

*ENVIRONMENTAL DESIGN EVALUATION OF MULTI-FAMILY
HOUSING IN BAGHDAD: USERS' SATISFACTION WITH THE
EXTERNAL AREAS*

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SUMMARY

The ultimate test of the success of a housing development is the level of satisfaction that it engenders for its residents. It has been found, in much research carried out in the developed countries that the lack of detailed knowledge about users' needs and the failure to predict user behaviour were mainly to blame for unsatisfactory housing environments. In multi-family housing the external open spaces around and between the dwellings were shown to be crucial to overall user satisfaction.

This study based in Iraq investigates users' satisfaction with the environment of recently constructed multi-family housing. It aims to identify the elements of the external environment associated with the residents' overall satisfaction in relation to these new environments. This study uses a range of factors which have been identified in many studies elsewhere in the world as having a bearing on users' satisfaction with their housing environment to examine people's reaction to their housing environment. It considers how such factors influence users' satisfaction in Iraq, and also identifies the Iraqi housing designers' intentions in relation to the external environment and examines their success in meeting user requirements.

Various systematic information-gathering techniques were used to obtain the information needed for the evaluation. These included structured interviews of 183 households in three new housing projects, general observations as well as unstructured interviews with the designers and planners.

The results of this study has shown to a large extent that the application of Western research in Iraq is valid. It is suggested that if Iraq used the knowledge available in the Western studies, it could avoid repeating the mistakes made in Western Europe and the U.S.A., during its transition from a rural to a more urban society. In particular this study has highlighted some essential social and cultural differences which indicate that Iraq must develop its own special approach to housing. It is hoped that this study may be used both to influence the drawing up of future housing policies in Iraq and the planning of new housing estates. In addition to providing the basis for rearranging the external environment of existing housing estates to meet more closely the needs of the residents.

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INTRODUCTION

1.1 GENERAL INTRODUCTION

The ultimate test for the success of a housing development is the level of satisfaction that it engenders for its residents. Notably, all over the world during the last two decades many modern housing projects have been rejected and even abandoned by their residents. This phenomenon therefore, took much of the attention of the researchers, behavioural scientists and planning and design practitioners, they have been attempting to identify the reasons for residents' dissatisfaction. It has been found that the lack of detailed knowledge about users' needs and the failure to predict user behaviour were mainly to blame for unsatisfactory housing environments. Professionals' priorities in decision making on housing environments were also found in many instances to differ from those of the residents concerned.

Since the disclosure of these findings, user attitude surveys have become a popular practice and widely applied

in the developed countries by the housing authorities concerned, aiming to improve the current and future approaches to design the housing environments. Attitude surveys have the virtue of disclosing information about the users' characteristics, their needs, values, aspirations and their behaviour in the housing environment, as well as revealing users' priorities in these needs. Once designers know the specific resident group, their particular needs, and their priorities, they can use information from attitude surveys to adjust their own priorities in design decisions and solutions. However, if the design evaluation is to be a crucial source for providing feedback information that can help planners and designers in making design decisions, either in future projects, or to improve current projects, then the physical environment must also be considered along with the users' needs, values and perception. Accumulation of knowledge of this kind is also needed in order to improve the predictability of the results of design decisions, to help in evaluating priorities in design and resources allocation, and to decide whether the past holds any valid lessons or whether innovation is desirable or essential.

Many studies have revealed that a good house alone is not enough: the resident's reaction to his environment is a total one and he does not see the house in isolation from its physical and social setting. Most people appear to

want a home that they can be proud of in a setting which reflects their aspirations, and they will not be content if there is insufficient choice, or if the environment is poorly managed and maintained. Findings from many of recent case studies of moderate and high-density housing developments which will be discussed in this thesis, suggest that the external areas outside the dwelling form the target for many of residents' complaints. Those studies suggest that in multi-family housing the private open spaces and the public and semi-public spaces around and between the dwellings -their design, maintenance, use, supervision and demarcation- are crucial elements in the liveability of the housing areas and consequently in overall users' satisfaction. However, many of the professionals involved in the housing environments, planners and designers, tend to have devoted an excessive amount of attention to the dwellings and little to the spaces between them. Despite the research findings on the importance of the external environment it remains common practice whenever it is necessary to make cuts in the budget, to reduce expenditure on the external environment.

The Housing Authority in Iraq has recently adopted the multi-family housing as the main form of housing in the State housing projects. This study will research this new form of housing in Iraq by investigating users' satisfaction with their housing environment, and will deal

mainly with the external areas; the spaces outside the dwellings, their physical design and usage patterns will be investigated as well as their influence on residents' satisfaction.

In Iraq no environmental design evaluation has yet been undertaken concerning the housing environments. Only a few studies had been done in relation to the house design in general, but none of the studies have dealt with the external areas in the residential environment. No previous door-to-door social surveys on these aspects of housing have been undertaken. Two aspects of interest have prompted this particular study of environmental design evaluation on multi-family housing projects in Baghdad. The first concerns the urgent need for an evaluation of public housing approaches, which involve public money in their construction and affect the lives of many people, particularly so because they are likely to be frequently repeated. The second aspect concerns the pioneering role of such research. The evaluation includes an appraisal of the extent to which the housing environments under study, particularly the areas outside the dwellings, satisfy and support the needs, preferences and values of their users. This would also implies to work out what aspects of the designed environment affects their satisfaction.

1.2 THE INITIATION OF MULTI-FAMILY HOUSING IN IRAQ

Iraq suffers from a housing crisis like many other developing countries in the world. In Baghdad, the capital, the crisis was caused by local factors in addition to other more general factors such as the increase in the population (Iraq is a country with high rate of annual demographic increase: 3.1%). The problem has been compounded by the need for innovation, the need for modernization of inner cities which resulted in slum clearance, in addition to the rural migration to the city. (see Chapter Five).

The rise in the standard of living and the aspirations of young families to live autonomously in their accommodation on the one hand, and the need for replacement of deteriorating existing stock of housing on the other, increased the demand for new housing. This coincided with the government policy of rapid development of all the aspects of life for the whole country, as a consequence of the high increase in the oil revenues in the early seventies. A flux of foreign experts and huge numbers of labourers entered the country, in order to participate in the implementation of the government's immense projects, all were in need of accommodation, thus increasing the need for more housing.

The increasing need for housing and the need for land for the development projects led to a sharp increase in land prices. In addition to the relatively high price of land suitable for housing, other factors such as the shortage of labour in the construction sector and the shortage and high cost of building materials, made it difficult for households in the low or middle income strata to obtain individual houses for themselves.

This housing shortage prompted the government to intervene by promoting mass housing projects to help those citizens to acquire private dwellings for themselves. The government passed a new housing act (Act No.1192) in 1976. Under this act The State Organization of Housing initiated the policy that multi-family housing should be the main form of housing for the mass of population in state projects, instead of the traditional single family housing. The government also provided loans through the Mortgage Bank of the State for financing these projects. The loans were interest-free and had to be paid off within twenty five years.

1.3 THE OBJECTIVES

The first phase of three projects of multi-family housing in Baghdad has recently been finished and residents have moved into their flats. These housing projects were designed by a team of architects and engineers of the State Organization of Housing; the housing units are in the form of low or medium-rise blocks of flats. It is a new experience for hundreds of people who have been living previously in single family housing to move to live in flats. Therefore, the main concern of this study is to investigate the impact of this new experience on residents' lives and whether they are satisfied with their current housing environment in general and with the areas outside the dwellings in particular, as well as to assess those aspects of the designed environment which affect residents' satisfaction.

The emphasis in this study is placed on physical and socio-cultural factors that were likely to contribute to users' satisfaction in multi-family housing. The major objectives of the study are to find out residents' attitudes towards the social and physical elements of the external areas on their housing environment, to identify those elements of the housing environments associated with overall satisfaction and those elements of fundamental

importance, and to make such information available to designers, planners and policy makers.

The study, therefore, aims to identify (a) the characteristics of the users under study, (b) the main physical features of the external environment and (c) residents' attitudes towards the social and physical aspects of their current housing environment and their behaviour in it. It then investigates the interrelationship between these aspects and users' satisfaction. It also investigates the influences of socio-cultural issues of certain relevance in Iraq: social interaction; "neighbourliness" and friendship networks, privacy; social views towards the dwelling and towards children's play, as well as the extent to which these are important to the specific group of users under study.

This research is partly descriptive and partly analytical. Descriptive, by collating and reviewing the findings from previous studies of theoretical and empirical bases elsewhere in the world in the field of man-environment relationship, in order to alert the planners and the designers of the need to consider, in making design decisions firstly, the significant role of the external environment in housing projects on the quality of life of the residents. Secondly, to be aware of the needs, values and priorities of each group of users for

whom they are planning and designing, as well as to be cognizant of the way these users actually use the external spaces outside their dwellings.

This study is analytical in two terms. Owing to the absence of data on users' satisfaction in Iraq, it uses a range of factors which have been identified in many studies elsewhere in the world as having a bearing on users' satisfaction with their housing environment and examines their influences on users' satisfaction in Iraq, and then analyses their degree of influence in the Iraqi situation. It also identifies designers' intentions and examines them in relation to users' attitudes and behaviour.

The research itself is exploratory, pioneering, and designed to guide future research. Thus, it is hoped that adequate evidence will be obtained in relation to multi-family housing in Iraq and particularly the importance of the external areas to form a basis for a more comprehensive set of recommendations for improving the external environment of the housing, and consequently the quality of life for the social groups similar to the groups under study in the future. At the same time, much emphasis is placed on the structure of the study so as to form a model of procedure and process of a systematic environmental design evaluation, to show how further research, urgently needed to support the housing efforts in

Iraq, can best be carried out.

For this purpose, a field study was designed and carried out in Baghdad, using three multi-family housing projects as case studies, including a wide sample of households sufficient to enable a detailed analysis to be made of the data collected. The sample included one hundred and eighty three households. A multiple of information-gathering techniques were used to obtain the relevant information needed for the evaluation. Structured interviews and questionnaires were used for the purpose of data gathering, as well as general observations made by the researcher during site visits and interviews on the way people were using their flats, arranging the furniture, the use of balconies and private gardens. Unstructured interviews with the designers were also undertaken, as well as using members of staff from the Housing Authority responsible for the developments as informants. These methods of investigation were also augmented with other unobtrusive methods: by checking the job files and letters, as well as design drawings concerning the projects under study.

THE EXTERNAL ENVIRONMENT

2.1 MAN-ENVIRONMENT RELATIONSHIP

Findings from studies in disciplines such as sociology, psychology, anthropology, geography and ecology suggest that the environment affects people lives significantly, directly or indirectly. Having said that, however, it has to be recognized that the environment does not act in isolation and that its influence on behaviour will vary in relation to the relative importance of other factors involved. Kurt Lewin in the early fifties presented the formula $B = f(P+E)$ to explain the interactional relationship between man and environment, where behaviour (B) is a function of personal factor (P), as well as of the environment (E), in which they take place (Lewin 1951). Clearly, any action taken by the individual in the environment depends not only on the nature of that environment, but also upon the individual's personality. The individual personality in its turn is affected by physiological factors; related to the body's biological mechanism and psychological factors; related to the cultural background, motives, and experiences of the

individual as well as his physical needs (Ittelson et al, 1974; Canter 1975; Altman 1975; Le Boyer 1982).

The physical environment which we built or the built environment as it is often called by planners and designers, therefore, does not affect behaviour in isolation, it acts in combination with other social, cultural, economic and political factors to create the total impact on individuals, and these factors are all interrelated and their influence varies according to their significance in specific cases. The built environment can only be a "co-producer" of behaviour, and the extent of its influence will vary between individuals and their circumstances, as well as with the detail, at all levels, of a particular situation (Ittelson et al, 1974; Le boyer 1982).

The interaction between the human and the environment is a two-way process. The environment has a definite impact on the individual, and our response may be to adapt to the imposed conditions. The other is that we are continuously manipulating or choosing our physical surroundings in an attempt to make life physically and psychologically more comfortable. Thus environment has an influential but not determinantal effect on behaviour (Lewin, 1951; Ittelson et al, 1974; Altman 1975; Canter 1975).

In the residential environments, the complexity of the relationship between environment and behaviour has hindered attempts to develop a satisfactory theory linking users behaviour with environment and to provide systematic and comprehensive layout advice, based on predicted responses of users (Coulson 1980). However, the abstract concept of satisfaction with housing environment has been used by those studying the link between people and their environment within housing areas. The users' behaviour in the housing environment and their responses to it have been used as indicators of their satisfaction with it (D.O.E, Db.21, 1970 & Db.22, 1971 & Db.25, 1972 & Db.27, 1973; Coulson 1980; Cooper 1975; Zeisel & Griffin 1975; Mulvihill & Hugh 1977).

Douglas Porteous in a revision of studies in the field cited Murdie (1969) and Yets and Garner (1971), suggesting that individual behaviour in residential environment is influenced, particularly, by the stage in the life cycle; concerns the sex, age of the heads of household, age of children (if any) and size of household; life style, which is a cultural attribute based on ethnic, race or national group; and life level or social rank; measured by education, income and occupation (Porteous 1977).

2.2 THE SIGNIFICANCE OF THE EXTERNAL ENVIRONMENT.

In relation to the built environment in general Barrie Greenbie has emphasised the influence of the external environment on users behaviour in his book "Spaces", he stated that "the external environment has to be essentially considered as a human habitat, that is, as environment in which people act and to which they react" (Greenbie 1981). Clare Cooper, particularly interested in residential environment, emphasizes the significance of the external environment strongly. She argues that "It is inappropriate, whatever the budget, to regard good site layout, attractive landscape or the provision of play areas and other communal facilities as luxury extras. It has the first importance in promoting residents' satisfaction" (Cooper 1982, p.9).

Since the pioneering studies of the Ministry of Housing and Local Government in Britain, later absorbed into the Department of the Environment, many studies dealt with post-occupancy evaluation of residents' satisfaction with the residential environments have shown that the external environment plays a vital and significant role in the residents' satisfaction with their total housing environment (MOHLG, Db.5, 1967; D.O.E, Db.21, 1970; Db.22, 1971; Db.25, 1972; Db.27, 1973; Db.32, 1977; Lansing et al, 1970; Zeisel and Griffin 1975; Cooper 1975 & 1982; Cooper &

Sarkissian 1986; Coulson 1980; D.O.E, H.D.D., 1981; Mulvihill & Hugh 1977; Beer 1983). A common factor arising from the studies of residents' satisfaction is that residents who are fairly or very satisfied with their dwellings are less satisfied with the external environment immediately outside the dwellings and with the estate as a whole.

An understanding of the function of the external spaces is fundamental to good design. The relationship between exterior and interior, the house itself, must be seen as one of equal partnership. Both can affect the residents' lives in either a positive or negative manner; a good design will enhance the human experience while a bad one can have quite opposite effect and produce the conditions in which life can be highly unsatisfactory unless the users are able to manipulate and change the environments created by the designer. Housing estates such as the Pruitt-Igo of St. Louis in America or the Eldon and Oak Gardens of Birkenhead in Britain which have had to be demolished stand as examples of an insensitive design. They were first built as high-rise blocks to replace housing in slums. Living there, the residents were separated from their normal street-life and deterred from surveilling their streets and monitoring the children outside the dwellings. This led to a situation where there was much vandalism and crime and the users sense of

identity and sense of community was destroyed (Canter 1975; Friedman et al, 1978; Yancey 1982). It is therefore clear that the built environment facilitates or discourages some behaviour. Thus, external spaces should be given due consideration at the onset of any project.

The failure of the housing environment to satisfy its residents, may well arise because those responsible for the design of housing estates have concentrated on the design of the buildings and have seen the external environment as just a setting for the buildings, neglecting the fact that residents see the housing environment as a whole and comprising two counterparts; the home and its external environment. Clare Cooper, amongst others, has suggested that the failure of housing environments to satisfy the users may be at least partly attributed to the lack of knowledge on the part of the designers about the residents' needs and preferences in relation to the areas outside their dwellings (Cooper 1975). This lack of knowledge may have been the factor which made them pay most of their attention to dwelling designs and little to the areas outside them.

The designers and planners involved in the housing environment tend to attribute the failure of the housing environment to satisfy its users to the constraints imposed by the cost yardstick and budget limitation. Some of the

architects have been able to hide behind that and use it as an excuse for the shortcomings of their designs. However, the cost constraints, though influencing the design decisions, should only be seen as a stimuli and as having a limited effect as they could as easily have been seen by the architects concerned as part of the challenge facing the designer; otherwise why do certain projects succeed, from users point of view, while others, of similar cost, fail. It could, also, be argued that the various ways in which different architects cope with the problems involved in housing can be seen as another consequence of the lack of knowledge about the needs and preferences of users.

Whilst the importance of the external environment as a contributor to the residents' satisfaction with the residential environment has been shown, there is, still, no easy acceptance from housing authorities of the need to spend more on the external environment. It has to be recognised that a better design and treatment of the space around the blocks of flats, to create a more attractive setting for the dwelling responsive to users' needs, must inevitably cost more initially. Work done in the early sixties in the United Kingdom by the Ministry of Housing and Local Government led to the statement that "The expenditure of a proportion of the capital cost of an estate in landscape treatment should be regarded as an essential investment for future" (MOHLG, Db.5, 1967). It

has been argued that the return on this investment could be great, as by promoting user satisfaction there appear to be a probability that the residents take greater care of their external environments and in the long run this would affect maintenance cost as well as promoting the value of the properties themselves (MOHLG, Db.5, 1967). A finding from a study in America has shown that the estates the residents like, look better cared for and residents were more likely to take care of the external environment themselves so keeping maintenance costs to the community at a low level (Cooper 1982).

During the last two decade Zeisel & Griffin, 1975; Cooper 1975 & 1982; Coulson, 1980; Ellis, 1977; D.O.E, H.D.D, 2/81, 1981; Db.21, 1970; Db.22, 1971; Db.25, 1972; Shankland Cox, 1969 & 1977; Beer & Booth, 1981; and Darke, 1982 amongst others have published research relating to this field. They have dealt with housing environments in a variety of locations within a variety of design approaches, and they have used different research methods. Despite these variations these studies have drawn attention to various aspects related to the design of the external environment and suggested their influences on the residents satisfaction with their housing environments. Aspects investigated were those such as the attractiveness of the appearance of the estate and the general visual milieu, the provision of private open spaces, the provision of play

areas, consideration of social interaction, the level of up-keep, privacy level and noise level which were seen as major factors influencing overall satisfaction, although of course they are not the only factors. These aspects relating to the external environment which were found to influence residents satisfaction with their housing environment are dealt with in Chapter Four.

The second part of this chapter defines and considers the various spatial components of the external environment of multi-family housing, and the third part deals with the social and psychological factors which relate to these spaces.

2.3 THE SPATIAL COMPONENTS OF THE EXTERNAL ENVIRONMENT

As the external environment is of such importance it is vital that we understand what it is and how it is used. It is all the land on an estate which does not carry buildings and it also includes the outdoor areas within the buildings themselves such as balconies, roof gardens and open entrance areas "outdoors" as opposed to within the housing or "indoors". In all the different residential environments from low density low-rise to high density high-rise, the spaces outside dwellings have to serve the residents by providing for a similar range of function, in

addition to their obvious functions as to allow for air, light and sunrays to enter the dwellings as well as their action as a medium for distributing domestic services such as water, electricity, telephone, sewage. These spaces are partly private and partly public. Private areas are needed for: sitting, resting, contemplating, observing birds or the passing scenes, gardening for food and for pleasure, outdoor eating, entertaining friends, toddlers' play, drying washing, and for garbage disposal. The public or communal areas are needed for: social interactions, casual meeting, children's play and car parking. In addition to providing spaces for these functions, the external areas have to allow for access to the dwellings and general circulation on the housing area. Altogether the external spaces and the integrated system of accesses and circulation must combine not only to make the estate a viable community but to enhance the quality of life within its limits.

The recognition of the importance of proper maintenance and management of the external environment, from the side of those involved in the decision making, and the realization that the up-keep of these spaces is a crucial contributor to attractive appearance of the estate and to a successful housing were identified in a number of studies (Lansing et al, 1970; Shankland Cox & Associates, 1967a; Coulson 1980; Cooper & Sarkissian 1986). It is

crucial that designers of the housing environment need to decide on the maintenance policy during the site planning and the detail design stages.

As the studies cited above has shown the significance of the external environment in relation to users' reactions to housing, it is then important to understand how each type of its functional spaces contribute to the total environment. Private open spaces, Communal spaces, Access to the dwelling, Amenity landscape, Play areas, Carparks and the Circulation system are considered here.

2.3.1 PRIVATE OPEN SPACES: GARDENS, BALCONIES, AND PATIOS

In many cultures the traditional need for an area of private open space has been fulfilled by a private space attached to each dwelling, either a garden, terrace, courtyard or balcony. In these private spaces activities such as growing plants and flowers, young children's play, sitting out, occasional alfresco meals, drying washing, doing odd household jobs, and storing cherished junk take place.

In Britain, a survey of resident attitudes to fifty five recently completed estates showed that 90% of all residents considered a private garden important (D.O.E, H.D.D, 1981). In another survey of six housing estates,

65% of the residents who did not have gardens in their dwellings said they wanted one (D.O.E, Db.25, 1972; Coulson 1980). Families with young children are the ones with the most direct need of private garden. The availability of a garden in which young children can play is an important element in child development (Newson and Newson, 1968).

The degree of residents' satisfaction with their private gardens was found to be affected by the size, shape, accessibility and location of the gardens (D.O.E, Db.25, 1972). Orientation scarcely seemed to affect use of gardens for sitting out (Coulson 1980).

However, a number of studies have shown that many residents are not using their gardens as the designers envisaged. This may arise because either the designer or the estate developer has not given these gardens a proper attention and neglected to consider such factors as privacy, safety for toddlers or attractiveness. These have been shown to be the main reasons affecting the usage of private gardens (Reynolds & Nicholson, 1969; Milton Keynes Development Corporation 1975; Coulson 1980).

The former two factors are related to the dismissing of fences around the gardens or to the inadequacy of the fences to serve their purposes. It seems that people have different views towards privacy in gardens and that this is

influenced by the activities to be performed in them; people do not like to be overlooked when are engaged in passive activities such as sitting out, sun bathing or eating out and less likely to worry about it when engaged in gardening, drying washing or children's playing (Willis 1963(b); Cook 1969). Privacy in gardens was also found to be influenced by the stage in life-cycle, as it was found that visual privacy became less important for the elderly households (D.O.E., Db.25, 1972; Milton Keynes Development Corporation 1975; Coulson 1980). For family households with young children, gardens that are not properly fenced mean that mothers can not safely leave their young children to play there unattended. Gardens suitable for young children need to be secure and fenced up to a height capable of deterring the movement of the young child out of it. Ideally the fence should permit for the child to have a glimpse of 'life' outside the garden (Beer 1983; Cooper 1975; Cooper & Sarkissian 1986). The well designed fences of gardens can enhance the visual experience on the estate, they can also conceal the unpleasant appearance of unmaintained gardens behind. It has been suggested that the failure to build screens at the construction phase plays a major part in developing the unkempt image of so many estates (Beer 1983). High fences around the whole garden might hinder the possibility for housewives to chat over them with their neighbours, restricts the view and raises the problem of over-shadowing (D.O.E, Db.25, 1972).

Evidence from the user studies of housing in Britain shows that most private gardens and terraces are greatly valued for the attractive outlook from within and from the dwellings, even when they cannot be used for sitting out because of the lack of privacy (Noble & Adams 1968).

When it is difficult to provide private gardens to individual dwellings such as in multi-family housing, balconies seems to be appreciated by the dwellers. In a study of six housing estates in Britain, where over half of the dwellings in the sample had a private balcony; the majority of the housewives living in these dwellings said that they liked having one (D.O.E, Db.25, 1972). The same study showed that the majority of housewives (80%), who were living off the ground and did not have a private balcony said that they would like to have one.

Balconies were mostly used for activities such as drying washing, sitting out, children's play, storage and for growing pot plants. It has been found that the use of balconies is related to its size, shape and the detail design in relation to safety. (D.O.E, Db.25, 1972).

2.3.2 COMMUNAL SPACES

Communal spaces, unlike private gardens which are strictly for the individual family use, are shared by all residents living within the estate. They are defined as semi-private areas, designed to be used by the residents for their outdoor activities. They can be provided as well as or instead of gardens but it is important that they should be designed as functional spaces and should not be thought of only as a decorative element in the estate if they are to be of real use to the community. Communal spaces are defined as semi-public spaces. If there is more than one shared area, the individual communal space is often considered as semi-private space and the priority for its use is to those who live in the buildings immediately around these areas are most likely to use it (Cooper 1975).

Clare Cooper has also suggested that the recognition of a common open space as the indisputable territory of a group of dwellings provides, for many residents and their children, a needed sense of place and belonging (Cooper & Sarkissian 1986). The main function for these areas is for the individual enjoyment of residents from all age groups for sitting outdoor and watching activities. They can be setting for social interaction, for meeting people and chatting. These spaces might, also, be an area in which gardening takes place voluntarily by enthusiastic residents.

The stage in family life-cycle affects the degree to which residents are likely to use these areas. Children as well as elderly people or housewives, who live in upper floors and have no garden of their own, are the main users of these areas. Children will play anywhere and specially in the the communal areas near their homes, thus conflict with adults is inevitable unless areas for rest and peacefulness are set aside, away from children's noisy play. Disturbance by noise from children is inevitable unless designers are cognizant of this fact and consider it in their detailed design decisions.

Many other factors affect the use of these communal areas, such as their location, which needs to be within a reasonable distance from home so the elderly can reach them with ease and without being exhausted. The housewife too needs to be able to reach home quickly when she needs to be there. Some standards have been proposed for the location of these areas. For instance there is one which states that for the elderly the sitting areas should be located within a comfortable walking distance which is estimated at not more than 100 yards from the home (MOHLG, Db.5, 1967).

Another factor affecting the use of the communal area is the size of it; the size of the area should be relevant to the number of people expected to use it. In Britain the

findings from Milton Keynes study, as cited by Clare Cooper, suggested that the "uncomfortable" common open spaces are either too large or too cramped, for instance where neighbourhoods have excessively large courtyards, the great majority of children and adults shunned these spaces and congregated on the street opposite side of the dwellings (Cooper & Sarkissian 1986).

Additionally, it has been known that the spatial enclosure of an external space has a different effect on individuals within the enclosure and the relationship between the height and width of the space enclosed has an impact on our perception of the space; of openness or enclosure (Greenbie 1981). Thus it is often suggested that an external enclosure is most clearly perceived as being pleasantly enclosed when its walls' height (whatever form this takes whether structures, trees or land forms) is one-half or one-third of the width of the space enclosed, while if the walls' height is less than one-fourth of the width the space ceases to 'feel' enclosed. If the walls height is greater than the horizontal dimension of the space, the space comes to resemble a pit or a trench (Lynch, 1971). An area bounded on all four sides with buildings of equal heights can become monotonous (GLC, 1978). Thus to provide a pleasant communal spaces the relationship between the space size and the building form is basic and should not be dealt with separately by the

designer.

Factors such as the type of climate and the seasonal changes also affect the use of these areas. Therefore, the designer has to take special care during the site planning stage of the orientation of these areas so as to avoid or to welcome the exposure to the sun, or to have protection against the dusty wind or to encourage the flow of breeze. Moreover, a careful design of these areas can enhance or improve the micro-climate of the residential area as a whole.

Views from the dwellings into the communal spaces need to be perceived as attractive, just as they do to the users in the communal areas. Studies have revealed that people in their housing environment prefer to look at open views, to see greenery, to be able to watch activities, and that they dislike restricted views, blank walls, views of parking lots, and views of other flats (D.O.E., Db.25, 1972). In the multi-family housing the views onto the communal areas needs to be attractive to look at from upper flats as well as from the ground floor flats. The designer has to recognize that the upper floors see over a wider view than the ground floors and to take account of this in the detailed design.

2.3.3 THE ACCESS TO DWELLINGS

The access is defined primarily as the means of passage to and from the dwellings. Access, also, refers to the area -outdoor and indoor- laid out between the entrance to a group of dwellings and the front door of an individual dwelling. The form of the access varies with the form of the buildings.

However, it performs other functions and contains other activities relevant to the needs of the residents. It is a link between adjoining dwellings, a place for casual interaction with neighbours, a children's congregation area, and a linkage area to facilities for sitting out, the car, children's play area, drying washing out of doors and for garbage disposal.

Additionally, it is a space which has the possibility of offering visual satisfaction through its amenity value. An attractive access to the dwelling has been shown to be important to residents (Shankland Cox & Associates, 1967(a); Stones & Crosby 1975; Cooper 1975; Beer & Booth, 1981). It has been found that residents take more pride and pleasure in their dwellings if they perceive that the approach impresses their visitors (Cooper, 1975). This has, also, been found to be so for residents of

multi-family housing not just for single family house. An attractive access to a block of flats or maisonettes encourages residents to take as much pride in the setting of their dwellings as they do in the flats themselves (D.O.E., Db.25, 1972; Shankland Cox & Associates, 1967 & 1977).

It is also suggested that the access area can induce users' satisfaction through its possibility to be individualized for self-expression and identity (Cooper 1975 & 1986). The realization of the importance of the approach to the dwelling has led to the suggestion that, in designing the multi-family housing environment, residents should be given the opportunity to express themselves by having the chance to personalize the approach to their dwellings (Cooper 1975, 1982 & 1986).

Dwelling access is the point at which public and private spaces and interests converge and may, therefore, conflict. As such, dwelling access is considerably more than just a door connecting two spaces, and should receive serious design attention. The access area, in multi-family housing, is a semi-private area if shared by small number of flats and semi-public if shared by large number of flats; it is, anyway, a "threshold" between the private and the public. In this sense, Barrie Greenbie suggests that this area has a dual function; it is in one hand the

transition between the inside and outside architecture, on the other hand it is the continuum between private and public life (Greenbie, 1981). The importance of discriminating between the private and public was highly emphasised by the writings of Oscar Newman (Newman 1972 & 1976). He found that where large apartment buildings provided transitional spaces, which are perceived by residents and strangers alike to be under the proprietorship and surveillance of the adjacent units, robbery, mugging and all forms of street crimes are greatly reduced. Newman called such spaces as "defensible spaces".

A number of studies have found that residents often have complaints about aspects in their housing environment which are relating to the design of the access such as the level of privacy, the level of noise and the level of up-keep, and that noise disturbance in common entrances, staircase and on common access balconies is most frequent in three storey flats and maisonettes where there was a higher proportion of children using the common entrances (Shankland Cox & Associates, 1967(a); Byrom 1979). Thus it was concluded that entrance to dwellings should be so placed that door step conversations cannot be overheard, and that common entrances with the heaviest use are the most difficult to maintain, and suggests that heavy concentration of users, particularly of children, should be avoided (Shankland Cox & Associates, 1967(a)). It was also

concluded that responsibility for cleaning and sweeping these shared areas should be clearly defined (Byrom, 1979).

Thus designers need to be aware of the importance of this area in relation to the residents' satisfaction and its influence on other aspects important to the residents such as their need to privacy, security, convenience as well as in relation to amenity and identity considerations.

2.3.4 CHILDREN'S PLAY AREAS

The importance of play was first identified by Froebel, the education^alist, in the previous century (1826). He stressed the significance of play as an educational tool and advised a system of education which centred on learning through experiences or learning from the environment. As he was convinced that play is essential to child's full development, he described play as "the highest expression of human development in childhood" (Fletcher, 1912, p.50). Since then many studies had been carried out in an attempt to identify what is "play", and to investigate the functions of play and the types of it. Some early theorist tended to consider play as a physiological need, where play could be considered as the exploiter of a surplus energy, that is over and above what is necessary to survive, which needs to be released (Schiller, 1875). But it was not

possible to separate the energy needed for play whether it be mental or physical, from that needed for other activities. The other early theory suggested that humans only play when their mental and physical powers are fatigued (Lazarus 1883). But this contradicted the previous one in ignoring the fact that play needs a considerable amount of energy, both physical and mental.

Those who tend to identify play as a biological need, consider it as preparation for life and means through which the child can learn to acquire and shape particular skills that will be necessary in mature and adult life (Groos, 1901). Groos also identified play as "a thing apart", and something which is an end in itself, Holme & Massie quoting him suggested that "Play is the agency employed to develop crude powers and prepare them for life uses" (Groos, 1901, p.2; Holme & Massie, 1970). On the other hand, the psychoanalysts see play as a way of emotional release, which implies that if play is inhibited the individual would become neurotic (Freud, 1920).

Jean Piaget saw play as part of the child's response to his environment -a crucial process in reaching conceptual proficiency and intellectual development-. He identified that children in their different ages have different needs of play. He, therefore, focussed the attention on the need to provide the right type of

environment and situation at each stage of development so that a child's potential could be fully realised (Piaget, 1962). Piaget also divided children play into three development categories: practice games, that is play through acquired physical skills; symbolic games, play where there is implied representation of an absent object as well as make-believe representation; and games with rules, these are essentially social games with rules imposed by the group.

From all these theories, four functions of play could be identified: (1) It is a part of the learning process. (2) Through play the child could develop his physical ability by exercising his muscles as well as developing his mental ability during manipulating objects and situations. (3) Through play the child could learn to take and give with others and to acquire social skill to live as part of a group. (4) Play relieves tensions and provides emotional outlet so that through play the child also gain emotional satisfaction out of his achievement and his manipulation of the environment.

What all theories of play holds in common is that the child is the father of the man; and that play has a purpose and that therefore the child's opportunity or lack of opportunity for play determines to some considerable extent the sort of adult that he will become. Long before a child

becomes a teenager, as probably all the psychologists agree, his character, personality and future potentials are usually determined in all their basic features.

The awareness of the importance of child's play together with the data about social trend which implied increased level of vandalism and crime in impoverished housing estates, attracted the attention of many of the professionals involved in planning and designing of the housing environments. Albert Parr, among other city planning researchers, believes that children in the first dozen years of their lives may well have to be considered the most important segment of the urban population, and that "cities among their other functions also serve as nurseries for future generations" (Parr, 1982). He also pointed to that in the cities of today where man's mobility has greatly increased, child mobility has greatly decreased as a result of, among other things, the hazards introduced by the means of adult locomotion. The child's orbit has been even more sharply curtailed than its mobility. The urban growth is pushing residential areas farther away from the centres of history and of current affairs in the centres of the cities. Colin Ward also agreed with this notion as he express^{es} that in his book "The Child in The City". In that book, he also quoted others such as Paul Goodman stating that "the city, under inevitable modern conditions, can no longer be dealt with practically by

children" because "concealed technology, family mobility, loss of the country, loss of neighbourhood tradition and eating up of the play space have taken away the real environment" (Goodman 1974, Ward 1978).

The importance of child's play has, also, attracted the attention of universal establishments such as the United Nations. The U.N. stated in the declaration of the rights of the child that "The child shall have full opportunity for play and recreation, which should be directed to the same purposes as education; society and public authorities shall endeavour to promote the enjoyment of this right (Declaration of the Rights of the Child adopted by the General Assembly, November 1959).

In towns and cities there are, very broadly, two kinds of outdoor spaces in which children can play, other than in and around the general environment: (a) the specially designated play spaces; and (b) public recreational spaces -parks, recreation grounds, communal areas and so on-. Deficiencies were to be found in both of them in most of the current environments (Holme & Massie 1970).

In the residential environments children, despite their age group differences, are seen as the main exploiters of the external spaces. Therefore, the external spaces need to be designed to provide play opportunities

for children which are relevant to their needs at different ages. In the developed countries, during the last two decades, a number of studies were carried out in the housing environment concerned with children's play. The majority of those studies were directed to adults attitudes towards children's play, only few of them, carried out recently, involved the children as respondents in their surveys (Hart 1979; Moore 1985). However, they investigated the type of play in relation to the different age groups, places where children prefer to play, and the conflict between adults needs and children's playing need on the housing estates and its effect on the residents' overall satisfaction with their housing estate. The findings from these studies will be discussed in relation to residents' satisfaction with their housing environment in Chapter Four.

The child's need for play often conflicts with the elderly and the adults' needs for privacy, quietness and peacefulness. Noise from children is a major source of complaint among residents particularly in the multi-family housing (D.O.E., Db.25, 1972 & Db.27, 1973; Cooper 1975 & 1986; Shankland Cox & Associates, 1967(a); D.O.E, HDD, 1981; Mulvihill 1977; Mulvihill & Hugh 1977). Such disturbance, as studies have shown, are related to the lack of designated play areas on the estate or the improper location of the play grounds, their size, the number and

type of play equipments (Holme & Massie, 1970; D.O.E., Db.27, 1973; Cooper & Sarkissian, 1986). Disturbance may result from poorly located children's play areas which tend to cause nuisance to nearby residents. The lack of defined play areas, or the lack of play facilities increase the probability of children playing on areas which are not acceptable to the adult for children's play. The conflicts between adults and children are likely to foster frustration and frustrated children are more likely to cause damage to the estate in general. Though the importance of providing play areas for children is almost universally acknowledged, there is no commonly accepted standard for the location of these areas on the housing estate. Holme and Massie suggested that individual standards should be worked out by systematic reference to set of requirements, and these requirements should be based on the following: distance between home and the facility; size and density of child population; accessibility of the play facility as affected by the disposition and type of buildings in the neighbourhood and the network of 'natural' barriers such as roads and railways; the presence or otherwise of public recreational space in the neighbourhood; size of facility; a necessary diversity in the play provision (Holme & Massie, 1970).

However, even when play areas are provided the studies showed that children are likely to spend only one-fifth of

the time they spend outside in them, they will tend to play everywhere on the estate (D.O.E., Db.27, 1973). Therefore, special consideration in designing and detailing of the external environment is necessary to allow for the probability of the entire area being used at least to some extent by children for play.

Another source of conflict on housing estate can result between vehicles and children playing on roads near their homes. Evidence from studies on 13 housing estates in England in 1979, have shown that 24%-29% of children play on roads (Jenks, 1983). Other studies in Canada and Australia had shown that play activity on residential roads accounts for nearly 90% of the total time spent on outdoor activity (Gehl, 1980). Therefore, a detailed analysis of available information is necessary before decisions are made by planners and designers on such matters at the site planning stage.

In summary all children need an environment that encourages imaginative play and offers the challenge, creativity and security which enables them to build on their physical and intellectual abilities and learn to interact and cope socially with others. The needs of children and detailed evidence from empirical studies is discussed in a Chapter Four.

2.3.5 CAR PARKS

The car has become part of the modern lifestyle, it is now considered the normal means of transport in towns and cities. Inevitably it is a troublesome feature in housing areas and its intergration into them is rather difficult. Storing the car consumes space to the extent that it has become a major element in housing design.

In the residential environment there are three types of car parking: covered garages which shelter individual cars or groups, and car ports (under cover) or open car parks which are occupied by individual cars or groups. Storing cars in garages protects them from weather conditions such as rain and snow and low temperature in cold weather, exposure to sun and high temperature in hot climate areas, but inevitably this will cost more. However, when providing private garages is not feasible the second alternative is the car port (covered car park) and the open car park. Thus, the decision on type of car parks is influenced by the allocated budget for the development.

The decision on types of car parks in housing areas is also influenced by the decision of the housing authority about housing density which in its turn influences the housing form on the estate, as well as the decision on

segregating the vehicular and pedestrian routes on the estate or otherwise. For instance, in single housing, the car could be stored on the curtilage of the house, or on the street or in off-street car park. While in multi-family housing, it could be stored in a car park under the building or on street level; on the street, in off-street car park or in special car park above the ground level.

Deciding the number of car park spaces on the estate is related to the estimated percentage of car ownership per household on the estate and the estimates of the number of visitors to the estate. Car ownership on any estate is affected by the socio-economic status of the residents, by the estate's location, and by the availability of public transportation. The site planners have to consider this when deciding the number of car parking spaces needed by the residents of the estate, when it is first built, plus a percentage for visitor cars and service vehicles. There needs to be a provision of spaces for the speculated future needs of car parks on the estate and that needs to relate to ideas on the type of car parking to be provided.

The location of the car parks on the estate and their distance from homes is normally based on accessibility and safety. Open car parks should be overlooked by at least some of the dwellings they serve. The fact that someone

might be looking out of the window is a considerable crime deterrent (Cooper & Sarkissian 1986). There is no set standards for the distance between the dwelling and where a car is parked. In Britain, one study concluded that once the car was parked off-plot, people seemed prepared to walk quite long distances, and not find these "too far". Referring to its findings: when the car was parked 150m to 250m away from the dwelling about 1/3 to 1/2 of residents said it is too far, and that 10% of residents found the distance of 50 to 150m too far and only one in 22 residents said it is too far when the distance was less than 50m, and a general maximum distance was suggested for service vehicles from the dwelling access point to range from 27m to 45m (Coulson 1980). A Canadian study suggested a distance of no more than 23m (75ft) (Beck et al, 1975, quoted by Cooper & Sarkissian, 1986). An American study of an area with milder weather recommended 30 to 60m (100-200ft) and concluded that in an ideal situation residents would prefer their cars closer to their dwellings, and would put up with fumes and noise, if a trade-off were possible (Becker, 1974). Car parks should be easily accessible to residents and particularly to children and the elderly, if they are at a distance from the home a setting down point near the dwelling might be appropriate solution.

The car parks are an important element of the external

environment in the residential areas, their sizes will influence the visual appearance of the estate. A neat appearance of parked cars was considered important to residents (Milton Keynes Development Corporation, 1975). Other evidence from one study, in Canada, on residential environment quoted by Clare Cooper showed that where car parks were designed to take more than 200 cars, residents feel that their homes look like "an army barracks" (MacLeod, 1977; Cooper & Sarkissian, 1986). The car parks need to be arranged so that the number of car park spaces visible from any one place does not create an unpleasant view. Therefore, the detail design, the size and the location of car parks should be carefully studied before taking decisions, on the site planning stage.

As there is always a safety problem when cars and children come into contact on the estate the designer sometimes decides to separate the car park away from the major route of pedestrians and play areas. On the other hand, the studies of residential environment have revealed that the majority of residents preferred to park their cars as near as possible to their dwellings or at least to be able to see them from their dwellings. However, when neither of these solutions is seen to be the optimum solution, designers look for another relevant one. The Dutch have developed the idea of "Woonerf" during the seventies and applied it onto many of the new and existing

residential areas in cities throughout Holland. It applies the concept of "shared surfaces", where a courtyard space is shared by motor vehicles and pedestrians. The priority, in these areas is for pedestrians, the cars always takes second place. In these areas the cars are allocated specific parking areas and areas where they may drive, the rest of the space is car-free. The residents can, therefore, pass through to and from their dwellings and children can play safely near their homes. Laws were passed to ensure this pedestrian priority could be enforced (De Jonge 1981). This idea of the "woonerf" meets many of the users requirements. (see the joint report of the Ministries of Housing and Physical Planning, Transport and Public Works of Holland 1981).

2.3.6 CIRCULATION SYSTEM

Buildings and the associated web of access and circulation are the prime features in the design of the housing areas. The housing and the circulation system are interdependent and neither can be designed in isolation. A well organized and integrated circulation system is a major factor contributing to the overall success of the housing development (D.O.E., Db.32, 1977; Scottish Housing Handbook 3, 1977). The form of the housing and its density inevitably affects the design of the circulation systems; both vehicular and pedestrian.

The function of residential circulation is to serve the needs of residents so as to provide for a convenient access to and from the dwellings, to provide for the safety of the residents when using them and for socializing. This consideration implies that the layout as a whole and the roads and footpaths in particular should, within the context provided by the site and its setting, minimize the through traffic, taking precautions to encourage a reduction in vehicles' speed and provide safe pedestrian routes between home and children's play areas, a primary school and the local community facilities. However, roads and footpaths are not only for access but they are places for social interaction and spaces serving an amenity function.

Building Standards and Specifications tend to give guidance on the types of roads and pathways in the residential environment, their width, gradient and their detail design in relation to their functions and the amount of traffic flow. The standards also give information in relation to the needed space for car manoeuvring, and dimension of radius of road bends. For instance, Standards such as those in "Roads in Urban Areas" have categorized the residential roads into; Access Roads, Local Distributor, and District Distributor Roads (D.O.E., Db.32, 1977; Scottish Housing Handbook No.3, 1977).

Little has been mentioned in the guidelines about the pedestrian walkways. However, studies of residential environment showed that pedestrians need walkways that they can consider as short cuts and which they perceive as safe and attractive (Milton Keynes Development Corporation 1975). Pedestrians prefer a direct way, almost always if the aim is to reach a particular place such as schools, children's nurseries, shops and bus stops as well as indirect footpaths for strolling or walking for pleasure (Cooper & Sarkissian, 1986). In these circumstances the vehicles sometimes obliged to use less direct routes to avoid conflict with pedestrian routes. The designers, however, have to be careful about the detailing of the direct route as a straight path tends to look dull and monotonous. Worn paths through grass areas are evidence of the short cuts people used for their circulation which the designer did not spot at the time of the site planning and detailed design. It is wise, therefore, to set money aside to cater for such an occurrence. Looking carefully for such evidence, a period of time after the estate has been occupied, could help develop a new alternative footpath to suit the users needs. This is yet another reason, among others, why post-occupancy evaluation is so important.

Safe pedestrian routes and good access can be achieved in various ways; most of which involve a degree of segregation. The need for and the degree of separation

will depend upon the volume of pedestrian and vehicular traffic at any one point. For instance, major segregated footpath systems on small housing sites are clearly an unnecessary use of resources if their main function is only for access and if they will never connect to similar routes on adjacent sites. If a planning and policy decision is taken by a housing authority to apply absolute segregation this can severely restrict the scope of individual designers and inhibit the choice of the most appropriate design. Decision on segregated footpath systems should take into consideration the off-site situation. The safety advantages of internal segregated foot path systems is meaningless if residents must cross busy peripheral roads to reach essential service (MOHLG, DB.5, 1967).

Local access routes may be used for both vehicles and pedestrians but only if the number and the speed of passing cars permits safe integration, and if the priority in movement is given to the pedestrians rather than the vehicles. With the tendency for children to play in garage courts and roadways, whether or not traffic is segregated, and with the wish of the car owners to bring their cars up to their dwellings, there are strong arguments in favour of further development of the idea of shared residential roads. This idea was first experimented with in England in 1966 (in Runcorn New Town) and further developed during the seventies, leading to new road standards embodied in the

recommendations made by The Department of the Environment and Transport in the Design Bulletin No.32 in 1977.

The group favouring the idea of the shared residential roads argue that this idea will improve living conditions in residential areas. They consider it will enhance the environment, as it will give more freedom to designers to create imaginative solutions and informal housing layouts and it will create a variety of spaces not dominated by tarmac, which will increase the visual amenity. It will, also, make the residential environment a safer place in which to live, by excluding through traffic, encouraging the low car speed and giving priority to pedestrians. The housing estate will also be more convenient to residents and their visitors as they park their cars as near to their dwellings as possible. The reduction of road widths and the omission of footways which is part of the design of "shared surfaces", reduces the area of land needed for circulation and can therefore release more land for higher density development or to allow more space for private gardens and amenity planting. The group also agrees that reducing the areas will result in capital cost saving, as well as creating smaller areas for authorities to maintain so further reducing the cost (Jenks 1983). However, management and maintenance responsibility have to be agreed before the designer decides for footpaths and roads or the "shared roads".

Those who argue against this idea show scepticism about the safety alleged by the group advocating the segregation of the traffic systems. Many, particularly highway engineers, argued that reduced road widths and the scope of visibility is too risky. There would be unacceptable conflicts between pedestrians and vehicles where footways were omitted, particularly in case of car manoeuvring. It was also suggested that shared surfaces are inconvenient for service vehicles, and might result in traffic congestion and delays, which would be unacceptable to the residents. In addition, there is an argument about the total capital and maintenance costs which some would think would be increased as a consequence of the more complicated designs, and because of the problems in the installation of services and lighting (Jenks 1983).

To keep vehicle's speed low and reduce some of the anxieties of pedestrians when walking around the estate, some design factors are usually considered. These were: narrow carriage-ways, reduced visibility, tortuous alignments and changes of roads' surface materials and colours. Despite the application of these innovative features in the design of the residential areas, no full systematic evaluation has been done to assess the results. The only evaluation that has been done was the one carried out by "Oxford Polytechnic's Buildings Research Team"

(reported by Jenks, 1983). This study showed that applying innovative features in residential roads did not mean that they were in general perceived as better living environments than those designed in the traditional manner, but people were found to be almost equally satisfied with each. However, the survey unexpectedly showed that people consider the innovative areas were unsafe for children. This reaction might be caused by perception of possible danger when there is a mix of pedestrians and vehicles on the same areas. The study also indicated that there might be a higher maintenance cost involved. More research is needed before the idea of the shared surface is more universally applied, but there is no doubt that in the Netherland where the idea of "Woonerf" is more widespread, reactions seem more favourable and positive, and the schemes are seen as successful (discussed earlier in Section 2.3.5).

Moreover, the residential roads and footpaths are an important part of the external environment which is seen both when entering the project and from each home. They should, therefore, be attractive, pleasant and interesting so as to enhance and enrich the visual experience. For this reason, the circulation system should be legible to allow for ease of orientation throughout the residential environment, as paths have been identified as one of the elements recognised in the people's image of their city

(Lynch 1960). A well defined and hierarchical circulation system, with character of its own, is a contributor, among other things, to the identity of individual housing environments.

2.4 USERS' NEEDS

If the design objective, in housing environments, is the production of an environment for efficient and happy living, the starting-points for the designer are: (1) the physical environment, that is the natural and man-made world as it exists prior to the proposed development, and (2) the needs and preferences of the people who are to live in it. After assessing the site potential as it derives from the physical environment, the designer has to look for information on the users needs. Functional requirements in housing areas are determined or should be determined by the needs, the values and the wishes of the social group or groups specifically concerned (Reekie, 1972). The fulfilment of the users' needs is inevitably restricted, among other things, by the physical environment. Therefore, the awareness, on the part of the designer, of the relative priority of the various uses requirements of particular groups of residents is of great importance and is very likely to contribute into the success of that housing.

This section deals with the factors that have to be considered in relation to identifying user needs in the housing environment. It is possible to consider the fundamental requirements relative to human needs in housing areas under two major headings:

- (1) The physical and practical needs
- (2) The psychological and emotional needs

2.4.1 THE PHYSICAL AND PRACTICAL NEEDS

The physical and practical needs are: (a) the physiological needs and (b) the physical needs. The physiological needs are related to the body's biological mechanism and are essential for its survival. They result from the interaction between the inner biological condition of the individual and the surrounding environment. People need food, air, water, shelter (from excesses of heat and cold), and they need to exercise. A state of health or sickness may be regarded as an expression of the success or failure of an organism to respond adaptively to environmental challenges (Dubos, 1965). Perspiring, shivering and sleeping are examples of the body's fundamental responses to environmental conditions. Data for human comfort and ease of living have been found to help designers to produce environments within the "comfort

zones". A human "comfort zone" is a state of environment with a range of maximum and minimum temperature and humidity within which it was found that humans were in a state of comfort (Olgay & Olgay, 1963). The advances in technology have made it easier to modify the uncomfortable environment inside the buildings, such as by using heating and cooling devices and controls. Otherwise it would have been difficult or impossible for individuals to tolerate the extremes of environmental conditions.

Reekie has classified the primary physiological and physical needs of the human in the residential environment into three categories as follows: (Reekie 1972, p.56).

(a) Basic needs; food, air and sunlight, pure water, shelter, sanitation, and exercise.

(b) Organization and controls to implement (a), and to provide employment, education etc.

(c) Means of transport and communication.

These needs relate directly to human physical form and physiology and are, therefore, easy to specify. The needs can be fulfilled through the provision of nutritious foods, clean air, adequate and pure water, shelter from weather (particularly from excess heat and cold), and through the creation of opportunities for exercise in fresh air and sunlight.

Humans have physical needs other than the physiological ones, which are concerned with the relationships between physical shape and size of the human body and the various elements and components of the environment. These elements and components have to be of a particular size and dimensions, if the environment is to function properly for humans. Analysis of average body measurements in static state and in a state of movement result in a set of dimensions for parts of buildings and the external environment. These data are universally available in specific design standards such as The Time Saver Standard, Graphic Standard and Planning Standard. Examples of the standards which have been developed from the study of body measurements, postures and movement are the measurements of door, chair, bench, handrail dimensions and the gradient of ramps and stairs as well as detail dimensions such as the risers height and tread width in stairs.. etc. Deviations from these dimensions and standards are sometimes necessary particularly for children, as are some special variations which are necessary to cater for the needs of the elderly and the disabled. Universal standards are also available giving information about the non human elements which are used by humans such as cars and bicycles. Standard measurements for cars, car parking space and the manoeuvring space required by cars are set out in the design standards as

well. Thus, knowledge from the basic data about the human body helps in making buildings and their associated outdoor environments relate to the form and shape of the users.

There are other design standards developed in U.K. for residential environment, such as the Standards of The Department of the Environment, British Specification Institute and the Scottish Housing Directory. They are mostly advisory guidelines relating to some aspects of the external environment. Although these standards are used by the local housing authorities for development control, they have often been criticised by designers as being an element restricting and stifling the imagination and creativity in designs. There is a lack of empirical basis for some information on the standards which concern how the people respond to some of the components and elements of the external environment (Woodford 1976). Thus, it seems that the standards have recognised information about the external environment in the general rather than specific guidelines. For instance, the open space areas required on housing estates per 1000 inhabitants, or the amount of play space per child is mentioned in such design guides but there is no further guidance on detailed design of these elements (D.O.E., D.b.27, 1973; Scottish Housing Handbook, 1977). The lack of specific information in these standards is perhaps due to the infinite complexity of the housing environment. The environmental variables of the external

environment are not always the same nor do they have the same importance everywhere, they have relative importance to each other and different sets of priorities will apply in environments of different kind and character (Woodford 1976). They also vary for different types of residents; different people use the external environment differently. Moreover, the usage pattern may change with time.

Some qualities of the environment are not measurable, qualities such as those relating to aesthetic and social traits, these are probably of great importance to a successful residential environment but cannot be described in design standards. For example, a view may be analysed in terms of quantities of pleasant elements but design standards cannot account for the feelings different views arouse. It is equally not possible to state categorically that certain design standards will produce a more socially accepted environment for it is not possible to describe exactly how to meet people's needs for a sense of security and identity, for a balance of social interaction or for neighbourliness. We can make generalization about such factors, for instance designers can base their site plans on the supposition that residents may feel safe on paths overlooked by front windows, and less safe in passages between blank walls. The designer in relation to such matters needs to have more access to information about general human needs, and in particular the needs of the

specific group of residents for whom he or she is designing for. The accumulation of research findings about the housing environment is important, as it might help to clarify some of these non quantifiable aspects of environmental design.

2.4.2 PSYCHOLOGICAL AND EMOTIONAL NEEDS

Psychological needs are inner needs related to the individuals motives, the cultural background, and the experience of the individual and his basic needs. Inevitably, they overlap or are in conflict with each other and it is not easy to find a dividing line between them. Moreover, these needs vary according to different situations (Ittelson et al, 1974).

However, it is essential to understand human needs, environmental perception and attitudes to the designed environment if we as designers, are to provide a more satisfactory, conflict free and socially appropriate environments. There are two basic ways to get the relevant information. The first is to learn from observation and direct consultation with members of a community or a specific group in society defined by factors such as age and socio-economic status. The data on user reactions and needs in relation to housing is, at present, very scattered and much more research is needed if adequate information is

to be available to the designer. The second basic way to obtain information is to become familiar with the general principles of behaviour and perception (Laurie 1976).

