CONTEXT AND CHANGE: A NEIGBORHOOD BLOCK IN CAMBRIDGEPORT

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B.A. in Arch., Yale University, 1976

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ABSTRACT

This thesis adresses the problem of developing continuity between an existing residential area and a design of a medium density housing development. An identification of architectural patterns in the area of the site yields an abstract model of a typical block involving different building types on different zones of the block. This model is applied to the organization of the new housing development and modified to suit new programmatic requirements. Ensuing design development shows that continuity with an urban residential context can be found at both an organizational level and at the level of architectural detail, while responding to the demands of a new housing programme.

Thesis Supervisor: Dr. Maurice Smith

Title: Professor of Architecture

Thank you: Kyu Sung Woo, Stan Anderson, Maurice Smith, Fred Koetter, Mark Crosley, Pat Whempner, Celine Larkin, Yoshiko Ryu, and other friends.

Table of Contents:

INTRODUCTION:

Custom and Invention

It is a question of creating the *Futurist* house according to a sound plan, of building it with the aid of every scientific and technical resource, of fulfilling to the limit every demand of our way of life and our spirit, of rejecting everything grotesque, cumbrous, and alien to us (tradition, style, aesthetic, proportion), establishing new forms, new lines, *a new harmony of profiles and volumes*, an architecture whose raison d'être lies solely in the special conditions of modern life, whose aesthetic values are in perfect harmony with our sensibility. This architecture cannot be subject to any law of historical continuity. It must be as new as our frame of mind is new.

(T. Marinetti, Futurist Manifesto)

Tradition is the social analogy of personal habit, and in art has the same effect, of releasing the artist from distracting and inessential decisions so that he can give his whole attention to the vital ones. Once an artistic decision has been made, no matter when or by whom, it cannot profitably be made again; better that it should pass into the common store of habit and not bother us further.

(H. Fathy, Housing for the Poor, p. 38).

And accordingly, the present situation is knotted and almost insoluble. For the two increasingly desperate 'obligations' of the architect–on the one hand to 'science' and on the other to 'people'–continue to persist; and, as their old working symbiosis of the twenties becomes ever more shaky, these divergent drives acquire a literalness and a vehemence which begin to cancel out the usefulness of either. So modern architecture, professing to be scientific, displayed a wholly naive idealism. So let this situation be corrected; and, from now on let us increasingly consult technology, behaviourist research and the computer. Or, alternatively, modern architecture, professing to be humane, displayed a wholly unacceptable and sterile scientific rigour. Therefore, from now on, let us desist from intellectualist vanity and let us be content to replicate things as they are, to observe a world unreconstructed by the arrogance of would-be philosophers but as the mass of humanity prefers it to be–useful, real and densely familiar.

(Koetter and Rowe, Collage City, p. 10)

It is easy to understand the current calls for a greater weight to the role of "context" or tradition in design, in face of the housing developments of the last twenty years. The newer parts of the residential environment, such as Boston's West End, seem alien and more related to market demands or to vague architectural doctrines than to residents' elementary requirements for comfort and identity.

View of West End.

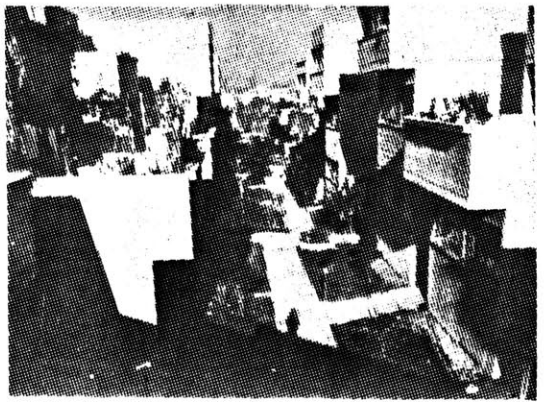
A greater reliance on traditional building forms drawn from the context appears to the designer of housing as a means to redress this condition. If, reasoning goes, one could only provide residents with traditional building forms adressing 'conventional' needs, then one might restore to them a measure of the meaningfully ordered physical word embodied in these forms. Such was the position taken by Hassan Fathy in his housing development for Gurna, Egypt.

This reasoning, however, often clashed with the nature of the designer's problem: the villagers of Fathy's New Gurna parked their taxicabs in the donkey stalls, poured concrete slabs over the mud-brick vaults, and twice, since 1948, flooded the entire village. Beyond mere adaptation of the environment to their needs, there was a desire to protect against what was

perceived as a romantic recreation of an idealized past, unresponsive to their needs for integration with the city.

In placing emphasis on a formal continuity with tradition, professionals may overlook the changing social forces generating the environment. They may be unresponsive to the needs of the uprooted social groups which lie behind residential developments on a large scale. Sometimes, a design approach which places less emphasis on a merely formal continuity with traditional forms can better identify these needs and provide solutions.

Gurna: traditional house type



Terni: innovation

Giancarlo de Carlo's housing in Terni provides residents with such unconventional or untraditional elements as sunken streets, integrated parking, and raised access galleries. A reference is made to vernacular housing in the 'stacked yards' of the apartment plans, but on the whole the architect seems to have focused more on the possibilities for invention inherent in the mass housing programme than on the traditional or customary forms of village settlements.

Between de Carlo and Fathy there is a difference in role. While the latter sees himself as somewhat of an inventor who thrives on the challenge of finding

unique aspects of the program and expresses them uniquely, the former is a less compromising high priest, one who introduces back into the world the forms of an idealized traditional order.

Inherent in any large scale residential development is a measure of discontinuity with its context. The introduction of a higher housing density in Cambridgeport -- the task of this thesis -- will require solutions to problems for which there is no precedent in the area, such as the need to accomodate large numbers of cars; to provide more services; and to provide more public open spaces. One can seek the challenge of a unique program, as de Carlo in Terni, or one can emphasize the links between a traditional organization (that of the present residential area) and the program at hand, as Fathy in Gurna. One may also, for all its methodological untidyness, try to do both.

This thesis will try to show that architectural innovation is most meaningful when it occurs within a good understanding of the tradition from which it springs, and that, without positing "waffle-iron-over-Dusseldorf" science fiction there is yet much room for the formulation of new building forms and organizations.

Cambridgeport: view of the residential area

It is the role of the 'context analysis' to describe the physical organization of an area and to bring out the different ways in which a design might connect to its surrounds. Notice, however, that there is nothing 'objective' about this description. As each observer will yield different observations, it may well be the observer's interests as much as inherent features of the site which are recorded in 'analysis'. The risk of self-satisfying observation is reduced somewhat, and the task is lightened, if an explicit 'study method' is employed, such as Habraken's identification of "agreements" concerning the environment or Alexander's identification of Patterns. But while these methods do make their underlying assumptions explicit, they will not bring one nearer to an "objective" identification of features of the environment to be employed in design. Ultimately, for the purposes of design it is one's subjective understanding of the context which will guide the process of observations, much as it will guide the design process.

levels

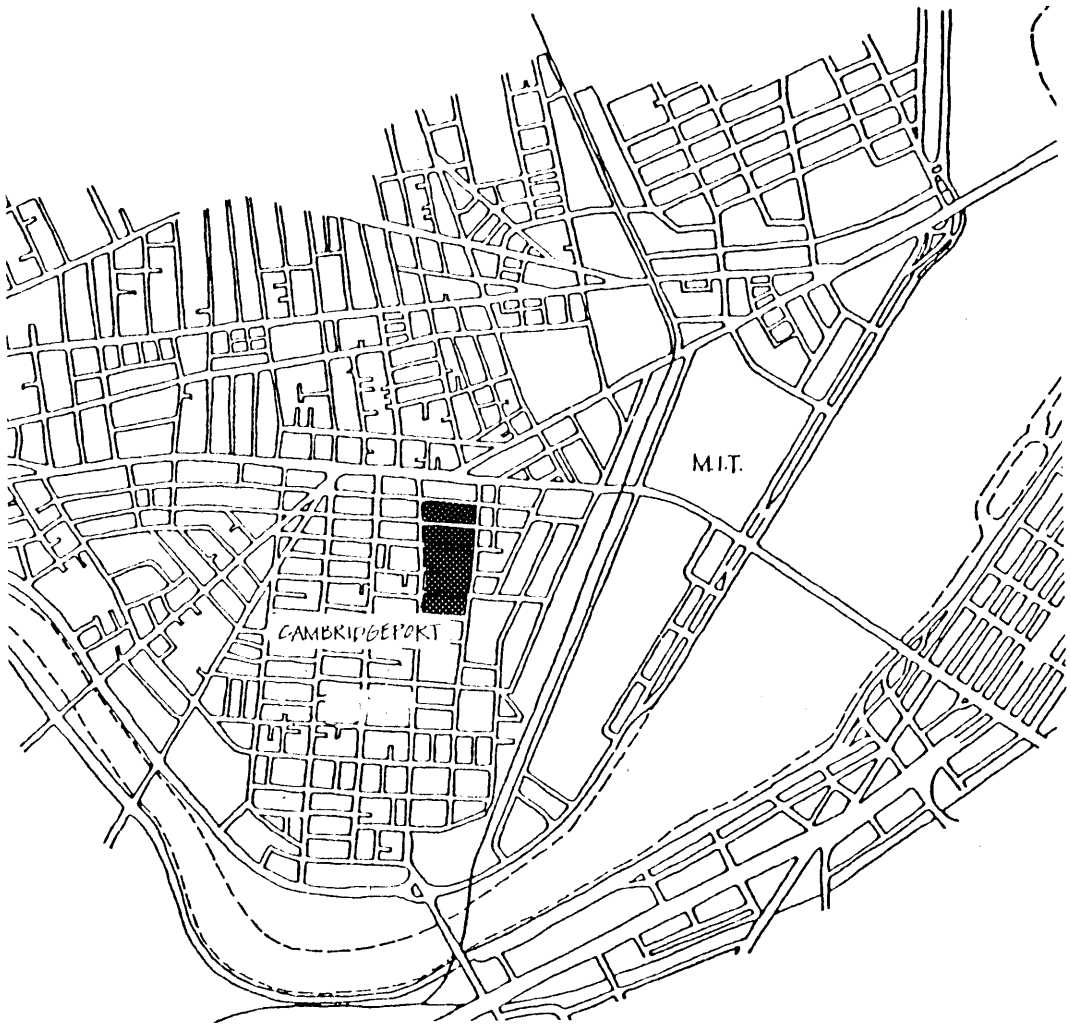
The work of Habraken distinguishes 'levels' of decision-making in the environment. In particular, he distinguishes the level of decisions related to the urban order from the level of decisions which relate to the organization of a building on a site. Through the

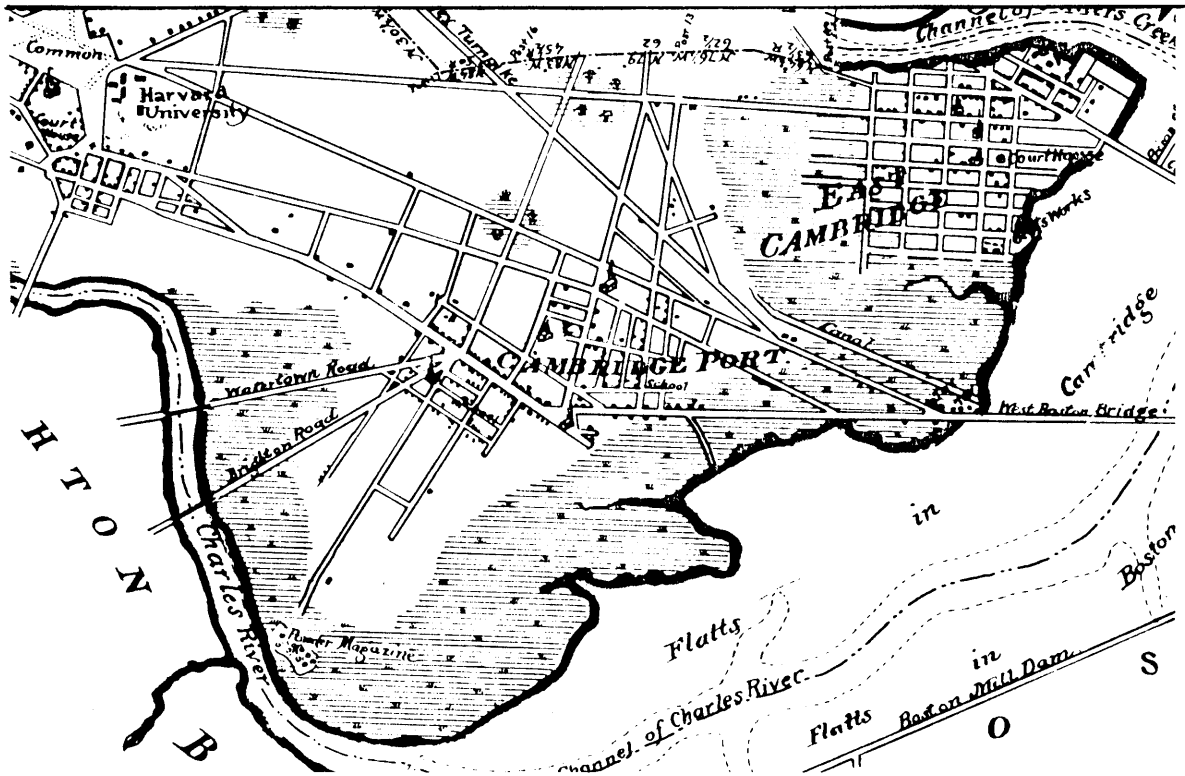
separate design of an "urban tissue" (the largest order) and a "support" (the building's order) he can deal with these various levels on their own terms, while allowing decisions on one level to affect, but not entirely control, decisions at the next level. Cohesiveness can be assured, but there is ample room for variation.

While not adhering to the strict methodology of agreements and variations in this thesis, I will use the notion of levels in examining the role of the physical context in a large scale design.

The 'context analysis' will yield information about underlying organizational patterns operating in the neighborhood both at the level of the whole block as at the level of buildings on the block. Drawing on this information, a model for a high density block will be developed, to be repeated thematically over an area several blocks in size. The diagrammatic nature of this block organization will provide flexibility in the actual architectural development of the different blocks, while maintaining an underlying theme. This development, for a typical block portion, will be the last phase of the thesis.

SITE AND CONTEXT





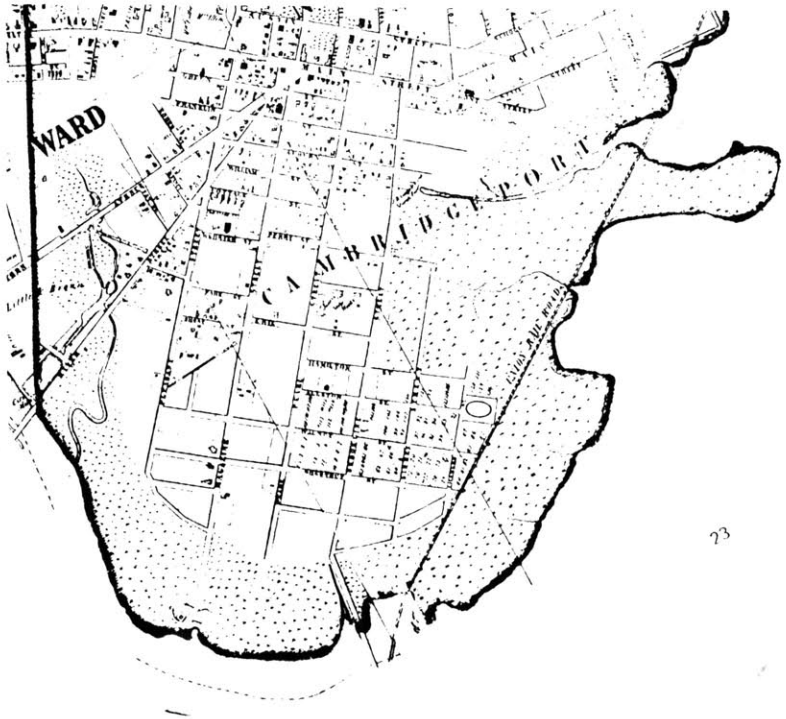
1830. *Present day Cambridgeport is marshy area on the southern portion. Path leading to Powder Magazine, is later Magazine Street.*

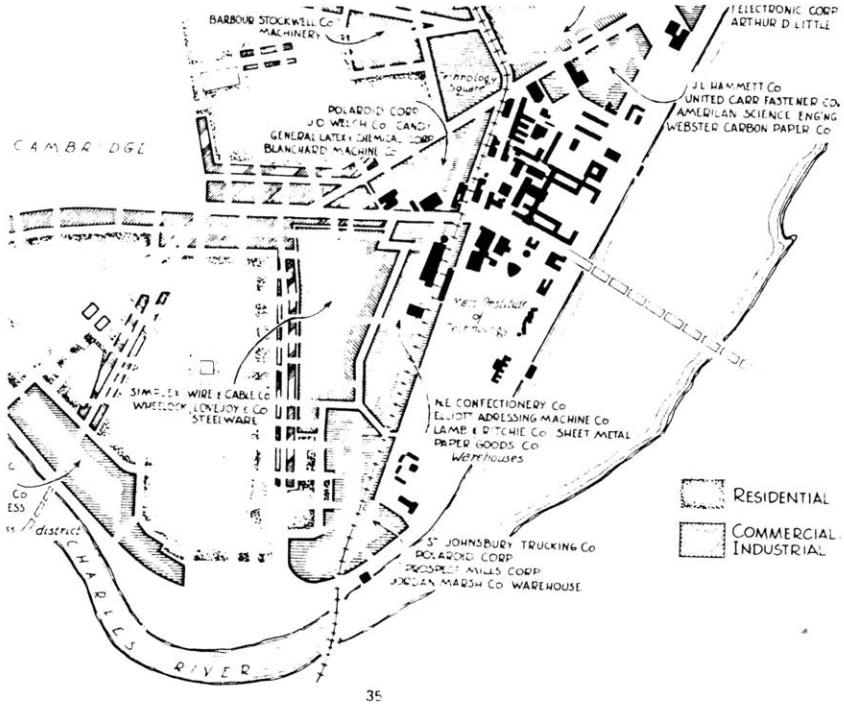
BACKGROUND:

The Site and the Program

The area known as Cambridgeport comprises the peninsula south of Massachusetts Avenue, surrounded by the Charles River on three sides.

