

THESIS TITLE: ASPECTS OF HOUSING IN TRANSFORMATION-  
CO-OPERATIVE PROPOSAL FOR ABERDEEN,  
HONG KONG

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## THE AIM OF THE THESIS

The most significant changes in Hong Kong with respect to housing, in recent years have been: (1) the slow rate of population growth; and (2) the changing attitudes toward housing and its physical environment.

The housing problem in Hong Kong is extremely complex. It involves a wide range of factors, and cannot be covered within the scope of this thesis. The aim of this thesis is to suggest an alternative to the most urgent and immediate problems of a particular kind, within the range of complexities that now exist, that is to provide an environment for living for a society whose expectations are greater than those of the last generation.

In partial fulfilment for the degree, a co-operative housing design in Aberdeen, Hong Kong (Part V) is undertaken to test some of the theoretical considerations of the findings.

## PART ONE: HONG KONG

### GEOGRAPHY

#### Position:

Hong Kong is located on the South-east of China, adjoining the province of Kwangtung. It is just inside the tropic of cancer, and lies between latitudes  $22^{\circ} 9'$  and  $22^{\circ} 37'$  N and longitudes  $113^{\circ} 52'$  and  $114^{\circ} 30'$  E.

#### Size:

The Colony, consisting of Hong Kong island itself (23 sq. miles) and the Kowloon urban area south of the present Boundary Street ( $3 \frac{3}{4}$  sq. miles), was annexed by Britain in 1841. The stretch from Boundary Street north to the Shum Chum River and numerous adjacent islands were ceded to Britain in 1898 for 99 years. Hong Kong has a total area of 398 sq. miles.

#### Land use: Table 1

urban uses	39 sq. miles	10%
arable	47 sq. miles	12%
woodland	24 sq. miles	6%
fishponds	2 sq. miles	0.5%
grass & scrubland	153 sq. miles	38.5%
swamp & mangrove	5 sq. miles	1.3%
rocky, precipitous hillsides & other steep country	128 sq. miles	31.7%
Total <sup>2</sup>	398 sq. miles	100%

<sup>2</sup> Table 1 is based on the informations from "Tour Planning Report" 1969. H.K.

The city of Victoria, facing Kowloon across one of the world's finest natural harbours, are closely backed by ridges rising sharply to 3,000 feet. Victoria extends in a narrow strip along the north coast of Hong Kong between the harbour and a hilly interior which culminates the peak. The Kowloon peninsula provide more space for urban growth than the island. The central and northern parts of the peninsula have been vigorously developed for urban uses during the post war period, but most of the peninsula is now built over.

### CLIMATE 3

#### 1. Wind:

Winter monsoon (from Sept. to mid-March) blows from the north and north-east bringing dry, sunny weather during early winter. Cloudy conditions and chilly winds prevail in January and February.

Summer monsoon (from April to Sept.) blows from the south and south-west. During this period the weather is hot and humid with frequent overcast skies and torrential rain.

Typhoons most likely occur between July and September.

#### 2. Sun:

Average daily duration of bright sunshine varies from 3 hours in March to over 7 hours in mid-July and late October.

#### 3. Temperature:

Mean daily temperature is 58° F in February and 82° F in July.

Mean maximum temperature (July) is 86.9° F but the summer temperature often exceeds 90° F.

Mean minimum temperature (February) is 55.6° F but can fall to 45° F.

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3 The informations are based on "Town Planning Report" 1969.

4. Relative humidity:

Mean relative humidity exceeds 80% from mid-February until early September.

5. Rainfall:

Normal annual rainfall is 85" of which 90% occurs between April and October.

## POPULATION

Hong Kong can be regarded as one of the most populated places in the world. Population figure stood at 1,600,000 in 1941, reduced to 650,000 in 1945 and then quickly surged upwards in 1949.

The figure stood at 3,133,000 according to the 1961 census. In mid-March of 1971, it exceeded the 4 million mark. This demographic explosion was brought about mainly by the in-rush of immigrants in 1949 with the change of government in Mainland China as well as by the natural increase of the population. The natural increase was 38.8 per 1000 annually in 1958.<sup>4</sup> At present, it is estimated to be 22.4 per 1,000 annually.

Based on the various factors the population projection will be: 4.16 million in 1971, 4.62 million in 1976, and 5.15 million in 1981.<sup>5</sup>

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<sup>4</sup> "Hong Kong Annual Report", 1959.

<sup>5</sup> "Town Planning in Hong Kong", 1969.

## DENSITY

The latest census showed that within Hong Kong's 398 sq. miles the overall population density stood at 7,512 persons per sq. mile. This excluded that part of the population, totalling 136,810 persons, who live afloat on junks and other crafts. However, of the total population, 84% live in the main build-up area of Hong Kong Island north, Kowloon and New Kowloon at a gross density of 190 persons per acre (121,000 persons per sq. miles).<sup>6</sup> It has been estimated that the population density of New Territories at a figure of 1,151 per sq. mile, is four times that of the neighbouring Province of Kwangtung, China.

It is important to realize that the density of population in the most congested urban area has become perhaps the highest in the world - some areas in Hong Kong (Sheung Wan and Yau Ma Tei)<sup>7</sup> have a gross density over 450 persons per acre. These old urban areas, which are characterised by both pre-war and post-war tennant accommodations often with commercial uses on the ground floor, have net residential densities of 1,000 persons per acre and net

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<sup>6</sup> "Hong Kong Annual Report" 1970.

<sup>7</sup> "Hong Kong Housing Board Report", 1970.

site densities in the order of 2,000 persons per acre.

As a whole, over-crowding has been reduced significantly in some of the older districts. It has been reported that since 1966, gross floor area per person has been increased as follows:

Table 2

WESTERN DISTRICT	From 47	to 80 sq. ft.
WAN CHAI	64	99
YAU MA TEI	74	94

40% of all households are over 100 sq. ft. per person.

52% are 51-99 sq. ft. per person.

8% are less than 51 sq. ft. per person.<sup>8</sup>

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<sup>8</sup> This is based on the example survey of private, commercial and residential buildings in metropolitan area by The Planning Branch, Crown Lands and Survey Office.

AGE AND SEX STRUCTURE: TABLE 3<sup>9</sup>

53,900	**	over 65	**	119,200
46,900	***	60	***	60,600
77,600	****	55	****	80,100
94,200	*****	50	*****	91,900
116,100	*****	45	*****	113,800
131,000	*****	40	*****	127,100
129,300	*****	35	*****	115,700
115,200	*****	30	*****	97,800
108,300	*****	25	*****	95,300
204,700	*****	20	*****	182,100
234,200	****	15	****	215,300
275,600	***	10	***	257,700
272,600	*****	5	*****	238,000
252,000	*****	0	*****	218,200

71% of the population is 30 years old or under in 1971.

<sup>9</sup> Based on the population projection from "Town Planning in Hong Kong", 1969.

## ECONOMY

Hong Kong is now firmly established as an industrial city based upon exports rather than a domestic market, while remaining basically a tariff-free port. By the turn of the century, as a natural adjunct of port activities, ship-building and ship-breaking industries had developed. Some light industries were established before 1939. But industrial development on a significant scale did not take place until the political change in China in 1949. The Korean war resulted in trade restrictions, and signalled the end of the entrepot trade as a basis for the economy of the Colony, while the simultaneous arrival of refugees from the mainland brought in additional man-power, and in some cases, technical knowledge and capital. As a result, the slack in the entrepot trade was taken up by the increase in the manufacture and export of cotton textiles and light industrial expansion.

Within significant natural resources, Hong Kong can never hope to have a self-sufficient economy and must not only depend on foreign markets abroad for its manufactured products, but must also rely on imported raw materials and semi-processed goods to feed its industries.

Notwithstanding the difficulties, Hong Kong has a dynamic expanding economy. The total value of all domestic exports increased by 95% between the years 1961 and 1966, and by a further 47% between 1966 and 1968. The following figures show the total value of exports in 1970, and the percentage increase over that of 1969: 10

Table 4:	clothing	4337 m.	+13%
	misc. factory article	3142 m.	+26%
	electrical machinery	1293 m.	+12%
	textile yarn, fabrics	1277 m.	+13%
	manufactures of metal	345 m.	+13%
	footwear	302 m.	+ 2%

Employment structure:

The following table shows the distribution of trends in the occupation of the working population in the year 1970. It shows the dependence of the Colony on manufacturing industry and also the importance of Hong Kong as a service, commercial and business center.

Table 5: Working population distribution<sup>11</sup>

various industries	47%
various services	24%
commerce	17%
communication	7%
agriculture	3%

10 "Hong Kong Year Book", 1970.

11 "Hong Kong Annual Report", 1970.

PART II: HOUSING CONDITIONS

Before discussing each housing type, it is important to know the "housing types and population composition" in Hong Kong.<sup>12</sup>

Table 6:

Housing type		Percentage of total population
	resettlement	31.2%
PUBLIC	government aided	8.4%
	government low-cost	3.6%
	tenement	11.2%
PRIVATE	regular high-rise	21.3%
	high-cost	9.7%
	squatter	10.3%
TEMPORARY	marine	3.1%
	others	2.0%

The total population = 4.16 millions (1971)

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<sup>12</sup> "Hong Kong Housing Board Annual Report", 1970-1971.

## PUBLIC HOUSING

### POLICY:

The government's housing policy is fairly straight forward. Its ultimate aim is to provide accommodation, in a most economical way, and to as many squatters as possible, in resettlement housings. The housing policy is usually planned five years ahead by the Housing Board. The number of resettlement housing units to be built is generally dependent upon the government's existing budget of expenditure for this purpose. The above described policy was initiated in 1954 when the government first participated in the solution of the housing problem on a large scale basis, and has not been changed ever since.<sup>13</sup> At that time, the already over-crowded houses were completely inadequate to housing the rapidly increasing population of Hong Kong. The situation is perhaps more realistically described by Dwyer in his "Problem of Urbanisation": "Floore have been partitioned off into cubicles and subletted by a principal tenanr; the cubicles themselves have been further subdivided into bedspaces; in extreme cases bedspaces have been occupied on a shift system by three different sets of inhabitants. Roofs, cellars and

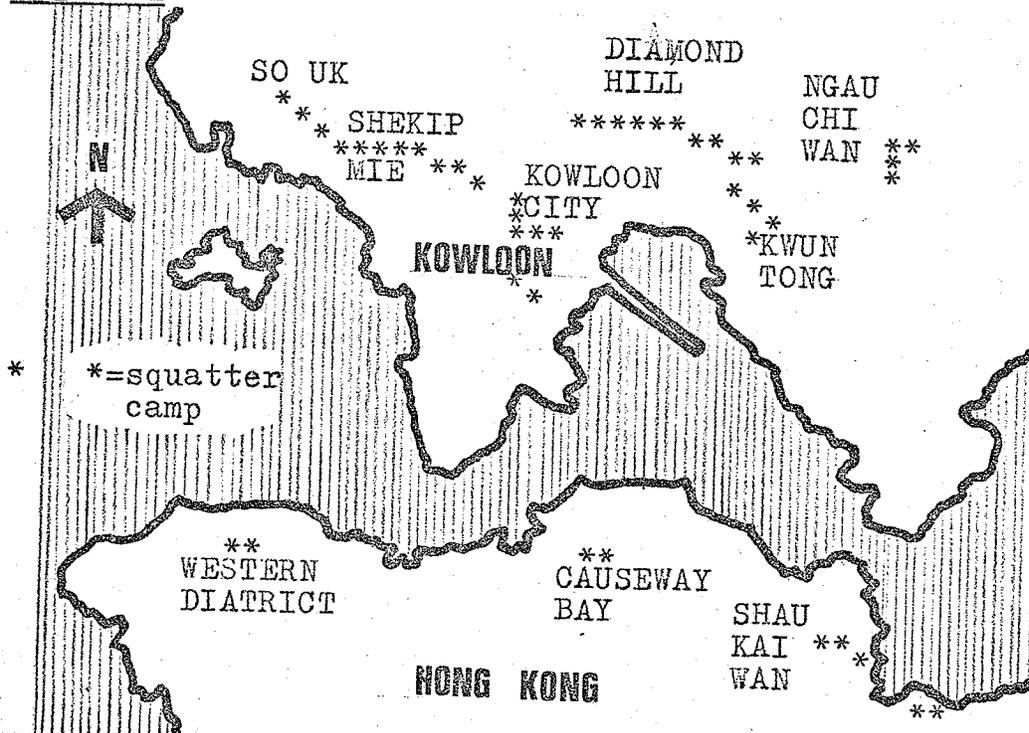
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<sup>13</sup> "Public Work Department Annual Report", 1969-1970.

lofts have been let ..... still the population spilled over on to the pavements."

The immediate result was that those who could not find conventional housing<sup>14</sup> started to build shacks illegally wherever spaces were available. Squatting beams concentrated in north Kowloon as there was more space available for urban development than on Hong Kong Island in the early 1950's. At its peak in 1953 a belt of squatter-camps, totalling over 300,000 squatters, enveloped northern Kowloon (see map below).

Figure 1



<sup>14</sup> Flats in concrete, brick or stone buildings-- permanent housing.

The illegal squatting was finally brought to a halt, since the squatter-camps not only covered valuable building land but also obstructed access to sites further out. The need for large-scale reclamation to provide land for housing and industry around the harbour steadily drew the Hong Kong government into involvement with land allocation and ultimately into recognition of the necessity for urban planning in 1954. The squatter problem assumed such dimensions that it was threatening to disrupt the whole urban frame work.<sup>15</sup> It was accepted that this was not a problem which could be dealt with by private enterprises.

Because of the scarcity of land and the people's inability to pay for transport, the squatters would have to be resettled in areas far smaller than that the huts once occupied but remain in close proximity to job opportunities in the urban areas. The government therefore embarked upon a massive program of building multi-storey accommodations for squatter resettlement. At the end of March 1970 there were in round figures 1,134,000 people living in resettlement estates.

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<sup>15</sup> "Problem of Urbanisation", by D. J. Dwyer, P. 174. (1968).

Table 7:

Completed resettlement estates: (1970)<sup>16</sup>

Estates	Population
YAU TONG BAY	29,000
HAM TIN 'A' & 'B'	104,000
Kwun Tong	60,000
SAU MAU PING I & II	131,000
JORDON VALLEY	22,000
NGAU TAU KOK	64,000
TSZ WAN SHAN	170,000
WONG TAI SIN	81,000
TUNG TAU	65,000
LO FU NGAM	34,000
WANG TAU HOM	80,000
TAI WAN HILL	10,000
TAI HANG TUNG	38,000
SHEK KIP MEI	67,000
LI CHENG UK	54,000
SHEK LEI	75,000
KWAI CHUNG	65,000
TAI WO HAU	44,000
CASTLE PEAK AREA 10	11,500
YUEN LONG	21,000
CHAI WAN I, II & III	56,000
TIN WAN	17,000
SHEK PAI WAN	<u>29,000</u>
	<u>1,327,000</u>

<sup>16</sup> "Resettlement Annual Report", 1970.

It was only toward the end of 1965 that there were indications, for the first time, that the squatter tide had begun to ebb; the number of squatters fell below the previous year at a rate of 100,000 per year.<sup>17</sup>

#### PHYSICAL CHARACTERISTICS:

The buildings are solid concrete, six-story block. The standard resettlement housing unit is 120 sq. ft. for five persons or 24 sq. ft. per adult (child counted as half an adult).

The walls, ceiling and floor of each resettlement housing unit are made of bare concrete and all windows have wooden shutters. The only door of each unit leads out to a common corridor which also serves as a public thorough-fare for the whole floor. Within each unit is a concrete bench which serves the dual purposes of a base for kerosene stoves as well as a work-counter.

Inside the units cubicles and bedspaces were partitioned off vertically and horizontally within the small allocated area. It is not uncommon that strangers outside the family shares the same unit, since each unit must house at least the equivalents of five adults. There are no

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<sup>17</sup> Commissioner for resettlement, 1967.

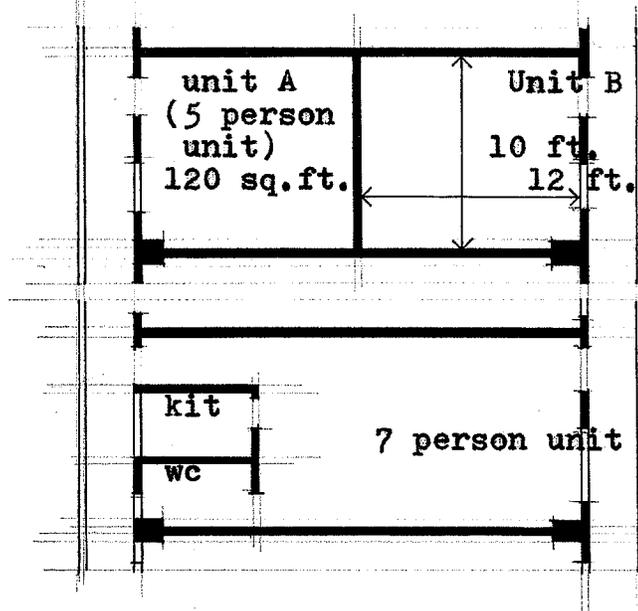
'private washroom' as such, instead, each floor of the block has one common sanitation unit equipped only with taps and separate latrines for males and females. Each floor of a resettlement block has approximately 500 occupants which totals to about 3,000 for a block. All in all, these resettlement estates are one massive concentration of people with a population easily equivalent to that of a medium size town.

Although the resettlement housing units were planned, such that, the walls between pairs of units may be removed to provide small self-contained suites at later dates, the idea met with great difficulties on account of the fast increasing squatter population and the rapid deterioration of the building.

Figure 2

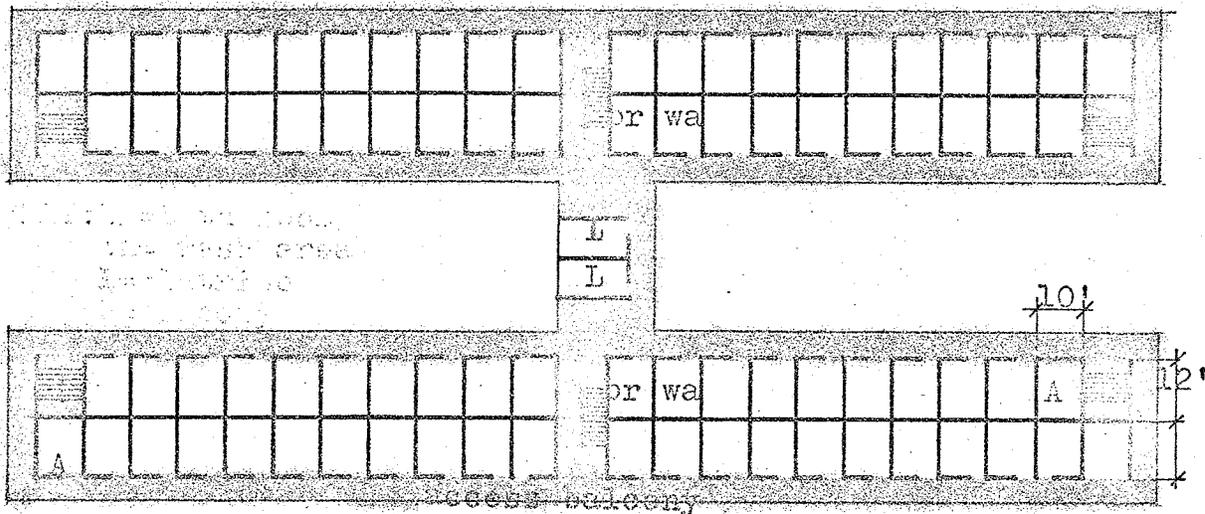
STANDARD UNIT (I@II)

ORIGINAL IDEA AFTER  
CONVERTION



More than half of the resettlement estates comprise of blocks of the Mark I and II type. The Mark III type blocks were introduced in 1964. The fundamental differences in the design of Mark III blocks were that access to each unit can be gain via a double loaded corridor and that each unit has its own internal wiring and a small balcony. Also, one washroom is now shared by tenants of two or three units. It was in 1965 that a major change in appearance occurred, buildings were sixteen storeys high and were served by elevators. (Mark V)

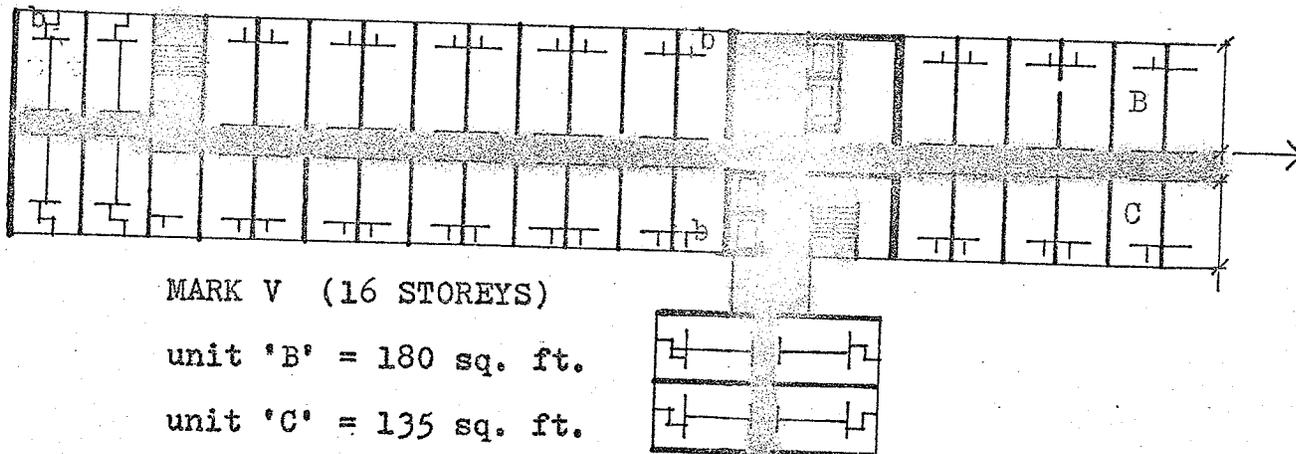
Figure 3



Key: br = bath room  
wa = wash area  
L = latrine  
b = balcony

MARK I TYPE RESETTLEMENT BLOCK (7 STOREYS)  
unit 'A' usable area - 120 sq. ft.