Human psychological needs and perception of the environment differ according to a multitude of variables including social class, cultural background, past experiences, motives, and lifestyle -daily routine of individual- (Ittelson et al, 1974). These factors influence and differentiate the needs' structure of individual and groups. Thus child needs are different from those of adults (Ittelson et al., 1974). Despite the immense number of variables and the difficulties in the definition of many of these needs, it is possible to suggest certain broad categories of inner needs defined on the basis of observed behaviour and empirical evidence and social analysis. These needs may be classified into generalized groupings of motivational forces and psychological needs, but there is inevitably overlap and potential conflict among the categories.

Michel Laurie (1976) has recognised these categories as: social need, individual needs, the need for self-expression, the need for stability or the need for security, and the need for enrichment. These categories are used here to discuss the issues in greater depth.

(1) Social Need

Man, a gregarious creature, has the need for social interaction, for group affiliation, companionship and love, as well as his need to be needed. The family group and the peer group are obvious manifestations of these needs. The whole society is organized to large extent around these basic social needs. As Simmel has stated "We need to be a part of others, of intimate circles, communities, nations, part of humanity, and we need to be recognized by them, to be supported by their approval for our affiliation and our likeness to them (Simmel 1971, p.73). From the overriding importance of this need it is clear then, that in designing housing environments, we need to recognize and cater for these social needs.

During the last twenty years, experience and research have indicated unforeseen difficulties that affect those who live in multi-family housing. There are difficulties which result in a range of health and behaviour disorders, which are widely recognized as "flat neurosis" specially in those living in high rise dwellings (Fanning, 1967). Housewives with children under the age of five and the elderly are the most vulnerable as a consequence of their confinement inside their flats. It has been recognized by psychologists that deprived of social contacts, personal identification and individual participation, a person copes

poorly with others and himself (Ittelson et al, 1974). Old age limits the movement and affects the contact with others, and consequently the elderly can become the victims of isolation and alienation if housed in such units.

It has been argued that propinquity in the physical environment determined the pattern of social interaction (Festinger et al, 1950). That was found only influential and not determinantal in friendship formation among the residents as there are other factors which were suggested to influence that, such as social homogeneity in household characteristics, such as the stage in life-cycle, life style and education (Gans 1961). It should be recognized that propinquity in the physical environment, as demonstrated in site planning, is not a determinant of friendship formation, but when other factors such as homogeneity of residents in cultural values, social class, stage in family life cycle and life-style are compatible, friendship formation is more likely (Gans 1961 & 1968; Rosow 1961). Site planning can induce the opportunities for the initiation of social interaction by facilitating casual meetings between residents, but it cannot ensure the evolving of such links into friendship. However, Gans has, also, argued that "friendship formation between the residents of a community is a highly personal process, and it would be wrong of anyone to pressure to plan another persons' friendships" (Gans 1968).

(2) Individual Needs

Personal space, privacy, territoriality and crowding are concepts related to the self. The process of "openness" or "closeness" of the self to others is related to and regulated by these four concepts of social interaction (Altman 1975). They are related to and affected by each other. According to Altman the concept of personal space and territoriality are mechanisms that are set in motion to regulate the level of privacy (Altman, 1975).

a) Personal Space

Personal space is the area immediately surrounding the individual body which was first identified by Edward Hall and described as "the invisible bubbles of air that the individual carries around to maintain his distance from others", when others enter this area the individual feels tense and uncomfortable and tends to show unwelcoming gestures such as eye moving, body leaning or distancing away, or perhaps it might cause him to withdraw from social contacts (Hall 1966, Sommer 1969). Personal space is not necessarily spherical in shape, nor does it extend equally in all directions. It is also changeable according to changing situations and in different cultures (Hall 1966).

b) The Need for Territoriality

Territoriality is the behaviour exhibited by individuals or groups to establish dominance over bounded spaces. In other words territorial behaviour reflects the desire to possess and occupy portions of space and, when necessary, to defend them against intrusion by others. Sommer defined territories as "the geographical areas that are defended from encroachment (Sommer, 1969).

Territorial behaviour was first noticed in birds and other animals by scientists observing animal behaviour (Hediger 1950; Carpenter et al, 1959; Calhoun 1966; Ardery 1966). Ardery has written at length about territorial behaviour and has tried to link animal to human territoriality (Ardery, 1966). The suggestion of analogous human and animal behaviour generated extensive debate. One of the main causes of the debate was whether the human behaviour in question were innate or learned. It is generally accepted that territoriality in animals is innate behaviour. Another major source of debate was whether or not animal behaviours, which are survival orientated, are relevant to a modern human society. Territoriality in humans could be achieved through dominance, mutual consent, aggression or administered authority (Ittelson et al, 1974). For man, ownership implies not mere possession, but

the right to dispose of it as the owner wishes, unlike animals which are restricted to a fixed boundaries. These questions about the origin of human territorial behaviour are by no means answered yet, and the whole field is recognized as needing more study.

There is, however, some evidence suggesting that humans do exhibit behaviours that have territorial characteristic and such characteristics can be studied without regard to either the innate/learned origin of behaviour or the potential comparison of human and animal situations (Ittelson et al, 1974, Shaklee 1983). Humans define particular boundaries for the physical environment and assume the right to determine who can and who cannot move across these boundaries. Trespass laws and the legal status of private property are for instance clear manifestation of the territorial urge (Hall 1966). It is also manifested in the concept of "turf"; an area where member of a neighbourhood gang feel safe and where intruders will be regarded with hostility (Sommer, 1969).

Research on human territoriality has focused on two distinct themes. One, following Hall, where much research has concentrated on territoriality as an expression of personal space needs. The spatial pocket or "the invisible bubbles of air around a person" which insulates him from being in close contact with others in the environment (Hall

1966). It has been suggested that possession of territory and maintaining a certain distance from one's fellows may be considered a real human biological need, just as it appears to be in other animals, although its human expression may be different and culturally conditioned (Hall 1969). A second area of research has focused on larger spaces, such as rooms, where individual territories may be established within a space by temporary personalization of chair, table-space or a work area. The temporary territoriality exist when places are personalized for brief periods in pursuit of some defined activity (Ittelson et al, 1974, p.146). These are public use areas, where space is otherwise communal in nature, until it is marked or reserved by personal objects or effects.

Studies such as those undertaken by Newman, and Coleman (Newman 1976; Coleman 1981), have shown the importance to residents of being able to identify the territory for which they consider themselves responsible. From their studies it would appear that areas, where nobody on the estate feels any personal responsibility, tend to be more vulnerable to vandalism and encouraging of intrusion and even crime. Newman terms these areas, which are not easily personalized, territorialized or brought under individual's control and surveillance, as "nondefensible territories".

Newman considers the home as the most inviolate, defended territory and that beyond the home base, territories are hierarchical. A transition occurs from the semi-private territories adjacent to the home base to public areas where the individual has increasingly less control over the activities that transpire. Newman in developing his general arguments, makes several unsubstantiated assumptions about the inherent territorial qualities of the single family house and its environs. He assumes that the yard acts as a first level of territorial control, providing an area of surveillance. Entry into the yard is assumed to be perceived as an act of territorial invasion. Secondly, barriers such as fences, hedges, shrubs, plantings and statutory are thought to reinforce and enhance the defences of the yard. Newman's conclusion have been criticised and his conclusion have to be treated cautiously. Firstly, because of the lack of clarity of the statistical data and the generality of his findings which are presented without distinguishing the site characteristics, the location, the socio-economic status, stage in the life-cycle or life style of the residents (Mawby 1977). Secondly, because he does not differentiate between the general crime types and rates in the general rate of crimes in the society and assumes that the crimes and the rates are uniform across society in terms of frequency, immediacy and degree (Mawby 1977). Nevertheless, his hypothesis is worth further analysis and

more research on the matter is needed.

The term "threshold" is very much related to the aspect of territory. We mean by "threshold" the areas of open spaces or enclosed access ways immediately surrounding the dwelling. It was identified by Altman, who termed it as "secondary territory", to differentiate it from the "private territory" and the "public territory" (Altman 1975). These include front and back gardens, entrance halls to flats and maisonettes, access balconies and private balconies. The importance of these spaces as transitional spaces, a bridge between what is conceived as private space and the public circulation space has been underlined by Barrie Greenbie in his book *Spaces*, firstly, as a transitional area between the private and public, secondly as a continuum between the architecture of the inside and the outside (Greenbie 1981). These areas are different in each form of housing and layout. In multi-family housing the residents, often, have no transitional space between the core area of their flat and the communal areas beyond the flat's door and this can cause discontent (Rainwater 1966; Newman 1972; Cooper 1975; Coleman 1986).

The designer involved in organising and detailing housing environment needs to be aware where this edge between private and public takes place and needs to provide design solutions which identify it. This can be done by

Careful layout design and use of details such as change in surfacing materials, fencing, gradient levels and planting. Such designers "tricks" can give a feeling of privacy and territory for the resident who is to use the site without creating physical barriers.

c) The Need for Privacy

Researchers and writers had defined privacy differently. Some used definitions that emphasize seclusion and withdrawal as Bates (1964). He defined it as "A person's feeling that others should be excluded from something which is of concern to him, and also recognise that others have a right to do this". For Chermayeff and Alexander (1963) it is "That marvellous compound of withdrawal, self-reliance, solitude, quiet, contemplation and coⁿcentration".

Others have emphasised the idea of control -opening and closing- of the self to others and freedom of choice regarding interaction with others such as, Ittelson, Proshansky and Rivlin who defined privacy as "An individual's freedom to choose what he will communicate about himself and to whom he will communicate it in a given circumstance" (Ittelson, Proshansky and Rivlin, 1974, p. 152). Privacy, as identified by Altman, is an extension of personal space and territoriality, in that it is a form of

withdrawal from interpersonal contact. He had also differentiated between two aspects of privacy, the achieved privacy and the desired privacy and suggested that the optimum is whenever the achieved privacy is equal to the desired privacy (Altman 1975).

It is easier to consider the function of privacy than to describe exactly what it is. All people have the need to privacy. We need it for personal autonomy, emotional release, self-evaluation and limited and protected communication (Westin 1970).

(i) Personal Autonomy: is the perception of ourselves as separate beings or the desire to avoid being manipulated wholly by others. It deals with the self and the the relevant issues of self-independence and self-identity.

(ii) Emotional Release: individuals need to release the tension generated by being living within a society. It permits people to relax from social roles and to deviate from rules and customs; as being alone one not worries how one dresses, relaxing speech and doing personal things that are avoided in public.

(iii) Self-evaluation: individuals need to evaluate themselves in the influx of information and events in daily-life. Thus need to withdrawal and physically

isolating themselves in order to integrate and assimilate the abandoned information and experiences received from the physical and social environments, that can not be processed while they are still with others. Privacy is also essential in planning for future.

(iv) Limited and Protected Communications: which serves two important needs for the individual. First it enables him to share confidence and intimacy with those who trusts, and second, limited communication establishes a psychological distance when the individual desires it or when it is required. Psychological distance is used in crowded settings to provide privacy for participants of group and public encounters.

But this need of privacy is neither constant nor of one type. Westin has identified four types of privacy: solitude, intimacy, anonymity and reserve (Westin 1970). (a) Solitude: is a state of privacy whereby a person is alone and free from observation of others. (b) Intimacy: is the state where two or small group separated themselves from others in order to be alone to achieve maximum personal relationships between or among them such as husband and wife, or peer group. Here the privacy that is sought goes beyond mere freedom from visual surveillance and attempt to minimize all sensory input from outside the boundaries of an appropriate physical setting.

(c) Anonymity: this state occurs when the individual is in public places or performing public acts, but still seeks freedom from identification and observation. One might be observed casually by others, but one can act more freely as in walking streets down town, or going to movies as long as one is not identified individually. (d) Reserve: is the state of privacy which includes the creation of psychological barriers against unwanted intrusion. The achievement of this state lies more in the nature of interpersonal relationships than in the nature and organization of physical settings. It could be achieved by using verbal or non-verbal mechanisms such as changing the subject, body distance, or certain gesture or facial expression. Few people desire privacy all the time, sometimes they have the need for disclosure, companionship and group affiliation, at other times the anonymity of city streets or the movies, and at still other times, to be totally alone and in solitude. To be left in privacy when one needs companionship can be as bad as the inability to have privacy when one wants it.

The required level of privacy is likely to vary with culture, time, sub-culture (Ittelson et al, 1974). In addition to this, it relates to the individual personality (Willis 1963a). Privacy, in general, was noticed to be differently perceived in different cultures (Hall 1969). Altman, amongst others, argues that every culture has some

kind of "privacy", but the type and the desired level of privacy tends to be differently perceived in different cultures (Hall 1969; Ittelson et al, 1974; Altman 1975).

To explain why privacy differs with time and why different cultures have different privacy controls, Ittelson et al suggested that certain kinds of individual and group behaviour are affected by physical properties of the setting and those who occupy it. The individual character and social experience, which the person brings to a setting, influences his response to environmental variables. This is because one is socialized to behave appropriately in relation to specific physical environments and the people within them. Over time certain behaviour becomes "natural" in certain situations. In fact they are usually learned through prolonged contact with others. (Ittelson, Proshanisky and Revilin 1974, p.161).

In the housing environment, privacy concerns the controlled relationship with neighbours; to be sociable without being forced into it and to be private without being isolated. Lack of privacy or the excess of privacy has been identified as one of the underlying aspects of dissatisfaction with the housing environments (Willis, 1963a; Shankland Cox & Associates, 1967b; Byrom 1979; Lansing et al, 1970; Cooper 1975). Residents often complained about lack of visual privacy when they are

overlooked by others as well as when they overlook others (Willis 1963a). The lack of aural privacy in some form of housing, terrace and multi-family housing in particular, which is a consequence of the lack of sound insulation in the party walls between adjacent units, is also a cause of complaint. The first form is more likely to contribute to residents dissatisfaction with their housing environment than the latter (Cooper, 1975). People were often found to define privacy differently, some seeing it as the freedom to live one's own life without interference or intrusion by those living round about (Byrom 1979), others seeing it as the need, within the home, not to be overlooked by others. The first interpretation was more often referred to by the middle class members, the second was referred to by the less well off, as described by Margret Willis in her study of middle and working classes households in London (Willis 1963a).

Privacy in the private open spaces and gardens, in particular, is valued by residents. Coulson in his study of the areas around the dwellings has concluded that privacy in private gardens, balconies and patios appears as important to residents as privacy inside the dwelling (Coulson 1980). People envisage privacy outside the dwelling as freedom to do as they please in terms of clothing and behaviour.

Privacy control of ones actions means the ability to decide when and on what basis this social interaction will occur, and it is in this sense that the physical environments are important. The way it is laid out, its physical elements such as partitions inside and immediately outside the dwellings, fences, hedges and other physical elements are tools to help in this matter. This aspect of privacy emphasises the importance of the areas between the dwellings and shows how the designers need to think of it as an area to be designed to fulfil this need. This factor is discussed at length in Chapter Four.

d) Crowding

As with territoriality, crowding has been extensively studied among animals. Perhaps best known study is the Calhoun's, he studied the effect of crowding on rats' behaviour (Calhoun 1966). The term "Crowding" is usually employed when the number of persons in a given unit of space exceeds an optimum standard for comfort and normal functioning (Ittelson et al, 1974). Crowding is often mistakenly confused with density, though it is different in the sense that density is strictly limited to physical meaning -the number of people per unit of space- and crowding is a personal psychological concept, with an experiential base. In this sense it is a personal and subjective reaction related to previous experiences, the durability of the state of crowding (Altman, 1975, P.150).

Once having learned to perform a task in a given setting with a given number of individuals, any increase in this number may be experienced as crowding by each person in the setting. MacGrew (1972), cited by Ittelson and his colleagues, considered two issues affect the feeling of crowding in children; the number of children and the available space. His research based on observations of free play in a variety of nursery school settings, described a series of changes in play as the conditions were varied. Most interesting was the finding that social density, that is an increase in group size, had greater disruptive effect than spatial density. At high group density levels, a reduction in nonaggressive social interaction was noticed among the children. Thus the overstimulated child, seeking relief from the presence of others, may retreat to his own space, to an adult in his vicinity, or to the periphery of the room in order to find himself (Ittelson et al, 1974, p. 152). People can tolerate temporary crowding and even sometimes enjoying it, crowding of stadiums is part of the enjoyment for the stadium goers.

In summary, the influence of crowding effects on people varies according to culture, durability, moods and activity (Ittelson et al, 1974).

(3) The Need for Self-Expression

This need which relates to the ego, is perhaps the most variedly manifest among different peoples in different situations. It would appear that humans have a need for clear orientation in life; a need to hold a clear philosophy, a need to order and organize the environment, a hope to have a say in its form whenever possible. We manipulate the surrounding environment not only to make it compatible with our physical and physiological needs but also in relation to a psychological need for expressing ourselves, this can be termed self-expression (Laurie, 1976). It has been suggested that we express ourselves through the way we dress up; our choice of clothes is an expression of our inner need to self-assertion and exhibition. Others, have gone farther and suggests that we choose or manipulate the home we live in, consciously or unconsciously, to express ourselves (Jung 1969, Cooper 1972). Clare Cooper in "The House as Symbol of The Self" suggested that the house reflects how man sees himself, with both the intimate interior of the house or self as viewed from within revealed only to those intimates who are invited inside. She likens the public exterior to the self (or mask) that we chosen to display to others. Thus, the house has two very important different components; its interior and its facade (Cooper 1972 & 1974).

Some freedom of choice is, therefore, a particularly important element in satisfaction with the housing environment. The possibility of choice in any environmental situation allows a person to express individuality and identity. Within reason, residents should be able to do what they want with their own house and its immediate environment. But we must be careful that personal expression is not encouraged to such a point that there is conflict with other's needs for survival and privacy, and for uniqueness and identity.

It can be seen that there is a potential conflict between the individual's need for self expression and society's need for a level of control over the environment. It is important to offer choices, for circulation, for living on or off the ground in the housing environments, and the designer should see it as essential to cater for the fulfilment of this need. Participation in community and environment decision-making is another situation which can encourage a sense of identity and self expression, and this has been well manifested in self-help and community voluntary projects such as those of South America; Lima of Peru (Lynch 1971).

(4) People's Need for Stability or the Need for Security

People have a need for stability; to be free from fear, anxiety and danger, if they are to be able to feel satisfied with life. For this reason, residents in the housing environment have a particular need to be able to feel safe in the estate not just in their dwellings. Many housing estates built in the last fifteen years have undoubtedly become renown as the unsafe areas of our cities and it is the "outside" of these areas which are feared and disliked most by residents; in the main they were content with the "inside" of their dwellings (Beer 1983).

We have the need to be able to locate ourselves within any environment so as to fulfil our need for security and stability, thus legibility of the environment is an important aspect of any design. "Legibility" is the ordering of space so that it is free from ambiguity or as Lynch phrased it "Image^ability". He defined it as "that quality of physical objects which gives it a high probability of evoking a strong image in any given observer" (Lynch, 1960, p.9). For Lynch, orientation, route-finding and ease of mobility are important goals to the image. Anyone who has once experience being lost in city knows the sense of anxiety and even terror that accompanies it. It is an experience which reveals to us

how closely our sense of ease in an environment is linked to our sense of our exact location. Knowing where we are allows a sense of balance, stability and well-being to develop.

Kaplan also found that those environments which have legibility are greatly preferred to those which do not. But he argued that another aspect of the environment which is equally important to people is "mystery". It is pleasant when a given view promises more information than it actually reveals. This promise of information causes a response which Kaplan called "involvement" (Kaplan 1973). The degree to which "mystery" or ambiguity is positive or negative is a debatable matter, on the other hand "legibility" does not have to imply monotony, sameness, and a lack of complexity, if the environment is to be easy to recognize. On the contrary there should be complexity and variety enough to keep us interested as we go along and aid us in distinguishing one place from another. Lynch in his study of three American cities found five distinctive elements which could be perceived by the respondents as imageable elements in the cities. These are the path, edge, node, district and landmark (Lynch 1960). How these elements can be used by the designers to enhance the identity of the environment and give it a special sense of place, make it a "place" rather than a "placelessness" has been discussed by Relph (1976) and Lynch (1960).

(5) Enrichment Need

People, and specially children, have a thirst for knowledge and the stimulation that come from that (Canter 1975). It has been suggested that human enrichment need requires the provision of information about the environment so that our understanding of what we see may be increased in detail. Lynch (1960) suggested that "Myst^ery" combined with "coherence" are aspects of our pleasure. Canter also cited Kaplan suggesting that people have interest and enjoyment from resolving uncertainty in the environment (Canter 1975, Kaplan 1973). It has been also suggested that in design, enrichment may be equated with complexity and the undesirability of monotony and chaos, this may mean that variety is to desired in the built environment (Rapoport 1970).

Related to the human enrichment need is a need for self-realization and personal creativity, and a need for beauty and aesthetic experience (Laurie 1976). Laurie suggested that in relation to the latter, the popularity of scenic and beautiful landscapes such as the Lake District of England, or the West Highlands of Scotland, has led some to think that we do indeed have a some basic need for what we perceive as visual beauty, but there is no doubt this is a culturally induced factor.

Human enrichment seems to require not only the environment to be perceived as beautiful itself, but that it also provides the possibility for creativity in the form of environmental manipulation. In this way it can also contribute to satisfying the need for self identity and expression (Kaplan 1973, Laurie 1976).

In Summary, and having mentioned the generality of human needs, it is not intended to suggest here that designers should specifically cater for fulfilling all these human emotional needs, but that the designer needs to be aware of the possible impact of the designed environment on a variety of aspects of the residents' lives. There would be a great danger of conflicts if a designer attempted to fulfil all the residents' needs. It is, however, suggested that designers should attempt to identify some of the basic users demands or needs and then assess which particular parts of the environment may reasonably be expected to satisfy these requirements. The designer should then ensure that the physical arrangement of the design does not prevent that use occurring (Laurie 1976).

In fact it is important for the designer to realize that all needs do not occur all of the time. Sometimes one set of needs is stronger than others. Therefore,

understanding the specific needs of the groups of people for whom the environment is to be designed and how these may change over time is helpful in recognizing the relative importance of the users' needs in relation to the design process. In addition it should be remembered that the physical environment is only one part of a larger process. It is the setting in which we, the social animal, interact with other human beings or the social environment.

Chapter Three

THE CHARACTERISTICS OF ENVIRONMENTAL DESIGN EVALUATION.

THE CHARACTERISTICS OF ENVIRONMENTAL DESIGN EVALUATION

3.1 THE NEED FOR ENVIRONMENTAL DESIGN EVALUATION ON
RESIDENTIAL SETTINGS

The most important role of environmental design evaluation is to provide information that can (a) help planners and designers concerned with built environment increase their understanding of the interaction of individuals and groups of residents with the physical environment in which they reside, and (b) be used for the residential environment. Prior to the decision making process that leads to the construction of dwellings, planners and designers should be aware of the needs, values and behaviour of the groups using the residential environment. Knowledge of this kind is needed not only to improve the predictability of the results of design decisions, but also to help defining priorities in design decisions and in resource allocation. The decision makers also need to know which design features are associated with

user satisfaction or dissatisfaction with their housing. They need to know which design idea has been successful so that it can be repeated, and which have failed and should be abandoned in future projects. Employing the results of such evaluation as feed-back information to other projects is the main objective of the whole process, or as Markus (1969) suggests: they may more readily be considered as "feed-forward" to the next design.

Feed-back information from evaluation studies is very appropriate when a phased development is undertaken, since design feed-back from earlier phases may be used to improve those remaining. This, for instance, occurred to some extent in the development of Chalvedon Housing Area in Basildon (Ellis & MacCormac 1977), where problems identified in the evaluation of the first phase were overcome in the later phases. Another example is the Belle Vale housing project in Liverpool where the designers made an environmental design evaluation of the adjacent housing project, the Childwall Valley Estate, which was recently finished and was for a similar range of people. Problems identified in the first finished project were then overcome in the latter (Shankland Cox and Associates 1967). The study of Milton Keynes Development Corporation "Residential Design Feed-back" in 1975 is another example of such application in Britain. Similarly, in Iraq, the findings from studies such as the present one, could be used to

feed-back into future housing designs of the State Organization of Housing.

Recently, many researchers have revealed the importance of users' participation in planning the housing environment as a significant contribution to their satisfaction (Rapoport 1969, Le Boyer 1982). The form of users participation could be categorized into two major types: passive and active (Le Boyer 1982). "Passive" participation is concerned with the use of environmental evaluation to explore the needs and preferences of users, and help planners and designers to take such factors properly into account. "Active" participation aims to break the conventional barrier between planners, designers and those for whom they are designing, and to develop a dialogue between designers and users at the design stage, which implies at least, that models and plans should be more comprehensible and ideally that users should be involved in producing them. This form of participation is now being used in various countries but only to a limited extent; there are still many obstacles to its application, and it is not practicable at this stage in Iraq. Therefore, this study is more concerned with the "passive" participation; it will explore the needs and wishes of users through a users' attitudes survey and design evaluation of the housing environment.

In private sector housing, designers have a direct contact with their clients for whom they design houses. Their designs are in the main suitable and compatible with cultural, social and economic needs. When designing for the general public, the designers have contact with clients only through representative persons or committees; they have no direct contact with the real users. Information from post-occupancy evaluations, concerned with users' satisfaction, therefore, becomes a substitute for that absent relationship between the designers and users. The usual practice in Iraq implies a direct contact between the individual and the builder or the architect whom he approaches to construct a house for him. The exception is the recent initiation of mass housing projects by the State Organization of Housing where individuals could acquire a ready-made dwelling in one of these housing projects. Three of these mass housing projects form the case studies used for the present research.

The role of novelty in housing design can be used as an example of the type of information, evaluations can reveal. Novelty in design, among other things, is highly sought after by designers. Many studies have revealed that designers' intentions have been differently interpreted or employed by the residents. For instance, novel and eye-catching forms of housing may be appropriate for private sector residents, many of whom see their houses as

reflecting their status in society and showing the world what they had achieved (Cooper 1975); affluence allows them to choose where they live. But professional designers in the public sector must be more sensitive to conventionally acceptable images for housing areas, for studies have revealed that users imagine their ideal home in terms of only minor variations of the familiar image, not requiring a leap to very different forms (Coulson 1980, Cooper 1982).

Information from evaluation studies could even modify, over a period of time, legislation and government policies if empirical data were available to show short-comings and to elicit alternative policies and guidelines, which could lead to more satisfactory and supportive environments. In the case of Iraq, with a lack of legislation and policies in this area, particularly in relation to the maintenance and management policies of housing estate, the accumulation of information from such evaluation studies will help in initiating and developing such policies.

In particular the designs which involve public money and affect hundreds of people's lives need to be studied more carefully than others, because if they have not succeeded the impact will be immense. The S.O.H mass housing projects in Iraq are in this domain, and therefore, in urgent need for environmental design evaluation.

3.2 THE CRITERIA FOR THE DESIGN EVALUATIONS OF HOUSING ENVIRONMENT

There are many possible design goals which may form a basis of housing design evaluation, such as; commercial gain, human safety and survival, ease of accommodating change, and human happiness or satisfaction. It is not normally practical to study all these goals. Thus, the use to which the results of the study are to be put, govern the criteria for evaluation. Most of the available data from post-occupancy evaluation refers to the need to use these criteria (Wholwill 1981, Cooper 1975, Cooper 1982, Coulson 1980, Zeisel & Griffin 1975, Ellis & MacCormac 1977), and most of the studies written up in English have been done by the Department of Environment in the U.K (D.O.E. Db.17, 1967; Db.21, 1970; Db.22, 1971; Db.25, 1972; Db.27, 1973; Db.32, 1977). Such studies show that by failing to understand users' needs, the designers produced environments which did not "work" for their users. In many cases the users consequently abandoned these environments. Perhaps the first and therefore most famous example is the Pruitt-Igoe public housing project in St. Louis in North America which was opened in 1957 and had to be dynamited by the local authority in 1972. This estate had been built as a solution to the housing need created by slum clearance down town. The designers had decided on high rise

buildings as a replacement for three storey housing whose physical condition had greatly deteriorated. The knocked down low-rise tenements were seen to have had important advantages over the high-rise replacements. For example, they had permitted surveillance of the street and the monitoring of children, whereas the high-rise buildings separated tenants from their street life. There was an increase in the amount of crime and some evidence that the sense of community was destroyed and that these factors consequently determined the tragic end (Yancy 1982, Rainwater 1966). More examples of such design failure could be found in Britain, such as the massive complex of flats, the Eldon and Oak Gardens in Birkenhead, which had to be knocked down as it failed to provide a satisfactory living environment for its tenants (Coleman 1986).

The influence of designers' intentions concerning housing environments have been revealed in many studies (Rapoport 1969; D.O.E., Db.25, 1972; Cooper 1975; Darke 1982; and Zeisel) which show that the environment did not "work" because users did not understand it the way the designers did. This lack of understanding has been further illustrated in the study of Charlesview Housing (Zeisel and Griffin 1975). In that study the main goal was to identify the designer's intentions and compare them to the completed design. They discovered for example, that architects intended a clustered site plan to convey a "hierarchy of

spaces" yet residents did not understand this plan. It had been intended that residents would get to know other people from their immediate area, but in fact they knew them no better than they knew residents from other areas. The study showed that the designer's intentions were only partially successful.

The present study has opted for "user's satisfaction" as its criterion to measure acceptability of the housing environment because it is concerned with the impact of the new approach to housing design on hundreds of people's lives. Information and inferences from the evaluation are to be used as a feed-back information into the design process to help designers in understanding the needs and values of the users for whom they are designing, in describing how the physical elements worked, and to develop more "satisfying" environments.

The user response to a designed environment can be assessed by measuring both verbal and behavioural responses. It may be argued that only behavioural responses to the physical surroundings should be examined, as verbal responses can be confusing and ambiguous; people do not always do what they say they want to do. However, behavioural response data tends to be specific to a particular situation or location in which it occurs. It may be accepted as a crucial criterion, however, it may be

in need of interpretation in order to be of use in the design process (Canter & Stringer 1975). Verbal response data on the other hand, may be much more abstract and more independent of a particular context and therefore fundamentally significant. Canter argued about two points to justify the verbal responses as an acceptable criterion for evaluations. The first point is that "There is little value in knowing what people have or do unless you know how they feel about their possessions and activities". For example, the behavioural observation that students study on their beds may indicate the inadequacy of their desks rather than the particular suitability of their beds; only the recorded opinions of students will help to clarify this. The second point is "what people possess or do is determined to a marked degree by their existing environment, for example few people would buy a snooker table or piano (or play one in their house) if the living room was not big enough for it. Therefore, to observe existing patterns is to ignore the possibility of crucial environmental influence on behaviour (Canter & Stringer 1975).

The goal of the design might influence which response be considered. Some architectural theorists, such as Broadbent, have argued that the central goal of buildings is to influence people's emotional state, particularly their satisfaction. Behaviour is only a means to the

achievement of this goal (Broadbent & Ward 1969). Thus, attitude response is suggested as valid and reliable measure for peoples' emotional responses to physical forms, and therefore, may be taken as acceptable criteria.

Furthermore, in studying the users' responses to large and complex environments such as the housing environment, measuring the verbal response has the advantage of getting a larger view of the areas of concern in a shorter time and with fewer resources than in measuring behavioural responses in the same areas of concern. Thus the use of observation technique to measure behavioural responses in housing environments is often limited either to children's play areas or to specific place of concerns. Therefore, verbal response is a relevant criterion for evaluation study for as complex^a matter as the housing environment.

3.3 PRINCIPLES OF ENVIRONMENTAL DESIGN EVALUATION

The environmental design evaluation is not only an attitude survey to find out residents views on their housing environment. Nor is it a building appraisal for academic and professional curiosity. It is a process which aims to assess the degree to which a designed residential setting affects human behaviour and emotions and which design element is associated with positive or negative levels in their assessments. Friedman and his colleagues defined the evaluation of environmental design as: "An appraisal of the degree to which a designed setting satisfies and supports explicit and implicit human needs and values" (Friedman et al, 1978, p.2). Thus, it is crucial for the planners and designers to know what design ideas have worked well as far as the user is concerned and are therefore worth retaining, and to know which design ideas have failed to provide a satisfactory solution for the user and, therefore, should be abandoned.

There is no specific information-gathering technique developed for environmental evaluation study as yet, they often use methods drawn from psychology or sociology. In order to get to the "useful" information, often more than one rigorous information-gathering technique need to be

employed for evaluating residential environments, because of the complexity of the elements influencing the environment and their interrelationship. This technique is discussed in Section 3.5.

If designers want to make their designed environments "work" better, they must concern themselves with all aspects of the building design process, and therefore, consider evaluation as an essential ingredient in the design process. Indeed, a number of authors have discussed the failure of design professionals involved with the built environment to consider this (Rainwater 1966; Rapoport 1969 & 1970; Lang et al, 1974; Zube 1974; Friedman et al, 1978). These authors called on the designers to observe the consequences of their works and to learn from past experiences. They suggested that the design process should not be terminated after implementation, as is mainly the practice now, but should continue in the form of an appraisal of the positive and negative outcomes of the designs. The type of appraisal which is required is that which examines the reaction of each sub group of users in relation to each important design element, and which is systematic so as to produce a comparative information.

Designers could usefully use evaluation twice in the design process: firstly, when using the data from evaluation of other projects in the predesign programming

phase, where in this stage crucial design decisions may be made concerning the requirements which the design must meet, and secondly, when the design is complete. The evaluation which follows completion of the design is concerned with real life, the effects of the design must then be evaluated to get useful information for future designs. In this sense it is more of a loop process: design-evaluation- design (Figure 3.1).

However, if designers are to evaluate their designs, they must be properly trained. Many of the researchers involved in the man-environment interaction suggested that evaluation methods should be a part of the design curriculum in design schools (Whyte 1972, Zube 1974, Friedman et al., 1978). They also suggest, if that will be the case, design schools could create data banks of information ready to be used for educating the design students and for updating the design practitioners.

3.4 INCREASING THE EFFECTIVENESS OF DESIGN EVALUATION

Friedman, Zemring, and Zube (1978) suggested a range of measures to increase evaluative feed-back into design. Their suggestions could be summarized as follows:

1. It is critical that the influence of evaluation in the design-evaluation-design cycle is increased by:-

(a) Evaluation methods being taught to design students and practicing professionals.

(b) The academic reward system being changed to facilitate close links between social psychologists and designers.

(c) The research agenda reflecting the practical information needs of designers.

2. Evaluation reports should be made more comprehensible to designers.

3. Evaluation should be financially feasible to designers. If designers are to evaluate their designs, they must be properly rewarded for doing so. In the case of government clients, legislation may be initiated which dictate additional expenses of, for example 5% of the cost, for environmental design evaluation.

4. Data banks of information should be established, possibly coordinated by a consortium of design schools and relevant professional organizations. To facilitate the collection of information, standardized methods with common questionnaires, observation schemes and interview aids should be used.

In England, the Department of the Environment and the Greater London Council published "The Housing Appraisal Kit" (HAK) in 1978, which provided the means to achieve some of the aims in (4) above. It included questionnaires designed to be used for obtaining residents' responses to housing schemes, and a computer programme for analysing the data. The HAK has been used successfully in many studies in England, enabling data from these studies to be compared, but still there is no centralized bank of information collected from the studies to be available for general use. For the present study, the parts of the HAK questionnaire relevant to external spaces have been used, in addition to other sections structured specifically for the housing environments of Iraq.

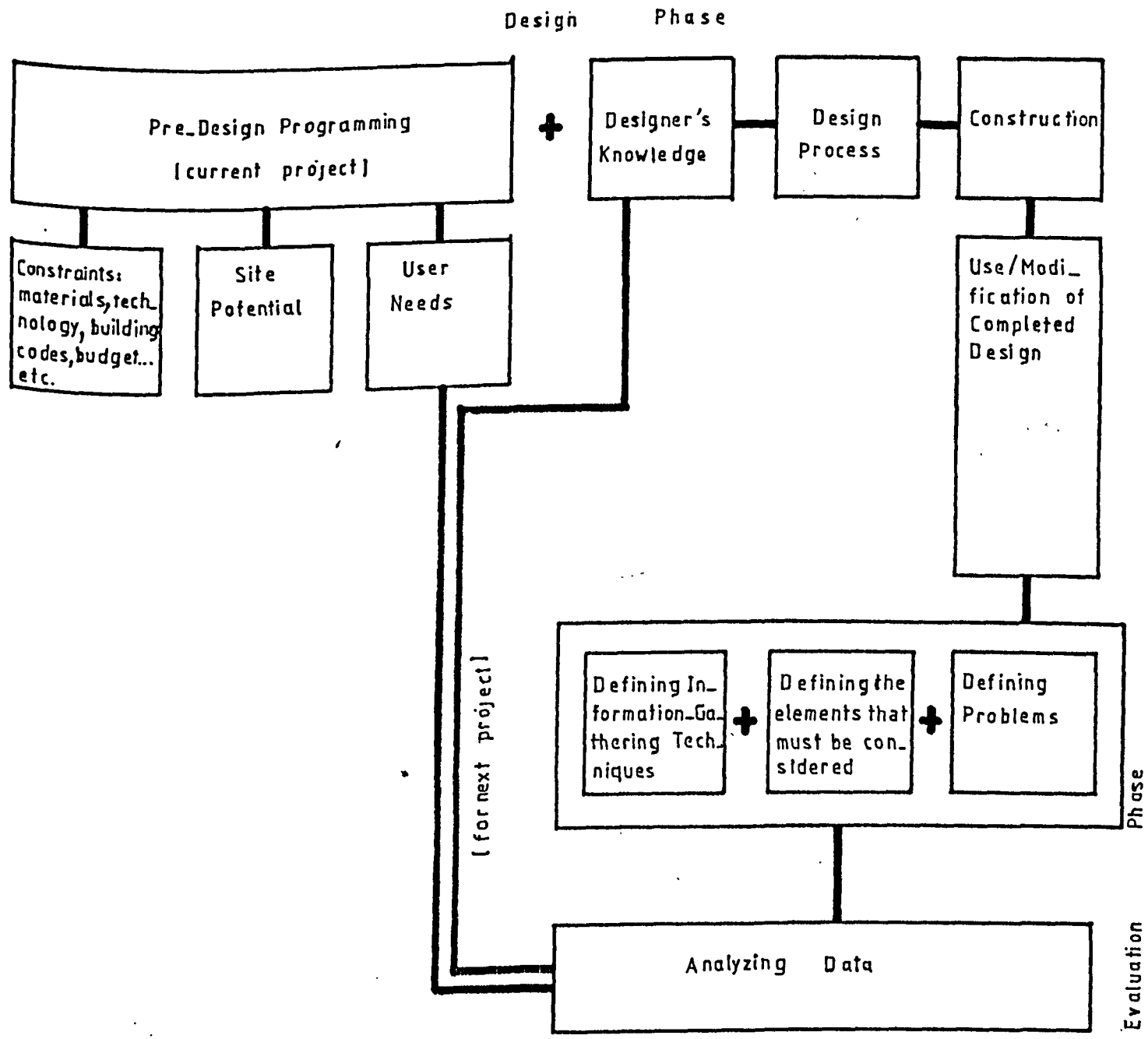


FIG. 3.1 THE DESIGN-EVALUATION-DESIGN CYCLE

3.5 THE POTENTIAL DIFFICULTIES OF EVALUATION

The main virtue of environmental design evaluation is to get feed-back information to be used in future designs. Although data from such evaluation are potentially valuable sources of information in design, it is not possible to make generalization from these specific studies, but a series of users feed-back studies may reveal patterns and recurring problems. However, there is a danger that designers may consider that information data and guidelines elicited from design evaluation provide all the necessary knowledge about user requirements. Such content could result in designers distancing themselves even further from the users. This information and guidelines will only provide clues through numerical interpretations of factors needing to be considered in the design process. Thus it is important that designers are involved in the evaluation process. This will not only increase their understanding of how a design "works", but will also familiarize them with some of the realities of life of the people for whom they are designing. Gans called for empathy on the part of designers for their users. He argued that designer's participation in such surveys will ensure the availability of the information about users' needs and values, and with it the ability to imagine how design solutions will be

lived in and with. He regards both as equally important (Cooper 1975, p.xiii).

In using general guidelines derived from environmental design evaluation, designers should not forget that the environment does not act in isolation, but in combination with other social, economic, political, cultural and historical influences. These constantly varying, and the design of particular schemes must be seen within the context of these external influences.

Designers, analysing users responses, should take into account the bias towards individual rather than community benefits and satisfaction. Further, it should be remembered that the absence of factors which contribute to satisfaction will not necessarily cause dissatisfaction, and neither will characteristics opposite to those which cause dissatisfaction, provide a satisfactory environment (Coulson 1980). The problems arising from such assumptions become obvious following many slum clearance schemes. These aimed to remove objectionable physical living conditions and replace them with clean modern housing. However, they frequently failed to recognize the satisfaction which slum dwellers derived from their social environment, itself dependent on aspects of the physical environment.

When comparing one study with another, it is important to determine whether people's responses to their environment changes with the length of time they live there. Coulson stated that evidence suggests that response is relatively constant before, during and until at least five years after moving (Coulson 1980, p.1247). One study of Chalvedon housing estate in Britain by Peter Ellis suggested that views of newcomers to a residential environment tend to be different after a period of time passed. Although this was not confirmed by others, he found that residents who lived two and a half years in the area were more concerned with the dwelling, whilst the newcomers to the area were more concerned with the layout of the estate and with the architecture of the dwellings (Ellis & MacCormac 1977). However, residents were found to need a settling-in period to be adjusted in the new environment. This period tends to vary with the type of culture among other things, however, most of the studies assume a period of six months as an adequate consideration. Over time, however, attitudes are likely to change responding to changing social and economic conditions, fashions and fads, and this must continue to undermine the possibility of any definitive statement of residents' needs.

If we differentiate housing preferences by household type, it is obvious that different environments will suit

different households. However, different environments can suit the same household equally well, as people are prepared to "trade off" one benefit against another, such as on-plot car parking with safe public play space next to the house (Coulson 1980). Indeed, decision making of trading off is a difficult concept to incorporate, and needs a great number of similar conclusions from many surveys to make a generalization. But while "trading off" certainly operates, the major priorities remain fairly constant.

Residents must be considered active participants influencing the environment. No designer using any number of user surveys will get "everything" right, especially as people's needs change. So flexibility could be the answer. The option for flexibility needs to be applied into the dwelling itself, as well as to the areas immediately outside it. But how flexible the design should be, and which elements should be changeable and in what way, is still under question.

Thus, for all these reasons, data and guidelines from environmental design evaluation must be used with caution, and the conclusions examined with enlightened scepticism.

3.6 A STRUCTURED APPROACH TO ENVIRONMENTAL DESIGN EVALUATION: A STRUCTURE-PROCESS

People in their everyday life make appraisal of the designed environments by using a pathway through a nice garden, rather than using a certain road to reach shops or schools in the neighbourhood, or by using a particular park in the city and avoiding the others. These are evaluative judgements done by individuals. Besides these, there are other evaluations which were done by designers for certain reason or for evaluating a single idea. Information on such evaluations tends to be sporadic and noncomparable. Most of the post-occupancy evaluations have focused on user's satisfaction, and understanding satisfaction is certainly a critical goal of evaluation. But if one of the purposes of design evaluation is to provide information, so that future settings can be improved, one must question the value of data that only addresses the users' values, perceptions, and behaviours without considering the physical environment to which they relate. The physical setting is, after all, what the designer works with and produces. Important issues include the nature of the materials and spatial relationship, the limitation or support that the environment affords, and the relationship between various aspects of users' satisfaction and the physical environment.

Friedman and his colleagues (1978) argued that if designers aim to improve their design process, they need evaluations that represent each sub group of users, and to examine each important design element, as well as to investigate the socio-cultural influences. The produced data should be organized in a way to be "useful"; that is to be appropriate, clearly stated, and must answer the critical questions for the user of the information. The accumulation of these data will facilitate the analysis, and the eliciting of conclusions, providing that the information gathering techniques are relevant, rigorous, and appropriate to produce the "good quality" of data. In other words the need here is for systematic description, analysis, and evaluation of completed works which can provide valuable information for planners, legislators, and designers to help in future design decisions or to improve existing environments.

The ingredient in evaluation is the user, they have to be identified in groups according to their characteristics (such as age, income, occupation, and stage in family life-cycle), and the designerⁿ has to understand the distinct need of each group for factors such as privacy, spatial utilization, aesthetic preferences, cultural values, and environmental satisfaction, as well as investigating behaviour in term of individual and group activity

patterns.

The design activity; the process which produced the setting, needs to be looked at in a more elaborate way. In this complex process the designer is not the only "actor" (Cooper & Hackett 1968). Other "actors" who can play roles in this process are client, who may not be the user, the financier or the sponser, the boards and committees, or governmental authorities. Many decisions are normally made by these actors before the designer becomes involved, such as decisions concerning location, density, and budget.

In addition, there are directives, parameters, and limitation which influence the design process and restrict the designer in certain ways. These are the municipal zoning ordinances and subdivision bylaws, legislation, and policies. After identifying the roles of the "actors", and the directives and limitation imposed on the design process, the designers' intentions needs to be identified and investigated with the users' reactions, behaviour and perceptions, since the main aim of environmental design evaluation is to assess the effectiveness of the designed environments for users.

Since each designed setting exists within an immediate physical and social context, this context may have direct or indirect effect on users' satisfaction with their

setting, such as if an immediate context being used for industrial purpose that might cause smoky, smelly air or impose a noisy, congested traffic. Therefore, land uses and ambient characteristics of the proximate context should be studied. Yet, designed environments are not independent isolated projects, they exist in a complex society which changes over time. A park may be a beautiful aesthetic success, yet it is a failure for its users because it fails to provide necessary amenities for the growing proportion of elderly people in the society.

Design evaluation is a new field and very little specific literature on the subject exists to date. There are still no specific information gathering techniques derived specially for such evaluations, but methods drawn from sociology or psychology are often used to gather behavioural information. Thus there has been a great deal of argument about the proper way of producing the data from such evaluations of housing areas so that they are accumulative and comparable, as well as about the methods to be used in the evaluation itself (Zube 1974).

Friedman et al (1978), have suggested a systematic approach to the first problem, the production of cumulative and comparable results. This approach, which they called the "structure-process", has been effective in guiding several evaluations, and will be followed in this study. It

is a twofold approach where the "structure" is referring essentially to a mental structure for organizing information required for the evaluation, and the "process" is referring to procedures for defining areas of concerns and choosing methods for gathering data and analysing results. The "structure" allows the evaluator to place large amount of necessary information for evaluation in a useful framework consisting of five factors which are: the setting, the users, the design activity, the proximate environmental context and the social-historical context which encompasses the setting under study. These factors are going to be discussed separately only because of the need to organize the information, but actually they are not fundamentally independent and they do not act separately. They are:-

1. The Setting: The physical and social attributes of the designed project to be evaluated. In a housing project these will include spatial relationships, materials used, ambient qualities and micro-climate, noise, densities, parking arrangement, open spaces provision, social facilities, and the up-keep level.

2. The Users: The characteristics of subgroups, household sizes and types, income, background, life style, values, preferences, behaviour in individual and group activity patterns, and social interaction.

3. The Design Activity: The activities by designers and others concerned with the decision making which resulted in the final design of the setting. The constraints on design, for example, financial, social, or political. The modification made by users or manager after occupation.

4. The Proximate Environmental Context: The ambient qualities, land use characteristics and neighbourhood qualities that surround the setting, and the supportive and cultural facilities and programmes.

5. The Social-Historical Context: These four factors all exist in social historic context, a larger society in which one must consider larger-scale social, economic and policy issues such as social change, unemployment, religion and demographic profile.

However, the implementation of the evaluation by identifying the problem or the focal point of concern to be investigated, and then by choosing and applying an appropriate method of data gathering techniques, is crucial to providing the information needed to serve the aim of the study. Thus, in Chapter Five, the current methods used in environmental evaluations will be discussed, and further reading on the methods will be recommended where further and detailed information is needed.

Chapter Four

USER'S SATISFACTION WITH THEIR IMMEDIATE HOUSING ENVIRONMENTS.

CHAPTER FOUR

USERS ' SATISFACTION WITH THEIR IMMEDIATE RESIDENTIAL ENVIRONMENT

The question of whether one residential environment is not only different, but more or less preferable to other residential environments has not been a matter of recent discussion only. Research using case studies started in the mid sixties and still continues, investigating matters concerning users' satisfaction or dissatisfaction with their housing environments. Residents' satisfaction or dissatisfaction with a housing environment results from complex interactions between the immediate physical environment and other social, economic, religious, and political influences (Ittelson et al, 1974). The complexity of these relationships has hindered attempts to develop a theory linking environment-behaviour in the housing environment. Whilst it is not intended to develop such a theory, it is recognized that previous evaluation studies here, in the field, have managed to suggest factors which affect residents' satisfaction, and that much can be learned from studying those findings which are relevant to this study.

Much research, relating to this field, has been published during the last two decades in the developed countries, such as; Shankland Cox & Associates 1967a , 1967b & 1969 and 1977; Lansing et.al, 1970; Zeisel & Griffin 1975; Cooper 1975, 1982 & 1986; Coulson 1980; Ellis 1977; Byrom 1979; Beer & Booth 1981; Darke 1982; and the researchers from the Department of the Environment (D.O.E) in England. They have dealt with housing environments in a variety of locations within a variety of design approaches and they have used different research methods. Despite these variations these studies have drawn attention to various aspects related to the design of the external environment and suggested their influences on the residents' satisfaction with their housing estates.

The aspects investigated in the studies included elements such as: the attractiveness of the appearance of the estate and the general visual milieu, the consideration of social interaction, the level of noise, the density in terms of bedspace per acre or dwelling unit per acre, the level of up-keep, the level of privacy, the provision of private open spaces and the provision of children's play areas.

This chapter will review the findings of previous research, in which attempts have been made to identify factors contributing to residents' satisfaction with their housing environments.

4.1 SOME OF THE VARIATIONS IN THE FACTORS INFLUENCING SATISFACTION

Some of these studies, of residential environments, attempted to suggest a categorization for the factors identified as influencing the users' satisfaction with their housing environments. Different orders of categorization for the suggested influential factors were noticed, as their categorization order was varied according to different situations. It has been suggested that the significance of influence of such factors varies with culture, household types, the stage in family life-cycle and social status. Coulson, for instance, in his review of the findings from research, mostly British, of low and medium rise public housing, found the order of significant factors contributing to users' satisfaction with their housing environment was, as such: the appearance of the estate, the level of up-keep, the views from the living room and the dwelling (Coulson 1980). In another study in America, on low rise public housing, the order was: the dwelling, good neighbours (perceived as friendly), the level of maintenance, the desire to move out and the views from the living room (Cooper 1975). Yet another study, this time in Singapore, identified a different order, which was: the social relations with neighbours, the size of the flat (dwelling), and the perception of change in life

situation (Yeh 1974). Although it may at first appear that each of these studies shows something different, they are however, identifying and dealing with factors which are interrelated and inevitably affected by the characteristics of their physical and social settings.

To some extent, the variation in the level of satisfaction can be explained by different types of households. For instance, the elderly households often cared less than the adult and the family households about being overlooked by others (Willis, 1963). The elderly, also, have been shown to be more satisfied with the appearance of their estates than the family households, and to particularly like views which include glimpses of activities (D.O.E, H.D.D, 1981) (see Sections 4.2.2 Appearance, and 4.2.4 Views).

Another major factor causing variation in the level of residents' satisfaction has been recognised as being explained by different cultures and sub-cultures. For instance, the Japanese were found to have a different attitude to privacy within the home. The Japanese like to be very close to others and they sleep close to others on the floor, but at the same time they have a strong feeling against sharing a wall of their house with others (Hall 1966, p.142). Sonnenfield found a considerable difference between natives and non-natives in perception of attractive

landscape, native preferences are usually biased in favour of the landscape they inhabit, though not completely satisfied with his environment, the native is likely to have adjusted to it by virtue of extended residency. The non-native on the other hand, is far less likely to be satisfied with what he perceives to be an inadequate landscape (Sonnenfeld 1966).

Similar variations in sub-culture have also been noticed. For instance, different levels of satisfaction with the appearance of the neighbourhood have been found between the residents who attained college level of education and others with a lower level of education, (see Section 4.2.2 Appearance). Studies, again, have shown that opinions concerning the appearance of the estate, vary with different sub-cultures. Low income groups have been shown to dislike living in buildings which look too different from what society perceives as a middle-class norm (Cooper 1975 & 1982). It is also shown that lower income groups dislike large size buildings, as these are perceived as having an institutional look. Exposed concrete in building facades is particularly disliked, as well as dull colour materials (Cooper 1982).

The satisfaction level was also found to be affected by other factors such as previous experience and by expectations and aspirations (Francescato et al, 1975).

People's assessment of their appreciation of the attractiveness of the estate has also been found to be influenced by how much their current environment has offered when compared to the previous one (Yeh 1974) (see Section 4.2.2 Appearance).

However, the period of tenancy has been found to affect residents' reaction to the environment. Evidence from studies has shown that residents' attitudes toward their housing environments are affected by the settling-in period; this is considered to take between three to six months after moving into the estate (Yeh 1974, Gans 1967, Mulvihill 1977). This was conversely argued by Coulson, as he pointed out that "that response is relatively constant before, during and until at least five years after moving. However, attitudes are likely to change, over time, responding to changing social and economic conditions, fashion and fads." (Coulson 1980). One study by Ellis showed that residents' reactions after one year of tenancy were different from their reactions which were recorded after six months of their tenancy (Ellis 1977). Thus studies of post-occupancy evaluation are better carried out after one year from the date of occupancy.

The factors suggested in the studies to influence residents' satisfaction, their interrelationship and their relation to planning and designing the housing environment,

are discussed in greater detail in the following sections of this chapter.

4.2 THE MAJOR FACTORS INFLUENCING RESIDENTS' SATISFACTION WITH THEIR HOUSING ENVIRONMENTS

4.2.1 THE DENSITY

Density is a quantitative measure which expresses the number of people or amount of accommodation per unit area within a given "envelope" of land. A major planning factor, in housing, is the decision on the density of dwelling unit per acre/hectare, because density has a far-reaching effect on the site plan and the quality of life within it. It is a decision which determines the forms the dwellings may take, the actual spacing of dwellings on the ground and other forms of development and land uses on the estate, in order to create an environment to meet people's housing needs (Lynch 1971).

However, the findings from studies in the field of user satisfaction revealed that there was no significant statistical correlation between general satisfaction and density of dwelling units per acre (D.O.E., Db.21, 1970 & Db.25, 1972, Shankland Cox, 1969 & 1977, Cooper 1975, Lansing, Marans and Zehner 1970, Coulson 1980). In studies of high density housing estates in three English cities,

London, Leeds and Liverpool, it did appear that a high density development up to 130 person per acre could be compatible with satisfactory family life, given the right design and management policies (D.O.E. Db.21, 1970). Another more recent study, in Westminster City in London, on housing areas of high density, has also found no direct connection between density per se and users' satisfaction (Westminster City Council 1980).

Although the studies did not reveal a correlation between density and satisfaction, density seems to affect residents' satisfaction indirectly (Reynolds & Nicholson, 1969; Coulson 1980; Cooper & Sarkissian 1986). It appears to affect their satisfaction through other factors such as the distance between buildings, adequacy of outdoor spaces, privacy levels, noise level, the quality of views and children's play provision. This is perhaps because decisions on density directly affect the designer's decision on the buildings form, layout, and the kind of community facilities and buildings.