Until the nineteenth century, today's Cambridgeport was primarily a rural portion of the Boston-oriented suburb of Cambridge. As late as 1854, the road network in the southern portion was still rather tentative, and that most lots in the area remained empty.

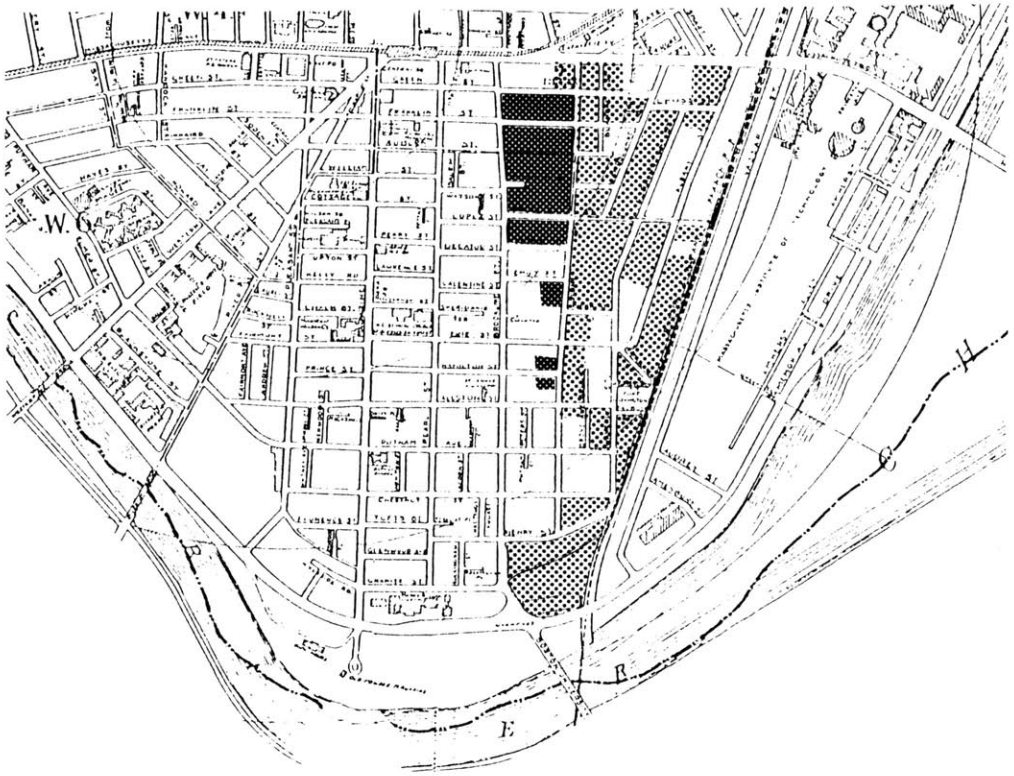




Industrialization brought rapid expansion to Cambridge's urban area, which began to occupy the rather secluded farmlands and marshes of Cambridgeport. Construction of the railroad embankment in 1853 made a large portion of land adjacent to the railway available for industrial development. The ensuing industrial growth brought many new residents into the area, and provoked a great deal of construction of residential stock for predominantly working-class families. Triple-deckers replaced isolated houses on suburban lots as developers built entire streets up at once, particularly

1853. Map shows lot layout on Northern blocks near Central Square and southern blocks near Fort Washington.

1966. Map shows the largest extension of industrial development (shaded).



1982. RCCC map showing 'developable' or underused areas. The darkest shade is zoned residential. That is the site area.

in the Southern portion of the area. Over time, industries moved beyond the blocks immediately adjacent to the railroad embankment and took over blocks which were part of the staggered-street residential pattern, as far west as the blocks between Brookline and Pearl streets.

With the decline of the railroads, the advantages

offered by the area to industry were significantly decreased as land prices were pushed up by the purchasing policies of Harvard and M.I.T. Factories in the area sold their properties and relocated in other portions of the city. As a result a large portion of Cambridgeport's area west of Brookline Street is today considered "developable" as seen in the shaded areas of the map by RCCC, while those portions not shaded could easily change hands in the near future.

Figure 3

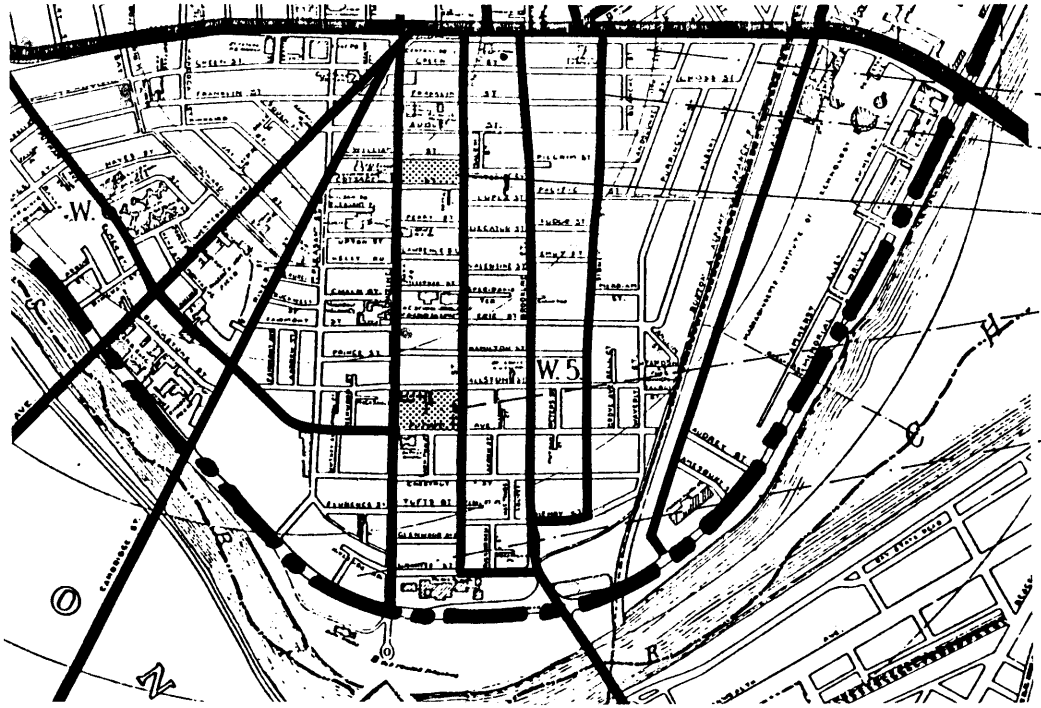
The concensus of the neighborhood, as manifested in numerous public hearings dealing with the use of these sites, is that the strip between Sydney and Brookline Streets should be preserved for predominantly residential development. The general exploration undertaken here is intended for use on this strip. Most of this land is currently owned by M.I.T.

Figure 4

I note here certain organizational patterns operating at the level of the block and at the level of dwellings on the block to which I will refer in the development of a model block for higher density. Regional features will be panned first by way of an introduction.

The reader should be cautioned against expecting a systematic description of the entire area. The purpose of this analysis is, ultimately, to highlight patterns which can inform a design exploration, not to develop a model for the urban fabric as a whole.

·Streets, Blocks and Zones of the Block



Regional features:

North-South through streets.

Typical northern block.

Typical southern block.

Mass. Ave. shopping strip

Memorial Drive shopping area.

It is expedient to begin a discussion of basic physical patterns of an urban area with a listing of its separate elements: types of street, types of block, types of buildings. One knows, however, that there is an ordered relationship between these various types, that the whole is interrelated. To be able to discuss this interrelation, I use the notion of zones of the block, areas which, among other characteristics, contain buildings which share an orientation to a given street.

Streets

There are three kinds of access to buildings in Cambridgeport: through streets running N-S, local streets running E-W, and alleys or cul-de-sacs generally running N-S off the local streets.

Through streets are wider, continuous streets which bring traffic from the local residential streets into either the highway at the river's edge or the commercial strip along Massachusetts Avenue. Most noteworthy among them is Magazine Street, on which I base most of my observations.

Local streets are the short, often staggered streets which one typically associates with residential habitation in Cambridgeport. My observations will focus on Perry Street between Magazine and Pearl.

Ad hoc streets are the public penetrations into the original domain of the block created to allow public access to housing in the interior of the block. There is a great deal of variety in this category. To simplify the task, I will concentrate my observations on the areas off Putnam Avenue and off Perry Street, again between Magazine and Pearl.

Blocks

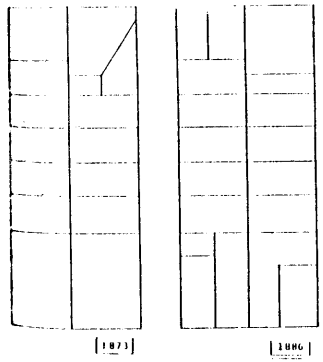
There are typically two kinds of blocks in Cambridgeport South. In the portion nearest Massachusetts Avenue, we find blocks generally around 200 x 480'+. In the portion nearest the river edge, blocks tend to be 300 x 450'+ having been designed to provide lots large enought to allow orchards or gardens in the backs of houses. In the larger blocks a great deal of modifications to the lot pattern has taken place, as lot partitions allowed in the end a much higher density setting than was originally envisaged.

The difference in block size has allowed different degrees of inhabitation of the interior of the block. We find a much greater number and variety of interior block housing on the Southern block portions. The difference in block sizes is owed to their being laid out at different times, for somewhat different purposes. The smaller lots are part of the original "urban" area of Cambridgeport around Central Square, while the larger blocks were developed later for larger houses with a garden or orchard. Such houses were, for the most part, never built.

Zones of the Block

Plot maps of Cambridgeport show an early recognition of the differences between through and side streets. In northern blocks, through-street lots are larger and fewer in number than those on local streets. Per block, there are four of the former, each around 100 x 125', and eight to ten of the latter, each around 60 x 100'. The public quality of lots on the through street is heightened by their corner location, which allows each lot about 225' of street frontage, in contrast to street frontages on local street lots, which are only around 60'. There is an attempt to establish through the lot organization a morphological difference between buildings along through streets and those on the local streets. This might indicate a difference in intended use.

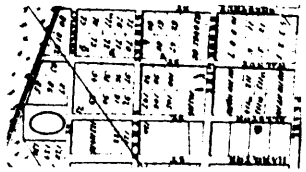
Plot map shows original difference between through street and side street lots.



Plot map of northern block.

Unlike the northern blocks, plot maps of the southern lots do not manifest a difference between through and local street locations. This might be due to the fact that, at their inception, the southern ends of what are now through streets were rural lanes dead-ending on the marshes. It could also be due to the speculative intent of the block developers, who sought to maximize the number of possible locations for residential construction in the short run.

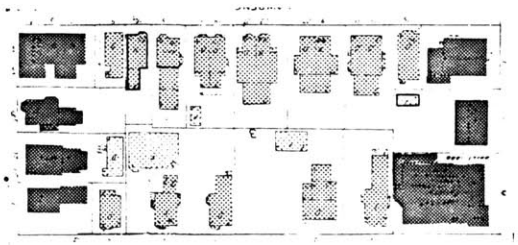
Plot map of southern block.

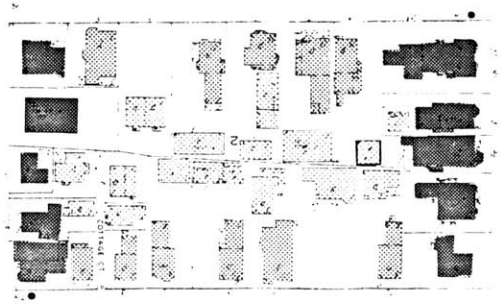


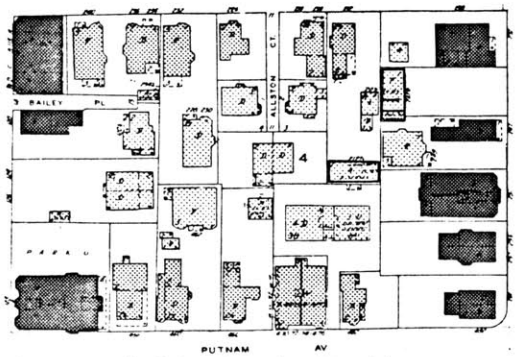
Over time, buildings along the streets have developed and reinforced the character of the streets on which they front, regardless of whether there was an intention to foster differences between streets or not. Building types which extend their zone of residential claim° have endured on the local streets, while apartment buildings which do not extend such claims, and public buildings, have sprung up along the through streets. In addition, a third zone of habitation has sprung up over time on the block's interior, containing mostly single houses and duplexes.

°*See Stan Anderson, Urban Ecology of streets.*

A 'mature' block in Cambridgeport therefore exhibits these different zones of habitation: the zone of the through streets, the zone of the side or local streets, and the mid-block zone to which one has access via alleys and cul-de-sacs.





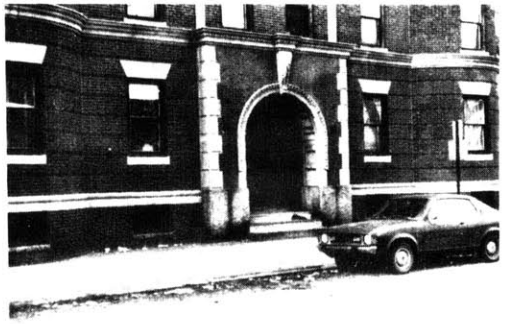


'Mature' blocks in Northern and Southern portion

View of Magaine Street, looking to Central Square.

The through street has the feeling of a continuous public promenade. This is partly owed to the greater width of the streets and sidewalks and partly to qualities of the buildings located along the street.

On through street lots we find public buildings and residential buildings with a public entrance. Typically, the latter are apartment buildings entered through an entryway leading to a shared hall. They tend not to claim any area of the street or sidewalk, nor to provide much of an intermediate space like a porch or balcony between them and the street. Non-residential buildings are located on corner lots. They are either



Apartment building on Magazine Street.

churches, meeting halls, or shops which tend to define the corners rather massively. Sidewalks at the corners are usually brought right up to the building's front edge, forming a small public spot often marked by a grand set of stairs or a raised entry platform.

The through street is always dominant in the orientation of fronts and entrances. The facade of buildings on a corner location is always oriented to the through street.

A ten foot setback from the street is maintained along the street. This helps to unify the massing along the street, and serves as a background to the regularly spaced cannopy of trees overhead.

Towers and spires of community buildings serve to make the length of the street visually comprehensible to a pedestrian on the street while encouraging movement by announcing special locations along the path.

Ground coverage of the through street buildings is more extensive than that of buildings on residential streets. Sideyards are tighter, and seem to operate primarily as light wells.

Towers and spires on Magazine Street.

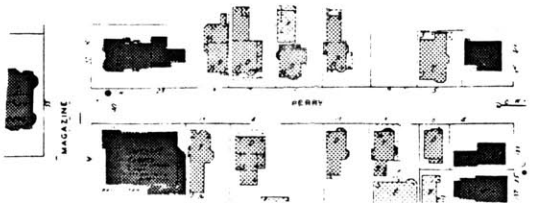
Church on Magazine Street.

In maintaining a tighter and more continuous edge than that of the local streets, and by their greater mass, buildings on the through street emphasize a direction of movement and can be said to generate a dense barrier along the collector street. This barrier of more massive buildings on the through lots defines and protects the residential zone behind it.

View of Perry Street.

The zone of the residential street has more the qualities of an enclave, a 'bounded' location, a niche. There is a greater sense of quietude, more spaciousness, less emphasis on movement. Streets are often staggered to discourage through traffic. This displacement

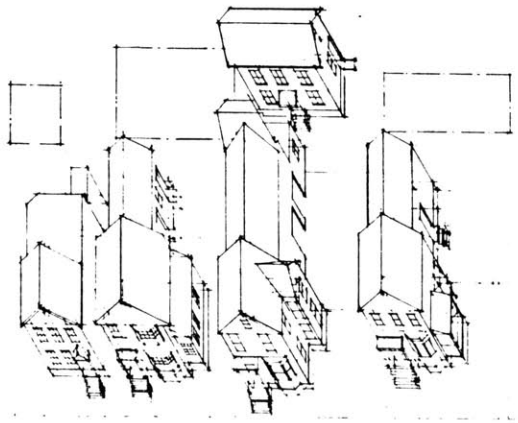
provides a spatial boundary at either end of the street. As the four lots on the street do not face the residential street, two quiet zones are created which could be described as "urban thresholds" to the residential streets.



Street displacement and building orientation give sense of boundary.

On these side streets we find lower density residential buildings, duplexes and some single family houses which have sometimes been adapted to allow more than one household. Unlike buildings on the through streets, entrances are smaller, often de-emphasized by such elements as porches or trellises, which impart a mood of repose and lightness.

