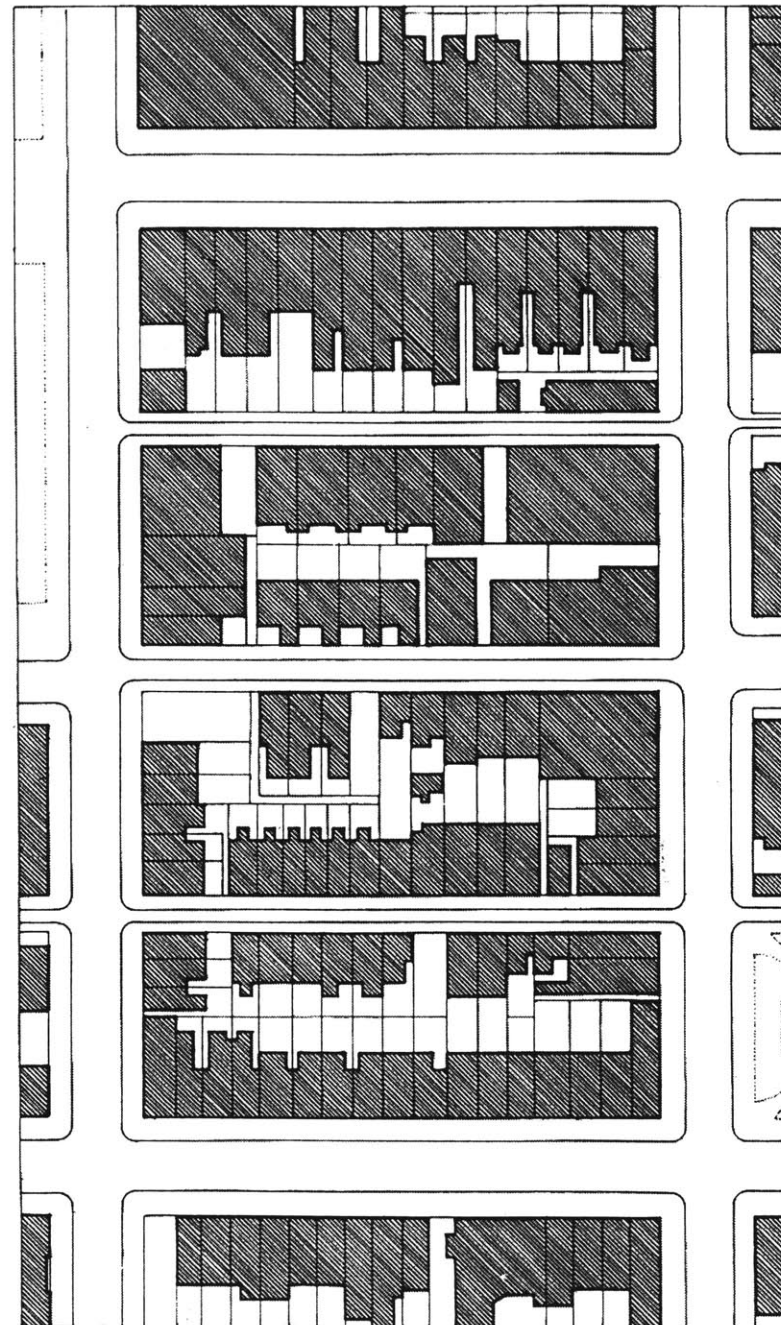
Fitzwater Street

Block Section

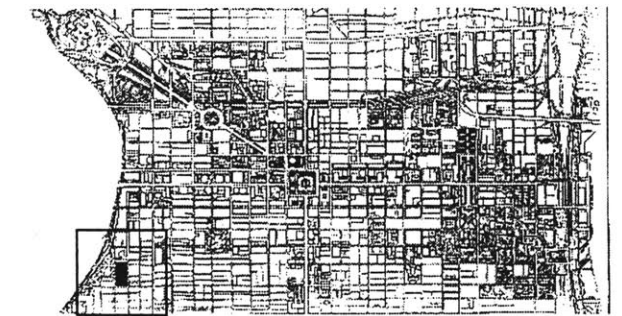
St. ALBAN'S PLACE MEWS BLOCK  
PHILADELPHIA

FEET 0 8 16 32 64

*Delancey Place, 2400 Block 19th-20th c.*



<i>Block Area, (to c.l. street)</i>	4.25 acres
<i>Block Dimension, (inc. sidewalk)</i>	292' x 490'
<i>Blocks / Acre</i>	0.23
<i>Public Area of Block, (to c.l. street)</i>	45%
<i>Total Lot Area</i>	2.31 acres
<i>Building Coverage of Block</i>	56%
<i>FAR</i>	2.40
<i>Units / Acre, (to c.l. street)</i>	34



ROW HOUSE BLOCK  
PHILADELPHIA

FEET 0 25 50 100 200



Panama Street



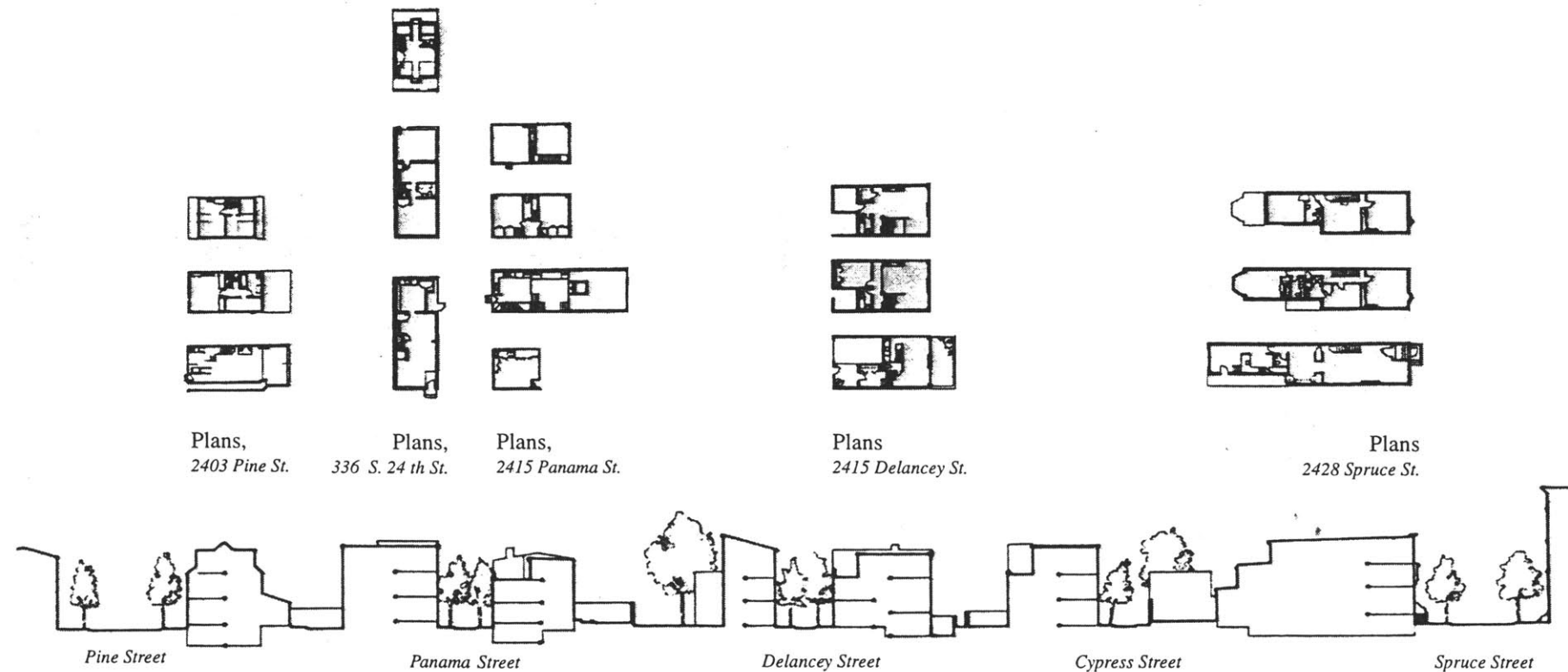
Delancey Street



Cypress Street



Spruce Street

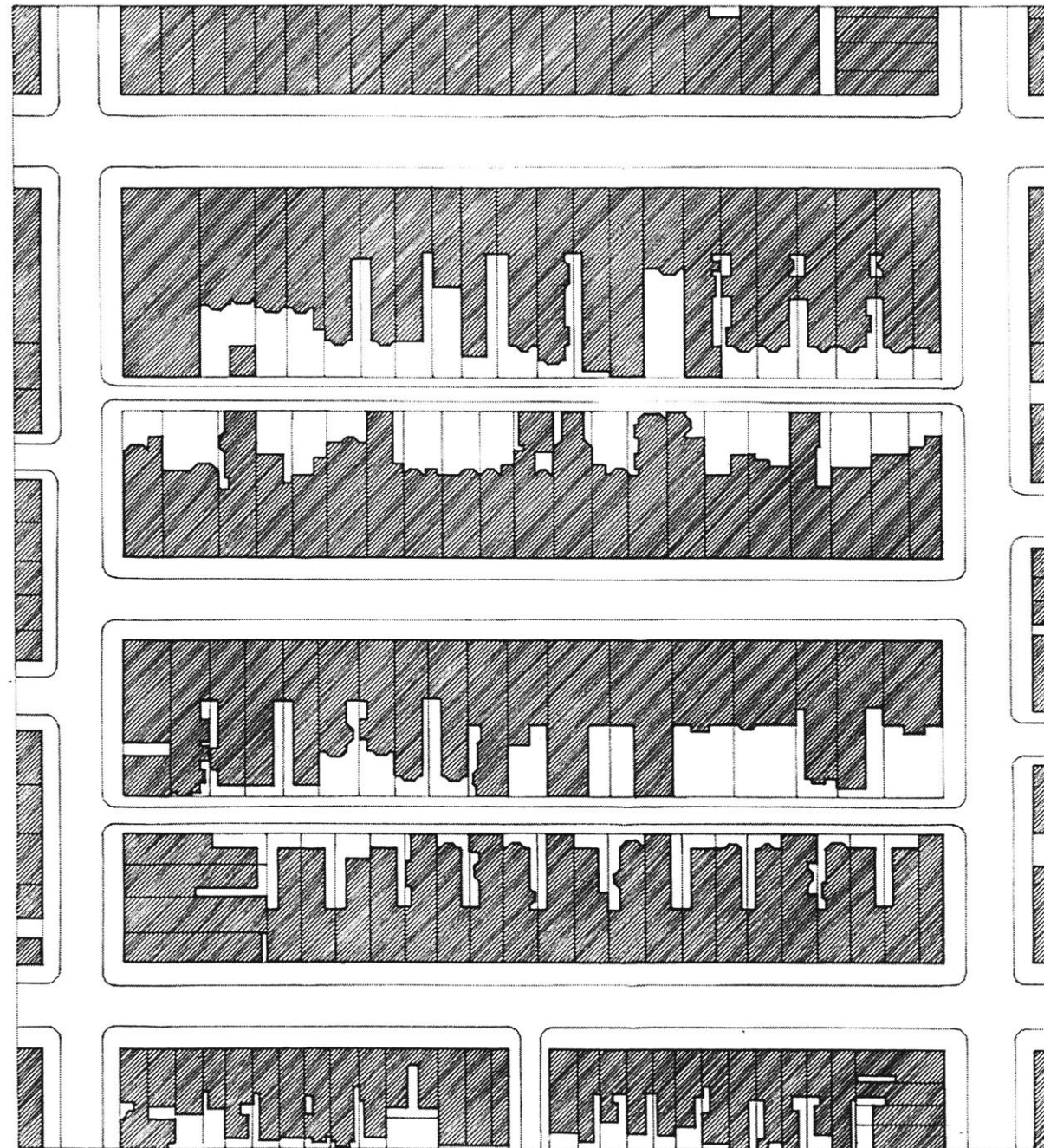


Block Section

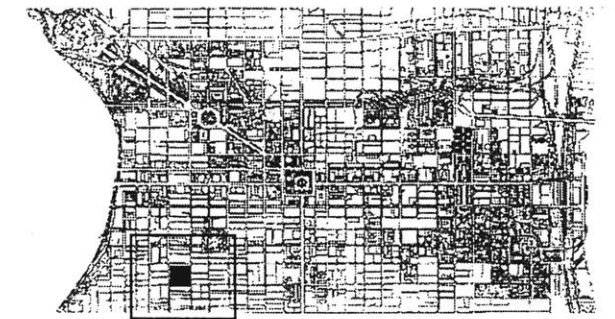
DELANCEY STREET 2400 BLOCK  
PHILADELPHIA