DENSITY AND HOUSING FORMS

Indeed, a particular density can sometimes be taken as denoting a residential building type. For example, individual detached housing in an urban setting usually occupies one-sixth acre and has a corresponding density of

six dwelling units per acre. Terrace housing has a density of twelve to eighteen dwelling units per acre. Walk-up buildings have a density as high as fifty units per acre, depending upon the number of floors considered acceptable. Buildings accessed by elevators have higher densities and normally range from fifty units per acre to four hundred units per acre. The former is common, the latter is rare (Newman 1972, p.196).

Studies, investigating the relationship between building form and residents' satisfaction have shown that there is no relationship between housing form and the determinance of satisfaction, as residents can be satisfied in medium and high rise building, the same as in low rise housing (D.O.E, Db.21, 1970 & Db.25, 1972; Westminster City Council 1980; Darke 1982). For instance, Conway & Adams found that high rise building residents were equally satisfied as those people living in low rise dwellings. As they point out "the success of tall buildings is largely determined by the type of household living in them. It seems that high rise dwellings are suitable only for certain types of people at a certain stage of life cycle" (Conway & Adams 1975, p.4). Other studies also supported this finding and concluded that high rise buildings can be a satisfactory form of housing for the relatively high income groups, for single adults, for elderly households (Francescato 1975, Westminster City Council 1980).

Furthermore, in areas where the trade off with desirable conditions (such as proximity to jobs, shops or entertainment) can be offered by the location of the area, high rise can be perceived by residents as highly satisfactory (Westminster City Council 1980, p.24).

DENSITY AND THE ESTATE'S LAYOUT

Density does limit the ways in which an estate can be laid out and in particular the distance between dwelling units and this inevitably influences the levels of privacy and noise inside the dwellings as well as in the private areas immediately outside. The density also affects the layout in relation to the amount of open space around the buildings and the type and quality of views from the windows of the dwellings. The provision of private open space (type and size), as well as the space that can be provided for children's play are also influenced by density.

The types of layout, and the distance between dwellings in particular, have a great impact on the privacy of ground level dwellings and on the privacy of those using the private open spaces. The spaces between buildings can be particularly important when the density of children increases. The Lansing et.al. study of residents' responses, revealed that when densities were raised from 30

to 60 dwellings per hectare, there was a sharp drop in tenants' feelings that they had sufficient privacy in their yards (the space immediately adjacent to the dwelling), and that they have too little outside space for family activities (Lansing et.al. 1970).

The level of density achieved by the designer inevitably varies throughout an estate and local density, that is the density immediately around individual dwellings which has an impact on residents' liking of the estate. A D.O.E. study "Quality Monitoring Survey", examined the relationship between housing density and factors affecting residents' satisfaction. The finding showed a Bar Chart correlation between the percentages of residents perception of the estate appearance as attractive and the housing density, where the density ranged from up to 99 bed spaces/acre, 100-198, 199-296, 297- 395, 396-494, 495 and over. There was a significant drop in satisfaction levels as the density increased from 199 to 395 bedspaces per hectare (79 to 158 bedspace per acre) (see Fig. 4.1), and this appeared to be related to tightly planned low rise layouts which restrict spaciousness, brightness and views (Reynolds & Nicholson, 1969). This change in attitude relates directly to the lack of areas around the dwellings which were perceived as spacious. People were shown, in the findings of a number of studies, to enjoy being able to look out from their dwellings at long views and green open

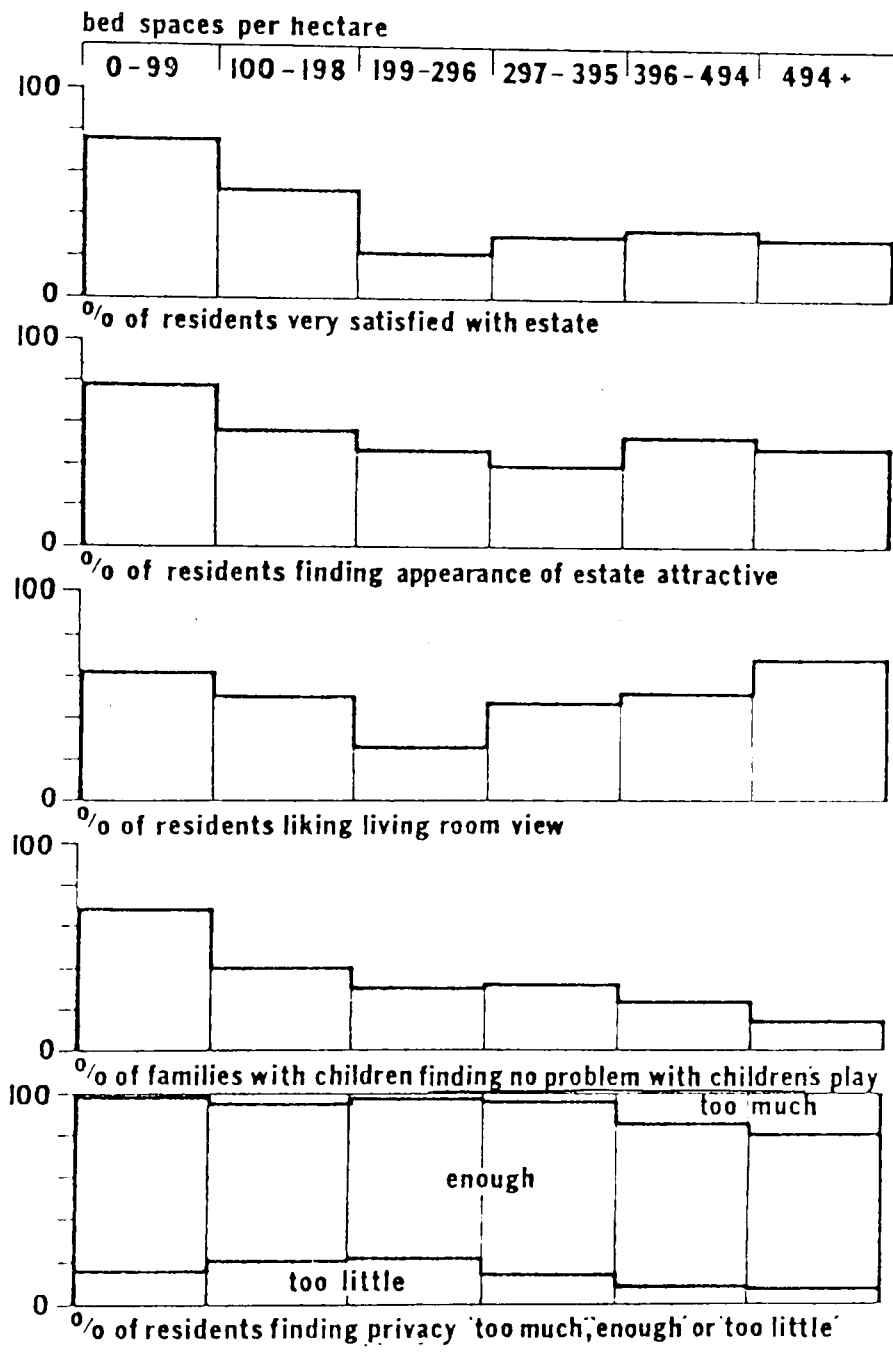


Fig. 4.1 Housing density and the related aspects (Reynolds et al, 1971).

spaces, and to feel that the estate was 'open' when they walked around it. On the other hand, they were also shown to dislike looking at other buildings, blank walls and the feeling of being cramped (D.O.E, Db.25, 1972; Cooper 1982). The lack of residents' perception of spaciousness around their dwellings is likely to occur at higher densities when there is a lack of open space. It would also appear from this that the function of the spaces between the dwellings for visual amenity (ie. something pleasant to look at) is important and this must be linked directly to decisions on the density of dwellings and the form of buildings. Whether the space is public or private does not appear to matter, so long as it is well designed and maintained (Shankland Cox & Associates 1967). Another component of the layout of an estate is the availability of car parking space. The distance to car parks and the size of car park lots were also found to be affected by density. The residents' perception of density is increased if the car park lots are large and look institutional and if they are always searching for a parking space (Cooper & Sarkissian 1986).

Residents' satisfaction is likely to increase as the percentage of land devoted to communal open space, private gardens and play areas increase (Coulson 1980). The availability of these spaces and the amount of greenery were most associated with an attractive estate's appearance

and residents' satisfaction.

The design and maintenance of open spaces around buildings must be related to the immediate density of the development, and in particular to the likely density of children. The likely children density on an estate has often been a neglected factor in the design of housing areas and it appears to have rarely been considered when deciding the density of a residential area. However, studies over the past fifteen years have repeatedly underlined this factor as having a strong influence on residents satisfaction with the environment immediately outside their dwellings, (Shankland Cox & Associates 1969 & 1977; Wilson 1977, Coulson 1980, Westminster City Council, 1980).

Findings from the study of three Wades' projects in London and another study in Liverpool, have shown that successful areas, as measured by the degree of users' satisfaction, had about 25 children per acre (63 per hectare), and unsuccessful areas had about 47 children per acre (117 per hectare) (Shankland Cox & Associates 1969 & 1977). Another study in America showed that problems of disturbance and vandalism occurred when there were local concentrations of children aged 6-16 (Newman 1972). Furthermore the Westminster study showed that when the number of children on the estate rises above an average of

five or six per ten dwellings, vandalism and associated crimes start to escalate (Westminster City Council 1980).

Density affects the provision of different land uses on the housing estate. For example, low density makes the provision of community facilities less feasible, as they are not easily accessible. Facilities such as nurseries, laundries and a local health centre become uneconomic at low densities. It is normally assumed that the more dense the development, the more economic it is to provide community facilities.

Density is a matter which has frequently been decided before the designer has become involved in the job and is therefore beyond his/her control. There is a broad range of densities set at between 1 and 120 families per net acre; anything near the lower density produces expensive city sprawl, costly infra-structure services and transport systems and makes the provision of easily accessible community facilities uneconomic. It is one of the major factors affecting the design process. Density per se has not proved to affect residents' satisfaction with their housing estates, but there is evidence of indirect relationships. The designer of a housing development should be aware of influences on residents' satisfaction, such as; the spacious appearance of the estate, enjoyable views from dwelling windows, required level of privacy and

noise inside and outside the dwelling, as well as the provision of private and shared public open spaces and other land uses and developments on the estate. The detail design of the external environment should also be considered in relation to the choice of maintenance policy, since this is influenced by the intensity of use. It can be suggested that the likely density of children is a useful guide for planning authorities and developers when planning a new estate. It is a factor which needs to be considered separately, in addition to the population density (persons per hectare).

4.2.2 THE APPEARANCE OF THE ESTATE

The findings from surveys concerned with users' satisfaction with their housing environments have tended to show that the "appearance" of the housing area is a major factor influencing the overall satisfaction (Reynolds & Nicholson 1969; Shankland Cox & Associates 1967 & 1969; Lansing et al, 1970; D.O.E, Db.22, 1971 & Db.25, 1972; Stones & Crosby 1975; Ellis 1977; Mulvihill 1977; Coulson 1980; D.O.E, H.D.D, 1981; Cooper 1975 & 1982; Beer 1983). Statistical findings showed that satisfaction with the estate was closely related to its appearance; people felt more satisfied if they felt their estate was attractive. Most people based their notions of attractiveness on what

they could see around them when they were outside their dwellings and on the estate, as well as what they could see from their windows. However, it is apparent that the idea of a pleasing appearance is not associated with any particular housing style, but rather with variety in building height and facades, colour, texture and materials and that it is related to what are perceived as "good" details of soft and hard landscape design, pleasant views from dwellings, a humane scale and non-institutional appearance, as well as a high level of maintenance (Lansing & Marans 1969; D.O.E, Db.25, 1972; Cooper 1982).

The surveys have not identified any tangible characteristics in a housing environment which can be recognised as promoting residents' satisfaction with appearance. Surveys have only shown that people judging the appearance of their housing environments usually describe them positively as "attractive", or "desirable", and negatively as "slum" or "drab" (Lansing & Marans 1969; D.O.E, Db.25, 1972). The professionals have rather different indices, they often use three aspects in evaluating the appearance of the estate. These are the degree of "openness" and the degree of pleasantness and whether the appearance is perceived as interesting (Lansing & Marans 1969). These are to a large extent intangible concepts, due to the complexity of elements in the residential environment and their interrelationships.

However, the "openness" or spaciousness of the surroundings has been defined as lack of spatial enclosure in front of neighbourhood clusters (Lansing & Marans 1969). It is in turn influenced by the relationship of building height to street width and the extent to which the houses are set back from the street. Perception of "openness" by residents can also be affected by the number and size of trees as well as the presence of fences and screens on the street or in the open space abutting the building. A number of studies have shown that people liked their estates for its "spaciousness" or "openness" and this was likely to be the major factor influencing their level of satisfaction with the appearance of their estates (Reynolds & Nicholson, 1969; D.O.E, Db.25, 1972; Cooper 1982, Coulson 1980). These studies have shown that residents would like the estate to look "open" when they wander about and dislike the feeling of being cramped in spaces and bounded by buildings. They also show that when users are inside they like to look out on open and long views, even if it is only a glimpse of a further space through a gap between buildings. It is also important to those satisfied with the view from the dwelling to see an open sky. If the window of a living room or kitchen fails to allow a clear prospect of sky it is likely to produce a depressing environment which might be considered to cause a claustrophobic feeling.

"Pleasantness" has been defined as the level of satisfaction the environment represents to the viewer (Lansing & Marans 1969). It has been seen as including the architectural characteristics such as: "richness" versus "dullness" of the dwelling appearance and the appearance of the approach to the dwelling. It is also understood to be determined by the spatial character; ie. enclosed spatial feeling versus no spatial enclosure. The degree of enclosure is largely determined by the buildings but is modified by the type of planting and variations in local topography. These latter factors also influence whether or not the scene is perceived as pleasant and that perception is further determined by the level of maintenance (Coulson 1980, Cooper 1982). On the other hand "interesting" has been defined as the extent to which the scene includes variation in architectural design, vegetation, topography and spatial character (Lansing & Marans, 1969). It is the inter-relationship between land form, structure and vegetation, which creates the spaces. The different character which develops in each of these spaces then creates a sequential experience which determines whether the appearance is interesting.

Another aspect concerning the appearance of housing estates which has been investigated by researchers, is to determine which element of the external environment mattered more to residents in judging the appearance of

their housing estate; the architecture of the dwellings or the spatial arrangements of the external environment. The way the users see the architecture of the dwellings on the estate will influence their level of satisfaction with living in that estate. A number of studies have revealed that the general estate's appearance matters more to residents than the appearance of their own dwellings (D.O.E, H.D.D, 1981; D.O.E, Db.25, 1972; Mulvihill 1977). One study in London indicated that to most people, appearance meant landscape and layout first, architecture second (Shankland Cox & Associates 1969).

The exception to these studies was that of The Chalvedon Housing in Basildon (Ellis 1977). The Chalvedon study seemed to contradict the earlier studies and imply differentiation of the opinions of the residents about the appearance according to the period of tenancy. The study differentiated between the attitudes of residents newly-come to the estate and long-stay residents and suggested that the appearance of the estate and the way it was laid out had attracted the newcomers to the estate, but that the architecture of the dwellings mattered more for the long-stay residents. These findings were reached by questioning residents about their attitudes to their housing environment six months after they moved in, then repeating the questionnaire seven months later to find out if their ideas had changed. A third survey was then done

after two and a half years of residency. This survey also included in the sample new arrivals with an average of three months residency. The responses from these surveys were analysed to show the differences between new arrivals and long-stay residents (Ellis 1977). However, in relation to the Chalvedon housing project, it is apparent that it was well designed and has an attractive appearance, as it was rated so highly by the residents who had newly moved in. It could, however, be argued that the long-stay residents had become accustomed to the attractive appearance and had taken their satisfaction with it for granted and had begun to show their possessive pride in the appearance of their own dwellings when questioned at a later date about the appearance of the estate. The influence of the concept of "Pride in the Home" will be dealt with in Section 8.2).

In relation to the architecture of the dwellings, a study of six housing estates in London and Sheffield pointed to some aspects such as; the forms of the dwellings, the materials and colours which were liked or disliked by the residents. It concluded the residents opinions as follows:

"Apart from their dislike of very large and massive buildings, which gave an institutional appearance, housewives strongly disliked buildings which they

thought looked dull, grey or drab. They especially disliked large areas of exposed concrete which they felt looked unfinished and dirty; light bright colours were very much preferred. Housewives liked variety in both buildings and the spaces they enclosed and preferred spacious surroundings ...large areas of grey paving were strongly disliked and dirty looking entrances with exposed concrete finishes" (D.O.E, Db.25, 1972).

The appearance of the approach to the dwelling has been shown to be important to residents. People were found to be concerned about how the approach to their dwelling would look to visitors and this is an independent element in developing a sense of satisfaction. Surveys have shown that residents felt proud if the approach to their dwelling was appreciated by their visitors (D.O.E, Db.25 1972; Cooper 1975, Coulson 1980; Beer 1982). Appearance of the approach is determined by the form of the housing, the arrangement of spaces immediately outside the dwelling and its detailed design.

From the findings of these studies it appears that however good the design of the housing may be, the effect is spoiled if the ground space around them is drab. Therefore the spatial arrangements around the housing and the careful design and detailing which provides variety and

ensures pleasantness, are likely to positively affect the residents' satisfaction. It also has to be recognised that however attractive the design of the external environment is, it will be wasted, unless the original high standard can be maintained. Therefore, designers need to be cognizant of the maintenance policy for each project and consider it in their design solutions and the detailing stage of the design.

VARIATIONS IN RESIDENTS' ATTITUDES TOWARD THE APPEARANCE OF THE ESTATE

Although "appearance" has been identified as an influential factor in relation to the overall satisfaction experienced by the residents, many household groups have been found to be critical of the appearance of their estates. This has also been found in a recent study of user attitudes to fifty five recently completed estates in England (D.O.E, H.D.D, 1981, p.6). About half the respondents (53%) considered their estates to be attractive, whilst one in six of all families felt the estates to be unattractive. These variations in opinion might be influenced by the fact that people's assessment and appreciation of the attractiveness of the estate are influenced by their previous living experiences and their "image of home", their knowledge and imagination and what choices the current environment has offered them.

To some extent, variation in levels of satisfaction with "appearance" can be explained by the differences in types of household. In the aforementioned survey, the elderly households, as in another survey (D.O.E, Db.25, 1972), were the most satisfied with the appearance of the estates (64%); whilst families with young children were less satisfied (47%). However, it has to be recognised that the differences within these broad categories also depends on particular circumstances and can be influenced by the dwelling type, and estate location. (see H.D.D 1981, Table 6, p.6).

Other variations in levels of satisfaction with "appearance" have been observed, which seem to show it to be influenced by culture. John Sonnenfield has suggested that there is a variation in environmental perception due to cultural difference. In his study in northern Alaska and Delaware, he found that there was a difference between the native and non-native populations in their environmental preferences. Populations native to an area, whether in Alaska or Delaware, seemed generally to prefer landscapes similar to their home environments and to like new landscape which differed from others in a manner consistent with their home environments. He also suggested that other factors such as sex and age could affect the populations' environmental preferences (Sonnenfield 1966).

Another study, in America, concerned with the evaluation of neighbourhood quality, showed that appreciation of appearance does not just depend on culture but also varies with different sub-cultures. A study by Lansing and Marans (1969) showed considerable disagreement between different sub-cultural groups on rating the degree of attractiveness of the appearance of the neighbourhood. For instance there was a considerable difference in attitudes between residents who had attended college and those with a lower level of education. The same survey also found that the opinion of the college educated group is more likely to agree with the opinions of the professional people involved in the built environment ie. the planners and designers (Lansing & Marans 1969).

Variations in aesthetic values between designers and residents have also been shown among the findings of a study of six Public housing estates in London and Sheffield by the DOE. It concluded that there is a genuine difference between architects and residents as to how the estate should look (D.O.E, Db.25, 1972, p.4). Writers such as Clare Cooper have discussed these variations in perception and the difference in attitudes between designers and residents. She has argued that designers of housing projects should always be aware of residents' view points and preferences on aesthetics. Cooper has also

pointed out that designers must look at information from evaluation studies before making decisions on appearance, so that they can better understand how users are likely to react (Clare Cooper 1982).

"Appearance" is an important factor in satisfaction with the housing environment. However, it seems that there is only partial agreement on what constitutes an attractive appearance of a residential environment. Further studies of attitudes and the perception of population groups in different cultures, as well as in different social and physical context, may help to explain and identify elements and components of the external environment in relation to the attractive appearances of the residential estates. Despite the aforesaid difficulties, the designer has to be aware of the different perceptions of the attractiveness of the appearance of an estate, due to different households types in different cultures and sub-cultures. The designer needs to be aware that the general appearance of the estate is likely to matter more for people than the architecture of their own dwelling and that the professional designer's opinions on appearance do not necessarily coincide with those of the residents.

4.2.3 VIEWS FROM THE DWELLINGS

Findings from the studies of residential areas have suggested that most residents judge the attractiveness of their neighbourhood by what they can see from their windows (D.O.E., Db.21, 1970; D.O.E, Db.25, 1972; Coulson 1980). Good views from those rooms which are most often used during the day, ie. the living room and the kitchen, were found to be closely linked with satisfaction. Views with particular characteristics, such as views with grass and trees, have been shown to influence attitudes towards the attractiveness of the views (MOHLG 1967; Shankland Cox & Associates 1969; Cooper & Sarkissian 1986). Views of blank walls and parked cars tend to be disliked by people living on housing estates. Building materials and colours also influence the character of the views, though the taste of colour varies according to culture and region (Cooper & Sarkissian 1986).

From the surveys it can be seen that the prime element of residents' perception of the views from their windows is the degree of openness or spaciousness. A good view does not imply "openness" only, such as when blocks are spaced sufficiently far apart, but also implies that the viewer perceives pleasantness. Inevitably, sometimes there are certain places on the estate where the layout has

juxtaposed buildings, particularly in high density areas, in such a way that views are restricted or blocked and that the feeling of openness is affected. In such cases, particular design solutions need to be applied so as to improve and ameliorate the views by making decisions on the detailed location, scale, texture, colour and form of plantations as well as the positions of screens and fences. The choice of colours and materials of the buildings also need to be considered.

Good views, for some, are views which include activity and vitality (D.O.E., Db.25, 1972; Cooper & Sarkissian 1986). However, this is only as long as the activity does not take place immediately under their windows, and does not affect privacy in the home (Willis 1963). For instance, many residents will complain where a pleasant view from the dwelling also enables strangers and neighbours to look in (Cooper & Sarkissian 1986). Elderly households in particular, have been found to like watching what goes on outside. A prospect onto a pedestrian route, bus stop, or shops is generally preferred by the elderly. But conversely they dislike children playing outside their windows (Scottish Housing Handbook No.3, 1977).

Responses about appearance often included positive reactions to a view of plant material and greenery, whether it was mentioned explicitly or implicitly. The

significance of plant material is emphasised in most of the studies concerning users' satisfaction with their housing environments, for example Shankland Cox and Associates in their investigation had reached the conclusion that:

"The policy of providing generously landscaped open spaces on all schemes was a primary source of satisfactionWhen people said the appearance of the scheme was good, the reasons nearly always included landscaping and mature trees and grass." (Shankland Cox and Associates 1969, p.2).

In prefabricated housing, where concrete is the dominant material and where the facades of buildings are all relatively similar, the significance of vegetation becomes more important. It enlivens and vitalizes the scene, as well as ameliorating the harsh appearance of the concrete. The cubical forms are broken by the vegetation and the monotony of repetition avoided. The colours, textures, scale and the movement inherent in plants acts as a foil to the architecture of the buildings on housing estates.

As the studies have suggested that attractive views from the living room window and the kitchen's are important to residents, designers of the residential environment should be aware of the views which can be seen from these

windows in their design decisions at the site planning stage. Careful consideration is needed for particular areas of the estate, where the buildings are juxtaposed together, to find a suitable design solution. It is also of vital importance that decisions on window sizes should be judged by the designer, by both the view seen out of it and by how much of the internal areas could be seen from the outside; in other words it is a matter of balance between the need for privacy inside the dwelling and the need of the view from it.

4.2.4 UP-KEEP OF THE ESTATE

The level of up-keep of the buildings and open spaces and the way in which an estate is maintained is only one of the factors contributing to an attractive appearance of the housing environment, but through the users surveys it has been recognised as a very important factor influencing residents' satisfaction with their housing environment. Its significance has been repeatedly shown in the findings of the studies concerning the evaluation of housing environment (D.O.E., Db.22, 1971; Db.25, 1972; Lansing & Marans, 1969; Lansing et al, 1970; Goodchild 1974; Cooper 1975 & 1982; Coulson 1980; D.O.E., H.D.D. 1981; Mulvihill 1977). In these studies there is also an indication of other contributions of the "good" up-keep of an estate in relation to the sense of pride in the place and to the

level of vandalism on the estate.

Many studies in America have highlighted the importance of "up-keep" as a major factor contributing to the promotion of satisfaction with the estate (Lansing & Marans, 1969; Cooper 1975 & 1982; Cooper & Sarkissian 1986). One piece of research, by Lansing and colleagues, has gone even further in suggesting that the standard of maintenance was the most important determinant of how well people would be satisfied with their neighbourhood. They concluded that:

"Whether a neighbourhood is well kept is the best single predictor of neighbourhood satisfaction" (Lansing et al 1970, the summary, and p.130).

In the U.K., the Department of the Environment, amongst others, carried out research on housing environments. Many of these studies had indicated the significance of the way that estates were kept up and its effects in relation to residents' satisfaction. An example of these studies is "The Estate Outside The Dwelling". This study concluded that:

"Residents' feelings about maintenance and the degree of vandalism were closely related to their satisfaction with the estate, and also inextricably interwoven with their

feelings about its appearance (D.O.E., Db.25, 1972, p.2).

A number of studies have revealed that a high level of maintenance of the dwellings and the open spaces is likely to engender a sense of pride in the residents in relation to their estates and it has been shown that this is linked to a lack of vandalism of the estate itself. Coulson studied findings from research, mostly British, on low and medium rise council housing estates in order to find out what factors contributed to users satisfaction with the areas around the home and ranked these factors according to their significance. He ranked "up-keep" in second place after "spaciousness" of the estate in promoting satisfaction, and stated that "up-keep of the dwellings and open spaces is a key factor in attractive appearances. Maintenance of dwellings and open spaces promoted neighbourhood pride and indicated lack of vandalism" (Coulson, 1980).

Clare Cooper argued that when housing projects are perceived by the residents as being well-maintained, it is likely that residents feel proud of where they live and are more likely to help to maintain the environment immediately around their dwelling. At the same time this means that they give the informal surveillance which keeps vandalism to a minimum (Cooper 1975 & 1982).

One study in Scotland, has also outlined similar findings, but it has suggested that there is a distinction of preferences, in relation to up-keep of the external environment, between sub-cultures. Goodchild, in this study, makes the distinction between an environment thought to be "clean" and "healthy" and one considered "attractive". He found that a clean, healthy environment was important for both working class and middle class people, but the middle class rated "attractive surroundings" as being more important. He adds that "attractive surroundings" carries visual and aesthetic connotations whereas "clean and healthy" does not (Goodchild 1974). This finding might be seen as coinciding with Lee Rainwater's study of the lower working class where people were much concerned about threats, human and non-human, to the self from the outside world. The non-human threats implied the danger of diseases which an unclean environment might help to encourage (Lee Rainwater 1966).

This finding was backed up by findings from another recent study of fifty five housing estates where "the main reasons given for finding the estates attractive were that they were clean and the converse reasons which were given for finding the estates unattractive, were dirt and litter, as well as vandalism and lack of maintenance" (D.O.E., H.D.D. 1981).

Whilst all these studies have underlined and highlighted the importance of the up-keep of housing estates with different levels of importance, the exception is "The Chalvedon Housing" study. Its findings conclude that up-keep of the estate is a relatively unimportant factor in promoting user satisfaction. The researcher argued, in relation to this, that the response of residents is affected by the place of the question in the context of the questionnaire and by the preceding question. As a consequence of this, he argued that the D.O.E.'s study of "The Estate Outside the Dwelling" has a different finding to his study, simply because they have placed the question about satisfaction immediately after the question about the appearance of the estate (Ellis 1977).

The level of up-keep of the estate is affected by the maintenance and management policies operating within it. The management policy for a housing estate affects and in its turn is affected by the maintenance policy. Changes in management policy, in relation to the allocation of the dwelling or in relation to the external environment, can adjust and even alter the maintenance policy, over time and vice versa; this can result in a better level of up-keep. For instance, studies have shown that residents, in what they perceived as well-designed and well-maintained estates, are more likely to take care of their immediate external environments and this may reduce subsequent

management costs of the estate (Cooper 1982). If the management do not have a proper policy to promptly replace or maintain any aspect of the environment in need of repair, further damages are likely to follow, particularly if the maintenance was needed in the external environment. Because the run down appearance of an estate is "read" by people as a sign that no-one cares, it is more likely to encourage more vandalism (Cooper & Sarkissian 1986). Thus, lack of proper management will inevitably increase the cost of maintenance.

A key element in the design of multi-family housing (for any income group), is its capacity to be easily managed and maintained (Cooper & Sarkissian 1986). This is particularly so in relation to the layout design of an estate, the choice of materials and vegetation and children's play equipment. It has been suggested that when there is no specific maintenance policy with regard to open spaces, it will almost inevitably result in unused spaces which are then perceived by the residents as lowering the quality of the external environment, as empirical studies have shown (Beer 1983, p.26). It has also been suggested that a good management policy might even make up for some deficiencies in design standards and vice versa ie. that an excellent design can fail due to poor management. A major study of eighteen public housing estates in Lambeth concluded that "Excellent management may be

counter-balanced by poor design features. On the other hand, a "bad" estate may contain several excellent design features which are overwhelmed by poor management or by the way in which the residents use the place" (Shankland Cox & Associates 1977, p.45).

The evidence from the studies indicated that the up-keep of the housing estate influences the way residents feel about their estate, in relation to its appearance and to their feeling of pride, as well as its likeliness of contributing to the low level of vandalism on the estate. Therefore, maintenance policies should be decided upon in the early stages of the design. It is important for designers to know about the intended maintenance policy when they are at the site planning stage and at the detailing stage of the design, and this should be a controlling factor in incorporating open spaces into a design.

4.2.5 THE DWELLING

The significance of the dwelling was well emphasised in the statement of the United Nation's "Conference of Human Environment" in 1972: The Environmental Challenge, "No man's environment affects his health and well being more directly than the house in which he seeks shelter, security, comfort and dignity" (U.N., Human Settlements 1974, p. 101). For most people the dwelling is the most important aspect of their immediate physical environment (Menchik 1972, Abrams 1975, Mulvihill 1977). In Britain, Mark Abrams found, in his study, that between 10% and 14% of the middle class and 19% of the working class included housing within their three most important areas for overall life satisfaction (Adams 1975). In another study, Menchik found the house to be a very important element in people's life. His report reveals that the house and other factors such as; environmental appearance, type of people living nearby, schools, shops and accessibility to work were the most important items (Menchik 1972). Evidence from empirical studies also suggested that dwellings have considerable impact on the quality of people's lives generally (Rainwater 1966, Menchick 1972, D.O.E., Db.25, 1972, Abraham 1975).

It seems that people have an "image of home" in their

mind (Crammer 1960). Evidence from studies showed that the single family house with a garden is the most favoured type of dwelling for the majority of people interviewed in Britain and America (Crammer 1960; D.O.E., Db.25, 1972; Cooper 1975). Nevertheless, people were found to be satisfied with their dwelling without this being influenced by the form of the housing; in other words, people living in high rise were found to be as satisfied as those living in low rise (Reynolds & Nicholson 1969, D.O.E., Db.21, 1970; D.O.E., Db.25, 1972; Darke 1982). This response was shown to depend on the type of household living in them, their stage in family life-cycle, class status and in cases where the trade-offs with desirable conditions (such as proximity to shops, work or entertainment) can be obtained (Francescato 1975; Conway & Adams 1975; Westminster City Council 1980).

The quality of the housing and what the housing meant to its occupants is likely to be influenced by income, occupation and education (Porteous 1977). Porteous suggested that a dwelling has a different meaning to different social groups: (a) The dwelling is suggested to be perceived as a "haven" or oasis of safety and security from what is considered as a threatening outside world, by those in the lower end of the social classes (Rainwater 1966). (b) It is also suggested to be a "heaven" for those at the middle class who are financially insecure and paying

a considerable portion of their income for housing, and tend to be inner-directed (Clark 1966). (c) It is suggested to be perceived as a "leaven" by persons of higher status who tend to be more outer-directed, they have fewer problems of physical safety or financial insecurity. For them the house is an operational base from which to set out for involvement in the social affairs of the community.

In relation to the psychological impact of the house on people, Rainwater suggests that pride of possession can be intense and result in a strong desire for expression through the dwelling, both internally and externally (Rainwater 1966). Clare Cooper sees the house as a symbol of the self. She suggested that the individual's house reflects how the individual sees himself (Cooper 1972). An example in support of this connotation was set out by Werthman. He noted in a large subdivision near San Francisco, that self-made, extraverted businessmen chose to live in ostentatious mock-colonial houses with an emphasis on display. In contrast, professionals whose goals were directed toward personal satisfaction rather than financial success chose retiring, inward-looking styles (Werthman 1968).

Residents' levels of satisfaction with their dwellings were found to be affected mainly by the size of the dwelling and the way it was planned. It was also found to

be affected by the open spaces immediately outside the dwelling such as the garden, patio, balcony, and access (Rainwater 1966, Cooper & Sarkissian 1986). Rainwater (1966) argued that physical barriers between inside and outside are not maintained when people talk of their attitudes and desires with respect to housing, they rather talk of the outside as an inevitable extension of the inside and of the inside as deeply affected by what goes on immediately outside. However, in addition to these, the level of satisfaction with the current dwelling is affected by the individual's experiences of previous dwellings, and how much the current one, as perceived by the resident, is an improvement on the previous (Francescato 1975).

Internally, the size of the dwelling, or rather the users' perception of its size in relation to previous experience of dwellings and the layout of the rooms, appears to be significant in relation to residents' satisfaction with their dwellings, as Clare Cooper has found in her study of "Easter Hill village". She also found that the size of rooms in relation to activities, is, in its turn, affected by the household life style and status. She noticed, for example, that the kitchen size mattered more for low income households than the size of the living rooms. The kitchen, for them, is the place where the housewives entertain relatives and have a cup of coffee with the neighbours during the day (Cooper 1975).

Another study, in America, indicated that the size of the living room for the middle class is important. It is where they entertain friends, and for this reason they pay more for the furniture and decorations of that room (Rainwater 1966). In Britain, Margaret Willis in her study of privacy in the housing environment had noticed that the middle class family households were inclined to have two living rooms or one living room and a separate dining room to cater for the needs of the members of the family to pursue different hobbies and interests and for the teenagers to entertain their friends at home. She also noticed that the general opinion of middle class housewives is that the kitchen should be separate and shut off from the other rooms (Willis 1963a).

As well as the size and the layout of the dwelling, finishing materials were also found to be important in relation to the residents' satisfaction with their dwelling. As Ellis has noticed, residents' satisfaction with their dwellings is affected by the detail of the design such as the arrangement of rooms and the finishing materials used in the dwellings. The choice of finishing materials which facilitate cleaning and maintenance and provide brightness is appreciated by the residents (Ellis 1977). The lack of sound insulations in walls and ceilings of flats is a common cause of complaint by residents in multi-family housing and in terrace houses and influences

their reaction to their dwelling (see Sections 4.2.6 and 4.2.8).

Externally, the appearance of the dwelling itself was found important for its inhabitants. However, the degree of its importance was found to be different in different studies. In a number of studies the dwelling appearance was found to matter less for residents than the estate appearance (D.O.E., Db.22, 1971; Db.25, 1972; Cooper 1975, Coulson 1980; D.O.E, H.D.D., 1981). Peter Ellis (1977) in his study of Chalvedon housing, suggested that the architecture of the dwelling itself was of great influence in promoting satisfaction with the housing environment for the residents who stayed longer in the area; whilst the appearance of the estate mattered more for a newcomer to the estate. Though his conclusion had not been confirmed by other studies however, it is apparent from his study, that the estate was of a high level of attractive appearance which was appreciated by the new residents. But, by the time the residents got used to it and took it for granted, the need for identity and self-expression become more important. Residents became more concerned to appreciate their sense of pride in their dwellings rather than the appearance of the estate. It could also be similarly argued about the need of man for group affiliation, but then he needs to be recognised individually amongst the group; he seeks self-expression

and identity.

Since it was revealed in many studies that the single family house with a garden is the most preferred type of housing, therefore, when a higher density or different form must be used, designers should try to give residents as many of the advantages of house dwelling as possible. Apparently, people's attitudes towards their dwelling implied the internal characteristics of it as well as the external. Externally, it seems that dwelling appearance and estate appearance both are important to residents, but which one matters more, varies with the type of households, the class status and the level of the estate appearance. Internally, the spaciousness inside the dwelling is favoured by the majority of adult and family households regardless of their class status. Unfortunately, more space means more money, which the poor cannot afford. Thus, it is important that, at least, they should have it where it is most needed. Findings from the studies mentioned here also showed the influence of the open spaces immediately outside the dwelling in relation to residents satisfaction with their housing environments. This will be discussed later under the heading of "Private Open Spaces".

4.2.6 PRIVACY

Privacy has been found to be a fairly important matter affecting peoples' quality of life and has been shown to have some effects on residents' satisfaction with the housing environments, (Willis 1963C; Byrom 1979; Cooper 1975; D.O.E., Db.22, 1971; Db.25, 1972; Ellis 1977; Mulvihill 1977; Coulson 1980). It appears that residents not only need privacy inside the dwelling, but also need it in the open spaces immediately outside the dwelling; in the private gardens, balconies, patios and in the access areas (Cook 1969, Coulson 1980). People interpreted privacy outside as freedom to do as they please in terms of clothing and behaviour. However, there is still a certain degree of vagueness and a lack of clarity about questions concerning the required level of privacy, what controls there should be, as well as where and when it is most wanted. This is because privacy is a very complicated matter, which tends to be manifested differently in different contexts; social and physical, as well as its dependance on personality characteristics (Willis 1963b, Westin 1970, Ittelson et al., 1974).

MEANS OF INTRUSION ON THE SELF

In the housing environment, evidence from studies showed that privacy means a reasonable protection against different types of undesired intrusions on the self by others. In this concept, three means of intrusion on individual privacy have been identified:

(a) Visual Privacy: privacy from others looking into the dwelling, whether they are passers-by or people from other dwellings. People perceive visual privacy as a freedom from being over-looked, the avoidance of that vaguely uncomfortable and rather self-conscious feeling that people have if they know that others can see them. On the other hand, people can also feel disturbed if they can see people in other dwellings, for it seems they have a feeling of guilt at embarrassing others. People were found to complain about being overlooked, whether by neighbours or passers-by, in their dwellings as well as in their gardens (Byrom 1979, Cooper 1975). Responses to overlooking have been shown to vary according to status, age, kind of activity, the point of overlooking and the duration of it (Willis 1963, Byrom 1970).

(b) Aural Privacy: privacy from other people hearing what is going on in one's own home and from hearing others' noises, whether immediate neighbours or children playing.

The aural privacy in dwellings is the freedom from disturbance by noise. Not being heard by neighbours or hearing other people's noises, was criticised by residents in many housing projects (Shankland Cox & Associates 1967; Lansing et al., 1970; Byrom 1979; Cooper 1975). Poor sound insulation in party walls in terrace houses or between flats and in the ceilings between floors as well as noises made by children's play were frequently criticised by the residents, when they were asked to assess aspects of their dwellings. But, nevertheless, it seems that despite the complaints this did not affect their overall satisfaction with the housing environment (Byrom 1979; D.O.E. Db.22, 1971; Db.25, 1972). In other words, it seems that visual privacy matters more for residents than aural. The level of aural privacy which residents can tolerate in their housing areas is influenced by their previous housing experience (Francescato et al., 1975).

(c) Social Privacy: privacy from undesired communications or intrusion by others. This concerns the amount of information about the self which one wishes to reveal to others. Margaret Willis has defined it as "It is the establishment of the right relationship with other people who live near -the neighbours- (Willis 1963c, p.1231). In housing environment, people can achieve social privacy either by verbal or behavioural actions, or by physical separation, which can be applied by distancing the self

physically or by using structural barriers such as walls, fences, hedges and plants, or even by using curtains and meshes. The first is an individual matter, the second is a design matter.

Mainly, however, the need individuals have for all types of privacy can be taken to mean they require a protection against undesired communication and intrusion from others. Nevertheless, there is a need to have a balance between privacy and isolation. The need to create the balance has been shown to be considerably affected by personality (Willis 1963b, Westin 1970, Ittelson et al. 1974).

PRIVACY LEVEL

The required level of privacy is not constant. It has been suggested to vary with time, culture, sex, status and stage in life-cycle (Ittelson et al, 1974). Moreover, it has been suggested that the level of privacy can be determined by expectations; by comparing the existing situation with previous experiences (Francescato et al, 1975). However, it is suggested that the required privacy is dependant on personality characteristics (Willis 1963, Westin 1970, Ittelson et al, 1974). The factors influencing the required level of privacy such as time and culture have been discussed in Chapter Two. Other factors,

from the findings of empirical studies, such as status or sub-culture and the stage in life-cycle, in relation to privacy are to be discussed here.

The social studies undertaken on housing have found a different perception of the meaning of privacy among different social classes. When people were asked, during a survey investigating "privacy", to define the meaning of privacy, different patterns of response were found between the lower working class (referring to unskilled labourers) and the middle class (referring to skilled labourers and upwards), (Willis 1963a, Byrom 1979). Margaret Willis found, for example, that privacy with regard to the relationship with others is often mentioned by people of the lower class. One study in Scotland had similar findings, as residents from lower classes defined privacy as "to live one's own life" (Byrom 1979). Conversely, privacy within the home and protection against not being overlooked by others is more often mentioned by the middle class. Willis found that there is little demand within the home for privacy, from the lower working class. The middle class, having better opportunities to pursue diverse interests and hobbies and entertain friends in the home, as well as provide a better studying atmosphere for their children, tend to appreciate and perceive a need for privacy within the home and hence "having one's own room" becomes important (Willis 1963b). One survey, on seven

local authority housing estates, found that the level of complaints about lack of privacy in private gardens was higher in the more affluent groups than in the less well-to-do groups (Cook 1969).

Responses to visual privacy, in particular, were noticed to vary with different social classes. This could be attributed to the suggested differences in the meaning of privacy, which has been found to vary with classes. The protection against visual privacy was found to be particularly important to middle class residents.

Margaret Willis suggested that in times of social change when living conditions of people in the lower class tend to improve, then privacy become more important. She stated that "In a way it shows that the evolution and changing concept of privacy is associated with rising standards" (Willis 1963b). It is also thought that privacy is particularly important in a time of social change when people moving to a new area are more likely to perceive people's worth in terms of ownership and possessions, rather than as known individuals; in other words possessions are taken to indicate a person's status, when they are not known as individuals (Willis 1963b, Greenbie 1976).

The level of privacy desired by residents was noticed

to be related to the residents' stage in the family life-cycle. Research indicates that too little privacy tends to be problem for family and adult households, whilst too much privacy tends to be problem for elderly households (D.O.E., D.b.25, 1972). Visual privacy in particular becomes less important for elderly households (Willis 1963b; Byrom 1979; Coulson 1980). Surveys have also suggested that elderly and adult households are most adversely affected by noise (Reynolds and Nicholson, 1969, p.519). Elderly and adult households were noticed to have more complaints about noise in the immediate areas around the dwellings.

Visual privacy in particular was suggested to be influenced not only by culture, status and the stage in life-cycle, but also by the kind of activity performed, the point of overlooking and the duration of it (Willis 1963). The kind of activity visible from the dwelling was shown to influence responses towards being overlooked. People were shown to tolerate been overlooked in their living rooms but not in bedrooms, whilst they do not mind been overlooked in the kitchen (Willis 1963b). In private gardens it appeared that people do not mind been overlooked whilst digging in the garden, but do not like being overlooked whilst sun-bathing, eating or sitting and relaxing.

Margaret Willis, in her study, found that the point

from where people were overlooked also make a difference. For instance, there was less objection to being overlooked in the garden from a window of a neighbour's house, than being visible from across a number of gardens. This was also found to be true in the study of the Department of Environment, where people were noticed to be complaining about the lack of privacy in their gardens in spite of the gardens being fenced from the road by a fence two meters high, but in a situation where they were only separated from neighbouring gardens by a ninety centimetre high fence (Margaret Willis, 1963b; D.O.E., D.b.22, 1971). These two studies also found out that when there is a difference in building heights on the same site, residents are conscious about being overlooked by the people in higher buildings opposite.

Over-looking as an intrusion on privacy is affected by who looks in, how they look in (a real stare or just in passing) and whether the resident is the sort of person who does not like other people seeing him. For instance, it appeared that people less minded passers-by looking in than neighbours. This might be explained by people disliking being overlooked because they have some feeling of guilt at not conforming to the expected pattern of behaviour. The influence of all these aforementioned factors is also governed by the individual's personality (Willis 1963a, Ittelson et al., 1974).

In summary, privacy affects residents satisfaction in a complex way. The required level of privacy is likely to be affected (apart from the individual's personality), by the social and physical settings. As yet, unfortunately, not enough research has been done, concerning privacy on housing estates, to establish universal guidelines for designs. Thus, more research is needed, on various aspects of privacy, in diverse social and physical housing settings and in different cultures. The accumulation of data from such research will help to clarify ideas on best approaches to be adopted to provide a satisfactory level of privacy for people in their residential environments; the kind and degree of privacy that is required by them, the position where it is most desired and to what extent attitudes toward privacy are influenced by such factors as age, status, and culture. Nevertheless, careful consideration has to be given to the physical environment by planners and designers, when deciding on density, layout, provision for open spaces and children's play areas, as well as on the detail design of the dwellings and the open spaces in any housing development.

4.2.7 PRIVATE OPEN SPACES

Having a private open space was not found to be directly related to overall residents' satisfaction with their housing environment (D.O.E., Db.25, 1972). However, a private open space, whether it be a garden, patio, or balcony, is not only the smallest outdoor space, but it is also a highly significant component of housing estates. Such spaces are perceived by residents as an extension of the dwelling and activities that have been observed to take place in these areas are complimentary activities to what is going on inside the dwelling. Activities such as; sitting out for relaxation, contemplation, entertaining friends, younger children's play, having an occasional alfresco meal, drying washing, growing plants, and watching birds take place in these spaces. Such spaces are also used for keeping pets, storing cherished junk, or doing odd jobs. Private gardens, the front in particular, are also sometimes used for car parking.

The need for a private garden seems not to be related to a particular type of dwelling or household. In a D.O.E. survey on six housing estates of low, medium and high rise housing, in London and Sheffield, 65% of those residents who did not have gardens in their dwellings said they wanted one (D.O.E., Db.25, 1972). In another survey of

residents' attitudes to recently completed estates, private gardens were also noticed to be important to all types of household, where 90% of all households have considered the private garden important (D.O.E., H.D.D., 1981). In America, one study showed that the garden was, for the majority of the residents, the most valued environmental attribute of the housing estate (Cooper 1975, p.189). Though, of the private open spaces, the private gardens were found to be the most sought after, by residents; 85% of all those living off the ground who did not have a balcony wanted one (D.O.E., Db.25, 1972).

THE USAGE LEVEL OF PRIVATE GARDENS

The usage pattern of a private garden, as well as other forms of private open space, or in other words, the type of activities carried out in these areas, were noticed in a number of studies to be related to their physical characteristics, such as the size and shape of these spaces (Milton Keynes 1975, Coulson 1980). The location of the private open spaces, gardens in particular, front or back, as well as their accessibility from the dwelling, also affected and influenced the type of activity carried out in them and how often it occurred (Shankland Cox & Associates 1967a & 1967b; Cooper 1975; Cooper & Sarkissian 1986; Muvihill 1977). Other factors, suggested by the studies to influence the use of these spaces, included weather

conditions and socio-cultural factors such as the type of household, social status and attitude toward privacy (D.O.E., Db.25, 1972; Mulvihill 1977; Cooper & Sarkissian 1986).

Studies such as Nick Coulson's and that undertaken by the Milton Keynes Development Corporation, indicated that the usage of private gardens is most directly dependant on their size (Coulson 1980, Milton Keynes 1975). However, there are differences of opinion as to whether an increased garden size contributes to an increased level of satisfaction. Coulson suggested that garden size was not a significant contributor to satisfaction, and most people seemed happy to adapt their activities to fit the size of their gardens. On the other hand, the Milton Keynes study indicated that satisfaction with gardens did relate to its size. When the residents were asked to list their priorities towards aspects of their residential environment which they were ready to pay more for, 48% of tenants households elected to spend a proportion of the increased rent on larger gardens (Milton Keynes 1975).

The satisfactory size of gardens as perceived by residents, seems to be affected by the type of household (D.O.E., Db 25, 1972; Coulson 1980). It was found that elderly households tended to be more satisfied with relatively smaller gardens. Whilst family households,

particularly with young children, tended to be satisfied with relatively larger gardens. Coulson's study revealed that when the size of garden was about 200 sq.ft (18.5 sq.m), only 1/10 of the elderly households found it small. In another study, when the size of garden was about 400 sq.ft (37.16sq.m), 3/4 of family households were satisfied with it (D.O.E., Db.25, 1972, p.70). Nick Coulson in his study of local authority housing, mostly British, has suggested a diversity of garden sizes in relation to different households;

-over 175 sq.m : Above this size about 1/4 of all households began to find this too big.

-100 sq.m : Most households with children found this large enough to play in. About 1/2 of the families who were interested in gardening found this large enough.

-60 sq.m : Under this size, households with children found this too small for playing in, particularly if there were more than two children under ten in the family.

-25 sq.m : All households found this size large enough for sitting out and for drying the washing. (Coulson 1980, p.1253)

The studies indicated that not only the size of the private open space influenced its usage pattern, but its shape was also significant. This applied in particular to

gardens. Narrow gardens were less satisfactory in providing privacy from neighbours, particularly when fences between neighbours' gardens were perceived by residents as low. Narrow gardens were also noticed to be unsatisfactory for children's play (Coulson 1980). It is worth noting that Coulson, in the same study, had indicated that the length of garden has an influence on views from the dwelling windows in ground floor rooms. He pointed to a finding from one study of an estate, where satisfaction with view rose greatly as garden length increased from around 8 to 10m.

The location of the private open spaces, gardens in particular, in relation to the dwelling, was found to influence the functions it performed. Front and back gardens were noticed to function differently and have different images in people's mind. In Britain, as one study suggested, it seems that people have different attitudes towards the front and the back of their dwellings and the areas immediately outside them (Shankland Cox & Associates 1967b). The same study suggested that the front is the public or entry side and is respectable, decorative, and pleasant; flowers, grass, wrought iron decorations ..etc. The back is the private side for drying washing, children's play, vegetables, sitting out, doing odd jobs and hobbies, keeping pets, having a greenhouse ..etc.

Another study, in America, has also suggested different functions of private gardens in different locations; front or back of the dwelling (Cooper 1975). The front garden was found to performs certain important functions, mainly for:-

(1) providing a spatial barrier between the public space of the street/ sidewalk and the private space of the dwelling.

(2) providing a means of maintaining or up-grading status.

(3) providing a piece of visible territory in which to express one's individuality.

(4) providing a place in which to make or expand social contacts with neighbours.

The back garden, on the other hand, was noticed to function more as a setting for family activities such as drying washing, young children playing, sun bathing, sitting out and barbecueing. It was also found to be used for storing the objects which could not be stored in the dwelling, or for doing jobs which could not be performed inside (Cooper 1975).

A study in Ireland has confirmed the aforementioned functions of a front garden and emphasised an additional one; that of its contribution to the appearance of the house it accompanies. In the An Foras Forbartha's survey

94% of those involved considered this function of front garden to be important or essential (O'Beirne and Mulvihill 1973). Improving the appearance, in its turn, might have something to do with up-grading the status as well. The study also demonstrated the role of the front garden as providing for the privacy of the house interior as it recorded residents responses towards privacy in the home. The absence of a front garden was disliked by residents and blamed for the loss of privacy. It was shown in the same study, that front gardens, when properly fenced, were more likely to be used as an outdoor play pen for toddlers, since children like being in contact with other children, as well as to have a glimpse on what is going on outside the home. O'Biern & Mulvihill's study suggested that front gardens have something to do with the "image of home" in people's mind rather than its beneficial attribute. That is because when the respondents in their study were asked about their preference of home type, the answers almost always included a single family house with a front garden (O'Beirne & Mulvihill 1973; Mulvihill 1977).

The accessibility of the garden from inside the dwelling, whether front or back, affects its usage. This particularly applies to young children playing in the garden. Mothers wanted their young children to play where they could observe them, hear them and reach them immediately in case of emergency (Holme & Massie 1970).

Thus, the garden which could be reached easily from the living room or the kitchen was more often used by families with young children, providing other requirements such as safety and convenience were met. One study showed that residents above ground level tended to neglect the private gardens allocated to them, to which they had no direct access (D.O.E., D.O.E., 1981). Where physical access is direct, people are more likely to use private gardens for casual leisure pursuits, alfresco meals or looking after plants (Cooper & Sarkissian 1986).

However, garden usage apparently seems to be influenced by weather conditions and is affected by the orientation of the garden. If gardens are to be used they have to provide the correct orientation in relation to the sun. Shaded gardens in countries of cold climates, are of no use for growing plants or sitting out. Conversely, in countries having hot climates, shaded gardens are more sought after.

Studies of residential environments have revealed that apart from socio-cultural factors such as the social class and stage of the family life-cycle, the usage pattern of a private garden is also affected by the resident's attitude toward privacy in the garden (D.O.E., Db.25, 1972; Coulson 1980; Mulvihill 1977; Cooper & Sarkissian 1986). People were found likely to complain about lack of privacy in a

private garden if it is too narrow (Scottish Housing Handbook 3/1977; Coulson 1980), or if not clearly demarcated and the required level of privacy is likely to vary with social classes (Mulvihill 1977). Fencing the private gardens will be discussed in the next Section.

Private gardens, as the studies showed, though not directly related to residents' satisfaction, are appreciated by the majority of households for outdoor living and as an extension of indoor living, as well as for leisure and hobby pursuit. This is particularly important for family households with young children. The usage pattern and level of usage of the private gardens are likely to be influenced by the physical characteristics of the garden as well as socio-cultural factors such as the household's status, their stage in the family life-cycle and their attitudes towards privacy. The findings from the studies also revealed that the front and back gardens are perceived by residents to perform differently. Thus, designers and planners involved in the housing environments should be aware of all these aspects when making decisions on housing density, distances between housing, housing form, type of circulation, type of private open spaces, as well as on the size of the private gardens, their location and their accessibility. The designer should also pay a considerable attention to the detailed design of the private gardens, front or back; _ whether to demarcate them

and the appropriate type of fence to be used in particular situations.

