



HORACIO CAMINOS REINHARD GOETHERT OMAR TAKE

MKALLES HOUSING PROJECT

BEIRUT URBAN AREA



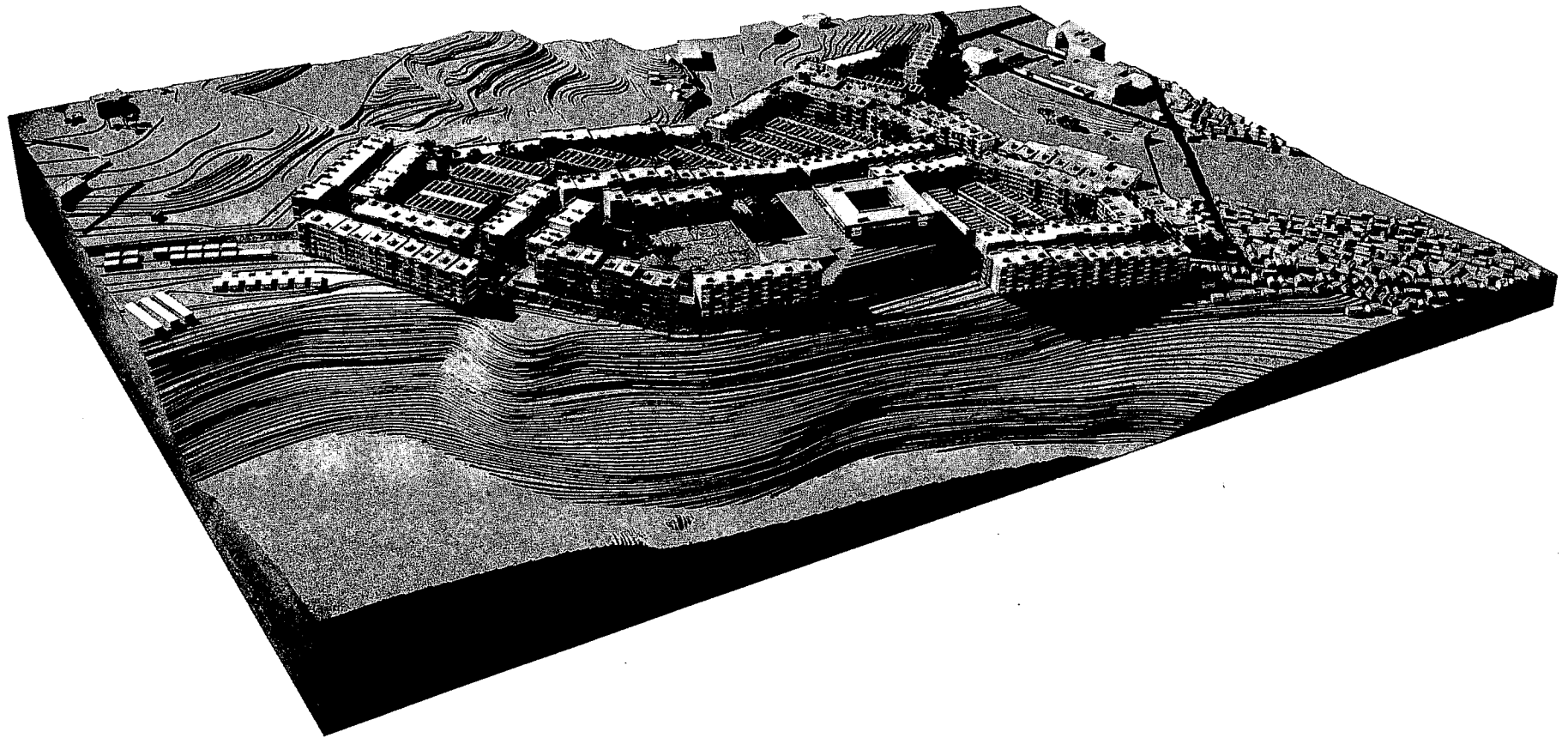
URBAN SETTLEMENT DESIGN PROGRAM, M.I.T.

A VIEW FROM MKALLES, THE SITE OF THE PROJECT

In the background, the compact skyline of Beirut.

In the foreground, the semi-rural squatter settlements occupying the site. Notice their vegetable gardens and huts made out of galvanized iron sheets.

The site is located approximately 6 kilometers from the center of Beirut.



MODEL OF MKALLES HOUSING PROJECT AND VICINITY The site slopes from south to north and is bounded on the east side by the deep valley shown in the foreground. The following structures can be identified: Rows of walk-up apartments along the streets, row houses in the center of the blocks, school and the open space of a playground, squatter settlements on the right, existing one story public housing on the left.

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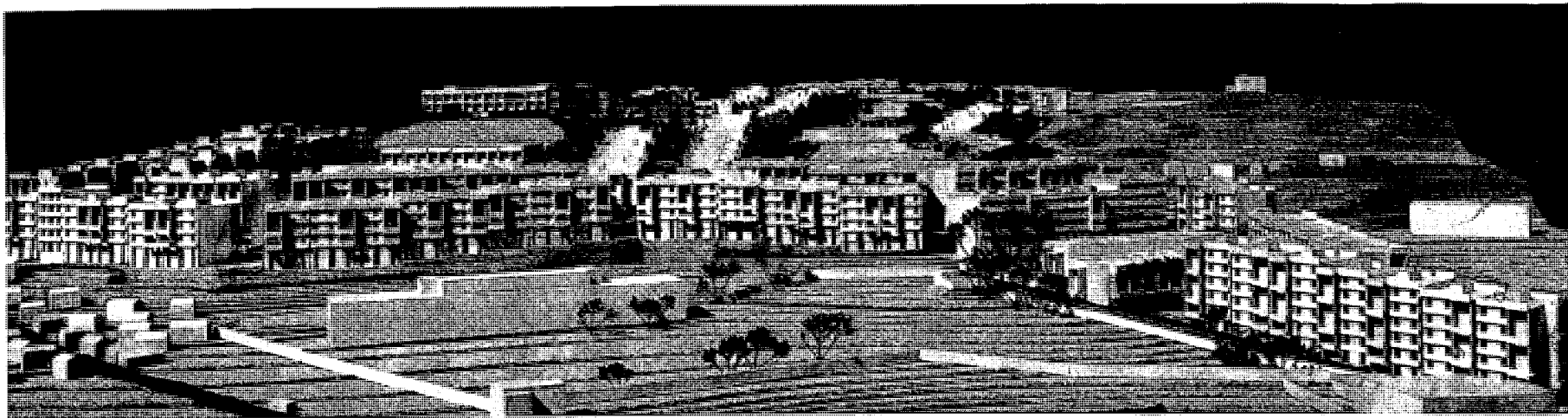
Photographs: *Nishan Bichajian*; cover: *Omar Take*.
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H.C., R.G., O.T.

Beirut/Cambridge, Summer 1974

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Cover: A family from South Lebanon living
 in Quarantaine, Beirut.



VIEW OF THE PROJECT FROM THE NORTH In the foreground, the Greek school, walk-up apartments on the Souk Street.

INTRODUCTION

This is a preliminary design for the development of a residential community in the municipality of Mkalles, in the Beirut Metropolitan Area.

The design is primarily intended as a basis for the preparation of final development plans and working drawings.

The following were the main steps on the design of the project:

- Surveys and identification of dwelling environments in Beirut for the low income groups were completed by Omar Take as part of his graduate work in the program Urban Settlement Design in Developing Countries, School of Architecture and Planning, M.I.T. (Beirut-Cambridge, Fall 1972 - Spring 1973).

- The Mkalles Housing Project was commissioned by H.E. The President of Lebanon, Suleiman Bey Frangie, by presidential decree, through the Ministry of Housing and Cooperatives (Beirut, Summer 1973).

- A preliminary design was prepared by the staff and graduate members of the program U.S.D.D.C. at M.I.T. (Cambridge, Fall 1973). The design was presented to H.E. The Minister of Housing and Cooperatives, Mr. Michel Sassin, as well as to other officials of the Ministry by Omar Take at the American University of Beirut in January 1974. A second presentation was made at the Presidential Palace at the request of H.E. President Frangie in the presence of his advisors. These presentations permitted a review of the project and recommendations by the government officials (see acknowledgements).

- An additional socio-economic spot survey of the families living in the Mkalles area was completed by Omar Take (Beirut, January 1974).



VIEW FROM THE EAST Walk-up apartments bordering the deep valley, the primary school over Tal el Mir.

- The design and the model contained in this report were prepared by the staff and graduate members of the program U.S.D.D.C. at M.I.T. (Beirut - Cambridge, Spring 1974). It will be eventually presented in Beirut for review.

The project represents a comprehensive framework for the formulation of housing policies and for the implementation of the physical plan, yet there is still much to be done and the final decisions can only be taken by local people. Further development of the project will be mainly carried out in Beirut.

The Mkalles Housing Project incorporates the following distinct characteristics:

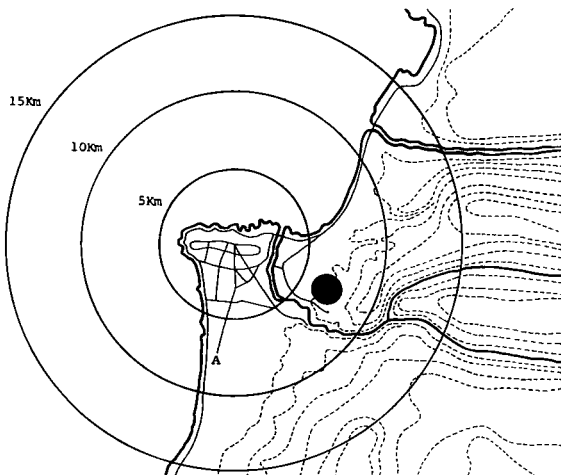
- In LAND SUBDIVISION: provision of "condominium" or "clusters" ownership, with relatively large plots, to maximize private/collective initiative, responsibility, participation and to minimize government costs in implementation, maintenance and operation.

- In HOUSING: provision of dwellings that can be easily expanded to permit flexibility in their use, to absorb growth of the family needs and to minimize initial investment cost by the users and the government.

The Mkalles Housing Project is intended to be used as a pilot project for urban low income housing by the new Ministry of Housing and Cooperatives of Lebanon in addition to being a specific proposal for the development of the Mkalles site.

Horacio Caminos
Reinhard Goethert
Omar Take
Cambridge, Massachusetts
Summer, 1974

BASIC DATA



The Mkalles Housing Project is located in the Beirut Urban Area, 6 km south-east of the city center

Area of the site: 13.2 hectares

Approximate population: 6860 Lebanese from the low and moderate low income groups

Number of dwelling units: 1248 apartments and houses

Number of small shops: 161 including artisan shops

Supporting facilities: primary school, day care nursery, kindergarten, playground, dispensary/social center, auditorium, movie theater

Approximate density: 520 people/hectare

At the present time part of the site is occupied by a squatter settlement of approximately 500 dwellings and 2500 people (Lebanese and Syrian). The project contemplates the relocation of most of these people.

All costs in U.S. Dollars

1 U.S. Dollar = 2.5 Lebanese Pounds

COST DATA

BUILDINGS			BUILDING EXPANSION	
BASIC AREAS (m ²) PER UNIT	N ^o OF UNITS	TOTAL BASIC AREAS (m ²)	EXPANSION AREAS (m ²) PER UNIT	TOTAL EXPANSION AREAS (m ²)
<i>Dwellings</i>				
57	164	9,348	-	-
73	178	12,994	-	-
76	125	9,500	13	1,625
76	125	9,500	32	4,000
93	225	20,925	28	6,300
93	225	20,925	46	10,350
80	106	8,480	43	4,558
94	100	9,400	78	7,800
	1248	101,072		34,633

Shops

57	64	3,648
73	97	7,081
	161	10,729

Access Stairs 10,941

APPROXIMATE COST

<i>Dwellings</i>	101,072m ² at \$70/m ²	\$ 7,075,040
<i>Shops</i>	10,729m ² at \$70/m ²	\$ 751,030
<i>Stairs</i>	10,941m ² at \$70/m ²	\$ 765,870
<i>Land Development/Community Facilities</i>		\$ 2,863,980
	(estimated at 1/3 cost of dwellings)	

TOTAL \$11,455,920

The cost estimate assumes that only basic units will be built. These units are expandable from 101,072m² to an additional area of 34,633m², an increase of 34.2% over the total initial area.