Figure 4



MARK V (16 STOREYS)

unit 'B' = 180 sq. ft.

unit 'C' = 135 sq. ft.

(Source: RESETTLEMENT DEPARTMENT, ARCHITECTURAL OFFICE)

#### SOCIAL CHARACTERISTICS

It was soon discovered that the older estates became exceedingly over-crowded. In some estates, 80% of the occupants live in an area, which fell below the original standard of 24 sq. ft. per adult. This was partly due to a change in the housing policy which allowed tenants to include their dependents, and partly because of the increase by birth.

As a result, hygiene standards deteriorated while family disputes<sup>18</sup>, social tensions and crime rate increased significantly. Furthermore, the barrack-like atmosphere of these resettlement estates seem to suppress the

<sup>18</sup> Sample survey of resettlement estates, 1957 (typescript unpublished), by C.S. Hui, W.F. Maunder and J. Tsao.

the resident's initiative for self-improvement. The situation was such that squatter camp occupants seemed to be better off as far as health and social welfare are concerned.

" It is true that squatter areas are difficult of access, subject to natural disasters, lack of many basic amenities, and by their nature, are fire hazards. But against these defects must be weighed the greater freedom, privacy and access to fresh air that exist in most squatters."<sup>19</sup>

#### GOVERNMENT LOW COST HOUSING

The primary purpose of the government low-cost housing scheme was to solve the major problems of the resettlement estates, and not as a replacement for these estates. Built by the Public Works Department and managed by the Housing Authority, the government low-cost housings provide accommodation for 20,000 people a year, with 35 sq. ft. to each adult. 15% of the available spaces is reserved for government officials while the remaining spaces are distributed to families with total incomes of 500 or less per month and according to their housing needs as well as certain other conditions. The monthly

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<sup>19</sup> L. F. Goodstadt's "Urban Housing in Hong Kong", 1964.

rents of the units varies from \$35 to \$109.<sup>20</sup> At the end of March, 1970, a total of about 176,000 people were accommodated in 31,300 units within these government low cost housing estates.<sup>21</sup>

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<sup>20</sup> "Hong Kong Annual Report", 1964, p. 131.

<sup>21</sup> "Public Works Department, Annual Report: 1970.

## GOVERNMENT AIDED HOUSINGS

### POLICY:

The government aided housings are provided, managed and maintained by non-profit organizations, the Hong Kong Housing Authority and the Housing Society. The aim of these government aided housing is to provide suitable accommodation to those whose family income renders them ineligible for government low-cost housing and yet are unable to afford accommodation provided by private commercial owners. In order to be eligible, a family must consist of at least four closely related persons in need of accommodation and a total family income between \$400 and \$900 per month. Up to April 1971, about 277, 100 people were residing in government aided housings.

As the name implies, this type of housing is subsidized by the government in two ways. Firstly, the government allocates Crown-land building sites to these organizations at half the auction price which is claimed to be equivalent to only one-third of its actual market value. Secondly, the government finances these organizations with funds from the Colony's Development fund; the first \$45 million at  $3\frac{1}{2}\%$  and the remaining \$215 million at 5% interest.<sup>22</sup>

<sup>22</sup> "Hong Kong Housing Authority Annual Report", 1970.

These loans are consolidated and regarded as a revolving fund on which only interest is payable. The full amount is almost spent, and it appears that future development under the current program will have to be financed by the Housing Authority itself. Rents from housing estates built by the Authority form the only source of income, and from this income, all costs of operation and administration are paid.

Table 8:

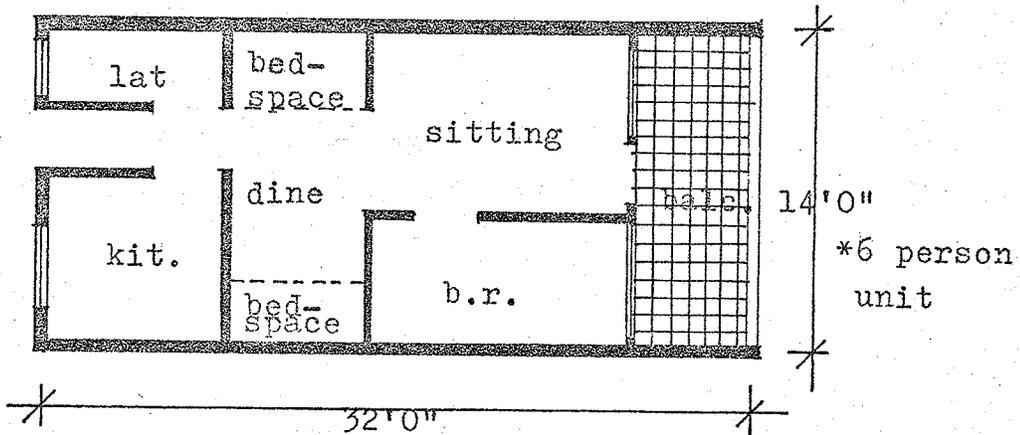
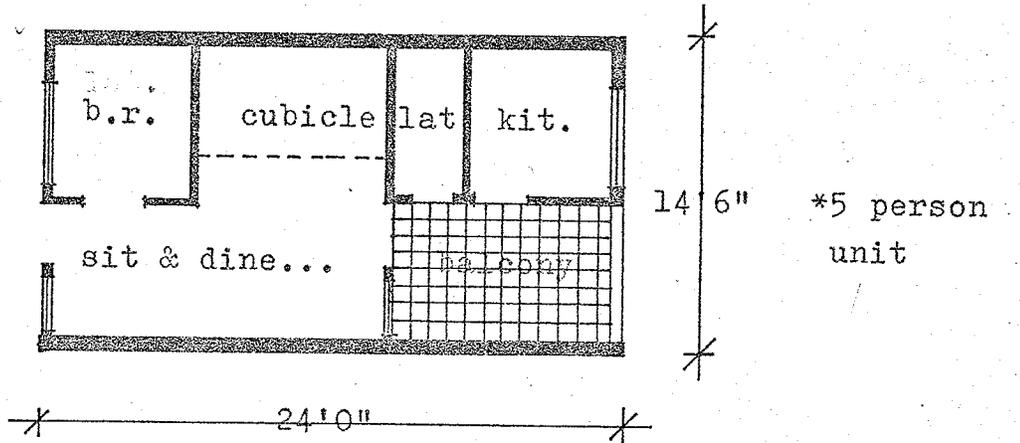
DISTRIBUTION OF GROSS RENTAL INCOME  
FROM HOUSING ESTATES 1969-1970<sup>23</sup>

Gross income for the year	\$33,161,154
interest	35.71%
rate	16.89%
gen. working acc. & H.O. expenses	3.21%
management	6.16%
salaries & surcharges	5.26%
repairs & maintenance	7.79%
amortisation of capital expenditure	8.05%
surplus	16.93%

<sup>23</sup> "Hong Kong Housing Authority Annual Report", 1970.

PHYSICAL CHARACTERISTIC:

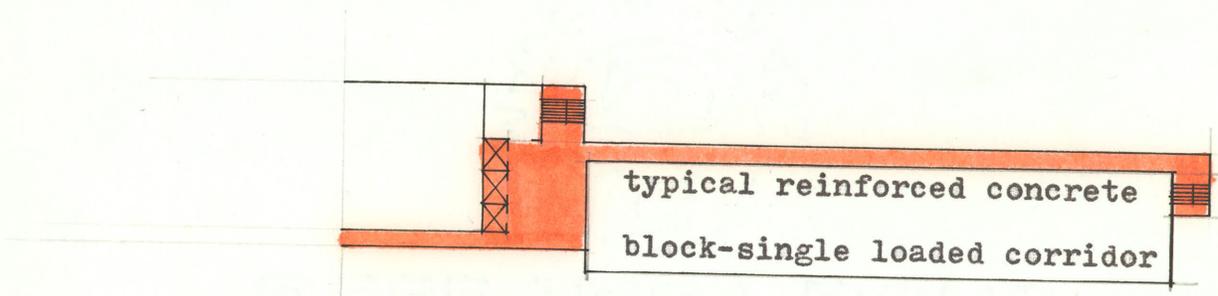
Flats of this category are built with 35 sq.ft. of living space for each person. Each flat includes a balcony a kitchen and a toilet with water-closet and shower. The buildings are reinforced concrete blocks varying from 7 to 28 storeys with elevators installed in blocks higher than 8 storeys.



Site layouts are usually so planned, that the total floor area is three times the site area, of which 25% of the site is occupied by the buildings, and have a density of 1500-2000 person per acre.

Most of the estates provide shopping facilities, transportation facilities, kindergartens, in some cases a primary school, market stalls and community rooms. Unfortunately, these services are inadequate, especially for those estates which are outside the urban areas.<sup>24</sup>

(On the largest estate, Wah Fu, 75% of the working population go to work and 32% of the children go to school by bus. The congestion in the peak hour is considerable.<sup>25</sup>



<sup>24</sup> See page 50,51 survey results.

<sup>25</sup> Student thesis, Dept. of Geography, U. of H.K.

SOCIAL CHARACTERISTICS:

Although 35 sq. ft. per person cannot be, by any standard comfortable, life in an Authority housing or society housing estate is a great improvement over life in resettlement estate. Statistics show very few families moving out of these estates once they are accommodated.<sup>26</sup> Even though the size of a flat originally might fit the size of the family, it would become smaller either by additional births, the growing up of children, or by the increase of possessions. However, a large percentage of the families have their incomes increased by more than 80% as time goes by through promotions, wage increases, or increases in the number of breadwinners in the family. Families of this category, although improved financially, would rather tolerate the unsatisfactory conditions than give up the unit, because of the great difference in rent in comparison with that of private housing. Many families show signs of willingness to buy their units. Nevertheless, they were unable to find anything in the open market which fulfills their requirements financially and otherwise.

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<sup>26</sup> "Hong Kong Housing Board Annual Report", 1969-1970.

PRIVATE HOUSING:

Policy:

In comparison with public housing, private housing is by far a more complicated matter. Theoretically, private housings are basically determined by the capital available for investment, which, in turn, depends on how the expected profits compare with that from investment in non-domestic buildings or in other business. Investments in private housing have been proven to be profitable in Hong Kong, when compared to other types of investments. Private housings are also affected by other factors, such as: 1) the availability of land suitable for development and 2) the speed with which building can be erected. The latter factor is in turn dependent upon the availability of capital, equipment, skill workers and the weather. In addition, the rate of construction is often hampered by lengthy delays in the approval of building plans at individual stage by the government authorities, such as Fire Safety Department. It is the case that more time is being taken by building authority to process plans than before. Finally, financial guarantees to ensure completion of buildings are required by the Registrar General before sales of flats are approved. It was contended that even where satisfactory guarantees were furnished, it took some time before approval was given.

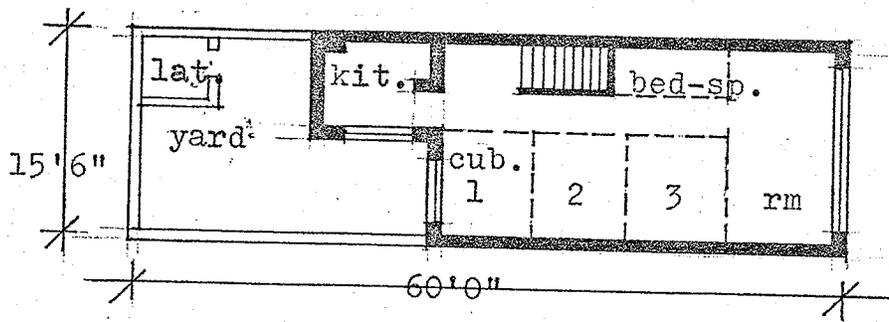
Another factor which deserves mention is that most private developers are reluctant to redevelop small sites in the urban areas, due to the introduction of the new building planning regulation which limits the floor area of the building by the gross area of the site. By this regulation, new buildings on a small site would invariably imply a reduction in usable floor area, which is therefore economically unfavourable in terms of money return.

PHYSICAL CHARACTERISTICS:

Private housing can be categorized into four different types:

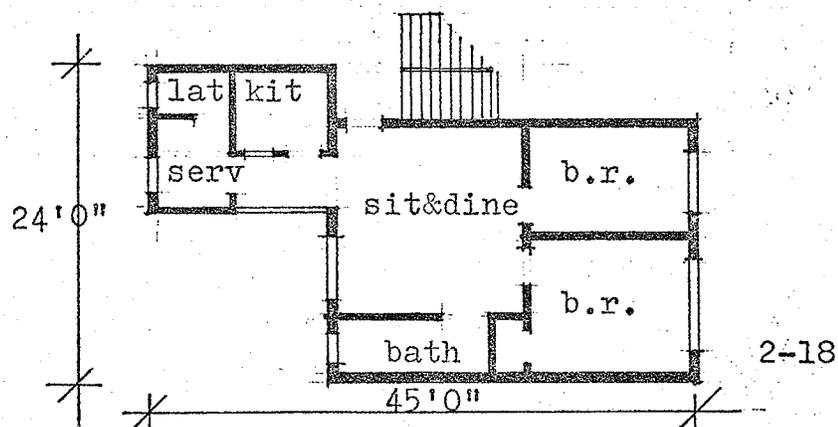
1. Pre-war tenement, whose characteristics are:
  - (a) two to four storeys,
  - (b) it provides small bulk of available residential space,
  - (c) the most common dimensions are 15' by 50'. The 15' frontage have originally been determined by the maximum length for China fir joist.

Figure 6



2. Post-war tenement, whose characteristics are:
- (a) three to five storeys,
  - (b) generally self-contained, and
  - (c) more usable space in comparison with pre-war tenements.

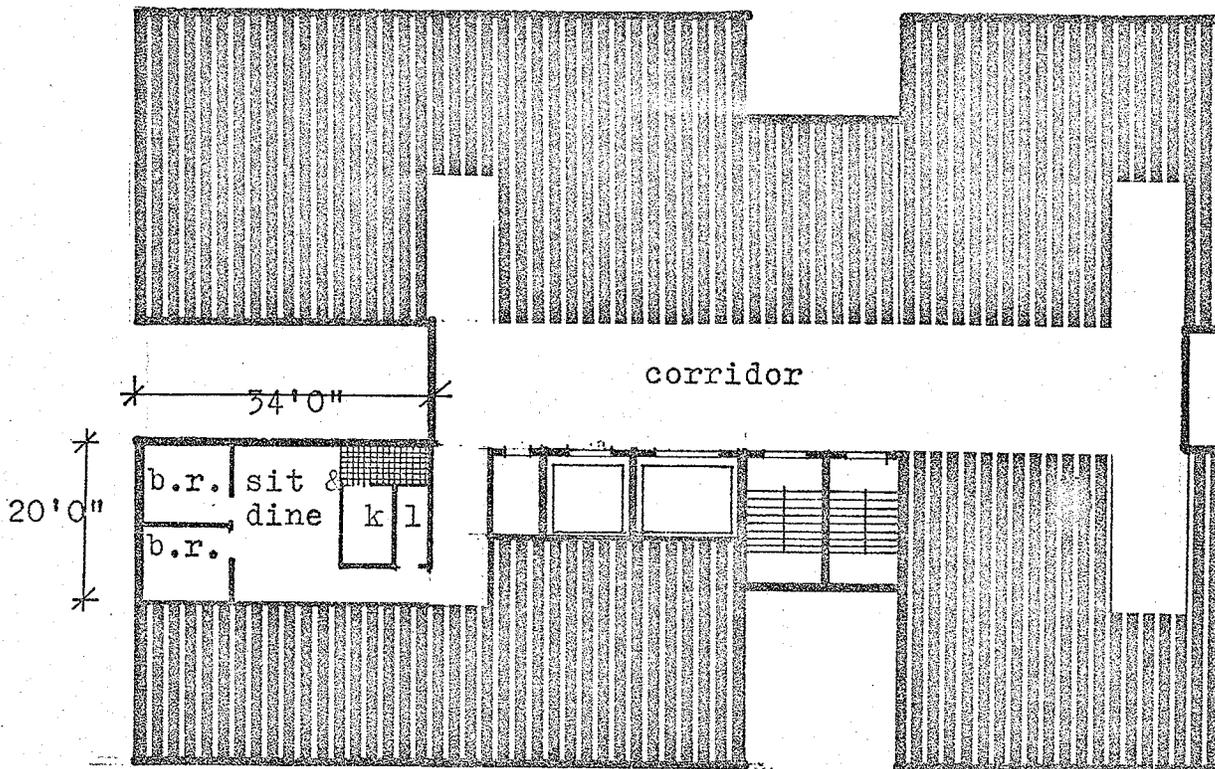
Figure 7



3. Regular high-rise:

- (a) Forms and designs are determined by site and building code to obtain maximum floor area,
- (b) generally double-loaded corridor,
- (c) regular reinforced concrete frame with floor slabs cast-in-place.

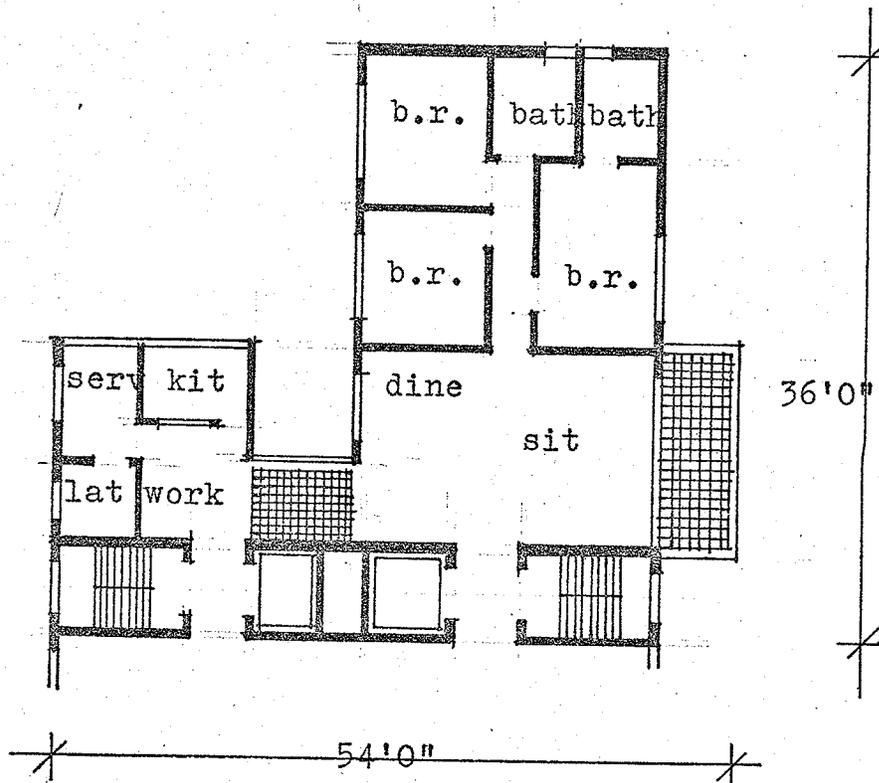
Figure 8



4. High-cost high-rise:

- (a) Generally build on hillside terrace,
- (b) car park on ground level instead of commercial shops as in other housing types,
- (c) two units per floor.