FENCES AND PRIVATE GARDENS

Despite variations in the activities performed in a garden, the need for clear boundaries between one's private open space and adjacent uses is widespread. A number of studies record the emergence of neighbour tensions where definitions between private and public spaces are unclear (Becker 1974; D.O.E., Db22, 1971; Shankland Cox & Associates 1969). The delimitation is essentially necessary between private open spaces and communal open areas, if they are adjacent to each other (Cooper & Sarkissian 1986).

In relation to back gardens, a study of West Ham, in London, where back gardens were supplied with all dwellings, people complained about lack of privacy in their gardens (D.O.E., Db.22, 1971). 39% of the residents said they did not have enough privacy in their gardens. These gardens were fenced off from the public areas by a timber fence of two metres high. Apparently their complaints were caused by the low fencing between neighbouring gardens. About half of the residents said they would like their low garden fence to be altered. In another study, residents were asked to list their priorities to aspects of their

housing environment in need of improvement or change (which implied extra money to be spent). It appeared that many residents would like to have fences to their gardens, suitable for securing privacy and containing children and pets, though it ranked the seventh among the eight factors mentioned (Milton Keynes Development Corporation, 1975).

In Ireland, Reymond Mulvihill researched housing estate elements such as: private garden condition, car parking and children's play in local authority and private estates, he observed the condition of front gardens in relation to the type of fencing. The gardens were either fenced with a wall, a 45cm front boundaries or of an open plan nature -without fencing-. It appeared, from this study, that in local authority estates, the conditions of front gardens were affected by the existance of a fence around it, and that this was associated with better garden upkeep. He argued that garden owners in local authority estates consider it necessary to "defend" their gardens before considering good maintenance and cultivation, or alternatively, they may consider fencing the garden as a part of garden embellishments. It might be that in local authority estates, fences actually do defend gardens, and thereby contribute to their condition (Mulvihill 1977). This study also revealed that gardens in private estates were rated in better condition than in local authority estates.

The "Scottish Housing Handbook No.3" also suggested a number of functions for fencing a private garden. It pointed out that:

"Effective screening of private gardens from public areas and from one another helps tenants to make use of their gardens as they please, and reduces friction between neighbours who might have different standards of garden maintenance, or who use their gardens in different ways. When such screening is high enough to provide privacy, however, over shadowing may cause a problem". (p.15)

Fencing gardens has in fact, another virtue, since it influences the appearance of a group of dwellings or of whole estates. A high fence or screen can conceal behind it the unpleasant and unattractive views of unmaintained gardens. Additionally, attractive designs and the colours of the fences themselves, can contribute to achieving an attractive overall appearance of the estate. Furthermore, fences not only ameliorate the appearance of an estate, but also contribute to giving it a particular character and identity.

Children's play in gardens particularly, has been shown to be an important element in the development of

young children (Newson & Newson, 1968). Thus private gardens should be designed to cater for this need. Proper fencing of gardens is needed to provide safety for them. Ideally, the child needs to get glimpses of "life" outside the garden, to have things to watch, but at the same time to be kept secure.

PRIVATE BALCONIES

Inevitably, upper floor dwellings cannot have gardens, at least in traditional housing types; they can only have balconies. Balconies are however quite popular with residents of the high rise buildings. The D.O.E.'s study of six housing estates in London and Sheffield found that nearly all of those who had a private balcony liked them, and 85% of those who lived off the ground and did not have a balcony said they wanted one (D.O.E., Db.25, 1972). From these studies it appeared that balconies in multi-family housing were often judged according to their ability to permit household activities to be performed. Whether they were useful for the activities was found to be related to their size and shape.

Balconies were found in the D.O.E. studies to be more popular amongst families without children. The elderly, in particular, found it an acceptable substitute for a garden, as their age limited their ability to look after a garden.

But, for family households with young children, they were not considered an acceptable substitute for the provision of a private garden. Activities such as drying washing, sitting out and growing flowers were frequently noticed in balconies, but only infrequently were children seen to play in them. The surveys found mothers to be reluctant to let their children play on balconies, either because they considered them dangerous, or too small (D.O.E., Db.25, 1972).

For the majority of people living off the ground, the balcony is wanted and liked. The activities performed within the balcony are influenced by its physical characteristics, such as; its size, shape and location, as well as its provision for the safety of its users, particularly young children.

4.2.8 LEVEL OF NOISE

When residents have been asked which aspects of the housing environment bothered them most, noise was often mentioned amongst the other complaints. But it seems from analysis of the data, that complaints about noise do not always affect the level of general satisfaction. Statistically, noise disturbance has been found to be only slightly related to the overall satisfaction of residents

with their housing environments (D.O.E., Db.22, 1971; Db.25, 1972; Coulson 1980). The D.O.E.'s study of "New housing in a cleared area" (1971) found that 64% of the respondents in their sample survey, when asked to assess how they felt about noise, had felt noise was not a problem. The other D.O.E. study of six housing estates in London and Sheffield also revealed similar conclusions, concerning the effect of noise on people's general satisfaction with their housing environment. It pointed out that:

"Disturbance by noise from children, cars, or trains, even when severe, did not result in feeling generally dissatisfied with their estates. This suggests that even though large numbers of residents will complain about noise, it is less important than other aspects of layout, such as appearance and maintenance" (D.O.E., Db.25, 1972, p.4).

Noise is defined by the British Standards Institute as "unwanted sound", noise which can at certain levels disrupt sleep, interfere with communication such as conversation and listening to the radio, TV,...etc. It interrupts thought processes and causes general annoyance and resentment. What level of noise is tolerable in the housing environment? Where and when does noise cause resentment and to whom?. These questions are hard to

answer properly, since the tolerable level of noise is a complex matter which depends on varied factors such as the source of noise, the duration and even the time of its occurrence.

Perception of a particular level and type of noise is affected by the previous life of the people on which it is having an impact and in particular their previous housing experience (Francescato 1975). Reaction to noise is also a matter of the individual's personality; some people are, by their nature, more sensitive to noise than others, as a study at the University of Salford has revealed (University of Salford 1967). This complication makes it difficult to elicit standards for measuring the impact of noise and deciding on tolerable levels. Wilson has suggested a minimum level of noise for inside the dwelling (45 db.), but not for the areas immediately outside the dwelling (Wilson 1963). The D.O.E. has suggested in "New Housing and Road Traffic Noise" a minimum level of 50 db. for noise inside the buildings. It also suggested some sound insulation solutions and the cost implications of them (D.O.E., Db.26, 1972). However, more research needs to be done to facilitate the measuring process and to find out more about the other factors affecting the level of noise, such as difference in people's reaction to noise and the effect of noise in the external environment.

SOURCES OF NOISE

Sources of noise which are widely recognised as having adverse effects on housing environments are; motor vehicle traffic, some industry, trains and aircraft. However, there are other sources of noise which are particularly related to housing environments of medium and high densities. The most important source is the noise engendered by children's play; others are the slamming of car and garage doors and of revving engines, particularly in the early morning and late at night.

Studies have shown that the level and type of noise in the housing environment is related to: the location and layout of the estate, the provision and location of children's play areas, child density, landscape details and screening (D.O.E., Db.22, 1971; Db.25, 1972; Shankland Cox & Associates 1967a, 1967b; Cooper 1975; Coulson 1980). The location of the estate in relation to an existing noise source has a particularly important impact on the housing environment. If, for instance, the use of a particular site entails decisions about solutions to eliminate or to mitigate the noise by distancing the housing from the noise source and so wasting land, or by using physical barriers which may be inadequate, then another site location perhaps ought to be sought.

Careful consideration of the household mix on the estate and the juxtapositioning of dwellings is important at the site planning stage, to avoid unnecessary conflict between neighbours. This is particularly important in positions where children are likely to play close to elderly and adult households and so cause noise disturbance and privacy intrusion.

Location of the dwelling in relation to ground levels was also found to have an influence on perception of noise as a nuisance. For instance, ground floor residents are likely to suffer most from child nuisance. This is because children on estates tend to play outdoors on the access areas, around the base of the blocks and on playgrounds closest to the buildings. (D.O.E., Db.25, 1972).

CHILDREN'S PLAY NOISE

Child noise disturbance and nuisance were found to be a major source of complaint among residents. This reaction did not relate to the type of household, for both elderly and adult households were found to complain about noise from playing children, as well as family households. The latter's complaints might have been tinged by their feelings of guilt about disturbance to others caused by their children. Disturbance from children's play may result from the poor location of children's play areas,

causing unnecessary friction with nearby residents. Alternatively, a lack of facilities catering for different age groups may cause children to use the general housing environment in an unexpected way as a play area and so cause nuisance.

However, children will always play near the home. The designer's problem is to attract them away from the home for their noisier activities. Clare Cooper argues that even in an ideal world, with the maximum possible provision of play facilities, the designer would still be faced with a situation where children would want to play near the home. Thus the designer has to seek a solution which will allow for this, but encourage noisier play to occur at a distance tolerable to adults (Cooper 1975, Cooper & Sarkissian 1986).

It has been found that child density, in the housing environment, influences the level of residents' complaints in relation to noise and privacy, as was discussed earlier. Findings from studies have suggested that above certain levels of child density on the estate, problems relating to children's play disturbance, lack of privacy, vandalism and even crime, start to escalate (Shankland Cox & Associates 1967, 1969; Newman 1976; Conway & Adams 1975; Wilson 1977; Westminster City Council 1980).

If it is inevitable that certain types of children's play engender noise, the design details of the dwellings and the landscaped areas outside have to be chosen to cater for the development of solutions which mitigate the level of noise inside and immediately outside the dwelling. Solutions such as the use of sound insulation materials in party walls and floors of flats, particularly in the dwellings of family households, have to be considered. Another solution perhaps, is to use physical barriers and more soft landscaping, to reduce the level of noise on an estate. Soft ground will deaden some noise, whilst hard surfaces can reflect it. Continuous screen walls, earth mounds and other solid barriers can also have significant effects on the distribution of noise. Planting which screens the noise source from view will not materially affect the noise level, but may have positive psychological effects (Scottish Housing Handbook, 1977).

TRAFFIC NOISE

The other source of disturbing noise is traffic noise. This was found to be related to the intensity of traffic and the layout of the circulation system on the estate. But studies have revealed that traffic noise has little affect on residents' satisfaction with their housing environment (D.O.E., Db.22, 1971; Db.25, 1972; Cook 1969;

Coulson 1980). As Coulson pointed out, "Traffic noise scarcely appeared to influence residents' satisfaction with their housing environments. It rarely bothered more than 25% of housewives, even when near major roads".

Although noise in the residential environment is a source of complaint and affects resident's lives, it is only slightly related to their overall satisfaction with their housing environment. However, the level of noise which causes the disturbance is dependant on other factors such as, the source of the noise, its durability, the time of its occurrence, as well as its dependance on personality and previous personal housing experiences. Nevertheless, the evidence from these studies has shown that residents are more disturbed by the noise from children's play than from traffic noise. Planners and designers must be aware and carefully consider the consequences of their decisions in planning and designing the physical environment. Decisions on aspects such as; the housing density, child population density, housing forms, distance between buildings, household mix, provision for private open spaces and children's play areas, as well as the detail design of both the dwellings and the external environment in relation to sound insulation, are crucial in relation to the level of noise on residential developments.

4.2.9 SOCIAL INTERACTION: Neighbourliness and Friendships in The Residential Environment

Social interaction has been identified as the behaviour and responses that individuals induce in each other (Ittelson et al., 1974). Interaction grows out of the roles an individual plays and the defined relationships that an individual has in various groups. All types of social interaction involve some form of communication, whether speaking, visual messages, or body language. All interactions need a setting, the characteristics of which are a crucial element in the interaction process (Ittelson et al., 1974). In other words, the physical aspects of a setting can facilitate or thwart the the use of senses. In a residential environment, "The residents of housing developments are social animals too, who need the support of others for their own mental well-being and for the initiation and maintenance of the cooperative organized activities upon which group life and the survival of the society itself ultimately depend. To establish and carry out these activities the occupants of plan areas must be able to communicate with their neighbours and with other persons and families living near-by" (Gutman 1966, p.107).

Social and psychological studies of suburban housing were carried out after World War Two and investigated,

amongst other matters, the issue of social interaction within this type of community. These studies considered the determination of physical proximity upon behaviour. Kennedy was the first to suggest the effect of spatial dimensions on behaviour when he found that marriage choices were strongly affected by propinquity (Kennedy 1943).

Later studies underlined the influence which the site plan exerts through its control over the communication process. It was assumed, in these studies, that the physical features of the plan establish a specific network through which residents and other users exchange messages. Therefore, these studies paid particular attention to the use of the senses; visual and auditory. Visual communication is defined as the sight of one resident in a housing area by another. It is this form of communication which lays the foundation for initial contact among the inhabitants of a site (Gans 1961). The auditory communication, in this context, means the hearing of voices from neighbouring dwellings. Noise is often a primary complaint in terraced houses and multi-family dwellings. Here, the party wall is largely responsible for the dissatisfaction, because it is often lacks adequate sound insulation. Unfortunately, good sound insulation is fairly expensive. Noise in these forms of dwellings is often the principal evidence of the life of neighbours, particularly during early stages of residence.

PROPINQUITY AND SOCIAL INTERACTION

An early example of these studies was the study of Westgate. It was conducted by Festinger, Schachter and Back on groups of student families from the Massachusetts Institute of Technology. They found that very short distances, measurable by feet, were critical in governing the choice of friends. The propinquity of dwelling unit entrances was directly related to the frequency of casual interactions and subsequent growth of friendships. The majority of the houses in Westgate were laid out around courtyards. It was found that residents were likely to make friends with persons in the same court and within the court, with those living physically closest to themselves. This findings suggested that physical proximity is an effective factor in determining friendship relationships in residential communities. Thus, Festinger and his colleagues went so far as to conclude that "The architect who builds a house or who designs a site plan, who decides where the roads will or will not go and who decides which direction the houses will face and how close together they will be, also is, to a great extent, deciding the pattern of social life among the people who will live in those houses" (Festinger et al, 1950, p.160).

Festinger also identified two types of proximity;

"physical proximity" concerns the distance between the portals of two dwelling units, as they are shown on a plan drawing; "functional proximity" concerns the distance which must actually be traversed in getting from one portal to another after the building is constructed. This is a measure of potential accessibility. The house next door may be physically proximate, but if it is surrounded by high walls, solid screens or dense vegetation it is functionally much more distant than a normal house a block away. Dwelling orientation and location of main doors were also found to be crucial in determining the functional proximity.

Following Festinger's work, other researchers investigated the extent and the intensity of friendship relationships among neighbours. Kuper used three indices of neighbour relations to measure the correlation between spatial and personal characteristics (Kuper 1953). The measures used were:

- (a) the ability to name neighbours,
- (b) the extent of sociable activity among neighbours and
- (c) the choice of most preferred neighbours.

Very few of his sample could name people outside the sub-unit (between 12 to 18 houses). The immediately proximate houses (the 2 to 3 houses immediately adjacent) were the houses of neighbours most likely to be named. Size of the sub-unit was important in explaining the number

of neighbours who could be named. Within larger sub-units a smaller proportion of the total sub-unit population could be named.

Considering sociable activities, on the other hand, Kuper found that few sociable relationships existed outside the sub-unit. The immediately proximate area of nearby houses was likely to be where friends were selected for sociable activities. The size difference between sub-units did not exert such marked influence on the extent of sociable activities as did personal selectivity among neighbours. Although siting of the house did still influence the extent of active relationships, Kuper found that this was not such a mechanical influence, compared to that influence of siting on knowing neighbours (and how many). He concluded that it is visual communication which lays the foundations for initial interpersonal contact among the residents of a site. This is only true if the distance between houses is small enough to encourage people to transform the visual contact into a social one.

"Social proximity" and positive social relationships are influenced by homogeneity in mutual needs and common motivations. There is a suggestion that when people move into a new housing project and are brought together for the first time, a considerable social solidarity springs up (Rosow 1961). They are faced with a variety of common jobs

such as furniture fixing, lawn making..etc., which needs the help of others. Mutual assistance was observed to be conducted according to physical proximity; closer neighbours are more likely to help each other rather than those farther away. Some of these relationships may extend into intensive friendships.

It seems that designers can create proximity through their design of the dwelling; the location of the front and back doors, access eg. shared access or driveway between neighbours. Also through site planning, by manipulating the distances between blocks, the orientation and the arrangement of the blocks on the site and the pattern of circulation. Manipulating these elements could provide for initiation of neighbours' interaction but would not guarantee the intensity or durability of such relationships.

HOMOGENEITY AND SOCIAL INTERACTION

Despite much evidence based on detailed research, that physical and functional proximity determines neighbour interaction and friendship formation, this concept has not remained unchallenged. Gans, among others researching in the field, could not find a similar conclusion. He found that propinquity is an influential rather than a determinant factor in fostering social interaction (Gans

1961, 1967 & 1968). The major criticism of the previous studies was that all of them involved extremely homogeneous groups; married or single students or industrial workers. Characteristics such as social status, income, education, and stage in the life-cycle were notably homogeneous. Gans concluded that it is visual communication which lays the foundation for initial interpersonal contact among the residents of a site. However, this is only true if the distance between houses is small enough to encourage people to transform the visual contact into a social one. Nevertheless, a certain degree of homogeneity is required to maintain this contact on a positive basis (Gans 1961). General compatibility is likely to lead to friendship between neighbours. Slight differences, however, may be tolerable but "if neighbours are too diverse, difference of behaviour or attitude may develop which can lead to coolness or even conflict" (Gans 1961, p.136). In review of the studies on the environment-behaviour issue, Rosow supported the opinion of Gans (Rosow 1961).

There is still no consensus on the specific definition of "homogeneity" in this context. Homogeneity, of course, will not occur in terms of all possible characteristics. Little is known, however, about what characteristics must be shared before people feel themselves to be compatible with others. It is not known for certain if they must have common backgrounds, or similar interests, or shared values

or combinations of these. Furthermore, which background characteristics or interests and values are specifically important in this matter is also unknown. In addition to this, the level of differences in any of these characteristics which results in incompatibility has not been established.

Gans findings from his study of Levittown, suggests that general cultural values with respect to child-rearing, leisure habits and general cultural preferences are the most significant characteristics. He also suggested that social class and life-cycle stage are likely to be important indices in judging compatibility (Gans 1967, p.156). Education is especially important, because it affects occupation choice, child-rearing patterns and leisure time preferences (Gans 1968). Others suggested that social class (identified by income and education) and stage in life-cycle (identified by age of adults, marital status and age of children) may be the most important characteristics (Athanasiou and Yoshioka 1973, Porteous 1977).

It has been also suggested in studies that the factor of residential mobility has some bearing on the friendship pattern of homogeneous communities (Rosow 1961). Upper class groups of lesser residential mobility and longer residential tenure had more friends within their immediate

neighbourhood. On the other hand they have the financial ability to choose their friends from farther away, and they have rather particular leisure time interests to pursue with others, no matter how distant they may be. Low income class is the highest residential mobility group in society and has the lowest integration rate into local neighbourhoods. Nevertheless, in terms of sources of friendships, the lower class groups with constitutional constraints due to financial reasons, were found to be more likely to choose their friends according to propinquity. Lower class groups draw heavily upon the local area for their friendships, but because they move frequently, their friends are spread about; upper class people have more diverse sources of friendships, but with more stable residence they gradually extend their local contacts and become integrated into the community.

Planners, by making design decisions on plot size, on zoning ordinances and on the level of facilities to be provided in the site, can relatively influence the type of residents likely to be attracted to the development and therefore, in a sense, can provide for some level of social homogeneity. However, there is a current debate on whether the planner or the designer of a development ought to use this potential; ie. enforcing propinquity in order that people will choose friends from the neighbourhood. There is also a debate as to whether it is better to provide for

homogeneity or heterogeneity in residential communities? It can be questioned whether there is an ideal pattern of social relationships and if there is, whether it will be for the well-being of the society to pursue it as a goal?.

RESIDENTS' SATISFACTION AND SOCIAL INTERACTION

Despite this debate, findings from studies of post-occupancy evaluation suggest that the compatibility of residents is likely to promote satisfaction with the housing environment and that this relates, in particular, to relationships with neighbours being perceived as friendly (Lansing et al, 1970; Cooper 1975; Ellis 1977).

The homogeneity of a neighbourhood is a perceptual phenomenon, that is, it must be perceived to exist by the inhabitants themselves. It refers to residents' perceptions of each other in terms of attitudes, opinions and social characteristics (Porteous 1977). It is well expressed in the phrase: "we are all alike in this neighbourhood". This homogeneity, as perceived by the residents, is suggested to enhance their participation in social activities also (Tomah 1964).

In America, Lansing and his colleagues studied residents' responses in relation to the housing environment in six planned and unplanned, suburban and inner city

areas, concluded that the compatibility of neighbourhood residents was the next most important predictor of neighbourhood satisfaction after a satisfactory level of up-keep (Lansing et al, 1970, p.130). In Easter Hill village, Clare Cooper found that "The attributes of an ideal neighbourhood were privacy, good maintenance and good neighbours" the study showed that good neighbours were referred to as friendly (Cooper 1975, p.180).

In a British study of fifty five recently completed housing estates in England and Wales, people were asked what they liked about their housing. The response that "the people were friendly" was one of five attributes mentioned (D.O.E., H.D.D. 1/1981). From another study, on the Chalvdon housing development, Peter Ellis concluded that "The greatest number of friends are made through casual meetings and it is clearly important for a layout to afford ample opportunity for these" (Ellis 1977, p.493).

Previous empirical studies suggested that in particular housing environments where the social life was perceived by the residents as satisfactory, the residents' contentment with their social interactions within their housing area was sufficient to make up for the inconveniences produced by any deficiencies in the physical environment. Festinger, in the Westgate housing project, concluded that: "The adequate and satisfying social life

was sufficient to override many inconveniences. The result was a rather happy social and psychological existence" (Festinger et al. 1950). Another study of users' reactions which was carried out in Singapore (a developing country where the community suffers from shortages in housing, sub-standard housing conditions and crowding), had emphasised even more the attribute of social relations with neighbours as a measure of residents' satisfaction. It suggested that "satisfaction with housing is mainly conditioned by social relations with neighbours and that the view of the immediate social situation as satisfactory in a sense make up for the unsatisfactory physical features of housing" (Yeh 1974, p.41).

Studies also found that some groups of people in housing developments are more likely to choose their friends, on the bases of propinquity, from the immediate area of their dwellings. These are the groups which are restrained in mobility, such as mothers with younger children and the elderly (D.O.E., Db.25, 1972, Shankland Cox and Associates 1967). Lower-class residents were found to be less choosy than the middle-class when looking for friendship and tend to make friends with neighbours nearest to them (Rosow 1961, Yancey 1982).

The need to study social values and requirements and to embody the results in design, does not rest on the

assumption that one kind of environment makes people club together and feel more friendly towards each other, whilst another keeps them apart and walls them up with loneliness. It is possible that the built environment has some marginal effect of this kind, but it will influence rather than determine what happens. In summary, it is suggested that whilst designers cannot create communities, they can provide the physical potential for social relationships to develop. In the design of housing areas, decisions about site planning and whether to provide for physical proximity in order to encourage social interactions should be judged in relation to the needs of the particular group of people who will inhabit them.

4.2.10 CHILDREN'S PLAY

In multi-family housing, children are by far the greatest exploiters of shared outdoor spaces (Byrom 1979, Cooper 1974a, D.O.E., Db.27, 1973). Each age group of children has different needs (Newson & Newson 1968), in terms of their use of the external environment. Among all the children's age groups, however, the group aged between five and twelve years old generally conforms as the most frequent users of outdoors areas for play. A major study of play on modern estates in Britain by the D.O.E., reported that 17% of the children observed playing outside

were under five, 30% of them were five to ten years old and 13% were over ten (D.O.E. Db.27, 1973).

Most housing evaluation studies indicate that problems associated with children's play are one of the most frequent subjects of complaints from residents (Cooper 1975, Cooper & Sarkissian 1986; D.O.E., Db.25, 1972; Db.27, 1973; Lansing et al, 1970; Shankland Cox & Associates, 1967). It seems that such complaints are common among all types of households. In one of the studies half of the elderly households and one third of the adult households had complaints about the problems caused by children's play, as well as over two thirds of the family households (D.O.E., Db.25, 1972). It has been suggested that these problems develop because children's play needs are often a low priority in the design of housing areas (Holme & Massie 1970). The lack of play areas is not uncommon in many of the housing developments. When there are no designated play areas, children are often forbidden to play on common amenity areas, footpath, garage courts and access space by notices such as "No ball games", "No cycling" and "Keep off the grass". The provision of play areas has been seen by planning authorities as a means of dealing with the play needs of children and preventing conflicts with adults.

Providing play areas on the estate, though it is important, is not the only answer to children's needs.

Children, by their nature, play when and where they can. A study of fifteen local authority housing estates in Britain showed that on average children spent only about one fifth of their time outdoors in play areas (D.O.E., Db.27, 1973). A number of researchers in this field suggested that designers should have in mind, during the designing and the detailing of the site planning stage, the multiple types of children's needs to play (Holme and Massie 1970; D.O.E., Db.27, 1973; Cooper 1975, Cooper & Sarkissian 1986; Moore 1985).

Findings from studies on the residential environment indicated that residents' complaints in relation to children's play can be partly due to the lack of proper play areas which are compatible with the different needs of the different age groups and partly is a consequence of the conflict between adults' needs for privacy and quiet and children's need to play, which is often a noisy activity. These complaints have been seen by several researchers to be affected by both the physical and the social elements of the environment (D.O.E., Db.25, 1972 & Db.27, 1973; Holme & Massie 1970; Cooper 1975, Cooper & Sarkissian 1986).

The physical characteristics of the housing environment produced by the buildings and the layouts outside them, affects the way children play (Holme & Massie 1970; D.O.E., Db.27, 1973; Beer 1983; Cooper 1975; Cooper &

Sarkissian 1986). In relation to housing buildings, two design elements were often found which restrained children's play inside the dwellings: one, is the lack of space for playing, particularly in crowded homes, the other is the untreated noise which is inevitably engendered by children's play. In terraced houses and multi-family housing, the lack of proper sound insulation in party walls and/or floors causes complaints about the lack of auditory privacy and noises from children playing (Gutman 1966, Holme & Massie 1970). One study shows that this causes parents to restrict children's indoor play severely (Cappon 1971). This study suggested that these restrictions may limit outlets for aggression and creativity, lead to tension between children and irritable adults and encourage sedentary, passive activities such as TV viewing. Children cannot find the necessary social interactions of play situations or opportunities for manipulation of the environment that play can bring in viewing television (Cappon 1971).

"Tensions destroy play and overcrowded, congested environments are likely to produce tension" (Holme & Massie 1970, p.68). Tension inside the dwelling, therefore, might push the child outside the home to look for opportunities to play there. If the outside environment was not less hostile to the child than the inside, it might lead, among other factors, to child delinquency and anti-social

behaviour. Holme and Massie suggested that the child forced to play outside, away from home, tends to play in groups. Should any of their pastimes become delinquent, it is then more likely that the group would be involved (Holme & Massie, 1970). Holme and Massie also quoted Sykes, on the influence of the group on the individual, suggesting that "The potential reaction of the individual's primary group plays a major role in determining whether or not the individual will engage in deviant behaviour; and if the individual lacks primary groups which support such adherence to the norms or identifies himself with others who place a positive value on violating the laws of society, the likelihood of crime increases" (Sykes 1956, p.74).

The form of housing was found to affect the extent children play outside only in relation to two aspects: "the nearness to the ground" and "the type of access the dwelling has to the outside" (Wohlin 1961; Danish National Institute of Building Research 1969; D.O.E., Db.27, 1973). The study of fifteen local authority housing estates in Britain found no significant difference between the numbers of under eleven year old children who lived in houses, seen outside than on estates where a high proportion of children lived in ground or first-floor flats. However, in multi-storey housing, it was found that children living on the ground or first floor flats play outside more than

children on the same estate who live further above the ground. These studies also found that once the child lived off the ground or above the first floor, increasing height above the ground was indifferent to the extent he played outside (D.O.E., Db.27, 1973). Studies in Sweden and Denmark included the second floor dwelling in their definition of "nearness to the ground" (Wohlin 1961; Danish National Institute of Building Research 1969). One study indicated that children seem discontented living off the ground up to about the age of nine, after that, it made little difference to them (Stewart 1970).

The type of access the dwelling has to the outside was found to be one of the important factors affecting the extent children play outside. Children under eleven play outside more if they live in dwellings with ground-floor or first-floor access, and their play is less of a problem for their parents (D.O.E., Db.25, 1972 & Db.27, 1973). The danger of stairways, lifts and unsafe railings deter mother from allowing their children out unsupervised where there is deck or high level access.

The physical characteristics of the layout or the way the buildings are arranged on the site has a significant influence on the extent of children's play outside (Holme & Massie 1970; D.O.E., Db.25, 1972 & Db.27, 1973; Cooper 1975 & 1982; Cooper & Sarkissian 1986). The activities of

children in different age groups has been seen to be very much influenced by neighbourhood layout, land use, housing form and traffic pattern (Holme & Massie 1970; D.O.E., Db.27, 1973; Cooper 1975; Cooper & Sarkissian 1986). This is possibly because all children, regardless of their age group, have an urge to play outside the home. There is an early urge in the child from the age of two to three, to explore the world outside the home by making a short trips away from it (Piaget 1962). Children between the age of six and twelve do make relatively farther trips particularly to experience their skills in riding bicycles, skating or running. Teenagers are often more independent of home territory in their mobility. Children need safe, uninhibited outdoor play for their physiological and mental health. On the other hand, to allow children to play outside, their parents need to be convinced that the outside environment will not provide a threat to their childrens' safety. Children need to be able to move around in their neighbourhood safely and to take short trips to explore farther and farther from home so as to gain a sense of independence (Cooper & Sarkissian 1986, p.111). Holme and Massie suggested that "playing around the home and around the neighbourhood is important in that it encourages a sense of belonging; provided there is a reciprocal tolerance from the adult members of the community and provided there is adequate safety" (Holme & Massie 1970, p.75).

The way the buildings are arranged on a site; whether on a street or clustered around an open space, affects children's play patterns considerably. Dwellings located on streets would represent constraints on a child's safety; though the finding that a considerable percentage of children play on roads and pavements cannot be ignored. The evidence showed that on low rise estates, two fifths of the children played on roads and side pavements (D.O.E., Db.27, 1973). Cars, whether parked or moving, are the prime threat to children's safety in these locations. This is evidenced from accident figures, which showed that children of younger ages are the greatest victims of traffic accidents on residential roads. In Britain, a report of the Department of Environment and Transport showed that half of all road accidents to children occur within approximately 330feet (100m) of their homes. One study on traffic accidents showed that the parked car in the estate is the prime cause of children's accidents (Claxton, 1967). Findings from a Swedish researcher indicated that, until the eleventh or twelfth year, various important sensory mechanisms (sight, hearing and ability to differentiate right from left, fast from slow, or near from far) may not be fully developed. Children are thus especially vulnerable in traffic situations (Sandels 1975, Cooper & Sarkissian 1986). If the area immediately outside

the dwelling was traffic-free, mothers would be less reluctant to allow the young child out unattended, providing she can watch him or her easily. On the other hand, some have argued that children in traffic-free environments are more vulnerable to severe car accidents in the areas around the estate and suggest that children are better prepared if they learn to cope with the existence of cars at earlier ages (Building research Station 1968, Hefferman 1977). However, it is a complex matter which needs considerable attention from the planners and designers involved in the housing environment, to weigh the balance between the negative and positive aspects of proposed segregated traffic, for each particular project on its merits.

Findings from a number of studies suggested that children play outside more in clustered housing; where the dwellings are set out around courtyards (Holme & Massie 1970, Milton Keynes Corporation 1975; Cooper & Sarkissian 1986). The size and accessibility of the courtyard were found to influence the extent children play out in them. When the size of the court is too small, a conflict between the child's needs to play and the adults need for freedom of action and a certain quality of life is likely to ensue. On the other hand, when the size is too large, children tend to quit the courts and play on sideways, roads or other smaller areas (Cooper & Sarkissian 1986).

The housing form and whether private gardens are provided on the estate also influences the pattern of children's play on the estate, particularly that of the young ones. Children under five were noticed to play in private gardens more than older children (Holme & Massie 1970; D.O.E., Db.25, 1972 & Db.27, 1973). In a study of fifteen housing estates in Britain, about one fifth of children under five were seen playing in private gardens. The same study also found that mothers of young children let them play in gardens, providing it is safe enough, within the hearing and sight of the mother from the kitchen or the living room and with an easy access to the child in case of emergency (D.O.E., Db.27, 1973).

A study of six housing estates, in London and Sheffield, showed that private balconies were not much used for play, mainly because mothers thought them dangerous or too small (D.O.E., Db.25, 1972). The same study revealed during the observation of where the children play, that children under five played on access areas more than older children. It is possible that this was because these younger children liked to remain close to their dwellings within the "mother's orbit" or because their mothers insisted they should do so.

The physical characteristics of the layout also

influence the level of conflicts between children's need to play and some of an adult's needs. Complaints often mentioned by residents are, for example, the nuisance of children playing near to their windows or private yards and the lack of privacy provided (D.O.E., Db.27, 1973). In a study of fifteen local authority housing estates in Britain it was found that three quarters of the children were observed playing near home, irrespective of housing form or density, particularly the under fives (D.O.E., Db.27, 1973). This has been seen as largely influenced by the location of the play areas very close to the dwellings, or the failure to provide them, or the lack of appeal of the play areas to attract the children away from the dwellings.

The number of children on the estate and particularly the child density has been found to have a considerable influence on the level of noise engendered by children's play on the estate and in play areas. An intensely used play area, by a large number of children not proportional to its size, can be a source of nuisance within the estate (D.O.E., Db.27, 1973). The density of children on an estate has been suggested to influence the level of vandalism occurring on the estate; several British studies have found close correlations between rates of vandalism and numbers of children. For instance, the Lambeth Inner-Area study concludes that, where child density exceeds 30 per acre, problems of noise, vandalism and

neighbour disputes are likely to become more marked (Shankland Cox & Associates 1967). Sheena Wilson, in her study of fifty two Inner-London estates, suggested that vandalism is likely to occur in all building forms once the ratio of children aged between five and sixteen exceeds five children per ten dwellings or twenty children per block of flats (Wilson 1977). The Westminster study showed that when the number of children rises above an average of five or six per ten dwellings, vandalism and associated crimes start escalating (Westminster City Council 1980). A report by the Architectural Research Unit (Edinburgh), on two housing estates in London, concluded that vandalism increases as the provision for children's needs decreases (Heffernan 1977).

The physical, cultural and social elements in the environment are linked and interrelated. The evidence aforementioned illustrates the implication of the physical factors for children's play. This is perhaps because they are relatively more easily defined and remedied. On the other hand the cultural and social factors cannot be ignored. The society into which the children have been born requires them to develop certain types of behaviour to survive and because of the complete dependance of the child, it is easy to impose patterns of acceptable social behaviour. Behaviour that is desired is rewarded and thereby reinforced, so the norms and values of the

different cultures that children grow up in are pressed and learned by repetition (Helanko 1958; Holme & Massie 1970).

Some social factors such as social class have been suggested to influence the pattern of children's play. Holme and Massie, in their comparison between the play pattern on two different urban environments; Southwark and the new town of Stevenage, found different play patterns had developed in each. The play in Stevenage was rather individual, passive and home oriented, contrary to Southwark where children appeared to play in groups, their play was more active and away from home. Holme and Massie suggested that, in addition to the physical elements of the environments, the social characteristics such as social class should not be ignored as influential factors in relation to these different patterns of children's play. They did not suggest that one pattern of play was better than another but merely that they noticed that in the two different estates the social profile was different, in relation to the fathers' occupation. The majority of those in Stevenage were doing clerical or skilled manual jobs, whilst the majority of the fathers in Southwark were involved in unskilled or semi-skilled labour. They also noticed that over two fifths of the Southwark mothers go out to work as against only one fifth of the Stevenage mothers. They also suggested that these differences might be underlying the parental influence, as it seemed to be

more influential in the first area than in the second (Holme & Massie 1970).

Different social classes have relatively different life styles and different norms of child rearing. Oscar Newman has also referred to social class differences in relation to parental influence on children. He stated that the children of upper and upper-middle classes can acclimatise to living in high rise dwellings, contrary to children of low and lower-middle classes, because children in the first groups are usually watched over more carefully, given opportunities for recreation away from home and effort is expended by the family on teaching them the behaviour rules necessary to the creation of a conflict-free, dense multi-family existence (Newman 1972, p.189).

Chapter Five

THE FIELD STUDY IN BAGHDAD:
THE METHODOLOGY.

CHAPTER FIVE

THE FIELD STUDY IN BAGHDAD: THE METHODOLOGY

5.1 INTRODUCTION

The information about the field study in Baghdad is arranged in six parts: This part (Chapter Five) defines briefly the main objectives of the research, summarizes the background of the case studies chosen and describes and evaluates the methodology adopted for this field study. It also examines the uses and shortcomings of the information-gathering techniques used in the study and describes how these techniques supplement each other. In addition, it describes the sampling procedure and the problems related to this in field studies as well as the possibilities of misinterpretation and misinformation that biased sampling introduces. Finally, the design of the questionnaire and the schedules employed in order to arrive at the relevant data for the research subject are also outlined.

Chapter Six includes a full description of the main characteristics of the households involved in the study, as

well as the physical characteristics of each of the three projects chosen as case studies.

The statistical analysis of the data from the survey is discussed in Chapter Seven, where the physical and social elements affecting users' satisfaction were identified.

Chapter Eight contains more elaborate discussion and evaluation of the interrelationships between each of the identified social and physical elements of the external environment and its effect on users' overall satisfaction.

Evaluation of children's views on their housing environment in one of the projects studied is presented in Chapter Nine.

Chapter Ten summarize the findings and the conclusions from the study, as well as the recommendations and the guidelines.

5.2 BACKGROUND INFORMATION ON THE HOUSING PROJECTS IN BAGHDAD

5.2.1 THE DEVELOPMENT OF HOUSING FORM

The urban house in Baghdad has been considerably changed since the beginning of this century. This coincides with changes in social values and other aspects of life due to the improvement of the economic level of the country because of the increasing oil revenue which, in its turn, has led to a rise in the standard of living. The increased contact with the Western culture, by trade and by the increased number of young people sent to be educated in the West, has been a further significant influence.

The change in the urban house did not take place all at once. It was observed to be identified within four successive periods.

- (1) The old traditional courtyard house before 1920.
- (2) The modified courtyard house between 1920-1936.
- (3) The closed traditional house between 1936-1945.
- (4) The modern house from 1945 onwards.

The development of the housing form and their detailed characteristics are presented in Appendix 2.

The main form of house type is still the single family house but with a few sporadic and scattered examples of units of multi-family housing blocks. Recently, the multi-family housing has become the common form in the State mass housing projects. The appropriateness of this approach to housing in Iraq was the main reason for this environmental design study.

5.2.2 THE MULTI-FAMILY HOUSING

As a solution to the problem of a shortage in the housing stock and to ameliorate the housing situation in Iraq, as discussed in Chapter One and Appendix 2, the government has recently adopted the multi-family housing as the main form of housing in the State housing projects. The State Organization of Housing (S.O.H) began to design mass housing projects in 1976. These housing projects were termed "housing for the citizens". The three case studies investigated in this study are examples of projects begun under this programme.

The S.O.H. decided that these public housing projects would consist of multi-family units, built in the form of low to medium rise buildings. The most common type was the three floor walk up block of flats. It was decided that the housing density for these projects should not exceed 50 dwelling per hectare. It was also decided that these

projects should be provided complete with the infra-structure services and that the educational, social, and commercial buildings would be built at the same time as the residential buildings. The sites for these projects were all chosen from land which was in government ownership.

The S.O.H. adopted a policy of providing equality of provision to all the residents, regardless of the variations in the characteristics of the households. This policy led to the decision to omit private gardens even for the ground floor flats, and that all the external areas provided on each of the estates should be for public use. All the flats were allocated to their owners by lottery. The application of this policy and its effects on the users attitudes is discussed in Chapter Eight.

The pioneering examples of such projects in Baghdad were chosen as the subject of this study. The "Saydia 7" project was the first which people moved into, and is the first case study. The other two case studies are the "Saydia 6" and the "Zayoona" projects. At the time of the investigation the three projects were not totally completed. However, people had lived in the flats for periods ranging from six months to three and a half years. A full description of the three projects is included under the "Case Studies" in Chapter Six.

No regulations were promulgated by S.O.H for the management of these sites, nor were guidelines given to the designers of these projects on the type of site and housing management policy likely to be adopted. The designers themselves had little knowledge on the matter, as they had no previous experience of dealing with this type of building form. However, after these projects were partially occupied, a law was passed, which was aimed more at regulating the maintenance of the individual blocks of flats than determining the overall management of the site.

5.3 THE OBJECTIVES OF THE FIELD STUDY

The S.O.H. adoption of policies to build multi-family housing projects to solve the housing shortage resulted in a design approach which produced mass housing projects in the main cities of Iraq. Eventually, this new housing experience will affect many people's lives. Therefore, it is very important that the various aspects of this particular approach should be studied and evaluated. It is particularly so because the authority intends to repeat this kind of housing elsewhere in the country. In Iraq no study on this matter has been done prior to the present study. Therefore, the lack of data from Iraq about the users' satisfaction makes it important to examine and test whether the information that is available from Post-

Occupancy studies in other parts of the world has any relevance to the Iraqi situation. The broad study of the literature showed that a range of factors had been identified as having a bearing on residents' satisfaction with their housing environment (Chapter Four). It was not known whether this information was valid in Iraq and this study has been an attempt to look at this broad range of factors to discover how the Iraqis are reacting to them in modern multi-family housing environments.

The main method of this research was to carry out a detailed evaluation of the aspects of the new design approach, which had been adopted by those responsible for the housing design in Baghdad (S.O.H.). To do this, three case studies were chosen and their external environment was investigated in particular. To study the external environment it was necessary to look at a wide range of issues that related to the design of multi-family housing on the case study sites. The study of the literature relating to housing indicated that the aspects of the site design, its components and its details had to be investigated as it could have an influence on users' satisfaction.

The aim of this study is to provide data and information on the physical aspects of the external environment of housing in Iraq, and to link this to the

social environment within the residential setting in order to develop a better understanding of the way in which the design of the external environment can influence the quality of life of the residents of the multi-family housing in Iraq. The findings from this study could be used as feed-back information to planners and designers, prior to the decision making process for future housing projects in the country. To allow this to happen it is necessary:

- (1) To investigate the social characteristics of the users.
- (2) To investigate the users' attitudes and behaviour towards elements of the designed environment in relation to the site layout as well as to its detailed design.
- (3) To investigate the designer's intentions in relation to the adopted design solutions and to examine how these intentions worked from the point of view of the users.
- (4) To investigate the decisions influencing the design activity which were made by people other than the designer.
- (5) To identify, if possible, the interrelationships between these four factors and the level of user satisfaction, and to evaluate their influences.

(6) To develop tentative guidelines which might help in the decision making and design activities in relation to future housing developments.

Users' satisfaction was taken as the criterion for the evaluation of the external environment, on the basis of experiences from other Post-Occupancy Evaluations (Chapter Four).

5.4 THE CRITERIA FOR THE CHOICE OF THE CASE STUDIES

The criteria used for the choice of the sites were:-

- (1) They were geographically situated in the same region of Iraq (in Baghdad).
- (2) They were designed and implemented by the State Organization of Housing of Iraq in the form of multi-family housing.
- (3) They were first occupied at approximately the same period of time (1979-1981)
- (4) They were built of low rise (walk-up flats), and/or medium rise (five storey) housing blocks, and the projects are of almost similar density in terms of dwelling units per hectare.

For this study, the sites themselves are evaluated as designed settings; the layouts of the site as well as the open spaces within the dwellings and the housing blocks are investigated in relation to aspects of users' behaviour, with the aim of discovering what aspects of external physical environment contribute to or detract from the residents' satisfaction with the environment in which they live.

5.5 THE CHOICE OF THE SAMPLE FOR THE FIELD STUDY (THE RESPONDENTS)

In a field study, the drawing of conclusions from data generally requires researchers to rest their case on partial information. When the data are partial and used to characterize the whole, the subset is called a "Sample", and the whole is called a "population", (Nachmias, C. and Nachmias, D. 1982).

In modern sampling theory, a basic distinction is made between probability and non-probability sampling. The distinguishing characteristic of probability sampling is that one can specify for each sampling unit of the population the probability that it will be included in the sample. In the simplest case, each of the units has the same probability of being included in the sample. In

non-probability sampling, there is no way of specifying the probability that each unit has of being included in the sample, and there is no assurance that every unit has some chance of being included. If a set of units has no chance of being included in the sample, a restriction on the definition of the population is implied; that is, if the traits of this set of units are unknown, then the precise nature of the population also remains unknown. Accordingly, only probability sampling makes possible representative sampling designs (Nachmias, C. and Nachmias, D. 1982).

In designing a survey it is best to assume that people are different from one another in attitudes and behaviour, even if the extent of difference is unknown in relation to the object of study. The most reliable way of selecting the respondents for such a study is to use chance procedure, in order to ensure that the sample is representative of the "population". Non-chance procedures can also be used in survey research, but they may introduce unknown or unanticipated bias into the findings. As a result, the data based on the sample may differ systematically from the information that would have been obtained from the entire group.

Another important point is that a sample is never adequate or inadequate in itself. It must always be judged

by its usefulness for a given purpose. Sometimes, under conditions of high homogeneity, it makes little difference which part of the whole is selected for the sample and almost any sample is as good as any other. But in samples involving people such homogeneity can never be taken for granted. Thus, the procedure involved in sampling individuals and social groups are considerably more complicated.

An estimate derived from a random sample is not accurate in the same way as a complete enumeration or census. If the sampling process could be repeated to select many samples of the same size from the same population, the estimate of a given variable in each sample would vary, with the differences arising from the chance composition of each sample. These differences between the population estimates and from different samples and the population value are called "sampling errors" and are usually expressed as the "standard error". The standard error is a measure of the variability, around the population value, of the population estimates from repeated samples. In simple terms, it gives a clear notion of how far and with what probability an estimate based on a sample departs from the value that would have been obtained with a complete census (Warwick and Lininger 1975, p.75).

In practice, however, the researcher usually has only one sample to work from, and therefore only one population estimate available for a given variable. How then, can the reliability of the estimate of population mean, based on a single sample be determined. The standard error is in fact the key to the measurement of the reliability of the estimate of a population statistics. Sampling theory provides equations for estimating the standard error of the means based on the data from only one sample.

It is a well proven fact in statistical analysis that the variation around the population mean (the width of the natural curve) increases as the sample size decreases. In other words, the larger the sample size, the smaller the spread of the sample mean around the population mean. This is the basis of asserting that larger samples are more reliable. This point has a critical implication in calculating the reliability of population estimates, for the smaller the expected spread of the sample mean, the smaller will be the chance of error between the population estimate and the population value.

The most important factor in reducing the standard error is usually the absolute size of the sample. Theories of statistical analysis show that increases in the absolute size of the sample do more to reduce the standard error than do comparable increases in the proportion that the

sample is to the total population. The practical implication is that in most surveys the absolute size of the sample is of much greater relevance than its proportionate size. For instance, increasing the sample from 1% to 10% of the population reduces the proportionate size factor $N-n$ only about 5 percentage points, from .99 to .94. By contrast, increasing the absolute sample size from 50 to 250 reduces the corresponding multiplying factor 1 by over half, from .14 to .6 (Warwick and Lininger, 1975, p.94). Thus, except for samples from a very small population, every effort should be made to draw a large enough sample in order to make the chance of error as small as possible.

In this Baghdad study, the users of the multi-family housing are households of different ages, and of relatively different social status and backgrounds. Therefore, it was useful to use random sampling. The random sample for this study consisted of three groups of respondents from the three housing projects which were chosen as case studies. Lists of names and addresses of flat owners, acquired from the S.O.H, were used to draw a number of random addresses proportional to the total number of occupied flats in each project. A total representative sample of 183 dwellings was drawn; 55, 46 and 82 in the Saydia 7, the Saydia 6 and the Zayoona projects respectively. It was considered that this sample size would be adequate to permit detailed

analysis of the collected data and to keep sampling error within reasonable bounds.

It was necessary to ensure that the respondents had experienced living in the current housing for not less than twelve months; i.e the respondents must have become familiar with their environment so that their responses should not be influenced by the initial settling-in problems. In addition, they should have experienced the extremes of weather conditions that are common in this part of the world, the heat of summer and the cold of winter. It was decided to include only the housewives as respondents in the interviews, because their views were considered to be well representative of the whole family. Evidence from other studies showed a broad agreement between the responses of the woman and man in each household (Lansing et al 1970, Mulvihill 1977, Coulson 1980). Another study indicated that the views of children aged 10-17 are parallel to those of their parents (Michilson 1977). Furthermore, the housewives were likely to be more available for interviewing and for a female researcher undertaking a door-to-door survey in the Iraqi society, it was more appropriate to deal with the housewives.

5.6 THE CHOICE OF INFORMATION-GATHERING TECHNIQUES

Evaluation studies often use methods drawn from psychology or sociology to gather behavioural and attitude information. The information-gathering methods for data collection available for environmental design evaluation are mainly described in five categories: direct observation, techniques in which the users' activities are directly recorded; interview, where users are asked, face-to-face, their reactions to features relating to social and physical aspects of settings; unobtrusive measures, indirect measures for users' activities, such as using cine cameras or video cameras, or by using archival information; simulation, methods where users' reactions are evoked from artificial representations of settings rather than from the settings themselves; and questionnaire technique or paper-and-pencil tests, written instruments to understand users' activities. There are other techniques which are less frequently used, such as telephone interviews, or which are used for a specific reason such as the cognitive mapping technique, where users are asked to describe aspects of their environment by graphic means, mostly used to assess people's recognition and perception of their environment.

Defining issues of concern helps in choosing the appropriate techniques for information gathering. The complexity of the issues to be investigated in the environmental design evaluation determines using diverse methods, both quantitative and qualitative, where data from one method might be backed up by inference from data produced by another method.

The main problems which faced the researcher in the early phases of this study were: (a) the acquisition of the specific information relating to the immediate situation existing in the housing environment and (b) the need to make extensive enough contacts with the bodies concerned with the housing issues in Iraq, so that a variety of relevant information could be gathered.

For this study the techniques chosen had to be relevant and appropriate to measuring the complex interrelationship between the users and the physical and social aspects of the residential setting, as well as to revealing which aspects of the physical environment most influence the users' satisfaction. The various techniques used in this study were chosen to supplement each other. They were used to collect data on different aspects of the individual characteristics and the life style of the people involved in the study, the design elements and the interaction between the two, as well as other aspects of

these designed environments which might contribute to users' satisfaction with the residential environment. It is only the combination and integration of these diverse data that permits the researcher to construct a coherent picture of the groups under study.

After a consideration of the limited time and finance available to the researcher, four research methods were finally chosen for the present study as follows:

1. Unobtrusive measures by using archival information and informants.
2. Interviews: structured and unstructured.
3. Using a structured questionnaire for:
 - (i) car owners
 - (ii) a group of school children.
4. Using informal and unsystematic observation.

5.6.1 THE UNOBTRUSIVE MEASURES: The use of archival records and informants.

Most information gathering techniques influence the activities they are intended to measure. The presence of an observer or camera may cause people to behave in an unnatural manner. Unobtrusive measures have the virtue of gathering information without affecting the ongoing activities. Unobtrusive measures include a documents

review of the correspondence associated with a project and examining the written information about a design programme, such as criteria for the choice of sites, cost yardsticks and records of maintenance costs. These measures allow the design process and to some extent users responses as indicated in the correspondence, to be researched.

In this study archival records of the State Organization of Housing were checked and used to obtain basic information concerning the Housing Laws as well as details about the three projects; the phases of each project, the dates of initiating each project, dates of completion of the design process and of the implementation process, were also ascertained in this manner. The list of names and addresses of residents, which was used for drawing random addresses of respondents to be included in the survey, and identifying dates of occupying their flats, were also gathered from this source. The legal conditions under which citizens were allowed to acquire a flat from the S.O.H. and the cost of these flats, were also provided from the project files kept by the S.O.H.

In the present study members of staff from the State Organization of Housing were used as informants. They were used mainly to get information (historical and statistical) about the history of the housing crisis in Iraq, the estimates of the future need for housing and how it was

intended to deal with this demand.

Another unobtrusive measure is the observing of physical traces. Such observations often show ways in which the environment is being used, since users' activities create traces such as worn paths, graffiti and other marks which can give an indication of use patterns and reactions to the environment. This technique has the advantage of not being obtrusive, although the causes of what is observed may be difficult to ascertain. These methods may, however, provide useful information to back up data gained through other methods. For instance, in the present study the majority of the entrance doors of the housing blocks in the walk-up blocks were seen to be vandalised. Another example of such unobtrusive observation was noting the way in which the ground floor residents had demarcated the piece of land immediately abutting the flats as belonging to them. The interpretation of these observed incidences is discussed in Chapter Seven with the results and findings of the study.

5.6.2 INTERVIEW TECHNIQUE

It is important in environmental design evaluations to employ systematic techniques, in order to produce the accurate and adequate data necessary for the purpose of assessing, analysing and testing of the hypothesis at issue. Interviewing is the most commonly used technique to collect data from large groups of people and for assessing their reactions to designed environments. It is useful in gathering objective and quantitative data as well as in securing information through face-to-face encounters, which in turn help to gain a picture of the personalities interviewed, broad enough to encompass the social background which influences behaviour and also deep enough to reveal inner strings, tensions, attitudes and wishes (Young 1956). It is particularly important to provide information about feelings and motives, which are hard to measure by direct observation or other methods. It also aids the researcher in checking and interpreting his observations. It is also the only method by which significant memories of the past and reaction to plans for the future can be ascertained, for they cannot be learned by observation. Sometimes it is the only research method utilized, but it is more often used in conjunction with other methods of research investigation.

Interviews can be divided into two types: structured (or formal) and unstructured (or informal). Structured interviews are those in which the types and order of questions are determined in advance. The questionnaire can include various forms of questions whether closed (i.e. categorical) or open (i.e. inviting response); the important factor is that they are stated in advance and not constructed during the interview. The structured questionnaire is designed to produce two things: accurate communication and accurate response. Accurate communication is achieved when the respondents understand the survey's objectives. Accurate response is obtained when the replies contain the information sought and at the same time fulfil the demands of the tabulation plans and analytical programme.

The unstructured interviews take place in the course of normal conversation, where the interviewer asks a few questions of interest. This type has the advantage of gaining information which is natural and unbiased. It also allow more freedom for the interviewer to alter the order of the questions which he or she wants to ask, or to add a side question in order to explore in more detail a matter that has emerged during the natural sequence of the conversation.

Despite its advantages, the interview technique has some limitations which affect its value. The respondent may suffer from faulty perception, faulty memory, lack of insight or inability to articulate. These may distort and invalidate the results of the whole interview, even though some of the information gained is valid. Sometimes the interviewer approaches his subjects with a prepared set of expectations as to how the latter will answer certain questions, or he develops these expectations in the course of interview on the basis of earlier or incomplete responses.

The limitation of the interview can be overcome partially by: (a) making every effort to clarify the aims of the study and the hypotheses to be investigated before starting the research; (b) using carefully constructed questions in which the subject matter is consistent with the research objectives; (c) employing non-directive techniques by which the respondent will indicate freely and willingly his meaning, feelings and attitudes without bias or distortion, and; (d) standardizing the ways of recording interview data.