Houses are around two and three stories, and as we shall later see, they are organized along sideyards. These sideyards are used quite intensively, and their development as gardens, play spaces or work areas breaks up what is already a very soft street edge, allowing one to connect while on the street to the lushness of the block interior. Although side streets are narrower than through streets, there is such a sense of overlap of the street space with the spaces beyond it, that one's overall impression is one of pleasant spaciousness. One is not asked to move in any particular direction.

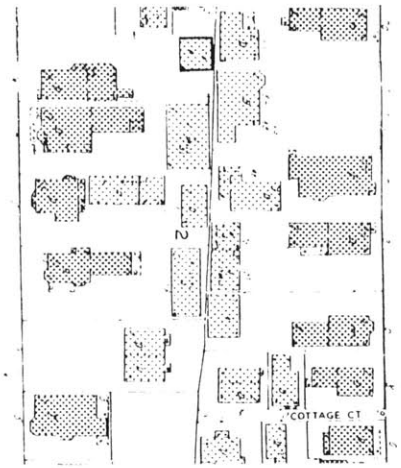


Houses on Perry Street.

Car-related activity is presently the foremost channel for the use and personalization of local streets. Residents lay their claim on the street by staking out a parking place and by means of the placement of objects (cans, boxes, lawn chairs) on the pavement near the sidewalk. When 'the' car is present, the objects are moved to the sidewalk. The street is also somewhat of a work space. Residents often engage in what can seem like endless repair operations centered around the parked automobile. Frequently a street-side garage is in fact a shop for tool storage; these tools all too readily extend across the sidewalk onto the parking margin of the street. Car-related activity is not restricted to repairs: teenagers gather around one another's car and will sometimes congregate around several cars. Car washing can similarly mobilize entire families for a few hours at the sidewalk's edge.

+ *people 'personalise' their parking spaces*

Automobiles in Cambridgeport are, for the time being at least, still an important resource. In projecting a model for higher density, use of the street should not preclude the kind of associations between residents and the automobile which presently exist in the local streets.



The Mid-Block Zone

The mid-block zone is part of the enclave which is clustered around the zone of residential streets. Its dimension varies with the dimension of the block, reaching its greatest size in the block between Magazine, Putnam, Pearl and Franklin Streets. It is the most protected zone, the quietest, the one at the greatest remove from the flow of traffic.

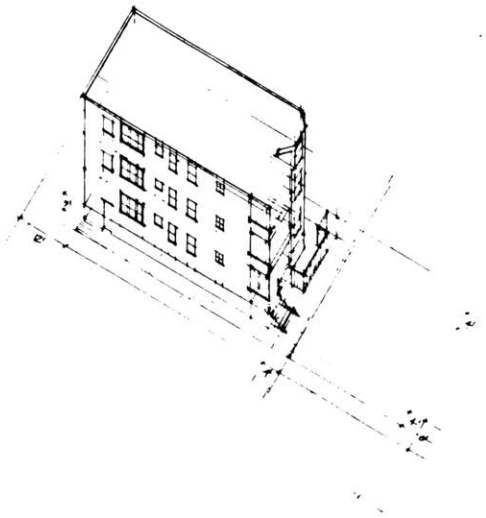
Detached two and three story buildings housing single and double households occupy the mid-block zone. In the Southern portion, enterprising developers built cul-de-sac alleys and sometimes even through streets across the depth of the block. Such interventions

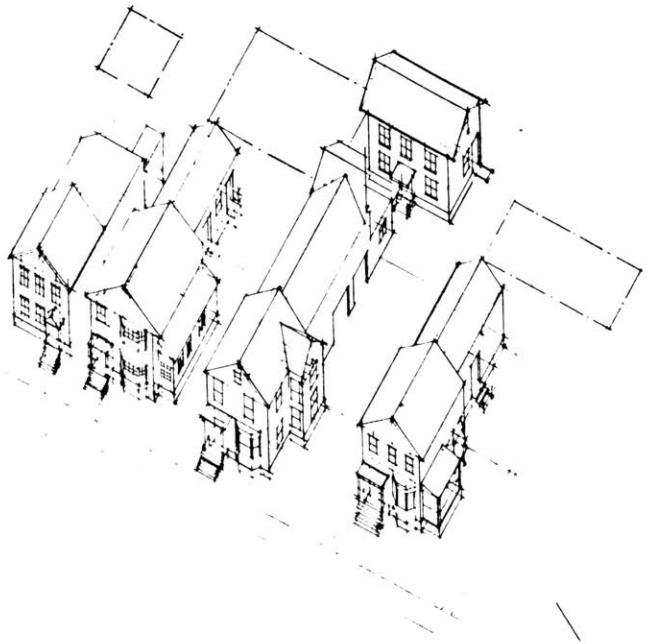
have created highly desirable residential spaces, open to the outside, yet clearly falling within the territory of the adjacent dwellings. The norm, however, is that mid-block houses are accessed individually through a narrow right of way or a yard shared with the street-front houses. Houses on these mid-block locations are often more rambling and informal in character than their counterparts on the edge of the block.

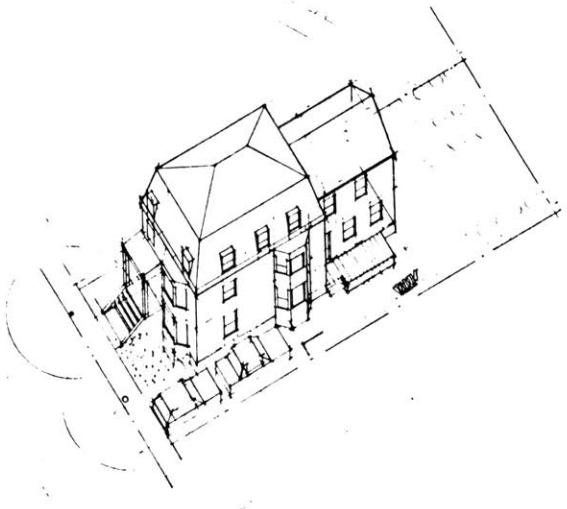
+ Cul-de-sac street off Putnam Avenue

·Residential Building Types

Residential buildings found in the area fall into three general categories: single and double houses on lots under 50' wide, triple deckers on lots under 50' wide and multiple-household buildings on oversize lots.







Single and double houses are houses in the suburban mode, with a front yard, a backyard, and usable side-yards. Ground coverage seldom exceeds 35%. There is a great deal of variety in this category, mostly as a function of use of the ground, whether it is shared by

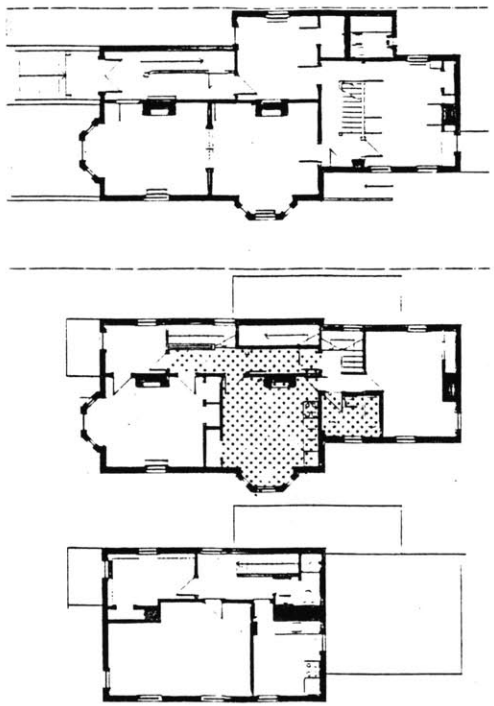
Townhouse/Double House

Double house: 10 rooms for 2/3 households
3 kitchens plus 7 optional privacies
3 baths
footprint: 1352 s.f.
lot size: 40 x 100' (4000 s.f.)
lot coverage: 35%

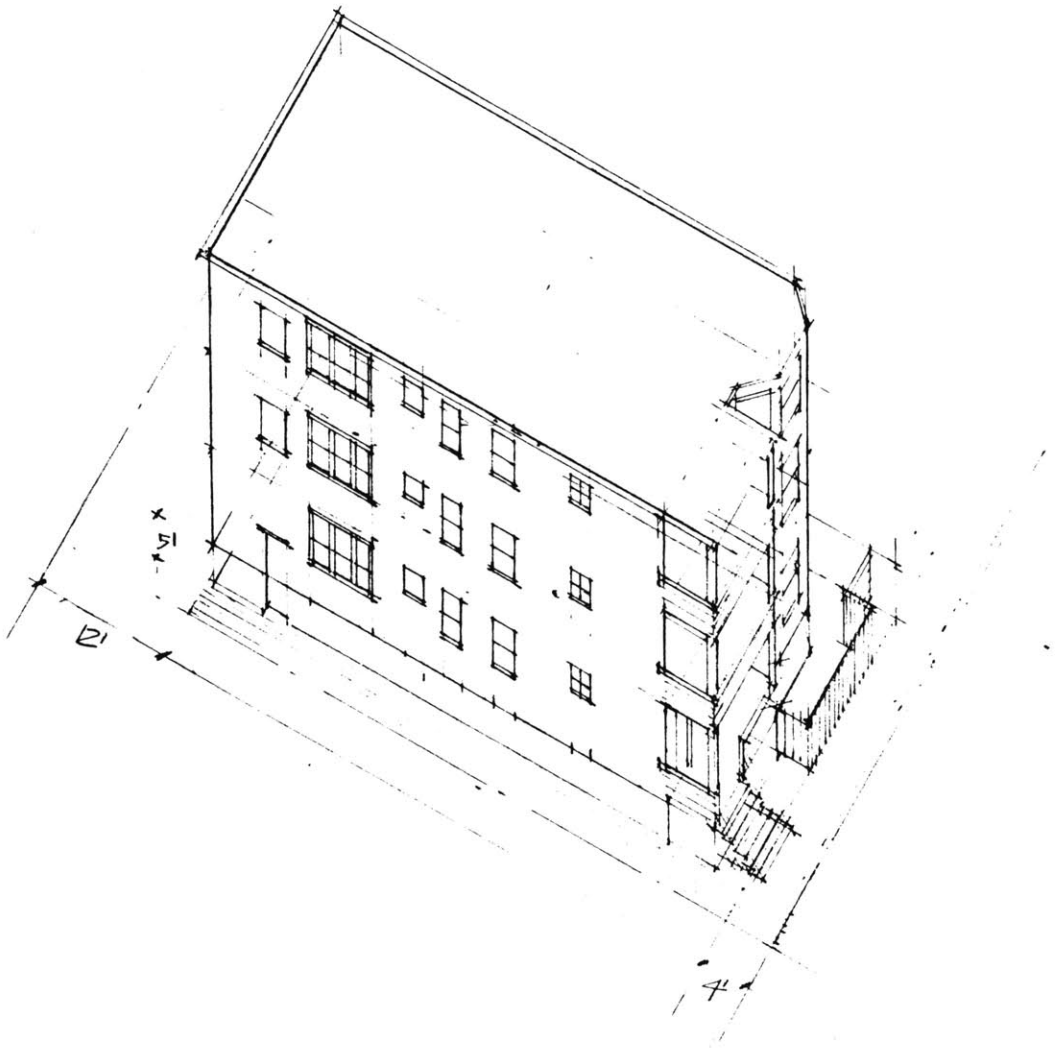
Ground Use: The back yard and most of the sideyard can be entered only through the ground unit. Because there is a gate halfway down the sideyard, the latter tends to be split into a front zone belonging to the street and its attendant car-related functions, and a back portion related to the service needs of the ground load unit. If this gate were not to exist, the backyard and most of the sideyard would still be most easily accessed from the side entry of the ground load unit.

units in the building or it belongs to a "dominant" unit. There is also a great variety of styles in this category.

Flexibility in this plan has to do both in the different readings of public and private which can be had and with the existence of "shared" zones (shaded) which can be seen as belonging to one or another unit. The entire third floor, for example, can belong to the shared or first floor household depending on which of the doors leading to the access stairs is locked at any one time. In addition, the existence of a third kitchen suggests that there might have been a third flat on the top floor. Unless this flat shared the corridor of the second floor unit, a most complex circulation diagram would have to have existed to provide access to this unit. The location of a front set of stairs directly off the main entrance allows access to the second or third story unit not to interfere with the spaces of the ground floor.



+ floor plans: ground
first
second



Triple Decker: 18 rooms for 3 households
3 kitchens plus 15 optional privacies
3 baths
footprint : 1960 s.f.
lot size: 2800 s.f. (35 x 85')
lot coverage: 70%

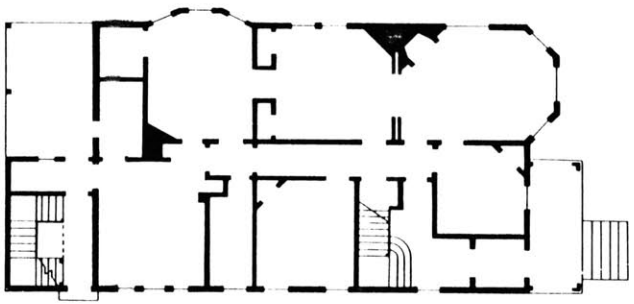
Ground Use: The backyard is a shared yard. The ground unit stands over four feet above the back yard and has no direct access to it other than the collective stair on the side. A maintenance problem with this shared yard is evidenced in the fact that it is often completely paved over.

The porch-side sideyard also is shared, as it leads from the street to the back stair, which in turn leads to all apartments. The sideyard on the bay window side of the lot is planted and kept up by owner of the three decker, although it can also be accessed by the occupants.

Triple Deckers. These are wood frame buildings designed at the outset for 3+ households on regular residential lots. No single unit has use of the ground, and floor plans are repetitive on all three levels. This repetition of unit plans is expressed in the elevation.

Porches provide external spaces at the front and at the back of the buildings. Sideyards are minimal, tend to evolve into paved pathways leading to the service entry at the rear of the unit. This is a very 'dense' building type. Lot coverage can be about 70%, at an F.A.R. ratio of over 2.2.

Flexibility in the plan here has mostly to do with the different ways in which rooms can be connected to one another, and the different combinations of private/ public readings which can be had. There are no "shared" rooms between units or rooms which could belong to more than one unit at different times.



+ Triple decker on Newton Court typical floor plan.

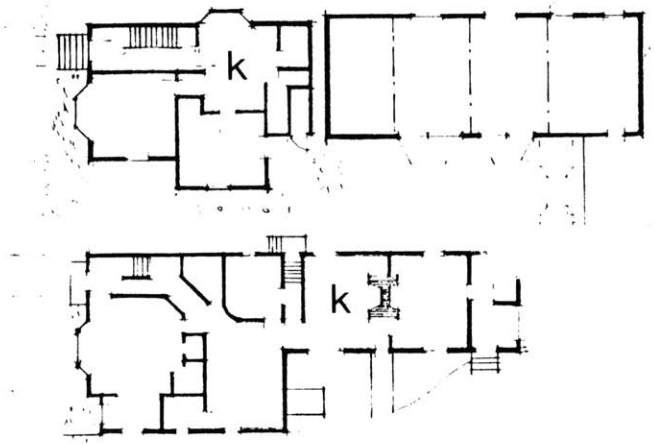
view of Newton court

Multiple-Household buildings on oversize lots. These are apartment-type buildings which share an entry from the street and a common hall space. In plan, these buildings are very often a combination of two and sometimes four triple-decker apartment plans which show a central bay containing the stair hall or a corridor. There is usually no use of the ground space in this type of building, although sometimes basement units have private accesses off the ground level. These large apartment buildings are generally located on the through street.

Apartment building on Magazine Street
two 'joined' triple deckers make larger apartment type.

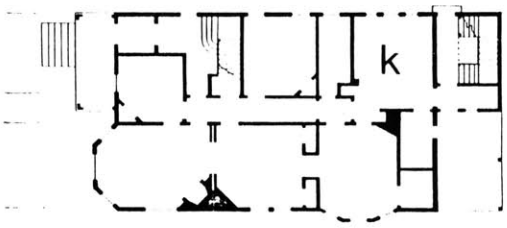
For all the variety in styles and detailing of the buildings of the area, building plans tend to exhibit remarkable organizational similarities. Give sideyard regulations the smaller residential lots can usually accomodate two 12'+ bays of construction plus a 6'+ circulation zone.

Single and double houses tend to organized in a single bay and circulation fashion, leaving a large part of the ground along the unit open for use. There is often a widening of the sideyard (a narrowing of the building?) towards the back of the lot. In this way the side and backyards begin to flow into one another. The kitchen can make intensive use of the sideyard for access and service, leaving the backyard free for gardening or other uses.



+ Single houses are often organized along a main bay and a circulation bay.