FEET 0 8 16 32 64

*Delancey Street, 2000 Block late 19th c.*



<i>Block Area, (to c.l. street)</i>	6.50 acres
<i>Block Dimension, (inc. sidewalk)</i>	494' x 517'
<i>Blocks / Acre</i>	0.15
<i>Public Area of Block, (to c.l. street)</i>	35%
<i>Total Lot Area</i>	4.22 acres
<i>Building Coverage of Block</i>	56%
<i>FAR</i>	3.09
<i>Units / Acre, (to c.l. street)</i>	32



ROW HOUSE BLOCK  
PHILADELPHIA

FEET 0 25 50 100 200





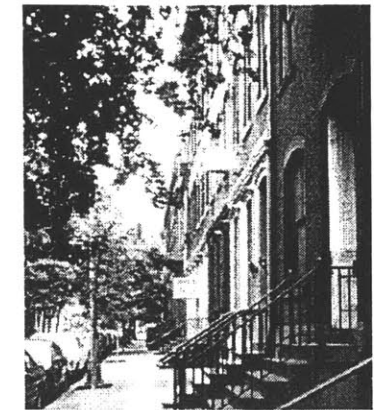
Panama Street



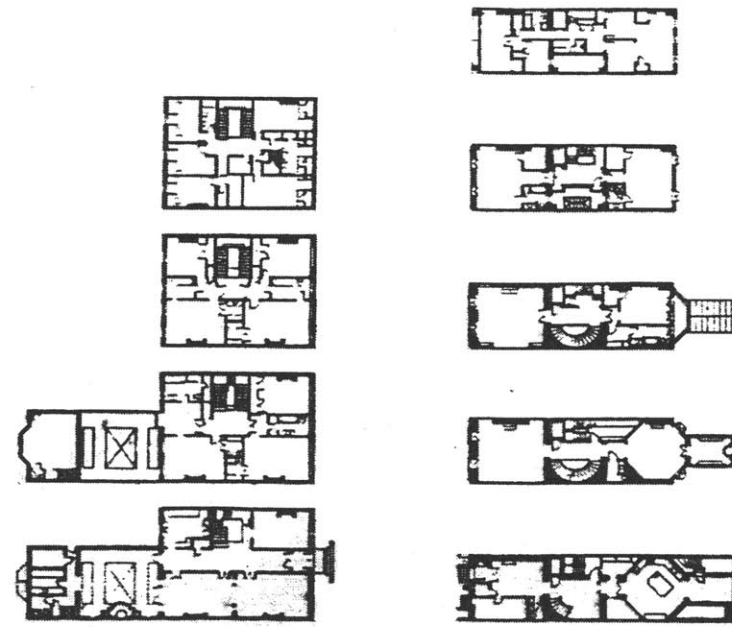
Delancey Street



Cypress Street

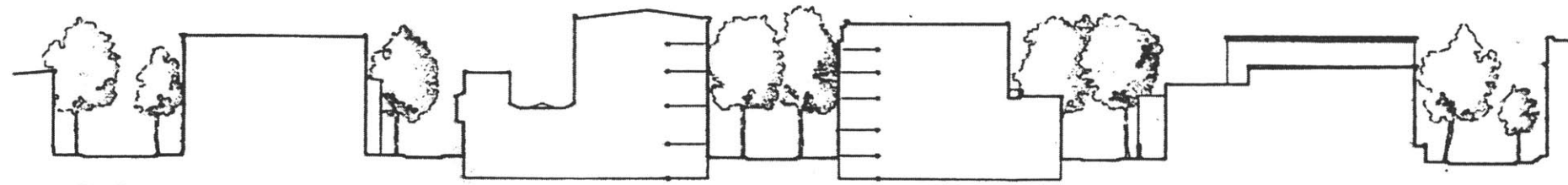


Spruce Street



Plans  
2014 Delancey Street

Plans  
2019 Delancey Street



Pine Street

Panama Street

Delancey Street

Cypress Street

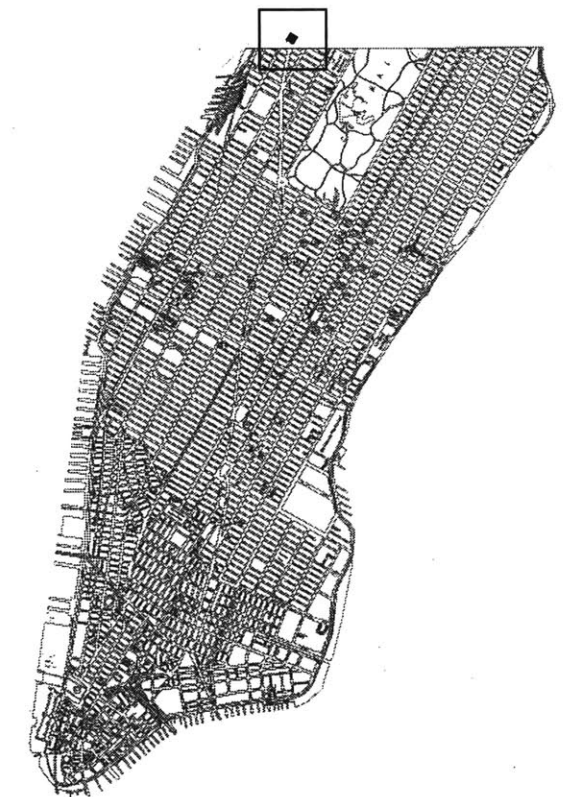
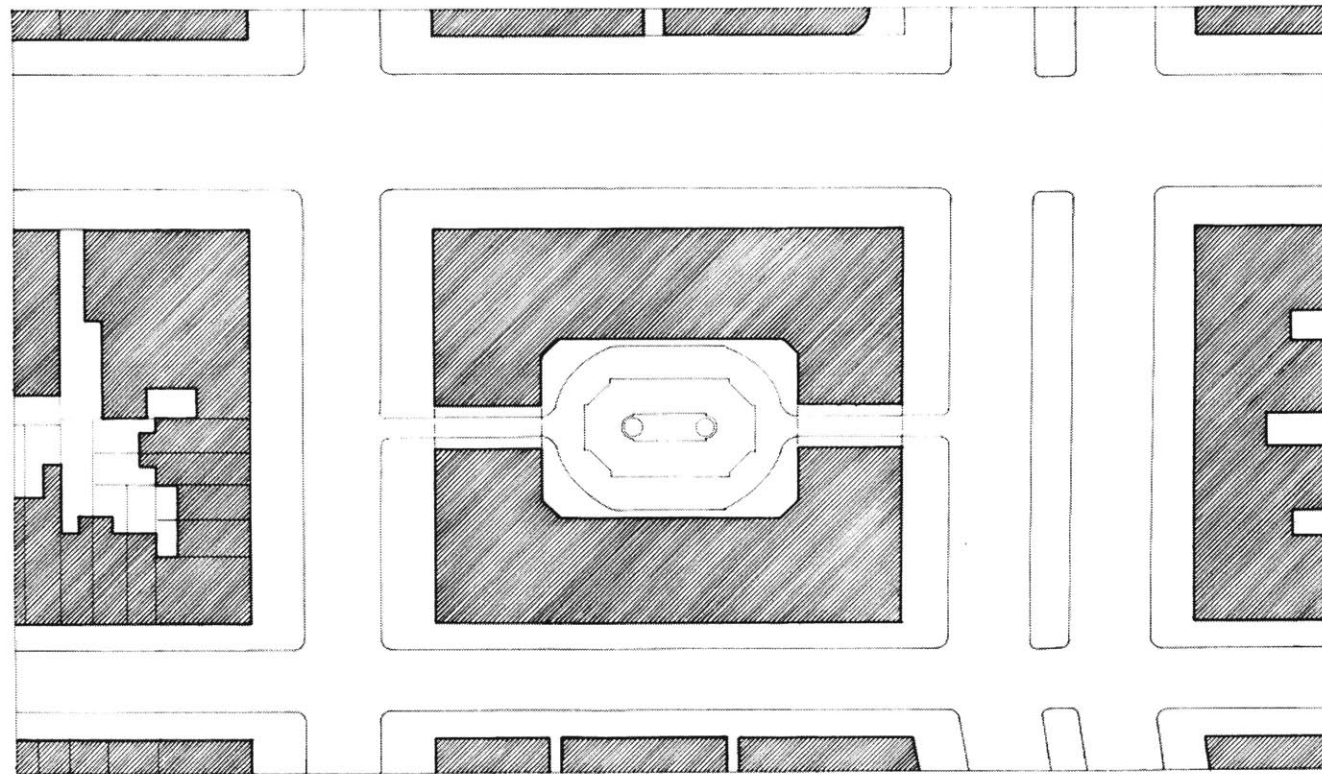
Spruce Street

Block Section

DELANCEY STREET 2000 BLOCK  
PHILADELPHIA

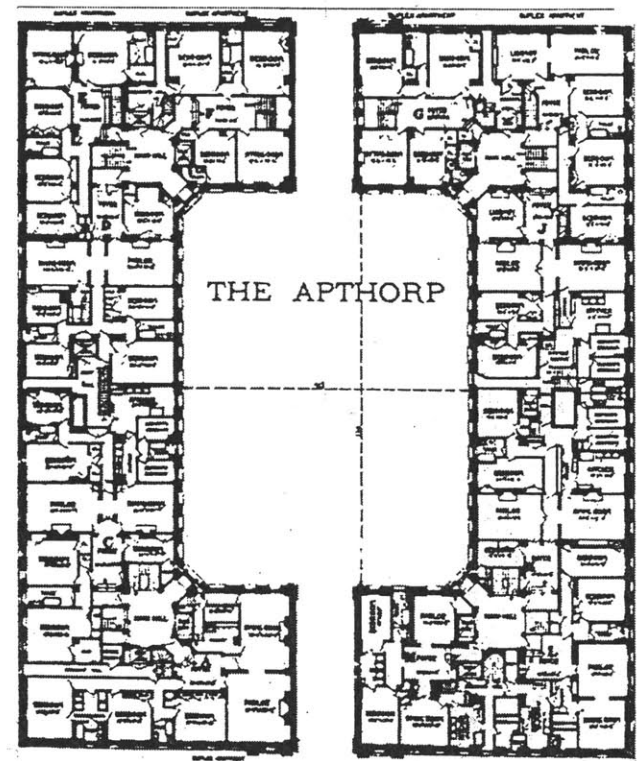
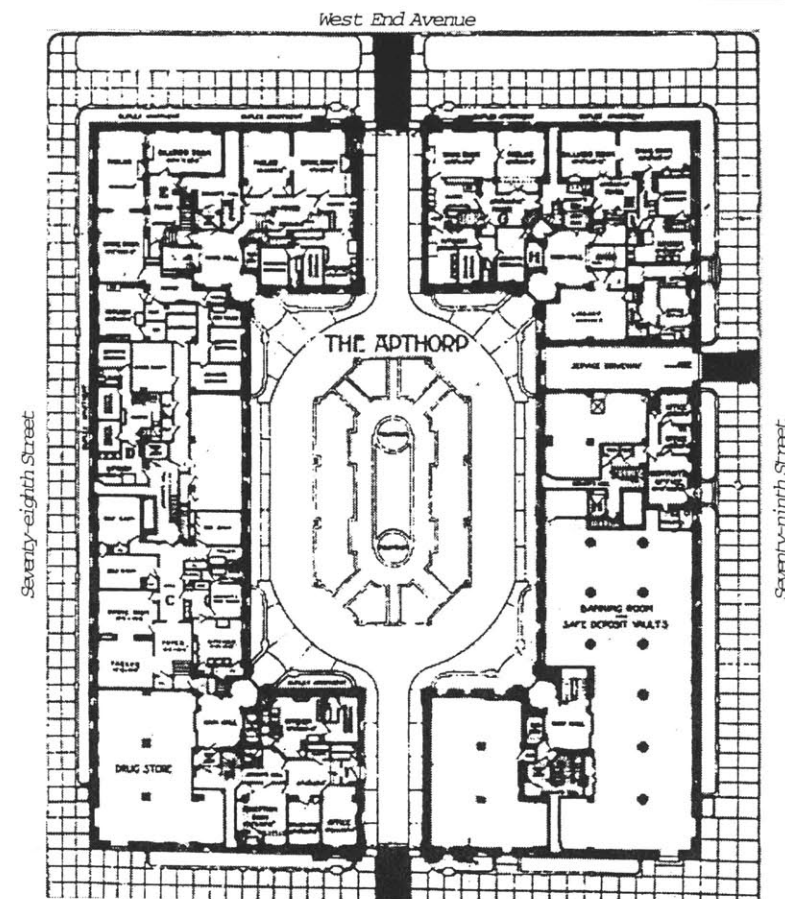
FEET 0 8 16 32 64

