

Adaptation of housing for the elderly

Fatih A. Pakdil (1983)

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**ADAPTATION OF HOUSING  
FOR THE ELDERLY**

By

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fulfilment of the requirements  
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## DECLARATION

1. The candidate, Fatih Adnan Pakdil, while registered for the degree of Doctor of Philosophy, was not registered for another award of the C.N.A.A. or of a University during the research programme.
2. The candidate, Fatih Adnan Pakdil, while registered for the degree of Doctor of Philosophy, did undertake and complete advanced studies in connection with the programme of research in partial fulfilment of the requirements of the degree.

  
Fatih A. Pakdil



## ABSTRACT

### Adaptation of housing for the elderly

Fatih A. Pakdil

In the initial part of the study some characteristics of the elderly, underlying their relevant needs for various provisions, were examined. Since the beginning of this century, in accordance with government policies, many forms of provision have been developed, expanded and made available for the elderly to meet their needs. Recent government policy is to keep the elderly in the community and preferably in their existing homes and this is also what most elderly people wish.

Adaptation of the existing dwellings is a recent development and one of the provisions to achieve the objectives of this policy. However, there exists insufficient data about the effectiveness of adaptations in meeting the requirements of the elderly relevant to their existing dwellings and enabling them to remain longer in their existing homes.

Thus, to tackle the problem with the aid of the existing theoretical concepts and ideas, a theoretical framework, including a number of testable propositions, was developed. The propositions are primarily relevant to the relationship between the physical settings (i.e. dwellings, adaptations), and the abilities of the elderly in various daily activities and their requirements for help from others in the activities concerned which might be particularly relevant to their ability to stay at home. Dynamism of the requirements of the elderly, as a possible crucial factor, is particularly taken into account in these relationships.

Then, to test the propositions empirically, fieldwork was planned and carried out in fifty three cases and detailed data collected by employing physical measurements, structured questionnaires, personal interviews and examination of records. In addition specific classifications were used to categorize the dwellings and the persons in the sample.

The results indicated that adaptations of the physical settings made a large positive impact upon the abilities of the elderly and their help requirements in various daily activities; this, in turn, in certain circumstances, appeared to increase their ability to stay at home. However, this impact was partially reduced by the factor of the dynamism of the requirements. Nevertheless, the research found a number of points which appeared to be particularly crucial to minimise this adverse affect and to improve the effectiveness of the provision of adaptations.

While the results led to the conclusion that where appropriate adaptations are provided most of the requirements of a great majority of the elderly can be met and they can be enabled to stay longer in their existing homes, some elderly, particularly those more frail and living alone may also need to be provided with help or services from the local authorities.



## INTRODUCTION

The general area of concern of this thesis is elderly people, specifically, the frail and very old and how their requirements, relevant to their dwellings are met.

The aims of the investigation are to explore: firstly, whether and to what extent adaptation of the existing dwellings can meet the requirements of the elderly relevant to the physical settings of their homes and, secondly, whether and to what extent adaptation of the existing dwellings has an effect upon enabling the elderly to stay longer in their existing homes.

The need for, and importance of, the study stems from the findings of the initial part of the research which concentrated on a search in the relevant literature and can be briefly outlined below. The numbers and proportion of elderly people in the whole population has been increasing in accordance with an increasing life expectancy. Advancing age, among other things, some of which (i.e. retirement, lack of finance, disengagement, loneliness) will be outlined later in the text, is too often associated with deterioration in the physical health and condition of the elderly and its resulting consequences, a reduction in physical functioning of the elderly. Being less competent or unable to carry out various activities, that many elderly people often reached such limits that they were unable even to perform many day to day activities which are essential to maintain their life-style. Therefore many of them needed help from others, to a varying extent, in various daily activities. However, most of the elderly in



older age groups, particularly the women, lived alone, while many others lived with their spouses who were also elderly and sometimes frail. This led many elderly people to have little or no opportunity to get the appropriate assistance they needed.

The earlier approach to this problem in general was to accommodate and look after the elderly in need in institutions i.e. old peoples homes with centralized services. Over the years, research tended to concentrate on various aspects of life in those institutions and found - and this was gradually well recognized - that those institutions were inappropriate not only in terms of meeting physical but also social and psychological requirements of those elderly who lived there. Then the policies and approach to the issue began to change by shifting the emphasis from the care of the elderly in institutions to care in the community, and aimed at keeping the elderly in their homes for as long as possible and delaying institutionalization. To achieve this aim various provisions were gradually brought into consideration, developed and expanded over the years and made available for the elderly. Those were, on the one hand various services, such as domiciliary services, on the other hand provision of a different type of accommodation, such as old people's dwellings. However, according to recent research findings, these dwellings specially designed for old people (i.e. sheltered housing) were found, in many respects, inappropriate to meet the diverse requirements of the elderly and, even so, completely insufficient in number to meet presumed needs of the elderly for dwellings more suitable to their requirements. In addition most of the



elderly were unwilling to live in this special housing. Furthermore, in recent years it has become evident that the majority of the elderly did not want to move from their existing dwellings and familiar surroundings in which they lived for long years. Nevertheless, as was generally known, many of them encountered difficulties with various aspects of their dwellings, such as stairs, size, lack of amenities and so on. It was contended that inappropriate aspects of the existing dwellings coupled with the lack of suitable alternative housing often resulted in admission of many elderly people into the institutions. These considerations clearly underlie the need for more appropriate alternatives to accommodate the elderly, but in the direction of their wishes and their needs. One of the ways might be a flexible usage of the existing dwellings where the great majority have been living and where they want to continue to live.