PLAN OF PROJECT

TO CITY CENTER

BELT MERRI ROAD

MKALLES INDUSTRIAL AREA

ACCESS

TAL ET ZAIFAR

GREEK SCHOOL

ACCESS

APARTMENTS/EXPANDABLE APARTMENTS
HOUSES/EXPANDABLE HOUSES

ACCESS



150m

Urban Settlement Design Program, M.I.T.
Beirut/Cambridge (Massachusetts)

MKALLES HOUSING PROJECT
PRELIMINARY DESIGN
Beirut, Lebanon

THE SITE

The site of the Mkalles Housing Project has the following characteristics:

LOCATION

- The site is located in the municipality of Mkalles, in the Beirut Urban Area, approximately 6 km south-east of the city center and the centers of employment. The site lies in a residential and industrial area.

APPROACHES/ACCESS

- Main route of approach is the Beit Meri Road which leads to the city center (north-west), to other industrial areas (north) and to the mountains (east).. The Beit Meri Road is 300m from the site and accessible through narrow streets.

TRANSPORTATION

- The nearest public bus service is approximately 30 minutes walking distance. Village buses and service taxis offer limited service to the city center along the Beit Meri Road.

SIZE/SHAPE

- Gross area of the site: 13.2 hectares.
- Triangular shape

TOPOGRAPHY/NATURAL FEATURES/SOIL

- The site overlooks the city of Beirut at an altitude of 125m. The site is irregular with slopes varying from 6% to 60%, with an average slope 12.5%. The site contains a prominent hill. The surface is devoid of vegetation and limited to sandy, rocky surfaces. Soil dumpings covering large portions of the site need to be removed. The soil is composed of clay, sand and gravel, with a deep rocky substrata. Limestone outcroppings are also found in several areas.

BOUNDARIES

- On the east: a deep valley with steep sides provides a natural barrier. On the south and west: existing developments of light industries and vacant land mesh with the site. On the north: a private Greek school and a squatter settlement mesh with the site.

ZONING RESTRICTIONS/REGULATIONS

- The site is zoned for residential and commercial purposes. Allowed ground coverage of the site 50%. Coefficient of land exploitation 1.65. Maximum height of buildings 17m.

EXISTING STRUCTURES

- Part of the site is occupied by a squatter settlement of approximately 500 dwellings and 2500 people (Lebanese and Syrian). A socio-economic spot survey was taken in January 1974 to identify the population.

OTHER FACTORS

- Views: the site enjoys a commanding view of the surroundings. Smoke, odors, dirt: none at the moment. Flooding: site well drained. Hazards: boundaries on east side should be fenced to prevent accidents.

LAND TENURE/LAND COST

- All the land in the site is owned by the government.
- The land is valued at approximately \$32/m².

INFRASTRUCTURE/COMMUNITY FACILITIES

- No utilities exist on the site. All utilities are available from the surrounding areas. Limited commercial facilities exist along the Beit Meri Road and small shops are found in the squatter settlement.

The air photograph of the site (opposite page) illustrates some of the characteristics mentioned above.



PLAN OF SITE

0 150m



THE PROJECT

The policies/goals that are proposed for the Mkalles Housing Project are as follows:

PRIMARY USE: RESIDENTIAL COMMUNITY

- The primary use of the site will be a residential community for 6860 people at full development. Public facilities will include: primary school for 1200 children, day-care nurseries, kindergartens, auditorium, playground, dispensary, police station. Facilities developed by the private sector will include: churches, mosques, a souk, artisan shops, movie theater.

TARGET INCOME GROUPS: LEBANESE LOW INCOME

- The development will aim at a community with Lebanese low income groups:

	PEOPLE PER INCOME GROUPS				TOTAL
	family annual income				
From:	\$1200	\$2000	\$3200	\$4800	
Site area	1000	397			1397
Quarantaine	397	1000	1491		2888
Other areas			500	2079	2579
TOTAL	1397	1397	1991	2079	6864

TENURE: CONDOMINIUM OWNERSHIP

- The development will offer condominium ownership with expandable apartments and houses.

INTENSITIES OF LAND USE: MEDIUM DENSITY

- The densities planned for the site range from 300 to 600 people per hectare.

FINANCING GROUPS: PUBLIC WITH LIMITED PRIVATE

- The size of the project and its prototype nature will demand primarily public financing. Private investment will be encouraged as a model for future housing.

CIRCULATION: PREDOMINANTLY PEDESTRIAN

- Pedestrians and vehicles will be mixed in the public streets, but pedestrians will dominate over vehicles. Control of traffic frequency, character and speed are mainly established by the street layout and use.

UTILITIES: CONNECTION TO EXISTING SYSTEMS

- All utility systems will be interconnected into the existing Beirut Urban Area networks.
 - Water: connection into Jal El-Deeb.
 - Sewerage/storm drainage: connection into planned system for Mkalles.
 - Electricity: connection into Beirut Urban Area network.

DEVELOPMENT MODE: INSTANT AND/OR INCREMENTAL

- The primary infrastructure networks (water, sewers, electricity, streets, street lighting) will be initially developed.
 - The dwellings, community facilities, and secondary infrastructure will be instantly or incrementally developed.

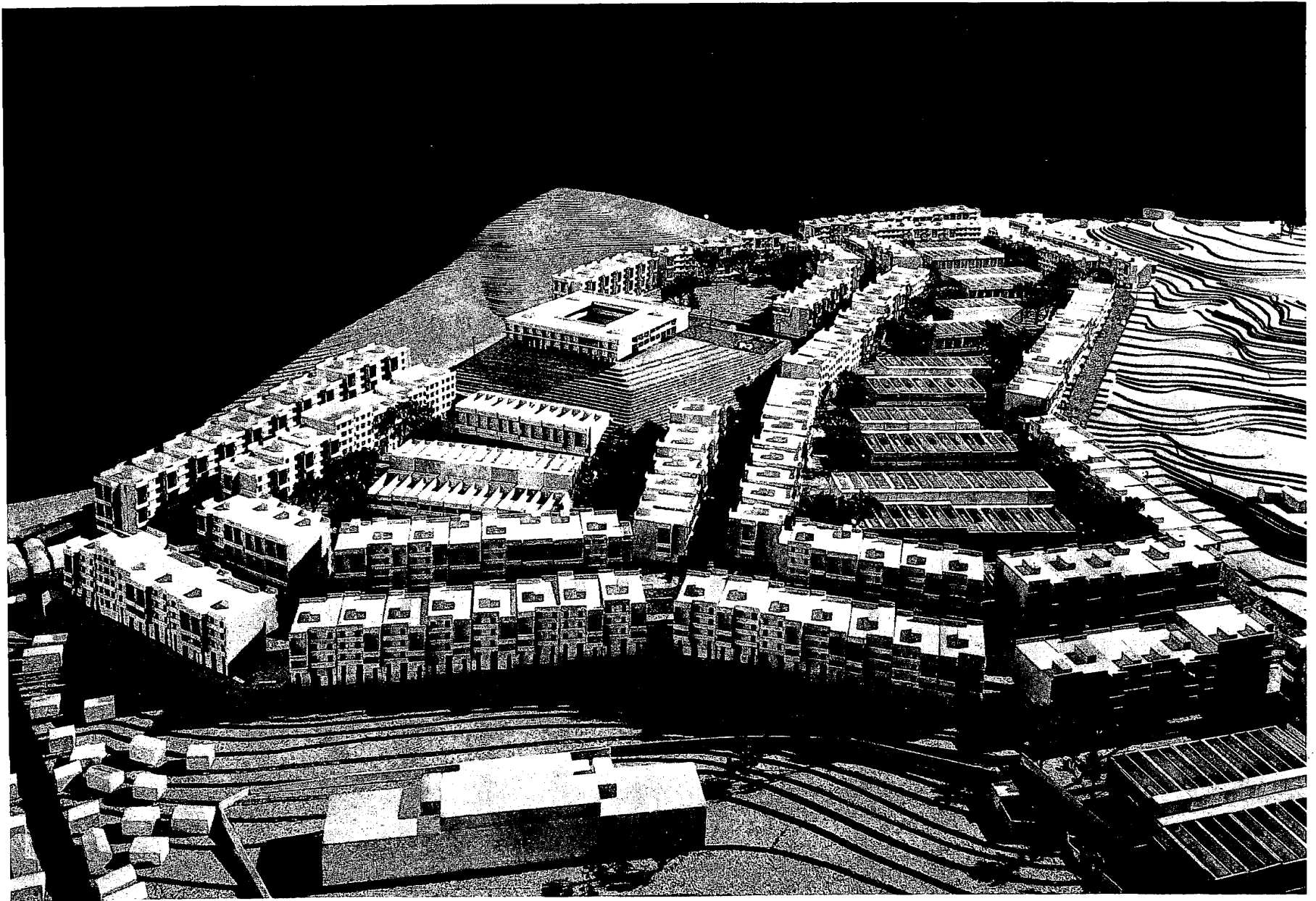
KEY OF PLAN OF PROJECT (opposite page)

- A apartments/expandable apartments
- H houses/expandable houses
- C cluster courts
- S primary school
- AU auditorium
- P playground