<i>Block Area, (to c.l. street)</i>	2.42 acres
<i>Block Dimension, (inc. sidewalk)</i>	285' x 243'
<i>Blocks / Acre</i>	0.41
<i>Public Area of Block, (to c.l. street)</i>	52%
<i>Total Lot Area</i>	1.16 acres
<i>Building Coverage of Block</i>	58%
<i>FAR</i>	8.8
<i>Units / Acre, (to c.l. street)</i>	74

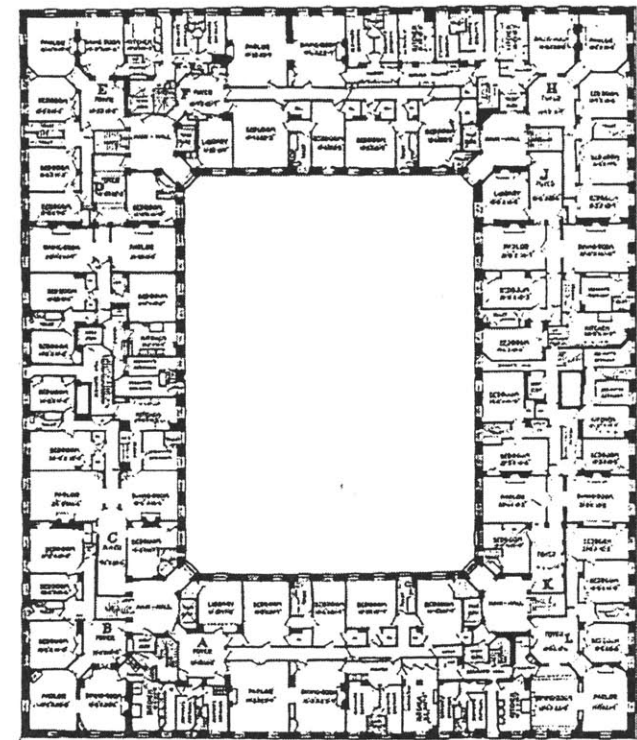


COURTYARD BLOCK  
NEW YORK

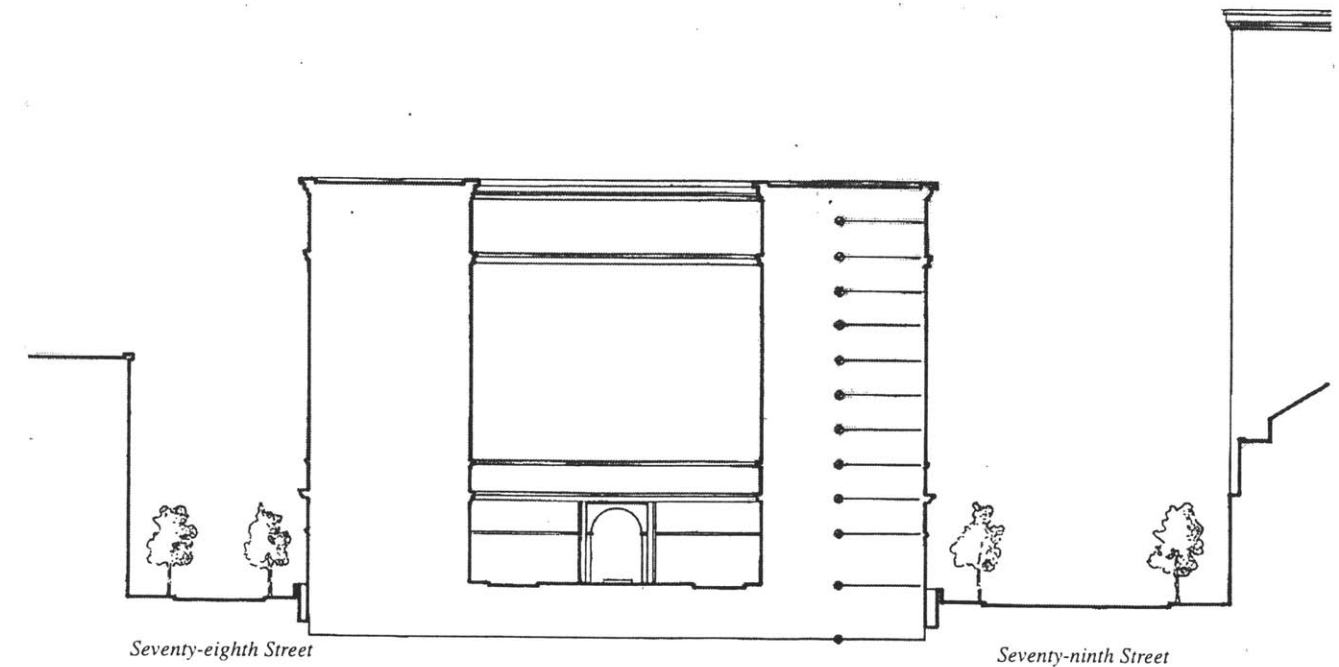
FEET 0 25 50 100 200



Second floor plan



Typical floor plan, floors three through twelve



Block Section



Broadway



Courtyard



Main entry

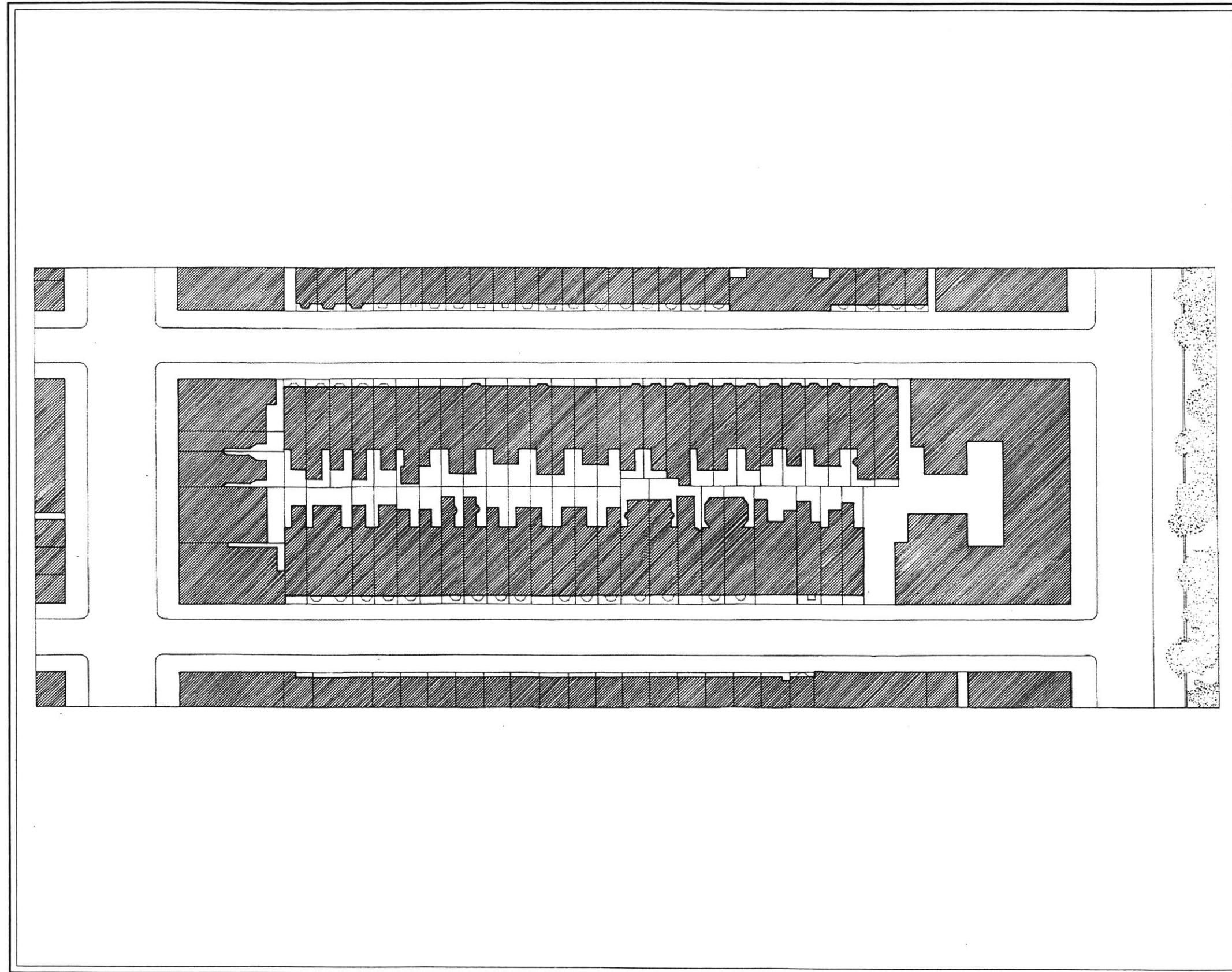
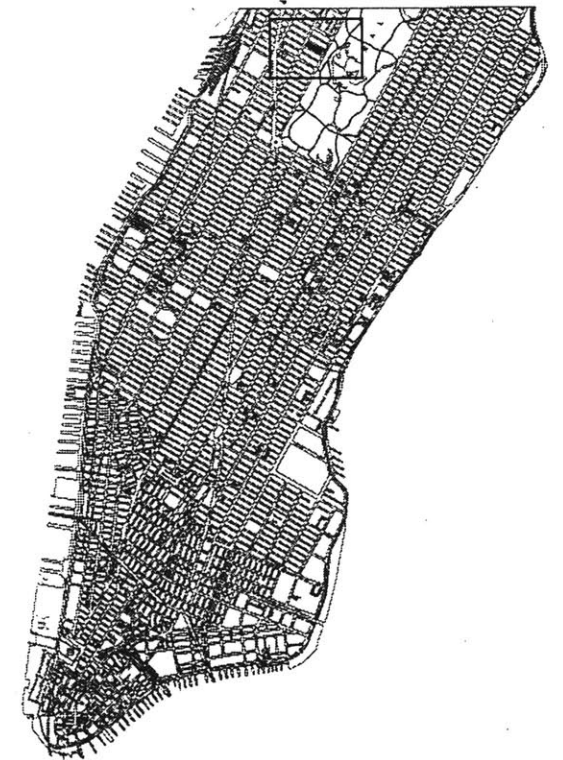


THE ADTHORP  
NEW YORK

FEET 0 8 16 32 64

*San Remo Towers Block* 1930

<i>Block Area, (to c.l. street)</i>	5.46 acres
<i>Block Dimension, (inc. sidewalk)</i>	848' x 243'
<i>Blocks / Acre</i>	0.18
<i>Public Area of Block, (to c.l. street)</i>	31%
<i>Total Lot Area</i>	5.70 acres
<i>Building Coverage of Block</i>	55%
<i>FAR</i>	4.70
<i>Units / Acre, (to c.l. street)</i>	75