Adaptation of the existing dwellings is a recently developing provision, 70 per cent of which has been provided for the frail elderly in need, and aimed at overcoming difficulties of the elderly (and other handicapped) relevant to various aspects of their dwellings, and enabling them to continue living there. However, the analysis of the relevant literature revealed a great paucity and inadequacy of data about many aspects of this provision, in particular, about the efficacy of various types of adaptations in meeting requirements of the elderly in various circumstances in respect of physical health, dwellings, help and services provision and so on, and enabling them to stay longer in their existing homes. In addition, it was found that there was insufficient data about many features of existing dwellings and their effects



on the frail elderly. In consequence, there was a lack of understanding about their relevant requirements and how they are met with the provision of adaptations. The lack of data about adaptations, among other things, led to conflicting views about effectiveness of this provision. There were major differences among many local authorities in respect of adopting the policy of providing adaptations and this resulted in unbalanced or uneven distribution of this service throughout the country. This clearly showed the necessity and importance of further investigation into the phenomenon, assessing effectiveness of the adaptations provided. Moreover, many argued that the need for such investigations was particularly urgent on the grounds of severe lack of appropriate alternative housing for increasing numbers of the frail elderly. Therefore, this study aimed at investigating effectiveness of adaptations provided to meet elderly people's relevant requirements and enable them to remain in their existing homes longer. These considerations briefly outlined above will be presented in the first three chapters. In the first chapter, some characteristics of the elderly population underlying their needs for various provisions will be examined. In the second chapter, the provisions made available for the elderly and their development and expansion over the years and the policies behind them will be reviewed. In the third chapter, some aspects and issues relevant to the provision of adaptations to existing dwellings will be examined.

To tackle the problem identified the next stage was to carry out the further investigation which involved empirical testing of the effectiveness of adaptations provided for the elderly living in



various circumstances. However, testing this was complex and involved examining the relationship between a large number of factors. This showed the necessity of a clear theoretical framework which grouped and isolated the factors concerned. A number of testable propositions were formulated in order to facilitate the research. It was necessary to consider the type, quality and location of the data needed and this provided the rationale for the methods employed in collection of the data. These considerations are discussed in chapter four.

There were some difficulties encountered in data collection mainly due to the initial information required which was kept by the local authorities. Names, addresses, condition of health were confidential, but finally in fifty three cases detailed data required were collected. The data were treated mainly by the author manually and partly by computer. The findings which emerged from the empirical part of the study related to various aspects of the phenomenon observed and their relation to the propositions will be presented in the following three chapters. In chapter five and six, the relationship between the physical settings (i.e. dwellings, adaptations) and the elderly, in particular the possible effects of the former on the abilities of the elderly in various daily activities and their resulting help requirements were examined by taking into account the dynamism of the requirements of the elderly over time. In chapter seven, the possible effects of the adaptations on the elderly people's ability to stay in their existing homes is examined and discussed.

In the final chapter, the summary of the major findings and the conclusions emerging from the research are



brought together and discussed in terms of the purpose of the study and in a broader context. As will be seen, a number of points emerged from the study, which were previously unexplored and little noticed or understood, and these give originality to the study. These points appear not only crucial in providing more appropriate adaptations for the elderly and in increasing effectiveness of this service but also in making a significant contribution to the knowledge of the recently developing approach to housing the elderly in general.



## CHAPTER 1

### SOME CHARACTERISTICS OF THE ELDERLY POPULATION

The elderly are particularly interesting to study. Not only are they one of the largest of what is often called 'special groups', but also they are the group to which in time almost all people will belong.(1)

The most commonly accepted definition for this group used to be the retirement age (i.e. 60 for women, 65 for men) but however there has been an increasing tendency in the most recent statistics and studies to classify the elderly of both sexes as those of the age of 65 and over.(1A) Therefore, in this study 'the elderly' will refer to people aged 65 and over, unless otherwise stated.

Since the 1940's, there has been an increasing concern about the elderly, and their various needs and requirements associated with old age. What had previously been little noted or understood began to be a central concern of government and researchers, both to understand what the requirements of the elderly were and how these could be met in terms of the resources available. At present there is a wide range of provision to help meet the needs of the elderly, one of which is the adaptation of ordinary housing to suit the special requirements of the elderly frail or handicapped. In order to investigate the provision of adaptations, it is necessary to have some understanding of the elderly population and their underlying needs for various types of provision, including adaptations.

In this chapter the aim is to describe some general features of this population, which are crucial not only to understanding this group, but also to explaining the context of this research. It is difficult to make absolute



distinctions between many of these features as they are, to some extent, interrelated. However for the purposes of this research they can usefully be considered in the following sections. In the first section, some demographical characteristics of the elderly are examined which are important in terms of understanding the place of the elderly in the population as a whole. In the second section, some social and psychological issues which are often associated with old age are considered. In the third section the effects of retirement on income and employment are briefly examined. Finally in the fourth section, issues related to health and illnesses in old age are considered and their implications and impact on the daily life and activities of the elderly.

#### 1. Demographical aspects

The elderly are one of the major groups in the population. Not only their numbers but also their proportion as a percentage of the population has been increasing as a result of increasing life expectancy.(2) For example in 1951 there were 5,332,000 elderly in Great Britain and by 1979 this number had increased to 8,047,000; the proportion of the elderly in 1951 was 10.9 per cent of the population of the country as a whole, and by 1979 it became 14.8 per cent representing a 35.7 per cent increase since 1951.(3) (see Table 1) However, the percentage of 75 years and over elderly was 3.5 per cent in 1951 and this increased to 5.5 per cent in 1979, representing 57 per cent increase.(4) According to population projections the proportion of the elderly in the population will continue increasing until the 1990's and then may decrease



slightly.(5) However, the numbers and proportions of those 'very old' or over 75 years old is likely to continue to increase up to 2000 A.D.(6) Life expectancy for men in 1931, at the age of 60, was 74.4 years and for women was 76.4 years; in 1971 this had increased and was 75.1 years for men and 79.7 years for women.(7) Women tended to live longer than men and consequently there was a higher ratio of women to men and this increased in the older age groups; for example the ratio to men in 1979 (in Great Britain) was 1.31 for the age group 65-74; 1.97 for the age group 75-84 and 3.14 for 85 and over age groups.(8) The consequences of these figures are important in many ways. The increasing numbers of the elderly has led to much demand and pressure on the health services and personal social services (9) and those over 75 made twice as great a demand than those between the ages of 65-74.(10) The increasing numbers of elderly women especially in older age groups meant that women were more likely to be more frail and handicapped, and vulnerable in many respects, and were therefore likely to have various special needs and require more help from others in many daily activities. In addition these women appeared to be particularly vulnerable to failure to get required help from people in their households, because a high proportion of them especially the very old lived alone. For example in 1979 34 per cent of all elderly lived alone. However this percentage varied considerably depending on the sex and age of the elderly person, for the younger elderly (65-74) 14 per cent of men and 39 per cent of women lived alone. This increased with age so that of those who were 75-84, 27 per cent were men