In the present study the interview technique was used, by carrying out structured interviews aimed at housewives as respondents. A comprehensive structured questionnaire was used in the personal interviews with the housewives.

The design of the questionnaire is discussed in the following Section.

Un-structured interviews were also used by the researcher and were aimed at the designers who had been concerned with the design of the three housing projects under study, mainly to gather the information needed for the research about the criteria on which the design of each project was based and to question whether any restrictions were imposed on the design process by administrative decisions or by zoning regulations, legislation and building codes.

(a) The Design Of The Questionnaire

In any questionnaire, the type of questions must evolve from the specific information needed for the study, and the way in which the data is to be analysed. It is also dependent on the kind of respondent and whether the questionnaire will be completed by the respondent or used in an interview.

The questionnaire for this study was developed to address different aspects of the users' attitudes, activities, and level of satisfaction with aspects of the external environment and with the whole residential environment in which they lived in, as well as to

investigate their individual characteristics, age range, economic status and life style. Each question was constructed carefully so as to gain the specific information required from it.

The questionnaire was aimed at housewives where the majority could be described broadly as from low-income families and with a low standard of education. This required careful wording of the questions, so as to be within their ability to comprehend. Variety and interest in the question sequence were considered likely to motivate the respondent and increase the accuracy of the data.

The complex matter to be investigated and the type of respondents required a variety of question types in the questionnaire; that is open ended, close ended, ranking questions and check list. Each type was chosen in relation to the specific information required. For instance, open ended questions were used where the researcher did not want to impose pre-conceived ideas about the appropriate response, and to provide an opportunity for self-expression in the response. Many open ended questions have been used in the questionnaire for this study, although they required time-consuming categorisation for analysis. The respondents were also offered many close ended questions when the researcher wanted them to choose from a number of possible responses or simply to choose between yes or no.

Where the researcher wished respondents to assess the level of their satisfaction with aspects of the environment, semantic differential was used, such as: like it very much / like it / neither like it nor dislike it / dislike it / dislike it very much. The responses for such type of question can easily be compared and analysed. They are also less time consuming to record and generally easier to answer. However, care was taken to ensure that this type of question was not over used, since they give less opportunity for self-expression and respondents may feel that the interviewer restricts their responses or imposes unrealistic views on them. Ranking questions were used when the researcher wanted to find out the users' priorities in relation to specific aspects: the respondents were given a number of reasons and were asked to categorise them, for example in response to the question "could you categorise the reasons why you chose to live on this housing estate". Finally, another type of question was employed: the check list, where a list of broad aspects relating to the housing environment was offered to the respondents to assess their level of satisfaction with them.

To check the validity and applicability of the questionnaires, the preliminary draft was discussed with an expert psychology researcher and then amended. The questionnaire had 77 questions arranged in seven parts. A

copy of the questionnaire is included in Appendix 1. The parts were as follows:

PART ONE

The first part of the questionnaire requested general information about each household in the sample. Information was gathered on residents' personal characteristics, age, sex, marital status and socio-economic status; income, education and occupation. It also questioned the characteristics of the household in terms of size and stage in life cycle.

PART TWO

Here, a series of open ended questions were asked in order to gather data on the type of previous housing experiences; the type of dwelling, its location, the type of open spaces that had been previously available to the respondents, as well as the length of residency and the type of tenure of their previous dwellings. It also requested information on residents' attitudes towards the previous dwelling and the housing estate in which it was located. Questions were then developed to find out their attitudes in relation to the current dwelling and the housing estate and the reasons they had for choosing to live there. It also questioned the residents' attitudes

towards site planning decisions, particularly the way the estate was laid out and their attitude to the density of the current housing. Residents' attitudes towards crucial aspects in the housing environment (which studies elsewhere had suggested influenced residents' satisfaction with their housing environment) such as the appearance of the estate, the views available from the living rooms, the level of noise and the level of privacy, were particularly questioned.

PART THREE

This part of the questionnaire contained questions about the external areas immediately outside the dwelling; whether private, semi-public or public. This included the balcony, private garden, access area, the spaces between the housing blocks and the courtyards amidst the housing blocks, as well as the car parks and the local park, if applicable. Users' activities in and attitudes towards these external spaces were also questioned.

PART FOUR

This part of the questionnaire was developed to elicit information on social interaction: its intensity and types, the development of friendship ties and the importance of "neighbourliness" for the residents. The proximity effect

to be examined through questions relating to friendship formation on the estate, was done by asking whereabouts on the estate the nearest friends lived, whether on the same floor, in the same block or in another locations. The questionnaire also asked about the previous friendship or kin ties with other residents on the estate.

PART FIVE

This part of the questionnaire was developed to seek information on children's play. Residents' attitudes towards different aspects of children's play were sought as well as their complaints in relation to children's play problems. Residents were asked for their suggestions to solve or mitigate any problems caused by children's play.

PART SIX

This part of the questionnaire was intended to discover the residents' attitudes toward their participation and involvement in the design decision making process as it relates to the housing environment.

PART SEVEN

The final part consisted of a check list on general aspects of the housing environment and their overall

satisfaction with it. Answers were to be arranged on a five point scale of evaluation; two for the positive responses, one neutral and two for the negative responses.

For the purpose of processing and detailed analysis of the data collected in this study, it was decided to use the computer programming facilities most readily available. The well tested standard computer programme was used: the Statistical Package for the Social Science (SPSS) and the latest version (SPSSX). A preliminary study of this programme showed that the use of this package was appropriate for the kind of survey undertaken here, as it provided most of the statistical analysis required for assessing the data.

(b) Pre-test Of Questionnaire

The pre-test is an essential stage in checking the validity and efficiency of the questionnaire, because even one which has been well thought out could be unsuccessful, particularly if it failed to be understood by the respondents. The pre-test has the advantage of highlighting the strength and weakness of the structure of the questionnaire and the administration of the interview. It enables the researcher to have a better understanding of the people he or she is dealing with in their home setting, and once the necessary adjustment and amendments

of the questionnaire have been undertaken, it facilitates future communication between the researcher and those to be interviewed. Pre-testing the questionnaire facilitates the calculation of the average time needed to undertake the interview; this information is crucial for programming the schedule of survey work.

For this study the questionnaire was initially prepared in the English language. To commence the social survey in Iraq, a translation from English to Arabic was needed. Language is a form of cultural communication (Hall 1969), therefore, the translation has to be accurate and rigorous enough to carry the meaning behind the words. Thus, it was decided by the researcher that a double check for the translation was necessary to ensure that it reads the same meaning in both languages. The first phase was to translate the questionnaire from English into Arabic and the second phase was to ask some English speaking Iraqis, with university level education, to translate the Arabic questionnaire back into English again. The discussions with the Iraqis involved in the translation process continued until a consensus was achieved on the final format of each question.

The questionnaire for this study was prepared in England and because of difficulties of frequent travelling to Iraq, it was decided to pre-test it first in England

using Iraqi families living in Sheffield as respondents. Obviously the intention was not to find out about the environment in which they were living, but to confirm their comprehension of the questions, to ascertain the time taken by each interview and the type of information that would be produced by their answers. This pre-test revealed some difficulties in recording the responses and thus an amendment to the format of the questions was adopted in order to save time in recording the data and to reduce the time in interview.

Pre-testing in real-life interviews can identify issues that are previously unanticipated. However, despite the certainty and assurance which the researcher had as a result of the double translation exercise, the final form of the questionnaire could only be determined after being pre-tested again in the real setting in Baghdad. This final pre-test was undertaken in Baghdad with the actual users of the residential environments involved in the research. These users were excluded from the sample chosen by the random selection process. This pre-test showed that many of the questions could not be understood by the respondents, the housewives, and that they were reluctant to answer the questions. The cause of their reluctance appeared to be that the questionnaire was written in the formal Arabic language used by those with a certain level of education and so it was unfamiliar to the housewives in

the sample. The current Arabic language used in Baghdad by people in daily conversation is a local dialect, in many cases different from the written language of formal correspondence. Thus, the questionnaire had to be modified into the local dialect. This was achieved by recording the questionnaire on a tape and the interviewer learning it by heart, before starting on the interviews. In this way it was possible to ask each of the respondents the questions in exactly the same wording. Using the same wording in the question ensured that each respondent received exactly the same level of information. It was possible to conduct the interviews in the form of friendly conversation or "chat", which overcame a certain resistance on the part of the housewives to the more formal interview of the pre-test. The use of a tape recorder would have introduced formality and rigidity into the interview, which might have affected the ambience of the interviews and might even have resulted in people refusing to answer the questionnaire. People are often reluctant to have their opinions and responses recorded.

This second pre-test revealed a difficulty in using the five points semantic differential scale, also due to the low-level of education of most of the respondents. This was overcome by translating the five points of the scale into statements such as: very satisfied, fairly satisfied, indifferent, unsatisfied and very unsatisfied. This

pre-testing also showed that additional time needed to be added to that previously estimated as the interview time. This was a precaution to allow for the inevitable conversation with the respondents, because most of them were sociable or felt it necessary to appear so. This informal lead-in time proved to be useful, for it created a relaxed, friendly atmosphere.

The process of pre-testing the questionnaire ensured that the questionnaire produced the information required and that respondents gave the same meaning to questions as that intended by the researcher. It also enabled the researcher to be acquainted with the types of user of housing environment involved in the case studies and enable the respondents to answer the questions with ease and enjoyment without feeling forced, embarrassed or threatened.

(c) Ethical Considerations Involved In the Field Study

Any research process faces ethical and moral problems. Environmental design evaluation especially faces the problem of controversy because of the multi-interests of the parties involved. Two main issues need to be considered; firstly, the respect for the participants and secondly, the political concerns and conflicts of interests.

People who are used as informants or respondents have to be volunteers in most circumstances. Any form of reward only adds to the bias. This implies that the researcher has to be keen to present himself properly and describe the aim and the use of the evaluation thoroughly. The researcher also has to reassure the respondent about the confidentiality of the information and that his or her name will not be revealed. Such information helps to alleviate any misgivings about participating. Door-to-door surveys are not common in Iraq and people are not used to discuss private family matters with strangers. Therefore, a letter of introduction which clearly described the aim of the survey was offered to the respondent in advance together with the identification card of the researcher, to obtain approval for the interview to be carried out. The letter also stressed that the names of the respondents would remain anonymous, the information would be confidential, and would be used only for research purposes. A copy of the letter of introduction is set out in Appendix 1.

Interviews, observation, photography, video recording or examination of records often uncover sensitive information that the respondents might prefer not to be uncovered. For example, people who hold unorthodox political views, or are concerned about being made redundant might not wish such factors to be known. Confidence must be respected and once the information has

been gained from the respondent, the researcher must take great caution to protect its confidentiality. Therefore, names of participants should be immediately coded into numbers; tapes or transcriptions of interviews should not be shown to management or to the press. In this respect, information or opinions given by respondents should not be discussed with other respondents, and observation data should be coded and made anonymous. Therefore, in this survey the researcher made it very clear to the respondents at the beginning of the interview that any information given by the respondent would not be discussed with anyone else, nor be mentioned in other interviews. It was also stressed that this survey was not sponsored or related to the State Organization of Housing. To keep the interviews confidential, and to ensure unbiased responses, interviews were never carried out in presence of visitors. When visitors were there, an arrangement for a new appointment had to be made.

It is also essential that the personal privacy of the participants should be respected. This is particularly so in housing environment evaluations which often study private spaces such as bedrooms or bathrooms, where methods such as direct observation may not be accepted by the respondent. This is particularly important in Iraq because of the social attitudes to privacy at home and the attitudes towards women (Section 6.2). People are

reluctant to discuss family matters, needs, attitudes and preferences with strangers. It is also difficult to ask people in Iraq to allow their houses to be photographed by strangers. As the researcher was a stranger to the respondent, this situation was likely to create problems. On the other hand people feel more relaxed and at ease and are more likely to be willing to interact with people whom they feel similar to themselves. Thus, the appearance of the interviewer, the way she dressed, the way she talked, needed to be modified as much as possible to be of a pattern and type familiar to and compatible with the way of life of the respondents, to help facilitate the interviews in order to overcome being considered as a stranger. This sympathetic attitude of the researcher during the interviews proved to be successful and the interviews were carried out in a friendly atmosphere. As a result the researcher was encouraged and asked respondents' permission to take some photographs, though only of the surrounding areas, private gardens and general views from the roof of the buildings. Photographing residential areas in Iraq, in particular inside the home and the private open spaces, is usually unacceptable for social reasons. Therefore, the photographs incorporated in this thesis were not always very expressive for the actual situation.

In addition to these factors, the time and convenience of the participants needs to be respected. It is a common

practice in social surveys for the interviewers to make appointments with the interviewees in advanced of the interview. However, this practice was not followed in this survey, nor were the sample notified in advance that a visit was likely. This was mainly because of the local customs of hospitality in Iraq which imply, that if a visit is pre-arranged, the host must offer the guest a range of foods and drinks, depending on the season. It is customary to do this as manifestation of generosity and to indicate that the guest is welcomed. This requirement to look after the guest applies whatever a person's economic status; in return the guest is obliged to accept the hospitality and show pleasure by eating the offered food. It was considered, therefore, that notifying the interview time would have put an undue burden on those to be interviewed, as well as on the interviewer, who would be driven to the embarrassment of finding excuses to refuse offers of food and drink during every interview. Involvement in the hospitality process would also have prolonged the time needed for the interviews. Thus, chance visits were used in this survey. When the respondent was unavailable or was engaged on other matters, the next address in the list would be immediately interviewed, and the previous one interviewed at another time. The chance visit also had the advantage of revealing the real life style and the setting in which the respondent lived. However, it was necessary to check the convenience of the visit and to inform the

respondent at the onset about the time needed for carrying out the interview. It is unfair to assume that the respondent has nothing else to do but spend time answering questions. She might be cooking, entertaining or watching a favourite TV programme. In the present survey it was considered important that respondents' participation should be voluntary and their right of refusing to be interviewed should be respected. What helped to make the chance visits successful was the preponderance of non-working housewives. The majority of housewives in the sample were non-working housewives, only a few of them having jobs outside their estates. In the few cases where the housewives were at work when the chance visits occurred, they were interviewed later, in the evening, when they were at home.

5.6.3 QUESTIONNAIRE TECHNIQUE

Questionnaire is a written questions to be delivered to designated addresses at one time to be answered by the respondent and then to be collected on other time. It is considered a useful and efficient data-gathering method. However, special care must be devoted to make the questions understandable by the respondent and to clarify the aim of the questionnaire in order to make the respondent interested. A questionnaire can include various forms of questions according to the type of information it is aiming

at, whether closed (i.e. categorical) or open (i.e. inviting responses), as discussed in the previous Section.

Two sets of questionnaire were used in this study: for car owners and for children.

(a) Car Owners' Questionnaire

In the present study, the respondents in the sample (the housewives) were not used to deal with written questions, therefore, this method was aimed only to husbands who owned a car. The questionnaire included questions concerning car owners' attitudes to car parks on their estate. This questionnaire was prepared in separate form and was given during the interviews to housewives of car owners, which was intended to be answered by their husbands and then to be collected on later date.

(b) Children's Questionnaire

Most of the research on housing environments included a considerable amount of information about children's play, often have used adults as the respondents in their sample of the survey. Only recently, few researchers have involved the children in their research as respondents in their interviews, as well as observing them closely during their play (Hart 1979, Becker 1976, Moore 1985). The

method of observing children while playing outside their homes is more resources consuming in terms of time and money. Using the children as respondents in interviews is rather difficult and need a special skill of understanding children and being patient with them, because children do not have the patient to commit such tasks of being an interviewee, and it needs a particular skill from the interviewer in wording and addressing the questions to the children and in capturing and keeping their interests to answering the relevant questions for the investigation.

The researcher of this study was restricted by the limited resources for the investigation in terms of time and finance, therefore, it was not possible to directly involve the children in the investigation as respondents in the sample of the survey in order to obtain their views about the physical and social environment in their current housing in general and about play situation in particular. Nevertheless, an attempt was made to investigate children's satisfaction with their housing environment by using one group of children from one of the projects studied as respondents. The evaluation of this attempt is discussed in detail in Chapter Nine.

5.6.4 OBSERVATION TECHNIQUE

This is a commonly used method in social, psychological and environmental evaluation. The main virtue of observation is its directness; it makes it possible to study behaviour as it occurs. The researcher must be sensitive to, and aware of, wholly unanticipated and chance observations which may come to play a very significant role in the development of hypothesis and theories. Direct observation of activity may be divided into two categories, according to method: Narrative, where observer records events as they occur and Checklist, where the observer records the occurrence of certain events previously listed on a paper. (Brandt 1972). Observation methods are subject to criticisms, such as those people who have been observed, were not a truly representative sample of the whole population of the case studies. Observation is also subjected to personal bias and distortion, and therefore, is of questionable reliability. Observation is a resources consuming method in terms of time and money.

In the present study, observation techniques were limited to unsystematic observation, such as observing furniture arrangement, aspects of the lifestyle and status of the respondents during the interviews. For social reason it was not possible to observe the children's play outside their dwellings.

Chapter Six

THE FIELD STUDY IN BAGHDAD:
THE CASE STUDIES.

THE FIELD STUDY IN BAGHDAD: THE CASE STUDIES

6.1 INTRODUCTION

This chapter contains a full description of each of the three projects chosen as case studies. It explains the physical and social characteristics of the settings and further, more elaborate discussion of each case study is included in Chapter Eight. The information on the case study sites was derived from the archives and the site planning drawings of the State Organization of Housing as well as from the unstructured interviews with the designers responsible for the projects. The data gathered during the survey and its interpretation for each project is discussed in the case studies under five major headings: the setting, the users, the design activity, the proximate environmental context and the social-historical context. Nevertheless, the social-historical context, unlike the other four categories which need to be discussed individually for each

case study, applies equally to the three case studies, therefore, it precedes them in the text.

General information which applies to all the case studies, such as the S.O.H. policies and directives, is included under the description of the first case study, the Saydia 7 project, as well the particulars related to the project. However, the specific information on each case study is discussed individually, under the same major headings, as there are small but significant differences between the physical characteristics of each site and also variations in the designers' intentions in relation to planning and designing.

6.2 THE SOCIAL-HISTORICAL CONTEXT

The designed environments are not independent, isolated projects, rather they exist in a complex society which changes with time. The four factors relating to the case studies: the setting, the users, the design activity and the proximate environmental context, must be seen in terms of the larger society, the social-historical context. This includes social attitudes, traditions, religious beliefs and the political and economic strategy. It also includes the historical changes.

In this study, because of the limitation in time and resources, only some of the social and historical issues relevant to the housing environments under study are discussed here.

The main issues are: attitudes towards social interaction in Iraq, attitudes towards privacy in Iraq, attitudes towards the dwelling and children's play in Iraq.

6.2.1 ATTITUDES TOWARDS SOCIAL INTERACTION IN IRAQ:

Neighbourliness and Friendships.

Much work on neighbour relations in residential environments has been published and a substantial level of agreement has been achieved on several basic generalizations such as the conclusion, already noted in Chapter Four, that the pattern and the importance of neighbour relationships vary among different cultures as well as among sub-cultures (Ittelson et al., 1974). People from different cultures or even from different regions might be more sociable and tend to make friends more easily than others. (D.O.E., Db.25, 1972, p.62). It has also been recognised that the level of social interaction is also related to the individual's general sociability (Ittelson et al., 1974).

Iraqis, as with other Arabs, do not like to be alone, they prefer to be involved with others. Edward Hall has pointed to the intensity of social relationships among the Arabs:

"Arabs are deeply involved with each other. Their personalities intermingle and take nourishment from each other like the root and soil; if one is not with people and actively involved in some way, one is deprived of life. An old Arab saying reflects the values: "Paradise without people should not be entered because it is hell." (Hall 1966, P.148). Arabs are involved with each other on different levels simultaneously. Business transactions in the bazaar, for example, are not just between buyer and seller, but are participated in by everyone. Anyone who is standing around may join in. If a grown-up sees a boy breaking a window, he must stop him even if he does not know him. Involvement and participation are expressed in other ways as well. If two men are fighting, the crowd must intervene. (Hall 1966, p.151).

Hall also suggested that the hierarchy of loyalty of an Arab is: first to ones-self, then the kin affiliation, townsman or tribesman, co-religionist and/or countryman (Hall 1966, p.152). Iraqi society is family oriented

firstly and neighbourhood oriented secondly. Ali Al-wardi, the Iraqi sociologist, argued that the strong ties among the neighbourhood residents and the tendency in the individuals to affiliate to their neighbourhood "Mahalla" is due to their origin from a tribal community (Al-Wardi 1961).

For the Iraqis the relationship with neighbours is an important feature in the social life of the society. Traditionally, there were close knit relations between neighbours. In the old neighbourhoods where the affluent and the poor lived side by side, this could be seen by the degree of support and care for neighbours. Referring to commonly used sayings in the Iraqi language, many have their roots embedded in the pattern of the social life of the old neighbourhoods and the society as a whole. Most of these sayings emphasise and accentuate the importance of the strong ties with neighbours and neighbourliness. For instance, "Allah muwassy bil jar", means God has recommended the care for neighbours. "Huk al-jar ala al-jar" means that the neighbours have certain rights and obligations towards each other. Another saying: "Al-jar kabil al-dar", means that in making a decision on choosing a home, choosing the neighbours should come first in priority before the dwelling itself.

A number of commonly used sayings in Iraq which testify the importance of neighbourliness have been influenced by the religion of Islam, the religion of the majority in the country and the surrounding countries. A saying from the Hadeeth (the saying of the Prophet Mohammad) "Khayr al-ashab ind allah khayrum lisahibih, wa khayr al-jeeran ind allah khayrohum lijarih" means: To God, the best friends are those who are good to each other, and the best neighbours are those who are good to each other". In another saying from the Hadeeth, the Prophet emphasised the priority of the neighbours by saying "Jarak thumma Jarak", which means "your neighbours and then your neighbours". The repetition of the words "your neighbours" twice is common in Arabic literature to accentuate the significance of the meaning. In addition to this another saying threatens the Moslim who causes harm to his neighbours, "La yadkhul al-gannah man la yaamen jareh boiykeh", which means: he, whose neighbour is not safe from his harm and dishonesty, will not enter Paradise.

Relationships among neighbours in Iraq are more casual, frequent and informal than relationships among friends. "Neighbourliness", is not only typified by chatting, frequent mutual visiting and mutual aid (borrowing and lending), but also is characterised by a readiness to help neighbours, particularly during special occasions and crisis. On happy family occasions such as

marriage or a new baby, it is common to receive voluntary help from kin as well as from neighbours firstly, and from friends secondly. There is, for instance, no need for a newcomer to a neighbourhood to find an excuse to interact with neighbours, because it is common conduct that the neighbours will visit the newcomer at the outset of his arrival and introduce themselves, and most often offer help as well. There is also a tradition that a newcomer family in any neighbourhood need not worry about preparing meals, at least, for the first day of their arrival. The neighbours will play the host and provide their meals.

It needs to be mentioned here that in the Iraqi society there is as yet no such social organization, formal or informal, to provide help in times of emergency. Often, therefore, it is kin or neighbours whom the family rely on in matters such as baby caring, baby sitting and helping with the infirm or elderly. The mutual benefits for neighbours enhance the continuity and durability of neighbourly relations. Thus, this does not coincide with what has been suggested in another study within a Western culture, that when the settling-in period had passed, the effect of physical proximity of the newcomer to a neighbourhood faded away and the newcomers looked for friendships further afield, according to homogeneity in a range of factors (Gans 1967).

Therefore, neighbourliness in Iraq is a special type of social interaction which is differentiated from friendship in many of its characteristics. Friendships cannot substitute or compensate for the neighbour relationships. It is fundamental for the satisfactory development of a community spirit to keep these relationships on a relatively positive level.

Thus, it seems that positive "neighbouring relations" for the Iraqis are very important and influential in relation to residents' satisfaction with their housing environments. Though its strength has been slightly reduced in the changing society, it still has considerable effect.

6.2.2 ATTITUDES TOWARDS PRIVACY IN IRAQ

A number of social studies have underlined the need people have for privacy. However, very few empirical studies have been done on privacy in the housing environments. Privacy, as discussed in Chapters Two & Four, is a complex matter which differs with time and personality, and is perceived differently in different cultures and sub-cultures. Nevertheless, findings from some of the social studies in the Western cultures about housing environment have indicated the importance of privacy in relation to the residents' satisfaction (Willis

1963, Gutman 1966, Lansing et al. 1970, Byrom 1973, Mulvihill 1977, Cooper 1975 & 1986, Coulson 1980).

In Iraq no such studies have been done yet, but there are indications in the social attitudes which testify to the importance of privacy to the Iraqis. The Iraqis' attitude toward privacy is affected by religious influences. The influence of the Islam religion is a crucial factor in this matter; there are, for example, a number of Qur'anic verses which emphasise visual privacy, particularly in relation to overlooking others in their home. Verses such as: "Say to the believers that they should lower their gaze and ..." (Quoted in Hakim 1986, p.145). It has also been recalled in the Hadeeth (sayings of the Prophet Mohammad), that the act of overlooking is strongly condemned as an offensive deed, "He who looks into a house without the occupant's permission, and they put out his eyes, will have no right to demand a fine or ask for punishment" (Quoted in Hakim 1986, p.151). A number of researchers have pointed to the importance of religious influence on the Iraqi society, for instance, Al-Azzawi, stated that "The social life in Iraq is very traditional and owns its customs to the teaching of Islam" (Al-Azzawi 1969).

The religious influence in relation to privacy is particularly related to women's general appearance and

behaviour in public. Muslim women's clothing should not expose any part of her body except her face, hands and feet to men's sight unless they are related by blood or marriage. Therefore, women in their homes, where they are at liberty to wear whatever they like, should be protected from being overlooked by men from outside the home, whether passers-by or neighbours. Thus visual privacy is very important and valued by the residents in their dwellings. John Warren and Ihsan Fathi in their appraisal of the traditional courtyard house of Baghdad stated that "The inward-lookingness of the courtyard house, with no view of the outer world, may have stimulated the concern for privacy to excessive levels. There was a sense of shame in self-exposure. Just as the house was always screened, so women were always veiled in public,... Like the women the house was a private preserve and as such protected." (Warren and Fathi 1982, p.177).

It is interesting to note that the Arabic language has no word that corresponds precisely to "privacy" in the English language. The only word used in this context is the word "Sharafia" which means overlooking. This perhaps emphasises the importance of visual privacy in this culture, rather than the other types of privacy. Similarly Edward Hall did not find an equivalent word to privacy used in the Japanese Language, nor did Sally Higman find it in the Greek language (Hall 1969, Higman 1971). This

indicates that, although human beings have a need for privacy, privacy may be interpreted differently in different cultures.

However, great changes are taking place in the Iraqi social system, particularly in the attitude towards women and their role in the society. Women now have equal rights and obligations in society as men. However, women are still socially constrained in their general appearance and behaviour. It seems that the change in society's attitude toward women has not counter-acted the religious influence in relation to the importance of visual privacy for women in their homes. The prevailing high fences around the newly built houses and private gardens testify to the importance of privacy inside the houses as well as in the private areas immediately outside them.

"In the old neighbourhoods of Baghdad, the city dweller lived within a rigid social pattern which governed his movements physically and morally. There existed a self-imposed social restraint which was very much more than good neighbourliness and which was known as "urf". The "urf" was effectively a religious and moral code much stronger than any bylaw in its pressures on the citizen and in one respect at least it had the effect of building regulation. To look over the neighbours' fence would have been to steal from him his privacy. Like rights of water,

light and air elsewhere, this was a powerful constraint upon building. Its force derived from the Hadeeth (La dharar wala dharar) which means no damage and no damaging" (Warren and Fathi 1982, p.100). This Hadeeth which has many implications in the Muslim Shari'ah (law), particularly applied to the relationship with neighbours and the street users in the housing areas, which literally means that "you should not harm others and others should not harm you".

In Iraq there is, up to now, no standard planning regulation concerning privacy. There is no regulation to stipulate that planned developments must comply with certain standards in order to maintain a given level of privacy for the dwellings in new developments. The only regulation available in relation to housing planning controls, is that which concerns the location of the house on the plot. It implies that the set back of houses on the plots should be related to the type of zone and plot size, and the built-up area should not exceed 55% of the plot area. However, this regulation does not apply to houses on plots of 100-300sqm, in other words in such a case the house could be built immediately on the front edge of the plot. The regulation only applies to larger plot sizes where the set back should be 2.5m when the plot size is 300sqm, 4m when the plot area is 400-600sqm and 5m when the plot area is over 600sqm.

6.2.3 SOCIAL ATTITUDES TOWARDS THE DWELLING IN IRAQ

A number of surveys in America, the United Kingdom and Australia (Reported in Mulvihill 1977) have shown that most people regard the house as the most important aspect of their immediate physical environment. In addition to the practical aspect of the house as a shelter, emotional aspects were also found to play a part in man's attitude to the dwelling. The protective quality of the house is the prime function of the house and as such it not only protects the people who dwell in it physically, but it also protects them socially and psychologically by enabling them to exercise individual autonomy. Furthermore, it has been suggested that the house symbolically represents the self: "it reflects how man sees himself, with both an intimate interior, or self as viewed from within and revealed only to those intimates who are invited inside, and a public exterior or the self that we choose to display to others" (Cooper 1972).

The physical and emotional aspects of relationships between man and his house are manifested in many proverbs and sayings within different cultures. In the English language there are many commonly used sayings such as "home is where the heart is", "East or West, home is best" and "an Englishman's house is his castle". The first sayings carry an emotional overtone, the others relate to the

territorial aspect of the home. In Iraq sayings such as "Baite Allah mithil baity la wallah" or "Rahat al-insan fee baitah", both emphasise the relation between man and his home and both mean that the comfort of man is in his home. "Baitek sater aibek" literally means your home is a cover for your faults, but implicitly it points to the virtue of privacy at home, the place where one can be one's real self.

"Within Muslim society the family unit is fundamental. This unit was extensive and broadened outside the household by extended family relationships. The interrelationships of families were the sinews that made society cohesive" (Warren & Fethi 1982). The Iraqi society, traditionally, is a family oriented society. Family ties are sacred and the family is the primary focus of loyalties. The importance of the house comes from being a setting for the family, often extended to embrace three generations or more. Now, social life has changed in many aspects, but family ties are still strong. However, there is a tendency towards the prototype of the nuclear family living in an autonomous dwelling. This tendency is considered as one of the causes for the increasing housing demand (Poleservice 1972). However, unmarried children still live with their parents and do not leave home unless they get married or to take jobs in other regions. Bachelors rarely live on their own.

Therefore, symbolically, in Iraq the house is a representation of the family and its ownership symbolises the security of family coherence. The ownership of a house is perceived by the Iraqis as a crucial aim in life, with every head of household aspiring to own a house, so as to provide for the security and stability of his family during his life and after his death. This is explained partly by the position of women in society. The position of men is still one of dominance over women, although this differs within the society from one group to another, depending upon the education, religion, occupation and ethnic status (Baer 1964, p.34). The unattached women in the family are the responsibility, regardless of their financial independency, of the elder man in the family and, traditionally, the unmarried daughters live with their parents during the life of their father and afterwards with their elder brother. The absence of any social security system in relation to housing has further emphasised the need for owning a house. There are no housing benefits for the low-income or unemployed groups of people and the government is not responsible for providing housing for them. Moreover, the instability of living in rented property urges people to buy their own accommodation. Thus, these factors have resulted in a rising demand for home ownership.

Studies in America and the United Kingdom had shown

that people, despite social class differences, have a strong preference for the single family house (Cramer 1960, Cooper 1972, Abrahams 1975, Porteous 1977). In Iraq a survey in the 1960s on housing preference showed that the majority there also prefer the single family house (PolSERVICE 1967). The prevailing type was and still is the house, although there are some sporadic and individual multi-family housing blocks in Baghdad. Only very recently the housing authority initiated projects to help providing mass housing for the people to buy. Multi-family housing has become the common form of housing in these State developments.

The form of the single family house has developed, throughout the years, from the courtyard house into the compact house as described in Appendix 2.

6.2.4 CHILDREN'S PLAY SITUATION IN IRAQ

The Iraqi society is close knit, focussing attention on the family, which is characterised by a relatively large average size, by strong family ties, being generally stable and with apparent parental influence on children. This society is also known to like children and children are not segregated from adults in society. The everyday life of young and old is fully shared together. Raising children is considered in Iraq as one of the central achievements of

an adult male or female. It is even common for adults to be called, informally, after their elder child as Abu-Muhammad (father of muhammad) or Um-Muhammad (mother of Muhammad). The responsibility for child rearing is entirely based on the family from birth, during school and even after graduation. Adult sons and daughters usually stay with the family, unless they have to move out to pursue a career in another city or to get married. Therefore, it is uncommon for a child to leave the family home before he/she is over twenty, and it is particularly unlikely that a child would leave when under eighteen years. There are no boarding schools for students in their primary or secondary stages of education, because families would not find such separation from children before adulthood, even for their education, acceptable.

The social life style in Iraq is centered largely on the home visits. Families exchange visits with kin, friends, and neighbours on a regular interval basis. Additionally, women on their own or accompanied by their children, commonly exchange visits with other women in their houses too, whilst for men it is more common to meet their friends or peers in public places, such as "chaykhanahs"; coffee houses, in the "suq"; the market place and perhaps in the mosque. The wife might accompany her husband when visiting clubs or committees for the middle and upper income people. It is not uncommon for all

or some of the children to accompany their parents or the mother in this type of social visits. There are no arrangements for baby sitting so that the parents can go out for entertainment unaccompanied by their children. When children are not involved in some of the particular formal visits, then mothers rely on the help of kin or neighbours to look after their young children while they are away.

Recently, there has been a tendency toward more social attention for children, although it is more related to their education. The political leadership have recently promulgated an education act for compulsory education for all children to the age of eleven, under which all children are allowed free public schooling. Education is free in all types of schools and universities in Iraq, which relieves some of the financial burden on families with children. Another government initiative was the establishment of the Ministry of Youth, which is the body responsible to direct and administer the organizations and committees which care for and support the youth. The Ministry has recently initiated the formation of youth centres for urban areas. These centres are founded, financed and administered by the Ministry of Youth.

The "Youth Centres" cater for youth activities in urban areas. They provide supervised recreational

activities for children of school age (7-18) in the form of workshops for different hobbies such as acting, music, singing, handcrafts, carpentry, metal work, etc. A limited range of sporting and activities such as swimming and gym hall activities are also followed in some of these centres. These centres are very popular and much sought after by children, particularly teenagers, when they are situated near to their homes. However, the demand has outstrips the number of centres. More are needed, as at present they exist only in the large cities like Baghdad, where there are insufficient to meet the need.

The concept that children's play is significant in their development, is still not fully recognised and comprehended in Iraq. Society places a low priority on the need for children to play. This is because play is still considered as rather frivolous and an idling away of time. Also it has been taken for granted that women would cope on their own with the play needs of growing children. Therefore, children under five are inside the house most of the time, where they are in close contact with their mothers and have little opportunity to play outside the home. Mothers, particularly of young children, are often overwhelmed by their domestic responsibilities of caring for the family and the young ones. This is particularly difficult for the low income families and large size families. Therefore, it is common for mothers of young

children to get support and help with children from their kin in particular, and sometimes also from their neighbours. Mothers have little spare time during the day to accompany their children outside the house, but even if they had the time they could not accompany their child to a public space or garden, because it is socially unacceptable for women to attend public recreational places unaccompanied by the man in their family. This situation, so different from the Western world, emphasizes the importance of the private open spaces associated with housing in Iraq. This needs to be appropriately designed to enable young children to play outdoors.

The number of working women in Iraq has increased rapidly during the last two decades and is still increasing. This creates a dilemma for women as to how to co-ordinate their life between their responsibilities towards their job and towards their family. This is becoming even more critical and in need of radical and urgent attention at the social level.

There are two main areas where children in Iraq play: the home environs, and in the streets and side walkways. Within the domain of home, in either the courtyard house or the compact house with garden, young children frequently play outside in their own courtyard but also in their private gardens, safely and under their mothers'

supervision. The gardens are usually walled and have a gate, which mothers of young children often lock to guarantee their child's safety.

Children under five years of age in the Iraqi society are the most disadvantaged group in terms of freedom to play outside the home. They need somewhere to use their surplus energy, to develop physically, to develop mentally by exploring and discovering experiences as well as to socialize with others, but in a society which expects them to be near the home they are continuously under their mothers feet. There is no supervised play readily available for them away from home, such as day care centres, play groups, neighbourhood play areas or supervised play grounds, as there is in many developed countries. Some day care centres are available, but they are either private and too expensive for the low income families, or they belong to particular committees or bodies such as the nurseries of the Women's Union and the Teachers' Union.

As for play opportunities for the other groups of children, the 6-12 age group and the teenagers, the neighbourhood streets are considered the principal play areas. Children also play on derelict lands whenever it is available, as well as on building sites. Again, there is no particular space in the planned neighbourhoods allocated

for children's play, and equipped playgrounds on housing areas are not common in Iraq. In the past the children used the play equipment such as swings, slides, seesaws and merry-go-rounds available only on particular occasions two or three times a year, usually during religious celebrations like Eid-al-adha or Eid-al-fitter. On these occasions a mobile funfair will be set up temporarily on an open land in the neighbourhood or in a public park. Using play equipment is considered part of the celebrations.

Traditionally there are no urban parks in the Iraqi cities as in the cities in the Western cultures, but in the early 1960s, a number of main cities in Iraq had their development plans approved by the government planning authority and as a result a number of parks were set out in these main cities. In Baghdad, now, there are ten public parks of various sizes. Most of these parks include playing areas, equipped with play facilities. It is common for families with children to go to these parks during the weekends, or on national holidays and religious celebrations. There are also two large funfairs in Baghdad.

The difference in the play pattern between girls and boys should be noted. Girl's play, as studies elsewhere have revealed, differs considerably from boy's play about and over the age of eleven, becoming less engaged in

active games than boys and more restricted in their mobility away from home (D.O.E., Db.27, 1973; Ward 1978; Becker 1976; Cooper & Sarkissian 1986). In Iraq, even at an earlier age, girls' play outside is more restricted than boys due to socio-cultural norms. Therefore, they are more restricted by their parents in the sort of activities they can participate in and in the distance they can range from home. There is also a complete segregation in schools between girls and boys over the age of 11, there are Intermediate and Secondary schools (ages 11-17) for each sex separately. Thus the difference between boys and girls in play becomes more apparent at the age of 11 and over, because girls are no more allowed to play outside and to join boys in their games. Thus, girls spend more time in passive pursuits such as listening to the radio, music, watching T.V. or chatting on the phone, as well as carrying out household chores. Many of these girls of 11+ are seen helping mothers in cleaning the house or caring for a younger child. These patterns of behaviour are obviously influenced by the prevailing socio-cultural norms which encourage boys to explore, to experiment, to take risks and to be competitive, and restrict girls. They need to be taken into consideration by the designers, although they do not necessarily have to create design that rigidly reinforces them, but they do need to provide other opportunities for girls which comply equally with their needs and the prevailed norms.

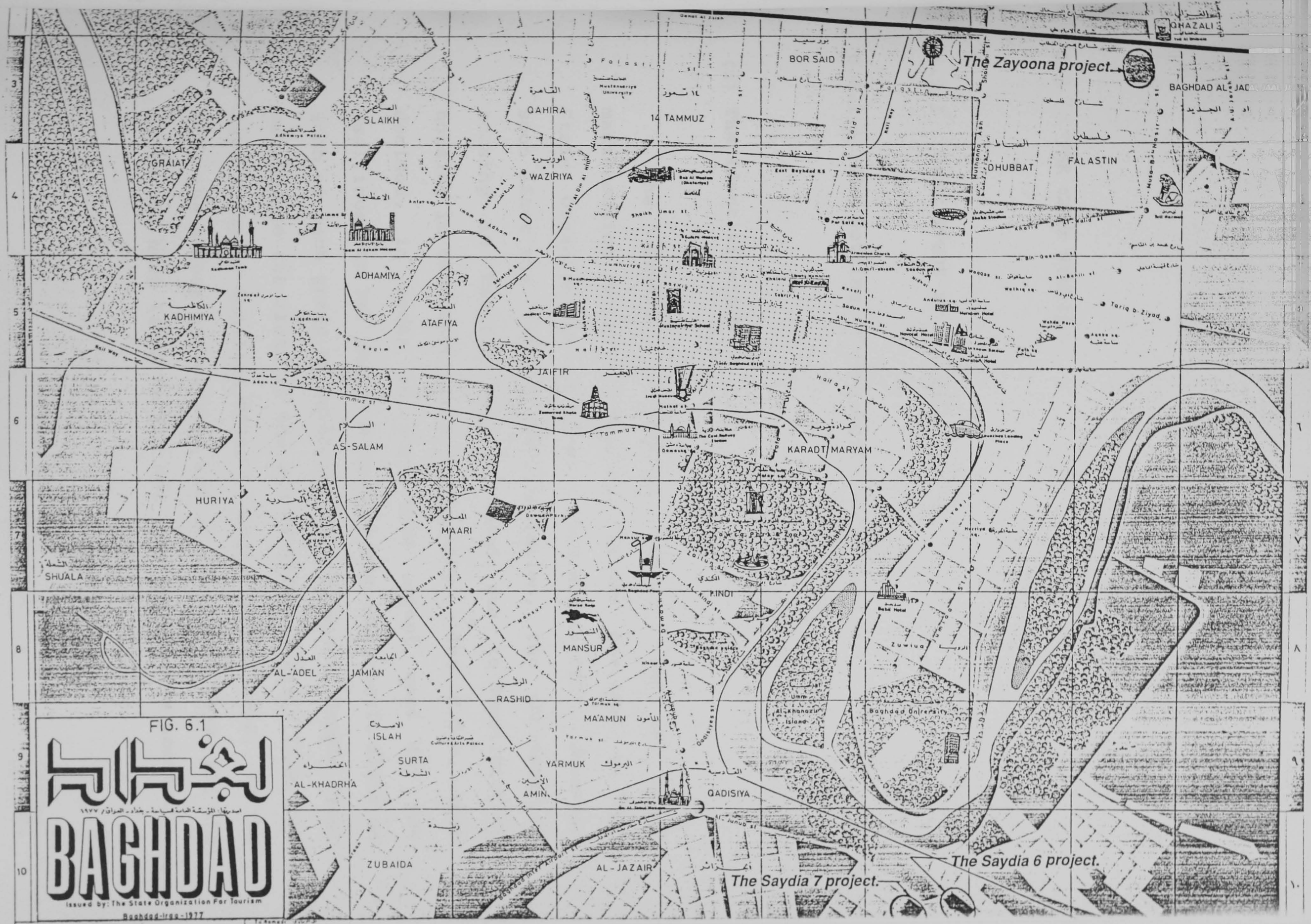


FIG. 6.1

بغداد
 المدينة المؤسسة عام 1321 هـ - بغداد - العراق - 1977
BAGHDAD
 Issued by: The State Organization For Tourism
 Baghdad-Iraq-1977

6.3 THE CASE STUDIES

6.3.1 CASE STUDY No. 1 (THE SAYDIA 7 PROJECT)

6.3.1.1 The Setting of the Saydia 7 Project

(a) The Identification

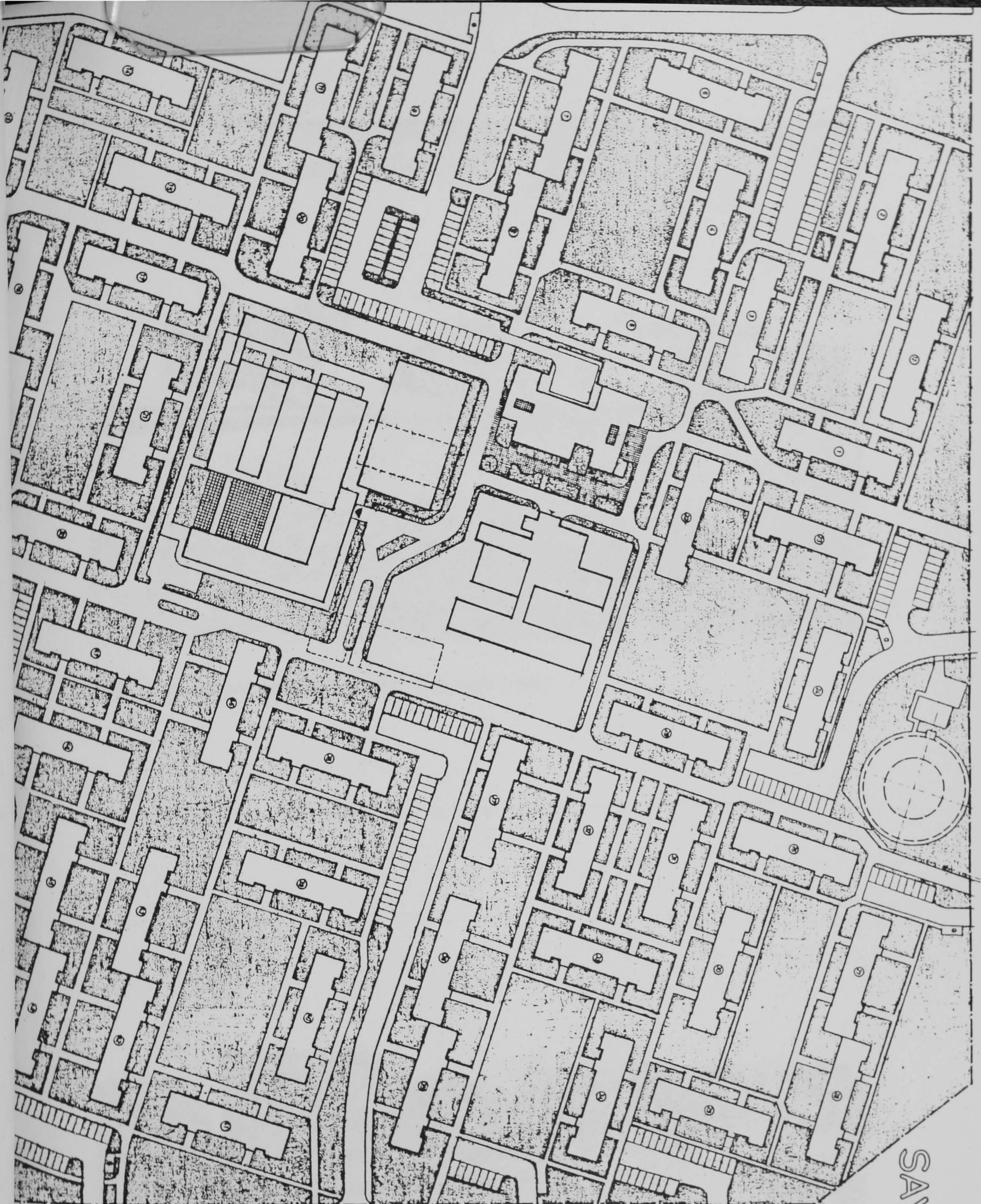
The Saydia 7 Housing project was the first mass-housing project in Baghdad. It was designed by The State Organization of Housing (S.O.H.) in 1977. However, soon after the initial implementation, the shortage of housing in Baghdad had increased due to demolition of housing in the inner parts of the city. The S.O.H. then decided, in order to meet this urgent need for new dwellings, to let people move into the newly built flats as soon as each group of buildings was finished. People first moved into the flats at the end of 1979 and early 1980; the last group of families moved in at the end of 1982. By the time the survey was carried out at the end of 1983, all the flats had been lived in for not less than twelve months.

(b) The Location

The location for this housing project was chosen because the land was in government ownership, and had been reserved for housing use. It is situated in the locality of Karkh on the west side of Baghdad; (the river Tigris divides the city into two parts: Karkh and Rusafa). It is situated, on the outskirts of Baghdad, about 10 kilometre to the south west of the city centre.

The site is bounded on the north-east by a major highway connecting Baghdad with the southern part of the country, and on the south east and south west by main roads which separate it from areas of single family housing. At the present time it is bounded by vacant land on the north-west side, which is reserved for a future housing project of single family housing (Fig.6.1 and 6.2).

Public transportation to the city centre and other parts of the city is only available from the north west side of the site and no public transport is available through the site itself. The nearest bus stop is about 100m. away from the periphery of the north west side of the site, and 500m. from the the farthest side of it.



SAYDIA 7 PROJECT

SITE PLAN

FIG. 6.2

Scale



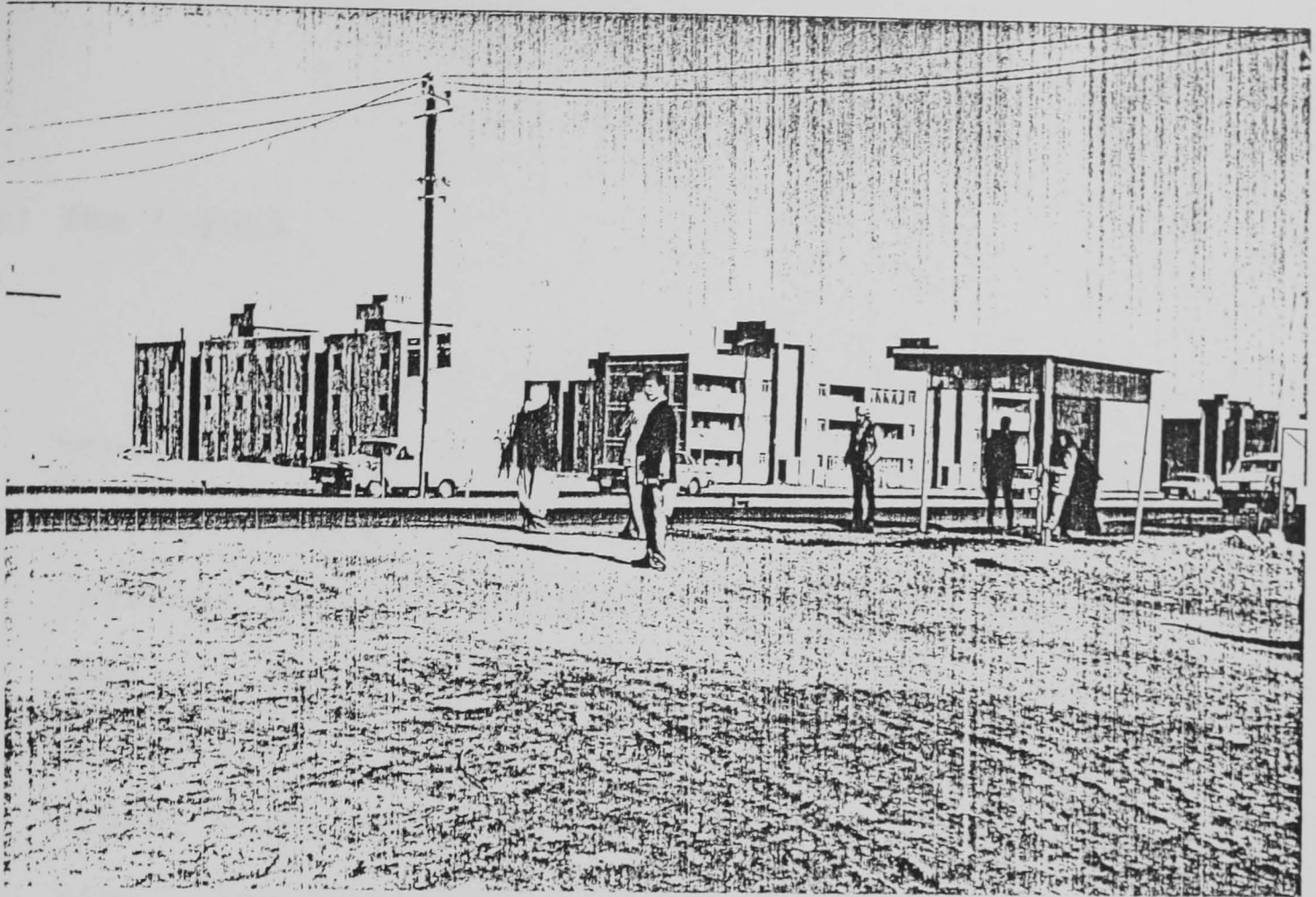


FIG. 6.3 *Surrounding areas: A major road.*



FIG. 6.4 *Low-income high density area*

(c) The Layout

This project occupies a site of 12.5 hectares with a housing density of 45 dwelling unit per hectare. The site is of a square shape, totally flat and has no distinctive physical features differentiating it from the adjacent areas. There are no trees or any other kind of vegetation on the site. Access to the site is possible from all sides, which made it easy to link it to the surrounding low rise, low density housing areas. Housing surroundings the site on three sides; on the other side abuts a major highway.

This project is composed of 47 multi-family housing blocks in a form of walk-up blocks of flats providing accommodation for 556 families. In addition to the dwellings, there are associated buildings such as a nursery, schools, and shops. The S.O.H. decided, at the onset of the project, that the implementation of these buildings would be in one phase. At the time of the survey, the housing blocks were finished, one kindergarten building was in use and the primary school building was under construction. The local Suq building (local shops) was finished, but only partially occupied (one bakery, one grocery, and one green grocery). Most of the main roads, walkways and car parks lots were laid out and paved.

However, car parks on the edges of the site and the link between the road through the site itself and the surrounding areas were unfinished.

The designer sought to apply an innovative planning system for the first time in Iraq, by using the form termed as cluster housing. The blocks of flats were arranged around courtyards as can be seen in Fig. 6.2. The intention of the courtyards as stated by the designers during the unstructured interview, was mainly to provide a setting for social interaction and socializing activities between the neighbouring groups, and for children's play. The designer chose to put the public buildings, that is the educational and the commercial buildings, at the core of the site to emphasise their importance as buildings serving this housing estate in particular, while also being of equal distance from the dwellings which are located on the edges of the site, thus being relatively easily approachable by all residents.

The blocks of flats were arranged on the site so as to have two different orientations. The north-east, south-west orientation applies to 30 buildings, the remaining seventeen blocks being given the south-east, north-west orientation. The latter orientation is the preferable one in Iraq for climatic reasons.

The site planner who drew up the brief for the development of the site intended that there would be pedestrian and vehicular traffic separation, this planning decision being implemented for the first time in a residential area in Iraq. The designer, therefore, decided to provide access roads from the edges of the site into the car parks in between the buildings. He positioned the pedestrian routes to lead from the car parks to the dwellings so as to link them to schools, shops, and to other dwellings. However, it was observed during the investigation that the users did not understand the idea behind the site design, as different use patterns were discovered in many instances during the site visits (see Section "e" on Open Space).

(d) The Dwellings

At the planning stage it was decided that all the housing units were to be of one type, that is the three storey walk-up flats. Each unit consists of six flats, two on each floor. One of these is a two bedroom flat and the other a three bedroom flat (Fig. 6.5). The layout of these flats is identical on each floor. The designer chose to put two of these housing units together to form one block of twelve flats.