Figure 9



As far as the existing housing conditions are concerned the private buildings are in a less happy condition when compared with the government aided housing. Much pre-war property is lacking in sanitary facilities and other basic amenities. With rent control<sup>27</sup>, there has been little incentive for landlords to repair or improve old buildings. In 1957, while 95% of all buildings had government mains<sup>28</sup> and were connected to government sewer for waste water, 50% of the tenement floors had only one tap, and only 30% had a bath.<sup>29</sup>

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27 Hong Kong Annual Report, 1970, p. 117-119.

28 Main water supply.

29 "Final Report of Special Committee on Housing", p.8.

SOCIAL CHARACTERISTICS:

The infestations such as the lack of light and fresh air prevail in most dwellings, pre-war or post-war. Consequently, these buildings offered little physical comfort and tenants have difficulty in maintaining a minimum standard of personal hygiene and cleanliness in cooking; in keeping cool during the hot humid summer; and in obtaining peace and quiet during which their children can study. On top of these, many domestic units are used for industrial and commercial purposes as well as for living. An official statement on conditions in post-war private buildings is very blunt:

"The people in these buildings may well present a more serious health hazard, and bring up their children mentally, socially and physically more handicapped or stunted than if they had been in controlled squatter shacks on the hillsides."<sup>30</sup>

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<sup>30</sup> "Working Party Report", 1963, p. 7-8.

PART THREE: CHANGES AND PROBLEMS

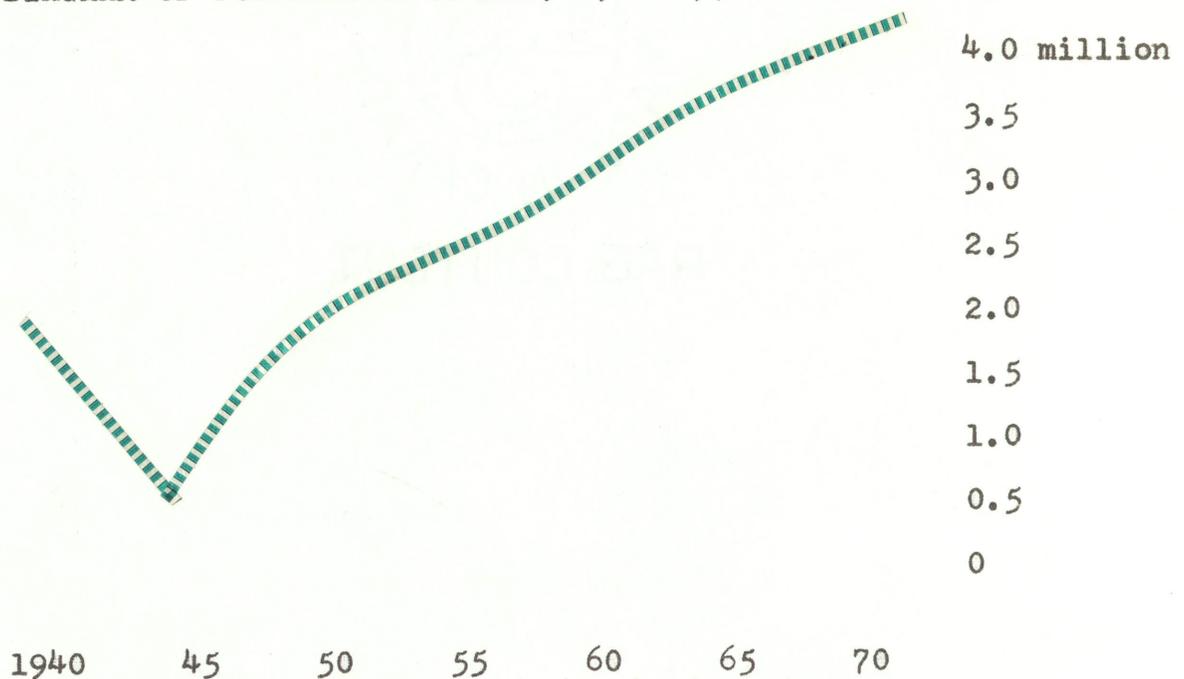
CHANGES:

1. The rate of population growth

Hong Kong has been one of the most rapid growing city in the world. The population of Hong Kong has increased seven times since 1945. (see diagram below) The tremendous increase in population has been mainly due to the inflow of refugees from China, but subsequent growth has been due to an excess of birth over deaths.

Figure 10

DIAGRAM OF POPULATION TRENDS, 1940-1970<sup>31</sup>



<sup>31</sup> Sources of the diagram: 'Hong Kong Annual Reports' and Census & Statistic Department.

The rate of population growth dropped considerably since 1960, despite the fact that a fall in the crude death rate from 6.0 to 5.2 per thousand over the intercensal period is reflected by the increase in number of person age 65 years and over from 87,900 in 1961 to 172,000 in 1971.<sup>32</sup>

It is particularly significant that whereas in 1961, it was anticipated by the Hong Kong Planning Department that the Hong Kong population would reach 7.4 millions by the year 1981, it is now estimated that it will only be about 5.1 millions by that year.

Table 9:

The followings are some population data from the years 1964, 1967 and 1970: <sup>33</sup>

Year	1964	1967	1970
Birth	108,519	88,171	77,465
Death	18,113	19,644	20,763
Birth over death	90,406	74,100	59,136
Balance of migration	6,994	18,300	24,935
Total population increase	97,400	92,400	83,100
Total population	3,739,900	3,877,700	4,127,800

<sup>32</sup> "Town Planning Report", 1966, 1969, 1971.

<sup>33</sup> "Hong Kong Annual Report", 1964, 1967, 1970.

**Conclusion:**

In comparing the above data, the slowing down of the population growth is directly related to the significant drop in birth rates. This is probably because of birth control, increasing urbanisation of the population, and rising education level among the young married couples. Therefore it is safe to say that the dynamic population growth of Hong Kong has been taken over by a relatively static trend of growth, and consequently longer range of planning is now possible.

2. Attitudes toward housing:

Within the last five years, people are paying more attention on housing and living environment and are more willing to spend money to improve it. According to the Hong Kong Annual report, 1970:

"While all categories of building are affected by the current property market expansion, interest in higher priced residential accommodation was particularly noticeable."

The change also reflects the rising owner-occupant rate, more and more people are buying their homes as a means to improve their living condition than as a means of investment. During the period from April 1969 to April 1970, 13,611 private domestic<sup>34</sup> accommodations were analysed, the results are:<sup>35</sup>

Table 10:

number of units occupied solely by owner and family	= 8,679	= 63.76%
number of units occupied by owner and part sublet	= 358	= 2.63%
number of units wholly let	= 4,574	= 33.61%

<sup>34</sup> Private domestic accommodation = self-contained flat.

<sup>35</sup> "Hong Kong Housing Board Annual Report", 1970.

More and more people seem to resent living in congested environment, which they did not seem to mind not so long ago. They no longer think that home is just a place to cook, sleep and to keep their belongings, and with socialization with the family and friends taking place in the city. It is clearly illustrated in the following case: Space for active children inside the home was not a problem until recently. Active games were not encouraged, the 'good' child spent his time studying quietly or helping his parents. But this concept has been changed, most parents tend to believe that children can be more active. The fact is that it is no longer economically feasible for a family of average income to hire domestic help.

The four areas of basic concerns in the changing attitudes toward housing that require elaborations are:

- i. value system
- ii. daily life pattern
- iii. the new generation
- iv. income level

Value system:

Glenn H. Beyer<sup>36</sup> said: "An individual's action is usually a compromise between values and other aspects of a situation..... If a certain value is held in a given society the individual's action will be approved on that basis."

In the past, housing was placed at the very bottom of one's demand schedule in the value system of a Chinese society in Hong Kong. Chinese in Hong Kong did not attach a very high priority to living in accommodation of a standard that the western society would consider as essential. Savings, clothes, jewelery, the outward signs of wealth and status rank higher than good housing. Dr. Majorie Topley has pointed out in 1964: "The moderately well-off Chinese often expect that the westerner with an expensive home must already have the other items of wealth which they themselves would put first on their demand schedule, and richer than they might be in fact."

It was more so when refugees arrived Hong Kong during the civil war period. Most of them had to leave their immovable properties behind when they fled from China.

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<sup>36</sup> Glenn H. Beyer is the writer of "Housing and Personal Value", the above quotation is extracted from it.

All the time they remain in Hong Kong, they only consider themselves as guests. Hong Kong was only a temporary refuge haven to them. They are not interested in any long term investments such as housing, or paying much attention in their physical environment.

As years went by, the hope of going back or going away is gradually diminished, but not until the riot in 1967 that the people suddenly became fully aware of their roots in Hong Kong were already too deep for them to consider Hong Kong as anything but a permanent home. People eventually regained their interest in physical environment. Housing and living comfort has gradually been raised in the demand schedule.

#### Daily life pattern:

The change in daily life pattern is also one of the reasons that affects the change of attitude towards housing among the public. In the past, in a Chinese society, a man spent a large part of his day outside of his home. His hours of work were very long. He ate where he worked or at the food stalls and restaurants. Now there are only very few businesses remained operating in this fashion. Most of the factories and stores have been changed and operate in shift system. Regular working-hour means more time can be spent with the family

at home. The environment and living condition mean more to them than before. It is easier for them to be aware of the lack of space which is required for functions such as social interactions and family recreation at home.

Table 11: Average hours at work<sup>37</sup>

12.3 hours per week-days in 1952

9.2 hours per week-days in 1970

The new generation:

About 57% of the population are now born and raised in Hong Kong<sup>38</sup>, and about 63% of the population is 25 years of age or younger.<sup>39</sup> These young adults raised in Hong Kong are now beginning to make their remarks on the society. They are young people who have no memories of the bad times in China, who have been brought up in attenuate and dispersed families, in overcrowded tenements, who know only urban industrial surroundings and who have been fully exposed to the western culture. Unlike the older generation, they subjectively accept the western ideology rather than just its technology. They are getting greater economic independence, have a longer life expectancy, and are demanding a higher standard of living in terms of housing.

<sup>37</sup> "Hong Kong Annual Report", 1970.

<sup>38</sup> Population projection from Town Planning Branch, Hong Kong.

<sup>39</sup> See Table 3, Age & Sex Structure.

Income level:

The raising income level of the majority has direct bearing on the people's changing attitudes toward housing. Over the last ten years, income has raised quite sharply, under the impact of industrialization.<sup>40</sup>

- (1) In 1957 the average monthly household income was \$480.
- (2) The 1963/64 survey showed that the average household expenditure was \$650.
- (3) The average monthly household expenditure is now estimated to be over \$850.<sup>41</sup>

There is practically no unemployment in Hong Kong today or the rate is very low. In many industries, there are serious shortage of skilled workers.

Table 12: The comparison of daily wages

Years	64	67	70
skilled workers	\$8.6-26	\$10-30.1	\$11-37
semi-skilled	\$5.3-14.5	\$ 6-22.3	\$ 7-26
non-skilled	\$4.8- 9.5	\$5.2-14.6	\$6.2-16.3

<sup>40</sup> See information under 'economy' on page 9,10

<sup>41</sup> Estimation is based on "Hong Kong Annual Report, 1970".

These wage increase represent a real increase in the standard of living, for there has been little inflation in Hong Kong as the retail food price index indicates 31% increase over the 13 years. Thus it has been possible for the average household to pay an increased proportion of its income for accommodation, besides, it is worth noting that rents and wages have not risen proportionally to one another. The increase in wages from 1954 to 1970 was 90%, and was matched by an increase of 48% in rent of the same period.

It is here that the danger lies. When people have more money and can afford improvements in their living standard, it may be intolerable for them to put up with housing standards which do not improve. The contrast will be even more sharply marked, when the standards rise in every other sphere of their lives.

## PROBLEMS

### 1. Public housing policy:

Basically the housing problem in Hong Kong today lies in its housing policy. The public housing policy has not been changed according to the changing demand of the public.<sup>42</sup>

In the 1950's, when the squatter problem has reached the critical stage, the building of large scale re-settlement accommodations was a sensible and necessary step to take. The solution at that time was to build cheaply at the expense of the people's quality of living, so that as many people as possible could be housed in a short period of time. However, the housing problem since then has been changed from quantity to quality as the result of a more static population growth and the change of people's attitude toward housing, and yet the public housing policy remains unchanged.

According to "Town Planning Report in Hong Kong", 1969, it is estimated that the population increase over the period of 1972-76 will be over 400,000 for whom new

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<sup>42</sup> See public housing policy on page 12

accommodations will be needed. This figure, combined with the number of people who need to be rehoused -- squatters, residents in overcrowded resettlement blocks and other privately owned buildings or dangerous buildings -- will grow to over 800,000.

In the next five years, the government's housing program will include:

- (1) building of resettlement housing to accommodate 530,000 people.
- (2) building of government low-cost housing to house 30,000 people, and
- (3) an estimated provision of accommodations for 120,000 people by the Housing Authority and Housing Society.

It is assumed that the rest of the housing requirement will be taken care of by the private sector.

From the above housing program, the future public housing will still be concentrated on the category of resettlement housing, which is now already accommodating over 1.3 millions of people, which is equal to 31% of the total population of Hong Kong.<sup>43</sup> Life in the resettlement estates is by no means desirable, especially when many families are now financially capable of

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<sup>43</sup> See Table 6 "Housing & Population Composition",  
Page

improving their living condition. Unfortunately there is nowhere for them to go, because the government aided housing has a very long waiting list, and they are not yet in the position to move into privately financed housing. In time the family's size grows and the already undesirable living condition becomes intolerable. The same predicament exists for the improved families who are now living in government aided housing.<sup>44</sup> This can be demonstrated clearly, through the chart of 'the Hong Kong Rental Structure':

Table 13:

	HOUSING TYPE	RENT per sq. ft. of usable space per month
PUBLIC	resettlement	\$0.15-0.20
	government low-cost	\$0.20-0.25
	government aided	\$0.25-0.45
PRIVATE	tenement	\$0.60-0.80
	regular high-rise	\$0.80-1.20
	high-cost apartment	\$1.20-2.00

Because of the wide gap between the rental of public housing and the rental of private housing, the people of middle income group cannot be reached by any of the housing types. Especially so when the middle income group is now expanding in a fast rate in Hong Kong.

<sup>44</sup> See information under "Government Aided Housing, Page

**Conclusion:**

It is questionable whether the government's housing policy would still be valid under the changing needs and demands. To keep on building these low standard accommodations will only expand the individual housing type, but will not provide answer to the actual problem today.

2. Private housing sector:

The basic problem in private housing field lies in the speculation of various stages of the housing development, which steers the private developers to show special interest in the redevelopment in the existing urban areas, though the cost of demolitions and compensation to existing tenants are expansive as added to the cost of new construction. This tends to increase the population density in areas which are already congested and where up to now, minimum standards for community facilities have not been met. As far as redevelopments are concerned, the sites redeveloped are not necessarily the worst slum, but those areas which offer the highest profits. In the new buildings, developers rarely do more than meeting the minimum legal requirements and all others will be ignored if possible. New buildings are rapidly becoming slums, because of the poor building standards, reluctance among owners to pay for maintenance, and because buildings are occupied by more people than they were designed for.

3. Unbalanced age structure:

A survey had been conducted in 1970 by students in the Geography Department of University of Hong Kong. The aim of the survey was to find out the resident's opinions on the general conditions in Wah Fu Estate, which is one of the largest estate of government aided housing. The results were as follows:

Table 14:

administration	.....///***
security	.....////////***
social relation	.....//****
rent	.....//
house condition	.....////////***
shopping	..////////*****
recreation	..///*****

( . = good, / = fair \* = poor)

Similar survey has been conducted in 1971 by the author in So Uk estate. Three more items were added to the questionnaires, namely 'square footage', 'transportation' and 'school'. The results were as follows:

Table 15:

administration	.....///**
security	.....////////**
social relation	.....////////**
rent	.....//
house condition	.....////////**
shopping	...////////*****
recreation	...////////*****
sq. footage	.....////////*****
transportation	.....////////*****
school	...////////*****

( . = good, / = fair, \* = poor)

The surveys indicate that the problem of the government aided housing lies in the lack of supporting community facilities such as schools and recreations. It is the result from the original stage, and without considerations to provide facilities for the peak age group in the design and planning stage. As a result, the concentration of its social needs into a series of wave-crests that arise from movement of two initial age group peaks through the whole age cycle.

For example: The population of So Uk estate was predominated by middle age couples with children in elementary school age or younger. The high-schools in the vicinity may have been barely sufficient originally eight years ago. They become inadequate in fulfilling today's need due to the large number of growing teenagers. Further more, as far as units are concerned, most of the complaints came from households which are originally headed by young couples with young children. Originally the size of the unit may fit the size of the family, but now they have become too small because of additional births or the growing up of children.

4. The lack of intermediate space:

There is very little social interaction taken place among neighbours, in private and public buildings.

Table 16: The chart of the neighbourhood relationship<sup>45</sup>

very friendly.....	6%
fairly friendly.....	19%
stranger.....	34%
slightly hostile.....	16%
hostile.....	4%

This is probably due to the lack of intermediate space for social interaction. Inside the home, the feeling of insecurity is everywhere, metal bars and iron gates are placed wherever there is an opening. Outside the house, the external environment was just as bad in most parts of the urban area. There is only a total area of less than 250 acres of public parks, playgrounds and resting places in the whole urban area.

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<sup>45</sup> The material is based on a random survey, carried out by the author, 1971.

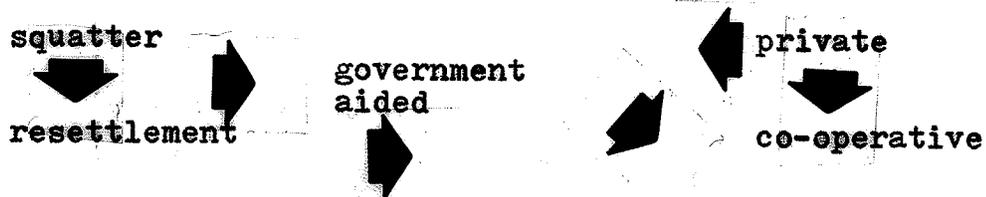
PART IV: THEORETICAL CONSIDERATIONS FOR COOPERATIVE HOUSING

In view of the existing problems, it is believed that the co-operative housing can provide a possible alternative. A housing co-operative is mutually owned and controlled by its membership. The stockholder in a housing co-operative does not own his specific apartment but rather, he is part-owner of the entire development. The membership held by each occupant-owner entitles him to an apartment or house or whatever type of accommodation, as long as he does not violate the regulations of the co-operative set by the members. The membership further entitles him to an equal vote with all other residents regarding the operations of the housing development. It differs from public housing in that, the overall policies of the project are controlled and determined by its members. It differs from private housing in that it is a non-profit enterprise with any savings accruing to the resident members, or to the housing organization. The primary purpose of housing co-operative is to provide its members with good housing under their mutual ownership at a cost they can afford. The second purpose is to enable people through experience to learn the responsibilities and advantages of co-operative home ownership, and the benefits and values of co-operation in other activities.

CO-OPERATIVE HOUSING AS AN ALTERNATIVE TO THE HOUSING  
PROBLEM IN HONG KONG:

1. It provides an outlet for those families, who are now living in the government aided housing but whose income have been raised. It will also generate the 'housing promotion program' in Hong Kong. By helping these families, vacant units in government aided estates would subsequently be available to house families in the next lower housing category (resettlement or tenement). This process works its way down to the lower income groups, and moves people up and out of their present condition of living at the same time.

Figure 11: 'housing promotion program'



2. It balances the program of housing development in Hong Kong which is unbalanced in terms of the housing market and in terms of meeting the changing needs. Since the industrialization, the number of families in the middle income bracket has been expanding rapidly. Most of the families of this group are now unsatisfactorily housed, because they cannot be reached by either the

public or the private sector. In case of co-operative housing, it is mainly to serve the middle income groups.<sup>46</sup> Thus the public would benefit because building standards rise as private developers compete. The government would benefit by being relieved part of its administrative and economic responsibilities in the housing field.