Years	Numbers	Percentage of the total population	
	(Total 65 and over)	65 and over	75 and over
1951	5 332 000	10.9	3.5
1961	6 046 000	11.8	4.2
1971	7 179 000	13.3	4.7
1979	8 047 000	14.8	5.5

Table 1: The numbers and percentages of the elderly in Great Britain

Source: Central Statistical Office, Social Trends 1981, p. 46, Table 3.10



living alone and 55 per cent women, and for the 85's and over 32 per cent of men and 53 per cent of women lived alone.(11) Moreover, living alone appears to be one of the crucial factors in old age often associated with various social and psychological problems common among the elderly.

## 2. Social and psychological aspects

The majority of the elderly population live in private households and in the community and only about six per cent of them live in institutions including long and short stay hospitals and residential homes.(12) (13) Most of those living in private households lived with their spouses only (43 per cent) or lived alone (34 per cent), and some (8 per cent) lived with spouse and others, and the remainder (15 per cent) lived with relatives or friends.(14)

The household and family composition seems to be an important factor in maintaining social relationships and contacts with others. In their contacts with other people research has shown that the elderly on the whole appeared to maintain links with the community and to be in touch with, primarily, their relatives and friends. However, a small but significant minority seemed to have less contact with others and were sometimes 'lonely'. Many of them want to have more contact and visits from relatives and friends and to have companionship. Social contacts are important to the elderly, as Rossiter and Wick (1982) argued:

The need for companionship or social contact is less tangible than some other needs, but it is certainly no less important for the well-being of the elderly people. Clearly this is true for all people but some of the elderly may be particularly vulnerable to loneliness, given the impact of retirement or the isolating effects of certain medical conditions such as deafness or infirmity. (15)



Although the majority of the elderly (94.7 per cent) have relatives, about 20 per cent of them do not have frequent visits from their relatives (e.g. less than once a month) and this includes 5 per cent who never had any visits at all.(16) This is important to a minority of the elderly as about 25 per cent want more visits from their relatives and 15 per cent want more visits from their friends.(17) In general contact with friends was less frequent than contact with relatives.(18) For this minority who would have liked more visits the dominant groups seemed to be those who were housebound, bedfast, and the very elderly, and those living alone.(19)

However, in spite of the fact that most of the elderly have contacts with the community and many want more contacts, there are a number of theories in the literature which treated the elderly as distinct from the rest of the population in terms of social relationships or behaviour. These theories appeared to be crucial to understand the current views about the elderly and their social behaviour.

One of these theories was proposed by Cumming and Henry (1961), who developed the concept of 'disengagement' in stating that

Ageing is an inevitable mutual withdrawal or disengagement resulting in decreased interaction between the individual and others in the social system he belongs to. The process may be initiated by the individual or by others in the situation. The aged person may withdraw more markedly from some classes of people whilst remaining relatively close to others. His withdrawal may be accompanied from the outset by an increased pre-occupation with himself. (20)

However, this theory in general appeared to be in contradiction with the facts that many elderly had good contacts with the social system. Moreover, Blau (1973) who was one of the opponents of this theory argued that old



people were 'passive' because they were forced to be.(21) This argument might be particularly important on the ground that, and as many argued, the status and the role of the elderly in the family and in the society has declined for many years due to various reasons, such as changing religious beliefs and less respect for old wisdom, loss of employment and income of the elderly and the increasing numbers of very old.(22) Consequently, they are often seen as a 'problem population' in society. In addition, facilities for the elderly to maintain social contact in many ways i.e. transport and mobility, were restricted and reduced. Carp (1980), in her study based on empirical work stated that:

Old people are not content to sit at home. They would like to have greater access to their communities; and they are dissatisfied about the lack of appropriate transportation, which limits their ability to meet their own needs, do things they looked forward to during working years, enjoy relatives and friends and participate in their communities. (22A)

Thus, probably, because of those reasons some elderly in fact were passive, not because they wanted it but perhaps due to their diminishing opportunities and status in society.

The other theory, opposite to Cumming and Henry, was 'Activity Theory' suggested by Havighurst (1963). According to this theory the elderly person who can maintain his level of activity and interaction with other people is the person who will be satisfied with life.(23) This theory, in general, appeared to be supported by many studies; it still might not apply to 'all' elderly. For example Blackie (1980) found that involvement in an activity had positive effects on the well-being of the elderly.(24) However, because not 'all' the elderly wanted



to be involved in lots of activity this theory did not apply to every one, (25) and it was often argued that this theory was not completely supported.(26) (27)

Rosow (1967) proposed a personality typology for the aged population based on the findings of his research. (28) He suggested five types: 1. Cosmopolitans, 2. Phlegmatic, 3. Isolated, 4. Sociable, 5. Insatiable. He also pointed out the corresponding social classes of those groups, as the first, the third and the fifth categories were likely to be middle class and the second and fourth were likely to be working classes.(29) He described the first and second group as people who have few contacts with the others, the fourth and fifth group as people who have many contacts and the third group as people who have few contacts but wanted to have more.(30) Thus, Rosow's theory and more comprehensive theories based on research appeared to be more appropriate than theories which attempted to describe behaviour of a diverse population with one type of behaviour pattern.

Nevertheless, many studies pointed out that although many elderly are socially active and had opportunity to be so some others suffered from loneliness.