Note: shops are located along Souk and Main Streets



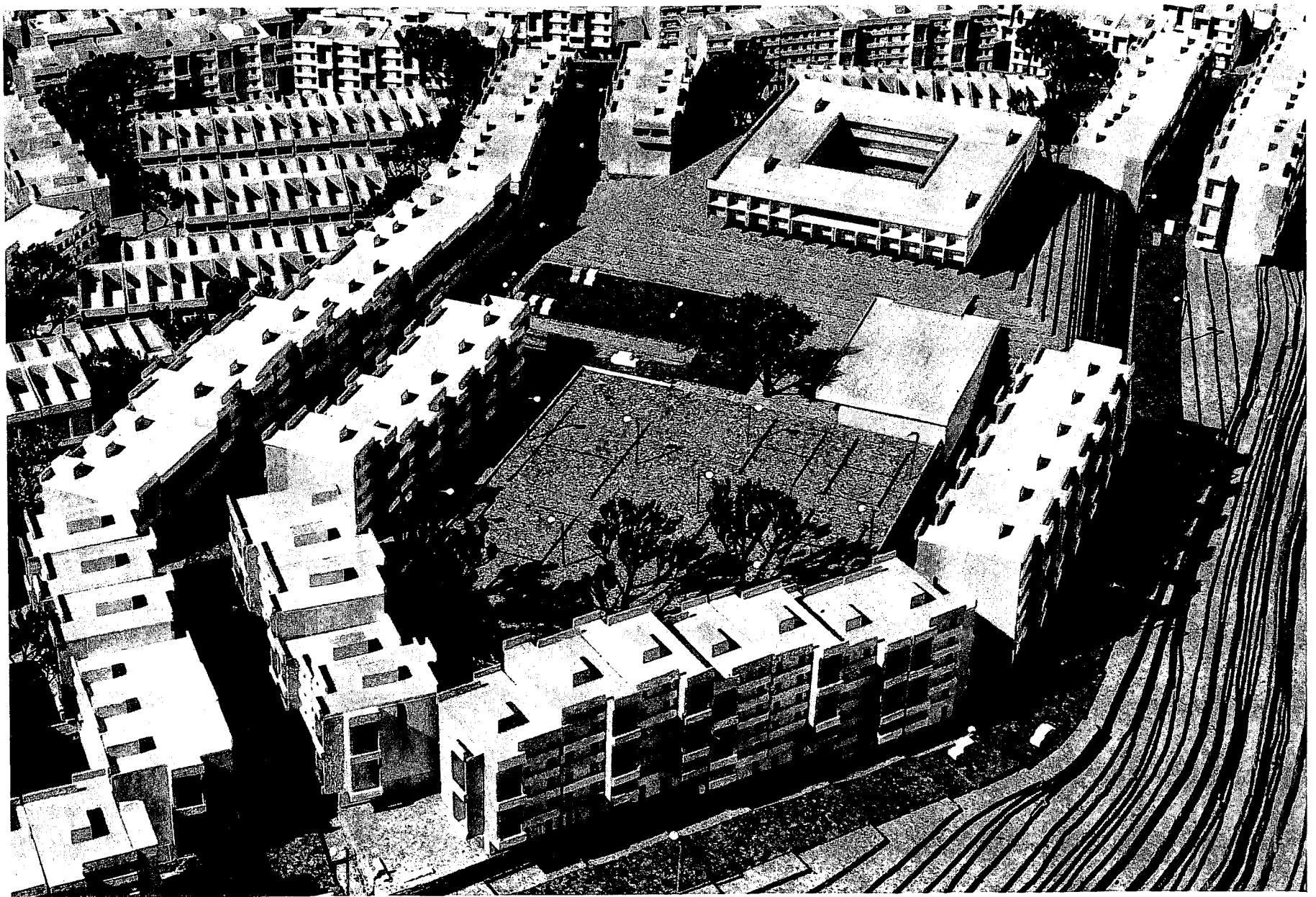
PLAN OF PROJECT



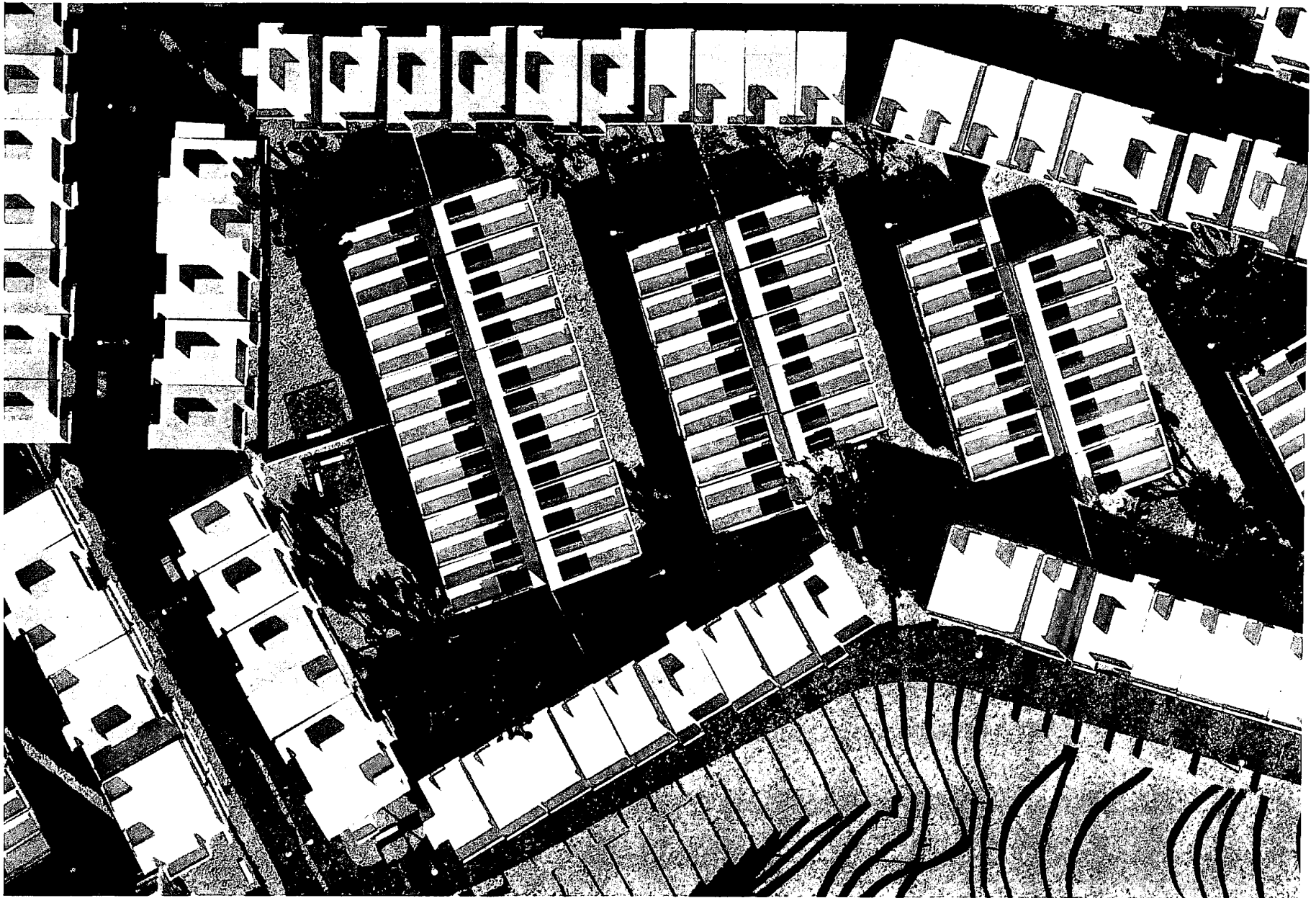
CIRCULATION AND COMMERCIAL AREAS The two main arteries of circulation can be identified: Souk Street (running horizontally) which is bordered by arcades with shops; Main Street (running vertically in the center) which is the main spine of circulation and provides access to most of the apartments, houses, and school, playground and souk.



CORNER SHOPS View of corner at the south end of the Main Street. Two small squares provide public space for daily gatherings and outdoor commercial activities. The buildings around are from four to five stories high, with shops at ground level and apartments on the floors above.




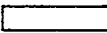


SCHOOL, PLAYGROUND, AUDITORIUM, DISPENSARY, SOCIAL CENTER All these facilities shown are grouped in the center of the site over Tal el Mir (The Prince's Hill). The location is dominant, with good views and easily accessible from any point of the community.

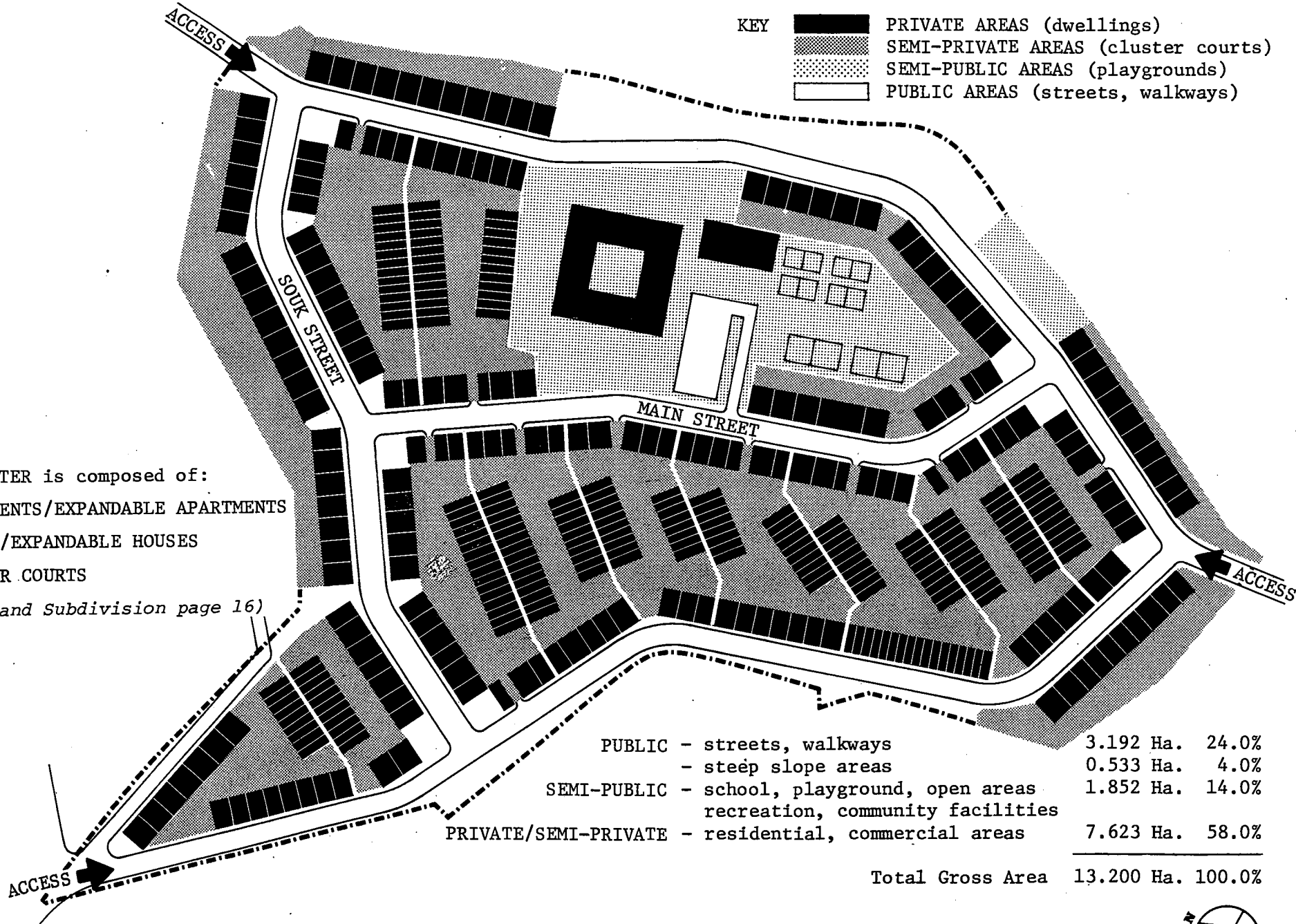


CLUSTERS (AHIA') The picture shows a series of lot clusters, each containing a semi-private interior court (*SEHAT*) bounded by row houses and walk-up apartments. This interior court provides access to the dwellings and is the place for outdoor social activities of the families living in the cluster.

KEY

-  PRIVATE AREAS (dwellings)
-  SEMI-PRIVATE AREAS (cluster courts)
-  SEMI-PUBLIC AREAS (playgrounds)
-  PUBLIC AREAS (streets, walkways)

A CLUSTER is composed of:
 APARTMENTS/EXPANDABLE APARTMENTS
 HOUSES/EXPANDABLE HOUSES
 CLUSTER COURTS
 (See Land Subdivision page 16)