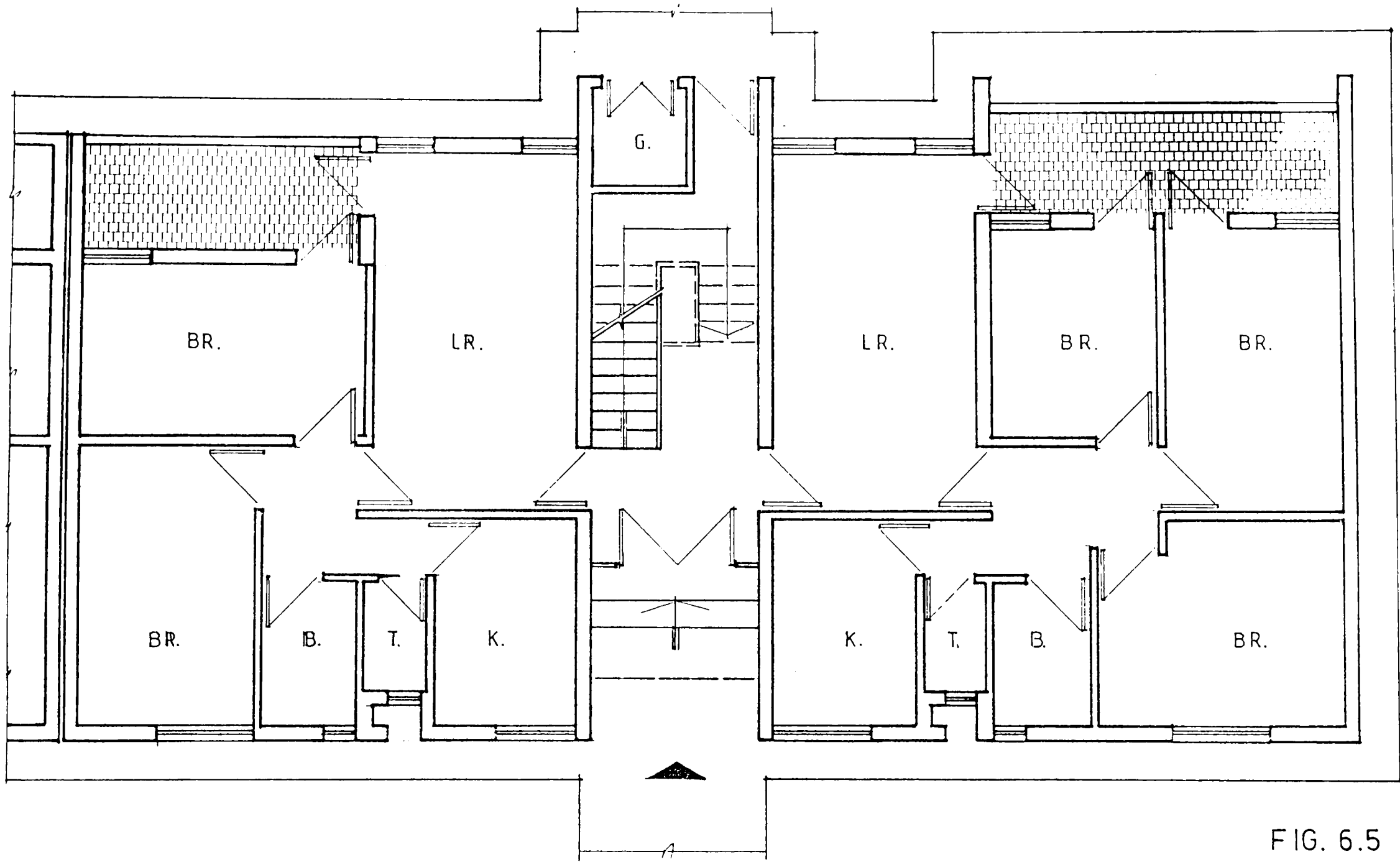


FIG. 6.5

GROUND & TYPICAL FLOOR PLAN
THE WALK-UP BLOCK

Scale 1:100

It was intended that the unit block should be accessible from two sides, with the entrance lobby approached by a main door at the front and an exit door at the opposite side. The staircase was the only means of access to the upper floors and to the roof from the main entrance hall. The actual usage of these areas is further discussed under the section on Semi-Private Areas.

Two types of flat design were used. One consisted of two bedrooms, a living room, kitchen, bathroom and separate toilet. The other was similar except that it had an additional bedroom. Both types had a private balcony (The characteristics of the balconies are discussed under the section on Private Open Spaces). The layout of the flats was such that the entrance door of the flat opened directly into the living room, which was itself connected to the other rooms via a small passage with doors on all its sides, one leading to the kitchen, two leading to the bedrooms and the other two leading to the bathroom and toilet. The the existence of these doors made it difficult for the passage to be used for anything else except circulation.

Investigation of the flats showed that there was no storage room, which is a necessity for any Iraqi household, needing to store the winter clothing and household

furnishings during the hot summer and vice versa, and that not even an enclave had been provided elsewhere in the flat for fitting shelves for storing such household things as linen, tools or children's toys. Nor was there provision for dry food storage, a necessity for the Iraqi diet. During the interview with the designer, he explained that he had expected residents to fit ceiling-high wardrobes in the bedrooms, assuming that by doing so these wardrobes would compensate for the absence of separate store space. His aim, as he put it, was to economize on space and materials and, consequently, cost. But none of the residents observed during the interview visits had installed such ceiling-high fitted wardrobes in their bedrooms. There was no general storage space available within or attached to the housing blocks for storing things like bicycles, prams and excess furniture. Often residents had to store their extra household goods on the balconies, stair landings and on the roofs.

The designer ensured that each flat was supplied with its own electric water heater and a cooling system for the summer, with ducting for a desert air cooling system being integrated into the design, but each household was expected to provide its own air cooler unit. The designer opted to install the cooling units for the ground floor flats in a special balcony on the first floor. The access to this balcony was from the hallway of the first floor, next to

the entrance doors of the two flats. The cooling units for the first floor flats were in turn installed on the second floor, and those for the second floor were on the roof.

Another internal service was to provide a refuse chute in each housing block, with a hopper for refuse located on each landing level serving the two flats on that floor. However, at the time of the survey the refuse chutes were observed to be out of order. Informants of the S.O.H. stated that the abuse of these areas within the housing blocks showed that the new residents were not accustomed to such a system of refuse collection, perhaps because they had previously lived in single family house and were used to bins. As the residents could not use this refuse system properly the authority eventually forbade them to use it. Instead, they provided large refuse containers on different locations within the housing site (Figure 6.6). This in turn was observed to be having an impact on the use of the open spaces, as discussed in the Chapter Eight.

The designer chose reinforced concrete as the main construction material for the posts and beams and the slabs. The walls were made of brick, rendered on the inside with gypsum plaster and with cement on the outside. All the floor finishings were of terrazo tiles. These construction methods and materials were similar to those used in the conventional houses of the middle class. All

the building facades were painted a light grey colour and the only variation planned was in the colours used on the outside of the cap of the staircase. On each group of buildings the staircase cap was painted either rust, light green or light blue. However, at the time of the survey all the colours were observed to have faded, leaving the buildings with a similar drab grey colour.



FIG. 6.6 *Awkward locations of garbage containers.*

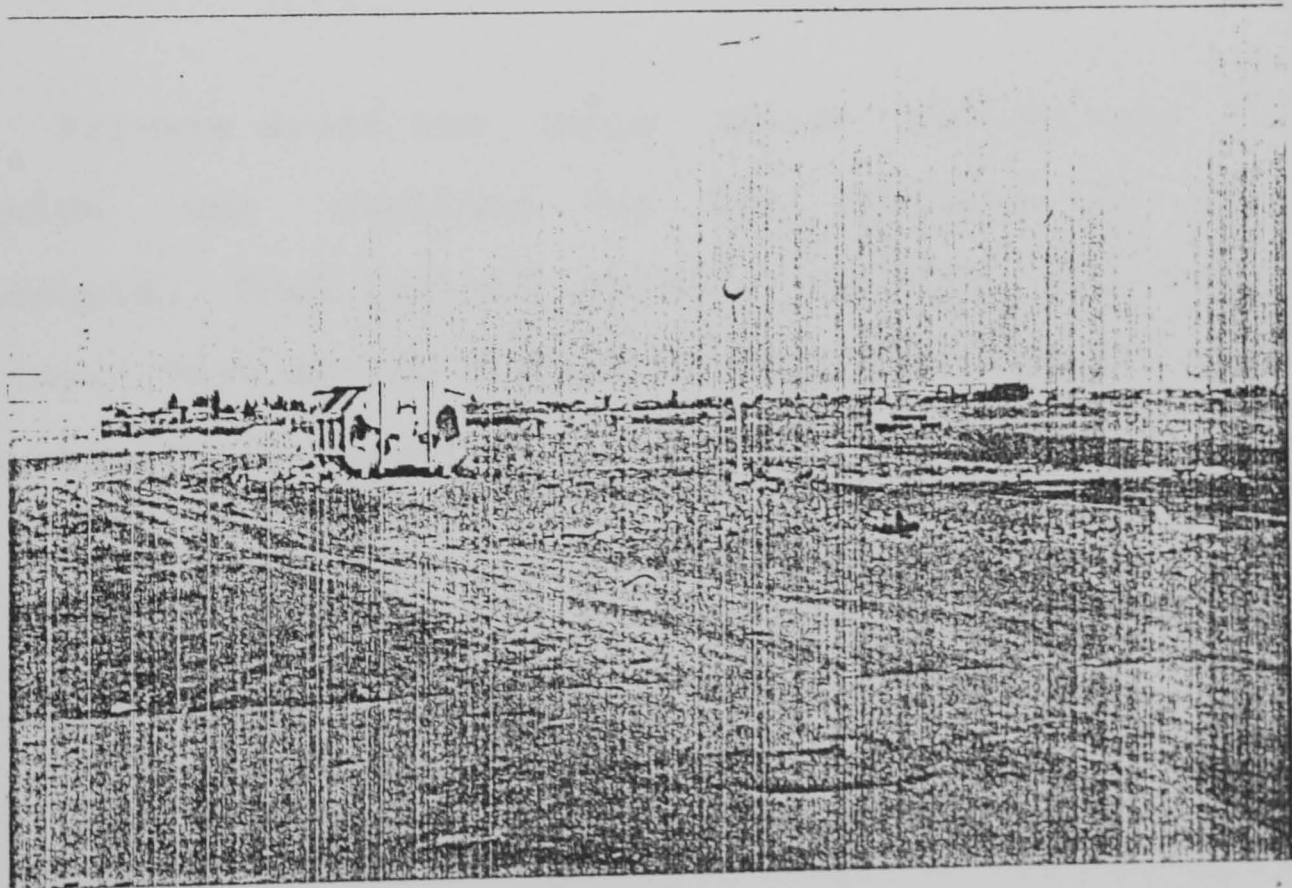


FIG. 6.7

(e) The Open Space

Within the Saydia 7 project area it is possible to identify three major types of open spaces: private, semi-public, and public. Another type, although a minor one, can be identified as semi-private, a term used to imply areas of shared use between few households, such as particular access areas. For this project, open spaces will be discussed under the categories of private areas, semi-private/ semi-public and public areas.

(i) Private Areas

Private areas are those spaces immediately located outside the dwelling for the specific use of that household. They include private gardens, balconies and patios. They can be enclosed or partially screened or only symbolically demarcated.

In the Saydia 7 project area, the planners decided that all the areas immediately outside the dwellings would be for public use and no private gardens were to be provided for ground floor, or other, residents. This resulted from the planning policy of S.O.H. which was to provide equality of provision for all the residents. To compensate for the absence of private gardens, the designer

decided to provide each flat with its own open space in the form of a balcony. In the three storey walk-up blocks of flats used in this project each flat had its own private balcony, even those on the ground floor. The size of the balcony varied according to the type of the flat. The two bedroom flat had a balcony of 7.5 sq.m. (1.65x4.5m), and the three bedroom flat had one of 9.5 sq.m. (1.65x5.76m), in both cases of a long rectangular shape (Fig. 6.5). The railing of these balconies was a brick wall of 120cm height.

The designer had expected and intended that the balcony would be much used by the residents: he stated during the interview that it was provided as a means of catering for family outdoor activities such as sitting out, sleeping out on summer nights and children's play. The balcony was located adjacent to the bedrooms and the living room, attached to the bedrooms on its wider side and to the living room on its narrow side. Each of the bedrooms and the living room had a direct access to the balcony through a door. However, during the site visits none of the balconies were being used as intended except in two instances of children's play. In general, the balconies were used for other activities, as a storage area for dry food substances, gas cylinders and paraffin bottles, toys and extra furniture. They were also used for drying the washing.

Moreover, at the time of the survey, it was noted that a number of alterations had been carried out by the residents. For instance, a considerable number of the balconies had been either partially or totally closed off and a few others were just screened off with a wire mesh. The informants from the State Organization of Housing disclosed that immediately after the first group of families had moved into their flats in the Saydia 7 project, a considerable number of them started complaining to the S.O.H. about the lack of storage area in their flats. They demanded permission to close off the balcony, mainly to alter it into a store, but also to use it for a different purpose such as an extra bedroom, or for the reason of privacy and security.

It was notable that the balconies of the ground floor flats lacked privacy, since they could be easily overlooked by passers-by because they were located directly on the public areas without any barriers or buffer zones in between. It was also observed that a considerable number of the residents in ground floor flats had opened a door from their balcony to the outside of the flat, whether to the private garden or to the public areas immediately outside it.

Therefore these balconies had a different usage

pattern from the one intended by the designer, either because of their shape or location, or because of the differing needs of the specific group of households under study. The actual usage pattern of these balconies is discussed in detail in Chapter Eight.

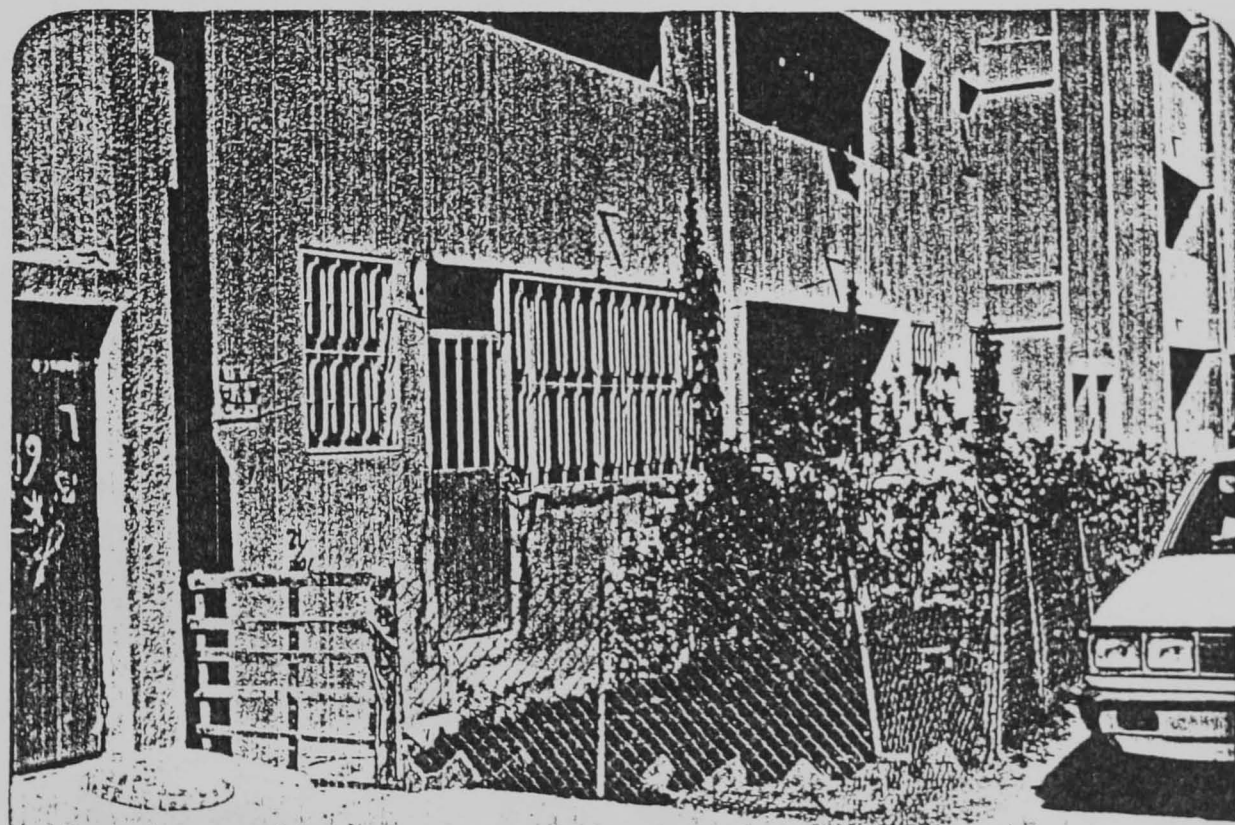
Despite the planner's decision not to provide private gardens for the flats' residents in the Saydia 7 project, in fact private gardens were attached to a number of ground floor flats, with different conditions. Evidence from the informants from the S.O.H. explained how the formation and the conditions of these gardens related to the policy and regulations followed by the housing authority. Before moving into their flats in the Saydia 7 project, the residents were informed by S.O.H. that in relation to the housing block they would only own the flat and would have to share the access facilities with the others living in the same block. In relation to the external spaces immediately outside the blocks, these were designated as public property to be shared by all the residents. The residents were also informed that these areas were intended by the housing authority as public green areas and that the municipality would be responsible for its maintenance.

A study of the site planning and detail drawings showed that no proper effort had been made in designing these areas. They were only termed as green areas on the

site plan drawing of the project without providing any detailed design for their implementation or any plan for their maintenance. After the flats were occupied neither the housing authority nor the municipality did anything about these areas. Consequently, a number of the ground floor residents took over the areas immediately outside their flats, fenced them and turned them into private gardens. Other flat owners on the upper floors assuming that these areas would be, as they were promised, for their use also, were upset by the individual action of the ground floor dwellers and protested to the housing authority. The housing authority notified those who had fenced the garden that they must pull down the fences, reminding them of the public right to use of the space. Then the housing authority sent their bulldozers to knock down the fences. Shortly afterwards the gardens deteriorated due to vandalism of the unprotected areas. Therefore, those who had been proud of their gardens and cared for them were disappointed and lost interest in maintaining them. Consequently these areas have become merely a drab area lacking any kind of greenery.

At the time of the survey, three years and four months after the first group of households moved into the Saydia 7 project, a considerable number of private gardens were noted once more. The residents of the upper floors had given up hope of the improvement of the external

environment by the housing authority or the municipality, and the ground floor residents felt more strongly the need to extend their territory onto the areas immediately outside their flats. Therefore, private gardens and fences began to appear again in spite of the residents' uncertainty of their future.



The Saydia 7 project: private gardens.



FIG. 6.8 *Users' needs determine the usage of the balcony.*

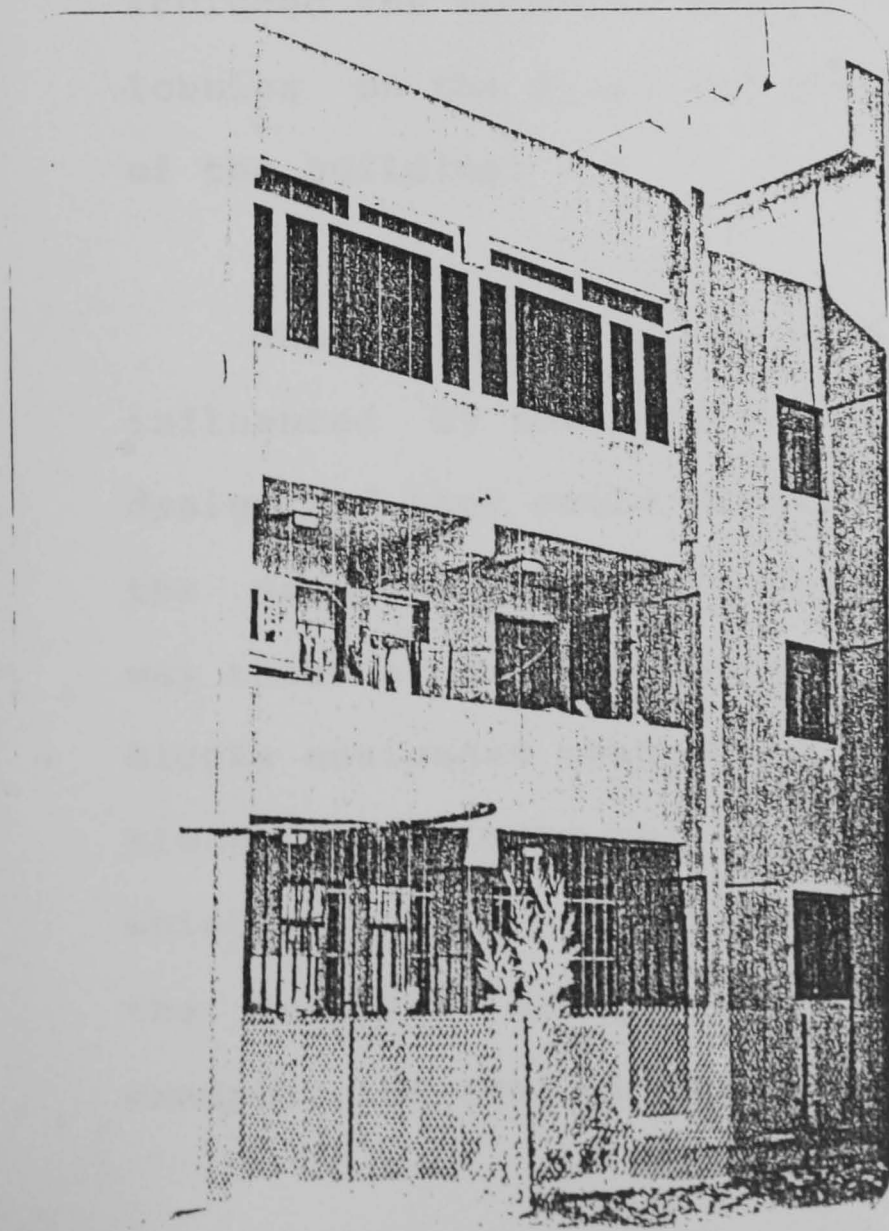


FIG. 6.9 *Alterations in balconies.*

(ii) Semi-Private Areas and Semi-Public Areas

Semi-Private Areas, are areas for the specific use of a group of few residents and include such areas as entrances, lobbies and hallways, where stranger could be denied access to the premises. The semi-private areas, although relatively small, are of crucial importance in relation to aspects such as privacy, territoriality and social interaction. Their impact on users satisfaction is discussed in Chapter Eight. These areas vary with different building forms and can be open, partially closed or closed.

In the walk-up blocks of the Saydia 7 project, these areas included the entrance lobby, the staircases, the flats' lobbies on the first and second floors as well as the roof of the building.

The definition of these semi-private areas is greatly influenced by the physical characteristics of the detailed design and they could easily become semi-public areas if the designer were not aware in his design details of the way these areas would be used. The designer of the walk-up blocks envisaged that these shared areas within the unit block would only serve the people living in the six flats which were accessed by one entrance lobby, but eventually, the detailed design did not reflect this idea. For example, the roof in the walk-up blocks was meant by the

designer as a semi-private area to be used only by the residents of the six flats in the unit block for drying the washing. However, it turned out to be considered a semi-public area because of the lack of barriers between the roofs of the housing units wherever two units or more joined to form one block of flats. This meant that the roofs could be accessed by more people, particularly children, turning it into a semi-public area.

The second example is related to the flats' lobbies on the first and second floors. The designer chose to install the cooling units for the ground floor flats on a special balcony on the first floor. The access to this balcony was from the hallway of the first floor, next to the entrance doors of the two flats on this floor. The cooling units of the first floor flats were installed on the second floor, and those of the second floor were on the roof. This arrangement affected the semi-private nature of the small lobby between the flats on the first and second floors as a result, as people not living on those floors came up to look after their cooling machines.

Another example is the common entrance lobbies of the housing blocks. The designer intended the entrance lobby to be approached by a main door at the front and an exit door at the opposite side, each of them leading to opposite sides of the building. He also envisaged that the doors

would be kept locked so that the entrance could only be used by residents of the six flats who occupied the block and who had keys for these doors. However, during the survey, these doors were observed often to have their locks vandalised and almost always to have been left open. The entrance lobbies were often dusty and draughty. Young children played in the entrance lobbies and others were using them as a short cut to pass from one courtyard to another.

The entrance doors to the two ground floor flats were positioned directly opposite each other. They were also close to the main entrance door, as well as to the stairs to the upper floors. These stairs were the only access to the upper floors and to the roof from the main entrance lobby. The designer chose to build the external wall of the staircase partially from perforated, decorative concrete blocks. This was to help light and ventilate the landing areas. However, it was noted during the site visits that the landing area was often dusty due to dust blowing through these perforated blocks.

A higher incidence of vandalism, wear, dirtiness, noisiness and misuse was noticed during the field investigation, in these semi-private areas than in either the public or private areas of the housing estate. The designer of this project had no special guidelines on the

type of management policy that should be adopted to run the housing site, nor on the specific characteristics of the actual residents such as size of household. The lack of information available to the designer about the likely users meant that it was difficult for him to design any of the external areas effectively. This probably influenced the appearance, cleanliness and level of maintenance of the semi-private areas as it was unclear who was responsible for managing, cleaning and maintaining them. The S.O.H. policy of handing over the flats to the new owners by lottery is also likely to have contributed to the condition of the semi-private areas, as it resulted frequently in the gathering of large size families in one housing block.

Semi-Public Areas, are areas assumed to be for the specific use of groups of residents, their visitors and service caretakers. However, strangers cannot be denied access to them. They include areas such as courtyards in cluster housing or gallery access in massive housing blocks. In this project these areas included the courtyards among a group of housing blocks, which the designer intended them mainly to act as a setting for social interaction and socializing activities between the neighbouring groups as well as for children's play. However, they could only be identified on the site plan drawings as green areas spotted with sporadic trees or shrubs, with a number of walkways running through them.

Many of the blocks of flats were facing two courtyards, one abutting the front door and the other the backdoor, so that the block itself was easily accessible from both courtyards.

However, at the time of the survey these spaces were empty, just voids among the masses of housing blocks. They were flat, there were no trees or any other type of vegetation except in those few private garden staked out by the residents, no screens, fences, no pavement or hard surface except the surrounding walkways and no street furniture. It was notable that the courtyards lacked identity or character, since there was no variation in design other than their size. Some courtyards were surrounded by four blocks and others by five blocks of flats. The average area for a courtyard, as calculated from the site planning drawings, was 3180sqm.m for the former type and 3340sqm.m for the latter, the overall average of courtyard area being 3262sqm.m. In the current empty state of the courtyards, it was notable the sense of visual enclosure was not strong enough. The spaces were seen to leak out at the corners. This together with the courts' bareness, added to the sense of openness desolation.

The designer had also assumed implicitly that the dimensions of the courtyards would provide privacy for the

housing blocks and prevent their being overlooked by the buildings opposite. At the time of the survey there were no physical barriers between the buildings to obstruct the vision. The problem of being overlooked could only be avoided if the buildings were sufficiently far apart and not less than 22m. Measuring the distances between opposite buildings on the site plan revealed that most of these courtyards met these design requirements.

It was noted during the site visits that children played in the courtyards at different times of the day. However, only a very few of the younger children played in the courtyards and these were usually accompanied by an older child, probably their older sisters or brothers. Mothers were not observed to accompany their young children while playing outside the dwelling; it is not known whether this was intentional or unintentional, but it appeared from the housewives' diaries and from the observations during interviews that the housewives, particularly mothers of young children, were very busy with the daily household chores. Therefore, it is likely that they had no time to spare for accompanying their young children outside. The openness and the lack of any kind of trees, shrubs, fences or screens to form a kind of enclosure or barrier had exacerbated the difficult situation for any women to feel able to stand around outside whilst watching a child at play.

Older children were observed to play in the courtyards, often in groups engaged in ball games, most frequently football. It was not clear whether those children chose to play in a particular courtyard because it was closer to their home or because it was where they found their school mates or friends, even though that courtyard might be further away from their own block of flats.

The decision to build cluster housing and its impact on the overall users satisfaction as well as on their satisfaction with certain aspects such as as social interaction and children's play is discussed in Chapter Eight.

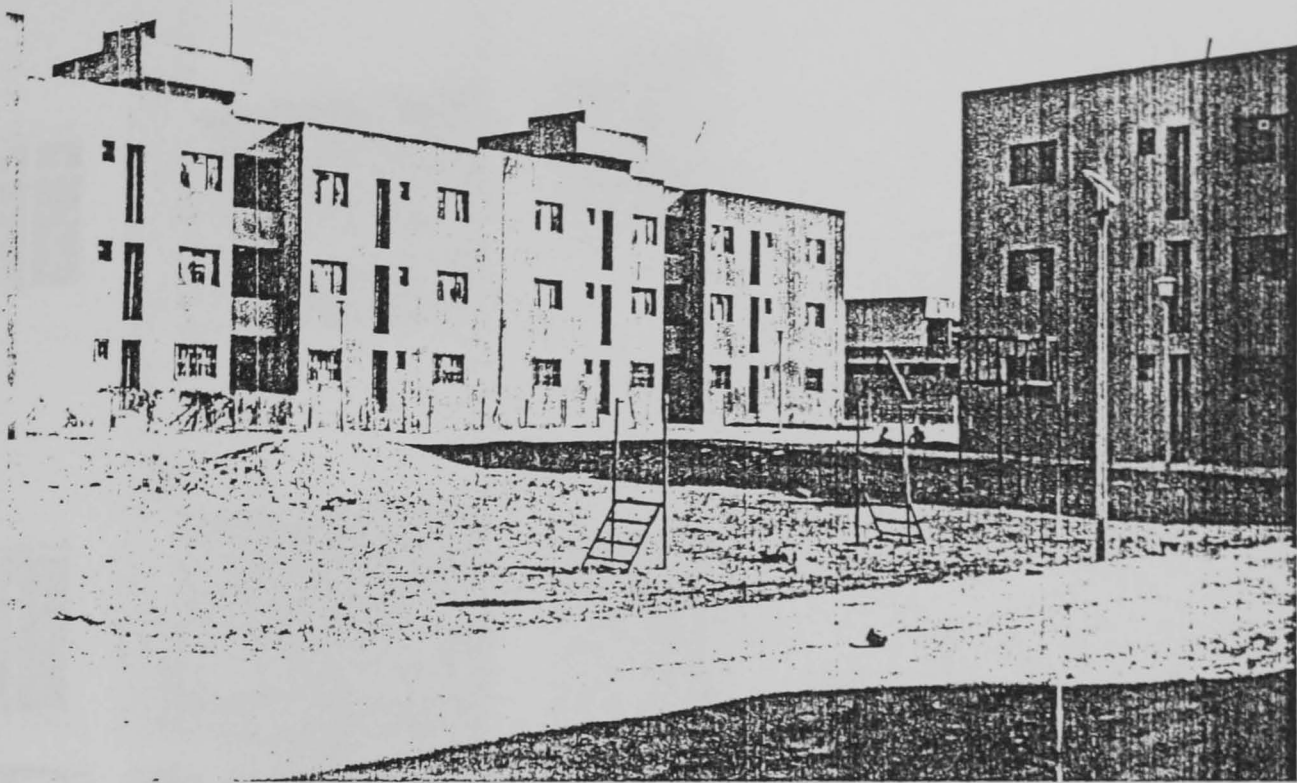


FIG. 6.10 *Remnants of a slide, swing and climbing frame.*



FIG. 6.11 *Cars often seen parked on access areas.*

FIG. 6.11 a



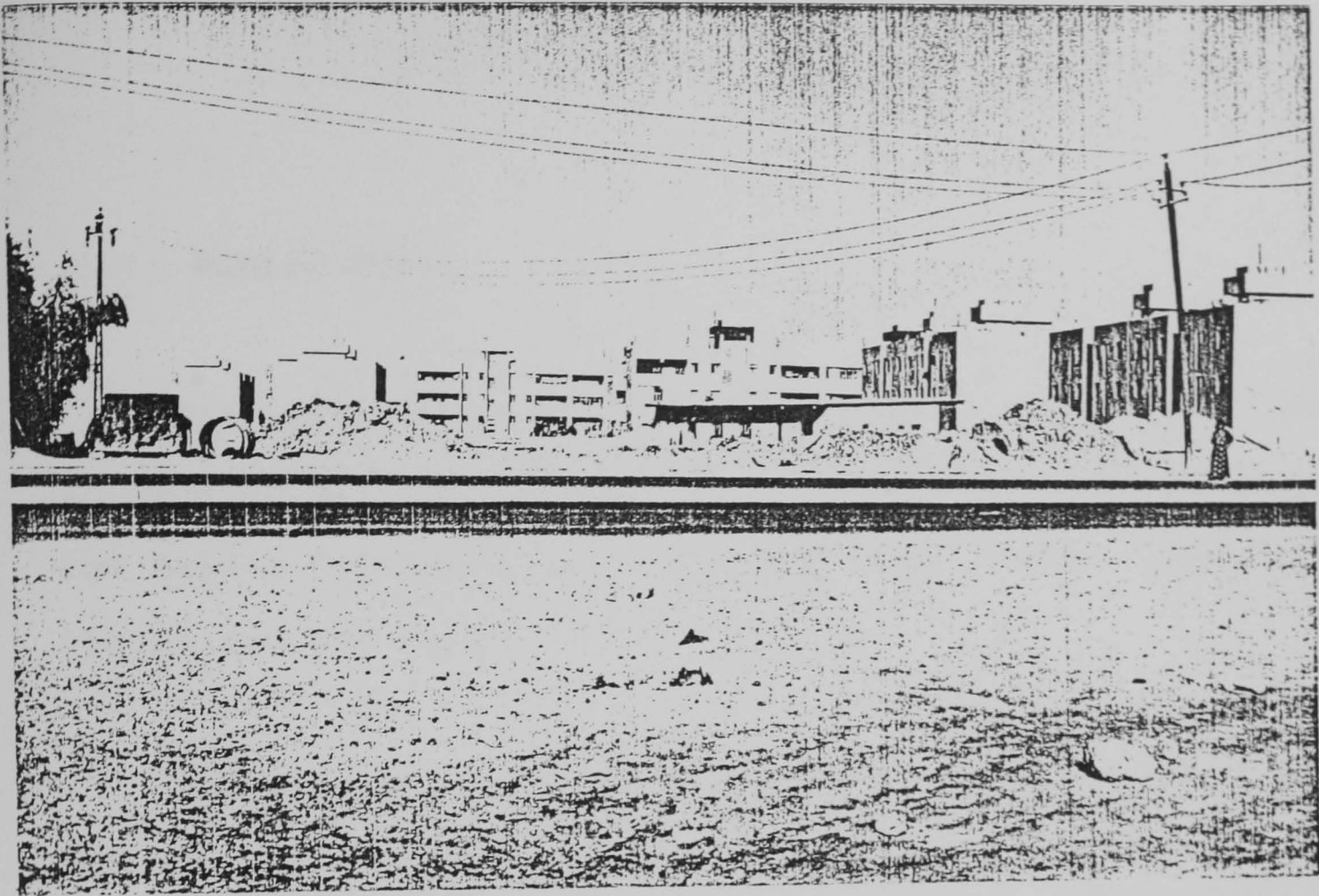


FIG. 6.12 *Unfinished site work.*



FIG. 6.13

(iii) Public Areas

The term Public Areas covers those areas which could be used by all the residents and outsiders. In relation to the Saydia 7 project it included the roads, pedestrian routes and car parks.

The planners of S.O.H. decided on a segregated traffic system for vehicles and pedestrians. The designer in turn decided to restrict the use of cars in many areas of the site and to keep this area, particularly immediately outside the housing blocks, as traffic-free. Therefore, he provided roads from around the edges of the site into car parks which he located between the buildings. He designed the pedestrian routes to link the car parks, dwellings, shops and schools with each other. However, it was observed during the site visits, that the detailed design of the roads and walkways did not clearly emphasise the idea behind this intention: cars and people were seen travelling on the same routes, as well as cars parked on access areas and on walkways. This was probably because the segregation of traffic in residential areas was being used for the first time in Baghdad and people were not used to it, as well as that they were not well informed about its characteristics and values.

During the site visits it was noted that the car parks were either empty or had few cars in them. Two of the official car parks which were located immediately outside the block of flats were better used. It was not clear whether this was because the car spaces provided by the designer were more than the users needed, or because the cars were parked somewhere else rather than in the official car parks. The designer intended to provide one car space for each two families on the estate, which means 278 car spaces were needed for the residents only, discounting the needs of visitors. The total number of car spaces in car parks of the saydia 7 project was 283, as calculated from the site plan drawing.

6.3.1.2 The Users of the Saydia 7 Project

In the residential environment the users are the residents, the service caretakers and the staff responsible for administering the public facilities such as nurseries, schools, shops and social activities. Our concern here is for the residents, and here they are termed the users. Data concerning the characteristics of the users and their previous housing experience is summarized here and the detailed data is set out in Appendix 3.

The majority of the families had a young or middle aged head of the household. The average age of the head of the household was 41.2 years, and 34.8 years for the housewife. The size of the household ranged from 2 to 13 persons: 16.3% of the households were of four persons or less; 43.6% were of five and six persons; 40.1% of them were of seven or more persons (Table Apx.3.1 in Appendix 3). In relation to the rate of occupancy for the dwellings in the Saydia 7 project, the average size of household living in two bedroom flats was found to be 7.16 persons, 6.3 persons for the three bedroom flats, with an overall average of persons per flat of 6.7. Thus, the rate of occupancy was 2.38 for the former type and 1.57 for the latter.

In Iraq there is no statistical stratification to the types of household in relation to the stage in the family life cycle, similar to the stratification common in the Western countries. The only statistical stratification available is in relation to the size of the family. The small size families consist of 1-3 persons, the medium size of 4-6, a larger size of 7-9 and the largest of 10 and over (Poleservice, report 2, 1979. p.35). For the purpose of this investigation the western stratification has been adopted, since the stage of family life cycle was proved to have a significant influence in relation to the residents' needs, attitudes and satisfaction with their housing environments (D.O.E., Db.25, 1972; Porteous 1977; Coulson 1980). The majority of users in this project were family households (96.4%) and only a few were adult households.

The data from the Saydia 7 survey showed that the majority of the residents (89.1%) had previously lived in a house, 7.8% had lived in an annex to a house and only 3.6% had lived in flats. 47.3% of the respondents had lived autonomously in their accommodation and the remaining respondents had occupied a room or two in a house shared with kin or non-kin. Three locations were identified for their previous dwellings: 47.3% had come from near areas of the Karkh locality, 47.3% from other areas of Baghdad and the remainder from outside Baghdad (5.4%).

In relation to social status, the data from the Saydia 7 survey showed that the majority of the residents were from low income working families. The average monthly income for 43.6% of these families was less than 200 Iraqi Dinars (Iraqi Dinar equals about three U.S. Dollars) and for 30.9% of the families it was over this figure but under 300 Iraqi Dinars. The remainder of the families had an average monthly income of 300 Iraqi Dinars and over. The data also showed that one out of four households in the Saydia 7 owned a car.

In relation to the level of education, it was found that just under half of the heads of household (47.2%) were of relatively low educational attainment (that is either capable of reading and writing or only having a primary school level of education), about one third were of intermediate and secondary level of education (34.6%) and 18.2% were of college level.

The heads of household in the sample selected for the survey were all in employment. About half were in the lower scale of civil service, 29.1% were in skilled labour and 20% were engaged in unskilled labour. 9.1% were retired. Among the housewives interviewed only 20% of them had jobs, the rest were non-working housewives.

6.3.1.3 The Design Activity

In designing any housing environment, the designer's main task is to find out how to make design decisions which cater for the users' needs and which can be translated into land use requirements or facilities. The designer then has to select compatible and suitable design solutions for the particular case. It is not intended here to discuss the design methods, but only to identify the participants in the design activity other than the designer and their roles in relation to the final product: the housing environment. The assumptions and intentions of those involved in the design process will be described as will the constraints and limitations impinging on the design.

The designer plays only a part in the total process; he is one of the "actors" amongst others in the complex process (Cooper and Hackett 1968). Thus, we cannot judge the residential setting as the output of the designer's decisions only. The others involved are the policy maker, the financier and/or the client; depending on the circumstances these may or may not be the user. Such people take many decisions before the designer becomes involved, such as making the choice of the site, deciding the form of the development and arranging a financing programme. An important issue in the creation of a setting which can satisfy and support the users' needs and values,

is the extent to which there is agreement on values and performances and intentions between these actors and the designer and the users.

There are other factors which impinge on the design activity. They consists of the numerous directives, limitations and criteria which influence the form of the designed environments. These includes zoning ordinance, sub division bylaws, legislation and policies and administrative guidelines. These factors constitute a set of constraints on the design process that is effectively outside the control of the designer.

As for other State Organization of Housing projects, the planning brief for the Saydia 7 project had been drawn up by planners. This defined the number of units, gave climate guidelines and outlined the form of the development. The designer then had to interpret this into a site plan and detailed designs for each building and the surrounding spaces. The policies, directives and limitations as well as the designer's intentions for the Saydia 7 project are identified here. The official policies and directives of the S.O.H. which applied to this project resulted in the following:

(1) The site and its location were decided by the planning authority.

(2) The financing programme was also decided by the planning authority.

(3) The planning brief produced by the planning authority stated that the dwelling density was not to exceed 50 dwelling units per hectare and that the type of dwelling should be in the form of three storey blocks of walk-up flats. The size of the flats was to be limited to two bedrooms and three bedrooms only. Vehicular and pedestrian traffic was to be segregated on the site.

(4) The planning brief further stated that the construction of the educational and commercial buildings would be completed at the same time as the housing. They were all to be built in one phase, although, this particular directive was subsequently modified after the construction started.

(5) Equal facilities for all the residents was stated as an essential aim of the design.

(6) The policy of S.O.H. was to hand over the flats to their new owners by lottery.

(7) No legislation, directives or guidelines concerning the maintenance and management policies for the

housing environment were given to the designer at the onset of the designing process. At the time that the site planning and its design details was carried out, the maintenance and management policies for this project and the rest of the S.O.H. housing projects had not been considered. The designer, therefore, made his own assumptions on such matters. This design approach was also a new experience for the designers as well, and perhaps for this reason the designer's intentions about how the site would be used by the residents began to go wrong soon after they occupied the housing development. This implies that it was not realised that decisions needed to be taken about the method of dealing with such problems as cleaning and maintaining the semi-public areas: entrances, lobbies, staircases, and hallways. Similarly decision on the choice of a refuse collection system compatible with the way of life of the users had to be taken. In addition the question of the maintenance and management of the public gardens and open spaces had to be resolved; it was assumed by the designer these would be maintained by the local authority.

The lack of guidelines and directives for the designer on such important matters has caused problems to the residents because the designer's intentions at the time of the design of the housing relied on an assumed level of management which has never transpired. Information on

these difficulties was gathered in the data from the survey and is discussed Chapter Eight.

The designer's intentions for this project are summarized as follows:

(1) To provide multi-family housing with adequate living conditions. To produce a functional environment which was healthy and socially suitable. He further intended to implement this with traditional building methods and materials.

(2) To provide each flat with a private open space for family outdoor activities in a form of a balcony.

(3) To provide public gardens and open spaces instead of private gardens. He assumed that they would be maintained by the local authority.

(4) To use the idea of cluster housing in the layout design.

An evaluation of the success of these intentions, directives, policies and limitation in relation to the designed residential setting for the Saydia 7 project is discussed in Chapter Eight in relation to user satisfaction.

6.3.1.4 The Proximate Environmental Context

Each designed setting exists within an immediate physical and social context and that context affects the setting positively or negatively. For instance, smoke or smell from a nearby factory can affect negatively the ambience of the setting, whereas such factors as easy access to social and cultural facilities in the proximate area can have a positive effect.

The user perception of a residential setting is affected by the local conditions of the ambient characteristics of the climate, air quality, noise level and topography. It is further influenced by the presence of vegetation and the local amenity and aesthetic characteristics of the proximate environments.

Land use too, in terms of the perceived quality and type of neighbourhood, the density of the surrounding development and the mix of uses of the proximate surrounding areas also affects the way the users perceive the setting. The Saydia 7 project is located in a context of low rise but relatively high density housing areas. Two of these housing areas adjoin the site on two sides, whilst the other is an open area of land reserved for a future housing development of similar type. The impact of this

situation on the users of this project is discussed in Chapter Eight.

Other factors such as accessibility and transportation also have an impact on the way people perceive the setting. For this project residents needed to be able to use commercial services from areas outside the project area. Facilities such as schools of different levels, health services, social and cultural facilities were not available on the site. However, the public transportation system was inadequate, with the nearest bus stop 100 meters away from the nearest edge of the site.

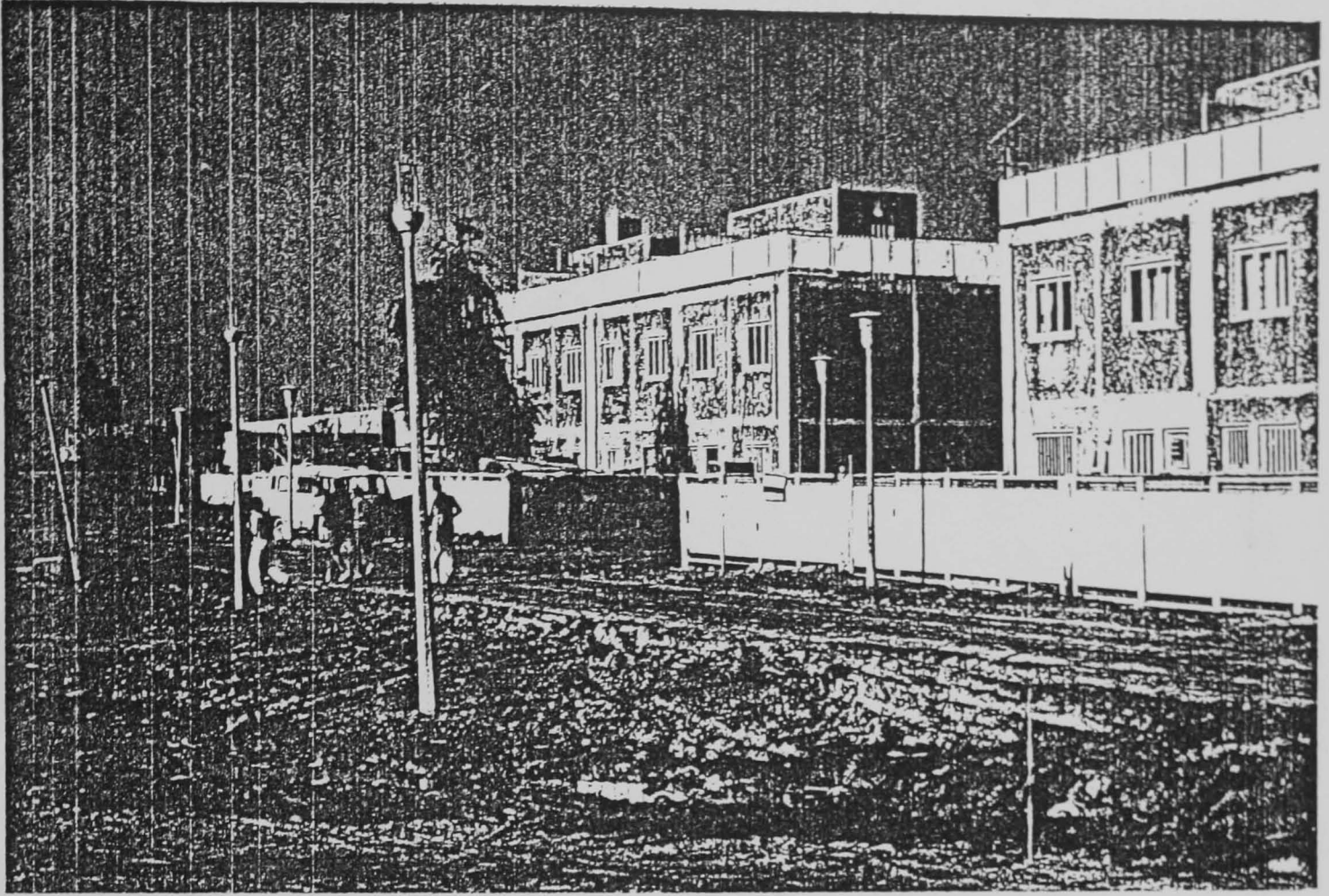


FIG. 6.14 *Low income high density areas in proximity to the Saydia 7 project.*

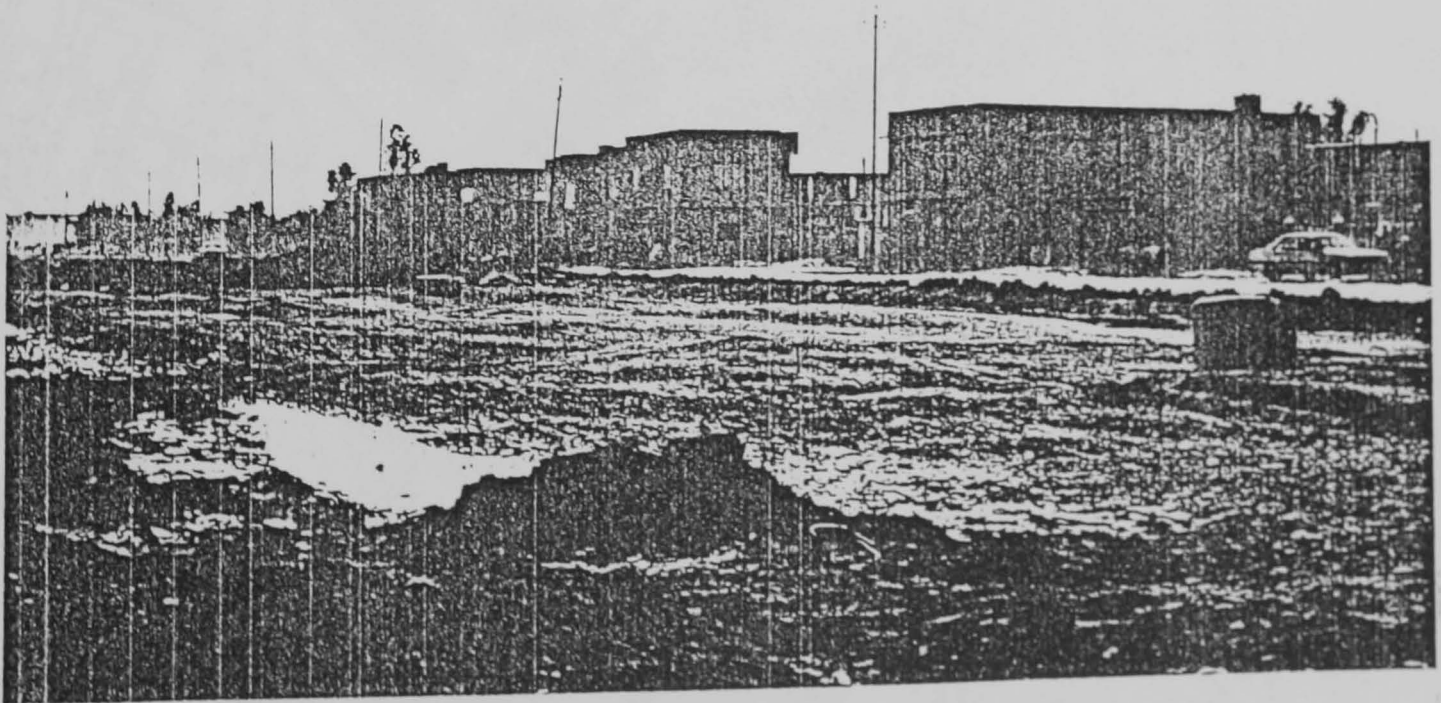
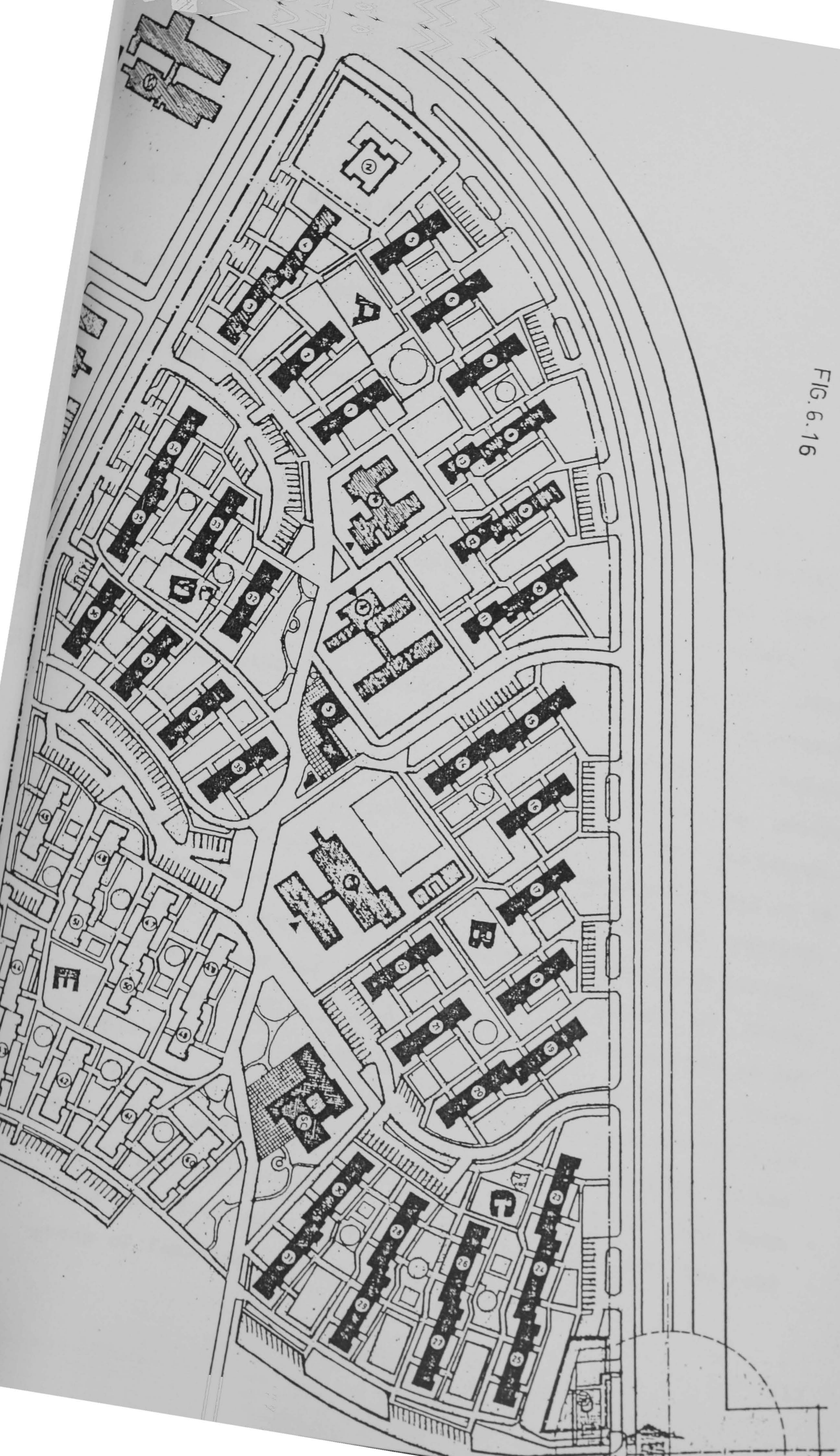


FIG. 6.15

INDIA 6 PROJECT
SITE PLAN

FIG. 6.16

Scale 0 1020 40



6.3.2 CASE STUDY No. 2 (THE SAYDIA 6 PROJECT)

6.3.2.1 The Setting of the Saydia 6 Project

(a) The Identification

The Saydia 6 housing project was the third mass-housing project designed by The State Organisation of Housing (S.O.H) in Baghdad. It was decided that the implementation of this project would be in two phases. The first phase, which included 450 dwelling units, was chosen as case study 2, and will be referred to in the discussion as the Saydia 6 project. The second phase was to include housing for another 680 families, with the public buildings such as schools, shops, and social buildings. However, shortly after this decision was made it had to be changed because of the urgent need for additional housing. It was then decided to concentrate exclusively on building the homes first and to postpone the provision of shops, schools and social facilities to a later stage, and to let people move to their flats as soon as each group of flats was finished. Thus, people first moved into their flats in mid 1981, and by the time the survey was conducted, at the end of 1983, all the flats of the first phase had been lived in for not less than twelve months, with the last group of families moving in at the end of 1982.