Tunstall (1966) in his study pointed out that loneliness, which referred to the psychological state of the individual was distinct from social isolation which referred to the circumstances the individual was in, such as being far from relatives or friends.(31) He stated that some of the factors associated with social isolation were, for example, retirement, having few friends or relatives and being in less contact with them, and factors associated with loneliness were concerned more with increasing age, widowhood and physical incapacity. He found that a



considerable proportion of the elderly were often lonely and that many of them were also isolated.(32)

Abram's (1978) study also showed a higher incidence of loneliness among the elderly living alone than the elderly living with others, and that this was increasing with increasing age.(33) On balance, the evidence indicated that loneliness was associated with factors such as being housebound or bedfast, with living alone, with increasing age and with retirement.(34) (35) (36)

Retirement had also a great impact on many aspects of social life of the elderly.(37) It was said that retirement was not a desirable phenomenon for most elderly, particularly for those people who belonged to the lower classes (e.g. manual workers) as retirement was likely to mean loss of responsibilities or occupation.(38) (39) However, the evidence showed that many elderly of all classes tended to agree with the statement 'when you have retired it is difficult to fill in your time'.(40)

Retirement has led many of the elderly to migrate to certain parts of the country, especially the South coast. This can be seen in the distribution of the elderly in the country. The proportion of the elderly in some areas rises above 24 per cent, for example, East Sussex was about ten per cent above the general average of 14 per cent in 1977.(41) The main reasons to move, it was argued were 'the desire to preserve or improve health, attraction to the cleanliness of seaside resorts and desire for a more relaxed way of life'.(42) The concentration of the elderly in certain areas however, has created some problems for example a shortage of adequate dwellings for those who were very old and frail, and a shortage of health and social



services staff and finance to meet the need of a high proportion of those elderly.(43) However, perhaps one of the most important aspects of retirement is the loss of earnings and employment.

### 3. Financial aspects

In a Multi Disciplinary Seminar on ageing in 1972 it was argued that 'financial considerations were seen to be the restrictions which made the elderly most unequal to the general population'.(44)

Poverty has been and still is associated with the elderly in general (45) as Townsend (1981) stated, 'retirement has been associated historically with the descent into poverty'.(46) The current retirement age is 60 for women and 65 for men and this clearly affected the proportion of the elderly at work. Many elderly did not work after retirement and the only possible type of work available appeared to be part-time work. The recent figures on the elderly showed that in 1976 ten per cent of men and four per cent of women worked in part-time work, and six per cent of men and one per cent of women worked in full time work.(47) Consequently, the main source of income for most of the elderly was retirement pensions.(48) This has left many with an inadequate income, so Townsend and Abel-Smith (1965) argued, the elderly were the largest group below the 'poverty line'.(49) Further, Atkinson (1972) argued that National Insurance pensions were inadequate in comparison with supplementary pensions. There was, however a general tendency for the younger elderly to be better off than the older.(50) But, in general the elderly had a much lower average income than the rest of the population.(51)



Despite the possibility of loneliness, problems of retirement and lack of income, how satisfied are the elderly with various aspects of life? Although satisfaction is difficult to measure, some studies attempted to do so. Abrams (1978) concentrated on satisfaction with local social organisations, the dwellings, financial position (wealth), income and health.(52) Among those considerations, satisfaction with local social organisation and dwelling were rated most highly. What was interesting was that while satisfaction for most aspects of life increased as the age of the elderly increased, satisfaction with health decreased with age.(53) In another study which compared various age groups' satisfaction with various considerations, elderly people also seemed to be satisfied with many aspects of life, such as income, housing, education received, pattern of social and leisure activities.(54) This might imply a general contentment or tolerance with the existing arrangements and conditions among the elderly. Although this may have been so in general, both surveys showed that satisfaction with health decreased with increasing age.

#### 4. Health

One of the main issues which most of the elderly are concerned with is their health. In the past many doctors of medicine believed that many conditions and illnesses (such as, decline in muscle strength, disturbance vision, hearing, heart and kidney diseases and so on) were inevitable and untreatable, and were assumed to be the 'natural' consequences of old age.(55) (56)



However, findings from recent research supported the idea that 'as people age, heredity environmental and disease factors affect the organism, altering it to produce the changes which are commonly seen in the elderly' (57) (58) (59), and that many illnesses commonly seen in the elderly were also seen in younger people and were not exclusive to old people.(60) Many illnesses and conditions common in the elderly have now been investigated and the causes of many of them already identified.(61)

Although the majority of the elderly had relatively good health there was clear evidence of a greater incidence of both acute and chronic illnesses among the elderly than among other age groups, which affected a significant minority of the elderly.(62) 63) It was often found that the elderly suffered more than one chronic or acute disease.(64) (65) Isaacs (1981) pointed out that those resulted in four major disabilities: immobility, instability, incontinence and intellectual impairment.(66) He then went on to identify four major aspects of those disabilities: they had multiple causes, destroyed independence, there was no single treatment and a human helper was often needed.(67)

Regarding the mental health of the elderly it has been said that in the normal or expected course of ageing the elderly's intelligence and reasoning become less effective, memory gets poorer, learning ability declines and decision making slowed.(68) (69) Some writers have also argued that older people are more rigid, passive or introvert than younger adults and less oriented to achievement.(70) However, there seems to be little success in the treatment of mental or psychiatric illness and this is still



considered the 'darkest side' of old age.(71) (72)

Regarding physical health however, there seems to be a gradual advance in the investigation and explanation of many conditions common among the elderly although many diseases (such as arthritis, strokes, various heart diseases) still remain untreatable. Moore (1968) in his examination of physical changes in old age pointed out that 'many physiological functions tend to decline at a constant rate with increasing age'.(73) Leaf (1973) in his study, carried out in three communities 'where vigorous oldsters are remarkable numerous 'found that various functions of the body declined but at a different rate for every organ, parallel with age. He avoided generalisations in his findings to all people saying simply 'Everyone ages, but some seem to age less quickly than others'.(74)

Perhaps the most striking effect of these many illnesses were that they are likely to reduce the capacities of the elderly in many of their daily activities (75) and consequently there is often a need for human help.(76) The most common illnesses among the elderly which contribute to a reduction of physical functioning or capacities involving in various kind or movements appear to be primarily, rheumatoid and osteo arthritis, cardiac and pulmonary conditions and strokes.(77) (78) (79) The effects of those illnesses and many others, are that the elderly sufferers are generally incapacitated in some activities which are considered to be essential for day to day living.

