

A HOUSING STUDY FOR SAN FRANCISCO

by

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B.S., Stanford University
(1949)
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Submitted in partial fulfillment
of the requirements for the degree
of Master in Architecture at the
Massachusetts Institute of Technology
February, 1958

to

Lawrence B. Anderson
Head of Department

Signature of Author
18 October, 1957

ABSTRACT

A scheme for replanning existing residential city blocks is examined for its implications at the city scale, in terms of urban texture, and at the scale of the individual dwelling, in terms of the character, amenity, and spaciousness which can result from the new scheme of subdivision.

The unit chosen for investigation is the standard 400' by 275' block common to the Western Addition district of San Francisco and to other districts as well.

The main features of the solution are a pedestrian through-way and small park, which form the spine of each block; six entry courts, which connect by footpaths to the central spine; and a system of mutually related patio houses which cluster around each of the entry courts.

Revised May 6, 1953

Cambridge, Massachusetts
October 18, 1957

Dean Pietro Belluschi
School of Architecture and Planning
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Dear Dean Belluschi:

In partial fulfillment of the requirements for the degree of Master in Architecture, I wish to submit herewith my thesis entitled, "A Housing Study for San Francisco."

Very truly yours,

Bernard Jensen

ACKNOWLEDGEMENTS

The author is thankful for the aid and support his enterprises received from many quarters, among which the following are explicitly acknowledged:

- his family, for continuous backing through more than one venture.
- trustees for the Langley Scholarship Fund, American Institute of Architects, for their generous financial grant.
- Professor Lawrence B. Anderson, for both the soundness and ready availability of his guidance.
- Messrs. H. Kinoshita, P. Ong, and B.M. Berenson, friends and colleagues, for mutually beneficial exchanges of criticism and the procurement of data from sources a continent away.
- the numerous unspecified acquaintances and friends without whose contributions timely completion would not have been accomplished.
- not least, the eighty-second Congress of the United States, but for whose Public Law 550 few of us would have been here at all.

Cambridge, Massachusetts
October, 1957

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"No city with masts at the ends of its streets and seagulls suspended outside its windows can ever be dull, and San Francisco is rightly proud of being, to put it mildly, one of the least dull cities in the world. . . .and yet how ordinary it would have been-- despite its matchless setting--if it had been laid out as every planner in his senses would have designed it, i.e. running with the contours instead of obstinately, ignorantly, defiantly and brilliantly against them."

-- Sir Hugh Casson
"Around America in Sixty Days"
The Observer, London
August 25, 1957

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I. INTRODUCTION

This thesis proposes a schematic plan for the rearrangement of residential building plots within an existing grid system of rectangular city blocks (Fig. 1).

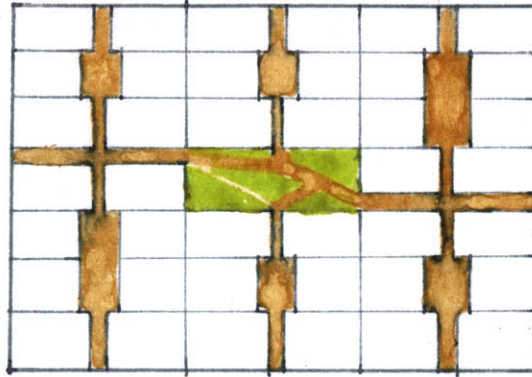


Fig. 1

Such a proposal has implications in two directions: "microscopic," at the scale of the individual dwelling unit and of the cluster of dwellings which surround each court; "macroscopic," at the scale of the neighborhood and sub-neighborhood, where such blocks in aggregation make up an urban texture.

The validity of the proposal is explored by investigating a specific sample solution which selects (1) "L"-shaped variants of the two story patio house as the constituent building unit (family apartment and patio on ground floor; one-bedroom apartment and

outdoor decks upstairs) and (2) a representative group of blocks in the Western Addition district of San Francisco as a sample piece of urban fabric in which to view the resulting neighborhood texture.

With what justification were these premises adopted? With regard to the house type, it was noted that the demand for a family dwelling which features "intimate connection to the earth" is at present inadequately met in central cities generally, San Francisco not excepted.* Supporting evidence for this contention is provided by the generally observable phenomenon of flight to suburban communities in response to the highly advertised lure of "indoor-outdoor living." That family living, however, should nevertheless have a place in central cities--both for the sake of convenient commuting and for the benefit of the family's contribution to the sociological health of the urban environment**--is disputed only by the most intransigent suburbanites. At the same time, it is an inescapable fact that central cities must provide living accommodations for large numbers of single people, childless couples, newlyweds, and

* The standard San Francisco row house devotes the ground floor largely to garage, workshop, storage, and utility functions, placing the main living area on the second and higher floors.

** Mr. Minoru Yamasaki laid particular stress on this point in private conversation with the author.

the aged. If, in addition to these statements, one believes that the present trend toward residential segregation of these groups should for the sake of the general social good be reversed, then a dwelling type which promises to accomodate members of all these groups in the same neighborhood has much to commend it. Furthermore, if the species of house chosen also lends itself to close packing, then one can foresee a build-up of socially variegated neighborhoods in which necessary urban density requirements are also satisfied.

The existing city block was chosen as the largest unit to receive strict organizational treatment largely for reasons of practicality. Existing streets, sidewalks, and utility lines are expensive items in a city's stock of fixed capital assets. They have the formidable virtues of being already there, and still in reasonably good condition. Because of taxpayers' reluctance at the present time to bear the cost of large scale demolition and city rebuilding in addition to their already heavy tax load, planners and architects should contrive methods of gradual, "evolutionary" urban renewal which could utilize fully the potential contributions of private investors, even while retaining for a central authority the prerogative of overall planning and architectural control, possibly

in return for limited financial support from public funds.

The author believes that the city block is a convenient and realistic unit in terms of which this kind of renewal can proceed. The standard 400' x 275' block in San Francisco, moreover, lends itself well to generalized study, since it is common to nearly all the neighborhoods in that city which will need redevelopment within the next seventy-five years.

For the city planner, then, the proposal suggests a feasible method of urban overhaul, applicable to predominantly residential zones, which stands in the region between the extremes of unplanned private stop-gap patchwork, a method which is no longer admissible on the face of it, and of full scale urban rebuilding, which in the West has not yet captured the popular imagination sufficiently to win for itself enthusiastic and generous tax support. Practical realization, while it would come by successive accretion at a pace which is adjusted to the mood and tempo of the economy, could yet be made to move along paths laid down in an overall plan. For the architect, the proposal presents a rather different challenge from that to which he has been accustomed. The problem is not to design a house, but to design a tightly knit complex of interdependent units close to the ground, care-

fully adjusting the allocation of precious land among competing alternative claims--private and common, pedestrian and automotive, covered and open. How can he reconcile people's demand for spaciousness and privacy--traditional attributes of the single family detached dwelling--to the density requirements and geometrical restrictions presently inescapable in urban centers?