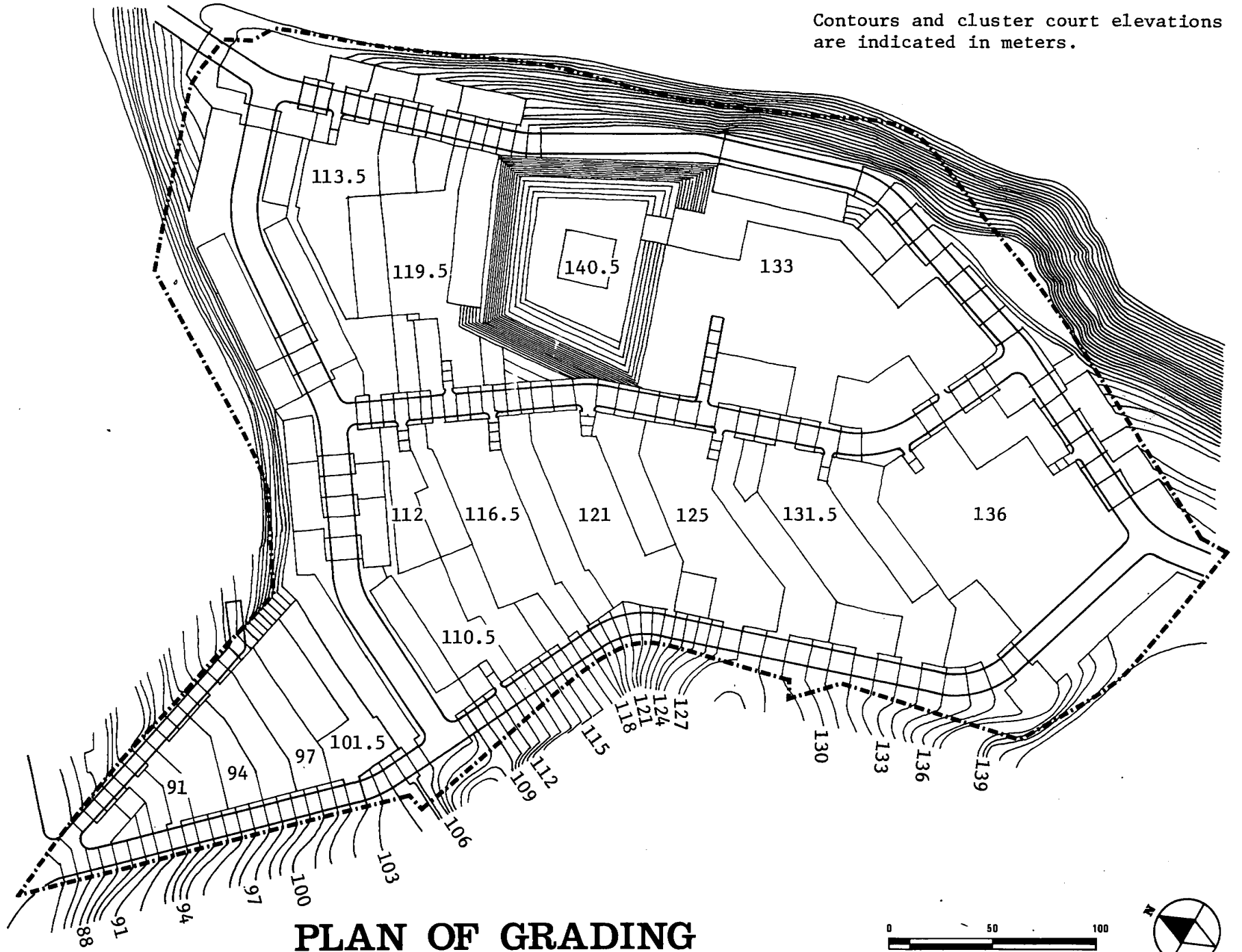
PUBLIC	- streets, walkways	3.192 Ha.	24.0%
	- steep slope areas	0.533 Ha.	4.0%
SEMI-PUBLIC	- school, playground, open areas	1.852 Ha.	14.0%
	- recreation, community facilities		
PRIVATE/SEMI-PRIVATE	- residential, commercial areas	7.623 Ha.	58.0%

Total Gross Area 13.200 Ha. 100.0%

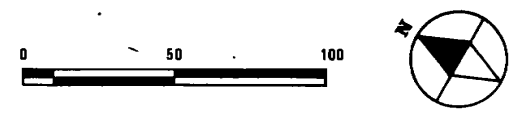
PLAN OF LAND USE / SUBDIVISION



Contours and cluster court elevations are indicated in meters.



PLAN OF GRADING



LAND SUBDIVISION

The land subdivision proposed for the Mkalles Project is based on the following policies:

Minimization of: public land for circulation and lengths of infrastructure per area served (electricity, water, sewerage networks, street lights, police protection, garbage collection). The results are savings for the government in construction, maintenance and operation.

Maximization of: private (users) responsibility, initiative, participation. The results are social and economic benefits.

These policies lead to a type of land subdivision called "condominiums" or "clusters", where dwellings are grouped around a common court that serves as an access space as well as a semi-private open space. This court is owned in condominium by the owners of the dwellings, which control, share the use and the responsibility for the maintenance of the court.

Condominium is a system of direct ownership of a single unit in a multi-unit structure. The individual owns the unit in much the same manner as if it were a single family dwelling; he holds direct legal title to the unit and a proportionate share of the common areas and the underlying ground.

But most important, clusters (*AHIA'*) and courts (*SEHAT*) belong to the Lebanese culture; they provide an environment for neighborhood associations and social proximity; they facilitate outdoor activities under the mild climate of Beirut.

HOUSING

The housing proposed for the Mkalles Project have the following characteristics:

- There are two basic types of dwelling units: walk-up apartments and houses.
- The ground floor of the buildings facing public streets can be alternatively used as dwellings or shops.
- The majority of dwelling units are basic shells that can be internally completed and expanded. The advantage of this system is that it provides flexibility and minimizes the initial investment by the users as well as the total investment by the government.
- The apartment units have a maximum of 8 families sharing the same facilities (stairs, terrace) to facilitate control and responsibility in the use and maintenance.
- Several dwelling options are available to different income groups: apartments, expandable apartments, houses, expandable houses of different areas.
- The type of tenure is condominium ownership in all the dwellings.

In the following pages, further aspects concerning dwellings are illustrated: construction, development, options, incomes, types.

DWELLING CONSTRUCTION

Dwelling design and construction system have the following characteristics:

- Building height: 2 to 5 floors for maximum land utilization within the Building Code restrictions. Main reasons are cost of land, the difficult topography of the site, saving on foundations and most important an adequate population density.
- Reinforced concrete frame construction: columns, bearing walls, beams, floor and roof slabs. The span ranges from 2.20m (staircases) to 6.60m (slabs).
- Minimum number of simple foundations.
- Minimum number of retaining walls. In most of the cases retaining walls and bearing walls are combined.
- Minimum public circulation (streets) and two basic directions for buildings: parallel or perpendicular to contours.
- Maximum cross ventilation and adequate orientation for dwellings.

Foundations: alternatives: a) reinforced concrete footings for columns, retaining walls, bearing walls; b) reinforced concrete slab on grade for partitions.

Retaining walls: reinforced concrete 2.40m, 3.00m high.

Bearing walls: alternatives: a) reinforced concrete, minimum width 20cm; b) concrete blocks 20cm with reinforced concrete columns, poured in block perforations; c) concrete blocks 20cm, with tie beams above.

Non-bearing walls: exterior, 20cm concrete blocks; interior, 10cm concrete blocks.

Floor slabs: alternatives: a) reinforced concrete, hourdi block slab poured in situ; b) wood floor in case of expansions.

Roof slabs: reinforced concrete hourdi slab poured in situ.

Balcony: same as slabs.

Bathroom: shower, lavatory, arabic water closet, ventilation duct.

Kitchen: sink, ventilation duct.

Stairs: reinforced concrete or wood.

Doors: wood, for entrance, shower, water closet, 1 room.

Windows: casement or sliding windows, wood or wood and metal.

Lightwell covers: translucent corrugated plastic sheets.

Walls/floor finish: exposed concrete floor, exposed walls painted.

Sewage/water: connections, fixtures, reserve water tank on terrace.

Garbage chute: access from each dwelling unit.

Electricity: conduits, outlets.

DWELLING PROGRESSIVE DEVELOPMENT

- *First phase* includes the basic shell described in construction system. It will be provided by the government and built by contractor.

- *Second phase* includes some elements added and paid by the owner for occupation of the dwelling: partitions, doors, closets, etc.

- *Third phase* includes more elements added and paid by the owner for expansion of the dwelling: interior partitions, floors, doors, closets, lightwell cover, interior stairs.

DWELLING OPTIONS

The following table illustrates the different dwelling options available in terms of types, area, number of rooms, capacity for expansion and costs. Unit construction costs, unit land costs are estimated on actual market values.

TYPE	AREA (m ²)	Nº of ROOMS	Nº of FLOORS	CONSTRUCTION COST \$70/m ²	LAND COST (1) \$11/m ² of const.	LAND COST (2) \$8/m ² of const.	INFRASTRUCTURE COST @ 1/3 of construction	DWELLING UNIT COST TOTAL
APARTMENT	57M ²	2	1	\$3,990	\$627	\$456	\$1,330	\$6,403.
APARTMENT	73M ²	3	1	\$5,110	\$803	\$584	\$1,703	\$8,200
APARTMENT	76M ²	3	2	\$5,320	\$836	\$608	\$1,773	\$8,538
expandable to	89M ²	4						
APARTMENT	76M ²	3	2	\$5,320	\$836	\$608	\$1,773	\$8,538
expandable to	108M ²	4						
APARTMENT	93M ²	4	2	\$6,510	\$1,023	\$744	\$2,170	\$10,447
expandable to	121M ²	6						
APARTMENT	93M ²	3	2	\$6,510	\$1,023	\$744	\$2,170	\$10,447
expandable to	139M ²	6						
HOUSE	80M ²	3	2	\$5,600	\$880	\$640	\$1,867	\$8,987
expandable to	123M ²	5						
HOUSE	94M ²	4	3	\$6,580	\$1,034	\$752	\$2,193	\$10,559
expandable to	172M ²	7						

(1) land cost assigned by government

(2) additional cost to reach market value

DWELLINGS AND INCOMES

The following table illustrates a suggested distribution of the dwelling options among different income groups, their annual family budget and the annual subsidy needed for each dwelling option. Land value and infrastructure are assumed subsidized for all income groups.

ANNUAL FAMILY INCOME	\$1200			\$2000			\$3200			\$4800		
BUDGET: Housing:	\$240	20.0%		\$ 400	20.0%		\$ 640	20.0%		\$ 960	20.0%	
Transportation:	\$ 40	3.3%		\$ 40	2.0%		\$ 60	1.9%		\$ 60	1.3%	
Food/Clothing:	\$658	54.8%		\$1090	54.5%		\$1885	58.9%		\$2740	56.9%	
Health/Education:	\$100	8.3%		\$ 100	5.0%		\$ 200	6.2%		\$ 400	8.3%	
Utilities:	\$130	10.8%		\$ 150	7.5%		\$ 180	5.7%		\$ 60	1.3%	
Municipal Tax:	\$ 12	1.0%		\$ 20	1.0%		\$ 35	1.1%		\$ 60	1.3%	
Miscellaneous:	\$ 20	1.8%		\$ 200	10.0%		\$ 200	6.2%		\$ 400	8.3%	
DWELLING OPTIONS	57M ²	73M ²	76M ²	57M ²	73M ²	76M ²	76M ²	93M ²	80M ²	93M ²	80M ²	94M ²
ACTUAL COST/YR(1):												
20 yr. loan:	\$471	\$604	\$628	\$471	\$604	\$628						
15 yr. loan:							\$768	\$939	\$808			
12 yr. loan:										\$1114	\$958	\$1126
TOTAL SUBSIDY	\$231	\$364	\$388	\$71	\$204	\$228	\$128	\$299	\$168	\$154	-\$2	\$166
PER FAMILY PER YEAR												
Construction and land:	\$56	\$139	\$148	-\$60	\$ 35	\$ 53	-\$ 85	\$ 39	-\$ 57	-\$155	-\$269	-\$148
Additional land cost:	\$29	\$ 37	\$ 39	\$34	\$ 43	\$ 45	\$ 55	\$ 67	\$ 58	\$ 79	\$ 68	\$ 80
Infrastructure:	\$85	\$109	\$114	\$97	\$126	\$130	\$158	\$193	\$167	\$230	\$199	\$234
Interest difference(2):	\$61	\$ 79	\$ 80	-	-	-	-	-	-	-	-	-

(1) based on 4% government loan

(2) difference between 4% government loan and 2.5% family payment

amounts preceded with (-) can be applied to reduce subsidies by government

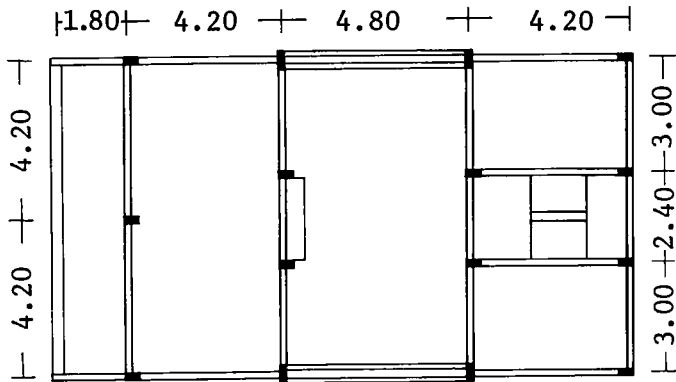
DWELLING UNIT: **57M²** - 2 ROOMS - 1 FLOOR

Type: APARTMENT
 Tenure: OWNERSHIP
 Land/lot area: VARIES
 Development mode: INSTANT

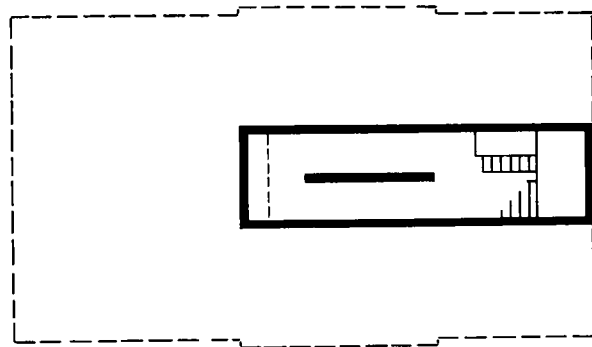
76M² - 3 ROOMS - 2 FLOORS

APARTMENT EXPANDABLE TO 89M², 4 ROOMS
 OWNERSHIP
 VARIES
 PROGRESSIVE

(Ceiling height is 2.20m, limiting a second floor expansion to 2/3 of the first floor area.)