#### **4.1. Activities of daily living**

A number of scales to measure the capacities of the elderly or handicapped to carry out daily activities were



developed and used, for example, by Townsend (1962) Goble (1971) Rosow (1966) Salisbury (1973) Harris (1971) and Kane (1981).(80-85) Many of them chose the activities which were essential or which a person living alone would be obliged to perform to maintain life assuming he received no assistance.(86) However, in general there was little agreement of the scales of measurement developed, while some agreement existed for the activities selected, although the various studies used different labels for the similar activities examined. This made it particularly difficult to analyse the findings of various studies. Nevertheless to examine the capacities of the elderly in relation to the activities of daily living, the following headings appeared to be appropriate and common to most of the studies.

1. Self-care, such as eating, dressing, getting in and out of bed, using the lavatory, putting on shoes.

2. Mobility, such as walking or moving a wheelchair inside or outside (the dwelling), negotiating stairs or steps.

3. Housework, such as cooking, shopping, washing clothes, cleaning the home.

A number of studies by Townsend (1962), Shanas (1968), Harris (1971), Hunt (1978), Abrams (1978) and General Household Survey (1980) (87-92) were examined, and it was clear that generally in all three groups of activities the incapacities of the elderly sharply increased with advancing age, and elderly women seemed to be less capacitated than elderly men in the same age groups. Regarding self-care activities the elderly according to these studies appeared to be least able, or often unable,



to cut their toe nails, and to bathe without assistance. Other activities were a problem to a minority (see Figure 1). Self-care activities are particularly essential for almost all elderly in their daily life. While incapacities in some of these activities such as cutting toe nails, or bathing could be met by less frequent help, incapacities in other activities indicated the need for more frequent or continual help.

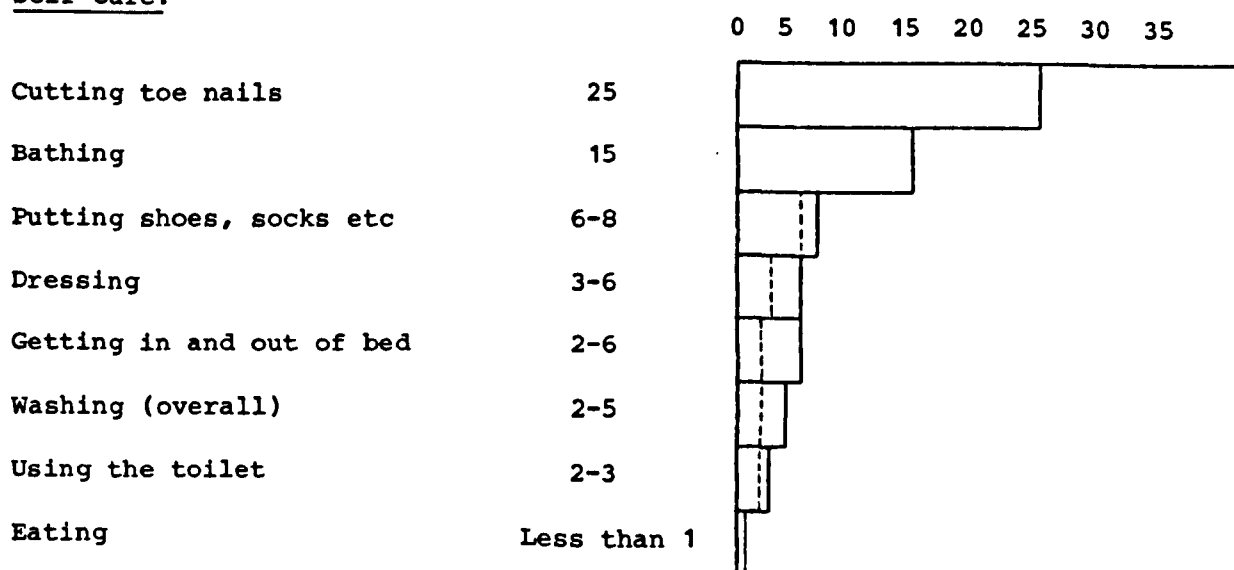
In terms of capacities of the elderly in mobility, in general, 1 to 3 per cent of the elderly were 'immobile' or 'bedfast' including those wheelchair users who were unable to propel their own wheelchairs. Further, 10 to 13 per cent of the elderly were only able to walk around in their homes, but not outside along the street. However, regarding negotiating stairs/steps 6 to 8 per cent of all elderly were unable to do so. Additionally about 27 per cent of them had difficulties in doing so (see Figure 1). Mobility was vital in performing many activities including, self-care, which involves moving around the home. Many elderly were unable to negotiate stairs, some were immobile yet nearly three quarters of the elderly lived in dwellings in which stairs had to be climbed (93), to gain access to various rooms and facilities (i.e. bath, w.c.). Thus, this indicated a need for possible adaptations to stairs as well as a need for help from others to those immobile to assist them to perform many activities at home.

Many elderly, according to these studies, were unable to manage the housework on their own. Between 17 to 24 per cent found difficulties cleaning windows, shopping and washing clothes was a problem for up to 14 per cent, and cleaning floors a problem for some 10 to 11 per cent. Some