Triple deckers usually cccupy both possible bays in the lot, as the provision of porches reduces the need for units to make use of the ground. Sideyards are therefore very narrow between triple deckers, and act mainly as channels for light, which bounces off the sidewalls of buildings and finds its way into bay windows and other openings along the length of the building. Backyards are minimal, but some attempt at giving them good sun exposure is evident in the

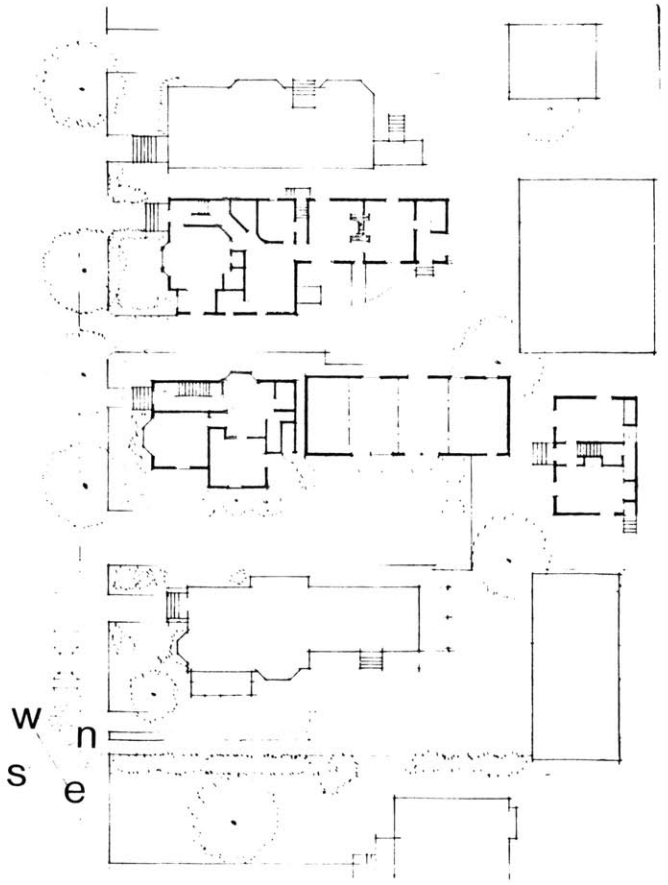


+ Triple deckers are laid out in 2 bays divided by a circulation bay.

grouping of back porches to prevent interference with light.

In order to allow the greatest sun penetration at the ground, houses crowd to the north and west corners of their lots, leaving the south and east as clear as possible from obstacles to the flow of light. Sideyards are single loaded, they are primarily oriented to the unit on their Northern or Western edge. Internal circulation tends to run along the Northern or Western edges of the units, again the better to allow the rooms of the house to open to the light of the sideyard.

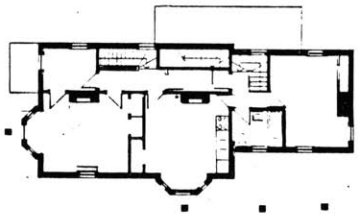
Houses in the mid-block zone are usually entered through a street-house's sideyard, or a narrow right-of-way. Houses in the mid-block zone are sometimes a converted barn or garage, but more often they are regular single and double houses placed on the rear portion of what originally was a local street residential lot. As we seldom find houses in the residential streets to extend longer than 60' from the front edge of the lot, blocks with lots greater than 100' have generally developed a great deal of mid-block housing.



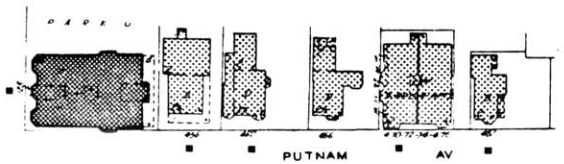
+ Single and double houses on Perry Street
houses crowd to the north and west edges of their lot to allow the greatest sun penetration.

For both triple deckers and single or double houses, the end rooms have a more public quality than the other

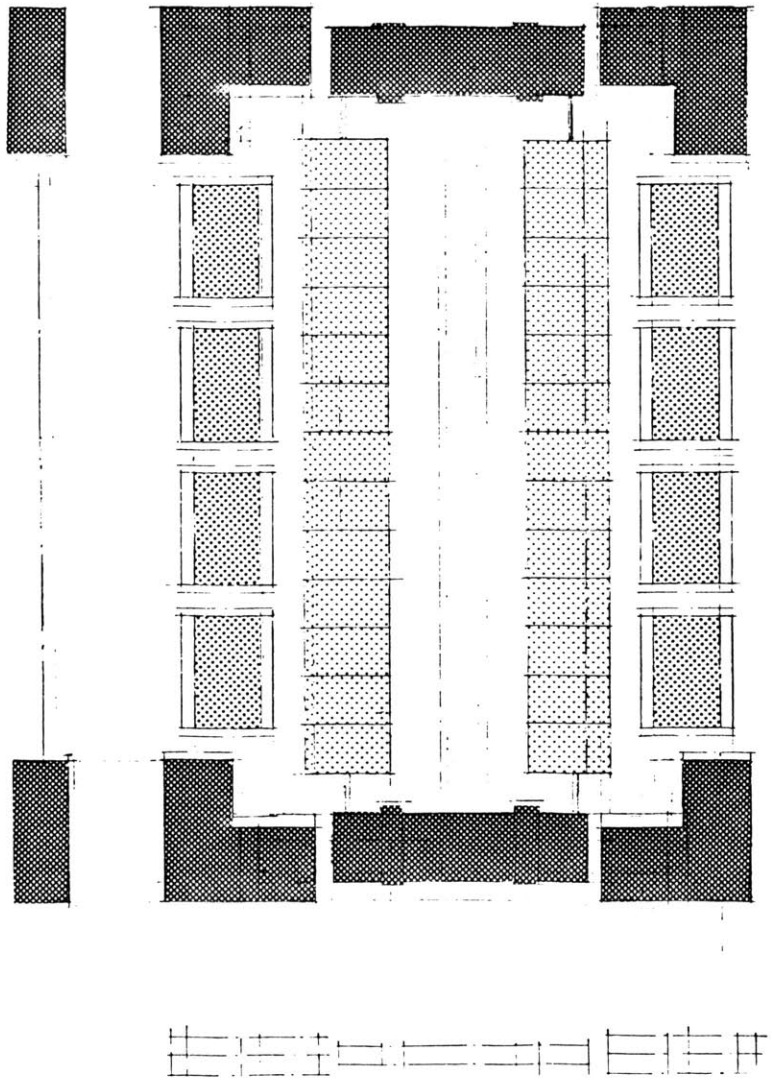
rooms in the house. The front room, often used as a living room, normally has a bay window looking on the street. The back end room opens to the yard or porch, and is often used as a kitchen. A dominant characteristic of these unit plans is the sense of horizontal expanse, usually heightened by the provision of moveable partitions allowing uninterrupted flow of space from the front to the rear of the unit.



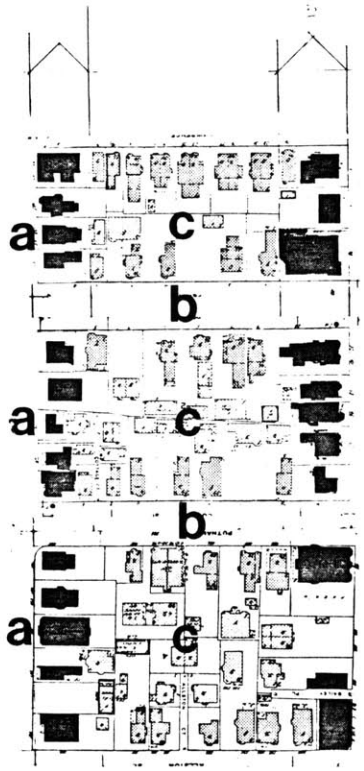
Curiously, the orientation diagram of rooms to a sideyard in a given unit tends to be similar to that of dwellings to the street examined earlier. It leads one to suspect a general orientation principle: whenever possible, spaces will develop a front, or register, to the most public edge and find their direction of growth along the less public axis or edge.



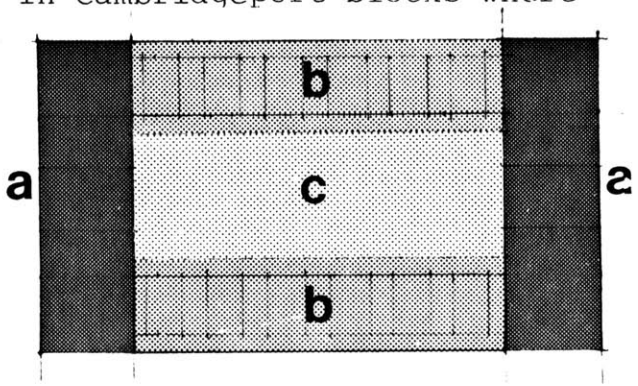
BLOCK DIAGRAMS



General block dimensions. The model of a block is intended for application in the area between Sydney and Brookline Streets of Cambridgeport. The location of these through streets is a given , which makes the length of the proposed blocks between 420' (at the end nearest Eire Street) to 550' (near Franklin Street). In the interest of a generic exploration, I have worked with a block size around 450'. Side street locations are not part of these premises, as their present condition calls for very extensive repairs or complete rebuilding. The width of the blocks is hence a function of its various zones, which are examined below.



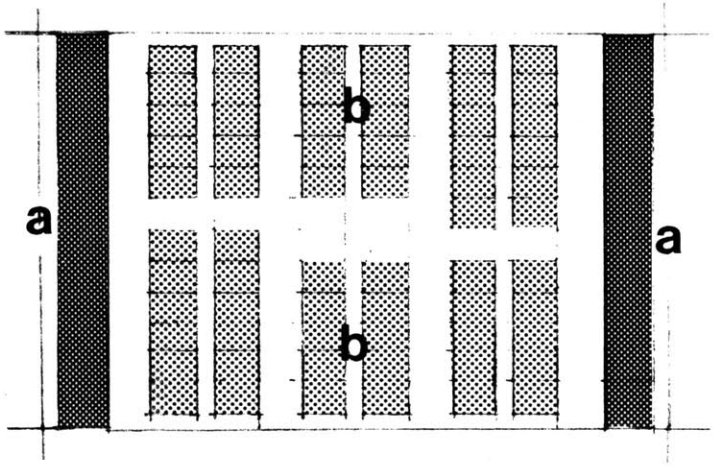
Abstracting from the existing setting, we observe the following order in Cambridgeport blocks where

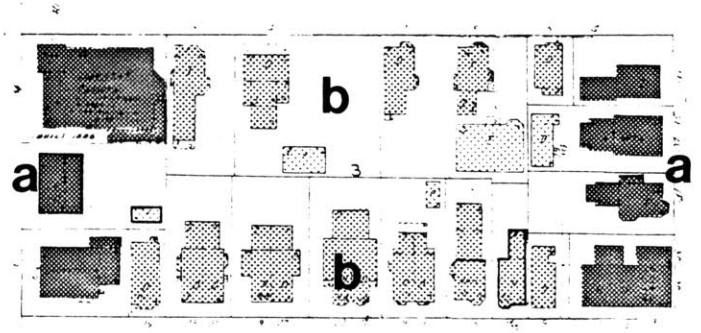


A ≃ 50-75', B ≃ 50-60', and C is a variable dimension. Although these zones are themselves continuous, buildings on them are not continuous along the edge, but separated by sideyards eight to twenty feet in width.

A Contextual Diagram

We observed earlier that the long houses along sideyards could be transformed into multi-family dwellings. Imagining each of the rooms of the house as a house in itself, we arrive at the following diagram.

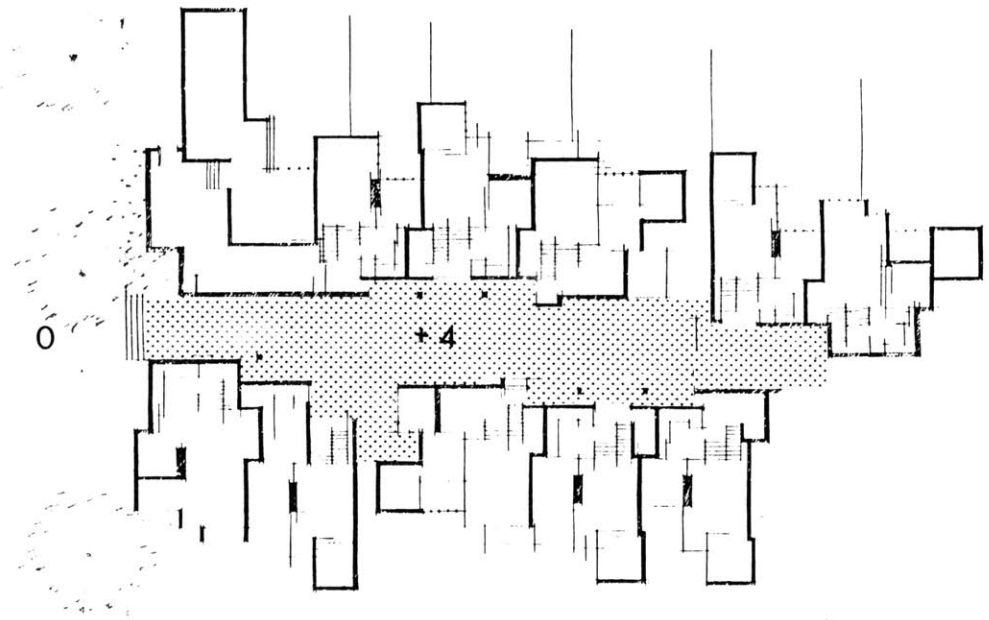




Perpendicular-to-street row-houses. Each 'building' along the street contains several townhouses which are entered via a shared sideyward.

The sideyard becomes a collective court which can allow access to cars to parking garages under each unit. The row of buildings therefore faces the street only through its end unit. which then needs to develop some of the qualities of facade associated with buildings on the street.

Existing sideyards are primarily oriented to the units on their N or W edge. However, to reduce paved surfaces in the new model, this diagram could be double-loaded, and a single court could give access to two rows of buildings.



Design projection for a perpendicular-to-street cluster. Street is on left. Court is raised from sidewalk level. Parking is below court.

This diagram and variations from it have been used on regular lots in Cambridge. It preserves the scale of the lot-oriented organizations of existing blocks, and creates nicely scaled clusters of about 5 units to a lot, while preserving the sense of 'porosity' of the street edge.

Projecting the diagram on the entire block however, produces significant disadvantages: if parking is provided under each unit, the main entryside sideyard will not provide any private outdoor spaces to units. while the opposite sideyard will only be able to provide any private outdoor spaces to units, while the opposite sideyard will only be able to provide very minimal yards. If sideyards become double loaded -- thus reducing paving and addressing a potential front-back problem between rows of units -- only three clusters per length of the street will be possible which will depress the amount of territorialization on the street, and reduce the amount of resident surveillance of the street edge which can take place. Such a diagram would be more successful on a longer street.

If this pattern is envisioned at the level of the entire block, another disadvantage is the fact that there is no possibility of large-scale open space other than that of the street. This is actually not so much

+ *View of Andrade's perpendicular rowhouses on Inman Street.*

+ *Problem: sideyards become a paved surface.*

+ *Problem: minimal yards.*

a disadvantage as it is a missed opportunity, although it is possible to place a pedestrian alley in the middle of the block (or even making a pedestrian street and turning the alley into a car lane).

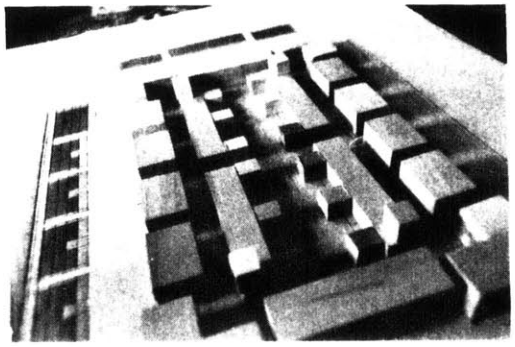
If the site were limited to a single lot, all of the above disadvantages would seem acceptable, or rather, unavoidable. If the intervention can make use of the entirety of the block, however, it is harder to justify accepting them. Surely a solution could be found for parking which would not result in paving the majority of the block, and a more comfortable fit can be found for townhouses with both a front and a back yard. Furthermore, this diagram accomodates only 30 households per side of the street. While this number is higher than the number of households currently accomodated in a comparable street, it would be interesting to investigate a still higher density model.

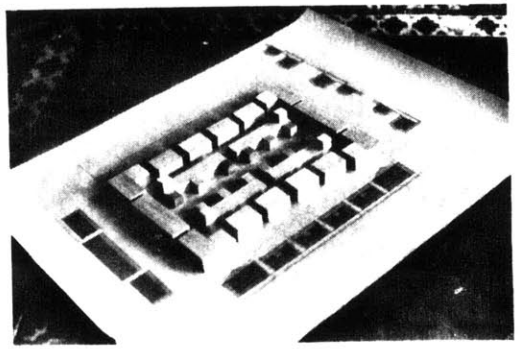
+ *Housing perpendicular to street in Charlestown, S.C. All porches face South or East.*

A Less Contextual Diagram

This second alternative again takes the diagram observed on the existing blocks, but builds the zones parallel to the street in a more continuous way, while preserving the difference between the interior of the block and the street zone. Forty five housholds are accomodated on either side of the street, while the center of the block remains open (though not necessarily public).

Rather than developing the sideyards as collective spaces perpendicular to the street, a separate alley parallel to the street is proposed. This alley is clearly without precedent in the existing fabric, but it allows an honest expression of the scale of the block while offering a collective space to be used by residents in much the same way that the semi-public courts of the previous model were used. One can associate a space to this curculation spine by providing a partially underground 'base' to the built edge of the block. This space can satisfy the parking requirement for half the block, but, more interestingly, it could accomodate other uses. It could house shops associated with particular units above or it could contain light manufacturing activity of the kind that is being displaced by the new development. Hopefully,

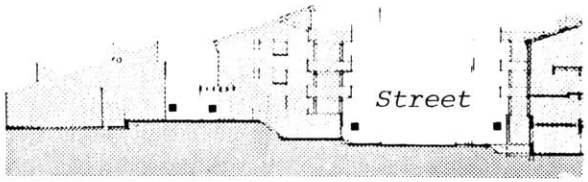




View of diagram's massing model.

as the automobile is displaced in favour of public transport, these alternative uses will become more than mere wishful thinking.