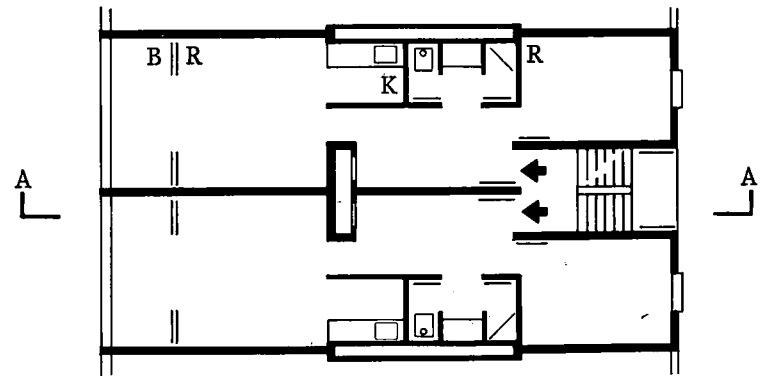
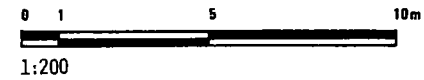


STRUCTURAL FRAME PLAN



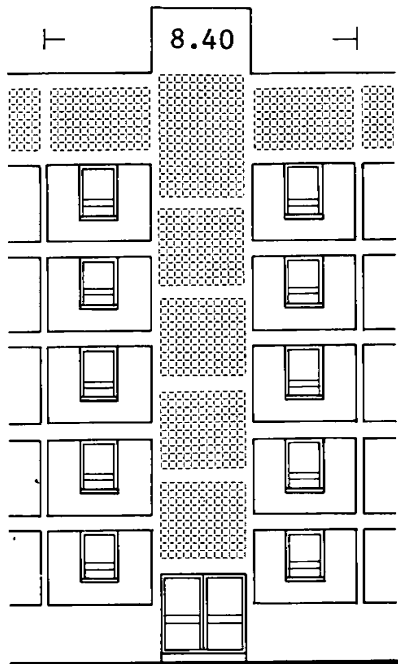
BASEMENT PLAN

KEY
 R room
 K kitchen
 B balcony
 O opening
 (E) expansion

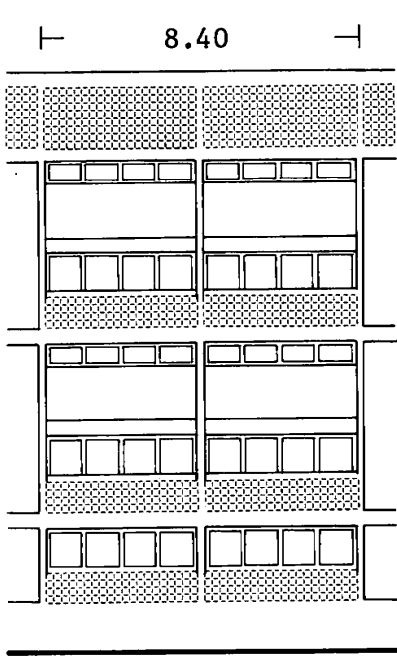


FLOOR PLAN

57M² APARTMENT



ENTRANCE ELEVATION

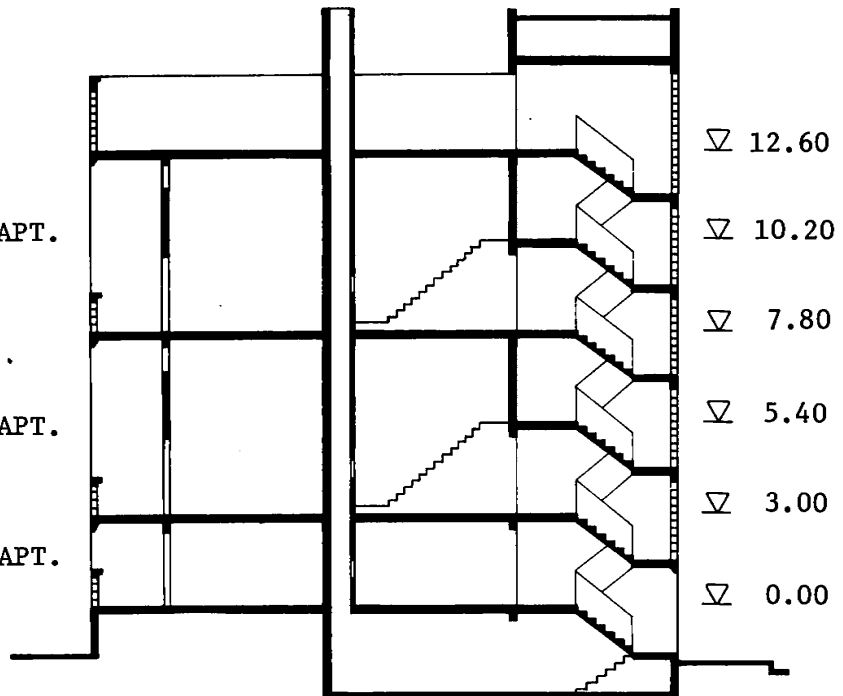


BALCONY ELEVATION

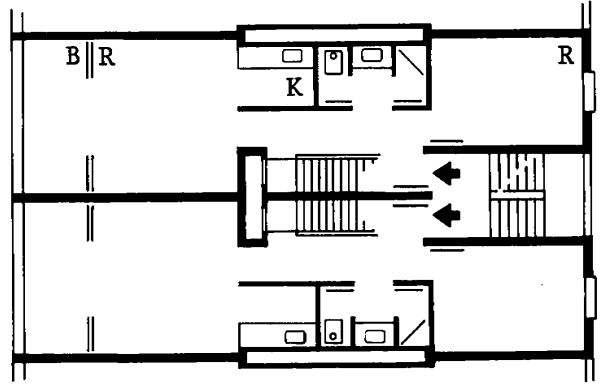
76m² APT.

76m² APT.

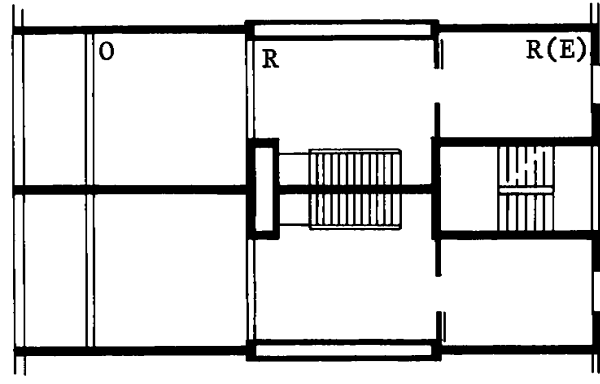
57m² APT.



SECTION A-A



FIRST FLOOR PLAN



SECOND FLOOR PLAN

76m² APARTMENT EXPANDABLE TO 89m² - 4 ROOMS

DWELLING UNIT: **57m² - 2 ROOMS - 1 FLOOR**

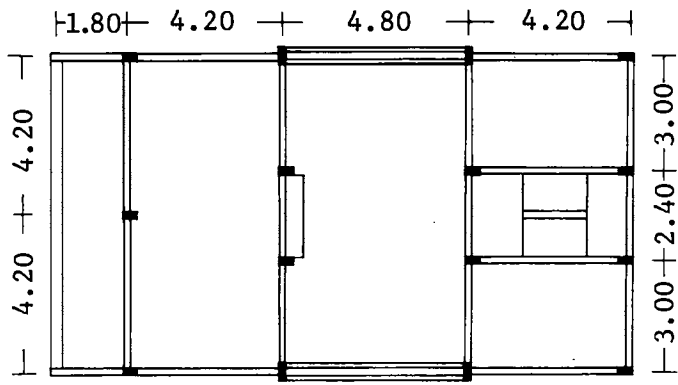
Type: APARTMENT
 Tenure: OWNERSHIP
 Land/lot area: VARIES
 Development mode: INSTANT

(Same as 57m² apartment on page 20.)

76m² - 3 ROOMS - 2 FLOORS

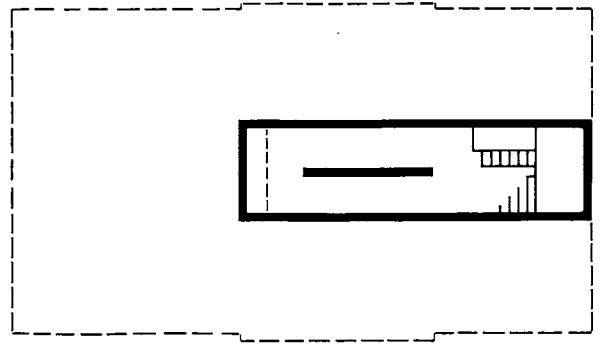
APARTMENT EXPANDABLE TO 108m², 4 ROOMS
 OWNERSHIP
 VARIES
 PROGRESSIVE

(Ceiling height is 2.80m, allowing a second floor expansion equal to the first floor area.)