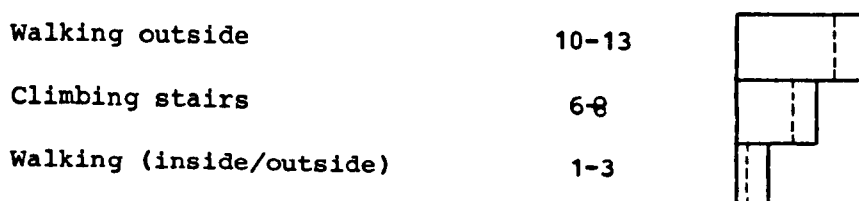


Percentages of the elderly  
who were unable to perform  
the related activities

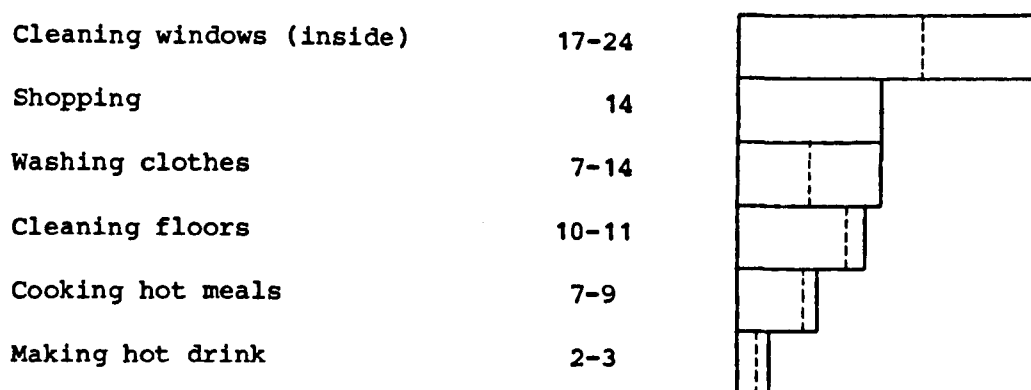
Self-care:



Mobility:



Housework:



indicates the lowest figures found

indicates the average or higher figure

Figure 1: Percentages of the elderly who were unable to perform various activities of daily living without assistance (or not at all).

Sources: Townsend P (1962)  
Shanas E. et al (1968)  
Harris A (1971)  
Hunt A (1978)  
Abrams M (1978)  
Office of population and censuses Survey (1980) (see ref: 87-92)



7 to 9 per cent could not cook meals for themselves, but making a cup of hot drink was less of a problem, only 2 or 3 per cent could not do this (see Figure 1). Thus, those incapacities indicated that, in many housework activities, a high proportion of the elderly needed various types of help from other people to meet their related requirements.

In general, the difficulties of the elderly in those various activities of daily living indicated some important consequences. Difficulties increased with increased age and especially among elderly women. However this was a particular problem in that the older elderly and particularly women were most likely to live alone and consequently less likely to get the required help from persons in the same households. Thus, this indicated the need for various services to help them to maintain life in their homes.

## 5. Summary

In this chapter some aspects of the elderly population were reviewed. Clearly, the numbers and proportions of the elderly, especially the very old have been increasing for a number of years and seemingly they are likely to continue to do so. Of particular concern is the increase in the very old and those living alone.

It is clear the majority particularly of the younger and healthy elderly are reasonably well integrated in the community and in contact with others, and in general seemed to be able to look after themselves. However, others, particularly the very old, chronically ill, mentally or physically infirm and immobile and the poor were most vulnerable and seemed least able to help themselves.



Consequently, many of these elderly feel lonely and isolated, and lack companionship and social contacts. Many elderly suffer from disengagement due to the impact of retirement and loss of occupation and often lack some sort of recreational or occupational facilities. Many elderly pensioners seemed to need extra income to meet possible extra expenses occurring due to loss of mobility or illnesses.

Additionally, some elderly are very old and infirm or mentally disordered and often need continuous care in hospital or elsewhere, especially when many have no relatives to support and look after them. Many other elderly who may be unable to perform many activities of daily living, could do so with some kind of help in these various tasks which would support and encourage them to continue live in their own homes.

These are some aspects of the elderly which give rise to many special needs and requirements which for many years have been a central concern of the government and researchers. Over the years a range of provisions including adaptations to their dwellings to meet these needs have been developed and expanded.

The next chapter will examine what sort of provision is available, how was this developed and expanded over the years, parallel to the policies concerned, and will attempt to demonstrate the place, role and importance of provision of the adaptation of housing in the whole perspective of provision for the elderly.



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## CHAPTER II

### PROVISION FOR THE ELDERLY

From the previous chapter it is evident that because many elderly were frail, in poor health, living alone, and lacking finance, they are likely to face various problems. For many years both Central and Local government in this country have formulated policies aimed at meeting the many needs of the elderly and proposing means to help solve some of their problems. This has resulted in a wide range of provision to care for the elderly, which can be grouped into two broad types of care, firstly care in institutions and secondly care in the community.

Recent policy has aimed at enabling the elderly to remain in the community for as long as possible, rather than moving the elderly to centralised services in institutions. However, many elderly live in housing that, due to their frailty and handicap, they cannot manage and cope with daily life. Thus, to enable them to remain in their homes it is often necessary to adapt their dwellings, and this is now one of the main provisions (i.e. provision of accommodation and services) to keep them in the community. In order to understand the role and importance of adaptations it is necessary to identify the other provisions and their role in relation to the policies for the elderly.

These policies have developed and expanded over the years. In earlier times the emphasis was on institutional care and there was little provision for the elderly, and after many years the level of care was found to be inadequate. (see pp.36-38) Policies began to change shifting the emphasis from institutional care (i.e. residential



homes, hospitals) to community care (i.e. provision of services and accommodation). The community care has developed and expanded over the years and many forms of provision, including adaptations, have been made available for the elderly.

1. Development and expansion of the provision of care (including adaptations)

At the beginning of the 1900's there was little provision for the elderly apart from provision under the Poor Law, charities and the workhouses.(1) Since then the state has played an increasingly major role nationally, particularly in the provision of pensions and health services. Locally, authorities were gradually given responsibilities for housing and most of the other services, such as domiciliary services, for the elderly.(2)

The provision of pensions was among the first measures provided by the state to assist the elderly. This was first considered in the Old Age Pension Act 1908 (3) that made provisions for a small pension to people of good character, aged 70 and over. Apart from those limited pensions, there was little provision for the elderly until 1940's, possibly because there was very little information about the elderly and their needs and circumstances, despite the fact that their numbers had increased more than twice since the beginning of the century.(4) However, from the 1940's the concern for the elderly increased with many important committees and many studies considering the various needs of the elderly and how those needs could be met. In 1942 the Beveridge Report (5) recommended that the elderly and the other groups should be covered by insurance and proposed the idea of a pension for all elderly people.