3. The co-operative housing scheme would be more suitable for the people's changing attitudes toward housing and their expectation of life.<sup>47</sup>

It is noteworthy that Hong Kong has just reached the stage economically and ideologically, recently, where co-operative housing is possible. For co-operative housing requires the initiative of its members; they must be aware of the housing need, and have a truly co-operative spirit to deal with it together on a more permanent basis.

According to interviews and observations, a number of families of moderate income are interested in co-operative housing. They are willing to, and capable of undertaking this venture.<sup>48</sup> Positive reactions are particularly

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<sup>46</sup> 'Co-operative Self-help Housing', Tom L. Davis, 1968.

<sup>47</sup> See under 'attitude towards house', Page 33

<sup>48</sup> Interviews carried out by the author in summer 1971.

apparent from improved income families in government aided housing. Most of the families find themselves in a community that lacks diversity in income groups, age structure and interests. Many of them share the view that co-operative housing would bring in a wider diversity and variety, would awaken the spirit of neighbourliness and community that had disappeared from many low and middle income areas of Hong Kong, and would create feelings of permanence and sociability.

4. Co-operative housing can be applied in Hong Kong. One of the main reasons is its economic advantages, which enable the middle income group to have a higher standard of living within their financial capacity. It is possible to achieve lower monthly payment through a housing co-operative, because: (a) It is a non-profit operation where the owner-occupants derive their benefits as the consumers of the house. So, there is the saving of profit involved in a normal rental operation. (b) It does not require allowances for vacancy and collective losses as in rental projects where 7% is normally added to the rent to cover such losses. (c) Co-operative housing would create in people, common interest in the upkeep of their buildings and their environment, since individual members who have the same security of

tenure, as if they personally owned their dwellings, tends to take more interest in the care of their home, which in turn lowers the costs of maintenance and repairs. (d) Generally co-operative housing facilitates credit on more favourable terms than individual financing. (e) It is managed and administered mainly by a committee organized and made up by the members themselves. (Committee members are normally elected once a year.) Therefore it can keep the administrative costs to a minimum. (f) It stabilizes prices by eliminating a series of speculators at all stages from sale and development of land to actual building.

5. It would establish additional financial, cultural, and recreational amenities as part of the housing programs, which government aided housing now lacks.

6. While the resettlement estates are detrimental to the self-respect of their tenants<sup>49</sup>, co-operative housing encourages people to turn their initiative and mutual aid towards solving their own housing problem by inviting them to participate in a join program, rather than depend entirely on outside help.

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<sup>49</sup> See information under 'social characteristics of public housing' on Page 19

7. It would produce better buildings and environmental quality, because it uses better quality materials, since they are non-profit organization.
8. It often happens that when a resettlement housing estate is built, the surrounding land value will plunge. This will however, not be the case in this new housing type, because the families in the co-operative housing, with their relatively higher income, have stronger consuming power, and this will stimulate private investment and maintain stability in the surrounding land value.
9. Co-operative housing also functions in a way that allows a family to move more easily to a new home on the same development if the family circumstances change, e.g. as more children are born.
10. Although retaining the advantages of independence, flexibility, and vitality, co-operative organizations work closely with government, and have similar long-range interests in city and neighbourhood planning, community facilities, and other social aspects of housing.
11. By spreading ownership and responsibilities co-operatives are an antidote to concentration of economic power and policy formation in the hands of the few, whether private or government.

DIRECTION NEEDED BY CO-OPERATIVE HOUSING:

Amateurs in building can sometimes be victimized. Good organization of labour; understanding of human relationships and needs; availability of materials and financing; and speed of construction are often important in saving time and money. Therefore technical advice in every stages is required.

The first step to organize a co-operative is the appointment of a central agency to co-ordinate the various activities in the field. Such an agency should have a section with responsibility for encouraging the formation of co-operatives and power to give technical and financial help as well as advice. The Hong Kong Housing Authority will be the ideal agency to carry out this task for its specialized technical staffs; its experiences in dealing with government aided housing; its non-profit status; and its established reputation.

In order for co-operatives function more smoothly and efficiently, it is necessary to have the legal framework within which they operate to be clearly defined. In other words it is important for the Hong Kong government to be involved in encouraging co-operative organization in housing, and it would pass special legislation which recognizes the distinctive characteristic of this type

of development; it should protect its organization and operation, and make provisions for technical and financial aid.

THE TWO TYPES OF CO-OPERATIVE:

It would be a mistake to treat co-operative housing as a formula, for every place has its own set of conditions and need; the success or failure of housing co-operative depends on how it answers the needs, and on how it suits its conditions.

Generally, co-operative housing does not reach many of the families in the lower segments of the moderate income group. A comprehensive "housing promotion program" should cover a wider cross-section of income groups, including the lower segment of moderate income families.

What is needed in Hong Kong are two types of co-operative housing. One is government subsidised by providing loans to these co-operatives and other non-profit agencies at low interest rates and for long terms, plus an allowance for administrative expense, so as to reach the families or lower income level. The second type is the true co-operative with no government subsidy.

TYPE I

This type of co-operative housing aims at the families of the lower segment of the middle income group; they will need financial help to get established, as incomes are generally low for building operations to be financed by members' savings alone. Since housing co-operatives are non-profit bodies, private investors are normally not interested, since they cannot expect to receive an adequate return for their money and may even fear a loss. Hence the principal source of finance is the government through its special credit institutions. The co-operatives are considered to fulfil an important social function, so there is every justification for the government of Hong Kong to help this income group by investing public funds in the programmes. Co-operative housing is not expensive in comparison with resettlement housing. And through "housing promotion programme", (see page ) it can relieve the government directly or indirectly, of having to carry the whole burden of public housing. On this type of housing co-operative, an extra restriction should be added, that only families within certain income levels can become members. The rest of the principles and operations will be the same as type 2.

TYPE II

It is a non-profit venture, therefore its rules should be the followings:

1. Open-membership.
2. Democratic control by the owners.
3. Strictly owner-occupants.
4. The housing co-operative has the first option to repurchase membership.

Re-sale is always a problem in housing co-operatives. To prevent membership selling for profit, it is only fair to ensure that maximum re-sale value be:

- = "par value" (down payment plus total monthly payments)
- + the increase in the cost of living index since the member move into the estate;
- + value of house modification;
- amortisation and depreciation.

CONCLUSION:

Co-operative housing is not the only way of solving the housing problem; nor is it the easiest or the quickest. Even in industrialised countries where great co-operative enterprises are now flourishing, many of the earlier attempts met with failure, not because co-operative methods were used, but owing to the way in which the co-operative formula was applied to deal with a particular situation. If the co-operative system is intended as a means of solving the housing problem in Hong Kong, a good educational program geared to the particular situation, is essential. Otherwise, many people would join a co-operative simply because they needed a home, and felt that an organization of this type might offer greater financial facilities, not knowing anything about the principles and methods of co-operation.

PART FIVE: PHYSICAL DESIGN AND PLANNING OF A CO-OPERATIVE  
HOUSING PROJECT IN ABERDEEN, HONG KONG

SITE SELECTION:

To study the physical characteristics of the co-operative in form of a architectural project, it is necessary to select a realistic site.

As it has been discussed earlier, 800,000 people will be needing accommodations in the next five years.<sup>50</sup> Some 180,000 new units or approximately 50,000,000 sq. ft. of floor space have to be constructed. Therefore large scale housing projects have to be undertaken. However, the shortage of suitably sized site in the urban areas is a major problem, since the urban area has already been developed to the very limit.<sup>51</sup> If further improvement in housing or environment is to be achieved, it cannot be done within or adjacent to the present urban area, except on a limited scale, in form of urban renewal. Therefore, the new project will have to be in one of the new towns. Prerequisite of the site were that, it should not have too high a land cost, that it could be easily reached by government mains (water, electricity services etc.) It should be easily accessible to the main urban

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<sup>50</sup> See page 46

<sup>51</sup> See page 2,

center by highways or other means of communication. Above all job opportunities should be available for the residents, therefore it must be a place that will attract industrialists.

Many areas, unbuilt, partly built-up or adjacent to new towns of varying sizes, appeared initially to be suitable, but upon detailed examination proved defective in the planning sense. Some could only be accessible through highways that are already congested, and there were no signs of future road development in the areas. Many were too remote to attract industrial development. In many instances, the sites forbid future growth.

Finally the sites are narrowed down to two, one near the new town of Tsue Wan and another is the chosen site in Aberdeen. The reasons to pick Aberdeen site instead of Tsue Wan site are:

1. The Tsue Wan site being north of Boundary Street is leased from China. The lease, although not recognized by the Peoples Republic of China, will be expired in another 25 years. It is always psychologically uncomfortable for some of the people to make any long-term investment such as co-operative housing in the leased area.

2. Public Works Department of Hong Kong is constructing a new tunnel to link Aberdeen directly to the urban center on the north side of the Hong Kong island. And a new road right along the site, that joins directly to the new tunnel, is now under construction.

3. Aberdeen is the second highest in the waiting list of the Housing Authority with 11,458 separate applications.<sup>53</sup> Besides, Aberdeen has great potential in the sense of industrial development. Many existing factories in the area now are short of local man-power, which is the only hold-back for the large scale industrial development. Furthermore, Aberdeen is a developing new town, the site fits in well with the master development plan introduced by the Town Planning Department of Hong Kong. The site is on unbuilt land, owned by The Crown, it can be acquired at a relatively low price.

However, the site chosen here is by no means perfect, it is not without its own problem. Primarily, the site is on a fairly steep slope, and there is only limited access from the south side of the site towards Aberdeen center.

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<sup>53</sup> Housing Authority Annual Report, 1969-1970.

## THE PEOPLE

The age and families structure have direct bearing in determining the number, size and the growth of a development. It would be ideal to have a balanced age and families structure in the initial stage of a project. But in this case, the co-operative housing, the location, and the kind of job available in the area are specially attracted to certain age groups and families. Therefore, it is impossible to achieve an entirely balanced situation, evidently it is most important to learn the peak age group beforehand, in order to anticipate its outcomes and to design for the peak.

Based on the current age structure of the population of Hong Kong, and the characteristic of the co-operative housing in the location of Aberdeen. Three categories of the family will specially be interested:

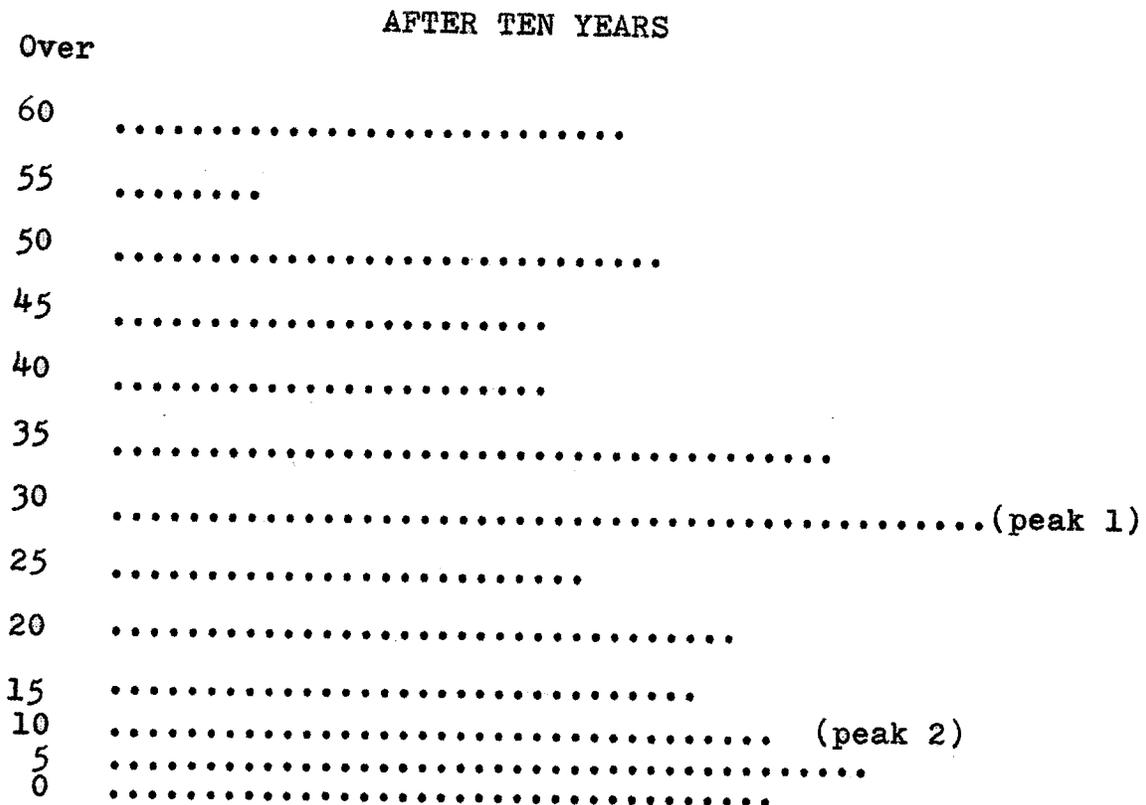
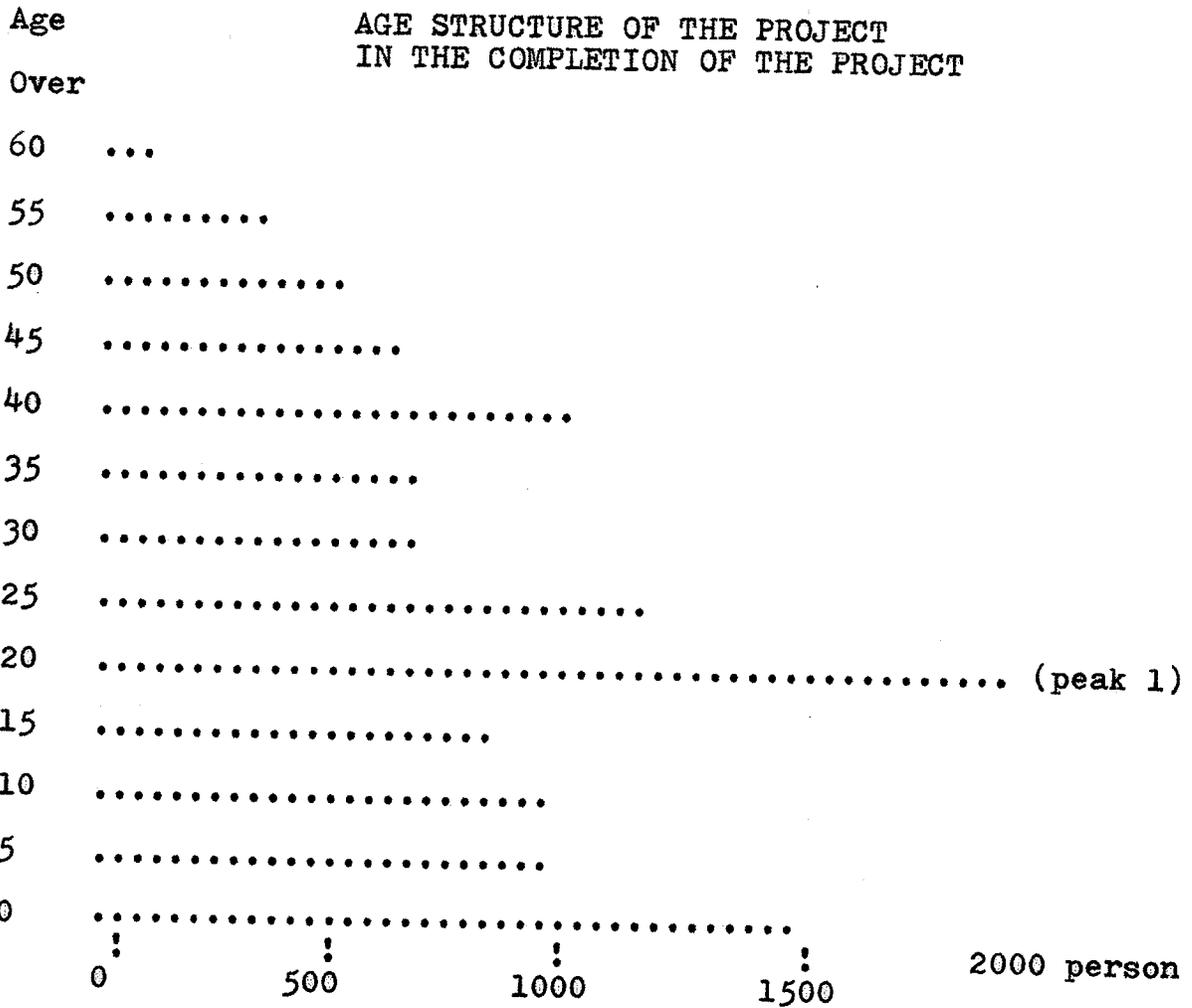
1. Young couples without child or with young child,
2. middle-age couples with growing children,
3. middle-age or elderly couples with married children, who live away from home.

Before going into any further discussion, three assumptions have to be made:

1. The households headed by young couples have the most potential to expand in the first ten years.
2. The households headed by couples with more than two children or with older children are less probable to expand in the first ten years.
3. The households headed by elderly couples without child or with married children living away from home are more likely to contract.

From the age structure diagram, the only predominant age group in this project, is the age group from 20-25, which is the immediate expanding age group.

Therefore the peak will arrive in a period of first ten years after the completion of the project.



PEOPLE AT WORK

Existing employment situation in Aberdeen:

large percentage of the population of Aberdeen is actively engaged in the fishing industry one way or another, but the number of heavy and light industry of various types is increasing rapidly due to the lack of space in urban areas and the growing labour market in the new town. The future new town center, in the reclamation stage now will provide not only a main nucleus of Aberdeen, but also a more balanced cross section of employment structure.

Regional and local employment:

A greatest degree of self-containment is thought to be desirable for any large development, but a certain tie with the central urban area as a whole is inevitable. According to the 'Town Planning Report, 1970', a more and wider range of jobs were expected to be available in Aberdeen in the near future. It is safe to assume that 40% of the working force will be working in the central urban area; 48% will be working in Aberdeen and 12% of the employment will be provided within the project itself, in the initial stage after the completion of the project. As the new town expands, in time, the number of local employment will be expanded accordingly.

Employment force:

In Hong Kong, it has found that the employment force is predominantly male. The female employments are mainly dominated by the age group from 17-25. Only very few women work after their marriage. According to the calculation, based on the age structure diagram (on page ) the female work force will only occupy 10% of the population in the working age. Because the female population will mainly be wives with young children. The number may be slightly increased, when children grow.

Contrast to the expansion of elementary school, after the initial stage in the completion of the project, the numbers in employment will remain quite stationary for about 20 years. There are two reasons for this:

1. relatively small number of teenage coming into this housing project in the initial stage. (see age structure diagram on page ).
2. relative large number of retirement of the age group from 40-50 initially.

Estimations: (when the project completes)

1. the population in working age = 8000
2. male worker = 3800; female worker = 800; total = 4600
3. work in H.K. urban area is  $4600 \times 40\% = 1840$   
work in Aberdeen is  $4600 \times 48\% = 2108$   
work in the project itself  $4600 \times 12\% = 552$

THE INTENT

The intent of this project is to build co-operative housing to accommodate 13,000 people, in the completed project, which will ultimately reach 19,000 people in 20 years, on a site of 18 acres.

The basic thesis used in the development of this project is to accept the constraints of co-operative housing and work within the framework of the present and changing social structure of Hong Kong. The five determinants have been singled out as being of special importance:

1. The living unit may be the key element of a social structure in Hong Kong. Therefore, it is important to integrate living units with other community functions and activities without losing privacy.

Therefore it will not have a strong, separate central area but a linear central area that stresses along the major pedestrian route of residential units, as the dominant focus of the project's social, business and cultural life.

2. High density living is essential in Hong Kong, the project should be compact, but without sacrificing standards of open-space or the 'open-air' community functions. Space for social interaction should be planned wherever there is an opportunity.

3. There should be two independent circulation systems one for pedestrian and the other for vehicles. With precedence given to pedestrian, would make this housing project much safer and provide for easier traffic flow.

4. The community services as well as the living units should be designed to accommodate the peak age group and the expanding family structure, in order to avoid falling into the same difficulties in the future as some of the public housing estates do.

5. The developing project should be able to construct section by section successively from one end to another. The development should be contiguous in extent and continuous in time. If possible, each section should have the possibility to contain a balanced group of functions, uses and densities.