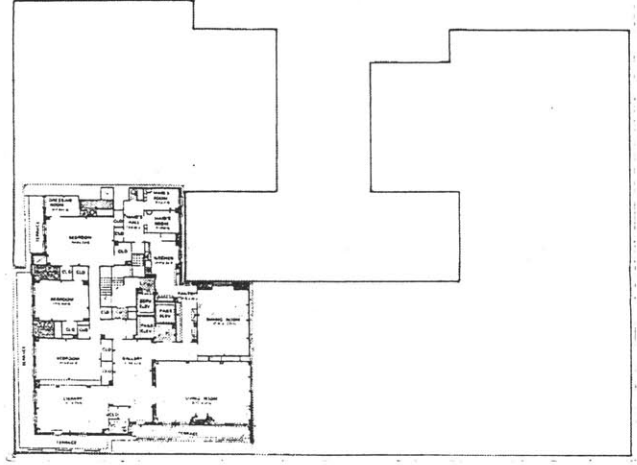


TENEMENT + ROW + TOWER BLOCK  
NEW YORK

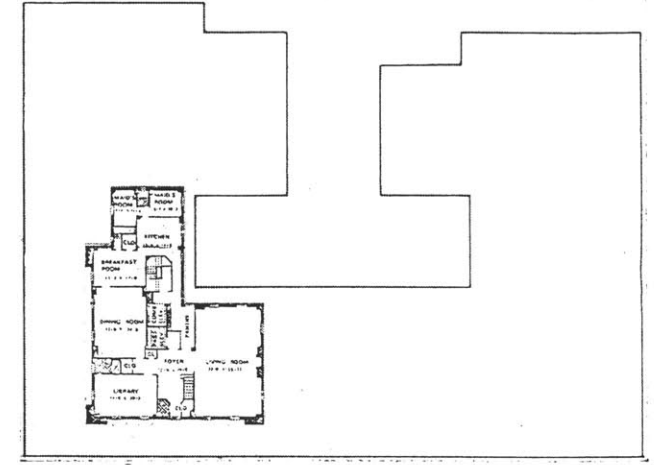
FEET 0 25 50 100 200



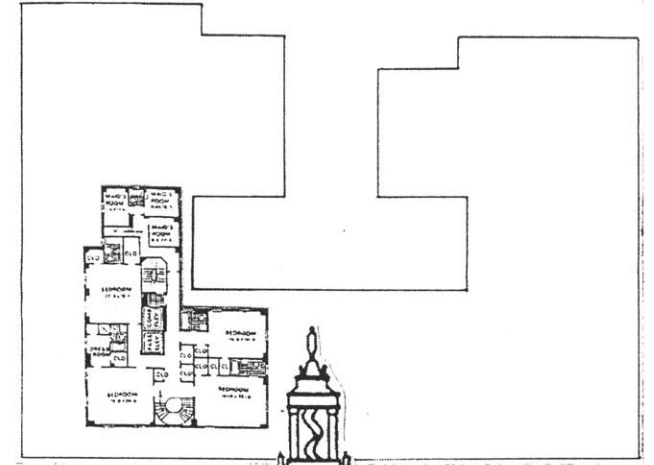
Typical plan of floors two through thirteen



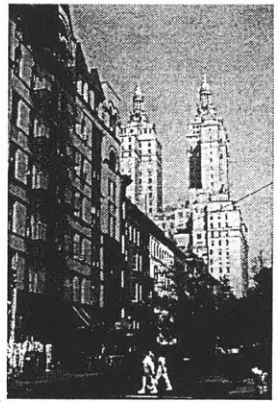
Partial plan of sixteenth floor



Tower apartment: twenty-seventh & twenty-sixth floors



Columbus Avenue



Seventy-fourth Street



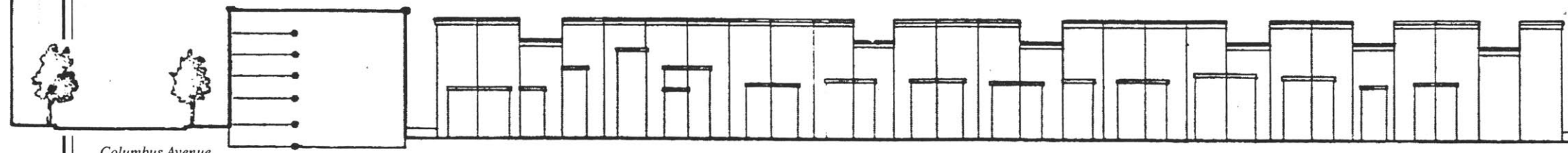
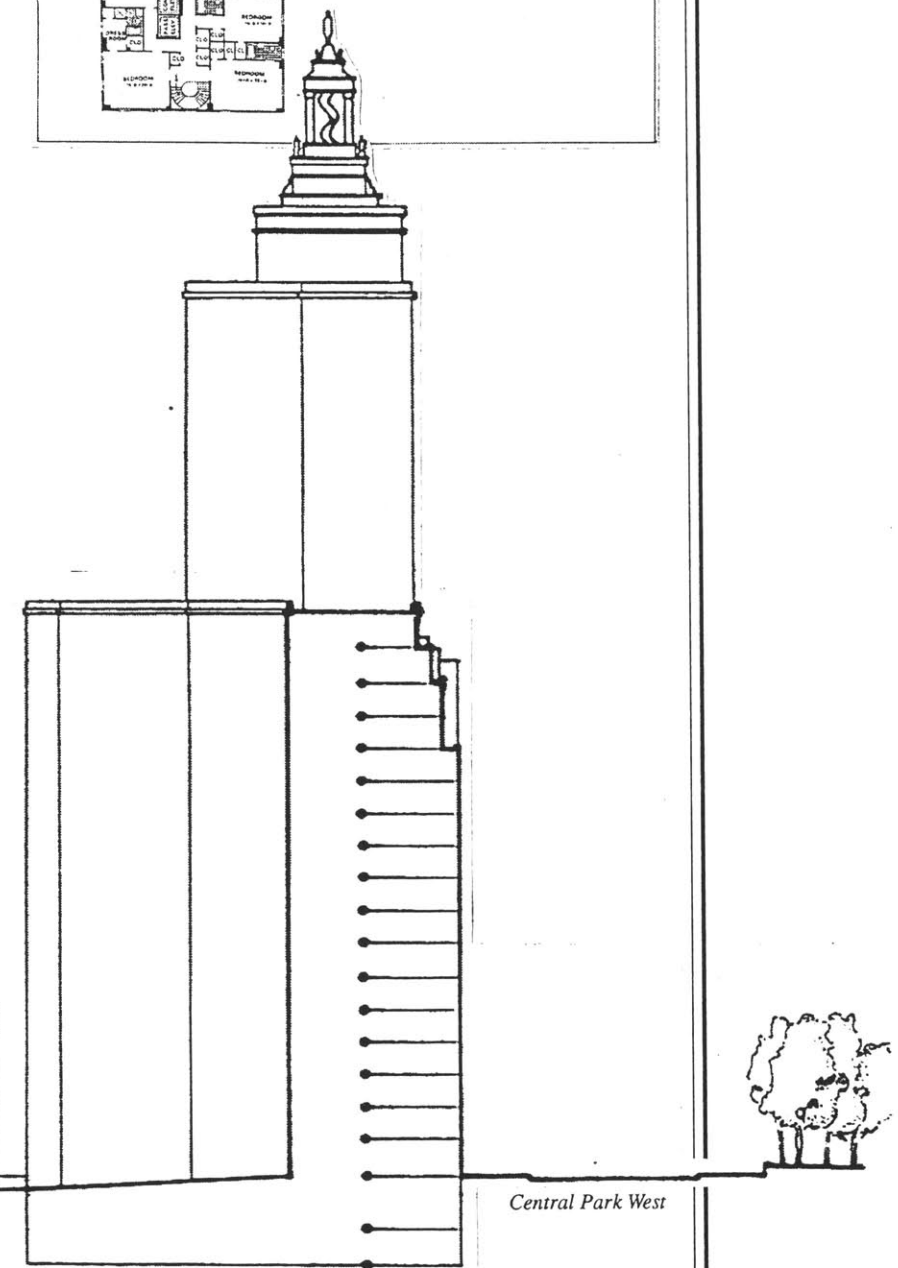
Seventy-fifth Street



Central Park West



Central Park West



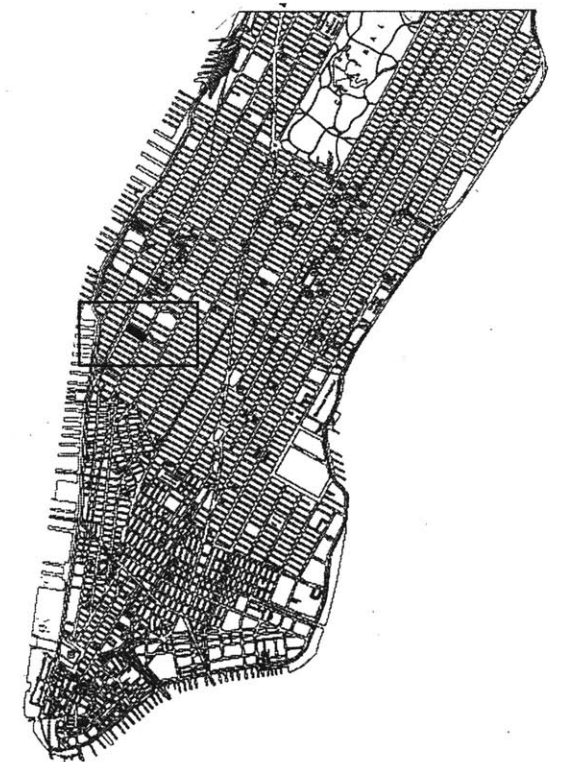
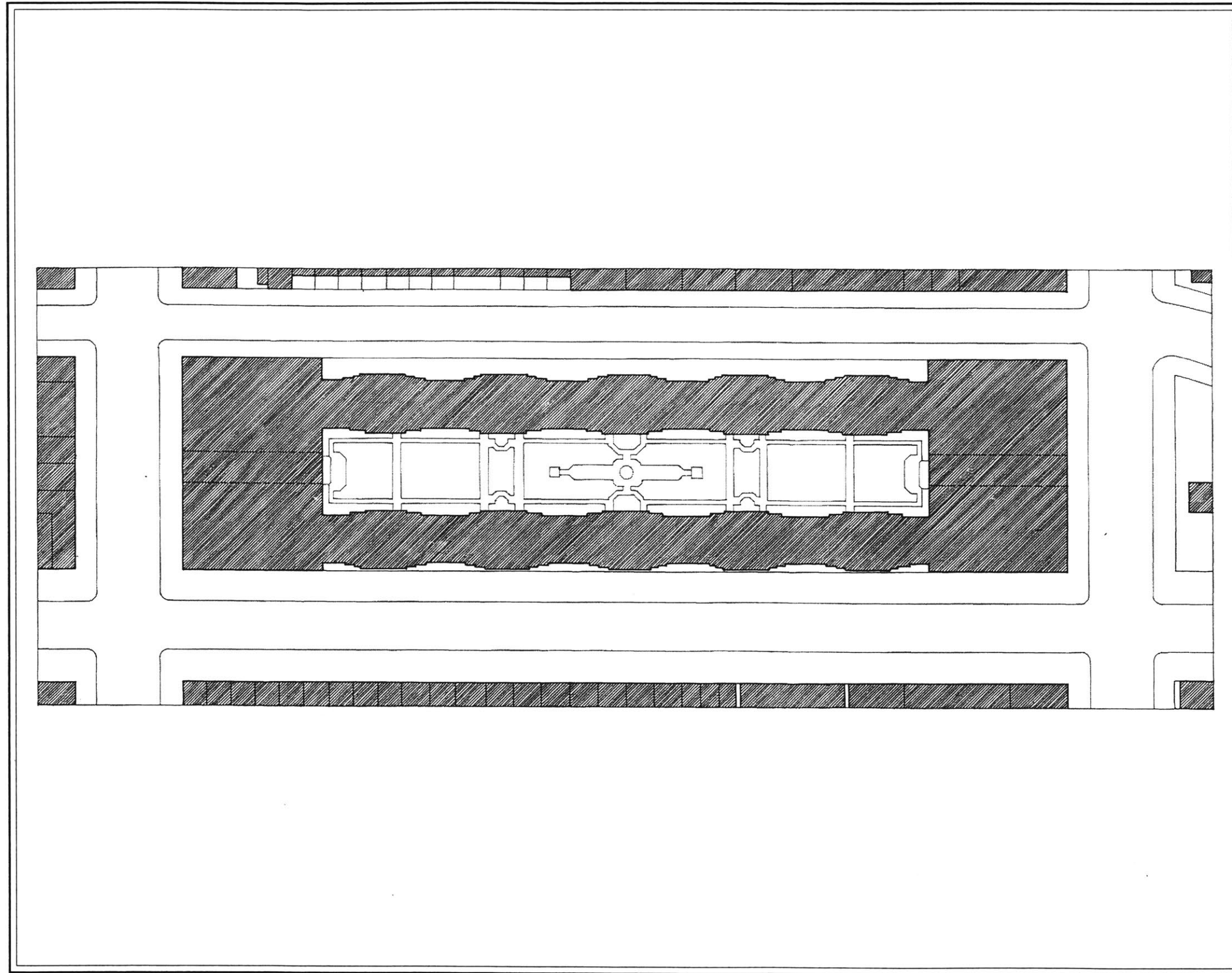
Block Section