The search for a superior method of block planning was undertaken in an exploratory or investigative spirit on the terms outlined above. Adoption at the outset of specific standards concerning land coverage, population density, and square footages of rooms was consequently refused by the designer on the ground that such adoption could only be arbitrary at that time. These data were considered items for subsequent discovery. First came the designer's effort to accommodate as many persons per block as possible, consistent with a degree of amenity for each which he believed appropriate to an American living standard which is foreseeable in the next few decades. Afterwards came the tabulation of statistics, which appear in Appendix I.

II. DESCRIPTION OF EXISTING CONDITIONS

The map on page 13 shows the extent of the districts in San Francisco to which the proposal is considered applicable within our life-span.

The following excerpts, taken from Western Addition District Redevelopment Study, published in 1947 by the San Francisco City Planning Commission, describe the section of the city which needs immediate attention:

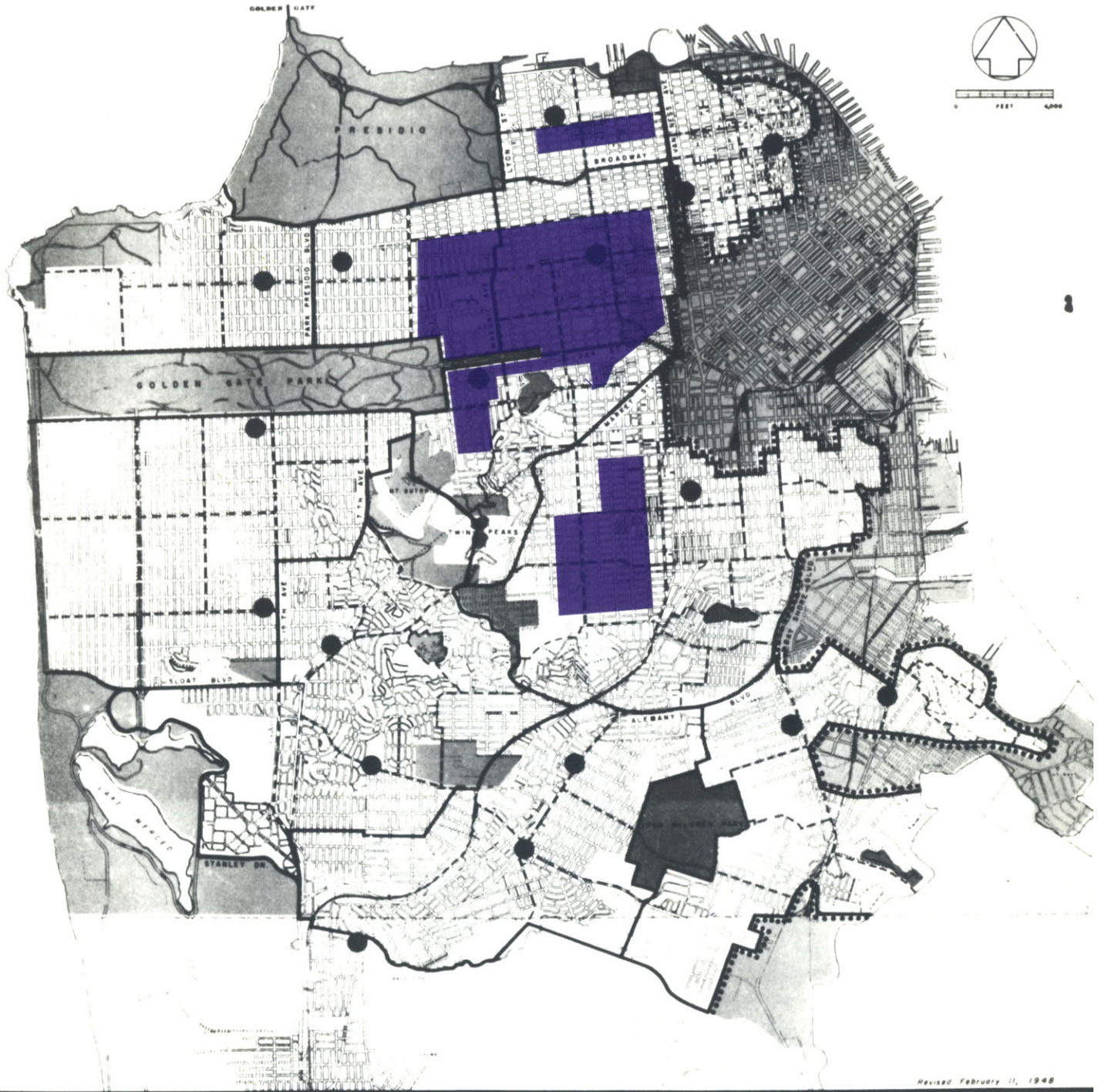
"San Francisco is not an old city. Many men and women living today can remember when sections just beyond what is now the central business district were wildernesses through which only an occasional horseman rode. Yet today some of these once rural tracts are wide stretches of urban blight. . . .

"Most frequently mentioned of these crowded and decaying areas is the Western Addition District. . . . Time has not robbed the area of its sunny climate; the summer fog, as it always has, comes to rest before reaching the valley that runs diagonally through the district. From the hills the views are as broad and sweeping as ever, though man from decade to decade has altered the features of the city that he has spread over the terrain. Indeed, he has altered it much for the worse in some areas, and the once comfortable houses of the Western Addition, especially, have for the most part grown obsolete, shabby, and unhealthful. Two-fifths of the dwelling units in the district have been created by converting spacious homes into small apartments and house-keeping rooms, some of which lack even essential bathing and toilet facilities.

* * * * *



0 FEET 4000



Revised February 11, 1948

TENTATIVE COMMUNITY AND NEIGHBORHOOD BOUNDARIES
 REVISION OF THE LAND USE SECTION OF THE MASTER PLAN — JANUARY 1948

MAJOR LOCAL SHOPPING CENTERS ●

LIVING-NON LIVING BOUNDARY

COMMERCIAL & INDUSTRIAL AREAS [Grey Shaded Box]

COMMUNITY BOUNDARY [Solid Line]

LARGE PARKS & INSTITUTIONS [Light Grey Shaded Box]

NEIGHBORHOOD BOUNDARY [Dashed Line]

"From the dome of the San Francisco City Hall the entire Western Addition district is visible. . . . An uncompromising gridiron pattern of streets divides it into rectangles that would be monotonous except for the fact that some of them are tilted and bent by hills. Here and there the green of small parks breaks through the encrustation of houses, apartments, and institutional structures. . . .