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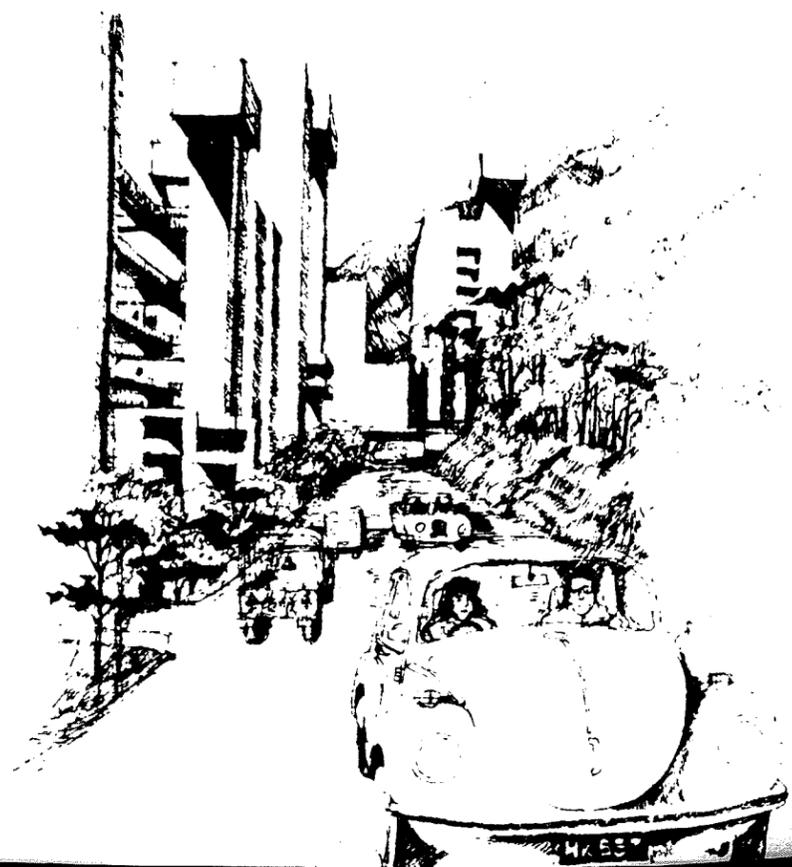
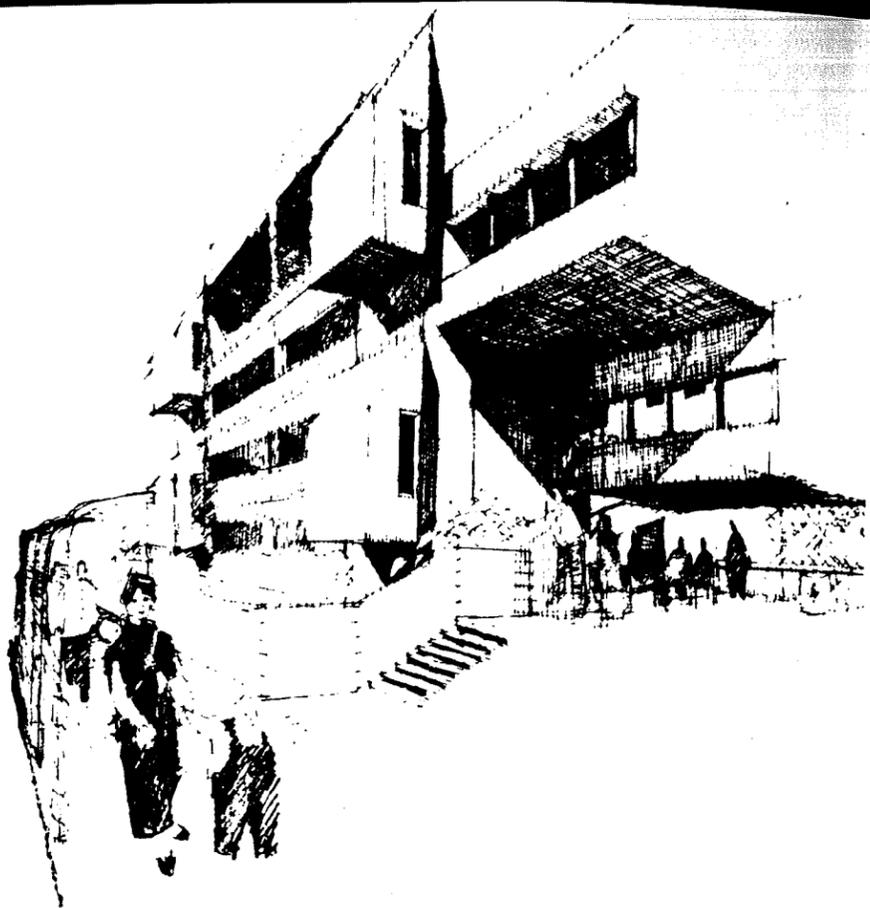
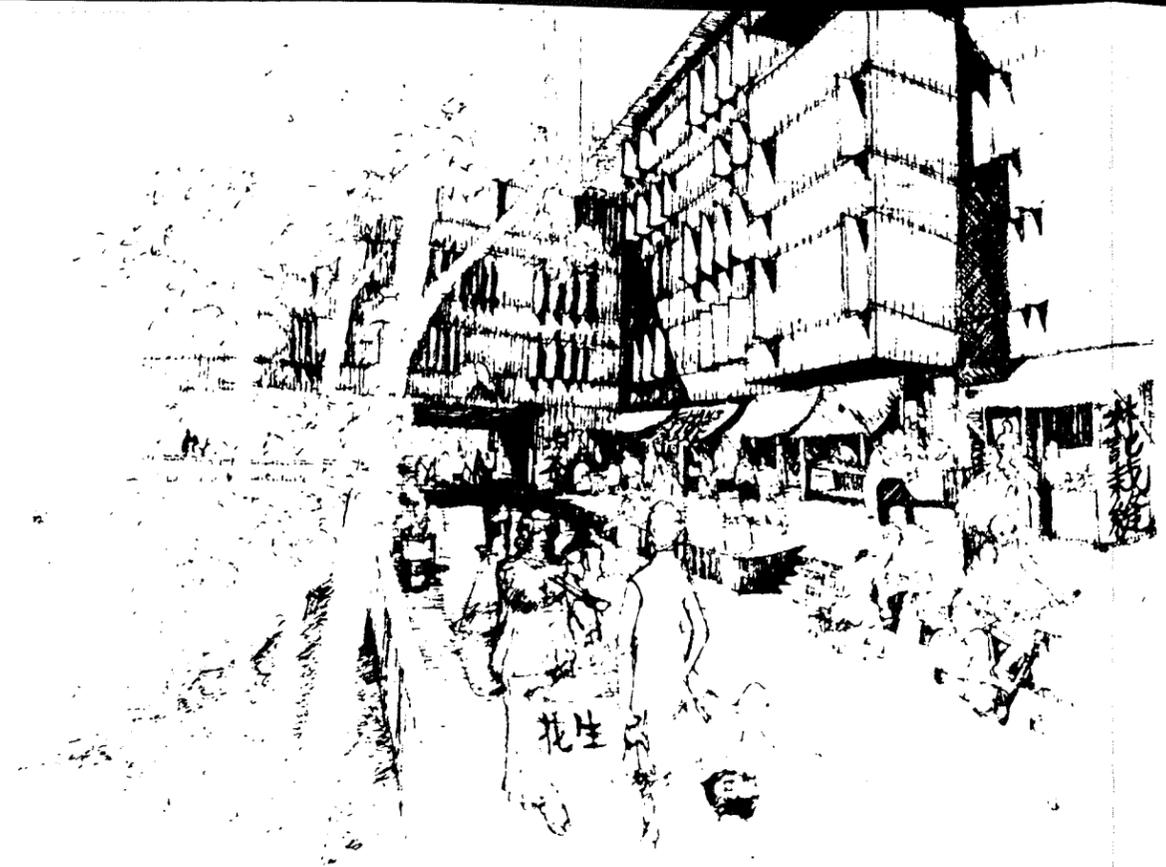
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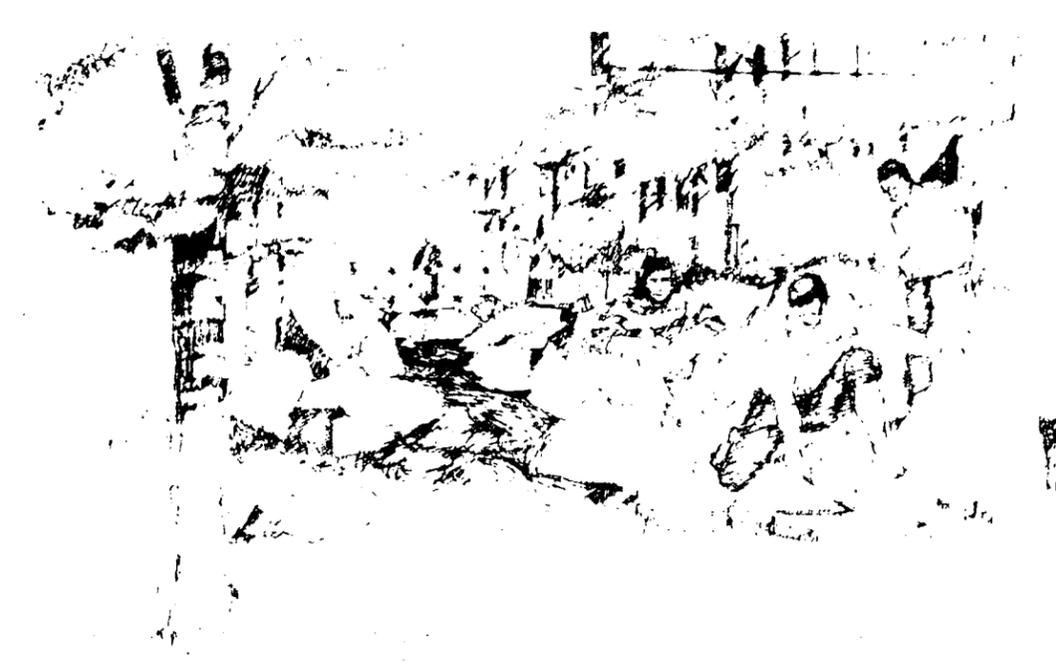
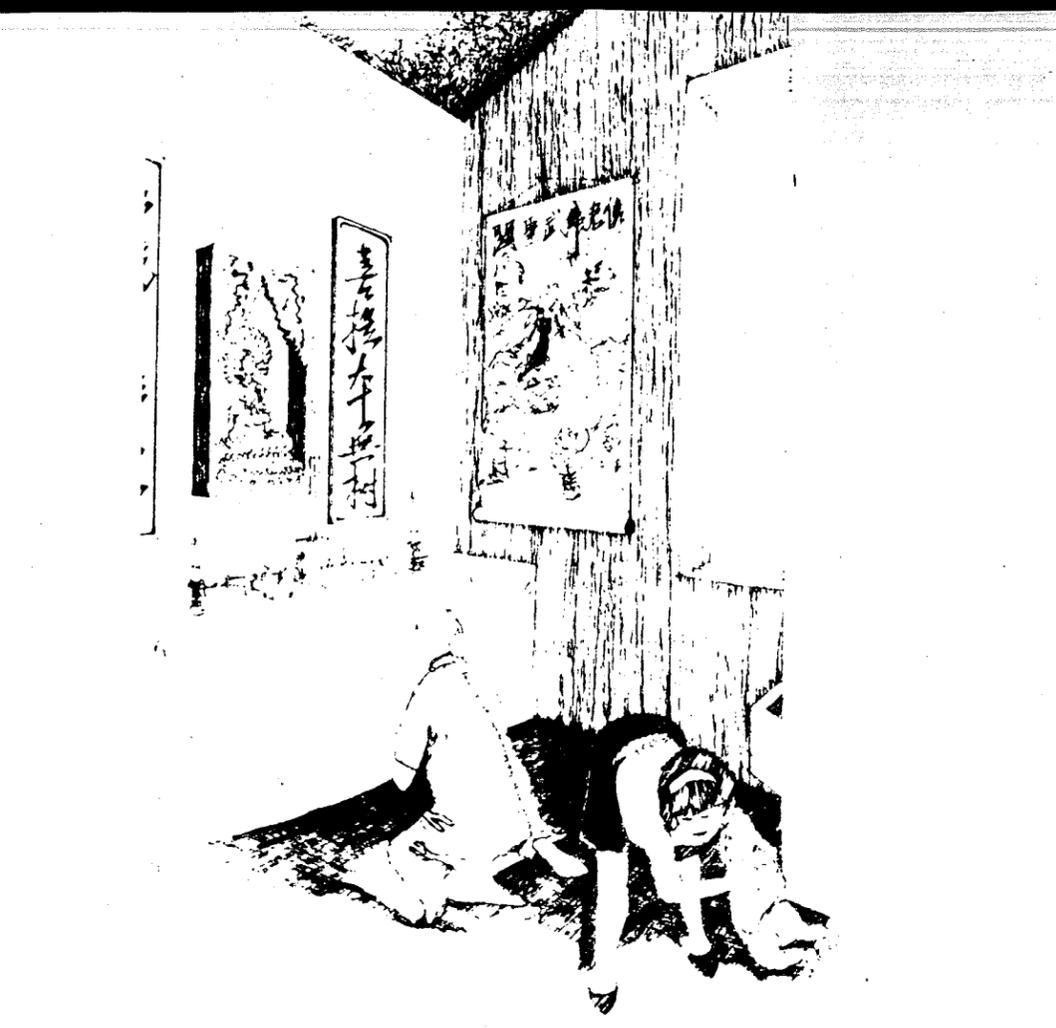
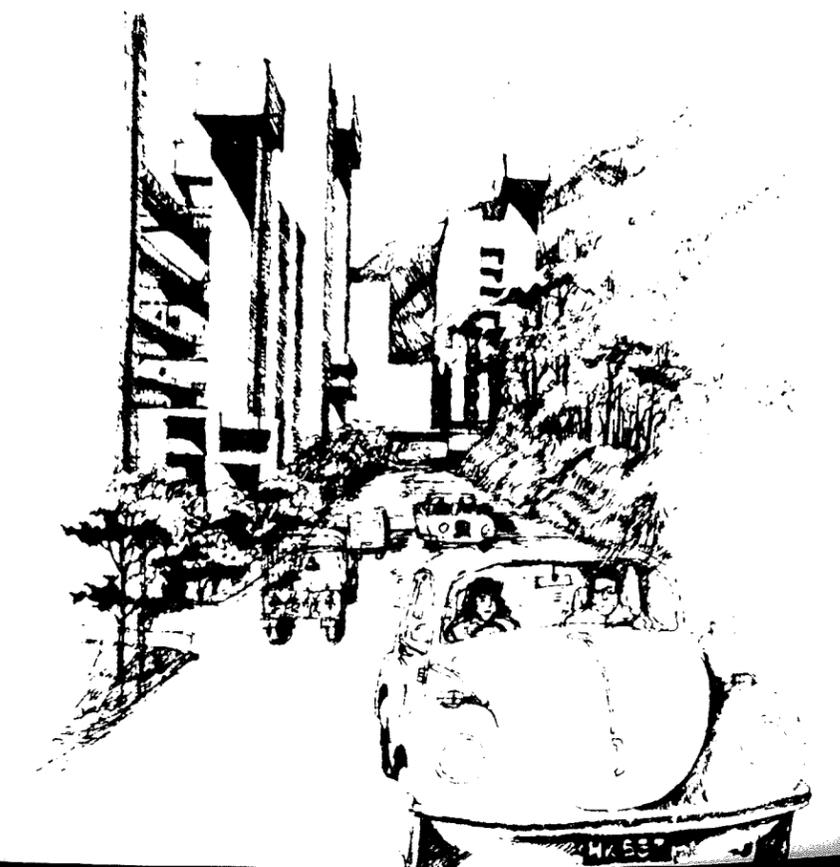
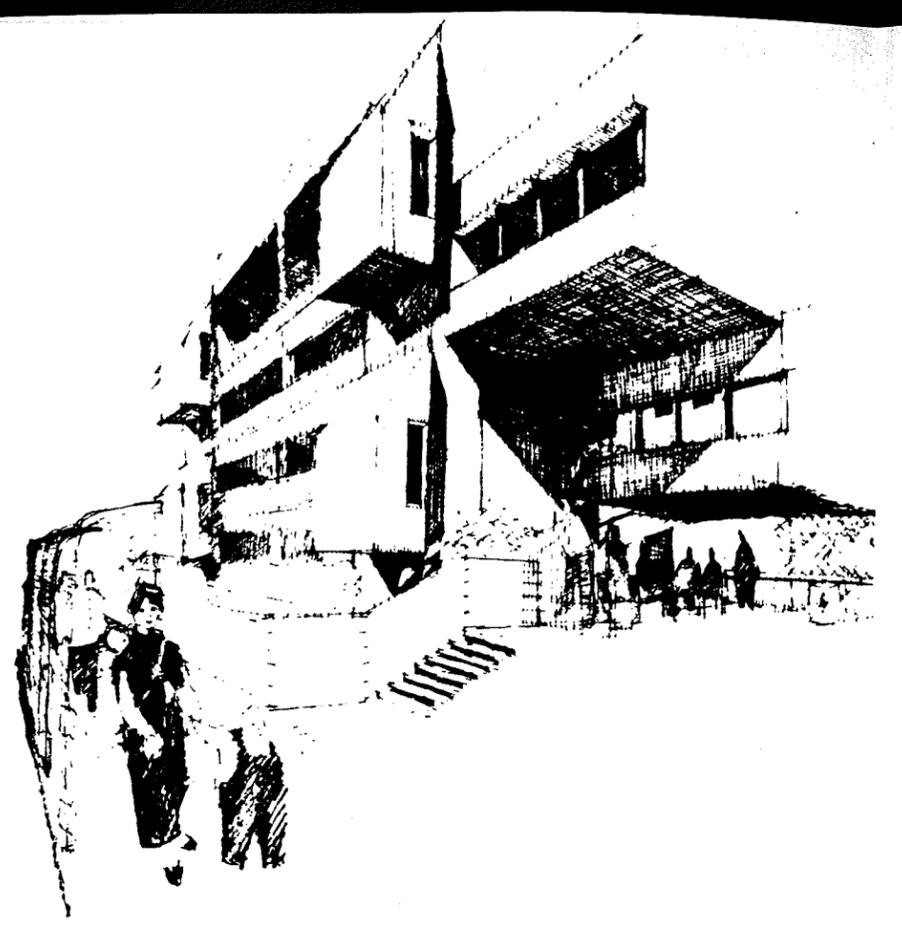
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林氏親筆