In order to accentuate the differences between the internal and external zones of the block, different building types are proposed for the different zones. On the internal zone are placed townhouses with back yards; on the local external zone, higher density apartment types organized along sideyards (like triple deckers); on the 'through' external zone, continuous entry-type apartments. The townhouses are entered from the internal alley, while the modified triple deckers can enter either through the street or the alley. The entry-type apartments are entered directly from the through street.



Supervision of the street space is much improved over that of the previous model, as the densest rows of buildings always look on to the street. The scale of the alley and its proximity to the entrances of townhouses and "triple deckers" guarantees satisfactory supervision of this space.

The center of the block can now be left as virtually open space, either for the private use of

its adjacent houses or to be developed as a shared garden to which all dwellers of the block can have access.

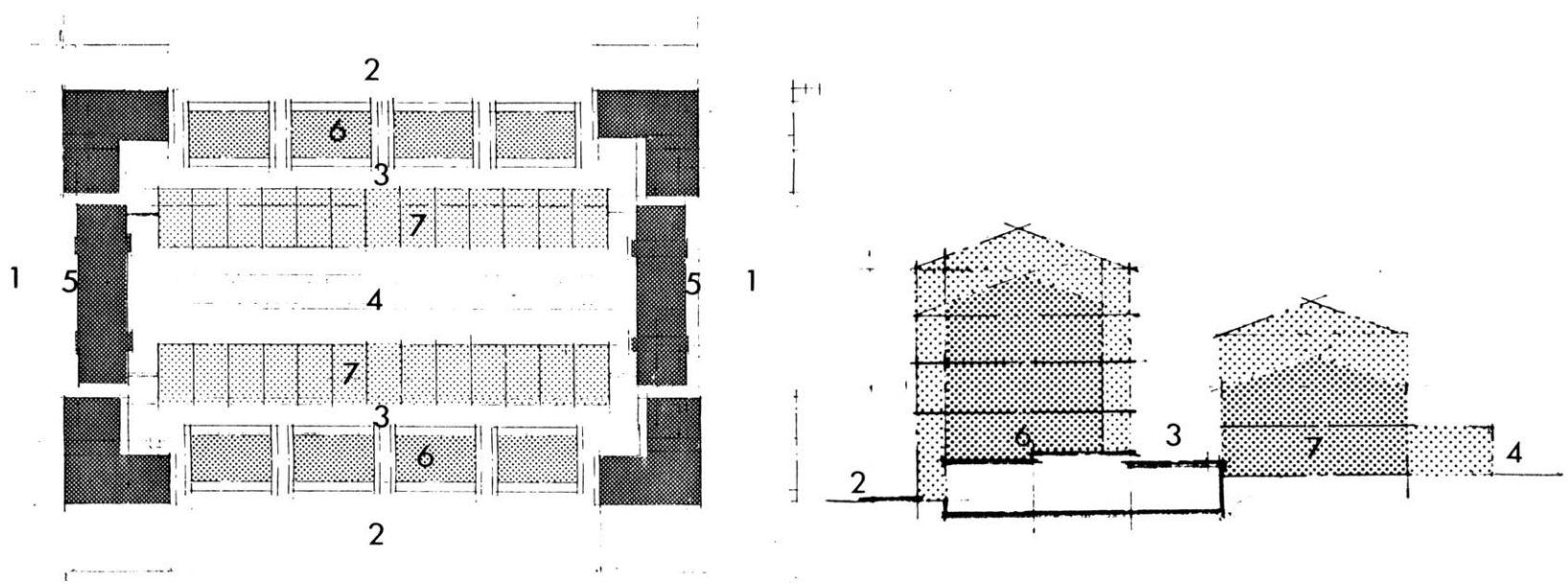
The block model, then, consists of the following zones of built and open space. In addition, margins are provided between zones.

Built Zones:

(6) external local
(5) external through
(7) internal

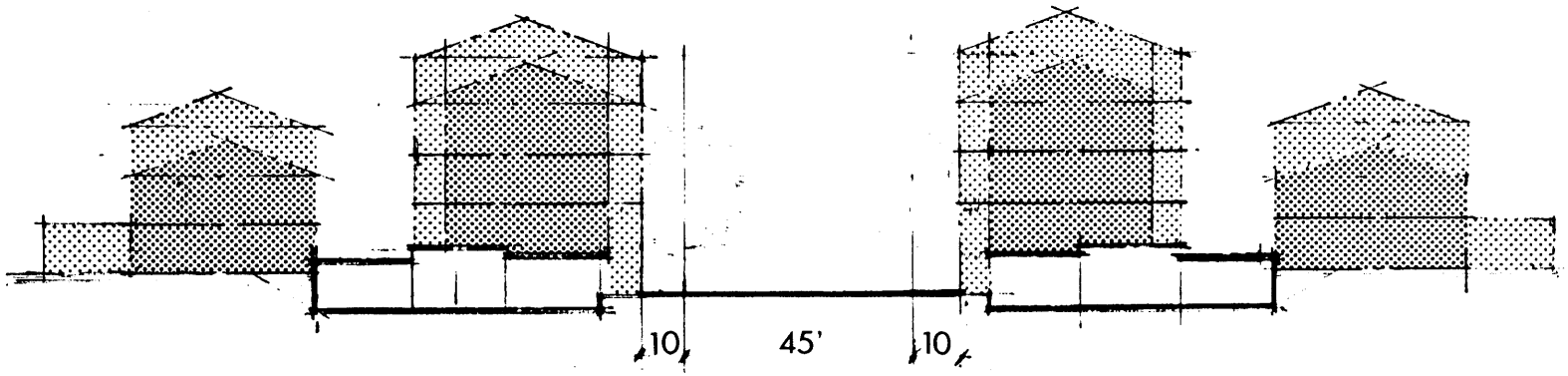
Unbuilt Zones:

(1) through streets
(2) local street
(3) alley
(4) center of block



Unbuilt Zones:

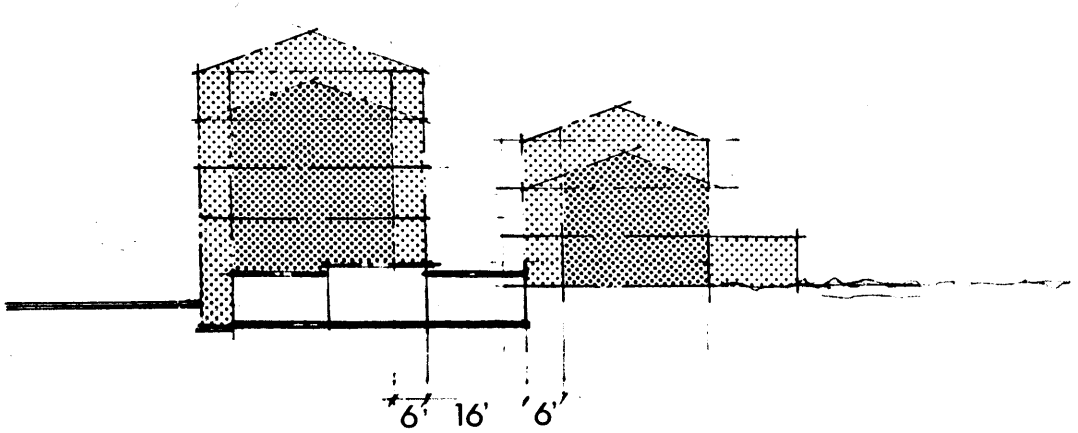
Through streets. This is given. The existing street width is 40', including a sidewalk @ 6-8'.



Local Street: Although the bulk of parking will be accomodated in the space under the internal alley, the local street will still need to provide temporary parking facilities, and allow the kind of car-related gathering and socialization which was observed in the existing neighborhood.

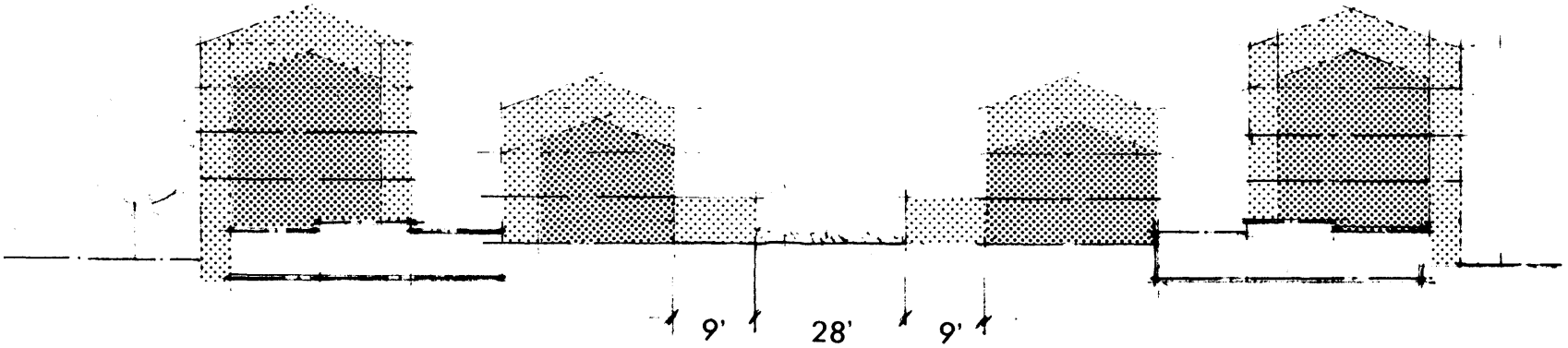
The South End in Boston provides a congenial reference for the kind of street which might be envisaged. It provides parking both along the street edges and on a middle strip, while the separation of vehicular circulation into two lanes sufficiently slows

traffic down. The median strip allows for a generous row of plantings which helps buffer street noises and enhances use in the hot seasons. As the corner buildings are oriented to the through street, quiet zones are created at either end of the local street.



Alley. The alley will have a more local character than the street. The scale of the alley is closer to the human figure, and vehicular traffic is not present. It is here than one would expect residents to most easily develop shared territory. Dwelling entrances cluster along the alley, and communication between units is readily achieved. Play space, while not specifically designed as such, is bound to be generated on this lane, which is easily supervised from surrounding units.

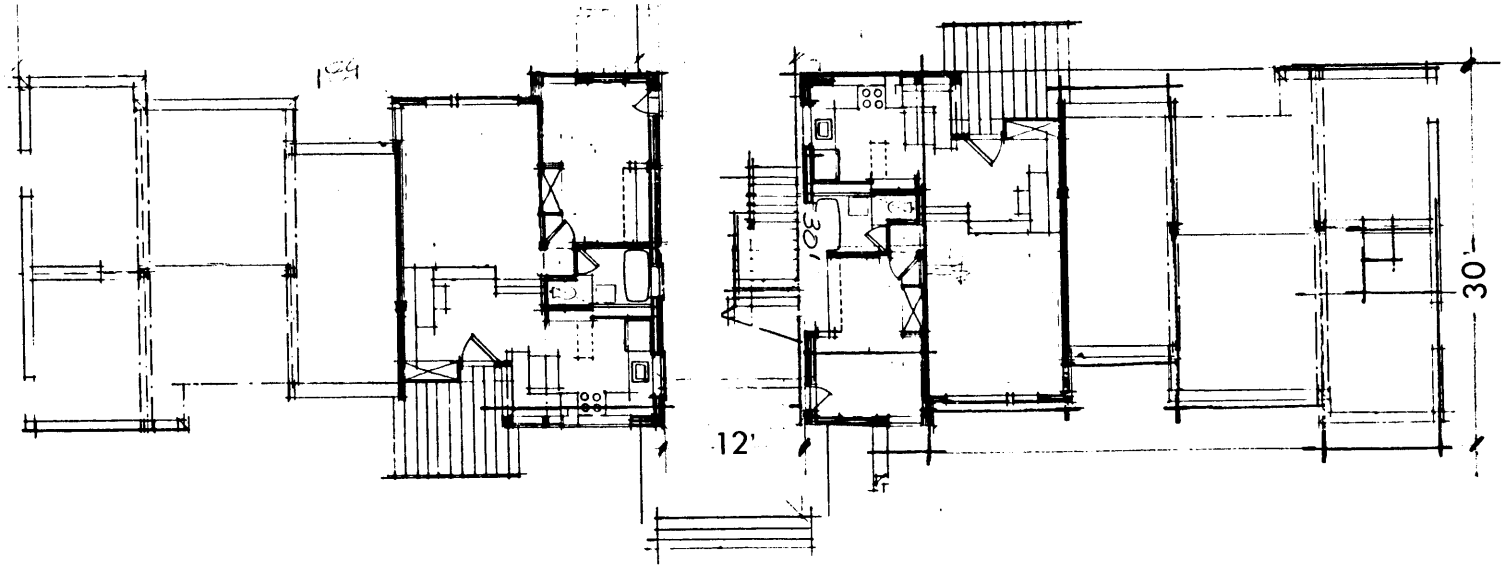
There are a few references for this alley in the Cambridge area, particularly Shaler Lane on Mt. Auburn Street and the newer developments on Putnam Avenue. These complexes both offer parking on the lane, which would not be possible on the scale envisaged here. Another reference in terms of scale and density are the predominantly pedestrian streets of Southern European hill towns.



The center of the block. In the present neighborhood, the needs for recreational space and meeting space of residents in all age groups are somehow met by the street network and sideyards. There is no open space where one might simply enjoy the outdoors without the discontinuity of traffic, and there is no place which is part of a collective territory but not completely

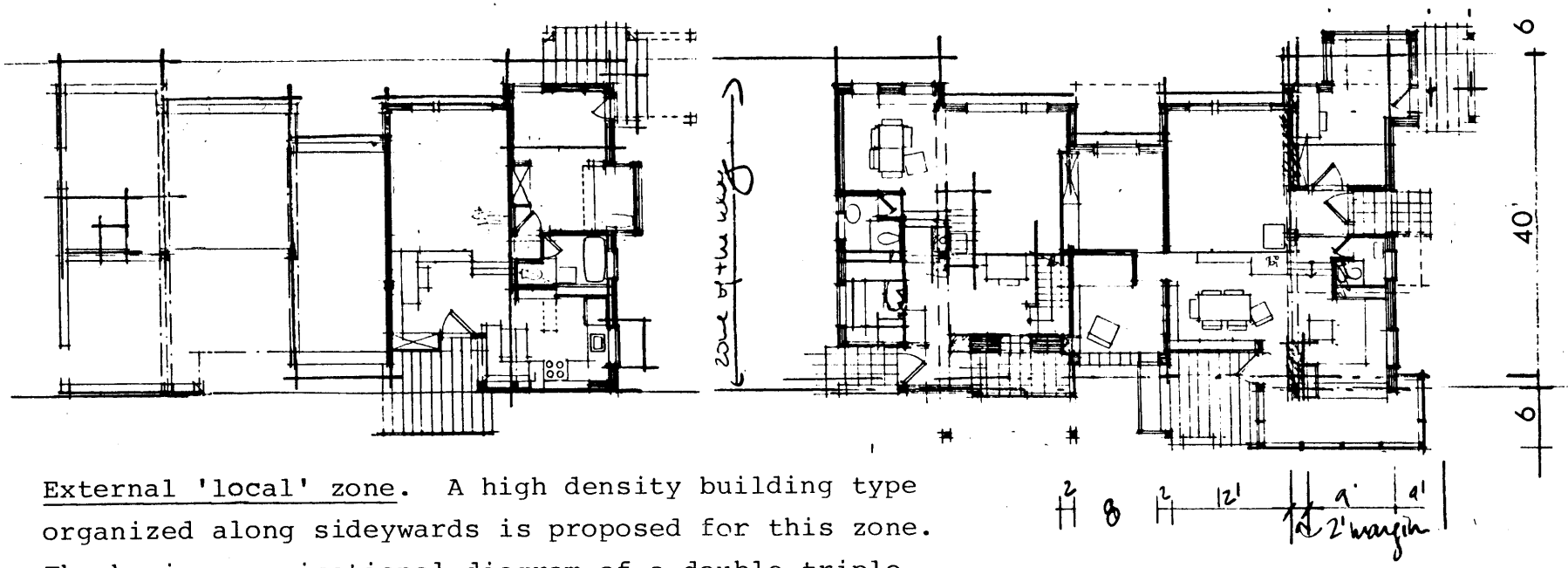
subordinate to the street network. Such a space would be a valuable addition to the thematic residential pattern. It would be open yet controlled by residents, accessible to young children yet safe from traffic and easily surveilled from adjacent houses. It could provide a setting for the placement of collective recreational facilities such as a playground, a swimming pool, or a meeting room.