This led to the National Insurance Act 1946 (6) which provided pensions for most elderly. In the same year the National Health Service Act 1946 (7) set up a comprehensive health service covering everyone regardless of means. With this act, local authorities were allowed to provide some services such as home help for ill people and some other services such as chiropody or laundry were considered. These services were extended with the National Assistance Act 1948 which gave authorities responsibilities to make arrangements for provisions such as meals and recreational facilities for handicapped persons.(8) With this act workhouses which were known to be inadequate in many aspects, were abolished. Instead small comfortable homes for old people were to be planned and built by the local authorities.(9)

In the early 1950's, although some support services e.g. home help and meals were proposed, they were not evenly distributed throughout the country and very few people made use from them.(10) Thus, in those years for most of the frail, infirm elderly who lost their family support or ability to maintain themselves in their homes for one reason or another, there was little alternative apart from going into residential homes. Consequently, in the 1950's, the number of residential homes newly opened (11) and the number of the elderly living there sharply increased.(12) During the 1950's a number of surveys on the needs and problems of the elderly living in the community and in institutions were carried out. Some looked at the implications of the limited support services available such as meals or home help (13) while others examined the elderly living in institutions. For example Townsend(1962) strongly emphasized



the inadequacies of institutional care and the need for alternatives to this kind of provision. He stated that:

... homes of the kind which exist in England and Wales today do not adequately meet the physical, psychological and social needs of the elderly people living in them, and that alternative services and living arrangements should quickly take their place. (14)

As a result of this and many other studies the need to support the elderly living in the community was realized. These were some of the factors which gave rise to the change in ideas and policies in 1960's from providing centralised services in institutions (e.g. residential homes) to that of providing support to enable the elderly to remain in the community for as long as possible. The emphasis on the support services (e.g. domiciliary services) and alternative provision of accommodation (e.g. old people's dwellings) increased. This could be seen in a government circular in 1962 stating

Services for the elderly should be designed to help them to remain in their homes for as long as possible. (15)

Regarding the provision of services, the National Assistance Act 1948 (Amendments) Act 1962 enabled local authorities to provide meals and recreation for old people at home or elsewhere (i.e. clubs).(16) The Health Services and Public Health Act 1968 however gave general powers to provide welfare services for example, home help and in the form of social workers.(17)

At the beginning of 1960's there was a development of a new form of accommodation for the elderly. This took the form of grouped dwellings and, in a small way provided an alternative to ordinary dwellings. The idea for this type of dwellings was first proposed in 1944 Housing Manual (18)



but few were built for years. General advice to build this kind of dwelling was given to local authorities in 1961 in the Circular 10/61. In 1969 in Circular 82/69 set out mandatory standards for subsidy.(19) According to the circular there were two types of grouped dwellings for old people:

Category I: Self contained dwellings to accommodate one or two old people of the more active kind; and

Category II: Accommodation in grouped flatlets to meet the needs of less active elderly people ...

(20)

However, there were some indications that many frail elderly were in general unwilling to move from their homes and familiar area, to another area where more suitable dwellings might be available.(21) In any case, those specially-designed grouped dwellings (i.e. sheltered housing: grouped dwellings with a warden's assistance) were extremely limited in number compared with the presumed need for them.(22) Partly due to this shortage, The Chronically Sick and Disabled Persons Act 1970 extended the responsibilities of local authorities to provide adaptations to dwellings of the elderly and handicapped.(23) Other provisions in the Act aimed to help meet the social and psychological needs of the handicapped people, the majority of whom were the elderly. Among those services, aids for daily living (or 'practical assistance') television, travel, holidays, meals, telephones and so on were provided for.

The importance of this Act particularly for the elderly was that for those who had some difficulties with their dwellings and with daily life, partly due to frailty or handicap and partly inadequacy of their dwellings (e.g. stairs, steps, damp, cold, inadequate heating etc.) had



more chance to stay put due to the expansion of support services and the possibility of having their homes adapted to meet their needs.

From the mid 1970's there were some further developments in provision of housing for the handicapped and the elderly. On the one hand some specially designed dwellings emerged, firstly 'mobility housing' and 'wheelchair housing' mostly designed for the ambulant disabled or wheelchair bound people (24) (25), and secondly 'granny annexes' that were 'purpose built self-contained units adjacent to a family home' (26) for the elderly. On the other hand, the idea and policy of supporting the elderly and the handicapped in their existing homes with some adaptations became more clear and was highlighted in the Circular 74/74:

For many handicapped people it is better to adapt their home, if suitable for adaptation, than to rehouse them in purpose-built accommodation.(27)

There were a number of reasons behind this shift from specially-designed housing towards the policy of adaptation. Firstly, the research concentrated on many aspects of grouped dwellings for old people, showed that in general neither in terms of type nor in terms of numbers were specially designed dwellings (i.e. sheltered housing) adequate to meet the diverse needs of an increasing number of increasingly frail elderly. Secondly, most of elderly people did not want to move from their existing homes or to live in grouped dwellings for old people. Thirdly, the general idea was developing that the many aspects of existing dwellings that often created a number of difficulties for very old and frail/handicapped elderly might be overcome by adapting their homes. Thus, the



emphasis on the provision of adaptations increased, and was best summed up by Goldsmith (1982) in a seminar, where he said that:

In 1972 there was optimism that the world was an improving and prosperous place, and new-build housing seemed appropriate. There had been a shift away from new-build to concern about how to coordinate housing and care services, and a recognition that many disabled people would prefer to remain where they lived with friends and neighbours, rather than move out to special housing. In the field of house adaptations there had been a good deal of activity in the last five years.(28)

Thus, by the beginning of the 1980's a range of services and accommodation became available for many elderly, after a long process of development and expansion (see Figure 1).