# land use

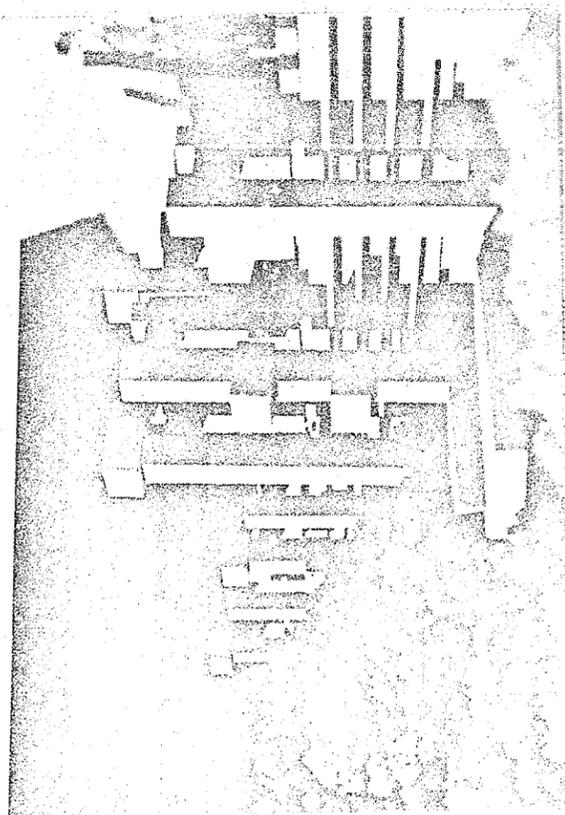
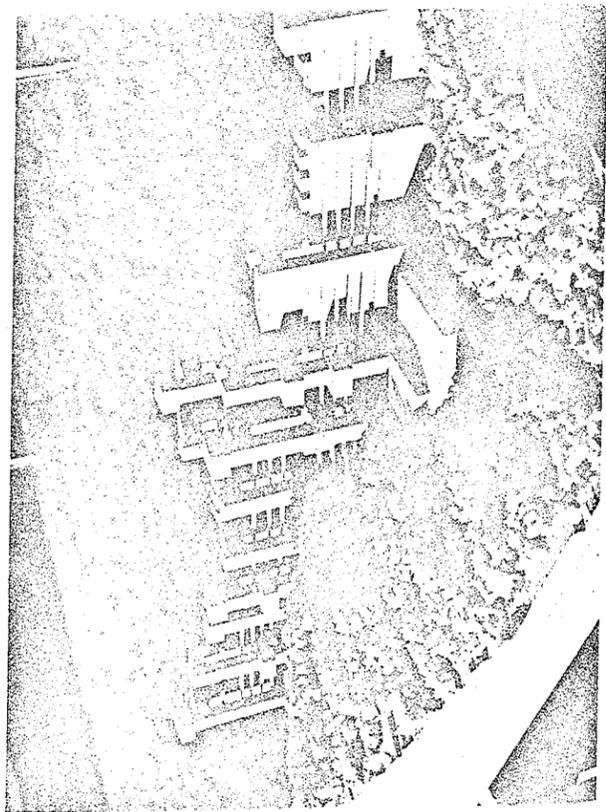
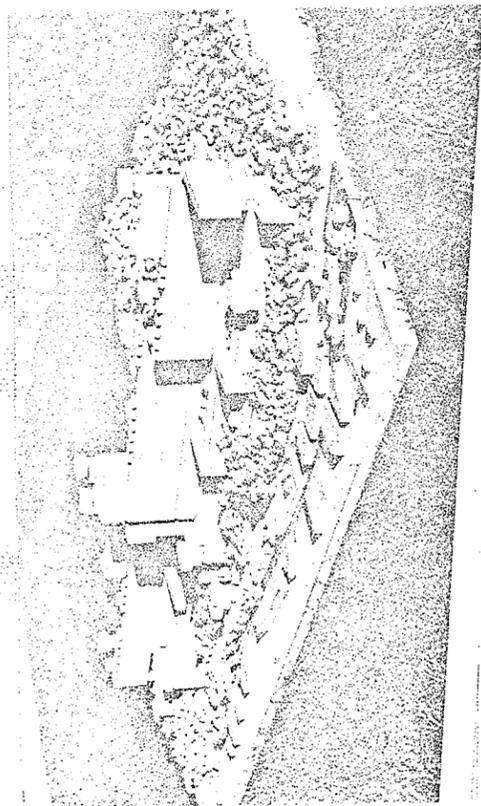


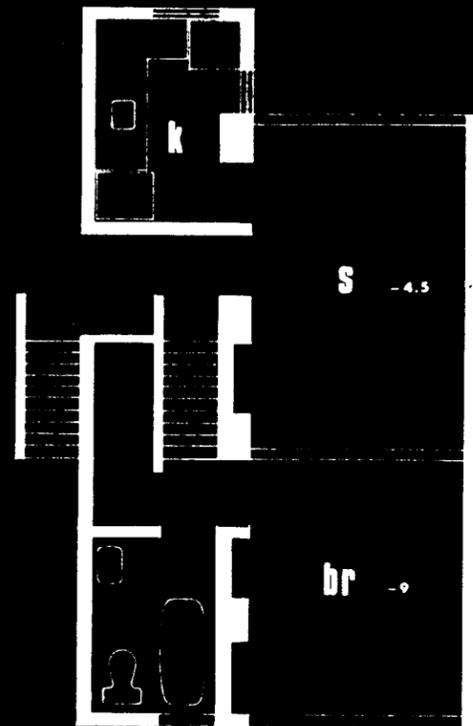
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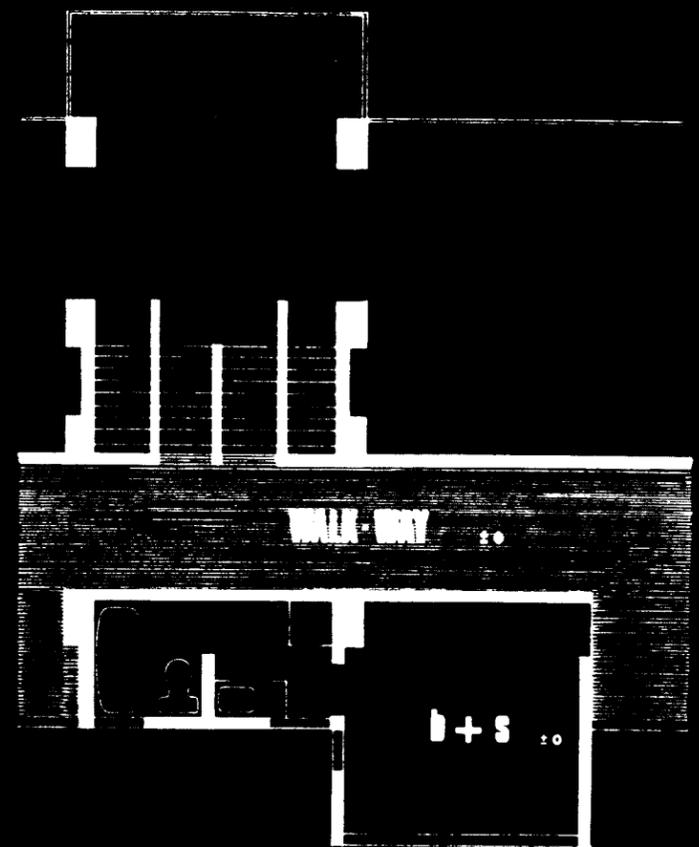
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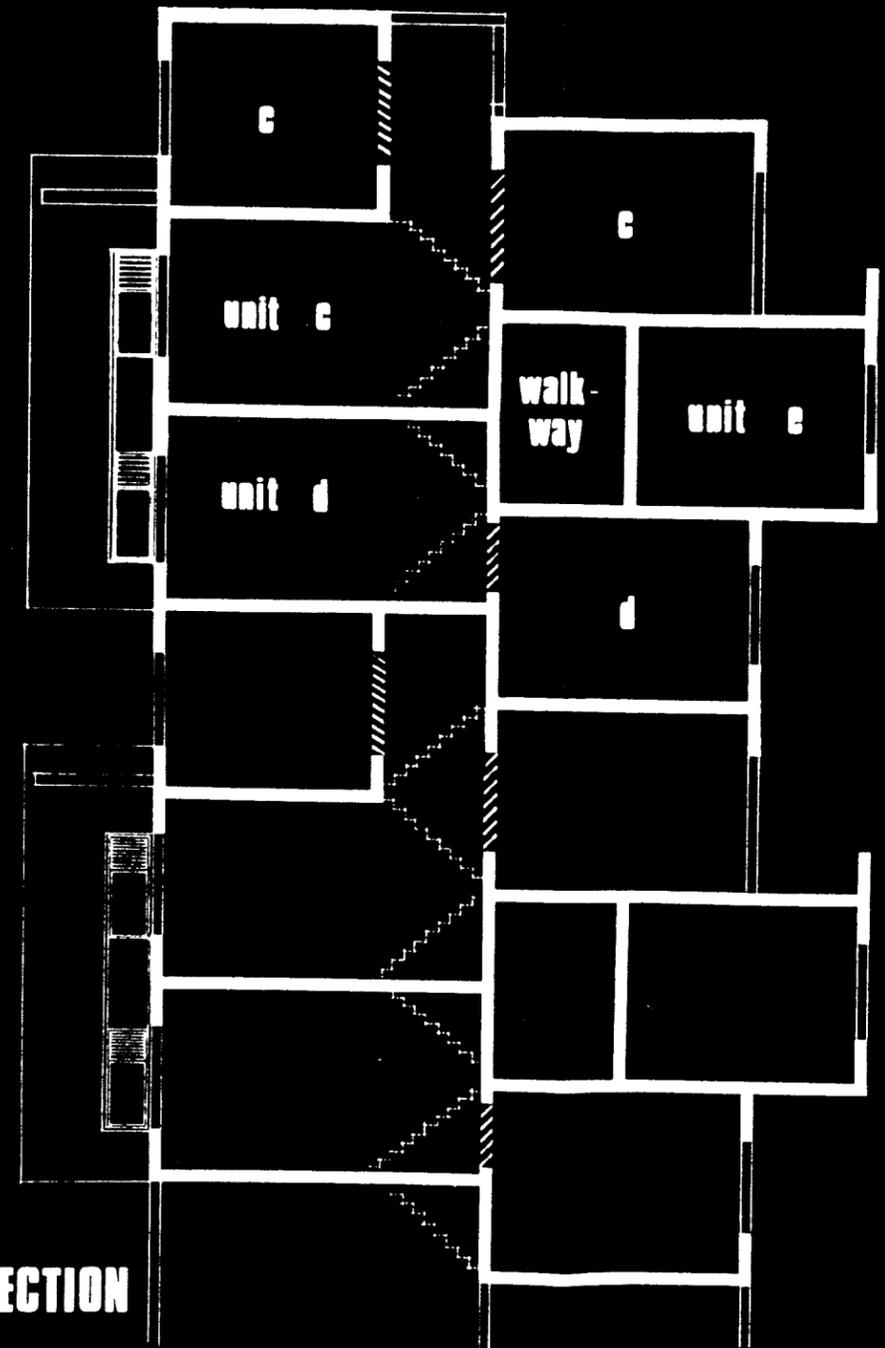




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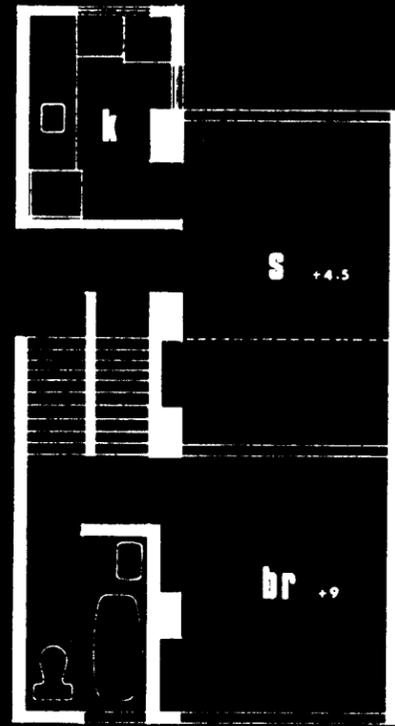
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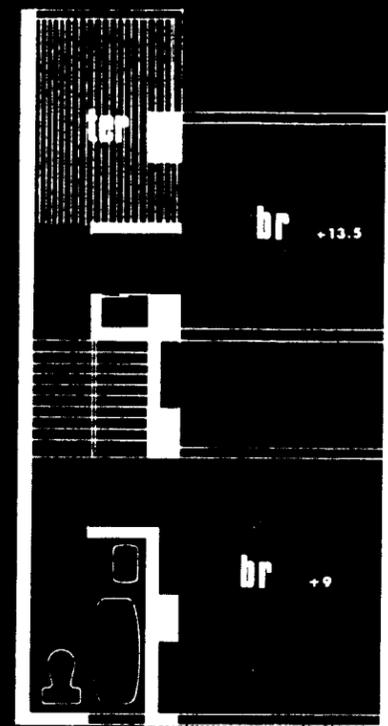
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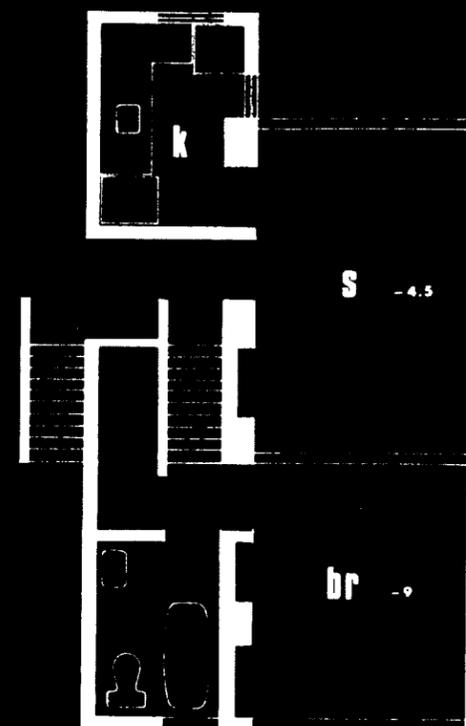


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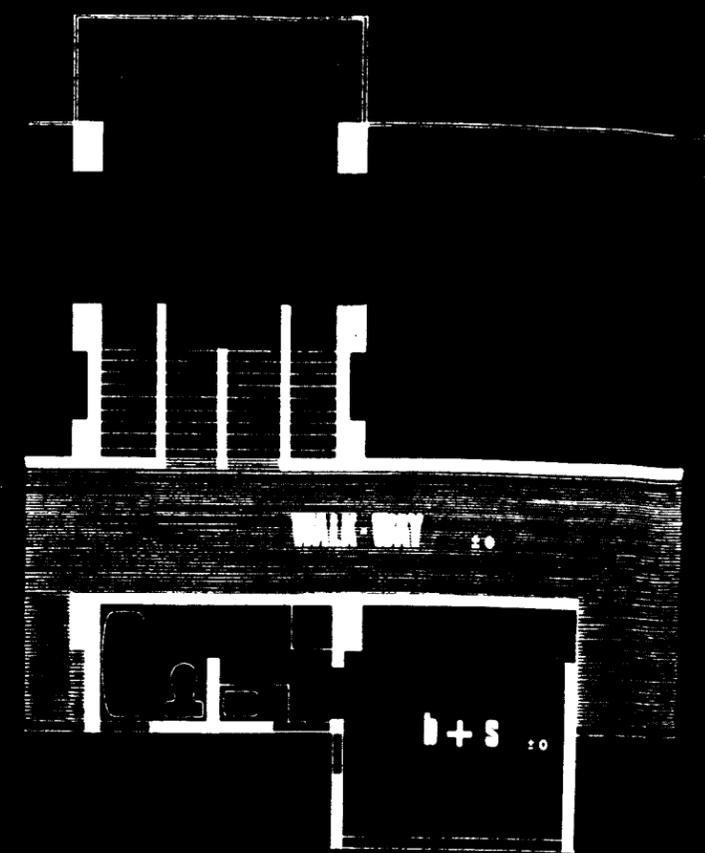
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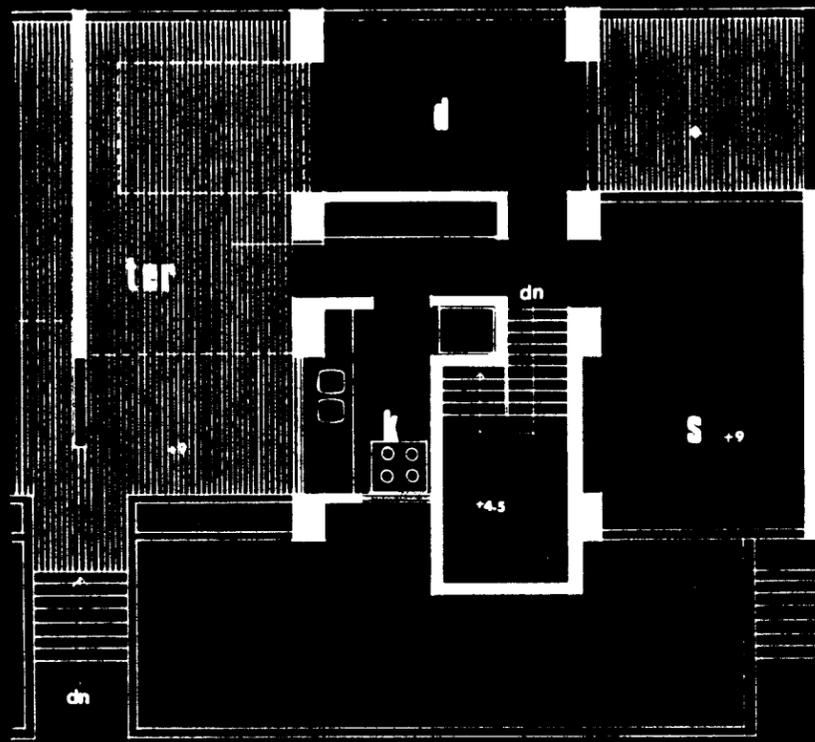
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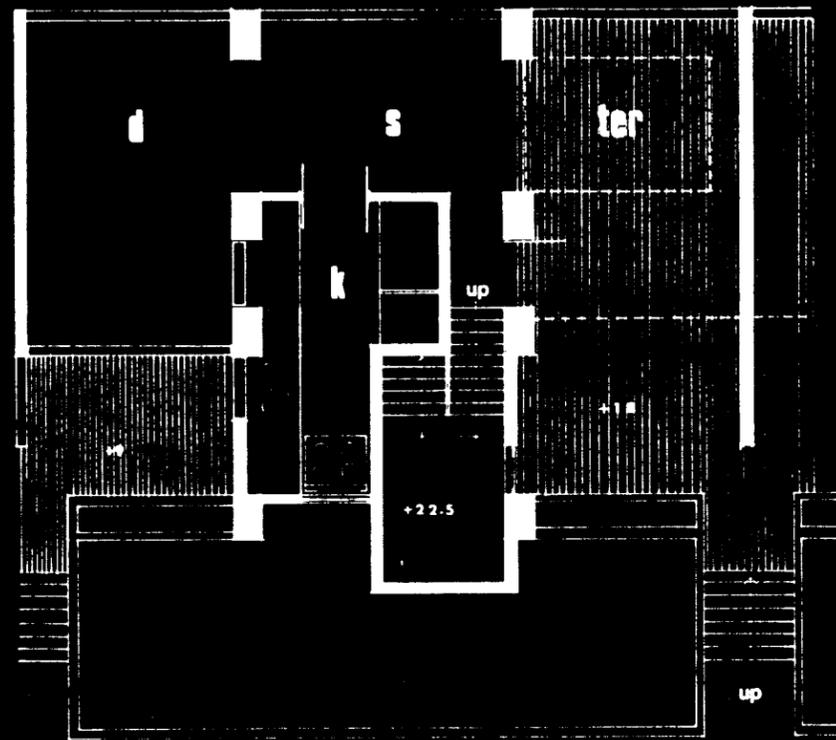


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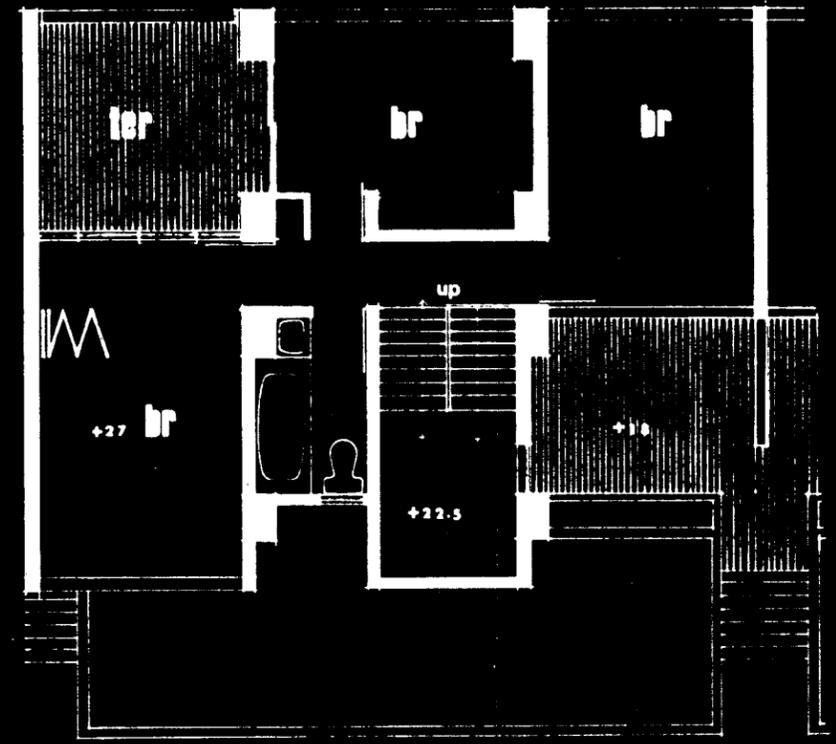
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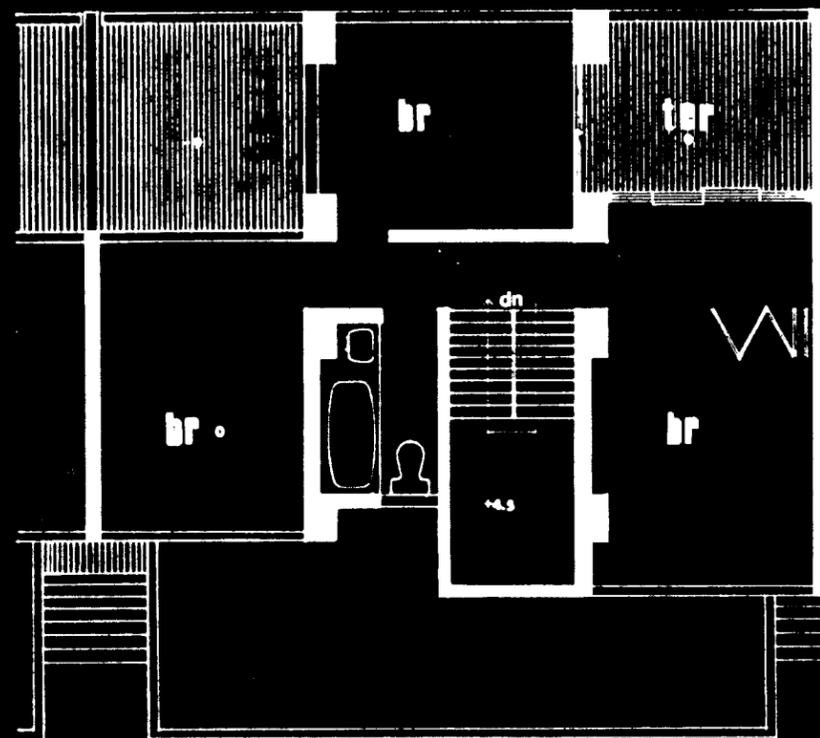
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upper