"From the west cool winds blow over the district ten months of the year, rising to a velocity of 20 miles per hour or more about 4 o'clock in the afternoon during summer. In December and January the wind is from the north, though milder than the west winds of summer. . . .

"With the exception of approximately 20 blocks directly west of Van Ness Avenue from Market Street to Golden Gate Avenue, the district escaped the great fire of 1906. While some of the houses in the area were then fairly new, many had been built in the late '60's and early '70's, especially in the Hayes Valley. When families who had been burned out by the fire crowded into the district in search of temporary shelter, numerous property owners converted their dwellings into boarding houses, rooming houses, and small apartments. This attempt to meet the emergency marked the beginning of the decline of the district. Although hundreds of new buildings were erected in the Western Addition during the next two decades and even as late as 1929, the greater part of it rapidly deteriorated into a low-rent, sub-standard area. . . .

"In common with other blighted areas, the Western Addition is characterized by a mixed pattern of land use. . . . Although it is primarily a residential area, only about one-tenth of all the blocks is entirely free of commercial or industrial establishments. . . .

"The Western Addition is a museum of architectural styles, from the simple, unpretentious houses of the 1870's through the gingerbread aberrations of the '90's, the dull creations of the early part of this century, and the pseudo-Spanish of the 1920's to occasional "modernistic" facades. The Victorian false front and the bay window are much in evidence. . . .

"A notable feature of the Western Addition is the large number of institutional structures it contains, particularly churches. For the most part substantial and attractive, these religious edifices were erected in this area when it was one of the good residential sections. They continue to serve residents in the area but also attract members from many parts of the city. A branch of the YMCA, the Booker T. Washington Center, several lodge buildings, the Family and Children's Agency, the building of the Native Daughters of the Golden West, and several hospitals are among the other institutional structures in the area. They are scattered through the district. . . .

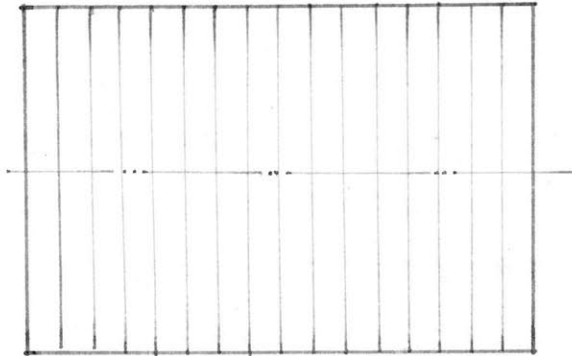
* * * * *

"Establishments in the district provide employment for approximately 7,500 persons. Many of these places are one-man outfits--a corner grocery store, a lunch counter, a cubicle of a barber shop, a soft drink stand, a tailor shop. The proprietors put in long hours and get a minimum of return for their work. Such marginal enterprises mark the depressed district, where customers, too, live from hand to mouth. . . .

"An unmistakable indication of the character of the district is the large number of second-hand stores and junk shops it contains. Their dusty confusion symbolizes the area. Amid the cast-off paraphernalia from thousands of households one finds an occasional "antique," some bit of craftsmanship that will give pleasure for a long time, but all the rest speaks of a disenchanting yesterday

and is as outmoded as the hand-me-down dwellings in the surrounding blocks. It is time to begin sorting out the good buildings among all the old and battered structures in the Western Addition and to place them in a new setting, orderly and protected by desirable standards from ever becoming overcrowded, squalid, dispiriting."

The standard method of block subdivision, not only in the Western Addition but throughout the city, is into 32 lots, each with twenty-five feet of frontage and 137.5 feet of depth.



With few exceptions access is from the street only. Buildings are located on or close to the sidewalk, forming an almost solid wall around the block, with garages occupying the ground level. Only the narrow fronts, backs, and such light wells as may occur provide fenestrate exterior wall. Lateral walls touch each other, but are rarely of masonry. Back yards run to the rear property line, which gives them a long narrow shape and sharply limits their usability. Backsides usually present the cluttered aspect of a

grey shiplap jungle--sheds, clotheslines, utility meters, trash cans, and back stairs which resemble temporary scaffolding more closely than permanent construction.

III. THE PROPOSAL IN DETAIL

A. Planning the Block

Inasmuch as the existing street and sidewalk pattern was considered fixed, and a policy of efficient and intensive land use within the block had been determined, it appeared desirable to grant to the automobile only the amount of space necessary for parking and to lose no valuable ground area to driveway. This principle suggested perimeter parking, with autos side by side and headed inwards. Curbs would be suppressed.

A complementary treatment of pedestrian traffic is provided by a pedestrian through-way running parallel to the longitudinal axis of the block, with lateral feeds to groups of individual dwellings. In a succession of blocks pedestrian ways would fall end to end, affording continuous separation of through pedestrian traffic from streets and carports. For two-thirds of their length they can also admit fire vehicles.

In the center of the block, the pedestrian way widens considerably to become a landscaped common, the largest unobstructed open space within the scheme. Its practical function should not be confused with that of a fully equipped playground. Swings, a slide,

and a sand pit could of course be included as part of the general treatment, but for the most part it should be landscaped with trees, grass, paths, and benches. In general terms, it provides easy opportunity for casual social exchanges among block residents without exacting from any of them a sacrifice of essential privacy. More specifically, it would be used as a place to sit in the sun, read, play catch, walk dogs and small children, wheel baby carriages, visit, or pause on the way to the store. The common is aesthetically indispensable both as a spatial focus which gives cohesiveness to the overall organization of solids and voids and as a change of pace in the spatial sequence along the pedestrian through-way.

The entry court acts as joint outdoor vestibule for a group of 10 to 14 dwelling units. Conceptually, it is a piece of sidewalk which has penetrated the block, leaving behind the noise, fumes, and traffic hazards of the street and providing access for residents, visitors, tradesmen, firemen, trash collectors, meter readers, etc. Small children can play there under surveillance from the windows. The predominant townscape treatment is in terms of paving and changes in level. Little furniture is necessary except for an outdoor lighting

fixture and perhaps a tree and a bench. Arrangements for maintenance would have to be devised, either as a public service covered by a property tax surcharge, as a commercial service whose costs would be defrayed by an organization of block residents, or as a private service of the landlord or lessor, whose rental scale would be set accordingly.

Aesthetically considered, the entry court is an intermediate, preparatory kind of space. It gives emphasis both to arrivals and departures and to the passage through, modulating in the first case between the imperfectly enclosed, open-ended street and the nearly complete enclosure of the patio house, in the second case between the street and the central common. Court and common are closely related types of open space, but are designed to contrast with one another in terms of scale, direction of axial emphasis, degree of vertical enclosure, and material treatment. The effectiveness of the entry court, both functionally and aesthetically, depends upon its being kept free of clutter, sparing and highly selective in its employment of modulating features.