SAN REMO TOWERS  
NEW YORK

FEET 0 8 16 32 64

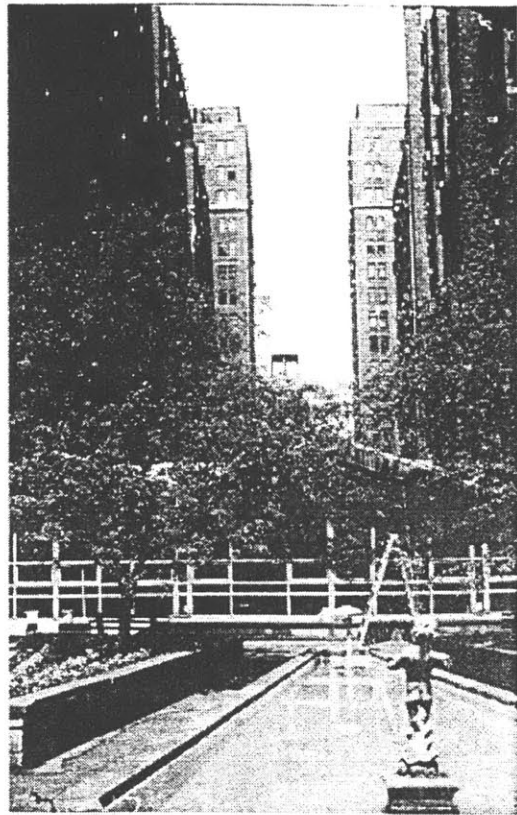
*London Terrace* 1930

<i>Block Area, (to c.l. street)</i>	5.74 acres
<i>Block Dimension, (inc. sidewalk)</i>	840' x 240'
<i>Blocks / Acre</i>	0.174
<i>Public Area of Block, (to c.l. street)</i>	37%
<i>Total Lot Area</i>	3.63 acres
<i>Building Coverage of Block</i>	52%
<i>FAR</i>	7.20
<i>Units / Acre, (to c.l. street)</i>	288

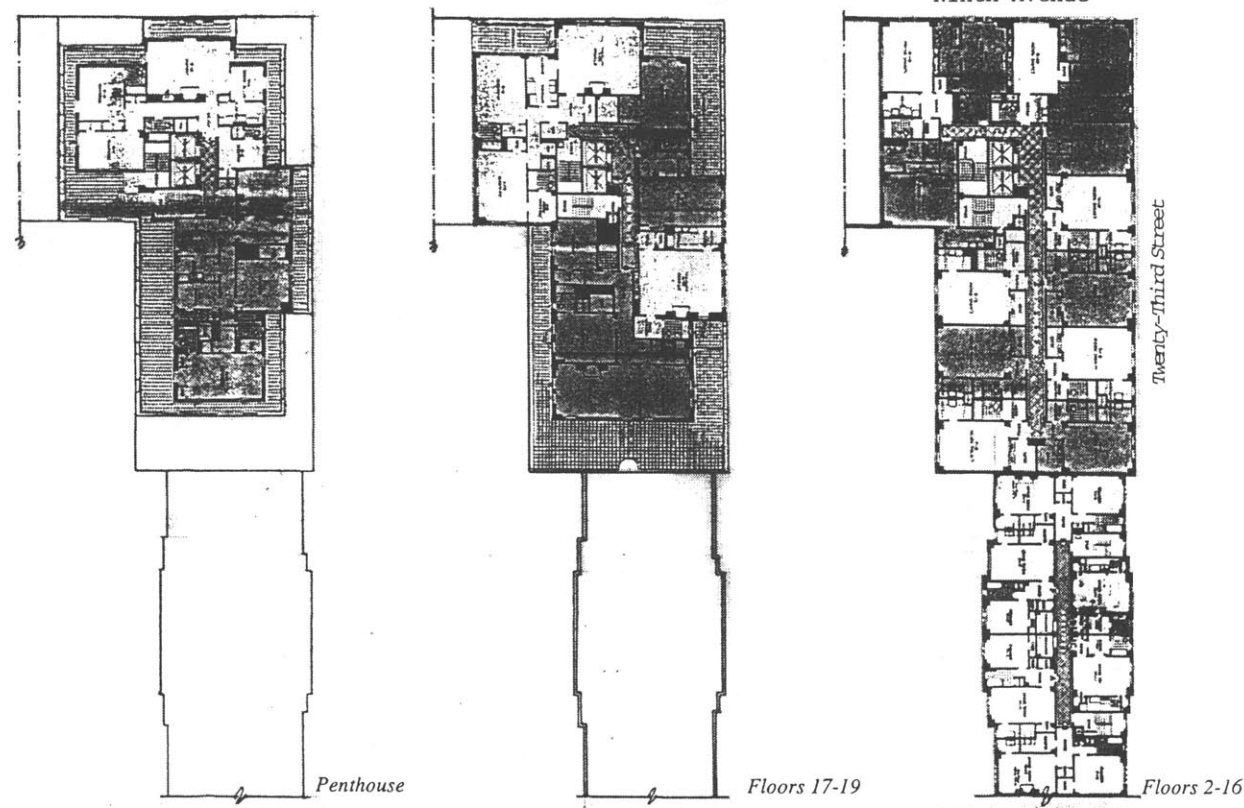


COURTYARD BLOCK  
NEW YORK

FEET 0 25 50 100 200



Interior court and fountain



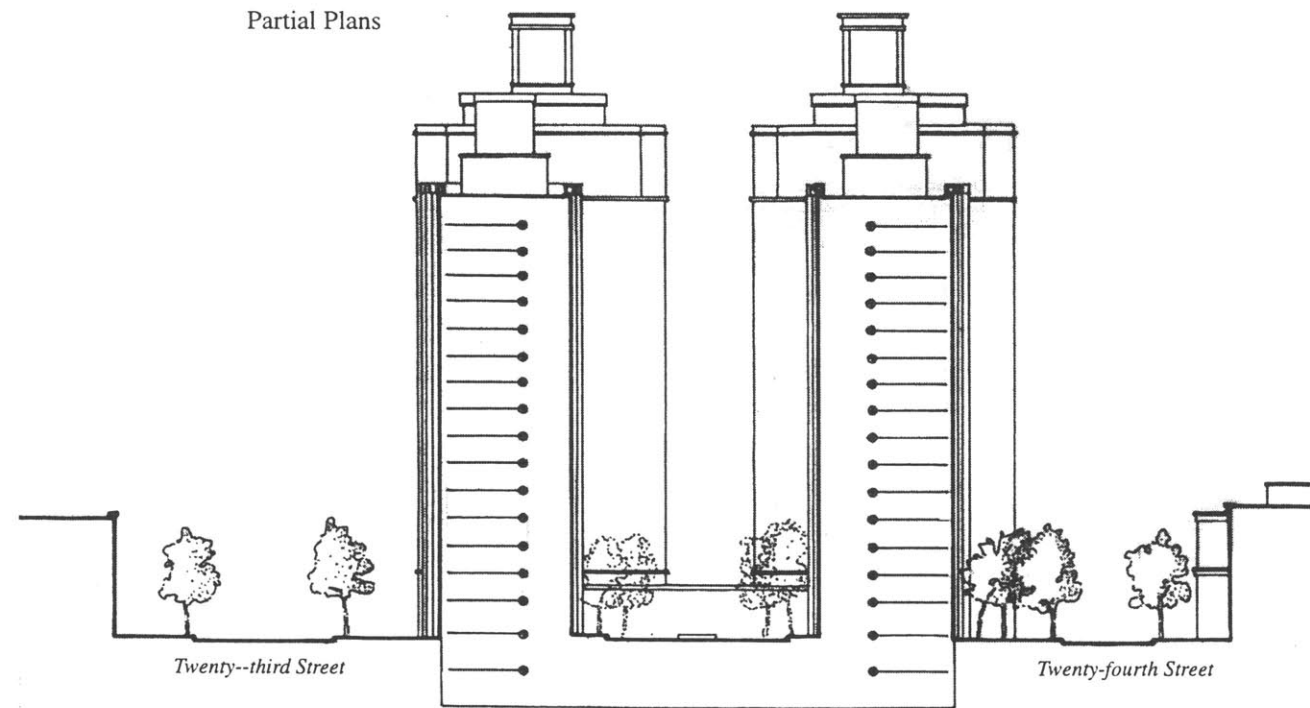
Partial Plans



Twenty-third street



Twenty-fourth Street



Block Section

LONDON TERRACE  
NEW YORK

FEET 0 8 16 32 64

**Stuyvesant Town** 1943-1949

See plate 2 for full project plan

Block Area, (to c.l. street) 73.65 acres

Block Dimension, (inc. sidewalk) 2,053'x1401'

Blocks / Acre 0.14

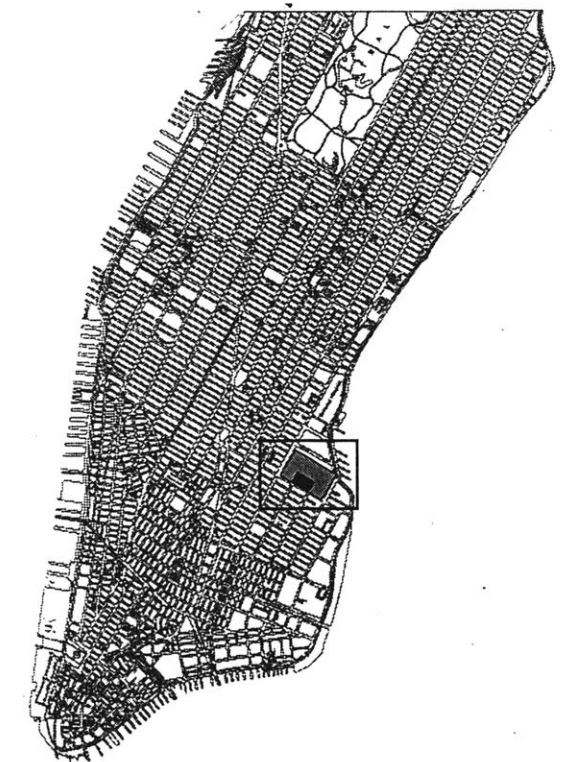
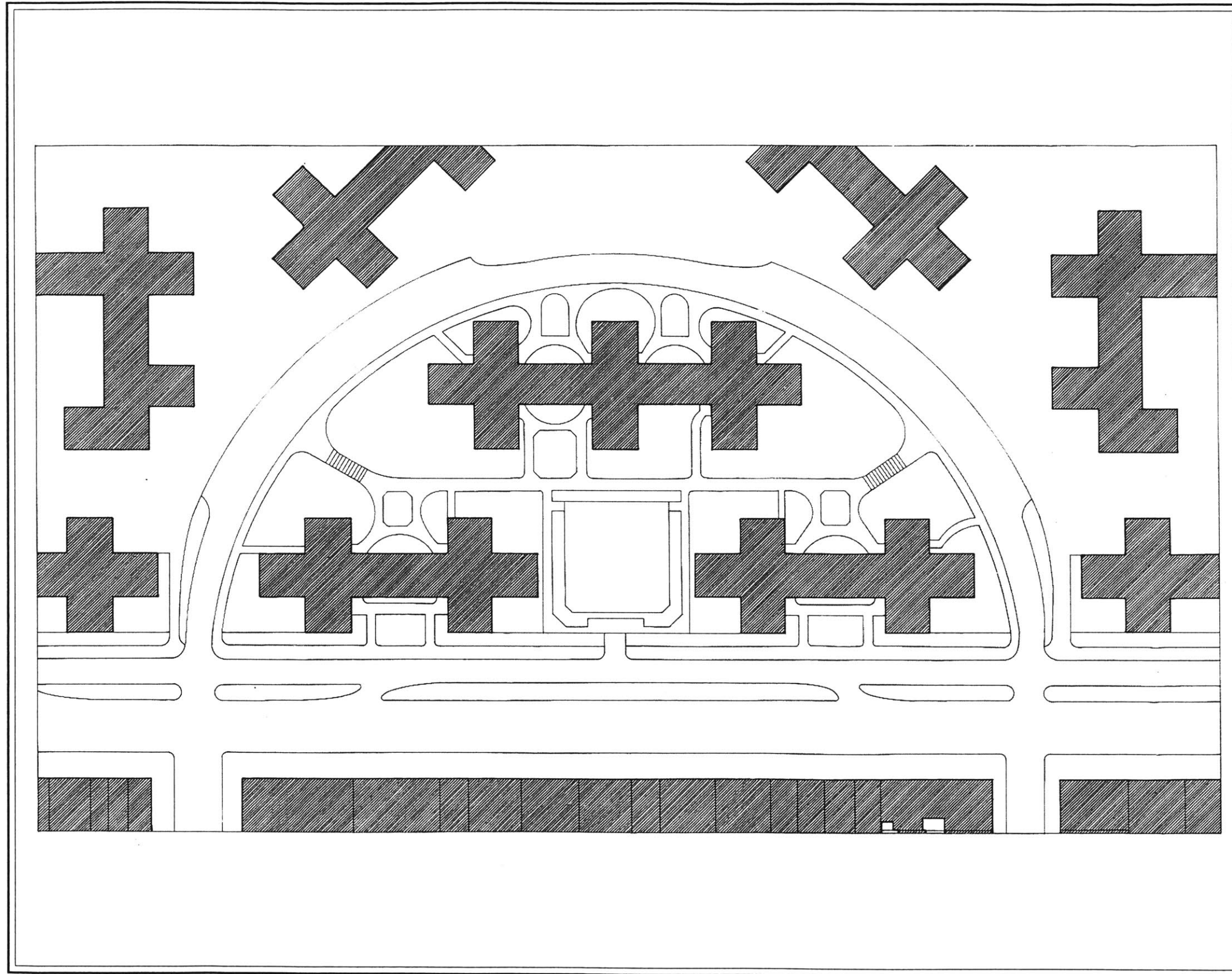
Public Area of Block, (to c.l. street) 17%