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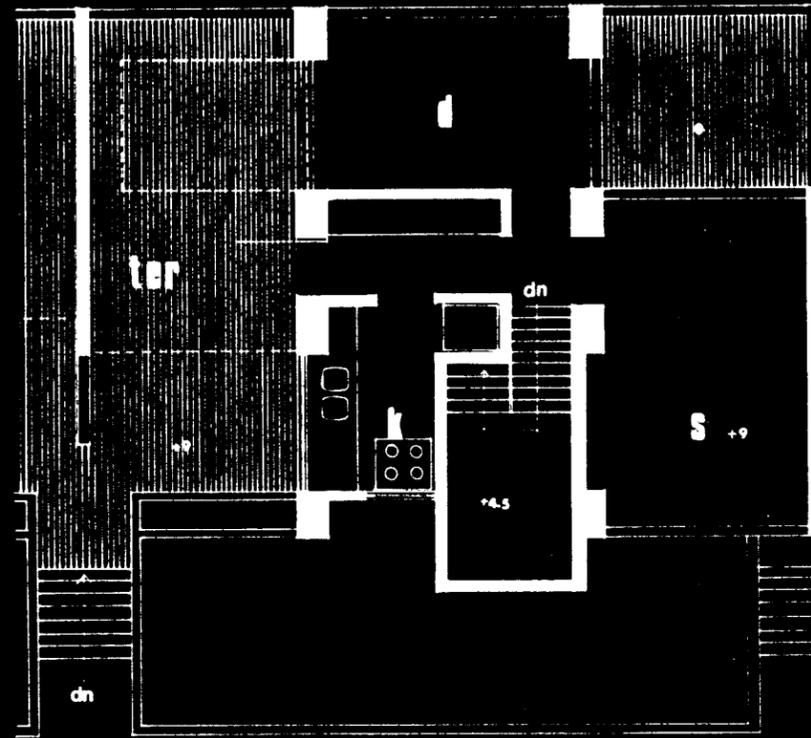
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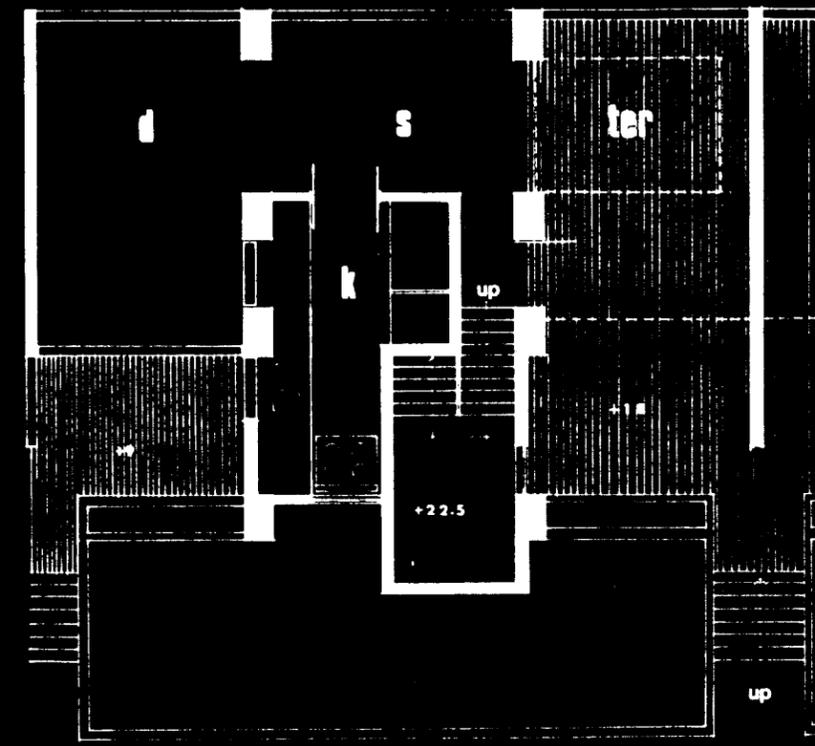
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WALK-WAY +14

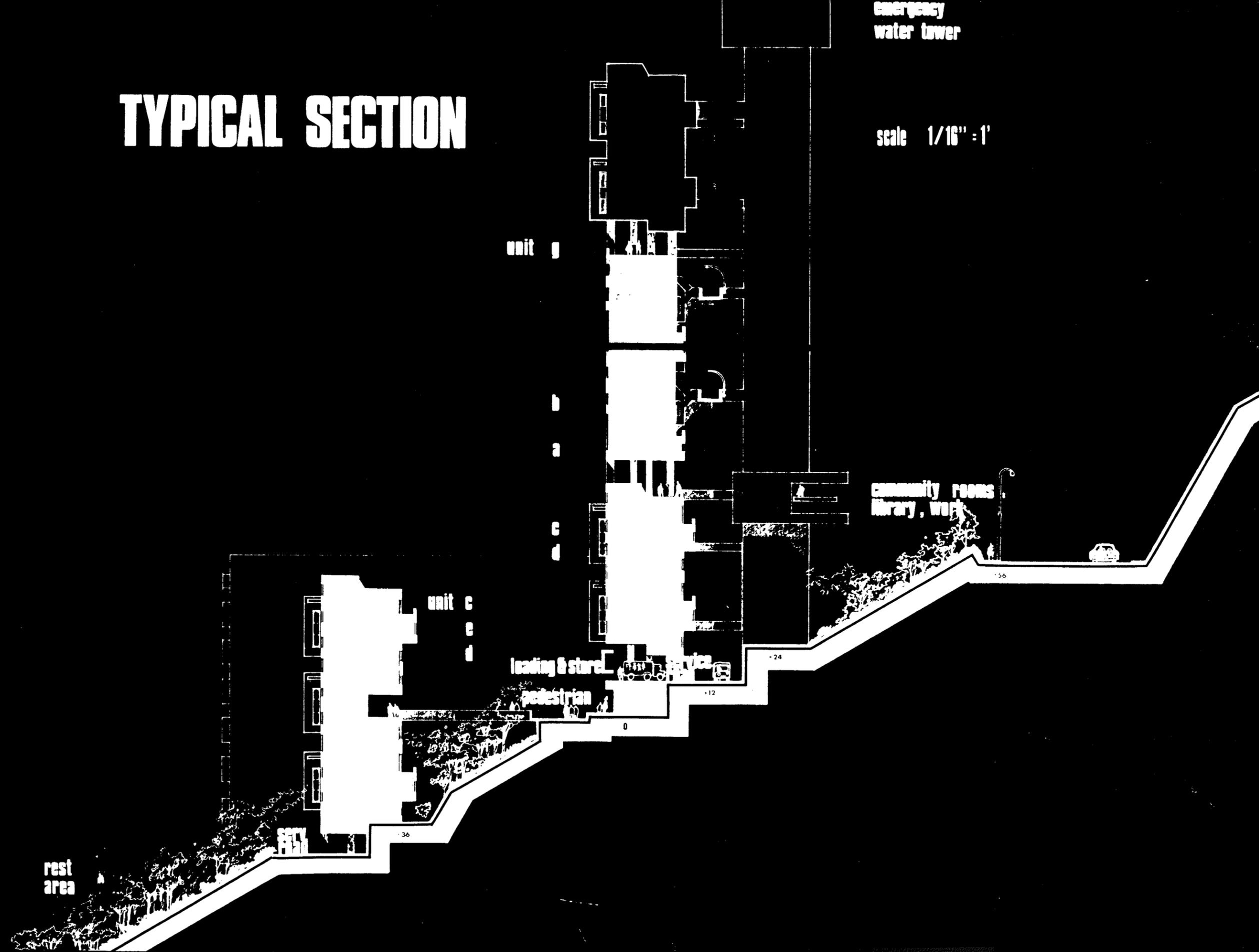
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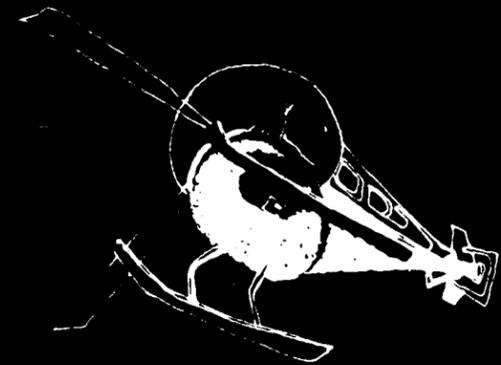
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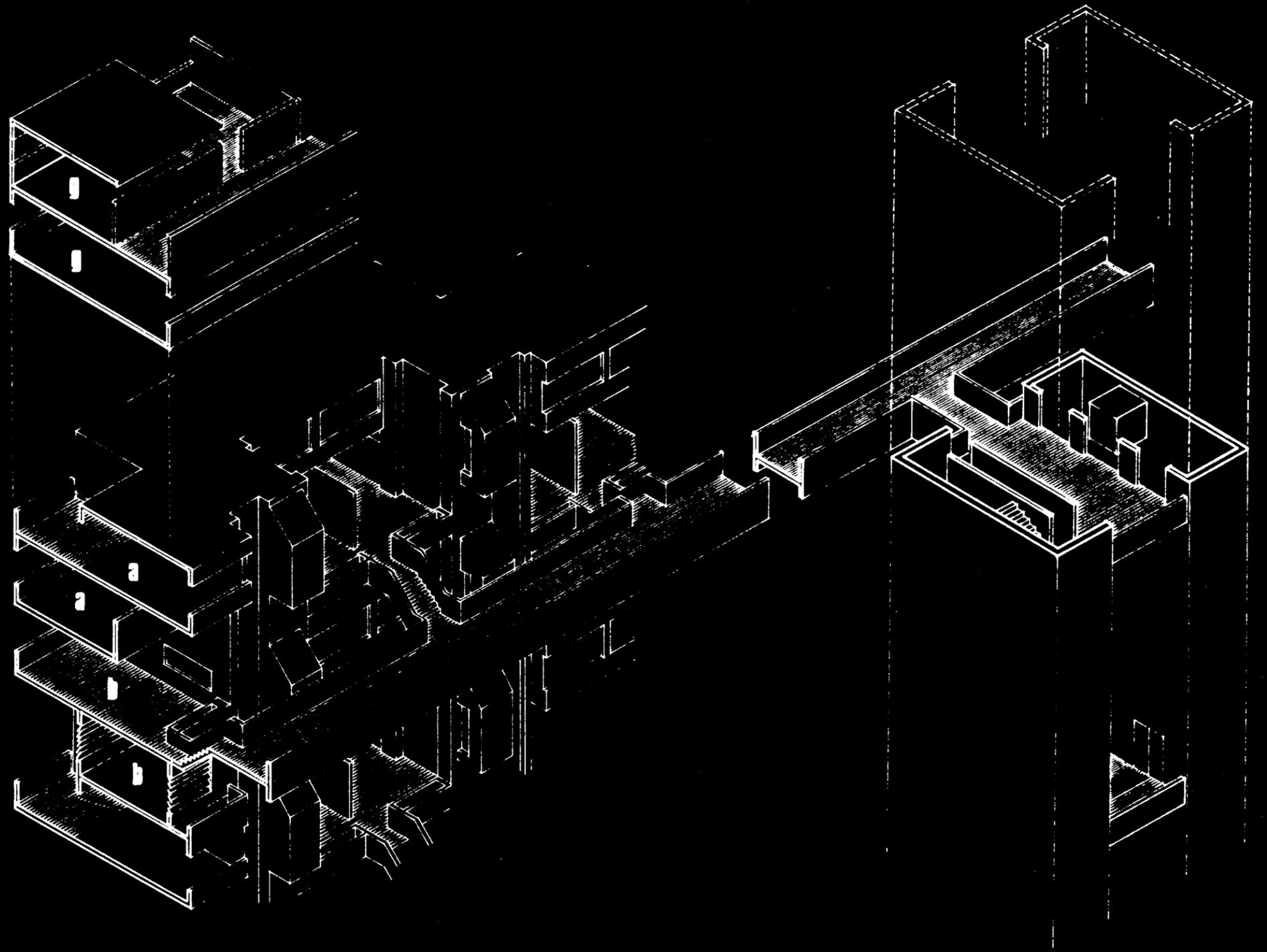
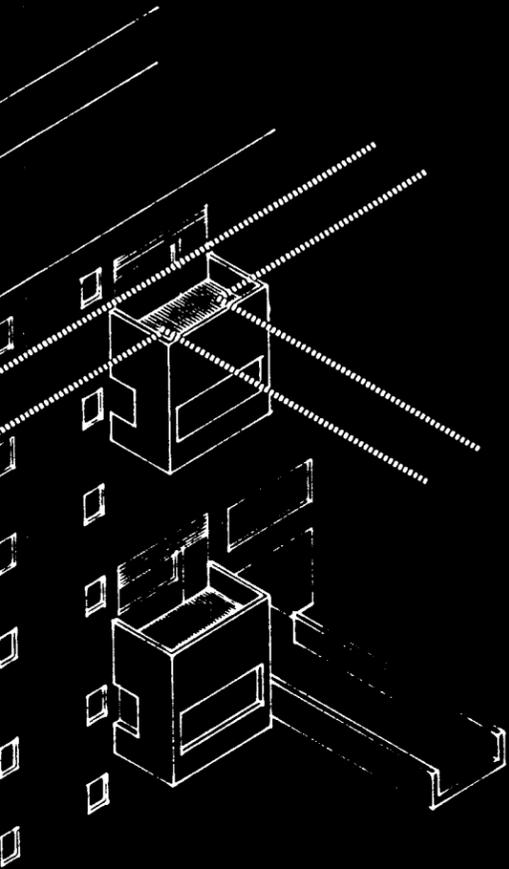
PERSPECTIVE

TYPICAL



rest  
area

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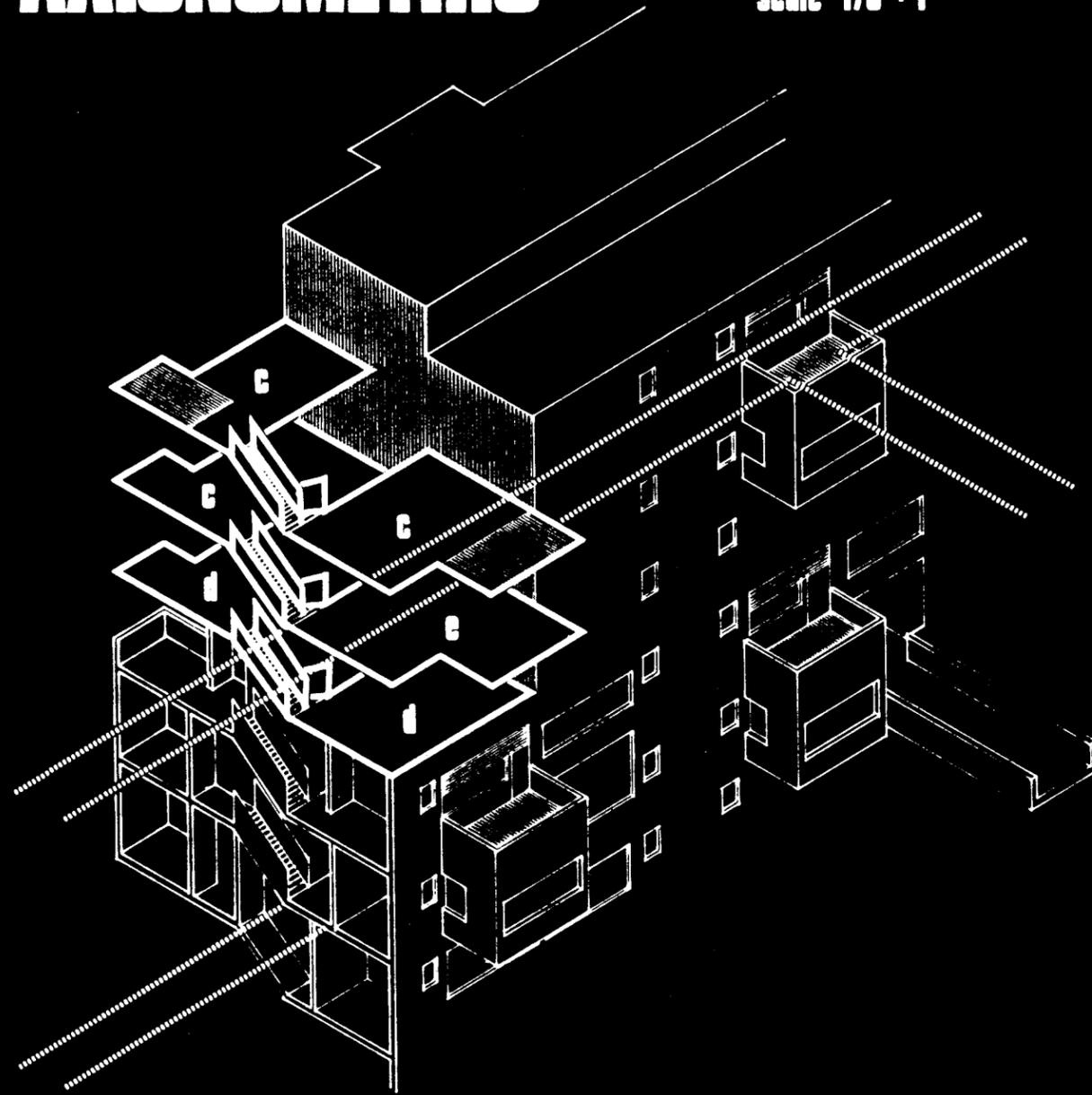