B. Planning a Court Group

The most important considerations determining the disposition of building masses in the court group were (1) the number of automobiles which could be accommodated at the front edge, (2) orientation, including the amount of shadow thrown upon neighboring plots, (3) privacy, (4) relation to adjoining court group, and (5) regard for the appearance of the block around its perimeter.

A basic decision concerned the policy of setback. Of the two possible extremes in house type--the compact prismatic mass which concentrates itself at the center of a plot and looks out in all four directions, and the dispersed patio house, which spreads itself to the lot lines and forms a ring around its own private void into which all the rooms look--the latter is the more promising prototype to follow in a situation which requires very close packing, since privacy and control over the vista are in this case at a maximum. The need for a more compact plan, however, modifies this shape into an "L" embracing the patio on two of its sides, and leaving the remaining two to be completed either by fencing or by a neighboring structure. A desire to have the maximum direct sunlight reach the interior dictates that the "L" should

open either to the southeast or to the southwest. The fact that the upstairs apartment need occupy only one wing, which may be two rooms wide, determines its location nearest the entry court, for the sake of greater freedom in fenestration and greater privacy for the northern neighbor. The single story wing, since it can open freely to the south, need have either no windows at all or only high ones in its northern wall.

Exceptions to these massing principles occur in two instances: first, at the east and west ends of the block, where the larger mass of the house is located at the sidewalk in order to obtain greater strength to the corners and edge; second, in the case of the front plot, where the building mass is elevated above a row of parked automobiles.

In this solution the need for occasional access through a neighboring yard for painting and repair was felt not to outweigh the advantages in spaciousness and freedom of planning which could be gained by eliminating the setback. In cases of individual ownership, deeds could conceivably carry a clause permitting the neighbors periodic access for reasonable purposes. In the case of cooperative ownership or ownership of a court group by a single lessor (to which the scheme is particularly well suited) the

problem disappears, since the management would have responsibility for large maintenance items and discretionary power over access.

Such a discussion, however, serves as a minor illustration of an important principle, viz. that achievement of a successful overall design of this type, concomitant with the exploitation of each individual parcel of land to its maximum potentiality, demands uniform adherence to certain rules of the game. Clearly, greater freedom in planning and fenestration can be enjoyed in working out an individual dwelling design if one can know in advance the limitations on a neighboring solution. Where on the one hand one grants a concession to one neighbor, he becomes the recipient of the same consideration on the other, with the result that a greater measure of spaciousness, privacy, and freedom, by and large, accrues to each within his own enclosure. With regard to possible extensive future renovation the consequence is that the design unit of inviolable integrity is not the individual house, but the court group as a whole. The occupant of a single dwelling within this group can not unilaterally make major extensive changes.

In the sample solution, a hillside block, sloping to the northeast, was chosen in order to test the

proposal under what in some ways are the severest conditions it could be expected to meet, viz. moderately steep incline and long shadows.

C. Planning the Individual Dwelling

Each dwelling, whether the family unit on the ground floor or the single bedroom apartment above, features an easy, convenient access to outdoor living space. In the case of the middle and rear lot units, this is true of the bedrooms as well as the living rooms. For downstairs units, the "outdoor room" is a patio-garden which is susceptible to intensive and varied landscape treatment. The specific intention has been to make it a 100% utilizable space by virtue of its location, shape, and relative size. The balcony off the living room of upstairs units allows the occupants to borrow the garden below as if it were their own, serves as a partial visual barrier between the two units, and in the case of the middle and rear units extends the ceiling plane of the living room below into the garden. A second deck off the bedrooms upstairs provides a more private alternative outdoor area suitable for sun bathing and for development as a small roof garden.

Inside, sleeping and active zones are in all cases clearly demarcated, with the kitchen, dining

room, living room and entry forming one integral combination and the bath located at its junction with the bedroom group. In family units the master bedroom is sufficiently large to allow part of it to function as a parents' retreat from the active zone.

Trash cans and utility meters are in a small room accessible from the outside. Laundry machines find their place in the bathroom. Heating apparatus is in a basement which could vary in size according to the demand for a game room, workshop, extra storage space for large objects, etc.

A separate service yard has not been planned, on the assumption that tool locker, potting shed, demountable umbrella-type clothesline, incinerator, etc., could be integrated into the general patio design to suit the owner's needs, with due attention to the need for screening.

Construction is to be post and beam six feet center to center, modified to allow posts to pass through split beams to the second story. This permits greater freedom in substituting transom windows for blocking, extensions of beams as cantilevers to carry balconies and eaves, and decorative use of the split beam motif. Portions of the front units cantilever past a steel girder, supported on steel posts, to give minimum obstruction to the carports below. Roofing

is of a built up type, surfaced with light colored marble chips. Walls shared by two dwellings are of fireproof masonry surrounded in wood in order to deny their edges prominent display. Exterior finish is of vertical fir siding.

Ground preparation, including removal of existing buildings, grading and filling, retaining walls, basements, and foundations is bound to be expensive.

D. Planning the Sub-Neighborhood

A typical piece of urban fabric was selected from an aerial photograph and subjected to renewal treatment in two stages. Since the symbiosis of mixed uses within the same block was regarded as not prima facie execrable, effort was directed to replacing incompatible combinations with happier ones. Educational, ecclesiastical, and civic uses, for example, were found to combine easily with the proposed residential scheme. Successful inclusion of commercial uses, however, requires more selectivity at the outset and control in the composition. Whereas professional offices and small shops--even funeral parlors--can make their peace with neighboring houses, such uses as automotive service facilities, super markets, furniture stores, movie theaters and dance halls clearly cannot.

Apartment buildings pose a particularly difficult problem of integration. The author feels that the coexistence of different varieties of residential structures is not intrinsically discordant, but acknowledges that it is usually practically so. Great differences in the lives of the various residential building types (consequently in the terms of the investments) and the need for smooth, relatively automatic, operation of zoning ordinances hinder successful practical achievement of aesthetically acceptable results. Nearly any large apartment house in San Francisco is likely to represent a physical investment capable of yielding many years of good service--at least with regard to withstanding normal wear and tear, if not conformance with appearance standards of 1957 architectural design--but was designed to stand cheek-by-jowl with neighbors. Upon their removal, it stands nakedly alone, but is extraordinarily hard to approach with other building forms.