Total Lot Area 61.3 acres

Building Coverage of Block 23%

FAR 3.23

Units / Acre, (to c.l. street) 119



APARTMENT TOWERS  
NEW YORK

FEET 0 25 50 100 200





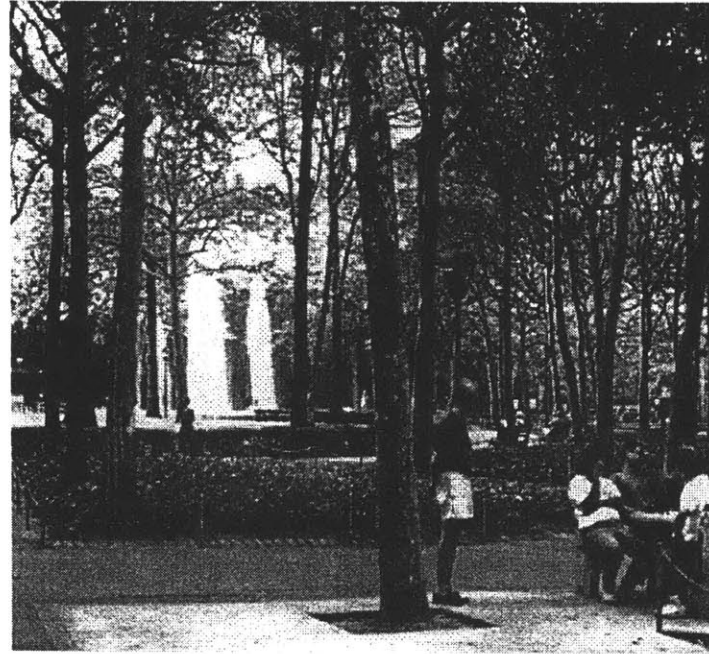
First Avenue



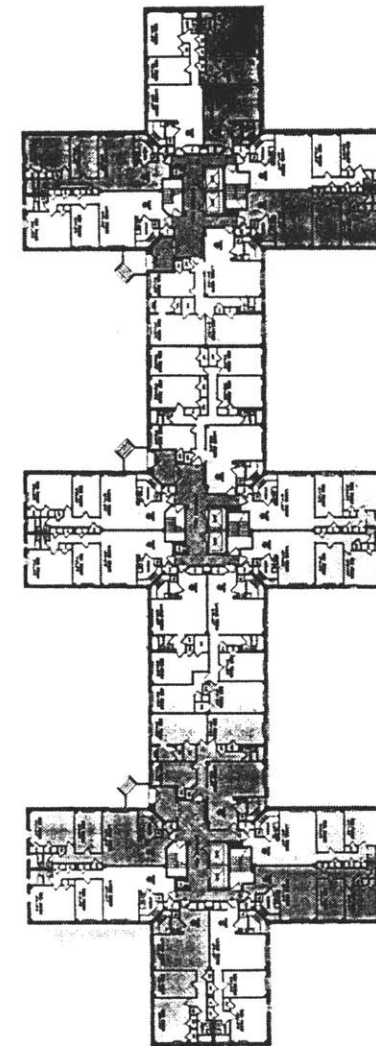
Fourteenth Street



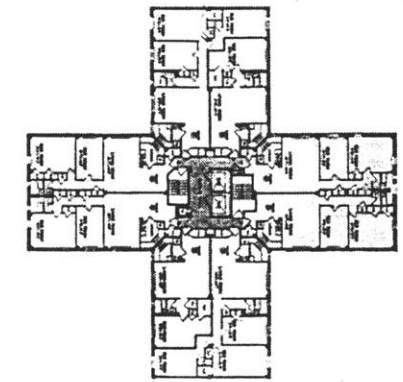
Entrance Street



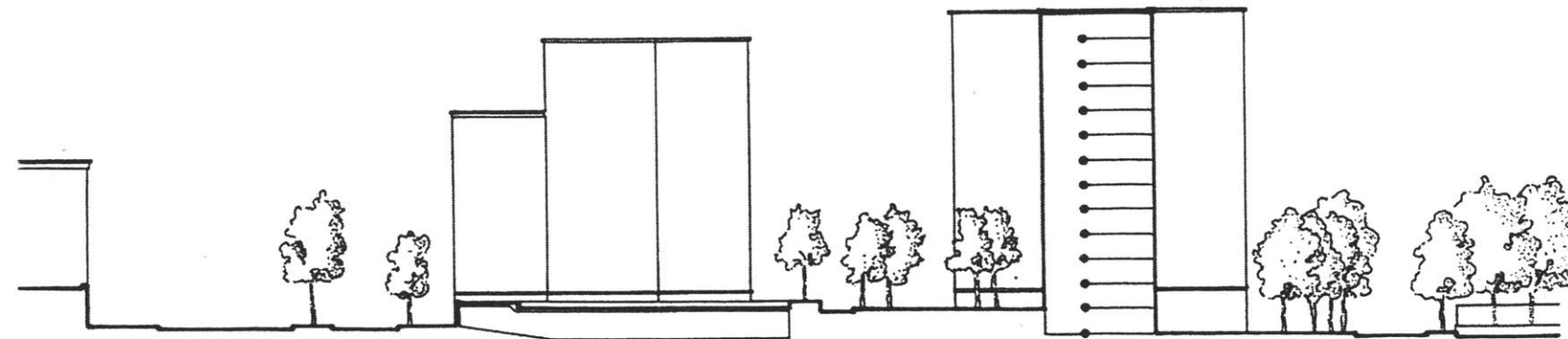
Stuyvesant Oval



Building Plan of typical entry floor



Typical building plan



Fourteenth Street

Partial Block Section

Stuyvesant Oval

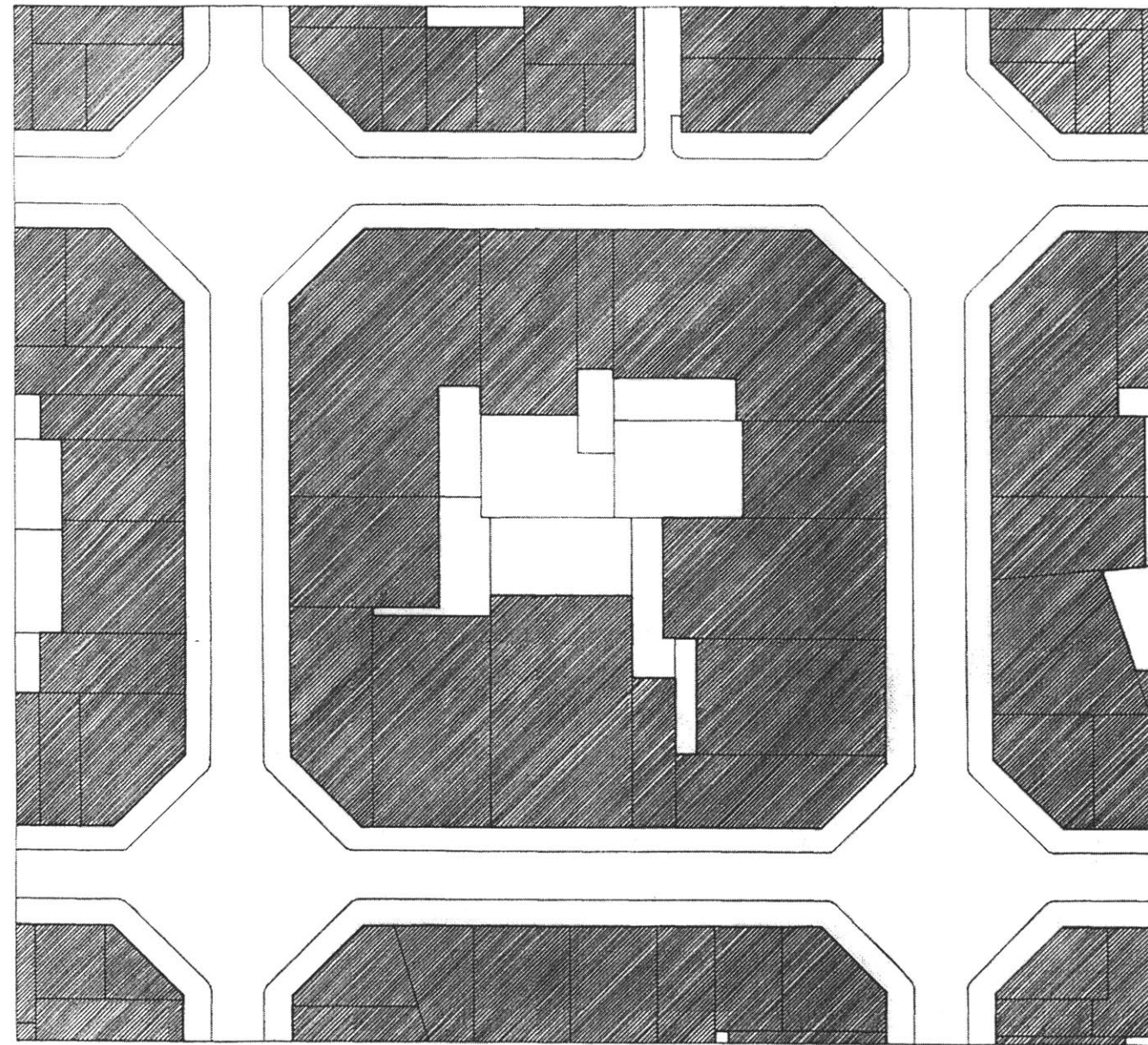


STUYVESANT TOWN  
NEW YORK

FEET 0 8 16 32 64

*Cerda Grid Block* 1888-1914

<i>Block Area, (to c.l. street)</i>	4.05 acres
<i>Block Dimension, (inc. sidewalk)</i>	390' x 390'
<i>Blocks / Acre</i>	0.30
<i>Public Area of Block, (to c.l. street)</i>	29%
<i>Total Lot Area</i>	2.86 acres
<i>Building Coverage of Block</i>	70%
<i>FAR</i>	4.31
<i>Units / Acre, (to c.l. street)</i>	37