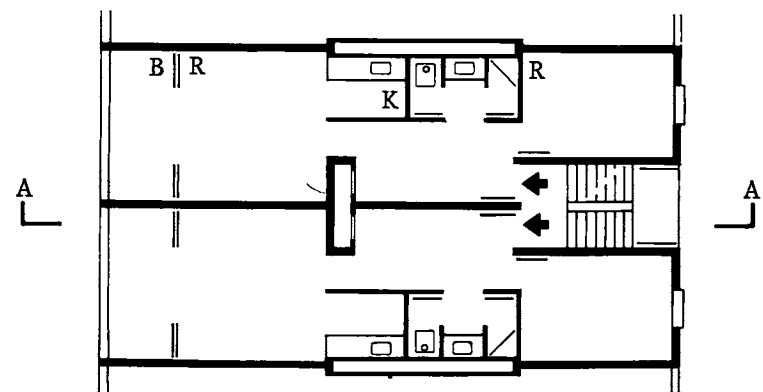


STRUCTURAL FRAME PLAN

KEY
 R room
 K kitchen
 B balcony
 O opening
 (E) expansion

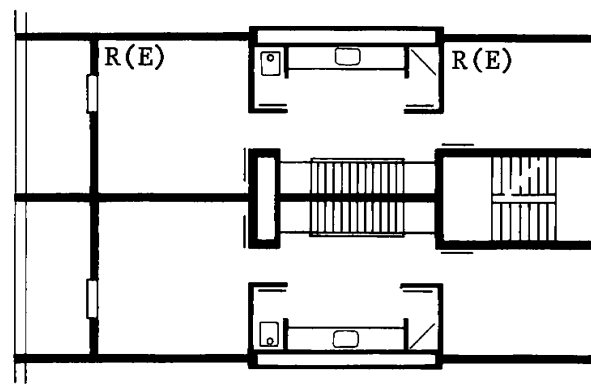
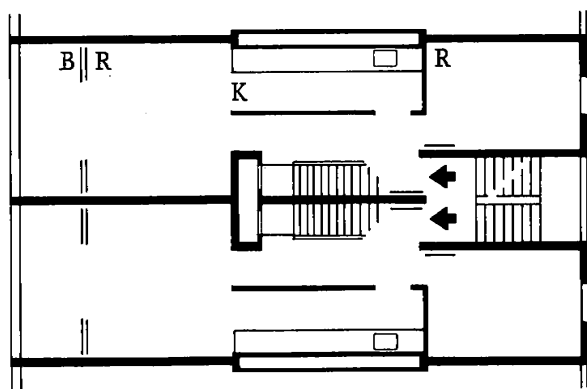
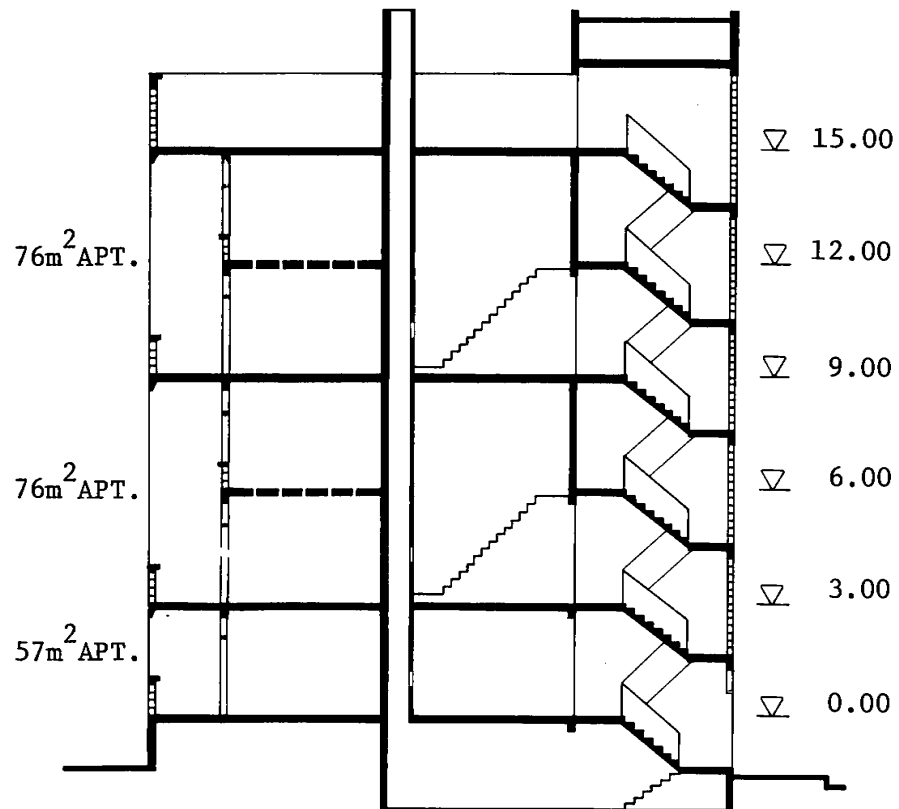
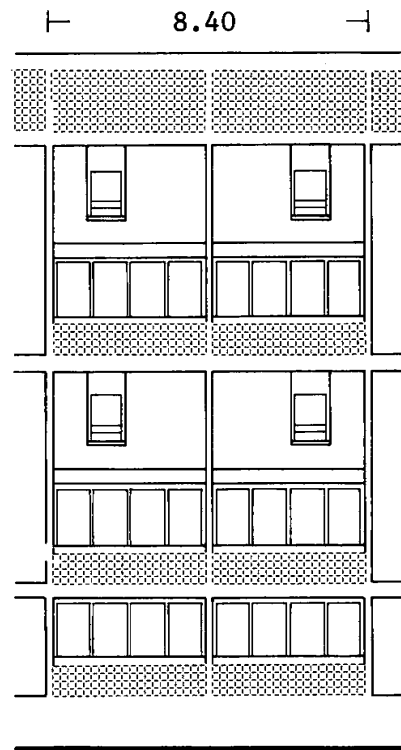
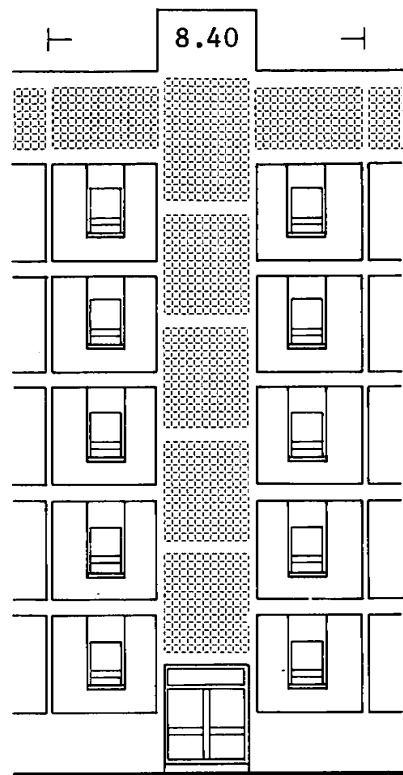


BASEMENT PLAN



FLOOR PLAN

57m² APARTMENT (Same as apartment on page 20.)



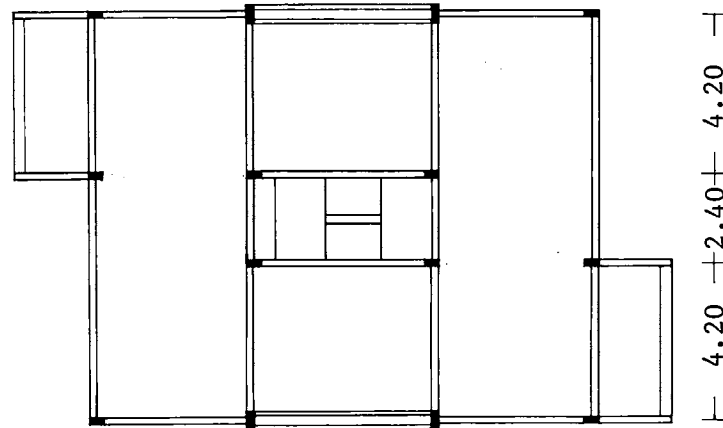
76m² APARTMENT EXPANDABLE TO 108m² - 4 ROOMS

DWELLING UNIT: **73M²** - 3 ROOMS - 1 FLOOR
 Type: APARTMENT
 Tenure: OWNERSHIP
 Land/lot area: VARIES
 Development mode: INSTANT

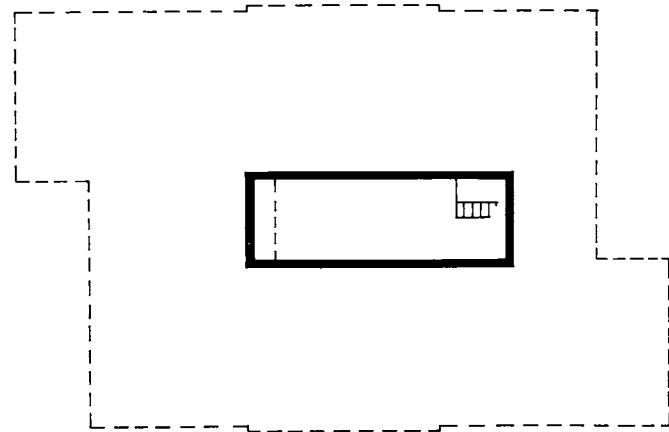
93M² - 4 ROOMS - 2 FLOORS
 APARTMENT EXPANDABLE TO 121m², 6 ROOMS
 OWNERSHIP
 VARIES
 PROGRESSIVE

(Ceiling height is 2.20m, limiting a second floor expansion to 2/3 of the first floor area.)

1.80 + 4.20 + 4.80 + 4.20 + 1.80

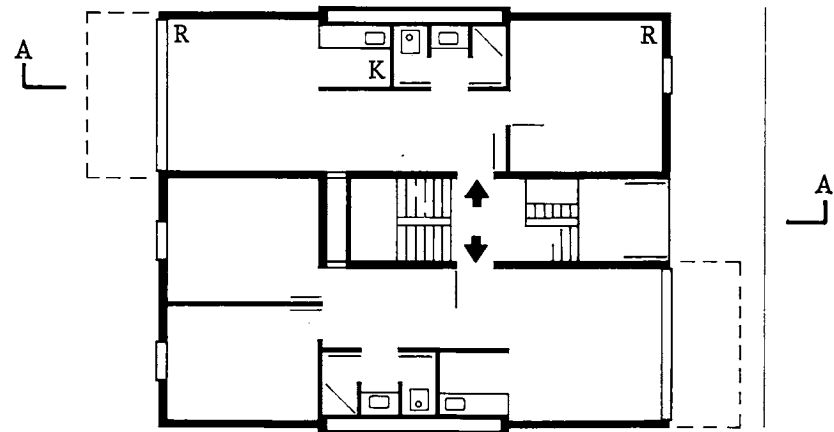


STRUCTURAL FRAME PLAN



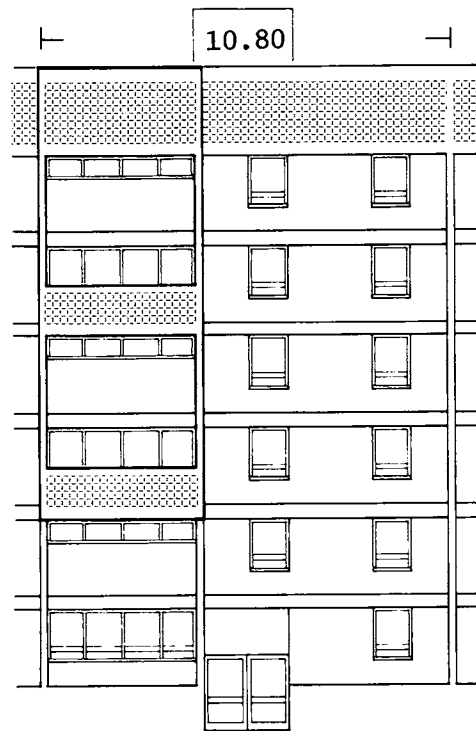
BASEMENT PLAN

KEY
 R room
 K kitchen
 B balcony
 O opening
 (E) expansion



FLOOR PLAN

73M² APARTMENT



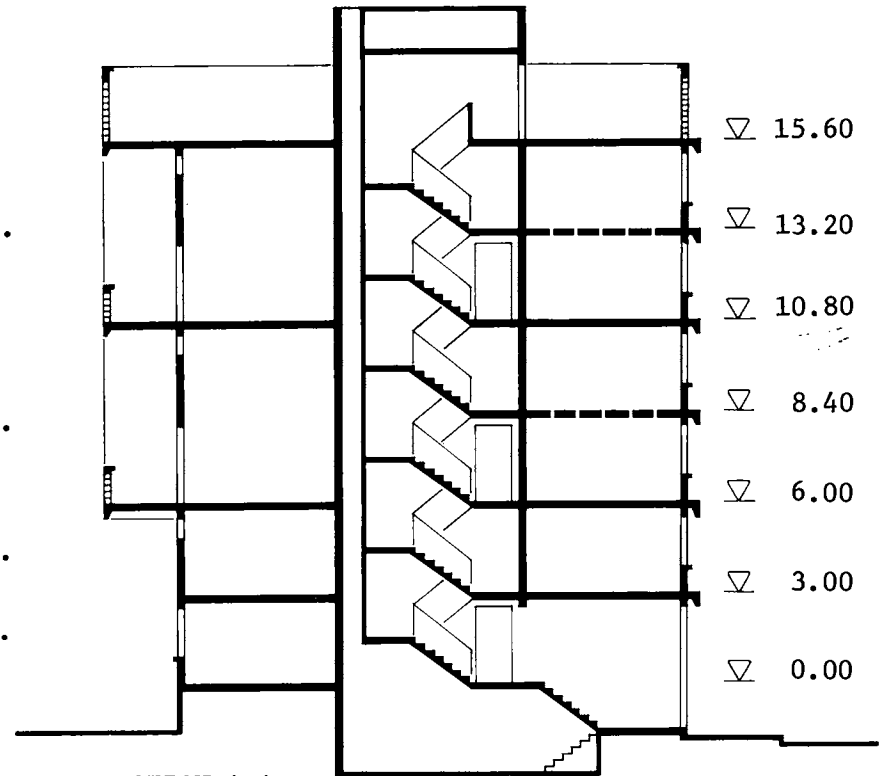
ENTRANCE ELEVATION

93m² APT.