Built Zones of the Block

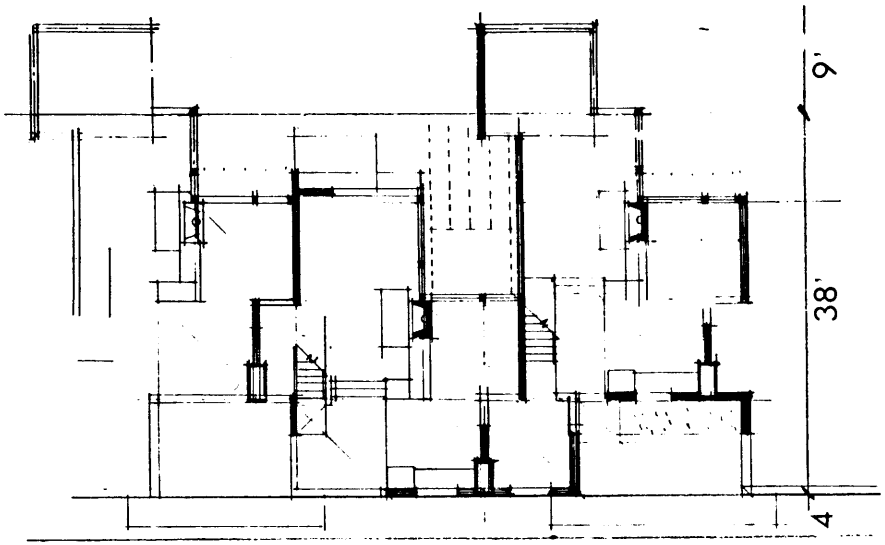


Through streets. To respond to the public nature of the through street, apartment-type buildings with a shared entry are placed on this zone. A continuous building along this zone will appropriately protect the block interior from exposure to traffic and noise. It is punctured by gateways or passages to give the alley

direct access to the through street. Shared entries can also provide apartments with access to the block's central space. A good local reference for these entries are the large apartment structures on Magazine Street.

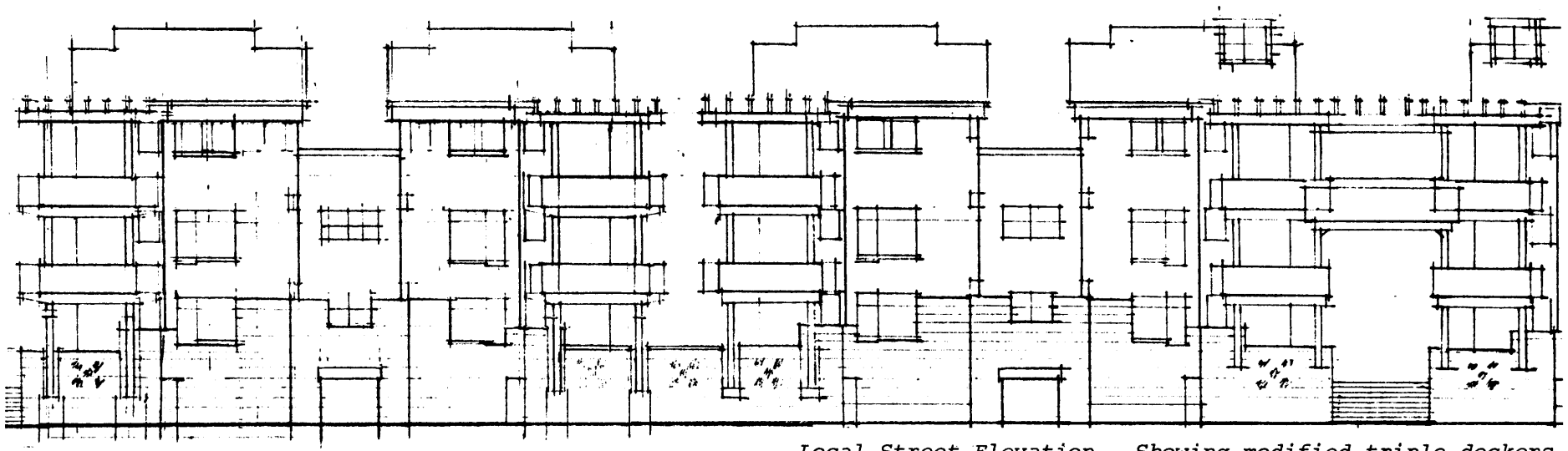


External 'local' zone. A high density building type organized along sideywards is proposed for this zone. The basic organizational diagram of a double triple decker is used for this purpose, with some modifications: what would usually constitute the shared enclosed access for apartment units has become a 'shared' zone between units on a floor and can be used by either side. Access can be provided directly from the outside or through a front porch, allowing greater identification of individual units within the whole.

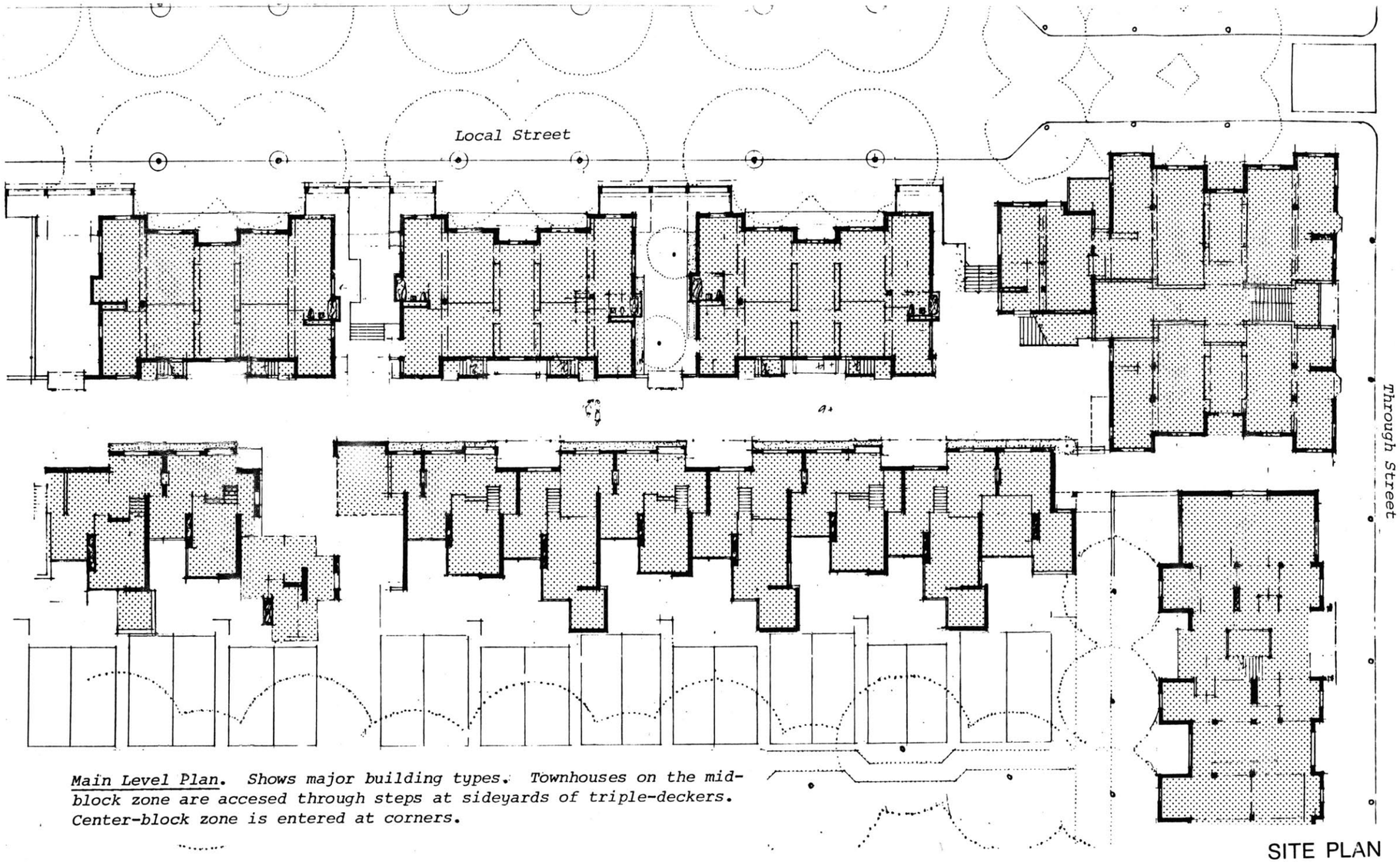


The Internal Built Zone. In the existing block structure, detached single and double houses mainly occupy the mid-block territory. Intensification of present densities has implied a variation on this pattern, allowing a greater number of units to occupy this middle zone in a rowhouse layout. The rowhouse preserves some featres of sideyard organization, such as the ease of further additions and the location of stairs at a front hall to allow independent access to the second floor. The back yard can incorporate a portion of the open zone behind the houses.

DEVELOPMENT OF THE BLOCK

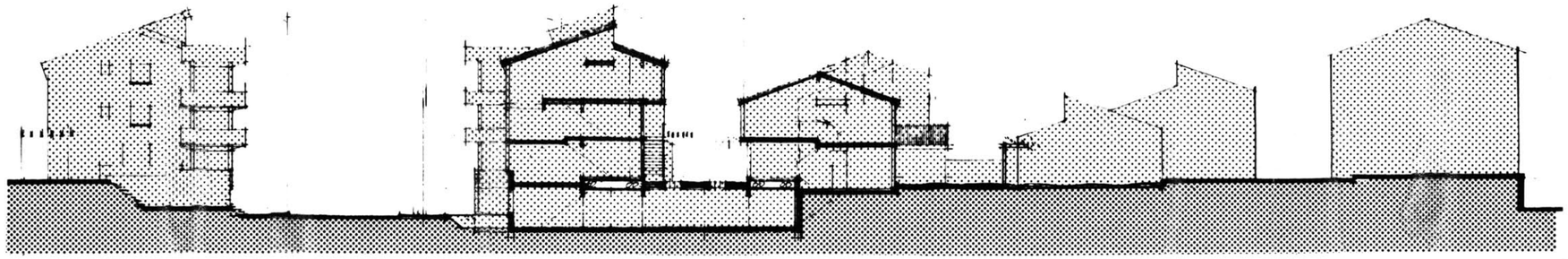


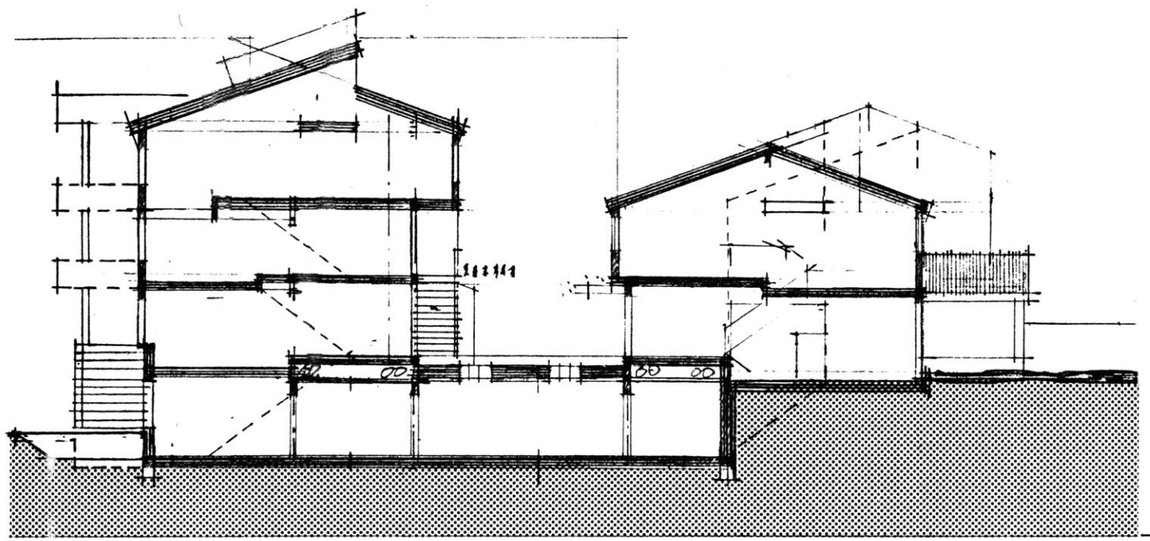
Local Street Elevation. Showing modified triple deckers



Main Level Plan. Shows major building types. Townhouses on the mid-block zone are accesed through steps at sideyards of triple-deckers. Center-block zone is entered at corners.

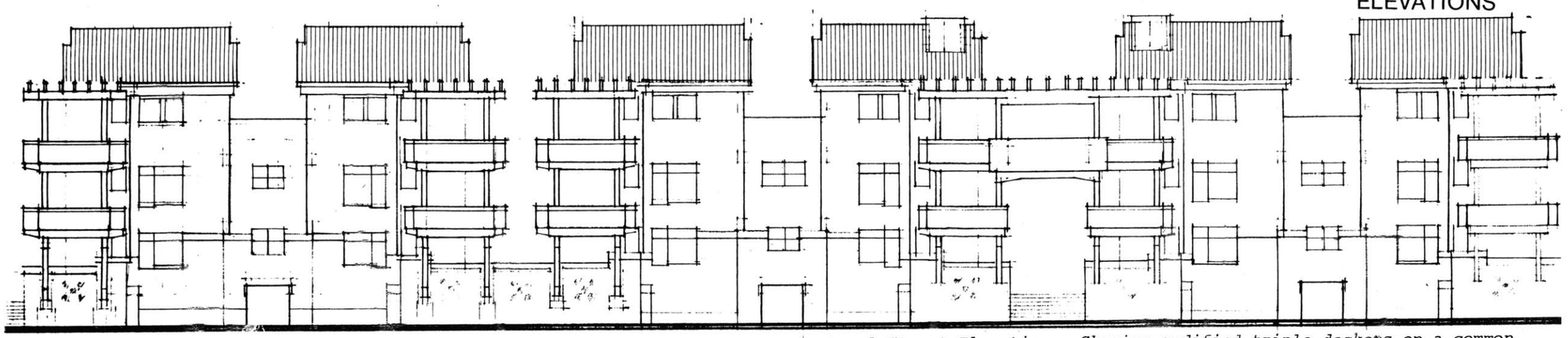
SITE PLAN



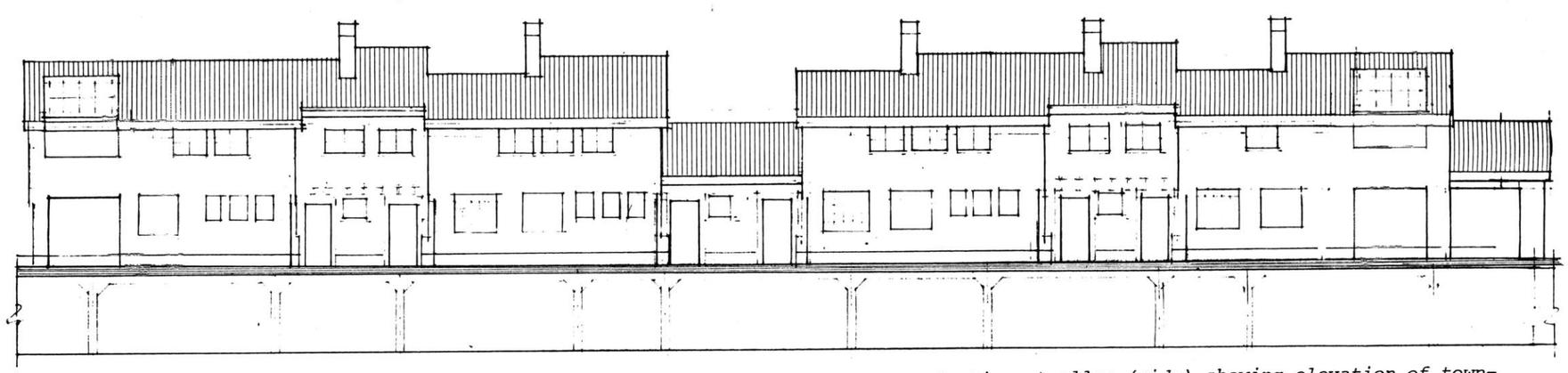


Block Section (top) and Building Section. Top shows massing of the block. Building section shows the proposed building types on a common parking base.

SECTIONS

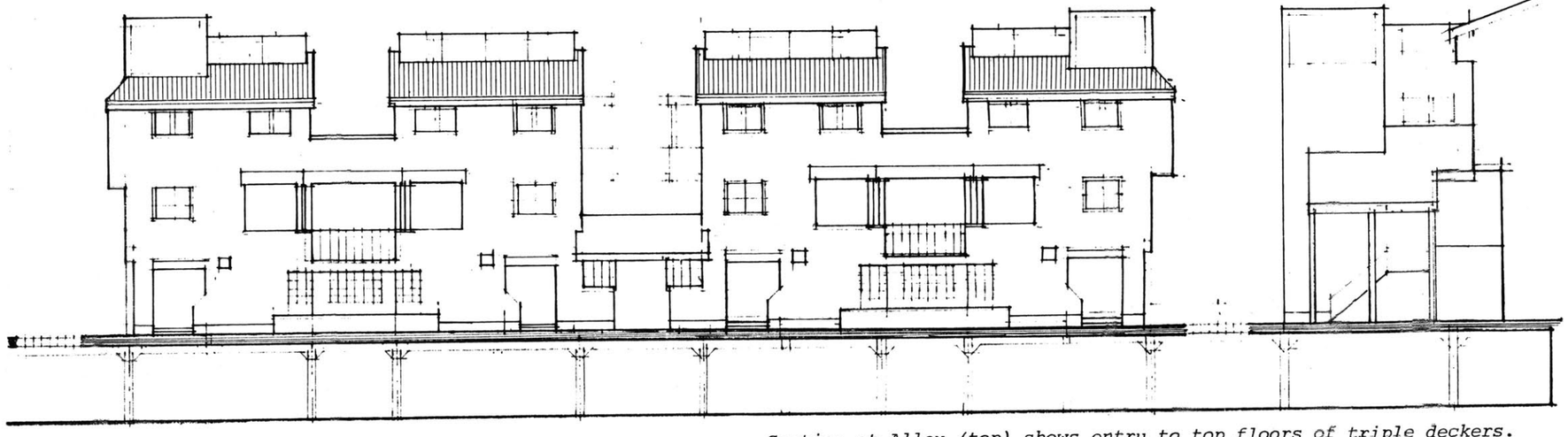


Local Street Elevation. Showing modified triple deckers on a common base.