APPENDIX: Statistical RésuméI. Allocation of areas within the block

Area of block within property lines	110,000 sq ft 2.52 acres	100%
Areas of joint use:	35,900	<u>32.6</u>
Pedestrian throughway	3,600	3.3
Common	6,900	6.3
Courts	7,600	6.9
Connecting walks	5,000	4.5
Carports	12,800	11.6
 Private Plots:	74,100	<u>67.3</u>
Outdoor	26,400	24.0
Covered	47,700	43.3

II. Density and Occupancy

	Front house		Middle		Rear	
	ground unit	ap't	ground unit-	ap't	ground unit	ap't
Persons per unit	6	1	3.5	2	5	2
Units per block	12	12	14	14	12	12
Persons per block	72	12	49	28	60	24

Total: 245 persons

Overall density: 97 persons per net acre

III. Areas within the Dwelling Units

	Front house		Middle house		Rear house	
	ground unit	apartment	ground unit	apartment	ground unit	apartment
Plot area	1512 sq ft		1956 sq ft		2178 sq ft	
Total liveable floor and ground area	2339	636	1956	1010	2178	
Outdoor	792	144	584	198	666	
Patio	792	-	576	-	612	
Deck	-	72	-	144	-	
Stair	-	72	18	54	54	
Indoor	1547	492	1362	812	1512	
	100%	100%	100%	100%	100%	
Living zone	518 34	284 58	607 45	516 64	585 39	
living room	288 19	200 41	345 25	354 44	342 23	
dining room	108 7	36 7	154 11	54 7	126 8	
kitchen	122 8	48 10	108 8	108 13	117 8	
Sleeping zone	741 48	172 35	407 30	238 29	630 42	
bedrooms	660 43	112 23	372 27	159 20	525 35	
bath (including laundry)	81 5	60 12	98 7	79 10	105 7	
Circulation and other	288 19	36 7	285 21	38 5	297 20	
entry	40 3	-	65 5	24 3	36 2	
lavatory	18 1	-	-	-	-	
loft (multi-purpose)	90 6	-	-	-	-	
general storage	21 1	-	52 4	-	72 5	
stair	18 1	-	36 3	-	36 2	
hallway	65 4	36 7	78 6	14 2	108 7	
garbage and trash	36 2	-	54 4	-	45 3	

same as middle house apartment

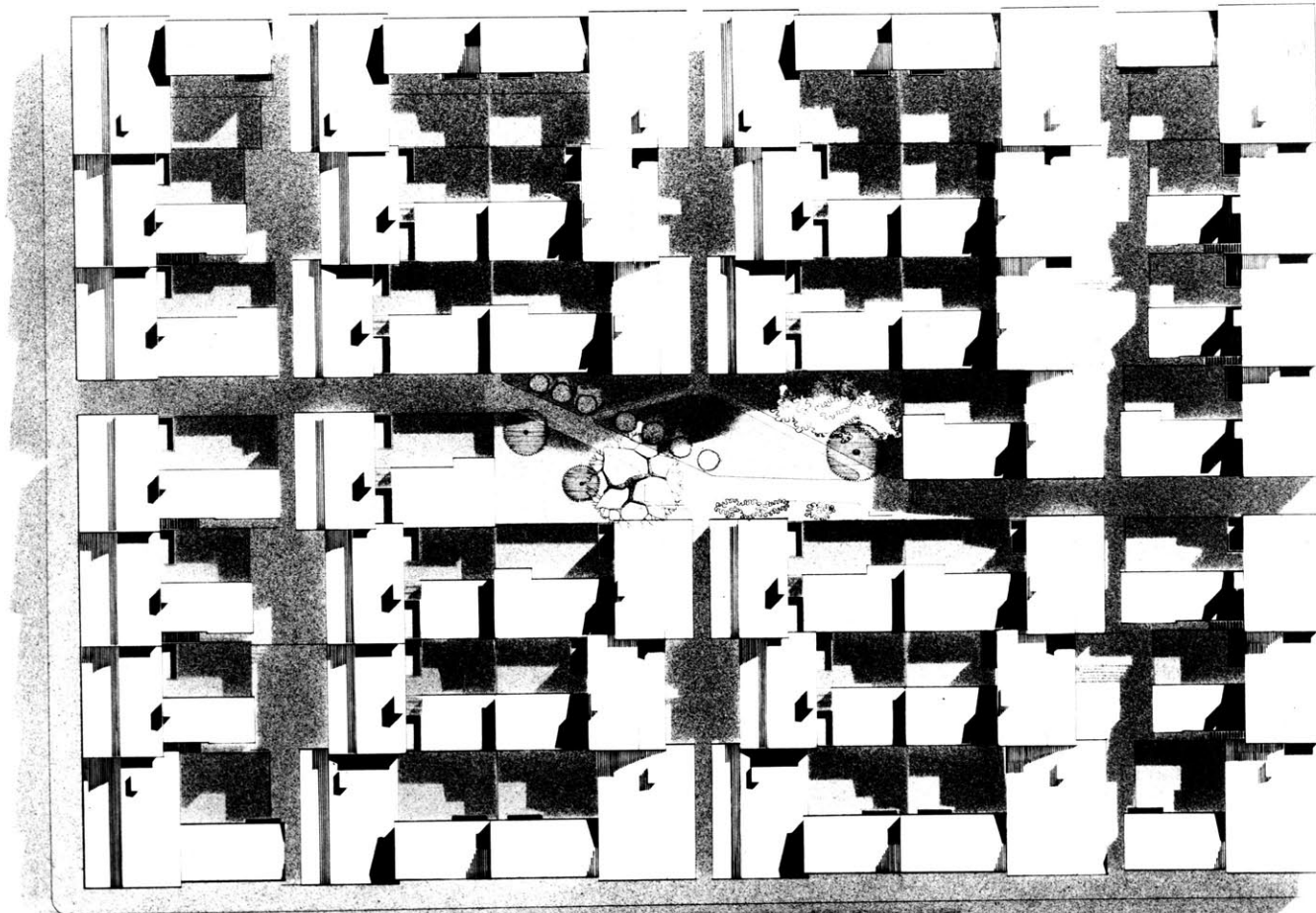
Basement (heater room, storage, game room, workshop, etc.)
 Figures vary and are not included in the calculations

Note: Calculations are tabulated for the dwelling types in which the two-story mass of the building adjoins the entry court. Units at the end of the block are similar