COURTYARD BLOCK  
BARCELONA

FEET 0 25 50 100 200



Typical street in Cerda grid



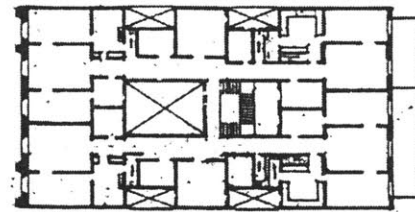
Typical corner of block in Cerda grid



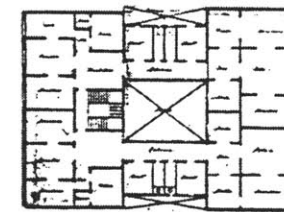
Typical corner of block in Cerda grid



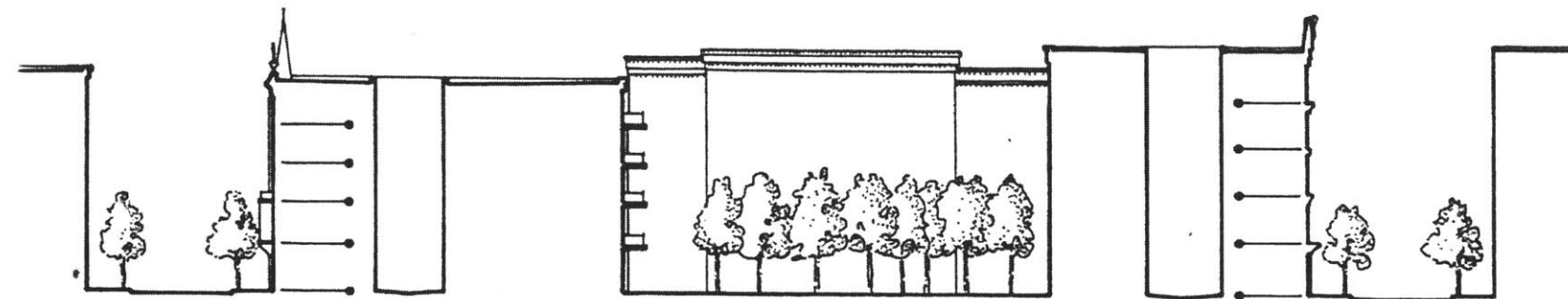
Typical street in Cerda grid



Typical apartment floor plan



Typical apartment floor plan



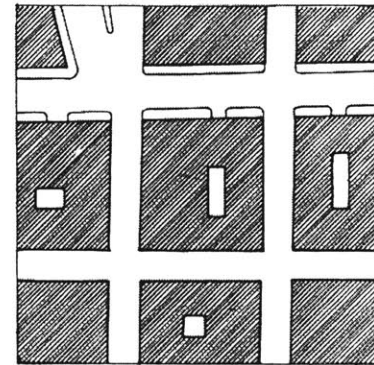
Block Section

CERDA COURTYARD BLOCK  
BARCELONA

FEET 0 8 16 32 64

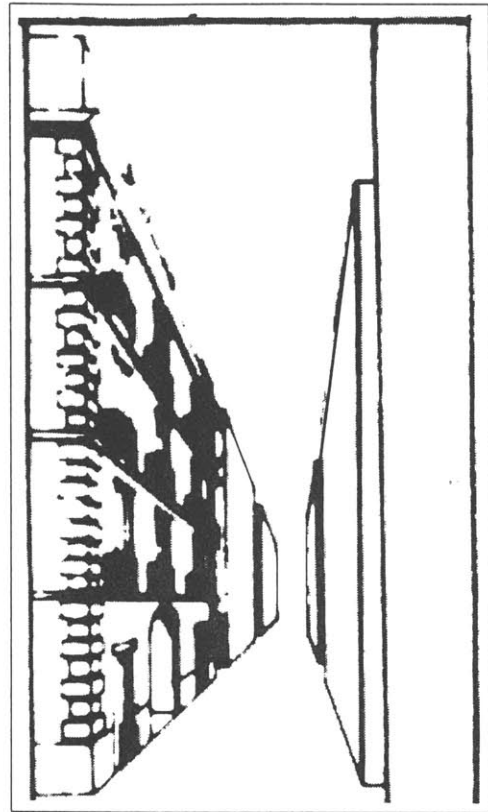
*I Quartieri Spagnoli* 17th c.

<i>Block Area, (to c.l. street)</i>	0.16 acres
<i>Block Dimension, (inc. sidewalk)</i>	65' x 74'
<i>Blocks / Acre</i>	6.25
<i>Public Area of Block, (to c.l. street)</i>	38%
<i>Total Lot Area</i>	0.103 acres
<i>Building Coverage of Block</i>	88%
<i>FAR</i>	4.70
<i>Units / Acre, (to c.l. street)</i>	50



TYPICAL BLOCK IN I QUARTIERI SPAGNOLI  
NAPLES, ITALY

FEET 0 25 50 100 200

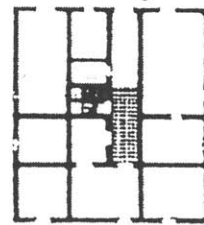


Vico Lungo Teatro Nuovo

Via Concezione a Monte Calvario

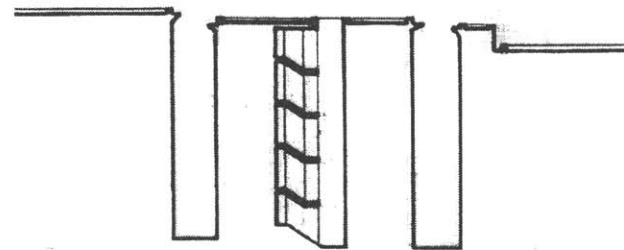


Via Santa Maria delle Grazie a Toledo



Above: Typical upper floor plan

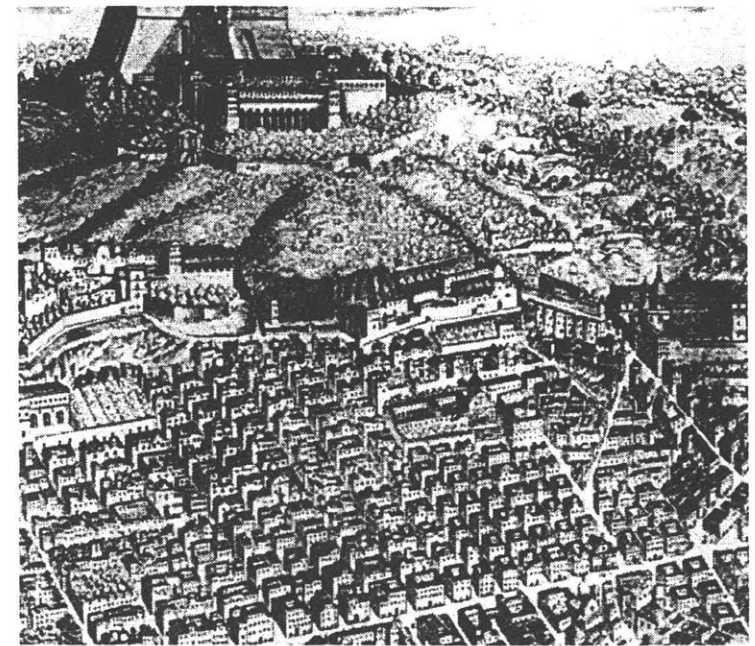
Below: Ground floor plan



Vico Lungo Teatro Nuovo

Via Speranzella

Block Section



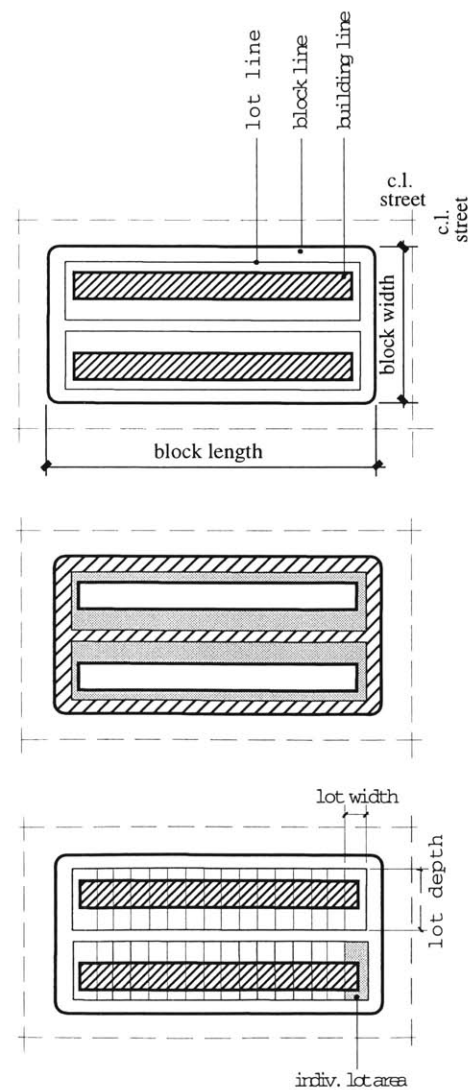
View of I Quartieri Spagnoli



TYPICAL BLOCK IN I QUARTIERI SPAGNOLI  
NAPLES

FEET 0 8 16 32 64

## BLOCK STATISTICS



**Block area, to c.l. street:** Area of block including area to center line of surrounding streets.

**Block dimensions:** Length in feet of block sides.

**Block area:** Total area described by the block line.

**Blocks per acre:** Number of blocks in one acre based on block area to center line of street.

**Public / private area:** Ratio of public area (measured to the center line of surrounding streets) to building lot area.

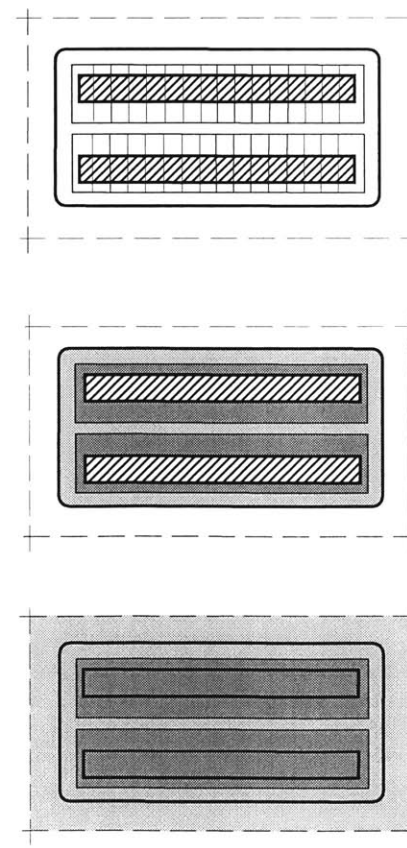
**Pub / total area:** Percent public area of total block area measured to center line of street.

**Lot Area:** Combined area of individual lots defined by the lot lines.

**Lots per block:** Number of individual building lots on a single block.

**Lots per acre:** Number of lots in one acre, based on average lot area.

**Average lot dimension:** Mean width and depth of individual building lots on block.



**Average lot area:** Mean lot area of individual building lots on a block.

**Building footprint:** Building area at the ground floor described by the building line.

**Building coverage / lot:** Percent total building footprint of lot area.

**Building coverage / block:** Percent total building footprint of block area.

**Total building area / block:** Combined total square area including all floors of all buildings on a single block.

**FAR, (Floor Area Ratio):** Total building area of the block, (including all floors) expressed as a factor of the total lot area.

**Units / block:** Number of individual apartment units in one block.

**Units / acre:** Number of individual units expressed as a function of combined total lot area in acres.

**Units / acre, to c.l. street:** Number of individual units expressed as a function of block area to center line of street.