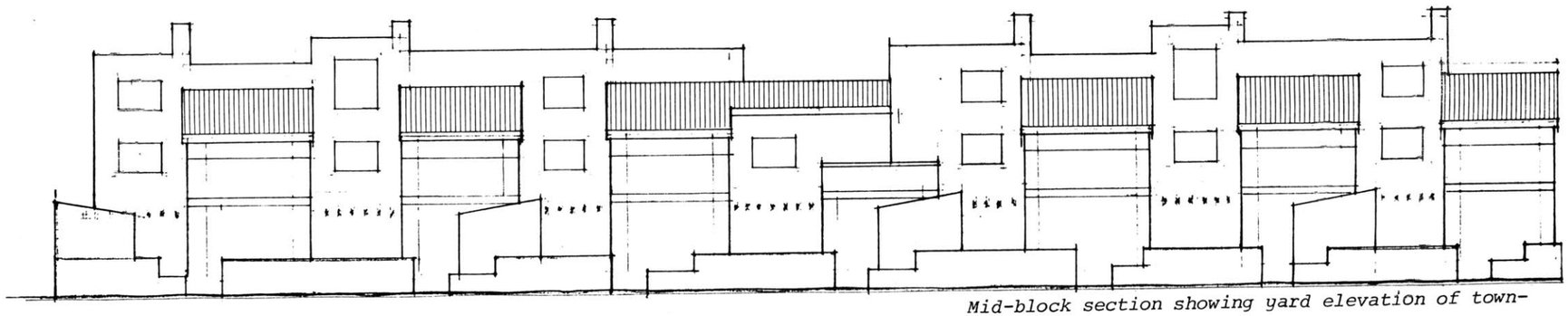


Section at alley (side) showing elevation of town-houses.

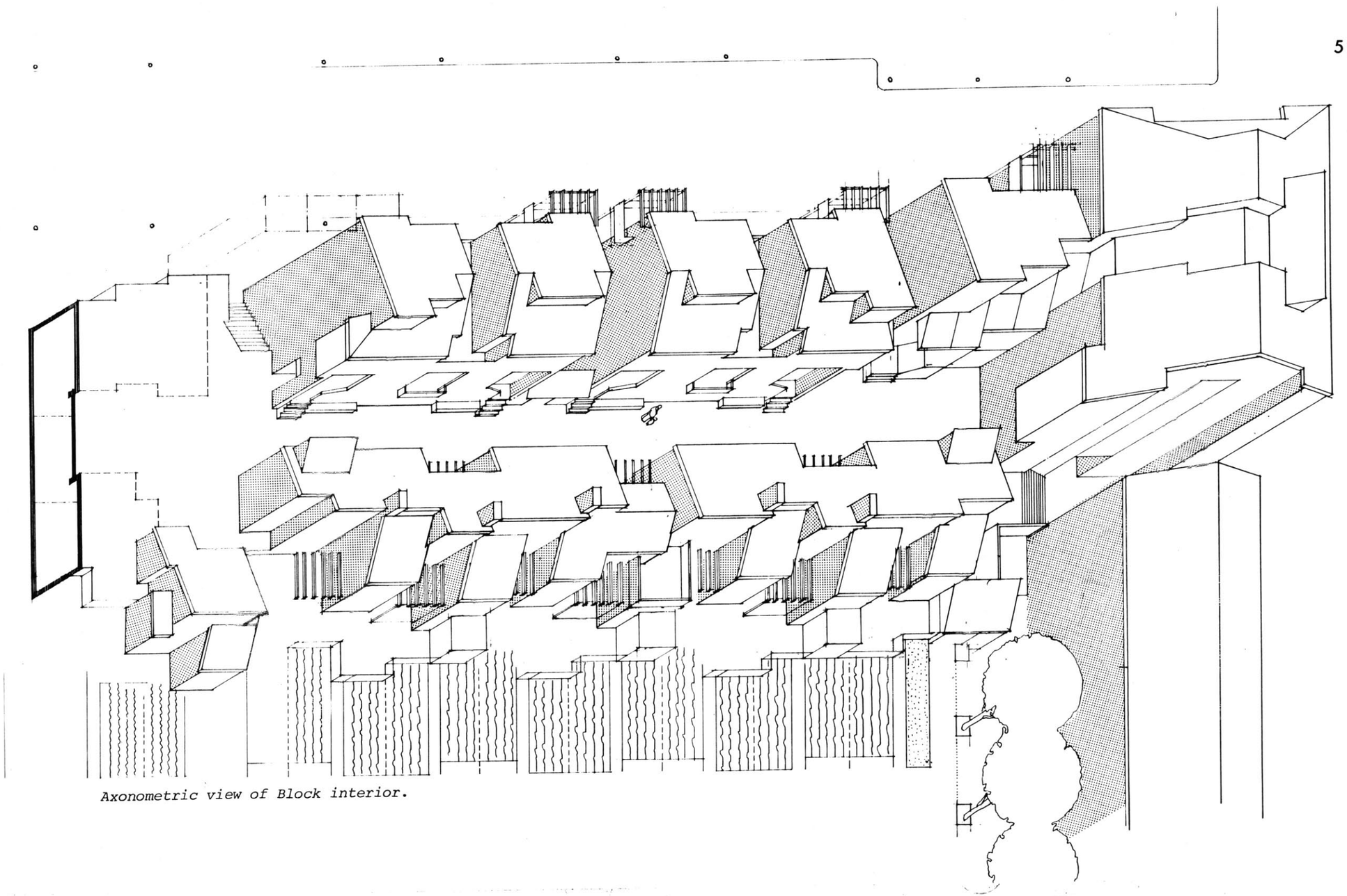
ELEVATIONS



Section at Alley (top) shows entry to top floors of triple deckers. Sideyard provides secondary access to first floors of deckers.

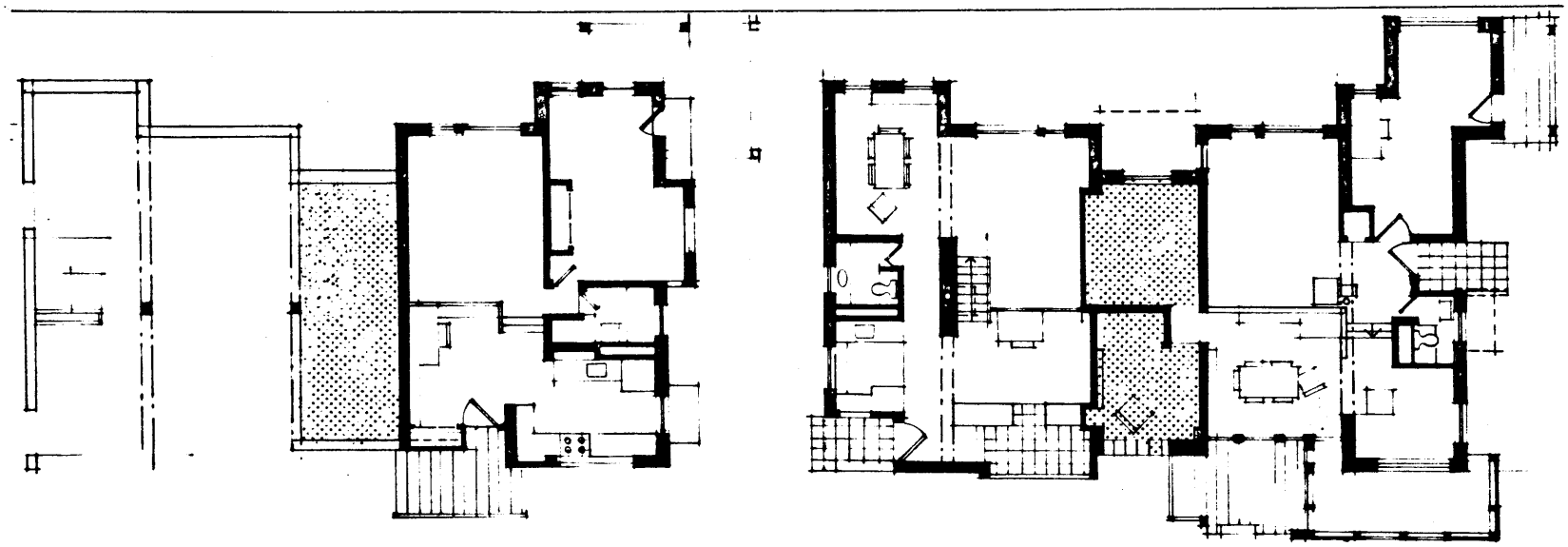


Mid-block section showing yard elevation of town-houses.



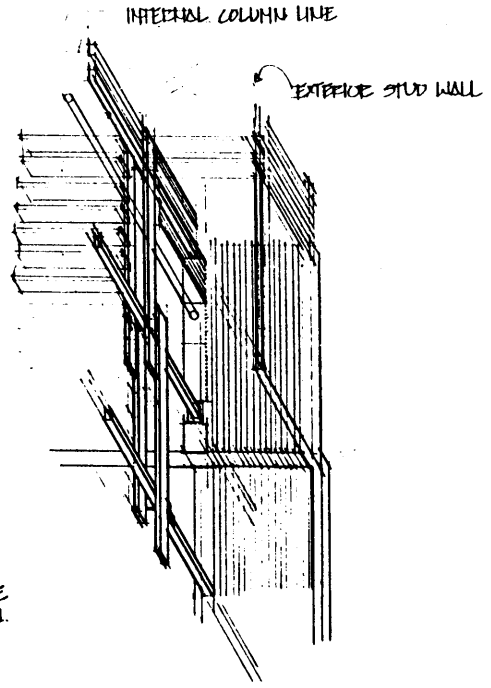
Axonometric view of Block interior.

UNIT PLANS



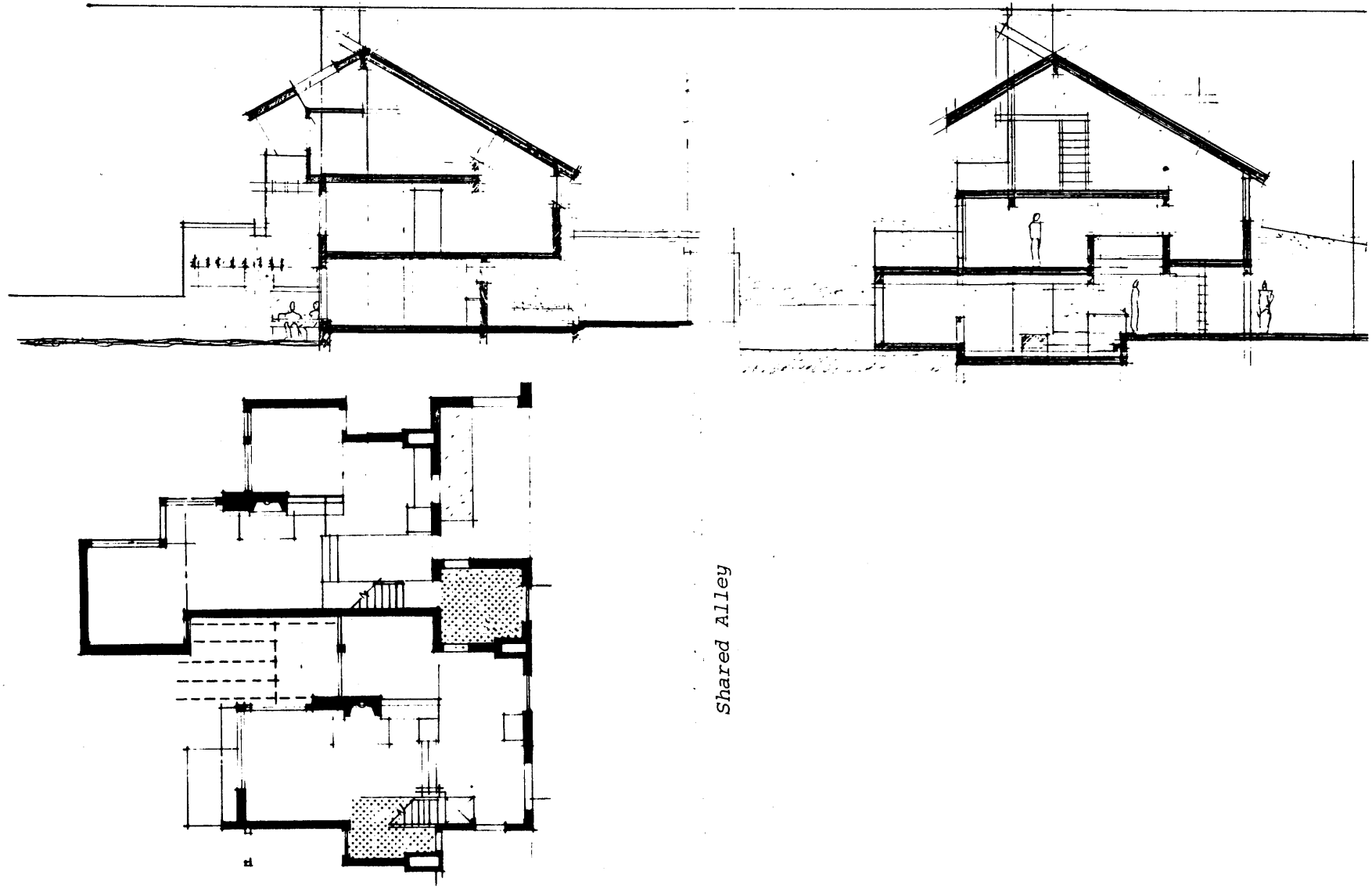
Plan alternatives for triple-deckers. Shared bay (shaded) allows flexibility in layout of different unit plans. Plan A on left shows the smallest unit: 1 bedroom Plan B is a 20story variation on A. Bedrooms are above, and a dining area is added.

Plan C is the largest single-level configuration, using three bays. It has 3 bedrooms. Front bedroom has expanded into porch.



FRAMING SYSTEM CREATES 2' ZONE FOR FLUES, CLOSETS, PIPING (HOT WETWALLS) + OTHER EXPOSED VERTICAL ELEMENTS, BY USING DOUBLE BEAMS ON 'SEATS' @ COLUMN.

Townhouse



Plan and section of townhouse. Optionally shared areas are shaded. On yard side, a 'garden room' is provided. Kitchens are zoned at front of unit to ease supervision of alley spaces. There is a level change at the living room. Townhouses may have private entry to parking.

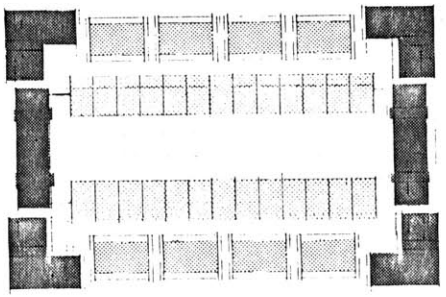
Just as there are different levels of decision operating in the environment, there are different levels at which a design or project may relate to its surrounding context. I have worked with the level of a Tissue diagram and with the level of a building on the Tissue.

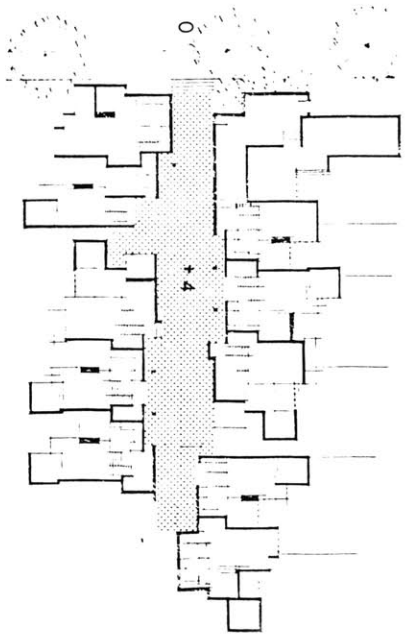
See 'levels' in the introduction.

The Tissue diagram addresses the thematic elements related to the urban scale (such as streets, blocks; their size and location) as well as the internal organization of the block (the 'zones' of the block). Early on, a decision was made to reject diagrams that broke with the more or less orthogonal organization of present blocks and the fairly regular pattern of streets. It seemed that the existing grid layout was already eroded in the area around the site, to the point that some of the local streets were losing their niche-like residential quality. Furthermore, the area of the site was not extensive enough to support a different urban pattern than the existing one.

While adopting a pattern of streets and blocks, it was clear that the dimensions of new streets and blocks should be set by their internal requirements, not by replication of the typical existing block dimensions. The "internal requirements" had to do with the kinds of spaces or activities which were envisaged on the new

blocks. These were represented in the diagram by dimensional ranges or 'zones' whose aggregate sizes provided block and street dimensions. The design of these zones entailed a schematic layout of the type of building to occupy the zone, and the provision of a margin depending on the use potential of the edges surrounding the type of building.





First I attempted a literal application of the existing diagram of the block which seemed somewhat contrived and did not really address such basic problems as parking, the need for open spaces, or the problem of the higher housing density. While essentially preserving my reading of the existing zones of the block, I therefore developed a model which, unlike the present blocks, developed buildings in continuous bands parallel to the street. This did provide a higher housing density and allowed built elements at the level of the entire block (such as the 'base' along the local streets) which could address the parking needs and allow other uses such as the light industry or shops which presently dot the neighborhood.