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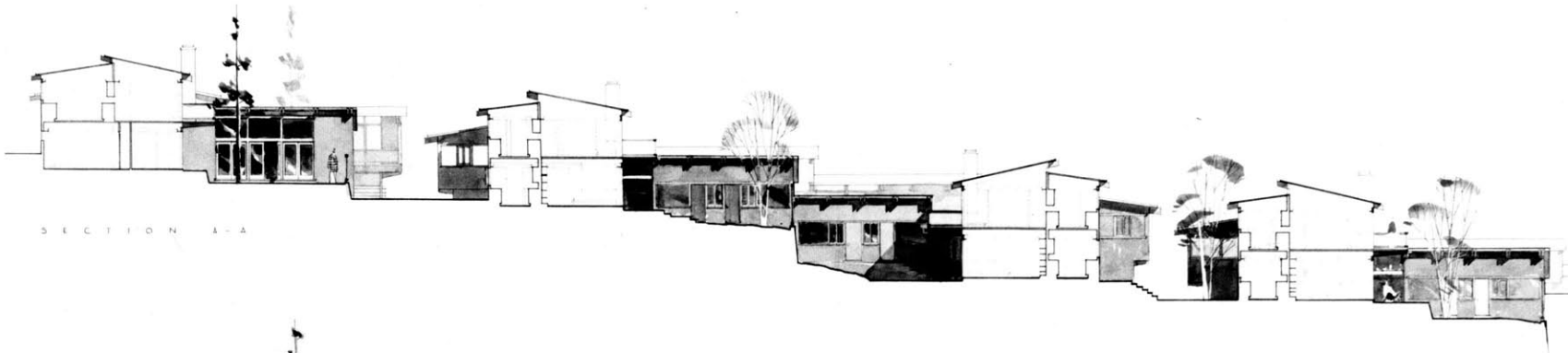
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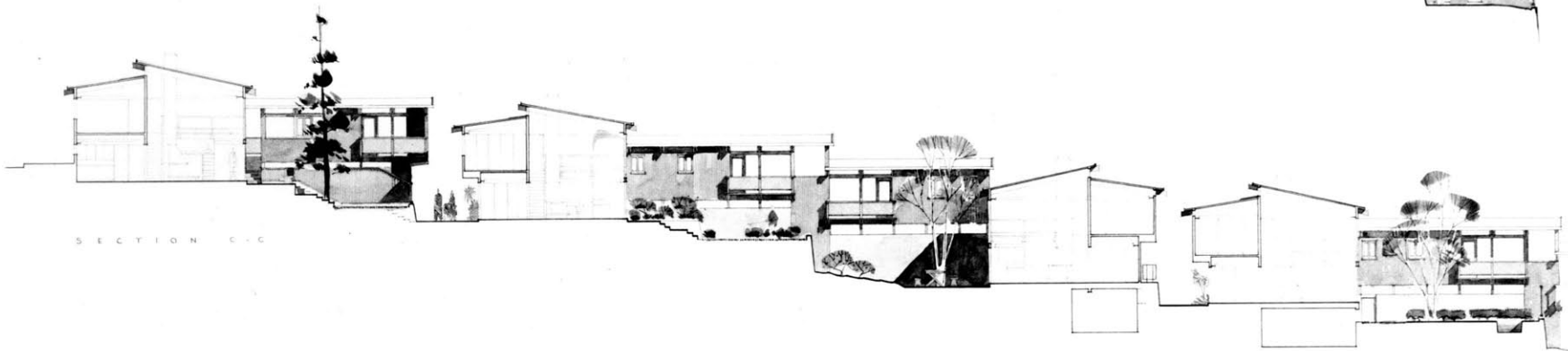


THE BLOCK

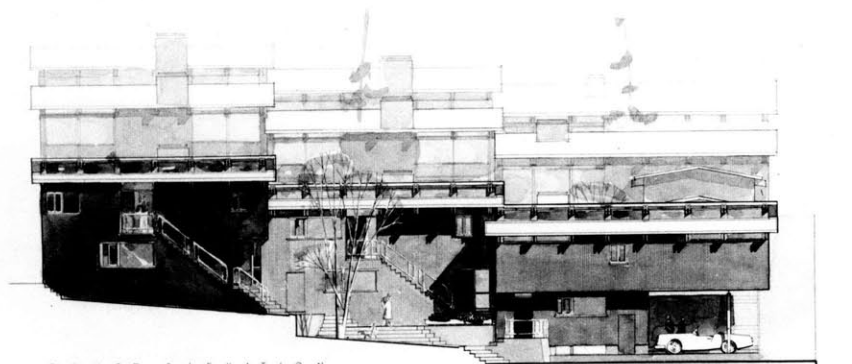
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SECTION A-A