(b) The Location

The location of the site was chosen because it was in government ownership, and had been reserved for housing use, as for the site of case study 1. It is situated in Karkh locality on the west side of Baghdad. It is situated on the outskirts of Baghdad to the south west axis of the city centre, about 10 kilometres distant (Fig. 6.1).

The site is bounded from the south west by land which was temporarily used as a warehouse for piping equipment, but this land has been allocated for the intermediate and secondary schools of the second phase of the project. This land also separates the housing blocks from the Baghdad-Hilla highway (a major road connecting Baghdad with the southern part of the country). On the north east the site is bounded by land used temporarily as a warehouse for the project equipment and machinery, and on the south east by land allocated for the second phase of the project. It abuts open land reserved for a future housing project on the north west side. This land is to be separated from the project site by an arterial road which will, in future, pass by this area (Fig. 6.16).

Public transport to the city centre and other parts of the city is only available from the south west side and no

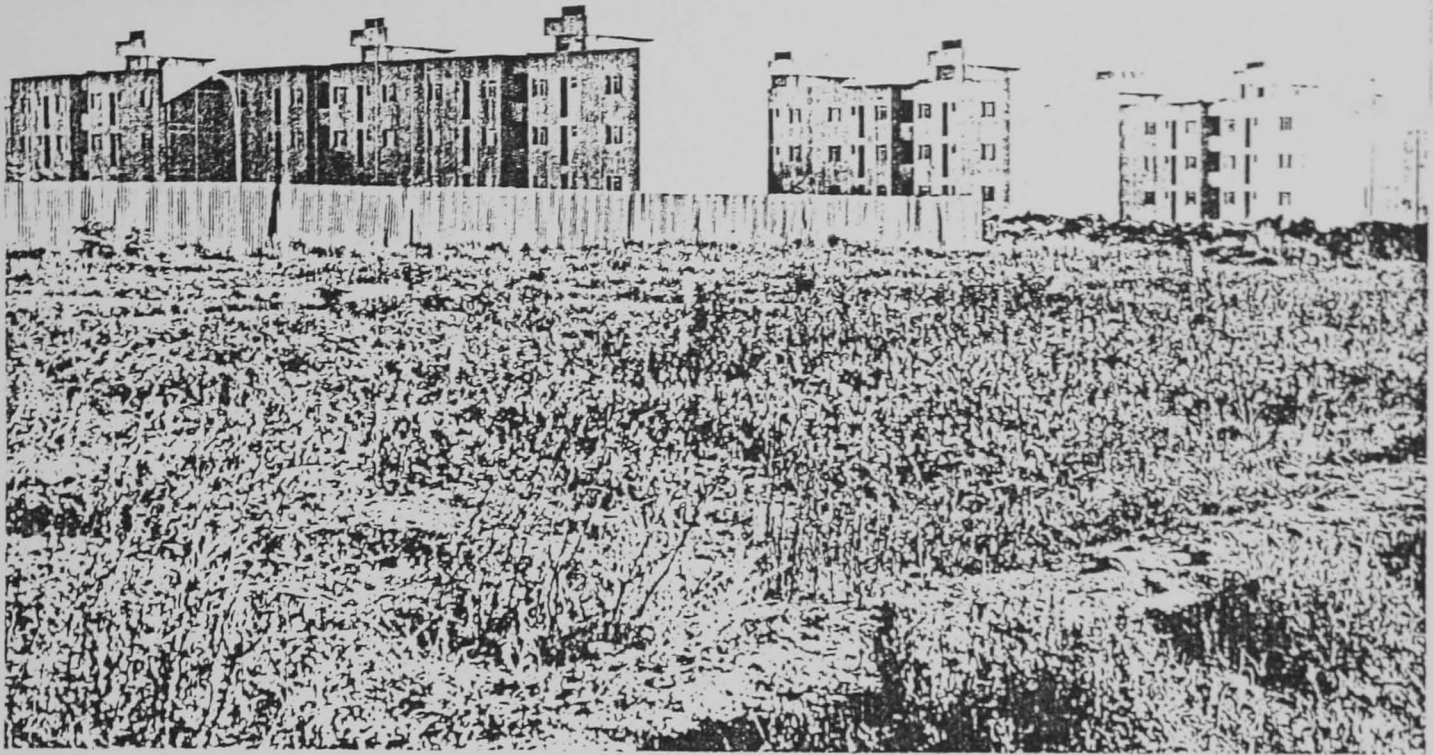


FIG. 6.17 *Surrounding areas: empty land*



FIG. 6.18 *... and empty land*

public transport is available through the site itself. The nearest bus stop is about 400m. from the periphery of the south west side of the site, and about 900m from its farthest side.

(c) The Layout

The whole project occupies a site of 29.7 hectares with a housing density of 38 dwelling units per hectare. The site has a linear shape, and is totally flat with no distinctive physical features to differentiate it from the adjacent areas. There are no trees or any other kind of vegetation on the site itself. At the time of the survey access to the site was available only from its south west side because the roads around the site were not yet paved. However, it is planned that the site will also have an access to the other future housing areas from each of its three sides. These adjacent areas were reserved for low rise, single and multi-family housing.

This phase of the Saydia 6 project is composed of 37 three storey multi-family housing blocks with flats for 450 families. At the site planning stage the designer chose to lay the housing blocks in parallel rows each facing the same direction, that is the north-west and south-east. He also sought to put these housing units together in different combinations, to create some diversity in design.

On the site there are sixteen blocks of two units, three blocks of three units, seven blocks of four units and one block of six units. He also chose to locate the Suq (local shops), the kindergarten, the day care centre and the social community building in a central location along the main access route out of the site. The intermediate and the secondary schools were located on the edge of the site between the housing blocks and the highway (Fig.6.16).

To implement the S.O.H. decision to segregate the pedestrian and vehicular systems, the designer decided to provide roads from around the edges of the site into the car parks, which are situated in between the blocks of flats. The designer also sought to locate the car parks in such a position to enable the residents to park their cars relatively near to their block of flats. Pedestrian routes then led from the car parks to the blocks of flats and to the public buildings on the site. Parking spaces were provided for 300 cars, to serve the first phase only. They were provided for the residents, their visitors, and the service vehicles.

At the time of the survey, all of the open spaces were unlandscaped and the site was bare. The roads, the pedestrian walkways and the car parks were still unpaved. Neither schools, shops nor other public buildings were up. The reserved plots for these buildings and facilities

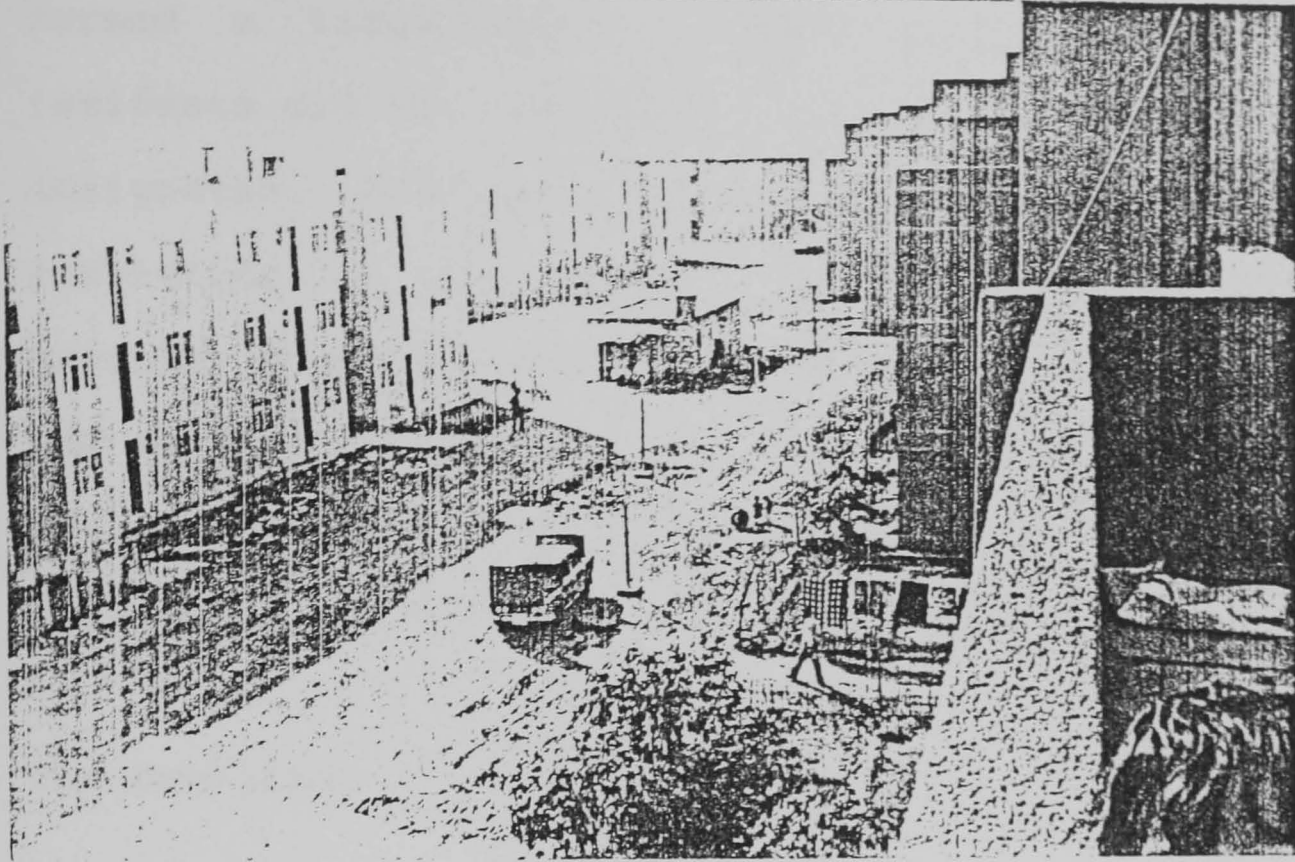


FIG. 6.19 *General views.*

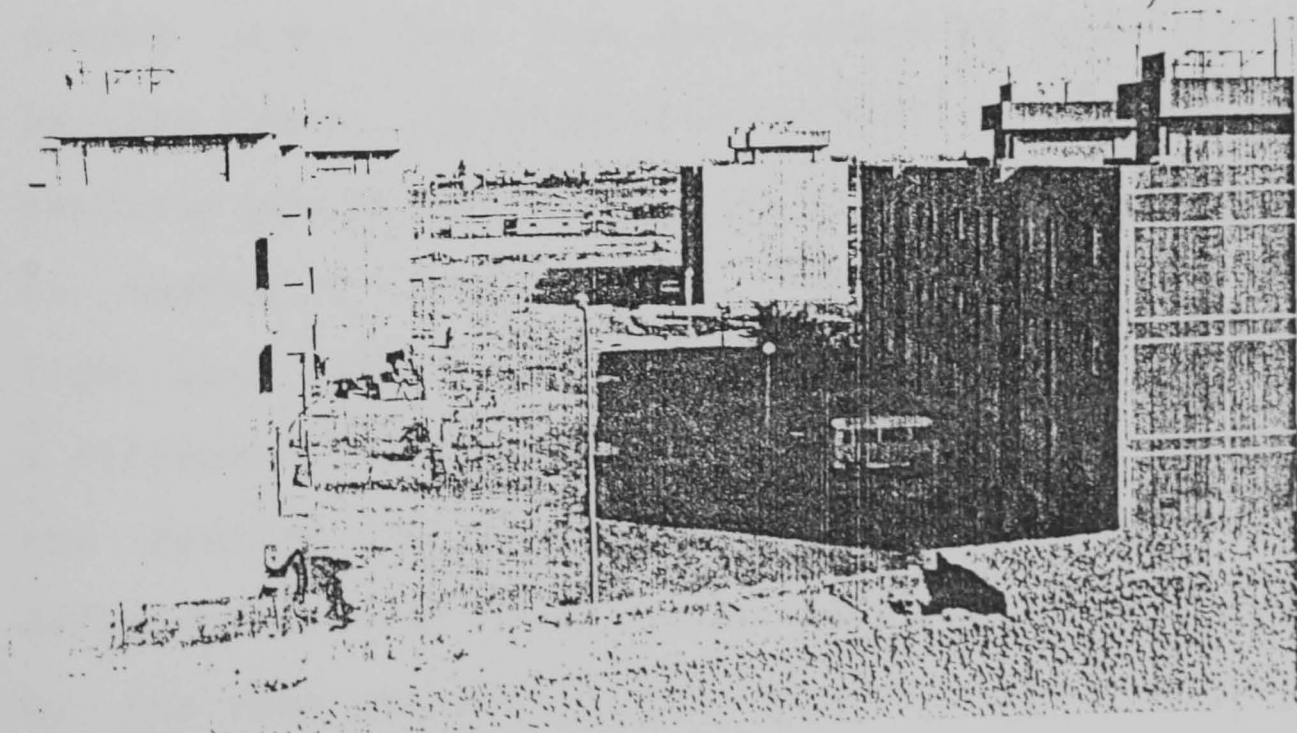


FIG. 6.20 *Residents appreciated the "spaciousness" of the environment.*

formed a large expanse of empty land on the estate. Many residents did not even know for what these empty plots were designated. However, they have been told that on the completion of the second phase the construction of the schools, shops and social buildings would start immediately and as they can see the construction being carried out for the second phase of housing, they are looking forward to this construction soon becoming a reality.

(d) The Dwellings

All the housing units were of one type in the first phase, three storey walk-up units each consisting of six flats, two on each floor. The design of these unit blocks was similar to that used in the Saydia 7 project. One alteration on the detail design of the balconies of the ground floor has been done, which is described under the Private Areas. Construction methods, building materials, services and facilities within the unit blocks were similar to Saydia 7 project. All the buildings were painted in light gray colour except the cap of the staircase which has a different colour from the rest of the outside walls and the railing of the front balconies which were painted in different colours either rust, light green or light blue. By the time the survey took place all the colour had faded away and has left all the buildings looking a similar drab grey colour.

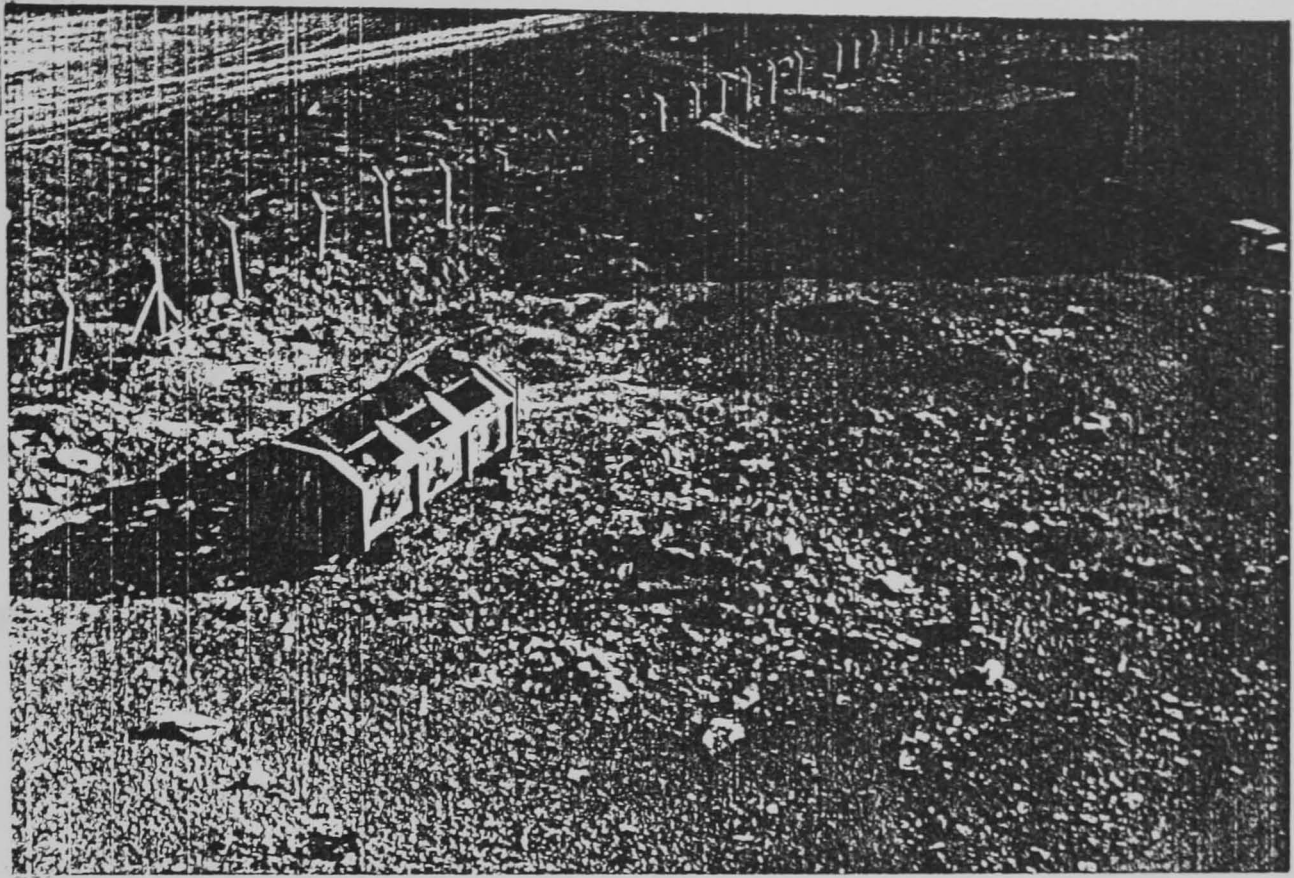


FIG. 6.21

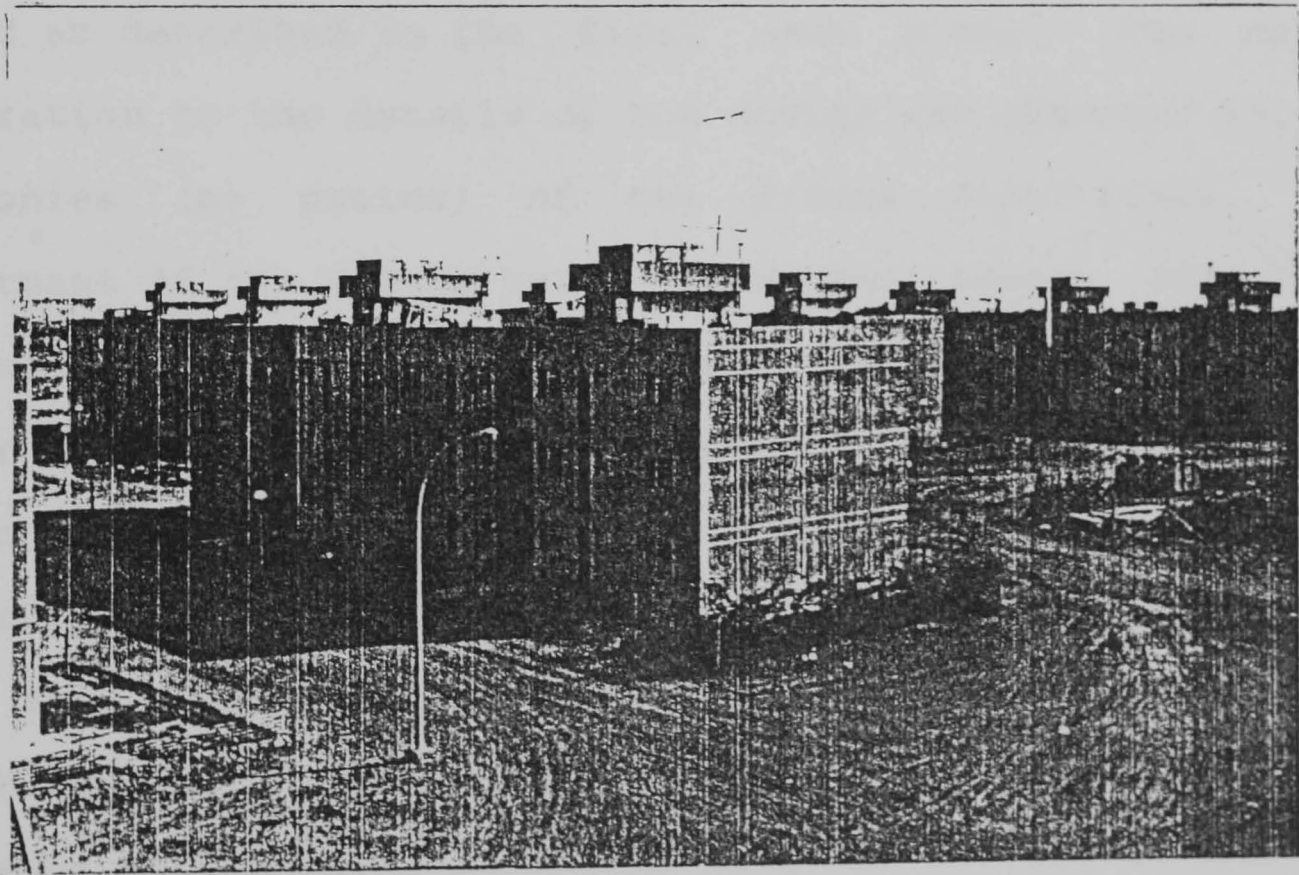


FIG. 6.22 *Awkward locations of garbage containers.*

(e) Open Spaces

In this housing project the three major types of open spaces could be identified as follows:

(i) Private Areas

The private area for the individual flats, a balcony, was described earlier in the first case study as both projects used similar blocks of flats. During the site visits different usage patterns for the balconies were noted as described in the first case study. One major alteration to the details of the design was observed on the balconies (or patios) of the ground floor flats. The informant of the S.O.H. have given the reason for this alteration. When permission was granted to the ground floor dwellers of the Saydia 7 project who demanded that their balconies be closed off for reasons of privacy and security, the housing authority also started to close off all the ground floor balconies in the Saydia 6 project which were still under construction. The balconies were screened off on their open side from the ceiling to the top edge of the railing by steel bars. This alteration, as noted during the site visits, made it rather unpleasant for residents to sit out on these balconies, because it engendered a feeling of being caged in.

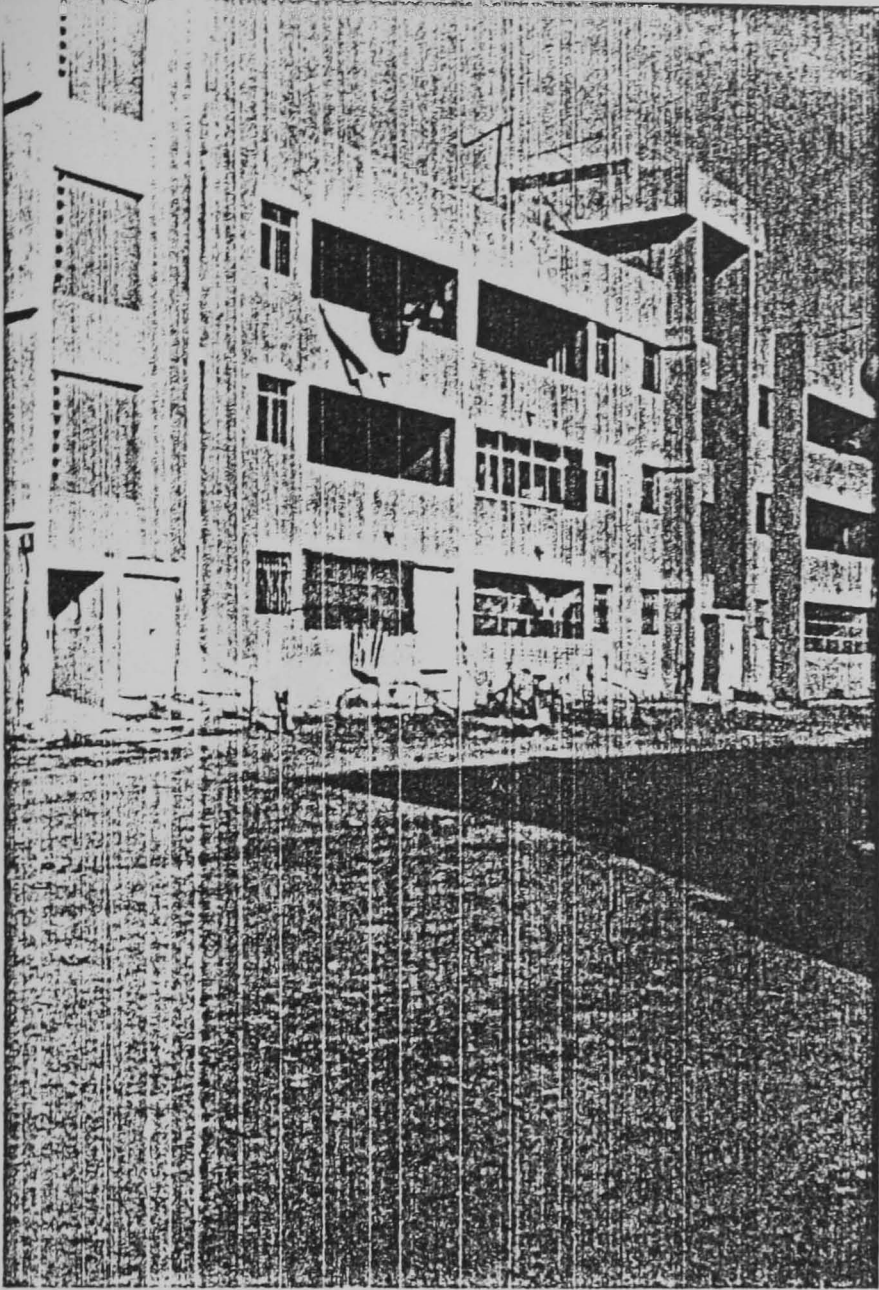


FIG. 6.23 *Alterations in balconies.*

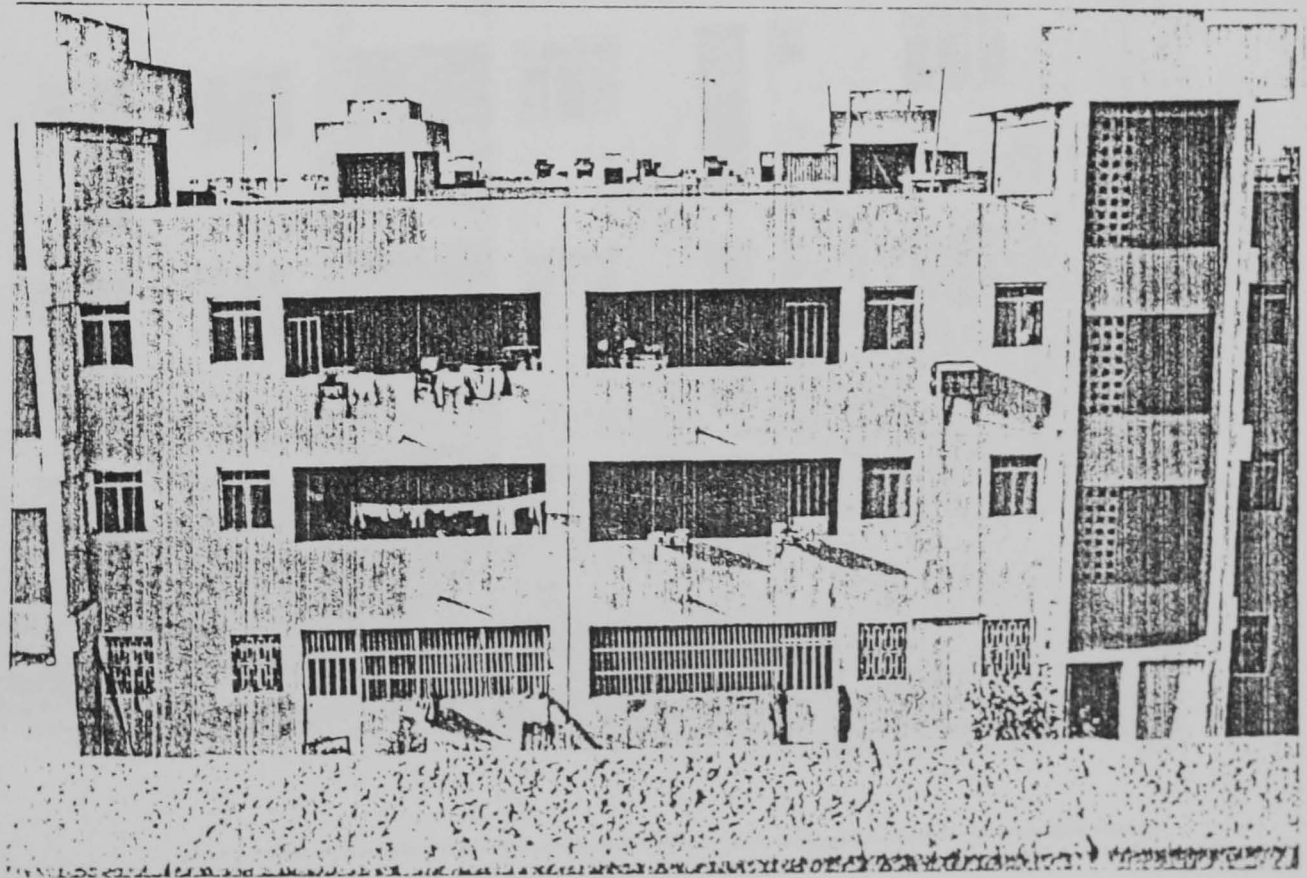


FIG. 6.24 *Users' needs determine the usage of the balcony.*

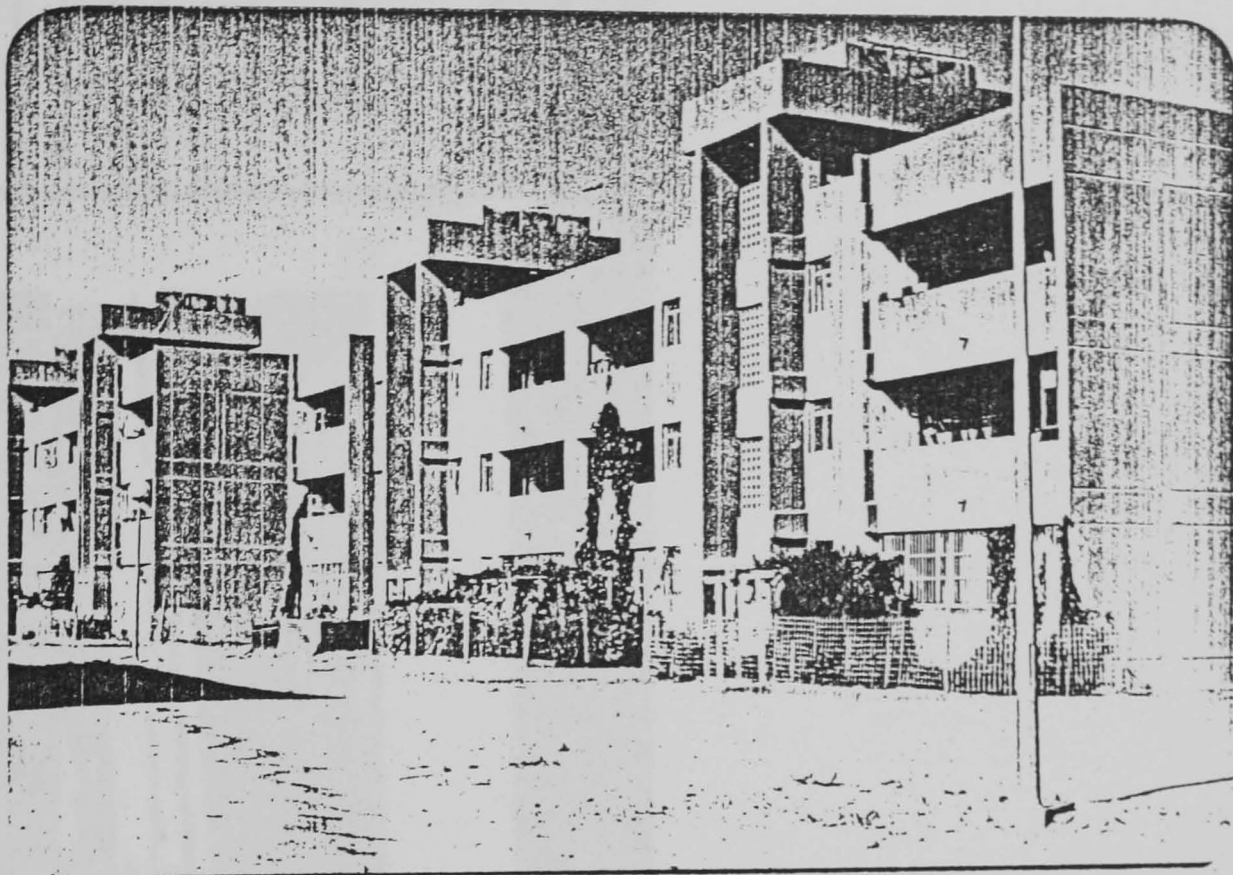


FIG. 6.25 *Different usage of private gardens.*



FIG. 6.26 *Garden as a barrier.*

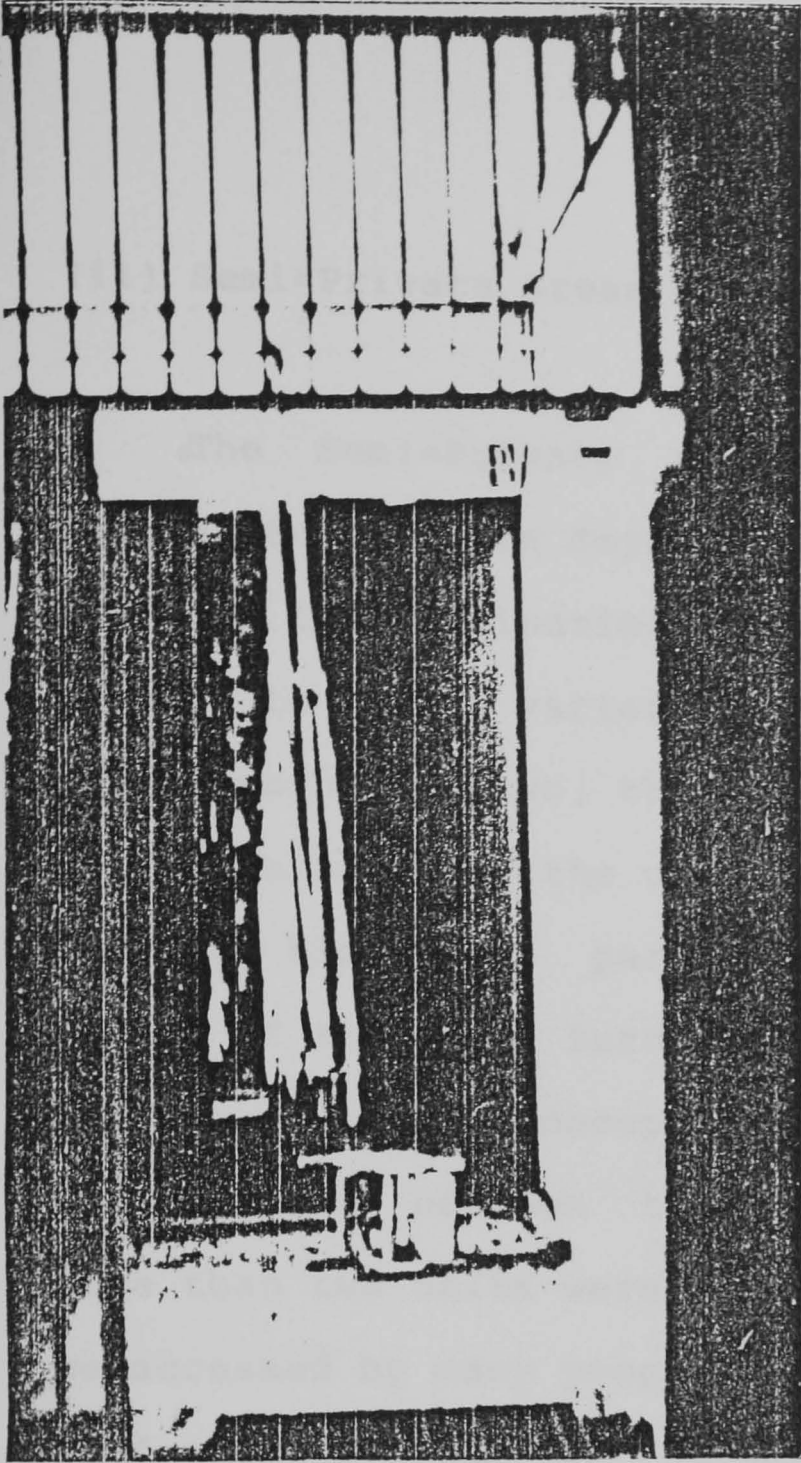


FIG. 6. 27 *Passage area between opposite flats.*

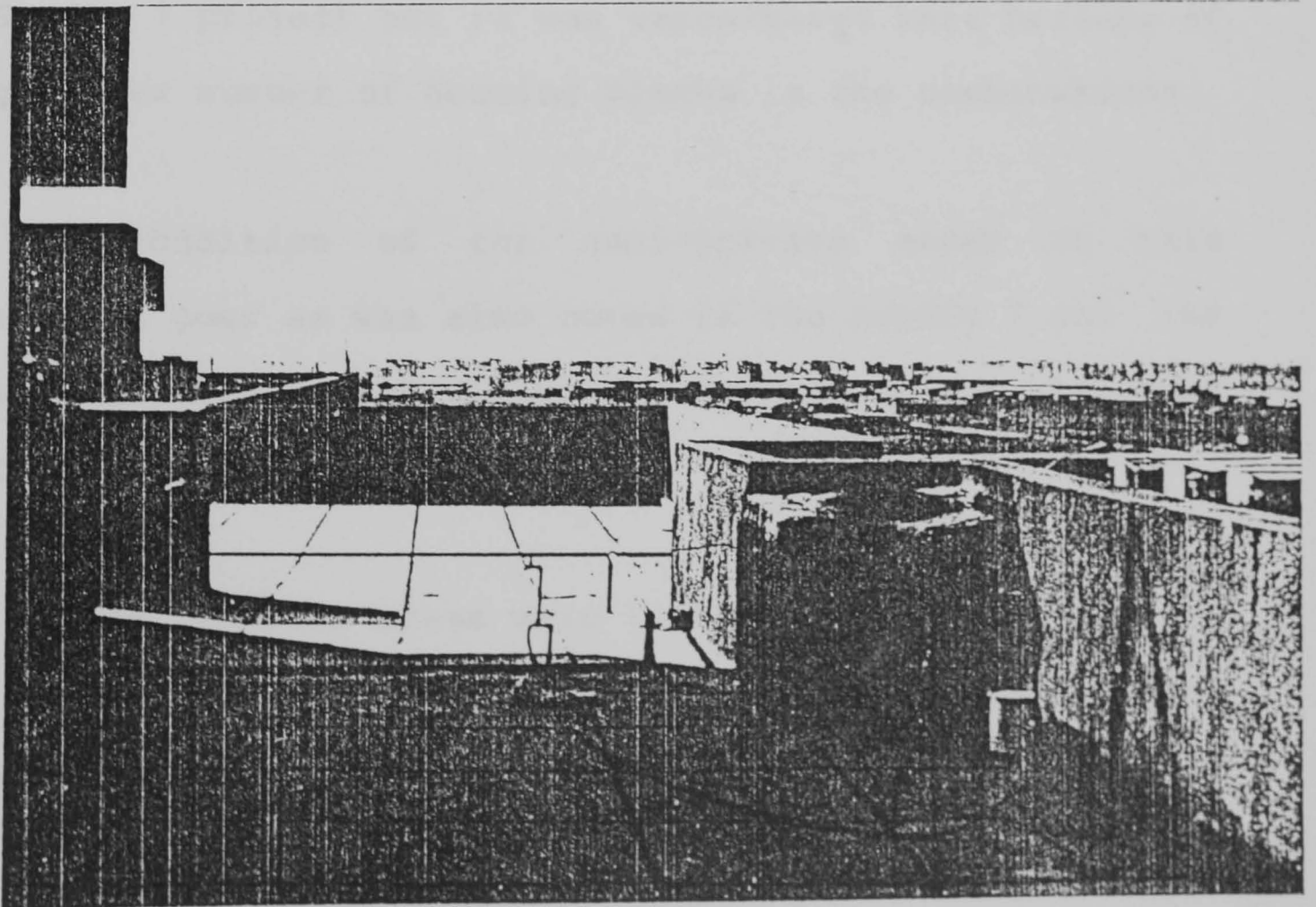


FIG. 6. 28 *The roof.*

(ii) Semi-Private Areas and Semi-Public Areas

The Semi-Private areas for this project are very similar to those in Saydia 7 project. The only difference lies in the combinations of the housing units in different numbers to form a variety of block sizes on the site. They were combined in two, three, four and six units. This type of design affected the use pattern of the roofs of the housing blocks in particular. The intended semi-private nature of the roofs turned into semi-public areas after the housing units were occupied. This was because of the lack of barriers between the roofs of the housing units: when more than two units were combined together, the roofs could be accessed by many people, particularly children. This roof situation was also found in the previous case study of the Saydia 7 project but it was exacerbated here because of using larger number of housing blocks in the combinations.

The condition of the semi-private areas on this project was poor as was also noted in the Saydia 7 and the absence of management policy for such areas was also very apparent.

The Semi-Public Areas were intended as open spaces, mainly to provide a setting for social interaction and socializing activities between the neighbouring groups and

for children's play. At the time of the survey all of these areas between the housing blocks were seen as empty and barren linear shaped spaces, as the site work had not yet started. All blocks of flats were facing two open spaces from each side, front and back, and the block itself had a direct entrance to both on the ground level.

Children of different ages were seen playing out on these spaces at different times of the day. There were only very few of the younger ones in these spaces and they were almost all accompanied by an older child, probably their elder sister or brother. Mothers of young children were not observed accompanying their children while playing outside the flats, as was also noted in the Saydia 7 project area. Children over six were observed playing in the spaces and often they were engaged in ball games.

The other intended function of these open spaces was to provide privacy and to deter overlooking between the opposite buildings. As there were no physical barriers between the buildings, overlooking could only be prevented by spacing the buildings far enough apart (not less than 22m). In this way privacy was achieved.

(iii) Public Areas

The planner's decision to segregate the traffic system for vehicles and pedestrians and the designer's intention on how to implement this aim was described earlier under the heading of The Layout. At the time of the survey the site work of the project had not yet started, so the impact of this design could not be estimated. During the site visits, cars were observed to be parked in the access areas or in the areas immediately outside the housing blocks.



THE UNFINISHED SITE WORKS

6.3.2.2 The Users of the Saydia 6 Project

The data concerning the characteristics of the users of Saydia 6 project and their previous housing experience is summarized here and the detailed data is set out in Appendix 3.

The majority of the families had a young or middle aged head of household. The average age of the head of household was 39.5 years, and 33.2 years for the housewife. The size of households ranged from 3 to 9 persons (Table Apx.3.1). 32.7% of the households comprised four persons and less, 39.1% five and six persons, whereas households of seven and over accounted for 28.2% of the total. In relation to the rate of occupancy, the average size of the households living in the two bedroom flats was 5.8 persons, 5.4 persons for the three bedroom flats, with an overall average of 5.6 persons per flat. Thus, the rate of occupancy was 1.93 for the former type and 1.35 for the latter.

The data from the Saydia 6 project survey showed that the majority of the households were family households (91.3%) and the adult households were 8.7%. No elderly households were found and there were only a few elderly residents living with their sons or daughters.

In relation to their previous housing experience, the majority of residents (78.3%) had previously lived in a house, 13% in an annex to a house, and only 8.7% had lived in flats. Half of the residents had lived in their accommodation, the other half had lived either in a room or in part of a house shared with kin or non-kin. Three locations were identified for their previous house location, over half of them (52.7%) had come from areas near the Karkh locality, 36.9% from more distant areas and the remainder from outside Baghdad (4.4%).

The data from the survey also showed that the majority of residents were found to be of low income working families. The average monthly income for 32.6% of these families was less than 200 Iraqi Dinars (Iraqi Dinars equal 3 U.S. Dollars), and for 34.8% under 300 Iraqi Dinars. The rest of the families were of moderate income working families. The average monthly income for 32.6% was 300 Iraqi Dinars or over. The data also showed that on average there was one car to 2.2 families.

The majority of the heads of household were found to be of relatively low educational attainment (43.5%), that is either capable of reading and writing, or having completed the primary school level of education, about one third of them were of intermediate and secondary level of education (39.1%) and only 17.4% were of college level.

More than half the heads of household in the sample were in the lower scale of civil service (54.3%), about one third were in skilled labour (32.5%), 10.8% were engaged in unskilled labour, and 2.4% were retired. Among the housewives interviewed, during the survey, only 6.5% of them had jobs, the remainder being nonworking housewives.

6.3.2.3 The Design Activity

For the Saydia 6 project the policies, the directives and the limitations impinging on the design activity were similar to that of the Saydia 7.

The designer's intentions in relation to the housing unit itself were also similar to that of the Saydia 7 project because the same design of the housing block unit was used. However, in relation to the site layout the designer's intentions were similar to that of the Saydia 7 designer except in relation to the arrangement of the housing blocks on the site:

(1) To arrange the housing blocks in linear arrangement so that all the blocks faced the preferred orientation; that is the north-south.

(2) To provide car parks as far as possible on the periphery of the site, with a side access to every block of

flats, in order to keep the spaces between the housing blocks traffic-free.

(3) To provide common green areas and play grounds for sets of blocks.

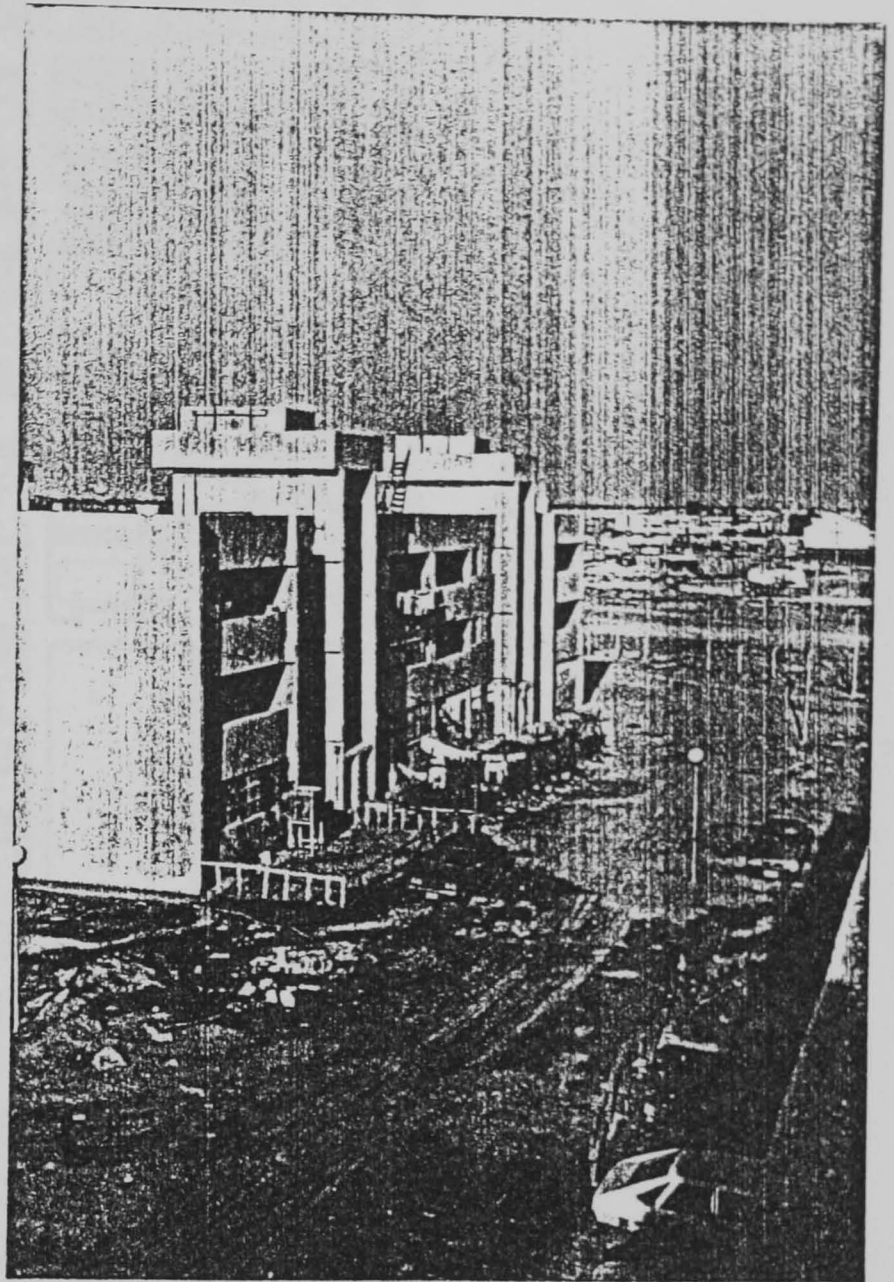
(4) To cater for the convenience and safety of the users, adults and children, by locating the kindergartens, daycare centres, primary schools and shops close to bus stops and community centres.

The success of these intentions in relation to the users' satisfaction with their housing environment is discussed in Chapter Eight.

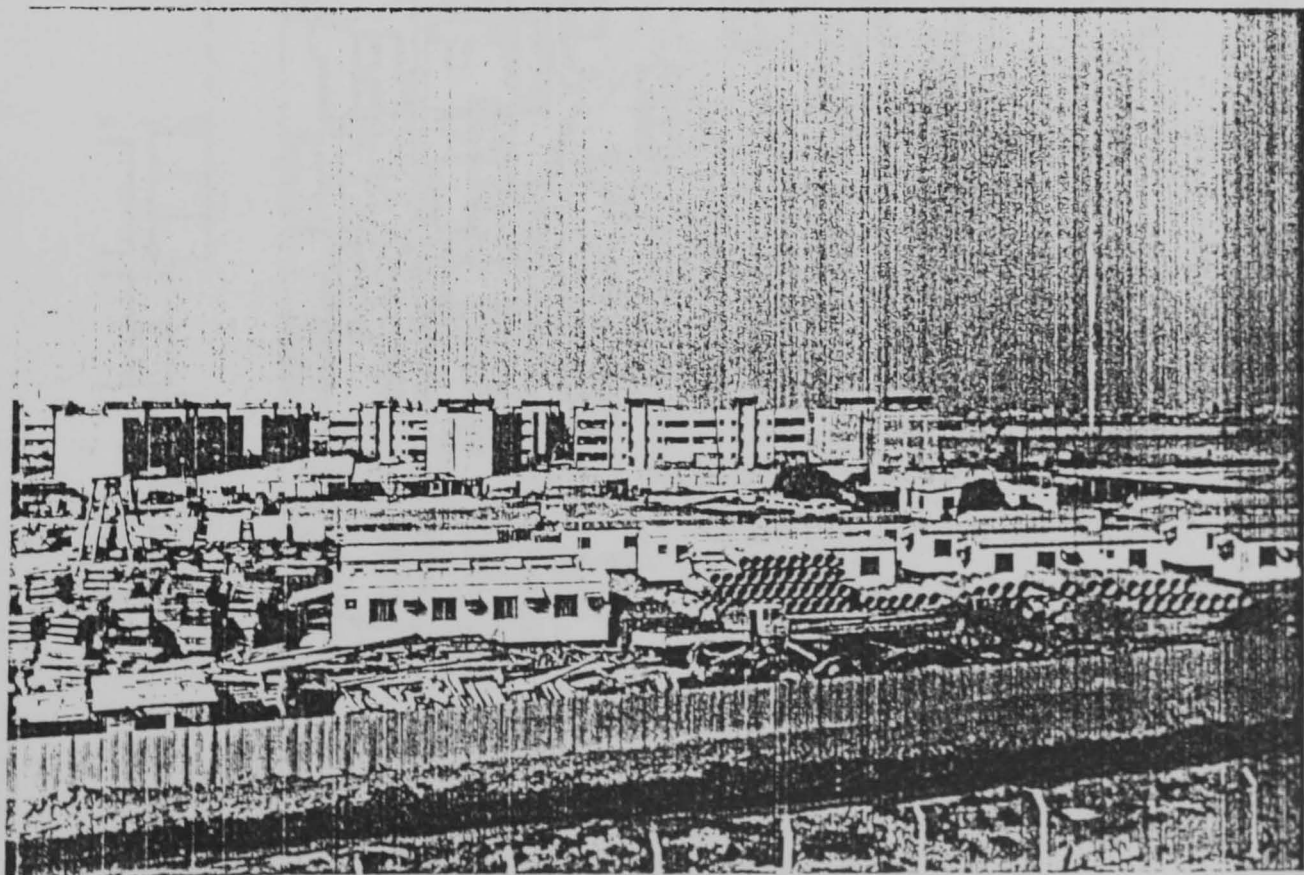
6.3.2.4 The Proximate Environmental Context

The site of the Saydia 6 project at the time of the investigation, was located amidst a bare and empty area of land. These surrounding areas were designated for future housing developments of low rise dwellings. The commercial, educational, health, cultural and social buildings were not yet provided on the site of the Saydia 6 project. Therefore, the project had to be dependent of other areas, with residents travelling to distant areas for all their essential services. The nearest bus stop was about 400 meters away from the nearest edge of the site

making it a long journey to go to the shops, schools or social activities.



THE PROXIMATE AREAS



6.3.3 CASE STUDY No.3 (THE ZAYOONA PROJECT)

6.3.3.1 The Setting of the Zayoona Project

(a) The Identification

The Zayoona project was the second of the multi-family housing projects of the State Organization of Housing (S.O.H.) and the largest. The designed capacity of this project was 1977 dwelling units in the form of three storey walk-up blocks and five storey blocks of flats. In addition to the residential buildings there were to be associated public buildings: educational, commercial and social as well as recreational. The S.O.H. decided that the implementation of the project would be in three phases. This decision was soon changed, for the reasons described in the other case studies, and it was decided to let people move into their flats as soon as each group of buildings was finished. Therefore, people started moving into their flats early in 1981. At the time the survey was carried out at the end of 1983, 1700 flats were occupied and the rest were under construction. 820 flats out of those occupied had been lived in for twelve months and over. The sample for the survey was drawn from them.