## Comparative Block Densities

General			Block				Lot			Building				Parking		Remarks
City	Block	Date	Block area, (to c.l. street)	Blk. area Blk. dim.	Blks. / acre	Pub:Priv Pub:tot	Lot area	Lots/blk. Lots/acre	Avg. lot dim. Avg. lot area	Building footprint	Bldg. cov./lot Bldg. cov./blk.	Bldg. area / blk. FAR	Units /blk. Units /acre	Units / acre (c.l. street)	Spaces/unit Spaces/acre	
Barcelona	Cerda Block: traditional apartment buildings*	1888- 1914	176,400 sf 4.05 acres	146,050 sf 3.35 acres 390' x 390'	0.3	1:2.41 29%*	124,700 sf 2.86 acres	13 4.55	73'w x 128'd 9592 sf	102,055 sf	82.00% 70.00%	537,124 sf 4.31	149' 52	37	0.69 25.60	* Block is speculative collage composed of apt. plans from various blocks of the Cerda grid. + If center courtyard is included in calculation of public area, public to private area is 1:1.37 and public area = 42% of the block area, to c.l. street. † 5 of the 13 building on the block are non-residential at street level
Barcelona	Cerda Block: modern apartment buildings*	1935- 1980	176,400 sf 4.05 acres	146,050 sf 3.35 acres 390' x 390'	0.3	1:2.41 29%*	124,700 sf 2.86 acres	14 4.9	74'w x 83'd 8907 sf	85640 sf	69.00% 59.00%	605,367 sf 4.85	324' 113	80	0.32 25.68	* Block is speculative collage composed of apt. plans from various blocks of the Cerda grid. + If center courtyard is included in calculation of public area, public to private area is 1:0.94, and public area = 51% of the block area, to c.l. street † 10 of the 14 buildings on the block are non-residential at street level.
Berlin	Friedrichstadt/ Mehring Platz: (formerly Platz de la Belle Alliance)**	17th c.	1,339,327 sf 30.75 acres	1,114,793 sf 25.59 acres irregular *	0.03	1:3.92 20%	1,067,133 sf 24.50 acres	47 1.92	101'w x 261'd 22,704 sf	689,541 sf	65.00% 62.00%	3,447,705' 3.23	1552* 63	50	0.15 7.64	* Sides measure approximately 1640', 880', 1880', 320'. † Estimated: based on 5 floors all buildings. + Estimated: assumed 2000 sf avg. / apt., 4.5 floors of residential use 50% of ground floor is commercial area. ** Destroyed in WWII
Boston	Back Bay: Marlboro/ Beacon/ Exeter/ Darthmouth	1874- 1910	186,048 sf 4.27 acres	146,520 sf 3.36 acres 264' x 555'	0.23	1:1.75 36%	118,272 sf 2.72 acres	39 14.34	27'w x 112' d 2,957 sf	71,784 sf	61.00% 49.00%	440,986 sf 3.73	379 139	89	0.38 34.19	
Boston	Back Bay: typical: Comm. Ave. Marl./Fairfield, Exeter	1872- 1900	270,190 sf 6.2 acres	174,160 sf 4.0 acres 280' x 622'	0.16	1:1.11 47%	141,902 sf 3.26 acres	42 12.9	30'w x 110'd 3379 sf	86,515 sf	61.00% 50.00%	423,723 sf 2.99	281 86	45	0.57 23.55	
Boston	South End: Dartmouth/ Clarendon/ Appleton/ Chandler	1868- 1910	168,360 sf 3.86 acres	134,420 sf 3.08 acres 235' x 572'	0.26	1:1.42 41%	98,754 sf 2.27 acres	83 36.56	20'w x 61'd 1220 sf	66,364 sf	67.00% 49.00%	313,396 sf 3.17	301 133	78	0.31 24.87	

## Comparative Block Densities

General			Block				Lot			Building			Parking		Remarks	
City	Block	Date	Block area, (to c.l. street)	Blk. area Blk. dim.	Blks. / acre	Pub:Priv Pub:tot	Lot area	Lots/blk. Lots/acre	Avg. lot dim. Avg. lot area	Building footprint	Bldg. cov./lot Bldg. cov./blk.	Bldg. area / blk. FAR	Units /blk. Units /acre	Units / acre (c.l. street)		Spaces/unit Spaces/acre
Gaithersburg	Kentlands "Traditional Neighborhood Development"  Town Design: Duany, Plater- Zyberk	1988	15,333,120 sf* 352.0 acres	varies  N.A.	N.A.	1.57:1  61%*	2,500-9,000 sf						1655*  12'	4.7		* Total area of development. † Residential acreage only. + Total no. units in development. Development also includes 2,000,000.00 sf of retail and office space in a shopping center, clubhouse and rec. center, elementary school, child care facility, church. (ref.:Urban Land Institute)
Naples	I Quartieri Spagnoli	17th c.	7,268 sf 0.16 acres	4,810 sf 0.11 acres  65' x 74'	6.25	1:1.61  38%	4,485 sf 0.103 acres	1  9.71	N.A.  N.A.	4,233 sf	94.00%  88.00%	21,165 sf*  4.72	8  78	50	0.50  25.00	*Includes first floor which is all retail.
New York	London Terrace: 9th Ave., bet. 23rd, 24th Streets  Arch: Farrar & Watmaugh	1930	250,200 sf 5.74 acres	201,600 sf 4.63 acres  840' x 240'	0.174	1:1.71  37%	158,040 sf 3.63 acres	1  0.28	N.A.  N.A.	104,800sf	66.00%  52.00%	1,147,350 sf  7.2	1656  456	288	0.18  53.48 (225 spaces in garage below grade)	Corner, (tower) units are privately- owned condominiums. Mid-block apartments are rental units.
New York	San Remo: C.P.W., bet.. 74th, 75th St  Arch.: Emery Roth	1930	238,013 sf 5.46 acres	206,064 sf 4.73 acres  848' x 243'	0.183	1:2.20  31%	163,561 sf 3.75 acres	56  14.93	T*: 41'w x 100'd 4,100 sf R*: 21.5'w x 102'd 2,197 sf A*: 204'w x 164'd 33,623 sf	115,202 sf	70.00%  55.00%	768,671 sf  4.7	409*  109	75	0.22  16.48	* T: Tenements R: Row Houses A: Apartments * Unit quantity for tenements and row houses is estimated. R @ 1/4 single-family occupancy, 3/4 subdivided, T @ 72 units. San Remo has 146 apartments.
New York	Paul Dunbar Garden Apartments: 7th Ave., 149th Street  Arch.: A. Thomas	1928	220,665 sf 5.07 acres	193,860 sf 4.45 acres  843' x 230'	0.19	1:2.11  32%*	149,688 sf 3.44 acres	1  0.29	N.A.  N.A.	74,395 sf	50.00%  39.00%	446,370 sf  3	511  149	101	0.18  18.73	* Ratio of public area to private area changes to 1: 1.05, and the percent of public area of block to c.l. street is 66%, when all semi-public, interior courts are counted as public area.
New York	Tenements: typical "Gas Town"* block	1920	187,968 sf 4.32 acres	157,300 sf 3.61 acres  650' x 242'	0.23	1:2.02  33%	125,660 sf 2.88 acres	53  18.4	25'w x 94'd  2371 sf	79,896 sf	64.00%  51.00%	382,511 sf  3	464*  161	107	0.17  18.98	* "Gas Town", the area East of 1st Ave. between 14th and 22nd streets, was the location of gas company storage tanks until 1943, when the site was acquired by Metropolitan Life Insurance Company. * Unit count based on typical tenement building plan of 2 units per floor, for 26-foot frontage.



## Comparative Block Densities

General			Block				Lot			Building				Parking		Remarks
City	Block	Date	Block area, (to c.l. street)	Blk. area Blk. dim.	Blks. / acre	Pub:Priv Pub:tot	Lot area	Lots/blk. Lots/acre	Avg. lot dim. Avg. lot area	Building footprint	Bldg. cov./lot Bldg. cov./blk.	Bldg. area / blk. FAR	Units /blk. Units /acre	Units / acre (c.l. street)	Spaces/unit Spaces/acre	
New York	Apthorp: Broadway, 79th Street  Arch.: Clinton & Russell	1908	105,421 sf 2.42 acres	69,255 sf 1.60 acres  285' x 243'	0.41	1:0.92 52%*	50,592 sf 1.16 acres	1 0.86	N.A. N.A.	40,512 sf	80.00% 58.00%	445,632 sf 8.8	178* 153	74	0.83 61.15 (100 spaces in garage below grade)	Streets surrounding are unusually wide. Block size is atypically small. * Originally the Apthorp was designed with 104 units. Many have since been subdivided. * If the courtyard is included in calculation of public area, public area = 62% of block area to c.l. street, ratio of public area to private area = 1:0.62
New York	Stuyvesant Town: mid-income "Tower In The Park Project"  Arch. in charge: G. D. Clark	1943- 1949	3,208,300 sf 73.65 acres	2,785,053 sf 63.95 acres  2,120' x 1427'	0.014	1:4.96 17%*	2,670,101sf 61.30 acres	1 0.016	N.A. N.A.	683,520 sf	26.00% 23.00%	8,624,253 3.23	8755 143	119	0.28 34.13 (1444 spaces in garage bel. grade)	* When area between housing towers is included as public area, pub. area = 79% of block area to c.l. street, and the ratio of pub. : priv area is 1:0.27.
Philadelphia	2400 Block between Spruce Street & Pine Street.		185,220 sf 4.25 acres	143,080 sf 3.28 acres  292' x 490'	0.23	1:1.20 45%	100,875 sf 2.31 acres	91 39	19'w x 61'd 1,108 sf	80,981 sf	80.00% 56.00%	242,943 sf* 2.4	143 62	34	0.70 23.76	* Estimated, based on avg. 3 floors / building.
Philadelphia	St. Albans Place: Mews 2300 block bet. Catherine St. & Fitzwater St.	late 19th c. - late	167,000 sf 3.83 acres	146,645 sf 3.36 acres  440' x 343'	0.26	1:1.45 40%*	98,870sf 2.27 acres	100 44	16'w x 61'd 976 sf	71,172 sf	72.00% 48.00%	211,140 sf 2.13	134 59	35	1.18 41.51	* When the mews area is included as private area, public area = 28% of block area to c.l. street and ratio of pub:priv area is 1:2.57.
Philadelphia	2000 Block between Spruce Street & Pine Street.		283,466 sf 6.50 acres	255,398 sf 5.86 acres  494' x 517'	0.15	1:1.84 35%	183,750 sf 4.21 acres	84 20	22'w x 94'd 2187.5 sf	142,077 sf	77.00% 56.00%	568,308 sf* 3.09	210 50	32	0.59 19.07	* Estimated, based on avg. 4 floors / building.
Vienna	Karl Marx-Hof  Arch.: Karl Ehn	1927	1,299,044 sf 29.82 acres	1,221, 864 sf 28 acres  3,560 x 360	0.035	1:1.24 44%*	1,117,624 sf 25.66 acres	1 0.038	N.A.	281,028 sf	25.00% 23.00%*	1,679,000 sf* 1.5	1382* 54	46	0.28 13.07	Apt. area 226-645 sf. Devel. includes 2 laundries, 2 swimming pools, 2 day-care centers, a clinic, M.D. offices, a library, comm. center, emerg. med. serv., a pharmacy, post office, stores. * Including interior courts as pub. area, pub. area = 78% of block area & ratio pub: priv. area is 1:0.27. * Ref: Lotus 10, 1975

## Comparative Block Densities

General			Block				Lot			Building				Parking		Remarks
City	Block	Date	Block area, (to c.l. street)	Blk. area Blk. dim.	Blks. / acre	Pub:Priv Pub:tot	Lot area	Lots/blk. Lots/acre	Avg. lot dim. Avg. lot area	Building footprint	Bldg. cov./lot Bldg. cov./blk.	Bldg. area / blk. FAR	Units /blk. Units /acre	Units / acre (c.l. street)	Spaces/unit Spaces/acre	
Vienna	Schuttauhof: Superblock  Arch: Rodler, Stulterheim, Tremmel	1924	122,877 sf*  2.82 acres	90,597 sf 2.08 acres  303' x 299'	0.483	1:1.42  41%*	7,2072 sf 1.65 acres	1  0.61	N.A.  N.A.	35,510 sf	49.00%  39.00%	186,580 sf <sup>†</sup>  2.59	309  187	  110	0.29  13.85	Complex includes 9 stores, public baths, nursery school, library, doctors' offices. *Assumes three 60'-wide streets and one 150'-wide street. + Pub. area does not include interior courtyard. † Total bldg area & FAR calculations include all areas, residential and other.

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