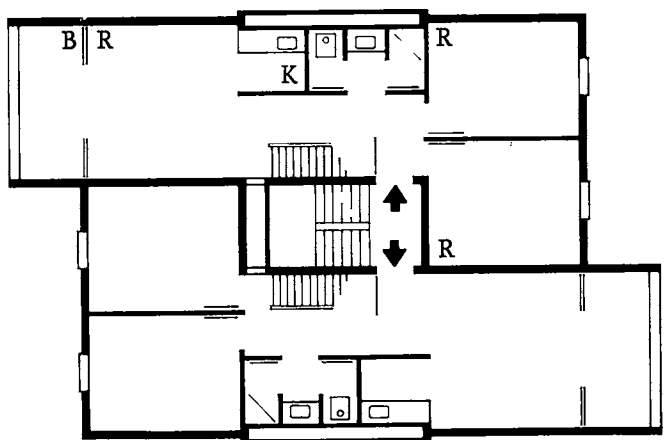
93m² APT.

73m² APT.

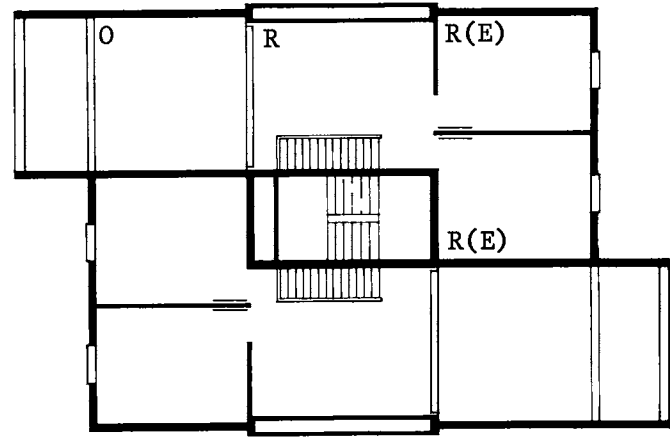
73m² APT.



SECTION A-A



FIRST FLOOR PLAN



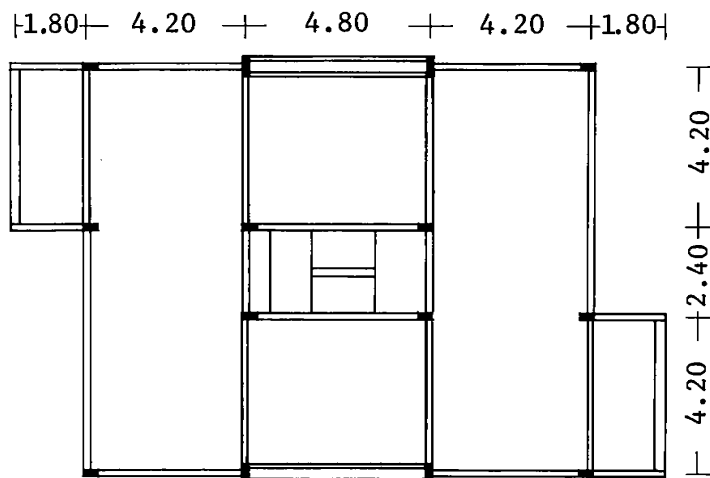
SECOND FLOOR PLAN

93m² APARTMENT EXPANDABLE TO 121m² - 6 ROOMS

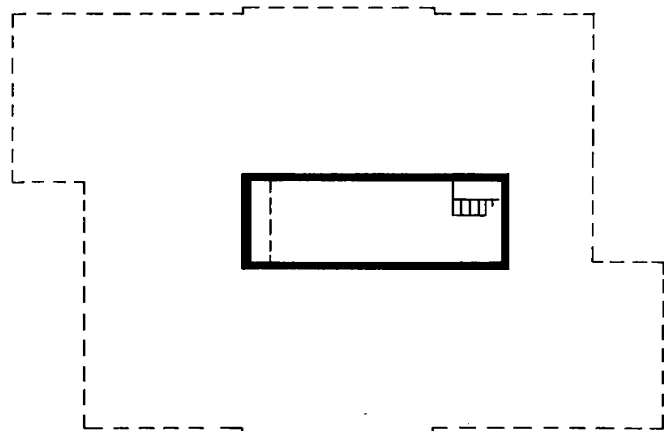
DWELLING UNIT: **73m²** - 3 ROOMS - 1 FLOOR
 Type: APARTMENT (Same as 73m²)
 Tenure: OWNERSHIP (apartment on page 24.)
 Land/lot area: VARIES
 Development mode: INSTANT

93m² - 3 ROOMS - 2 FLOORS
 APARTMENT EXPANDABLE TO 139m², 6 ROOMS
 OWNERSHIP
 VARIES
 PROGRESSIVE

(Ceiling height is 2.80m, allowing a second floor expansion equal to the first floor area.)

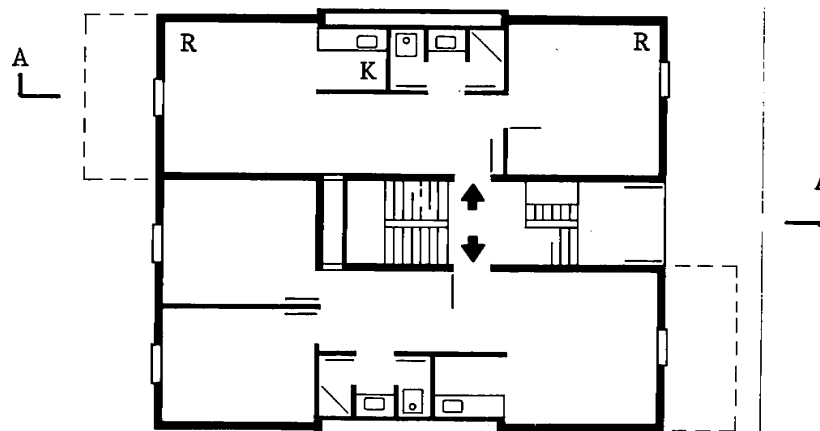
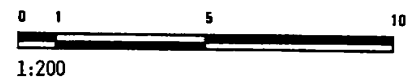


STRUCTURAL FRAME PLAN



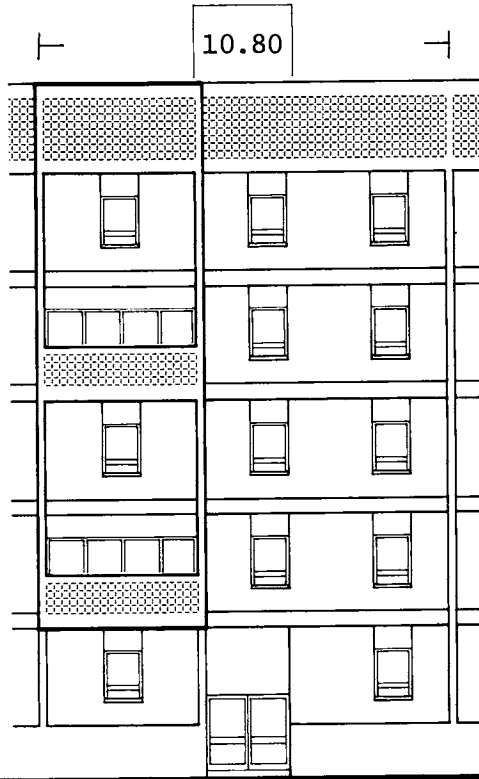
BASEMENT PLAN

KEY
 R room
 K kitchen
 B balcony
 O opening
 (E) expansion



FLOOR PLAN

73m² APARTMENT (Same as apartment on page 24.)

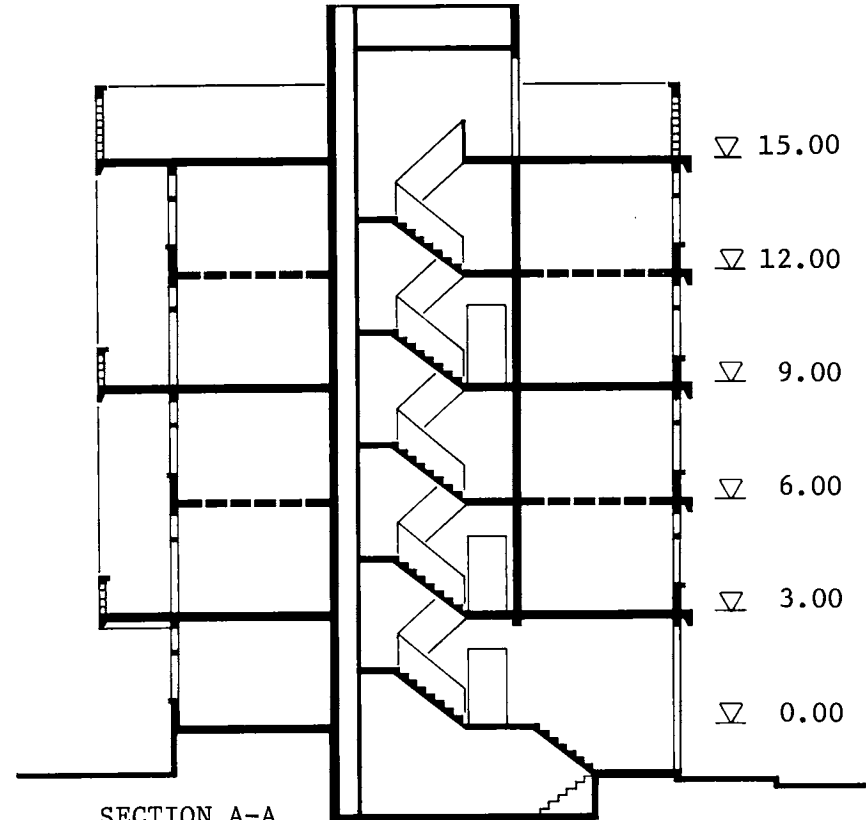


ENTRANCE ELEVATION

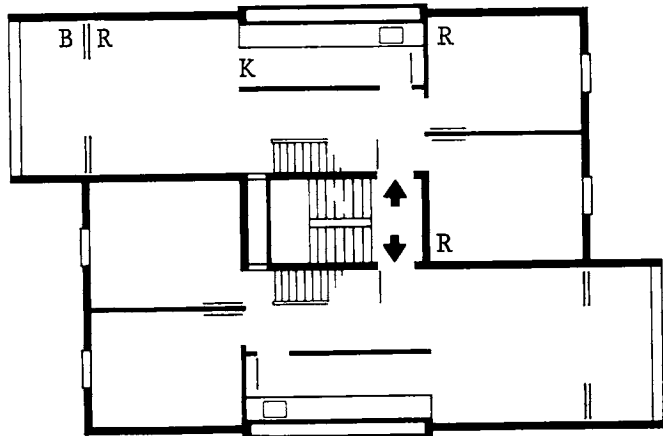
93m² APT.

93m² APT.

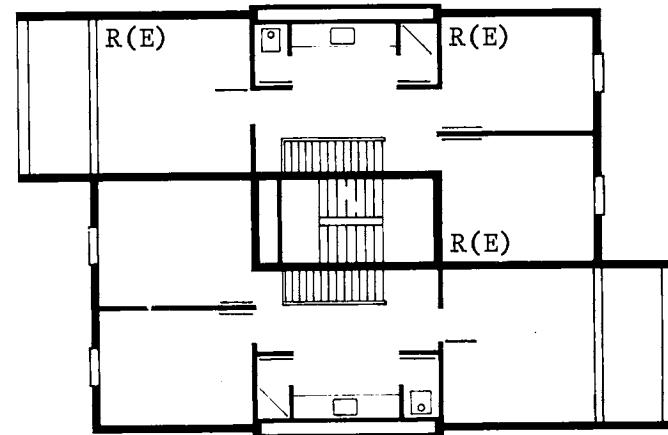
73m² APT.