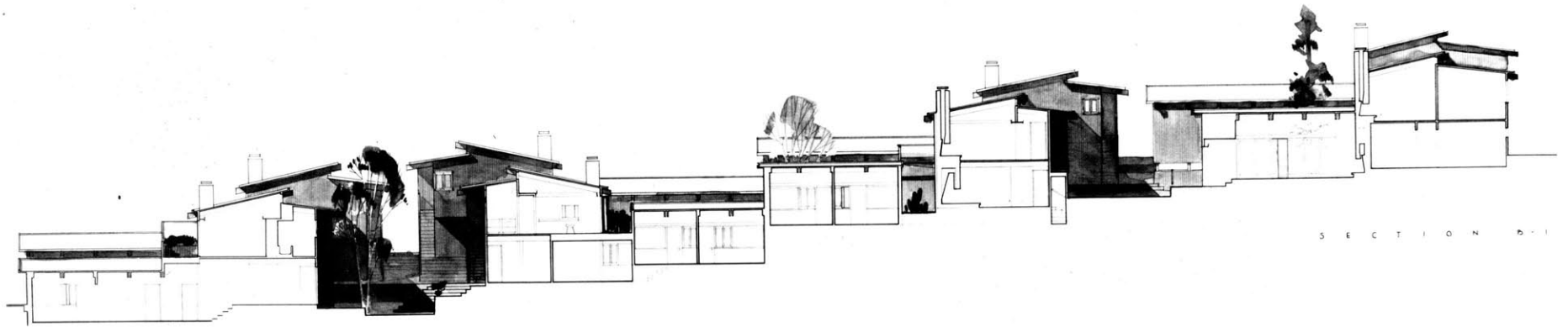
SECTION C-C



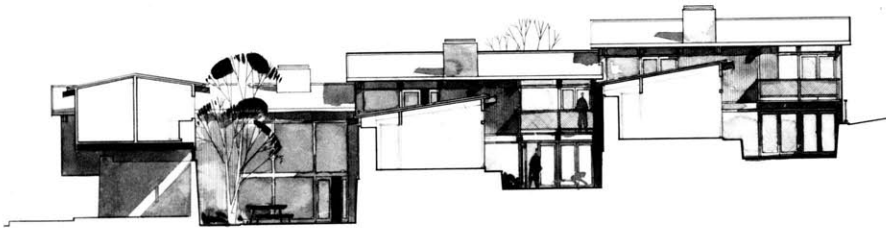
COURT ELEVATION

TWO COURT

SCALE



SECTION D-I

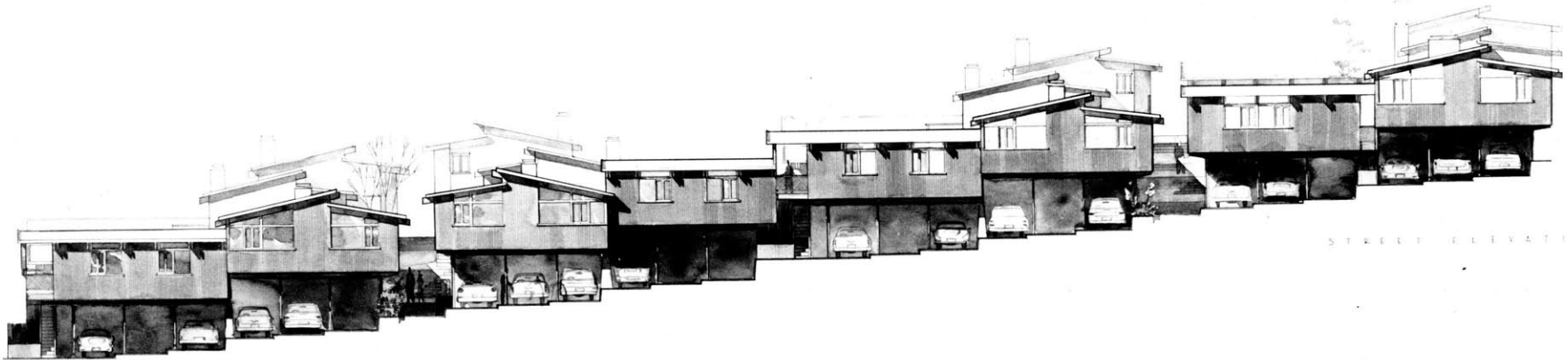


SECTION D-D

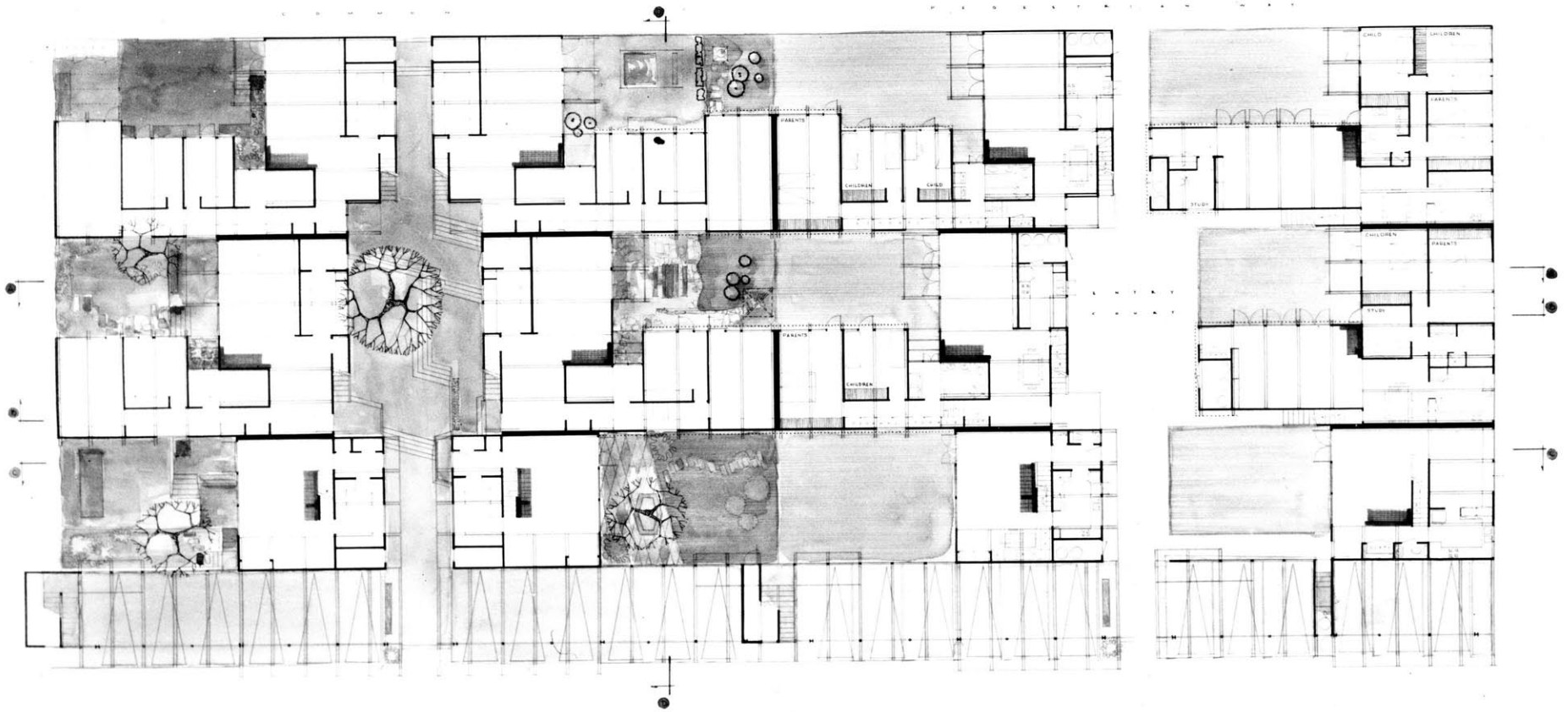