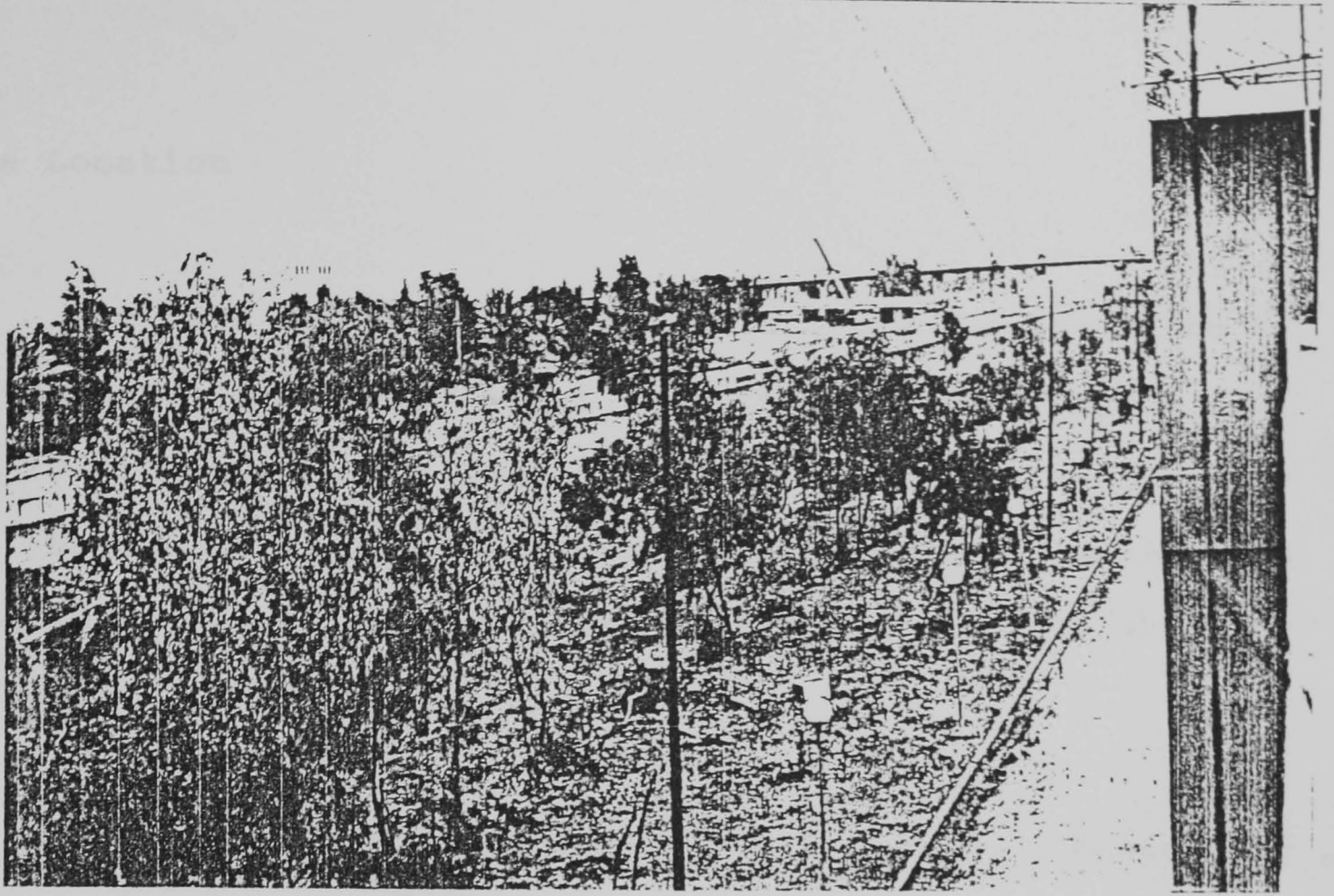


FIG.6.31 *Surrounding areas: The green belt and the highway.*

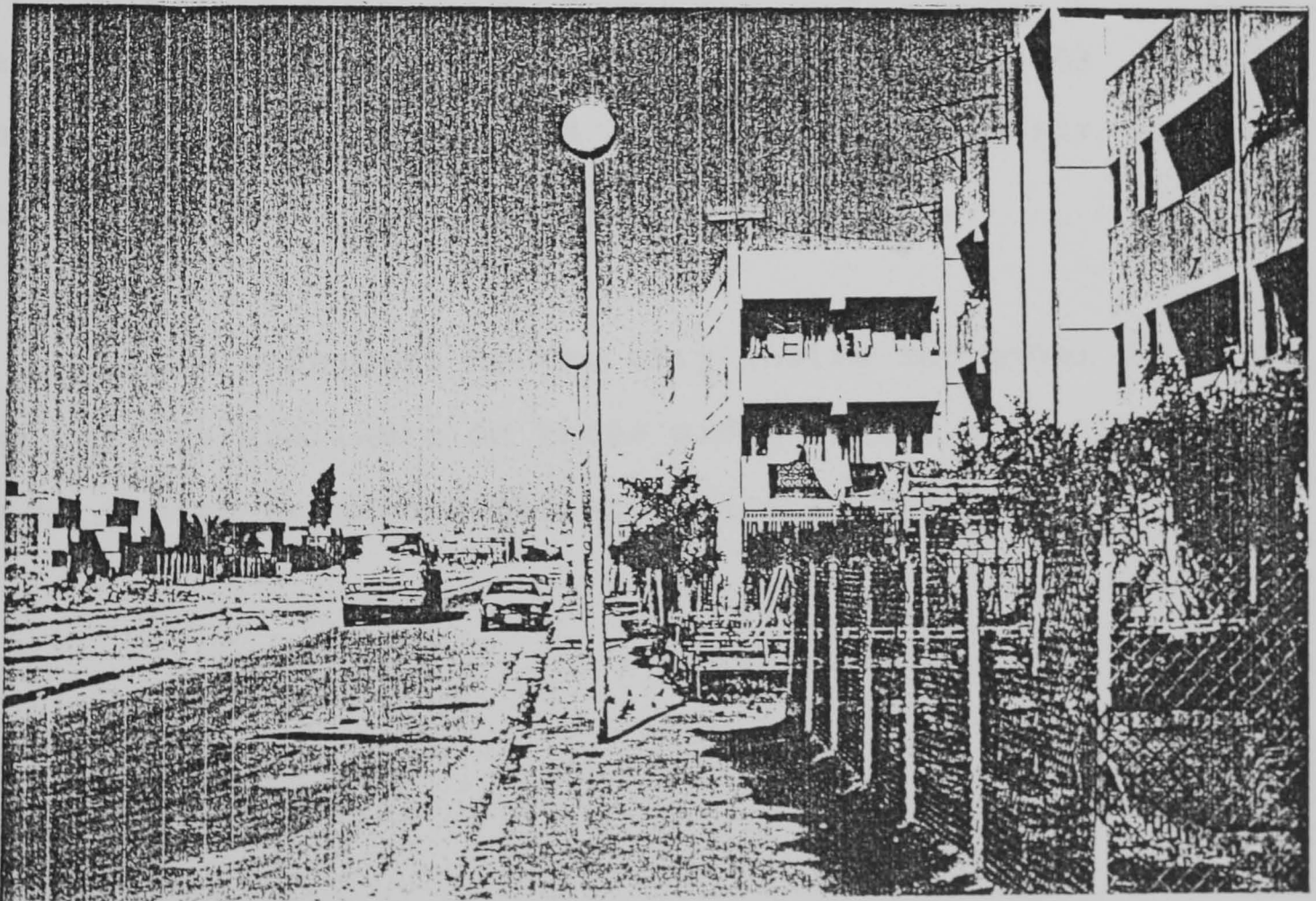


FIG.6.32 *A district road.*

(b) The Location

The site for this project was also chosen from land in government ownership which was reserved for housing use. It is situated in the locality of Rusafa on the east side of Baghdad. It is situated in the suburbs of Baghdad on the south east axis of the city centre, at about 5 kilometres out (Fig. 6.1).

The site is bounded in the north east by a green belt of Eucalyptus trees separating the housing from a highway road. From the south east it is bounded by another highway separating it from a low rise single family housing development. In the south west it is bounded by a main road separating it from a low rise single family housing, and in the north west by a shopping complex.

Public transport to the city centre and other parts of the city is available on three sides of the site, but there is no public transport through the site itself.

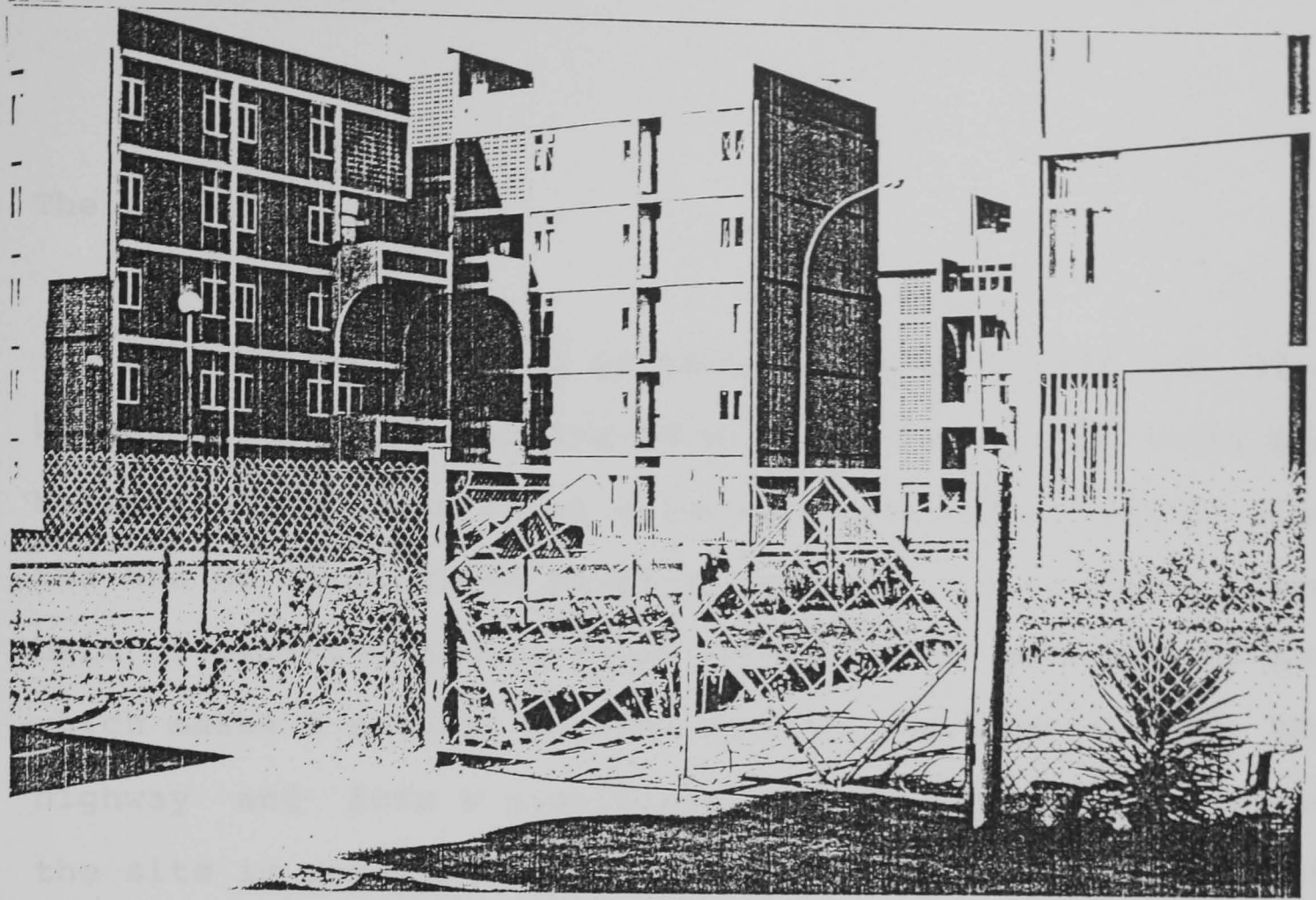


FIG. 6.33 *General views: Five storey blocks.*

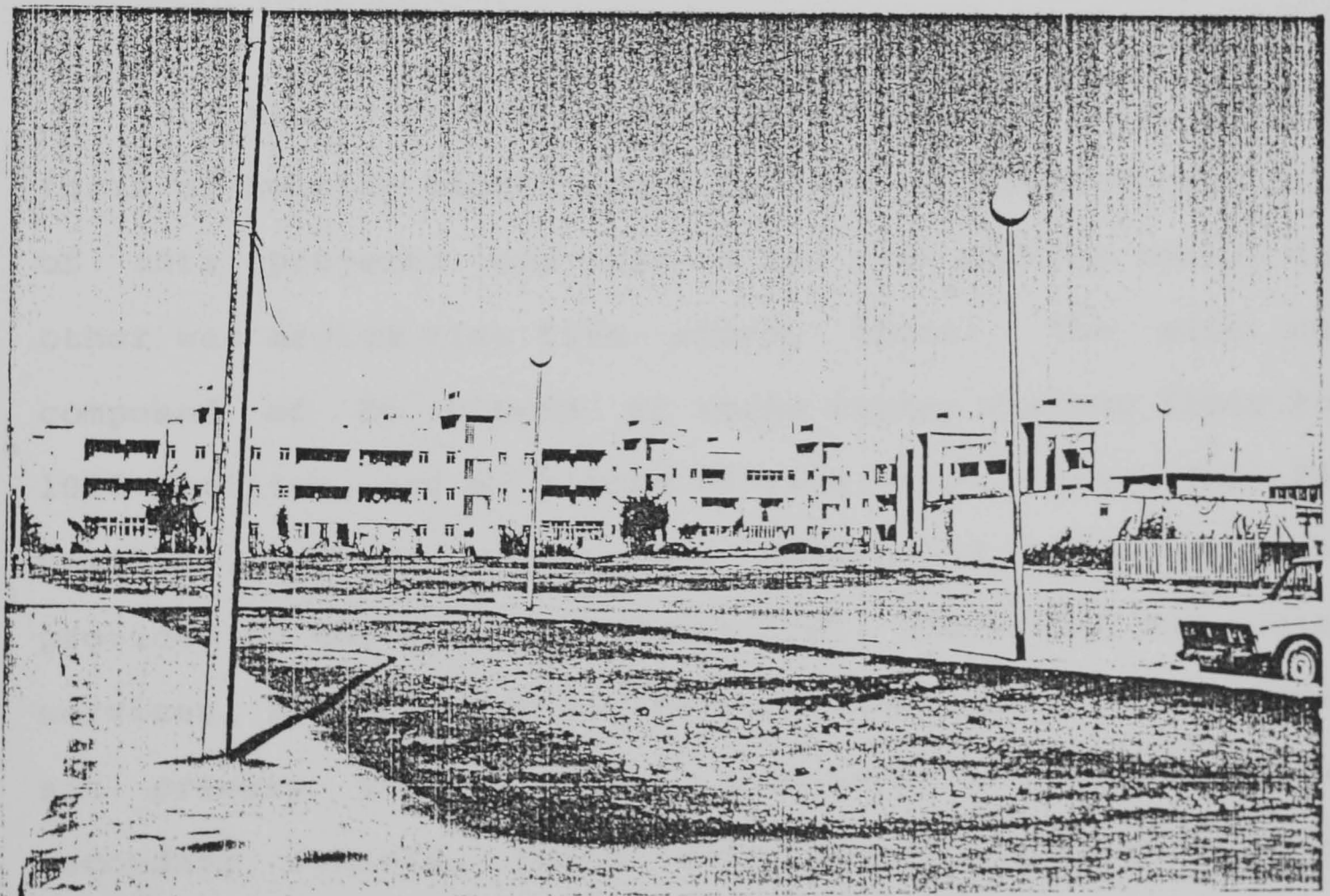


FIG. 6.34 *The walk-up blocks.*

(c) The Layout

The Zayoona housing project occupies a site of 42.5 hectares with a housing density of 45 dwelling units per hectare. This site is of a rectangular shape, totally flat and has no distinctive physical features other than a green belt of existing mature trees on the north-east side of it, which makes a natural barrier between the housing and the highway and form a significant visual element. Access to the site is possible from all sides. This made it easy to link it to the public transportation system and the near-by shopping complex. (fig. 6.30)

At the planning stage it had been decided that two forms of housing blocks would be used together on the site of this project: one was a low rise walk-up block, the other was medium rise five storey block. The site was composed of 86 blocks of three storey walk-up flats for 1032 families, and 63 blocks of five storey flats for 945 families. There were other associated buildings to be provided on the site for educational, commercial and social services, included two day care centres, two kindergartens, six primary schools, two intermediate schools, two secondary schools, three Suqs (local shops) and a local public park. The designer chose to locate a number of school buildings on the edge of the site which was adjacent

to the low density low rise housing, so as to form a transitional zone between the low rise houses and the medium rise blocks, as well as to restore the privacy of those houses. The local shops and the primary schools were located between the housing blocks. The locations of the primary schools and the local shops were chosen to be at a convenient walking distance for children, and so that the vehicular routes did not interfere with the free movement of pedestrians. The designer opted to locate the local park at the centre of the site, to form a focal point of visual amenity for the whole estate. He also decided that the housing blocks would be arranged around courtyards on the rest of the site in groups of walk-up blocks and five storey blocks.

To implement the planner's decision relating to vehicular and pedestrian route segregation, the designer intended to restrict the use of cars to certain areas on the site. He also sought to enable the residents to park their cars in car parks relatively near to their dwellings.

(d) The Dwellings

A mix of two types of housing blocks were used in this project. The detailed design as well as the construction methods and building materials of the three storey walk-up flats was similar to the one used in Saydia 7 project. The other type of housing was the five storey block of flats. Each unit of this housing block was composed of fifteen flats, three flats on each floor, two of two bedrooms and one of three bedrooms. The designer of this block provided a salient feature of semi-open private space as well as a private balcony for each flat. The detail of this areas is described under the heading of the Private Areas.

The five storey blocks of flats were built in the tunnel form method of construction (the unit is composed of several tunnels of reinforced concrete which includes the walls and the ceiling). The infill walls of the facades were of concrete hollow blocks lined from the inside with gypsum boards. The ceiling and the partitions were painted with Artex directly on the concrete surface. All the floorings were of terrazo tiles.

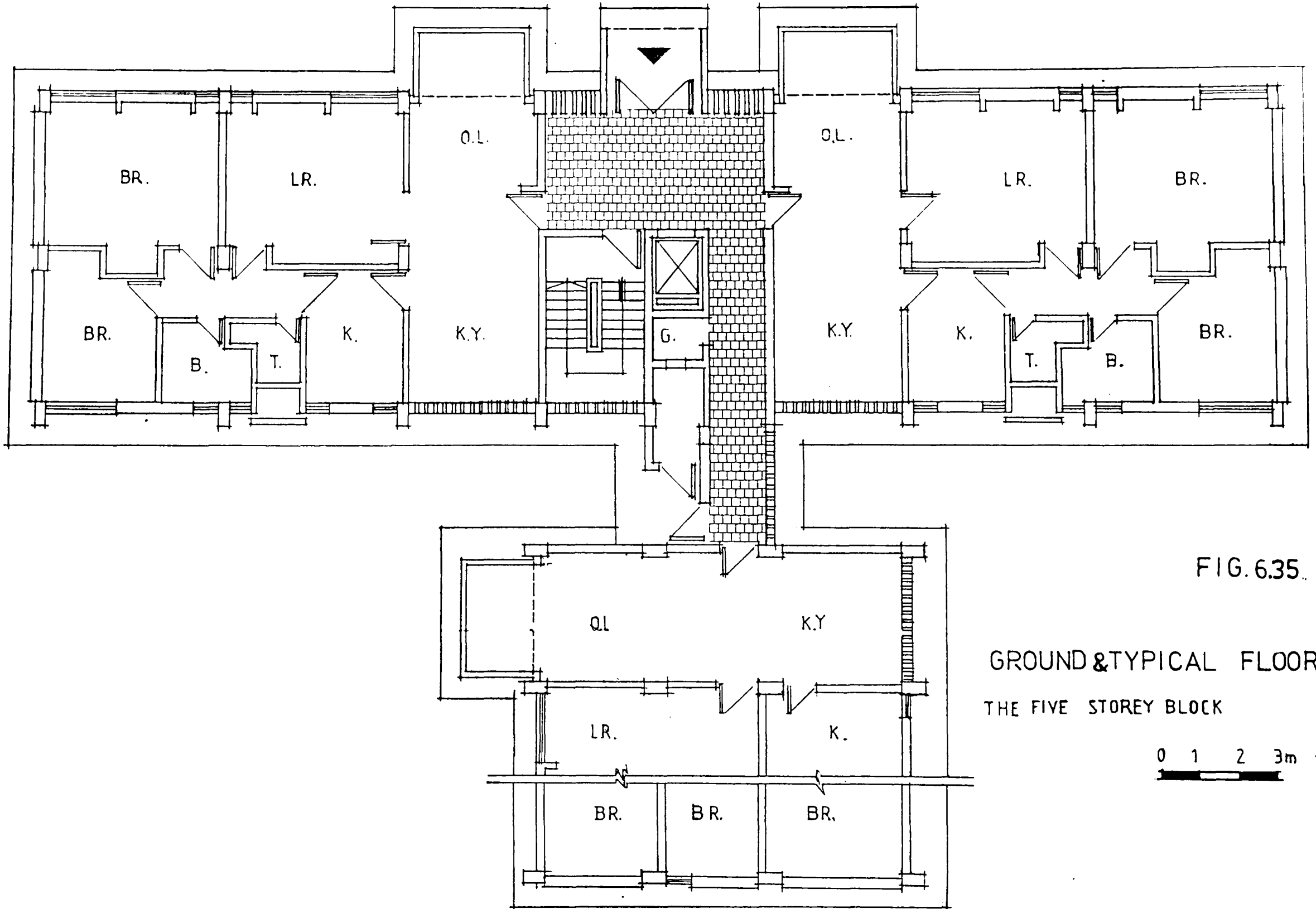
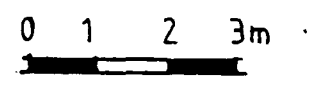


FIG. 6.35.

GROUND & TYPICAL FLOOR
THE FIVE STOREY BLOCK



(e) The Open Spaces

The three major types of open spaces in this project are the following:

(i) Private Areas

The private open space in the walk-up blocks are similar to those on the other case studies. Therefore, the intention here is only to discuss the private areas in relation to the five storey blocks of flats.

The designer of the five storey blocks provided each flat with a large semi-open space. It was a salient feature in the flat design in its size, location and its relationship with other components of the flat. Its area was little less than one third of the total area of the whole flat. The size of this semi-open area varied with the flat size; it was 26.2sq.m. in the two bedroom flats and 32.2sq.m. in the three bedroom flats, excluding the balcony area which was 3.76sq.m. for both types. The semi-open area was located at the front side of the flat and stretched along the whole breadth of it. The entrance door of the flat opens directly onto this area, which leads to the other parts of the flat either through the living room door or the kitchen door. The space was covered by a

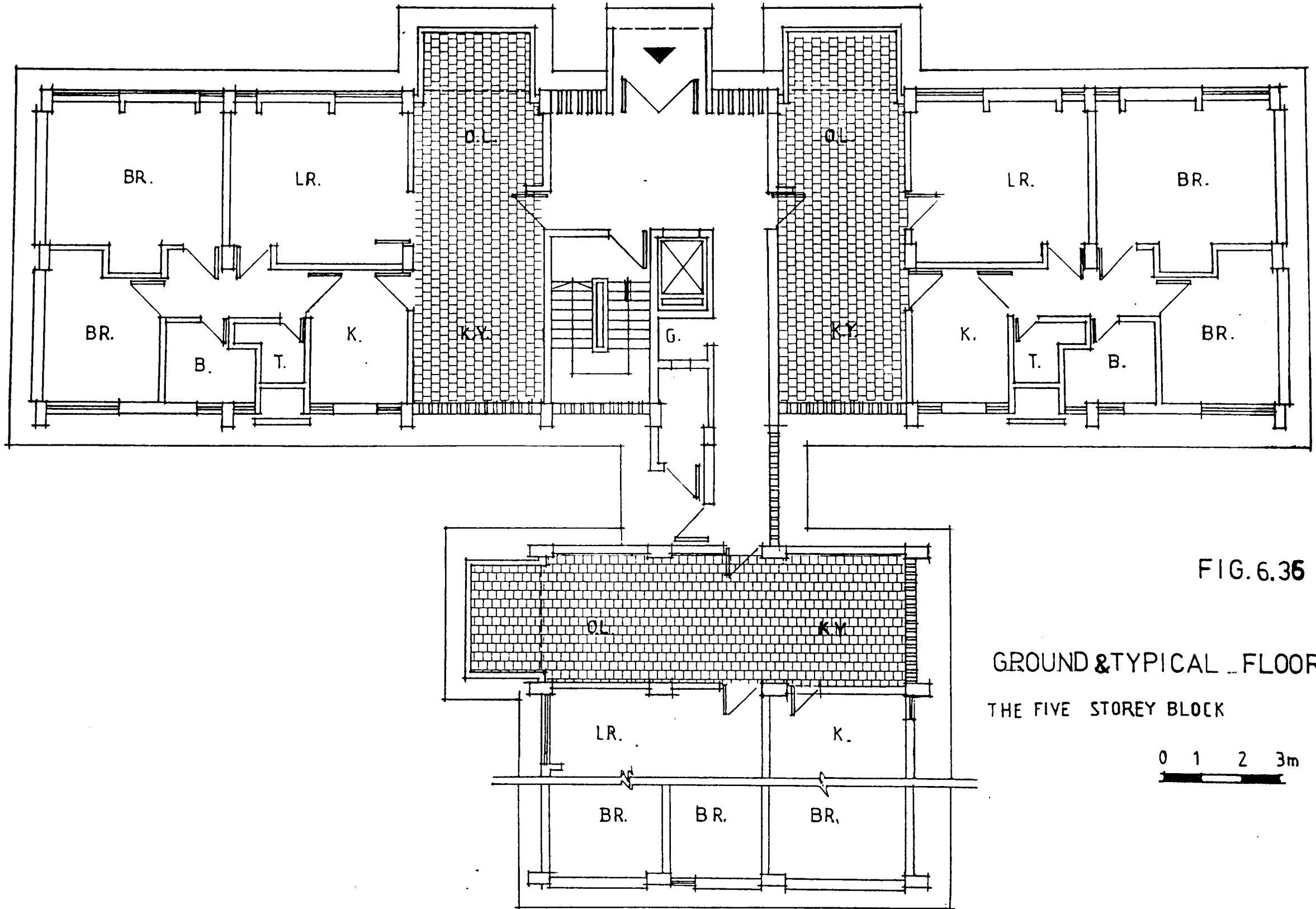


FIG. 6.35

GROUND & TYPICAL FLOOR

THE FIVE STOREY BLOCK

0 1 2 3m

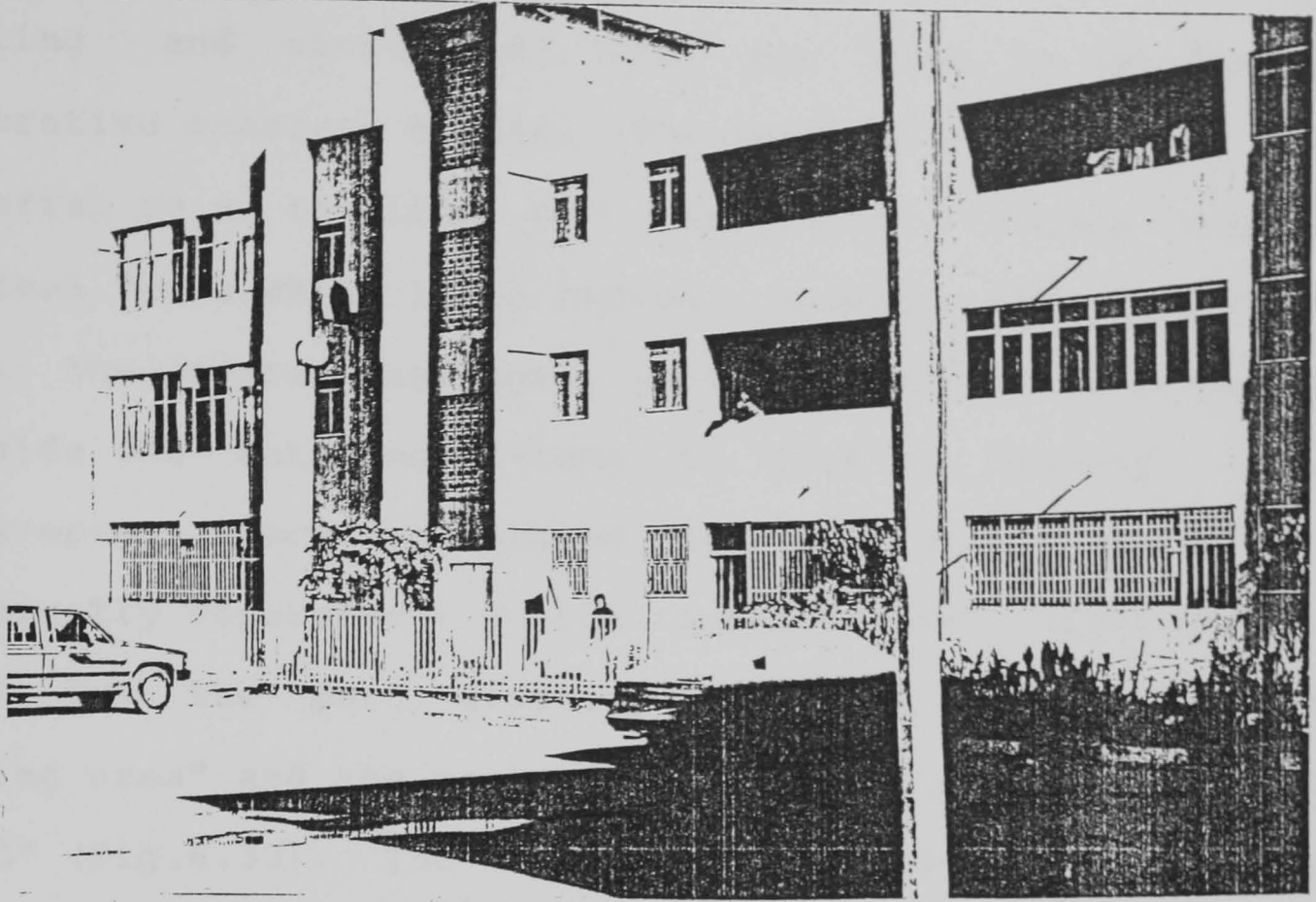


FIG. 6.37 *The walk-up blocks. Balconies and private gardens.*

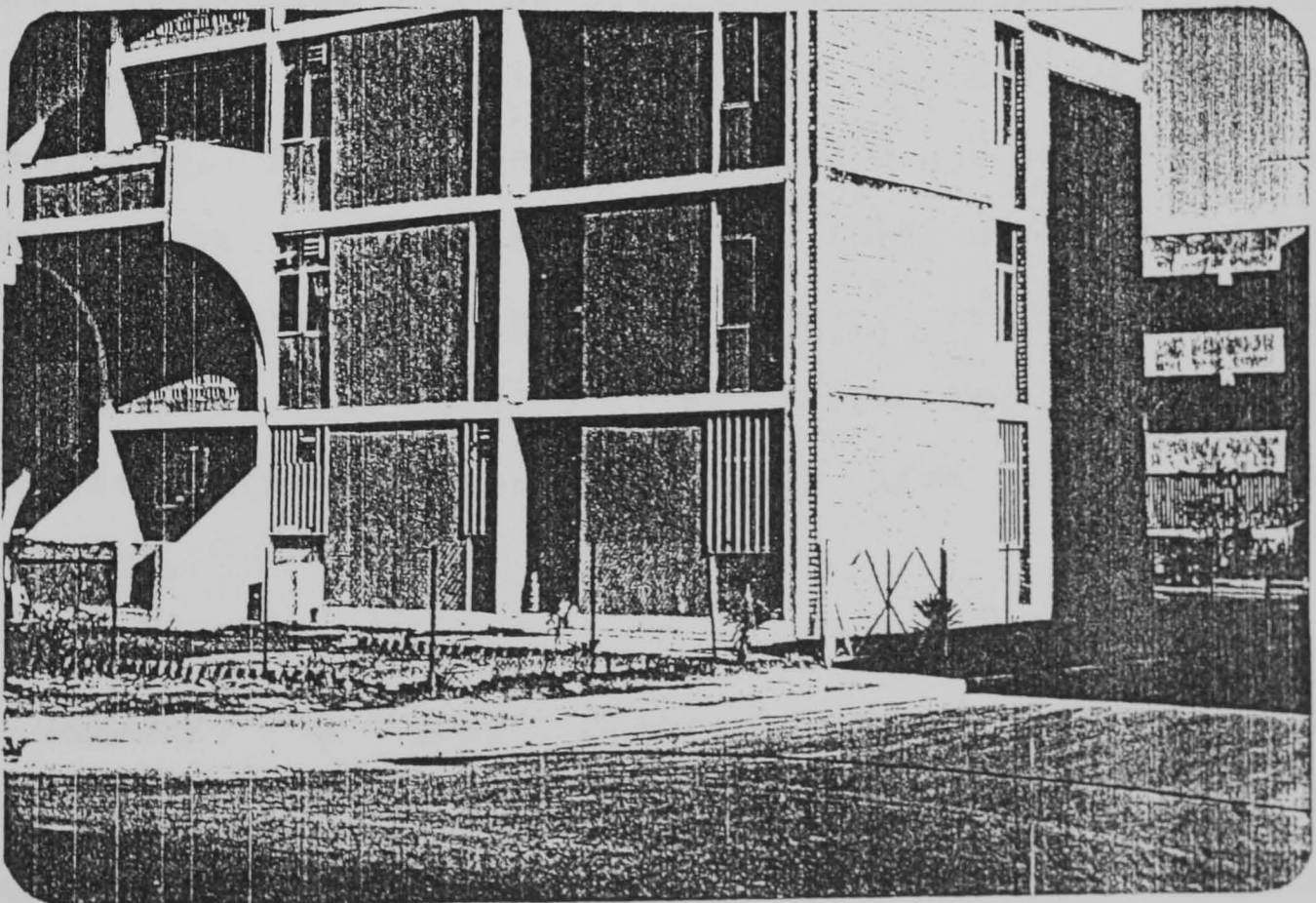


FIG. 6.38 *Five storey blocks.*

ceiling and closed off from one side by perforated decorative concrete blocks. The designer opted to use this material so as to allow air circulation through and to conceal the washing lines behind. Opposite this perforated wall the space was open, with a part of it projected outside the building facade to form a balcony. This semi-open space consisted of two parts, though not physically separated. On the architectural drawings the term for the part abutting the living room was "outdoor living area" and the part abutting the kitchen was "kitchen yard" (Fig.6.33). The designer explained her intentions for this area during the interview, she stated that providing such a generous area would cater for family outdoor activities such as sitting out, children's play and for drying the washing as well as for pre-cooking preparation. The designer also intended it to cater for sleeping out on summer nights for those who wanted to do so. The designer envisaged this area as functioning like the court in the old courtyard houses and therefore she stated it would be better to term the area as an "upper courtyard".

However, a great diversity of alterations were observed to have been done to this area, which suggests different functions than those intended by the designer. The informants of the S.O.H. recalled that when the first groups of residents of the five storey blocks, in the

Zayoona project, moved into their flats they started complaining about the semi-open area in their flats, which was termed the "outdoor living areas" and the "service yard". The majority of residents wanted them to be partitioned and altered to serve other purposes. The demand was mainly for a storage room as well as for an additional indoor space such as an extra bedroom or an enlarged living room. The housing authority eventually came to terms with the residents demand and consequently the majority of residents put up partitions and divided the "outdoor living" together with the "service yard" area into different spaces according to their individual need. By doing so the original balcony became, in many cases, a space to store the additional air cooling device, needed to cool the additional indoors spaces.

During the site visit no children were noted playing on these balconies. However, it was noticed, though in few cases, that additional steel railing had been fixed on top of the concrete to increase the railing height making it safer for children, which suggests that children were using the balcony. The original railing of the balcony was of precast concrete with 100cm height. It was also noted during the site visits that the balconies of the ground floor flats were lacking privacy as they could easily be overlooked either from other flats or by passers by.

Evidence from the alterations and the observation during the site visits suggested different usage patterns for the semi-open areas and the balconies than that intended by the designer. The actual use made of these balconies is discussed in Chapter Eight.

In relation to the external areas outside the housing blocks the same planning decision was applied in this project as in the others, so no private gardens were provided and all the external areas were designated for public use. However, the ground floor residents in the five storey blocks, rarely took over the piece of land immediately located outside their flats. Only two in the sample were noted to have made a private garden and fenced it off, they had also opened a door out of their balcony into it. Although this action was rare in this type of housing blocks, it was common in the walk-up blocks of flats on the this project.

(ii) Semi-Private Areas and Semi-Public Areas

It is also intended here, to discuss the semi-public areas only in relation to the five storey blocks. The semi-private areas in the five storey blocks include the entrance hall, the staircase, the lift, the upper floor lobbies and the roof. The access to the main entrance of these housing blocks was primarily from the courtyard,

although it also had a side entrance to an area outside the courtyard. The main entrance provides an access to the three flats on the ground floor and to other floors via the lift and the staircase. The entrance hall also included service facilities such as the hopper of the refuse chute, the electricity boards, water meters and the telephone controls for the whole block. The detailed design and the locations of these facilities seemed rather awkward. It was noted during the survey that the fuses, meters and controls were exposed and in locations within the reach of children. Samples of wear, vandalism and dirt was noticed during the site visits, which suggest that there was a problem either in the detailed design or in the management and/or maintenance policy. Some of the users of the five storey blocks have solved their problems by hiring a full-time porter to take care of running, cleaning and maintaining these semi-public areas and its facilities. This only applied where the users were well off and could afford to pay for such a service.

The lobbies on the upper floors were to serve three flats on each floor. The width of the lobby was 5.25m which was stretched between the entrance doors of the two opposite flats on the floor. This area was spacious, well lighted and it was noted to be clean in most cases and with less evidence of abuse or vandalism. During the site visits no children were noted playing in this area.

Another semi-private area in the five storey blocks was the roof, which the designer intended to serve the residents of the block for drying the washing. Although the roof was easily approached by the lifts, it was noted that it was not used by the residents for drying the washing. Instead, the site visits showed that majority of housewives dry the washing on the semi-open areas or the balconies within their flats.

The Semi-public areas in this project include the courtyards amidst the housing blocks. The designer chose to arrange the housing blocks, mostly, around courtyards in groups of walk-up blocks and five storey blocks. Two types of court were used, one was traffic-free, the other for car parking. The traffic-free courts had a group of three five storey blocks arranged around it. The size of these courts varied with the form of the housing blocks, however, the average size of these courtyards were 1560sq.m. for the walk-up blocks and 1050sq.m. for the five storey blocks. The other type of courtyard was the one intended for car parking and located on the rear side of the blocks. For the walk-up blocks in this project a combination of two units blocks were only used. Some of the walk-up blocks were arranged in parallel rows. The average area for the spaces between the opposite blocks was found to be 670sqm.

The designer's intentions for the courtyards and the areas between the blocks were to provide a setting for children's play and for social interaction between neighbours. Another intended function for the courts and the open spaces around the housing blocks was to provide privacy for the residents inside their flats. However, during the site survey it was noted that these courts were not used by adult residents except for access. It was also noted that the number of children playing in courts amidst the five story blocks were relatively less than their number in the courts amidst the three story blocks. Children were however noticed playing on the car parks.

(iii) Public Areas

A segregated traffic system for vehicular and pedestrian use had been adopted by the planner for this project, as in other housing projects of the S.O.H.. The designer therefore, decided to bring the main vehicular route right into the central area and along the whole length of the site. From this main road minor roads stem out linking the car parks, which are between the housing blocks, with the main road. Pedestrian routes were designed to connect the housing blocks, the educational and commercial buildings with each other and with the car parks. The designer sought to provide, in general, one car space for two families in the car parks and a total of 950

parking spaces were provided for the resident's cars, visitors and extra car spaces for service vehicles. However, during the site visits cars were noticed parking on the areas immediately outside the blocks as well as in the official car parks.

At the time of the survey, less than one third of the roads, walkways, and car parks were paved, and most of these were around the edges of the site. All of the open spaces were unlandscaped and the site was bare except for the green belt of Eucalyptus trees on the eastern side of it. No schools, shops or any other associated buildings were there except for one bakery. The postponement of the implementation of the public buildings and the areas reserved for the local park to a later stage has left gaps on the estate. These gaps are either left as unused areas or used temporarily for storing building materials, or for warehousing for the equipment and machinery for the project itself. However, the residents can see that the construction is still being actively carried out for the other flats and, therefore, know this building phase and its associated disturbance will end. The residents were looking forward to the completion and finishing of the entire project and were optimistic that all components would eventually be built.



FIG.6.39 *The five storey blocks: in ground floors, curtains often seen drawn to retain privacy.*

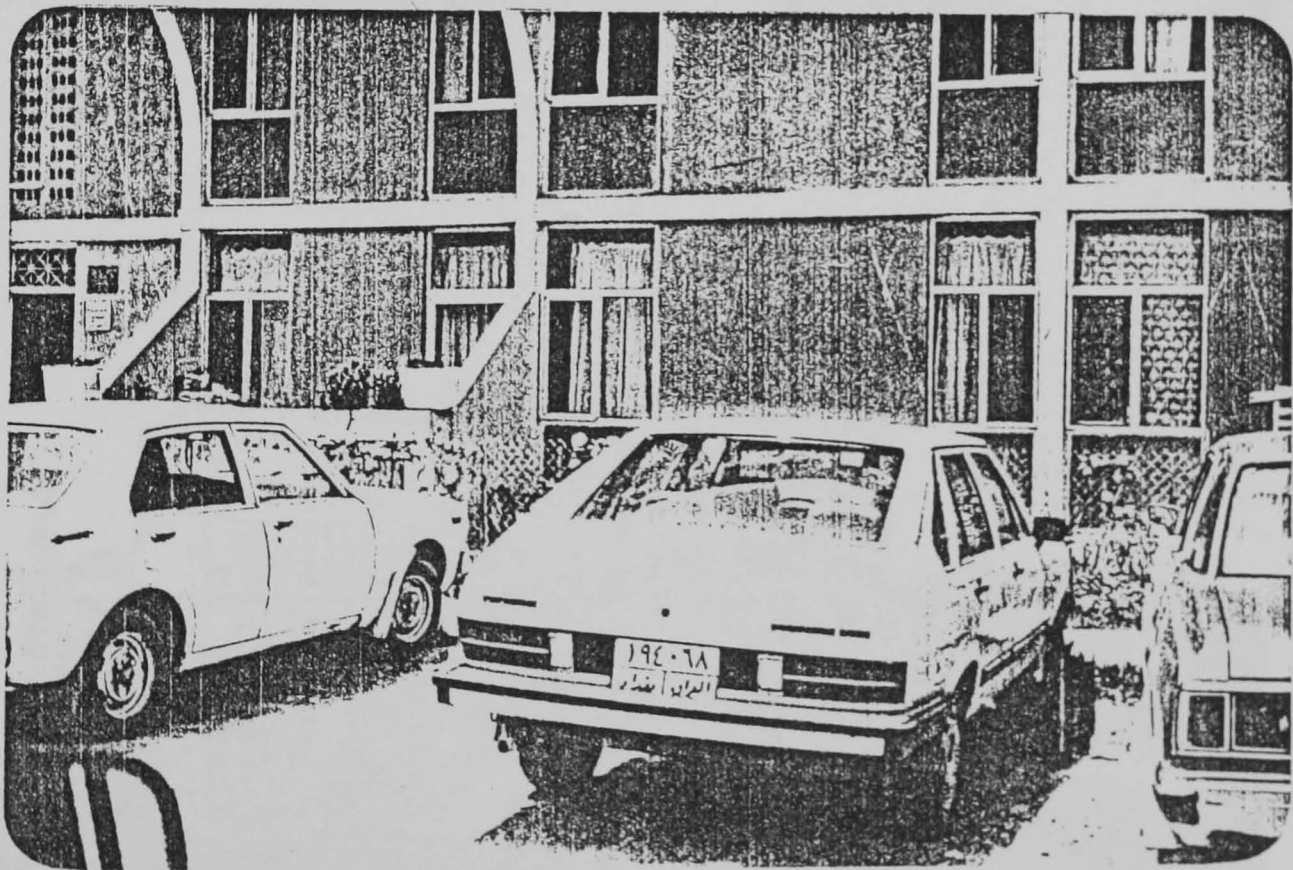


FIG. 6. 40. *Cars parked close to the dwellings' windows.*

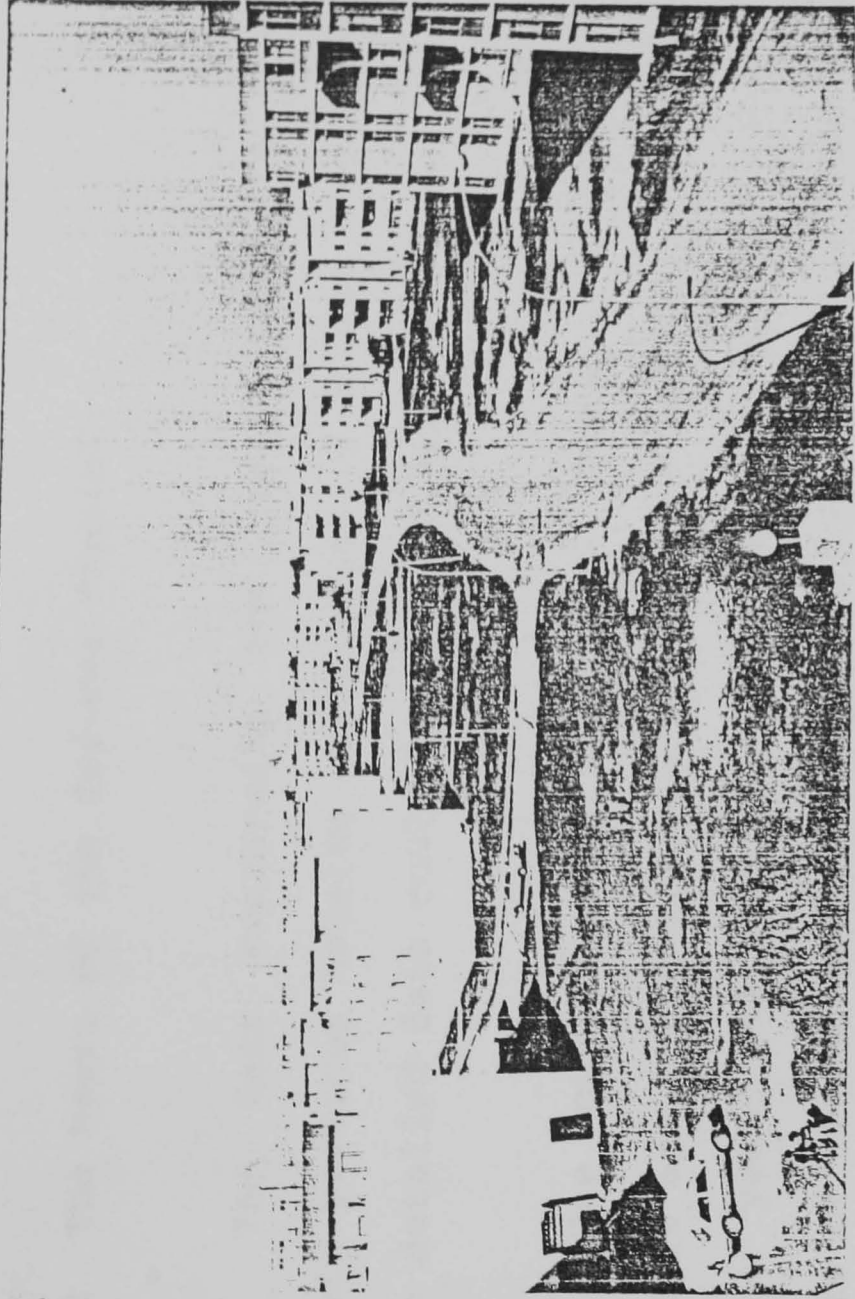


FIG. 6.41

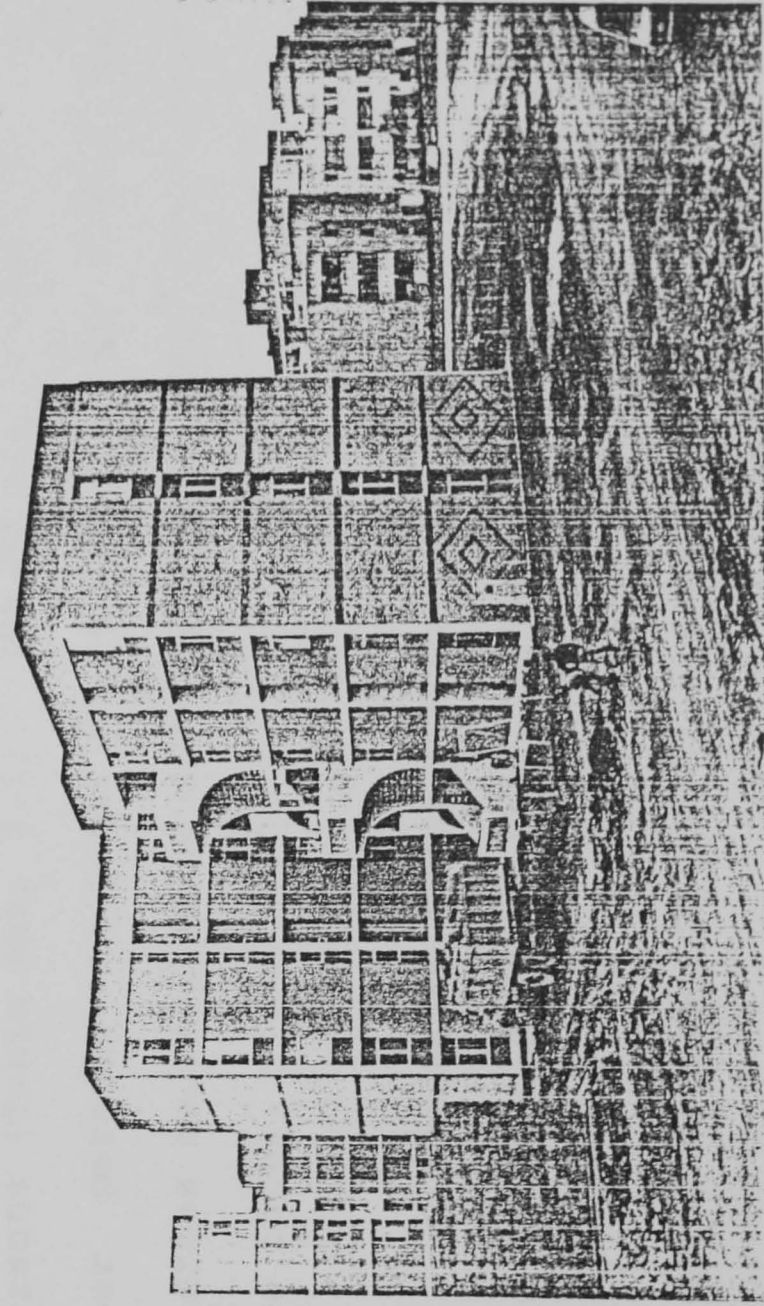


FIG. 6.42

Unfinished site work.

6.3.3.2 The Users of the Zayoona Project

The data concerning the users' characteristics and their previous housing experiences is summarized here and the detailed data could be seen in Appendix 3.

The majority of heads of household were in their middle age. The average age of the head of household was 43.4 years and 36.4 years for the housewives. The average size of the household was 5 persons for the two bedroom flats and 5.1 persons for the three bedroom flats. The rate of occupancy was 1.7 for the former type and 1.2 for the latter. The size of the households ranged from 1 to 9 persons (Table Apx. 3.1). 39% of the households were of four persons or less, 45.1% were of five and six persons, whereas households of seven and over accounted for 15.9% of the total.

Findings from the survey showed that the majority of the households were family households (83.9%) and the adult only households accounted for the remaining (17.1%). No elderly households were found living on their own. There were only a few elderly residents found in the sample living with their sons or daughters.

In relation to the previous housing experience, the majority of the residents (89%) had previously lived in a house or in an annex to a house (3.7%) and only a few had lived in flats (7.3%). 72% of the residents had lived autonomously in their accommodation, the rest of them (28%) had lived in part of a house shared with kin or non-kin. As for the locations of their previous dwellings, three places were identified, with over half of them (58.5%) having come from areas in proximity to the current location of their dwellings in the Rusafa locality, 29.3% from other areas of Baghdad and the remainder from outside Baghdad (12.2%).

The economic status of the residents here was mixed from low to moderate income. For the low income working families (36.6%), the average monthly income was less than 200 Iraqi Dinars, and for a further 17.1% of the residents it was over this range but under 300 Iraqi Dinars. The rest of the families were of moderate income working families (46.3%), the average monthly income was 300 Iraqi Dinars and over. Data from the survey also showed that on average there was one car for 1.5 family.

In relation to the educational status of the heads of household, it was found that 21.9% were of relatively low educational attainment, that is either capable of reading and writing or having completed a primary school level of

education, and about one third of them were of intermediate and secondary level of education (34.2%), whereas the majority of them were of college level (43.9%).

Data from the survey showed that the majority of the heads of household were in the lower and intermediate scale of civil service (45.1%), 9.8% were in skilled labour, 4.9% were engaged in unskilled labour, 12.2% were retired, 13.4% were engineers and physicians, and 14.6% were self employed. Among the housewives interviewed, data showed that 33.3% of them had jobs, 3.7% were retired, and the remainder were nonworking housewives.

6.3.3.3 The Design Activity

For the Zayoona project the planning policies, directives, and limitations applied were similar to those of the Saydia 7 project. The only difference was the provision of some five storey blocks of flats serviced by lifts. No legislations or directives from S.O.H. in relation to management and maintenance existed at the design stage. As discussed in Chapter Eight, the absence of such policies caused post-occupancy problems which were unforeseen by the designer.

The designer's intentions for this project were:

(1) To provide multi-family housing with adequate living conditions, which are functional, healthy, and socially suitable.

(2) To provide in addition to the private balcony in the five storey blocks a particular feature of semi-open space which she termed as "outdoor living" and "kitchen yard". She envisaged it to act as an "upper courtyard", and she assumed that this area will provide a setting for the activities which were performed in the traditional courtyard house. Activities such as sitting outdoor, pre-cooking preparation, children play and for sleeping out on summer nights for those who wants to.

(3) To provide local public park for recreation activities of the residents as well as for visual amenity.

(4) To arrange the blocks of flats in the site, mostly, around courts and located the car park courts on the rear side of the blocks. The designer envisaged the traffic-free courtyards as a setting for social interaction and children's play. The designer assumed that these spaces would be looked after by the local authority.

The impact of S.O.H. policies, directives, limitations as well as the designers' intentions on users satisfaction with their housing environments will be discussed in Chapter Eight.

6.3.3.4 The Proximate Environmental Context

The Zayoona housing project, unlike the other two case studies, was set in a well established area. It was located in the locality of Karrada where established markets and commercial services, health services, social and cultural facilities are available. For the new residents these facilities were easily accessible by public transportation. In addition, other commercial services were available nearby, as the site of the project was adjacent to a new shopping complex. These facilities compensated for the lack of shops on the project area. Other amenities were also available in the locality such as restaurants, a theatre, mosques and churches. Many educational buildings were located within easy reach of residents as well as the Baghdad University of Technology which was also situated in the same locality.

In relation to recreation, the main recreation areas of the eastern side of Baghdad; the Funfair park and Al-kanat park, are within one kilometre distance from the site.