SECTION A-A



FIRST FLOOR PLAN



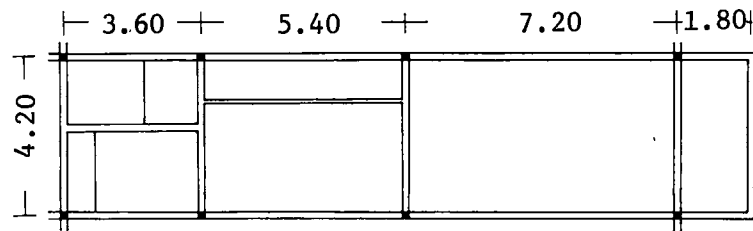
SECOND FLOOR PLAN

93M² APARTMENT EXPANDABLE TO 139M² - 6 ROOMS

DWELLING UNIT: **80m² - 3 ROOMS - 2 FLOORS**
 Type: HOUSE EXPANDABLE TO 123m², 5 ROOMS
 Tenure: OWNERSHIP
 Land/lot area: 68m²
 Development mode: PROGRESSIVE

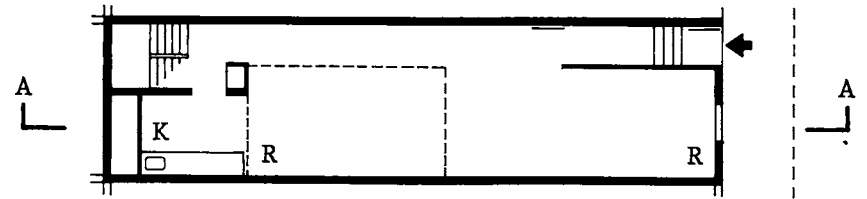
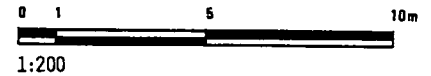
94m² - 4 ROOMS - 3 FLOORS
 HOUSE EXPANDABLE TO 172m², 7 ROOMS
 OWNERSHIP
 68m²
 PROGRESSIVE

(Same house as 80m², but with one additional floor.)



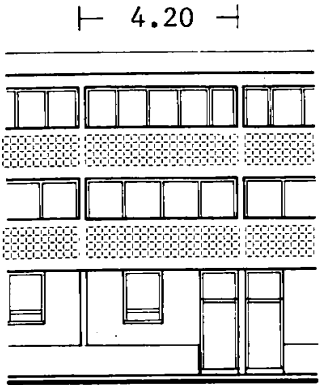
STRUCTURAL FRAME PLAN

KEY
 R room
 K kitchen
 B balcony
 O opening
 (E) expansion

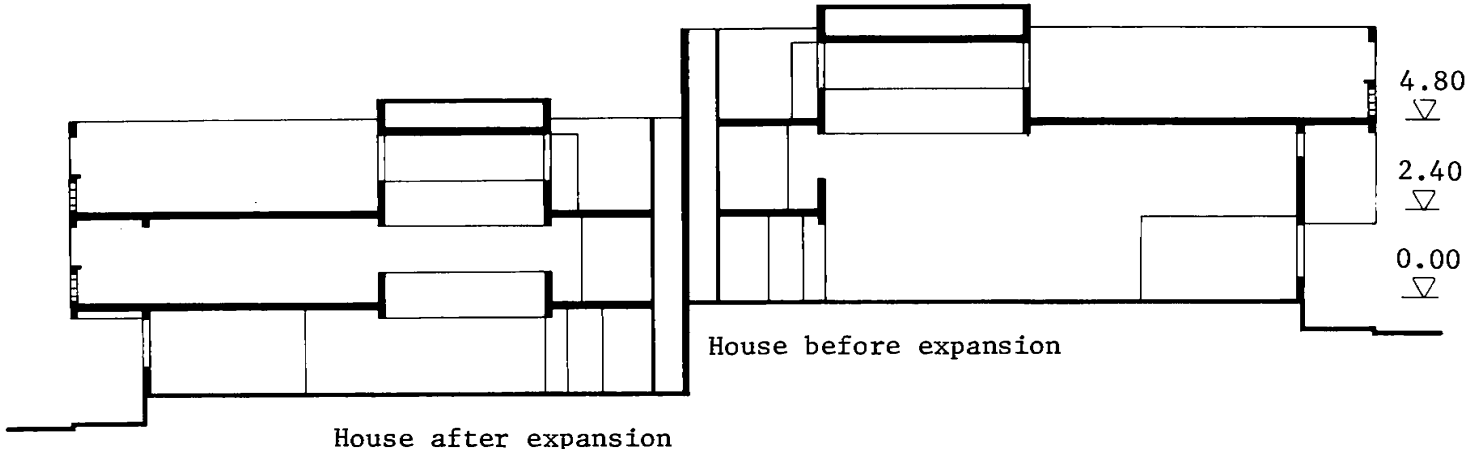


FIRST FLOOR PLAN

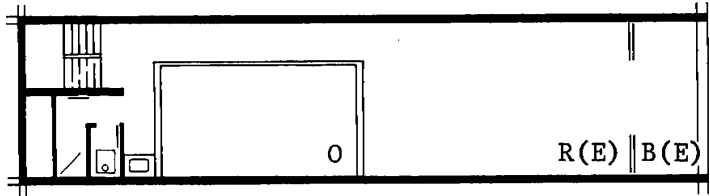
80m² HOUSE EXPANDABLE TO 123m² - 5 ROOMS



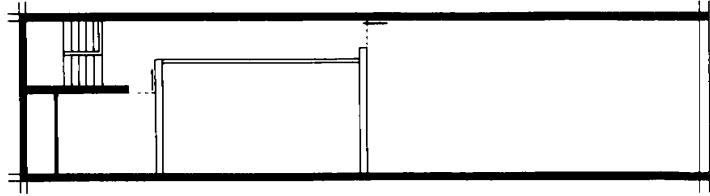
ELEVATION



SECTION A-A



SECOND FLOOR PLAN



TERRACE PLAN

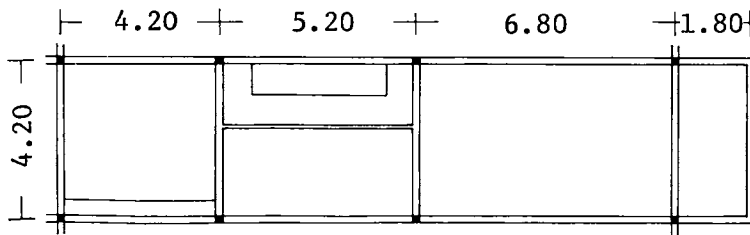
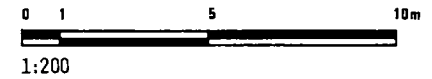
DWELLING UNIT: **80m² - 3 ROOMS - 2 FLOORS**
Type: HOUSE EXPANDABLE TO 123m², 5 ROOMS
Tenure: OWNERSHIP
Land/lot area: 68m²
Development mode: PROGRESSIVE

94m² - 4 ROOMS - 3 FLOORS
HOUSE EXPANDABLE TO 172m², 7 ROOMS
OWNERSHIP
68m²
PROGRESSIVE

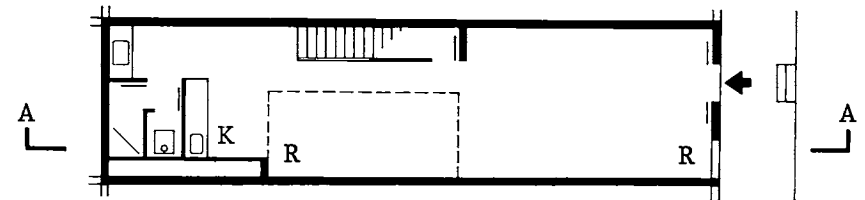
(Same house as 80m², but with one additional floor.)

KEY

- R room
- K kitchen
- B balcony
- O opening
- (E) expansion

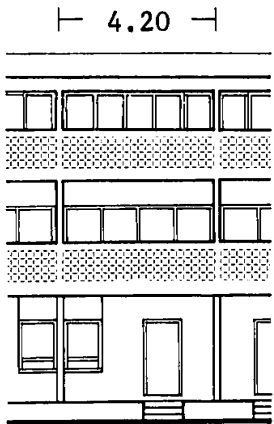


STRUCTURAL FRAME PLAN

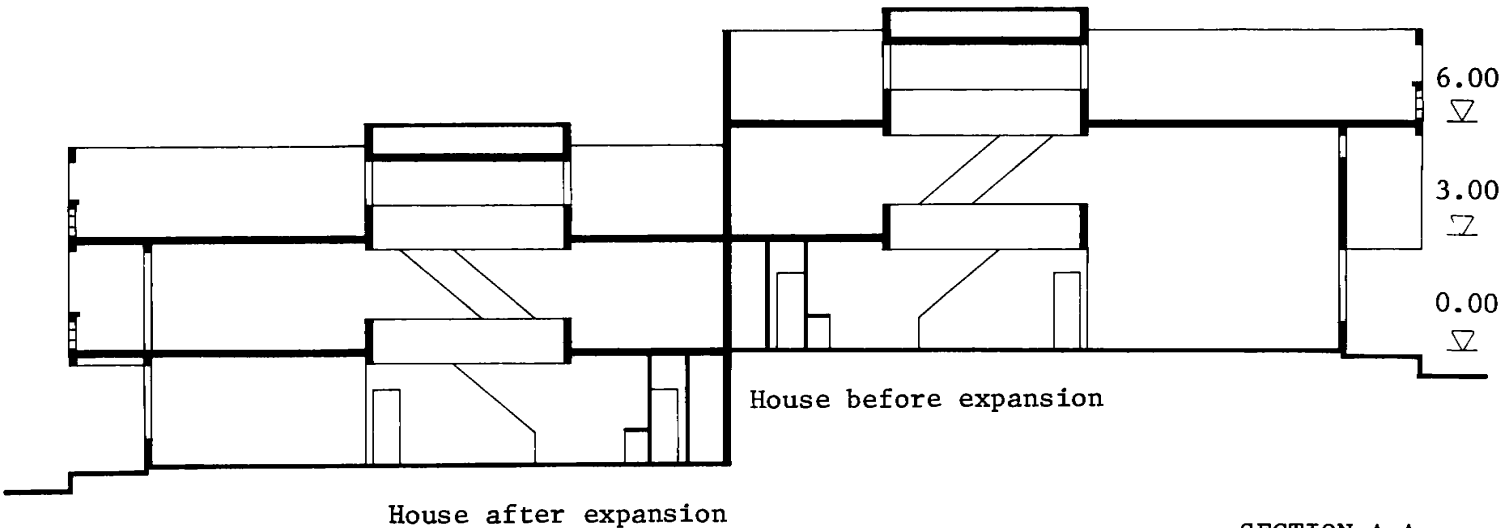


FIRST FLOOR PLAN

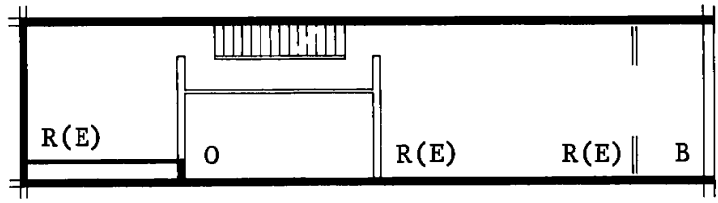
80m² HOUSE EXPANDABLE TO 123m² - 5 ROOMS



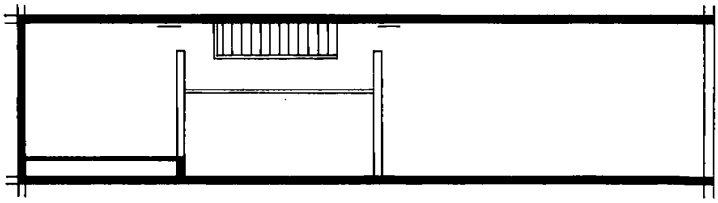
ELEVATION



SECTION A-A



SECOND FLOOR PLAN



TERRACE PLAN

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