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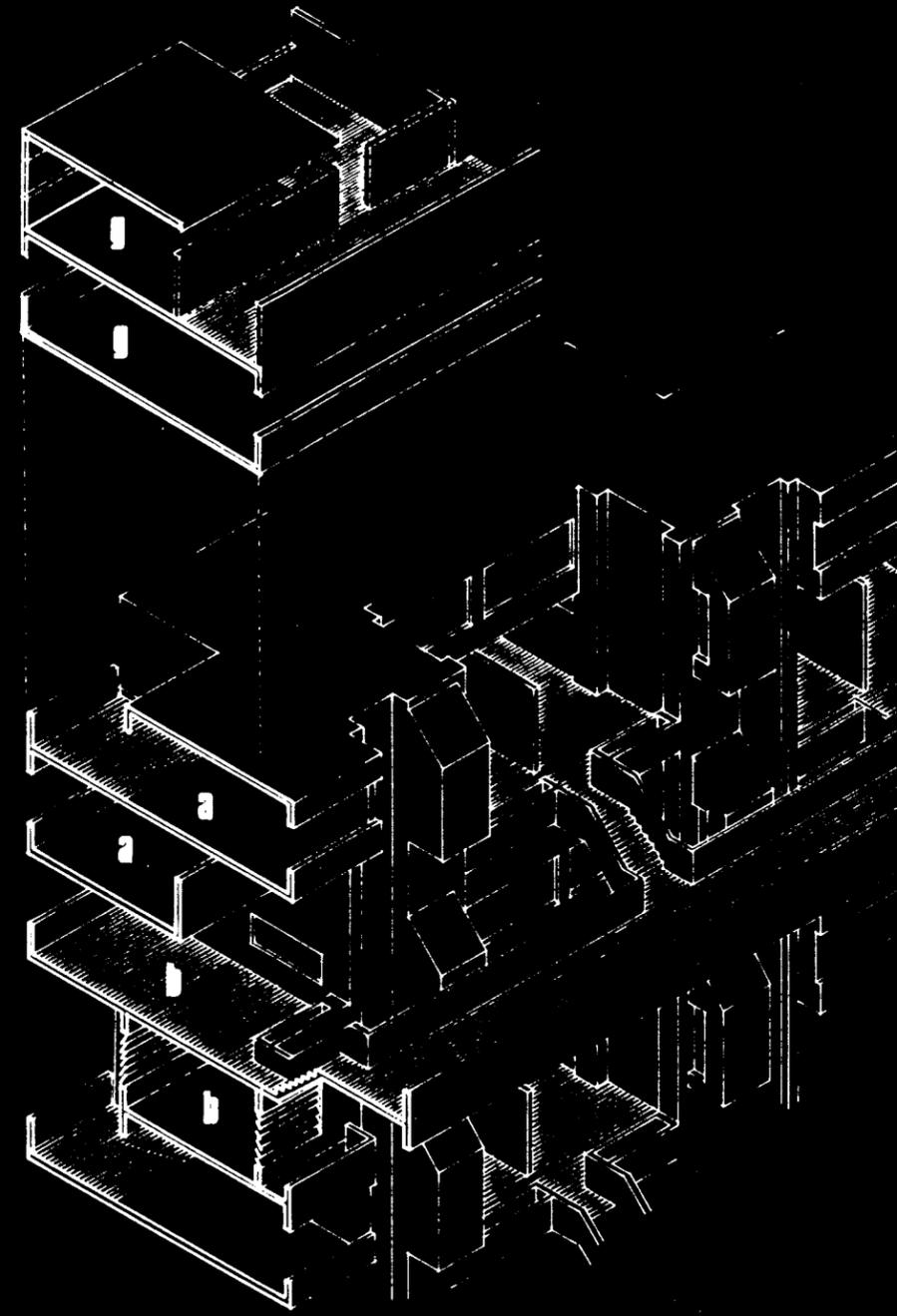
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# AXIONOMETRIC

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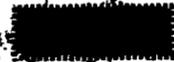


UNIT C D AND E



UNIT A B AND G

# CIRCULATION SYSTEM



vehicular

pedestrian

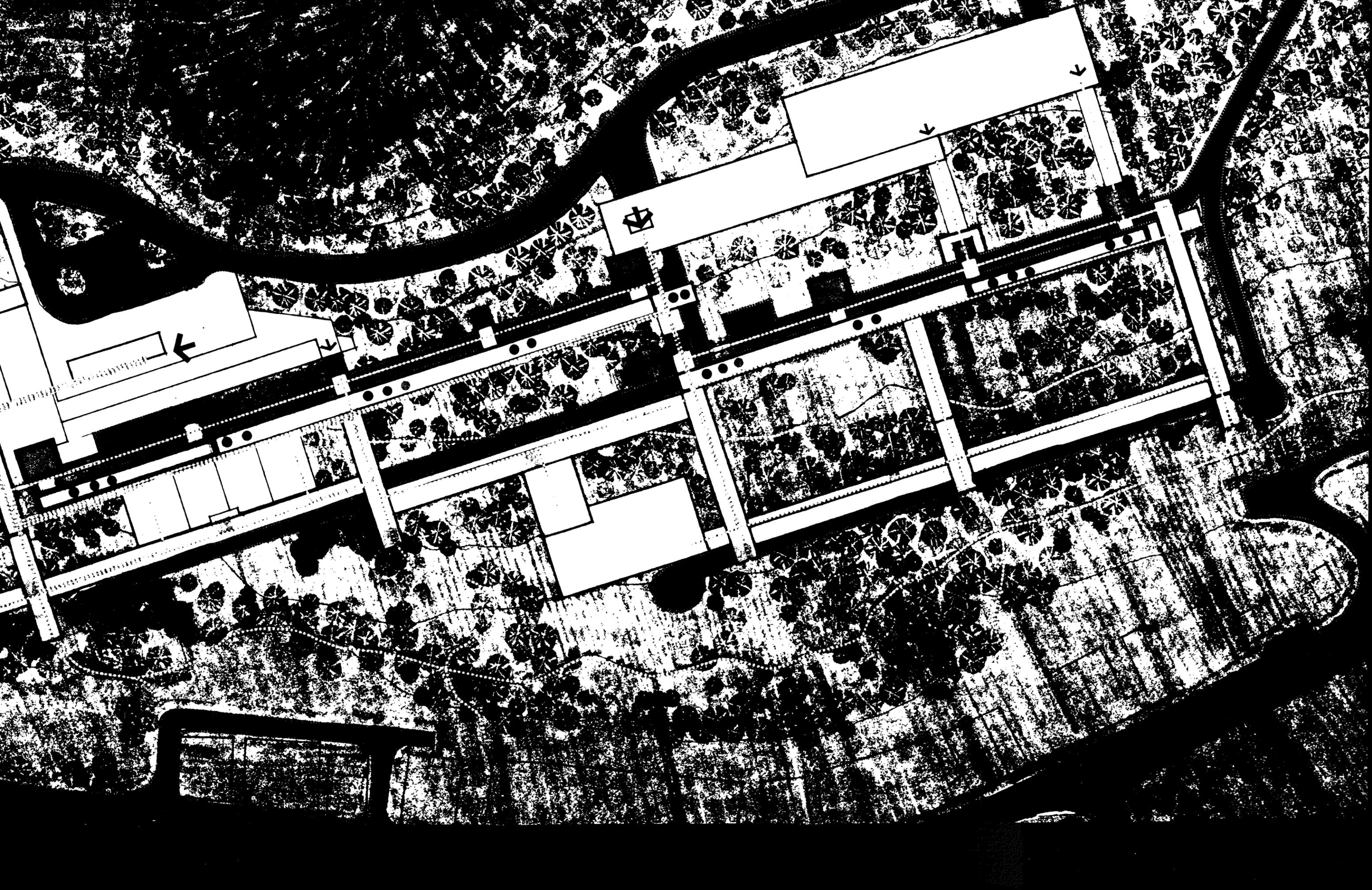
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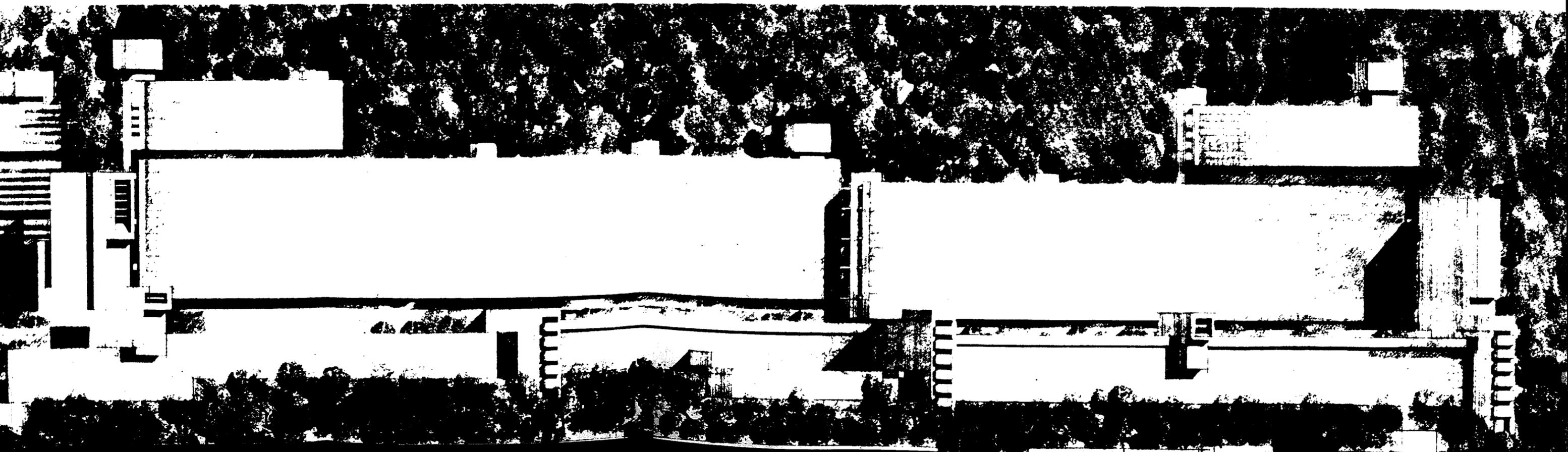
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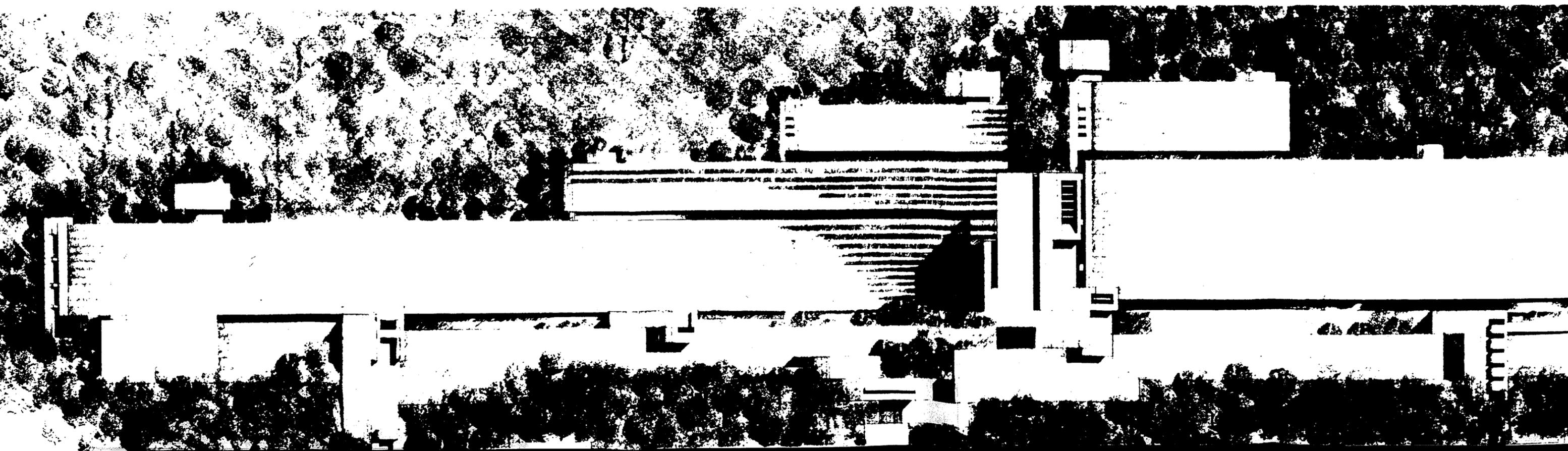
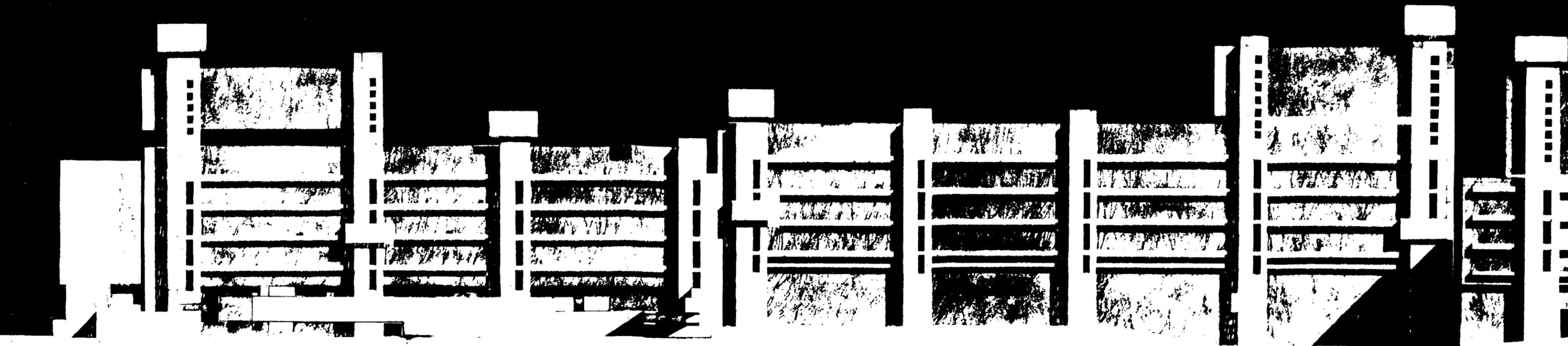
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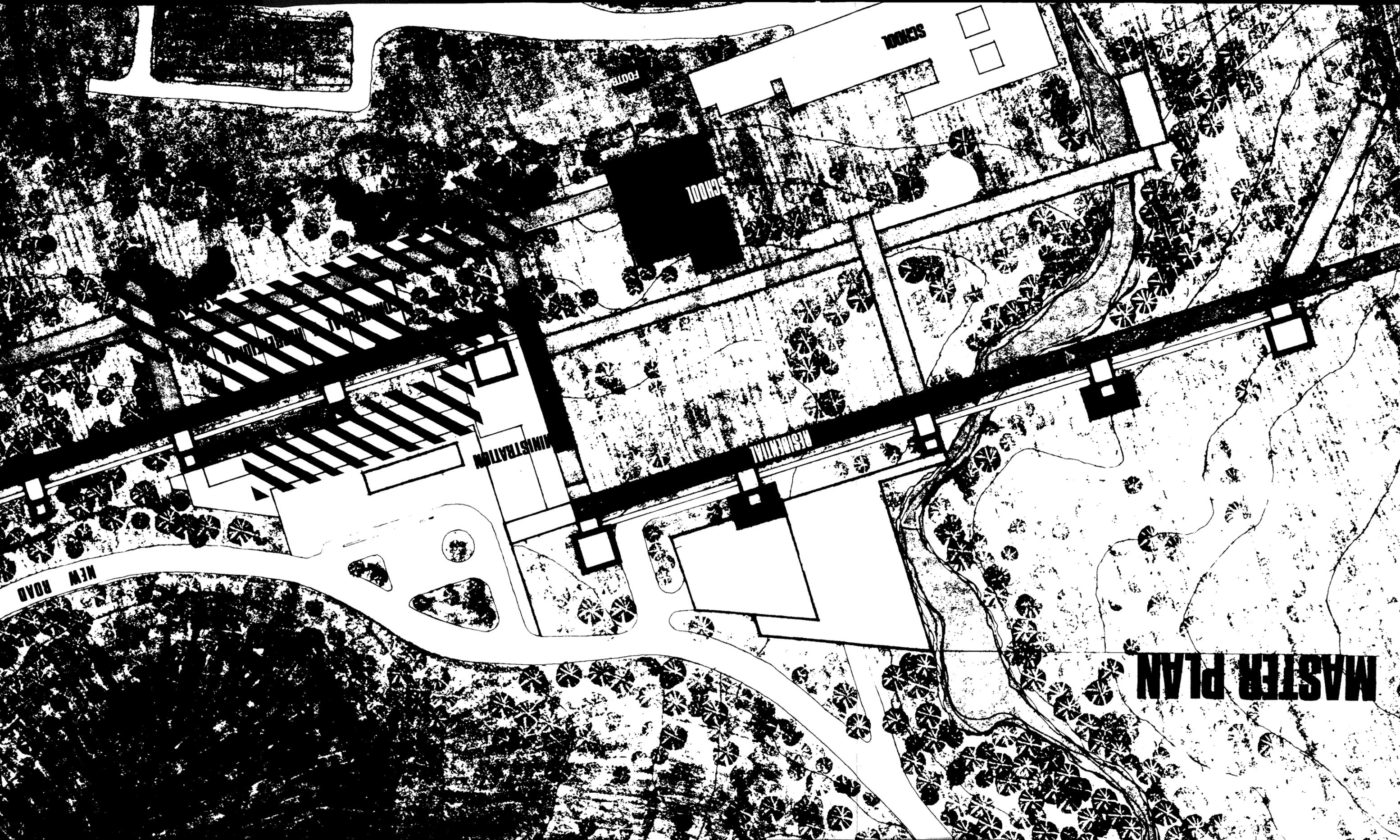
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MASTER PLAN

SCHOOL

SCHOOL

FOOTBALL

ADMINISTRATION

ADMINISTRATION

NEW ROAD



NEW ROAD

ISTRATION

RESIDENTIAL

SCHOOL

RESIDENTIAL

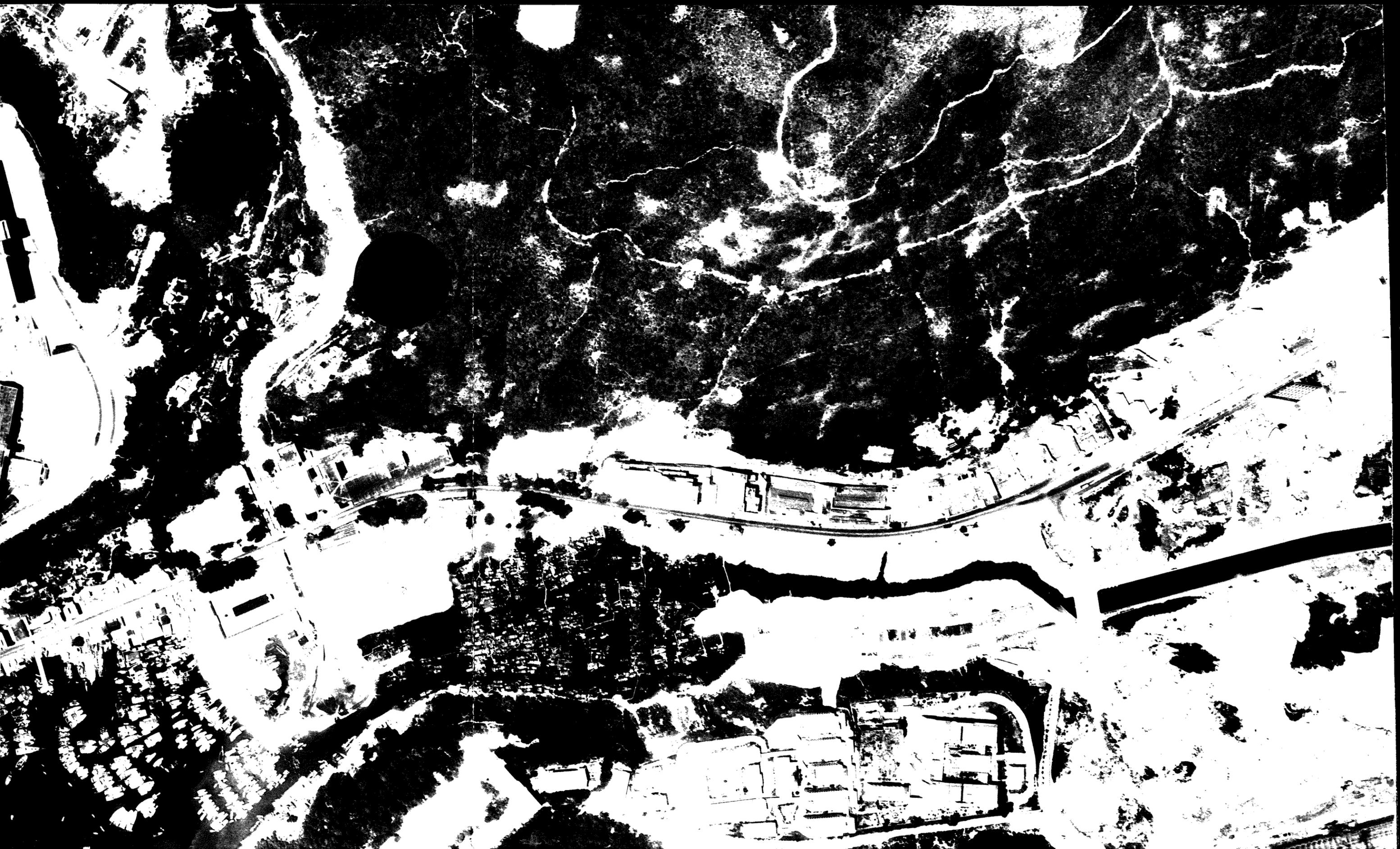
FIRE STATION

WONG CHUK HANG ROAD

FACTORY

FACTORY





# future development zone

H.K. PLANNING BOARD