GROUPS



SECOND FLOOR PLAN

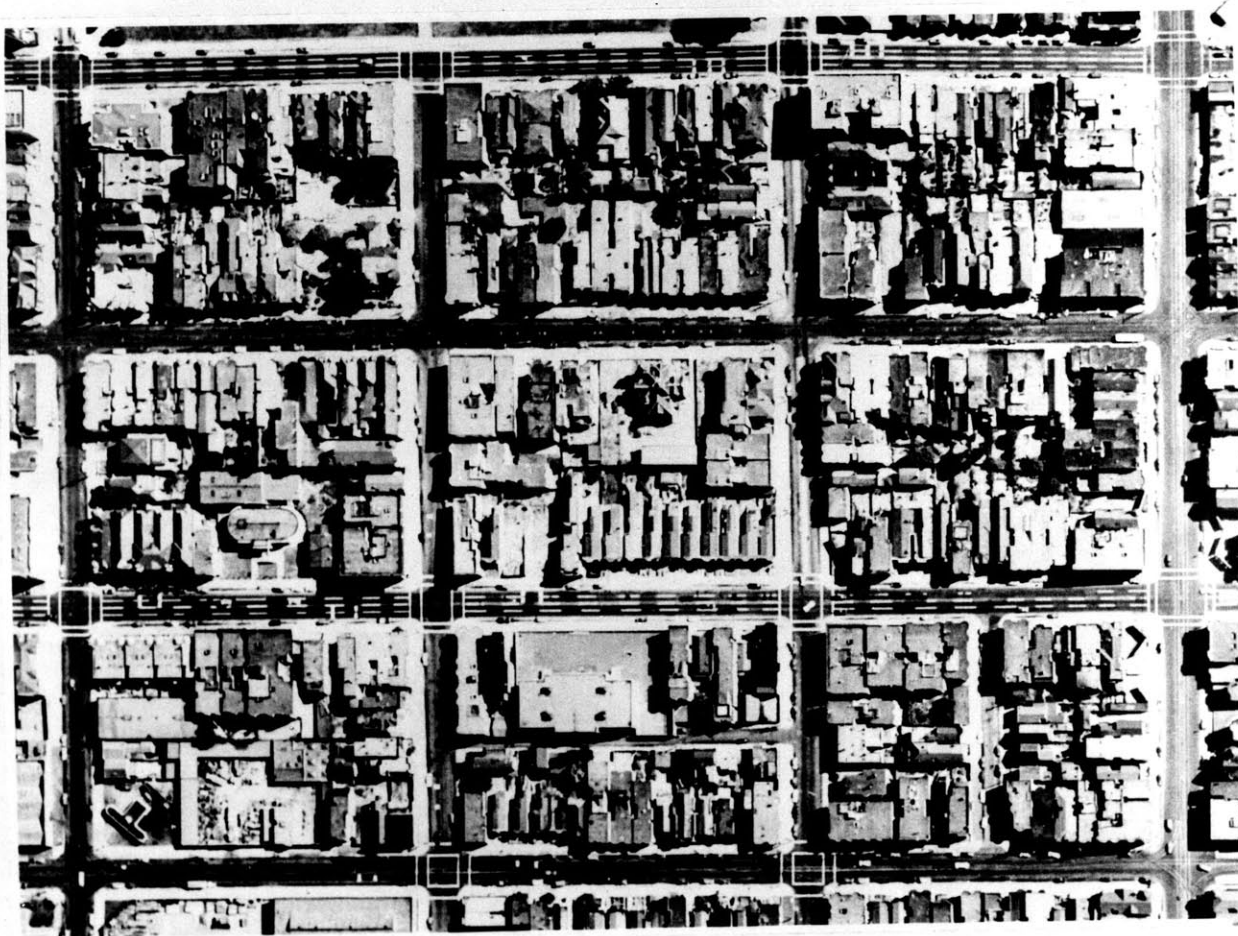


STREET ELEVATION

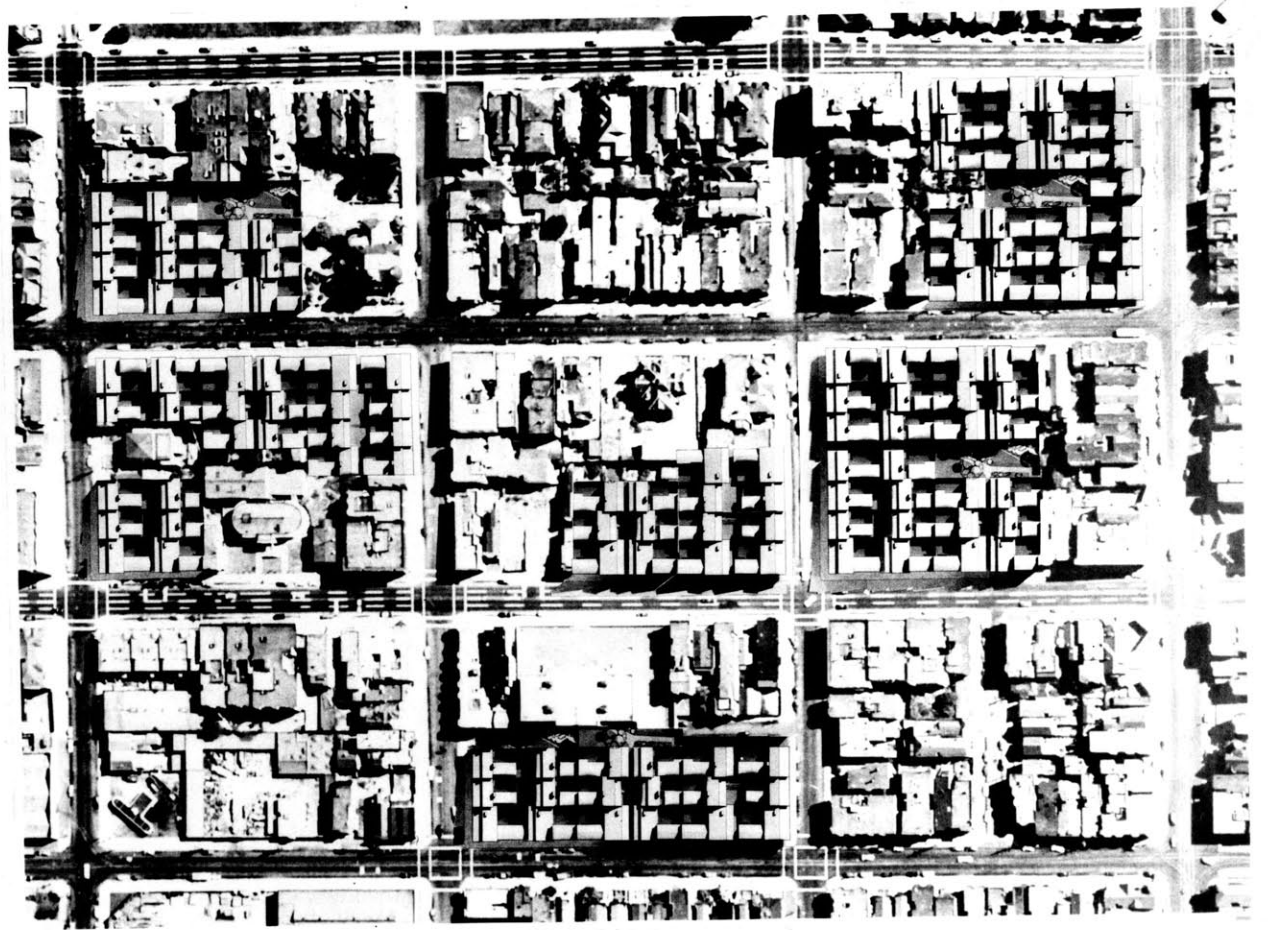


FLOOR PLAN

THE URBAN FABRIC



EXISTING



RENEWAL: STAGE 1



RENEWAL: STAGE 2