The new residential streets were thus quite different from the existing ones. Clearly in terms of function (as it served a much greater number of resi-

dents) but also in terms of form (higher surrounding buildings, the continuous base element). This difference needed to be acknowledged in a physical sense, by making the width of the local street greater while preserving the feeling of 'threshold' at either end of the street. The streets of Boston's South End provided a valuable reference for such a local street, as they too are niche-like and 'bounded' at either end.

View of South End street.

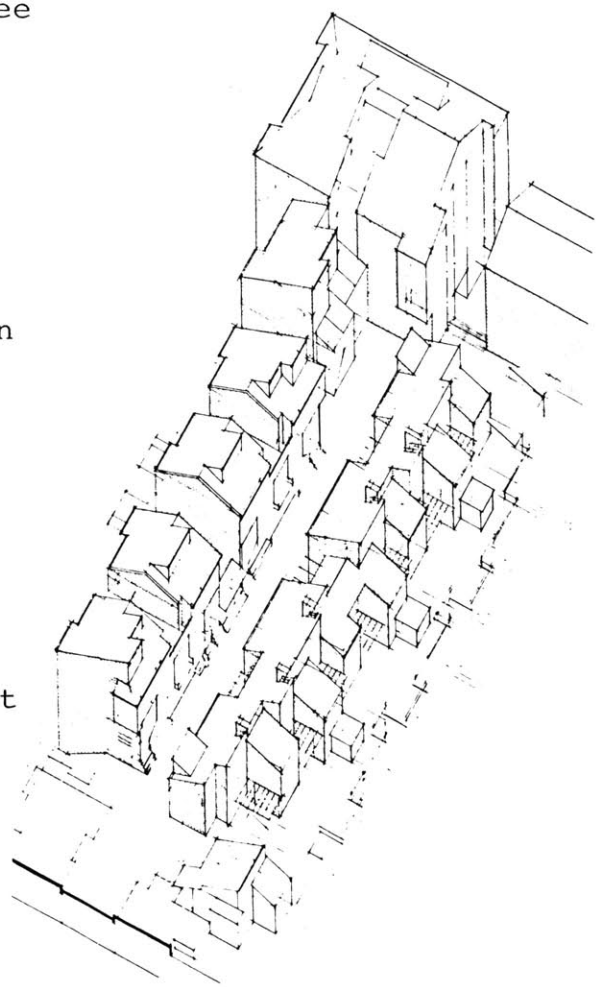
In the present context, front yards provide a base from which many of the 'extensions of the dwelling claim' take place. In this proposal, a margin is suggested for territorialization on the street, but there is intentional ambiguity about who would use the margin. Entrances are not all off the street, and a scenario with no dwelling entrances off the street is possible, if the use on the 'base' along the street would claim the street edge (a neighborhood coffee shop)?

Such a use, ideally, would be shops or a light manufacturing use such as those that dot the rest of the area. The proposed depth of the 'base' is around 60' and its height is around 12'. Judging from the dimensions of some surrounding industrial sheds, this should be an adequate size. If the street edge were claimed

by a different use than housing, the character of the street would be to my mind, enriched. There would be a greater intensity of use and a greater diversity of users. The existence of the alley would still guarantee a local residential territory independent from the street.

The provision of semi-detached buildings along sideyards on this local street edge is meant to recall the semi-penetrable sense of the edges of existing streets, and more important, to give a certain sense of exposure to the row of townhouses in the interior of the block. Sideyards also provide every unit with a quiet outside exposure, which is very useful considering that on either side of these buildings lies a street or a public alley.

The provision of the alley was in response to the increased importance of the mid-block territory. Treatment of mid-block housing as an important thematic element on the block gave it an urban dimension which needed to be appropriately recognized by a street-like element. The alley is more private than the parallel local street through which it is entered, and yet its openings to the through street at either end allow a direct connection to the most public side of the block.



The treatment of entrances into the block interior needed to be carefully considered, as they had to redress the disadvantage of townhouses without a direct street frontage.

View of Shaler Lane, Cambridge

The townhouses of the mid-block zones have been thought of as a compact aggregation which provides a continuous edge to the alley space and a line of public openings with some small shared territory on the street, like those on Shaler Lane in North Cambridge. Over time, the townhouses can extend to include all or most of the open mid-block space, or they can have small back yards with individual entrances to a common space, if such is the use of the open space inside the block.

Shared Alley

Mid-block

The way in which a decision about the use of the central space is reached does not need to enter this discussion. It should be enought to point out that there are different possible alternatives and to show how they might work.

Architecturally, the key to developing a successful internal zone which can be optionally public or private rests on two factors: a multiplicity of possible readings of the surrounding edge, and a clear separa-

tion at all times of public and private domains within the space.

The provision of open space inside the block does not necessarily imply that some collective "no-man's land" is set up (see Washington Street project). At Brinkman's Spangen, for example, the ground is subdivided into garden plots and shared pathways which are clearly separated through fences and hedges. The scale of the surrounding building nonetheless suggests a collective presence, and unifies the space.

If the central zone is to remain completely public, as a garden, it might take on some qualities of the urban projects of Stein and Wright, themselves reminiscent of formal gardens of France and Italy.

On through streets, a continuous building type is zoned, about feet in depth. In order to allow the public space to come up against to the building (and perhaps even under it, as in an arcade) there are two common entryways along the short end of the block, as in the larger blocks of the present neighborhood.

The corner buiding is also directed to the through street. This, as was observed earlier, creates two

The 'green' of public housing: Washington Elms project, Cambridge.

Public paths and private yards in Brinkman's Spangen, Rotterdam.

'quiet' zones at either end of the local street, to reinforce its bounded quality. The 'base' at the corner is intended for commercial space, regardless of how the rest of the base is used.

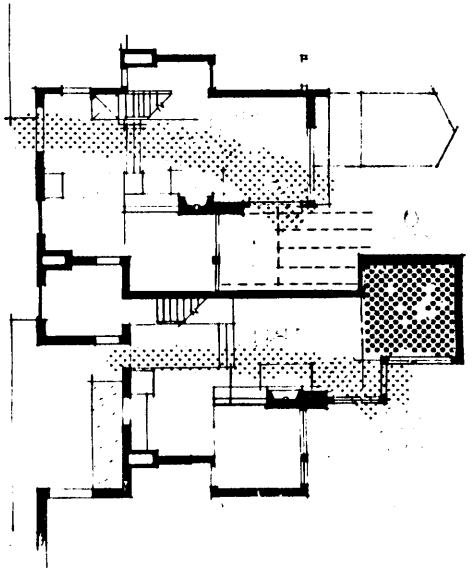
GROWTH AND VARIATION WITHIN PROPOSED TYPES

Adaptability can be seen as a function of the ability of a given building to allow Growth and Variation. Variation is the extent to which it is possible to choose or create different configurations of use spaces within a given square frontage. Growth relates to the allowance within a unit's organization for the incorporation of some part of its surrounding ground.

Growth

Two conditions must be met for a unit to be able to incorporate additions: access of light to the unit's internal uses must not be blocked by addition; and the internal circulation of a dwelling must not be stretched by the addition at the expense of existing use space.

We saw earlier that among the properties of a side-yard organization was the possibility of addition in the the long direction of a lot. This was allowed by the presence of a continuous flow of light and a parallel continuous flow of circulation through the lot. This orientation of houses to their sideyard can be preserved even if, in the interest of higher density, a continuous building type such as a rowhouse is created.



A surrogate sideyard organization is set up by clearly establishing a flow of light through the unit parallel to the low direction of the lot, and including circulation and the public rooms within this flow. Thus we can approximate the condition where every room in the house can related to a light space.

Additions can take place without displacing other uses in the dwelling or blocking access to light, while connecting to the existing 'spine' of circulation in the unit.

If growth were to come in the vertical directions, similar rules would hold: continuity of vertical access would be desirable and vertical light shafts, if any, should be preserved.

Another factor affecting the possibility of growth in dwellings is how well the physical structure of the building will admit a weatherproof connection. If what is desired is the option for small scale incremental addition, it seems, for the present at least, that what needs to be emphasized in the structure's ability to admit light wood and metal attachments. In terms of this proposal, this means all internal partitions are metal or wood stud walls, and all external walls are wood, metal, or glass infill. Party walls in the row-house type are exposed block.

Variation

The possibility for variation in housign can be seen from two different levels: that of the building and that of the unit.

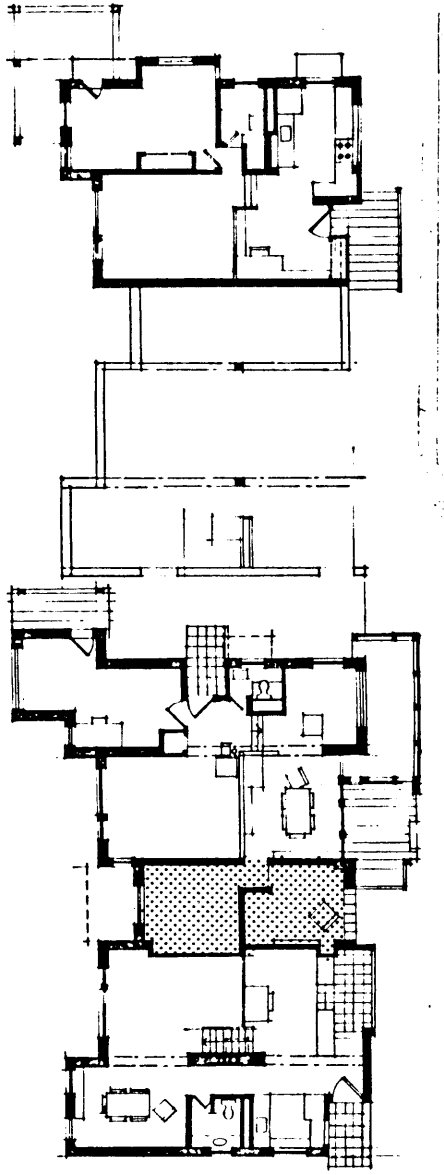
When assessing the possibility for variation at the level of the building, we are interested in options in the way that the building's territory might be allocated between different units. By setting up "shared zones" which are adjacent to the internal circulation of two or more units, we allow for different optional readings of the territory of actual units in a building while allowing the possibility for future changes through negotiation on the part of occupants.

Although over period of time the actual size of a unit may, as we have seen, vary, size is fixed at any given point in time. In this case there is still room for variation in use and configuration of a dwelling. The extent of this possible variation depends on technical or architectural restrictions on the users' ability to change partitions, fixtures, etc., and on the number of elements which are fixed by the designer.

In the modified decker-type apartment, the fixed elements are as follows:

Levels of entry of access have been fixed in order to reinforce the larger site organization. Placement of the main entry level off the internal alley allows the possibility of a different use at street level with its own entrance and intensifies the use of the alley.

Stucture and wet walls have been fixed to reinforce the general organization of the apartments: the larger spans have been placed at the center of the units to suggest that privacies should be developed along the exterior edge while leaving a fairly uninterrupted flow of space at the center in order to avoid units looking directly into one another across the sideyard, wet walls have been displaced on either side of the yard. This

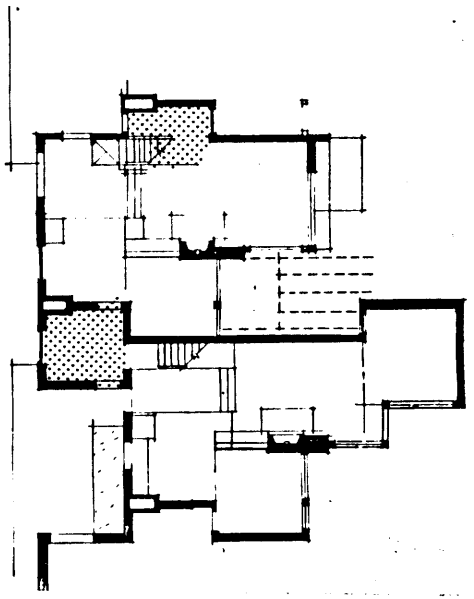


displacement of the wall generates a displacement of potential entries on the yard side of the units.

Locations of the wet walls also suggests that kitchens should be placed on the alley side near the main entrance. This has been considered convenient in terms of serviceability and surveillance of the alley.

Main elements of front elevation, such as porches and window openings at the middle bay and the living area have been fixed to reinforce again the zoning of the unit. By making the middle bay's window opening small by comparison to that of the living room bays on either side, its character as a buffer between otherwise adjacent living areas is reinforced. The front porch has been treated as an extension of the private zones, a bedroom or study, as it presently is in triple deckers. Thus, light can enter the living area directly. The external appearance of the other sides of the modified decker have been left more open to interpretation to encourage the kind of interventions one sees in Cambridgeport today (bay windows, cantilvered bays, greenhouses, etc.).

In the rowhouse type, the fixed elements are again, as follows:



Structure and wet walls. These have been fixed to create a 'busy' zone of kitchens and entries adjacent to the alley, while placing the more 'quiet' uses of the unit away from the entrance, near the garden edge.

Front or alley elevation is relatively fixed as it is a continous plane with fairly regular openings. Given the effort to provide ease of addition on the garden side of the units, it seems unreasonable to expect much extension of the unit into the alley space. A margin, however, has been provided to allow the creation of small front "yards" which would protect the privacy of the unit and allow some territory of the unit to remain on the collective alley. When the alley is on the south side, this margin is larger than when the alley is on the north.

SIDEYARDS AND HIGHER DENSITY

We have noted that one of the prevalent formal qualities of Cambridgeport, and in particular of its residential streets, is the sense of open or at least penetrable edges. While on the street, there is a suggestion of containment yet our gaze is allowed to wander past the public edge of the street, across low hedges and fences, to catch glimpses of gardens, playgrounds, clothes lines, or a protected lawn.

+ View of sideyard

What has created this quality of transparency is the sideyard, a requirement of wooden construction which has been often turned by residents into an opportunity for enhancing the quality of their environment. Although typically associated with suburban living, the sideyard has in fact some implications for higher density settings beyond the mere transparency of the edge which we have admired. In fact, by allowing a continuous association between outside space and internal uses, sideyards have an extensive influence in the internal organization of units.

Sideyards were first included in the zoning code to prevent the spread of fire in wooden construction.

Sideyards might offer the following generic advantages in high density environments.

1. A very high ground coverage is possible, while all rooms in the dwelling including so-called service

spaces (such as bathrooms and pantries) have direct exterior exposure. There are no dark zones in a unit. A typical triple-decker on a 35 x 85' lot, for example, will cover around 70% of its lot while providing light and air to its three bathrooms and three kitchens. If a party rowhouse or apartment on a similar lot were to achieve a similar lot coverage, its depth would have to be slightly less than 60', which would present the designer or user with a 30'+ dark zone in the interior of the unit.

2. A dwelling can grow to the full extent of its lot depth, and yet each addition will not cut off or diminish any room's contact with the outside.

3. The existence of a continuous outside edge along the building implies potential exterior access to different points of the building, suggesting the possibility of easy conversion of a single household building into one housing multiple households.

4. A semi-public area or channel off the street is suggested by sideyards. This area is easily surveiled from many points in a building, and can be used as part of the use spaces of a given dwelling or as a collective yard if dimensions allow.

5. By eliminating the need for fire walls, sideyards allow a more open skin construction, and encourage the use of lighter finish materials such as wood or metal siding. There is a great profusion of bay windows in Cambridgeport sideyards, as rooms stretch out to catch more external frontage. From the inside, the resulting bay projections give the extraordinary sense of being suspended in light, reflections all around. One could easily imagine taking this opportunity further, and turning whole walls into screen-like enclosures of glass, glass block and wood.

Far from being relegated to merely suburban settings, sideyard construction provides a great opportunity to build high density urban settings, while preserving a continuity with the existing vernacular types.

CONCLUSION

To see the context as a 'force' in shaping the environment is mistaken. The physical context is not a force, but the result of many forces or powers interacting with a site over an extended period of time. In Cambridgeport, such forces have been individual agents building on separate lots on a block, developers who laid out those blocks, and public agencies that made sideyard regulations and zoning restrictions. The larger organization of the area has evolved historically through many factors unrelated to the individual agents and often predating them. The resulting produce exhibits a great deal of diversity within a certain underlying order which lends it coherence.

In proposing to work with a larger site, the 'rules of the game' change. It is no longer individuals but an individual who controls decisions at both a large and a small scale and physical form will respond to his/her values and priorities. In reality, this change in the 'rules' could only reflect a changed composition of social forces underlying the generation of the environment. These changes are bound to show up in changes at a programmatic and formal level. Even if the client group is not explicit, the mere difference in scale of traditional Cambridgeport sites and that of this thesis provides different architectural and organizational challenges and opportunities which move the design in

their own direction.

While the context can never be a 'force' in design, one can draw from its successful features. In this thesis, a value has been placed on:

a) recognizing the larger urban order in preserving the niche-like quality of local streets and the public nature of through streets.
b) reinforcing the qualities of the different street edges by working with different building types along these edges, themselves drawn from the context.
c) drawing on certain architectural elements from the context (porches, trellises, etc.) for use in the design.

'Invented' elements such as the 'base' along the edge of the block, the internal alley and the open center of the block have also been incorporated into the design and the basic diagram, as it became clear that opportunities to improve the organization of the block existed which did not contradict the above values.

The burden of 'appropriateness to context' therefore shifted from some demonstrable, objective fit or lack of fit to an urban order, to a more subjective question which included how appropriately the design could deal

with its own, perhaps unique, qualities as a residential setting. Only within the development of those qualities could contextual and 'invented' elements be reconciled and begin to evolve into an integrated whole.

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