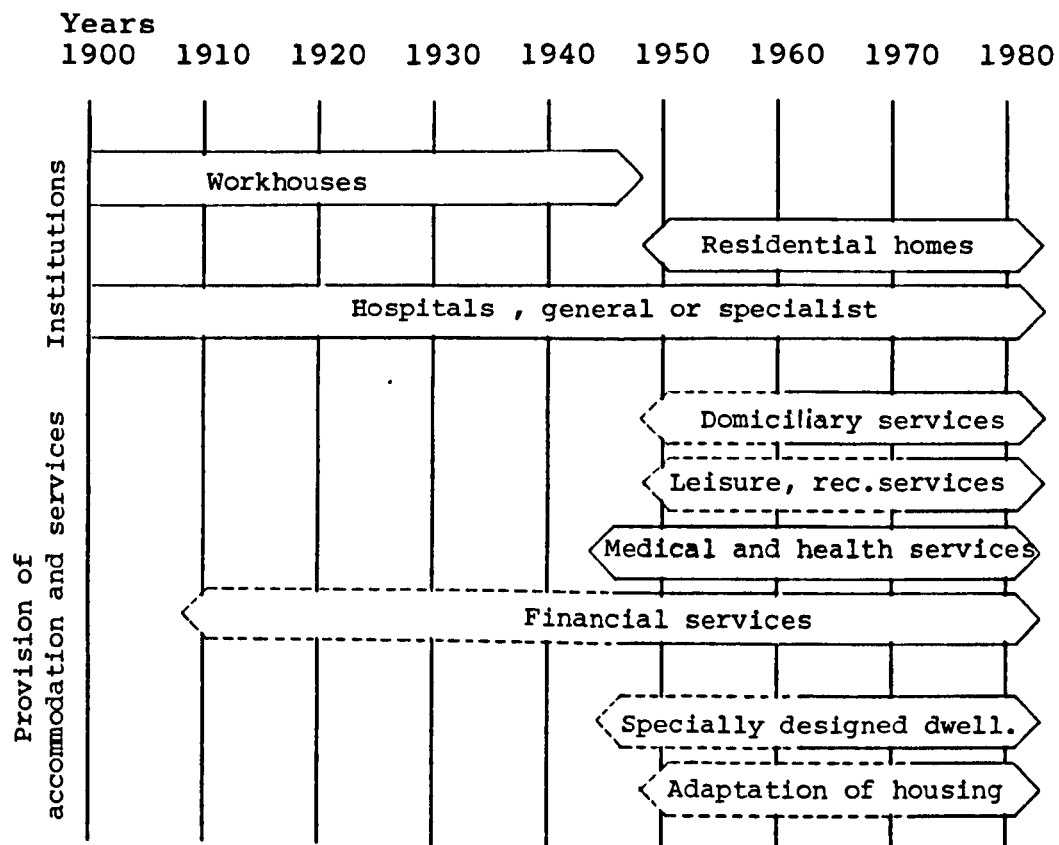
## **2. The present provision for the elderly**

At the present time (1982) there are two broad categories of provision in terms of the types of care involved:

- A. Care in institutions, such as, hospitals, residential homes for the elderly or mentally infirm and so on.
- B. Care in the community, such as, provision of services and provision of accommodation. (see Figure 2).

The current policy for the elderly is to enable them to remain in the community for as long as possible.(29) There are a number of reasons underlying this policy, that seemed to be crucial. Firstly, for many years there has been a growing reaction against institutions (i.e. residential homes) and their negative effects on the elderly.(30) Secondly, it was evident that few elderly wanted institutional care.(31) Thirdly, most institutions,





Care in institutions      The dominant idea or policy      Care in the community

- Indicates provision started but not commonly distributed/  
provided
- Indicates provision in those years to be more commonly  
distributed/provided

Figure 1: Development and expansion of provision for the elderly from 1900-1980 years.



particularly residential homes, were inadequate to meet physical, social and psychological needs of the elderly(32) or to promote their well-being.(33) Fourthly, there was a growing recognition that people had a right, where possible, to live among ordinary people in society and not to be in separate institutions which were seen as a barrier to normal living.(34) Fifthly, there were practical problems associated with institutional care such as difficulty in getting residential staff.(35) Finally, the financial cost of care in institutions was generally considered extremely high.(36)

Nevertheless, there are still about 6 per cent of the elderly living in institutions of which about 4 per cent are cared for in hospitals and a further 2 per cent in residential homes.(37) (38) Moreover surveys found that the average age on admission to residential homes has been increasing (e.g. in 1982 it was 82) (39) (40), a rise often attributed to the increase in the provision in recent years.(41) Yet the numbers and the proportion of the elderly in residential homes has been increasing slightly since the 1960's.(42) (43) It was argued that these increases were due to the rising numbers of the very old elderly in the community as a whole.(44) The consequence of this increasing number could, it was argued, on the one hand have been catered for by adequate accommodation and the provision of services (45), while on the other hand it was argued that there would be always need for residential care for extremely infirm elderly.(46) However on balance there appeared to be general agreement that the improvement and increased provision of accommodation and domicilliary services were important measures to help prevent or delay the elderly from going into institutional care.(47)

The present provision to enable the elderly to remain



in the community can be categorized under two main headings:

1. Provision of services.
2. Provision of accommodation. (see Figure 2)

These types of provision are different but also they are to a certain extent interdependent. In one government circular this was clearly expressed:

Although most old people live in the community, their ability to do so can depend as much on the kind of accommodation they occupy as the support they receive.(48)

Furthermore, it was often argued that the effectiveness of community services (i.e. domiciliary services) depend on adequate housing conditions. (49) (59) (51) For instance, whatever the services provided, if the dwelling is not suitable to the person or his capabilities then those services might be wasted as they would still not enable that person to live in his own home (or in the community). Furthermore there was some evidence that housing conditions could effect a person's ability to do housework (52) and also their ability to care for themselves.(53) Moreover, a number of studies revealed that many elderly went into institutional care (i.e. residential homes, or hospital) just because of the lack of suitable accommodation (54) (55) (56) or support services.(57) It would appear that these provisions are interdependent.

## **2.1. Provision of services**

As well as providing pensions the government provides other financial help for instance supplementary benefits, help with heating costs, rent, rate and transport allowances and tax relief.(58) This provision is



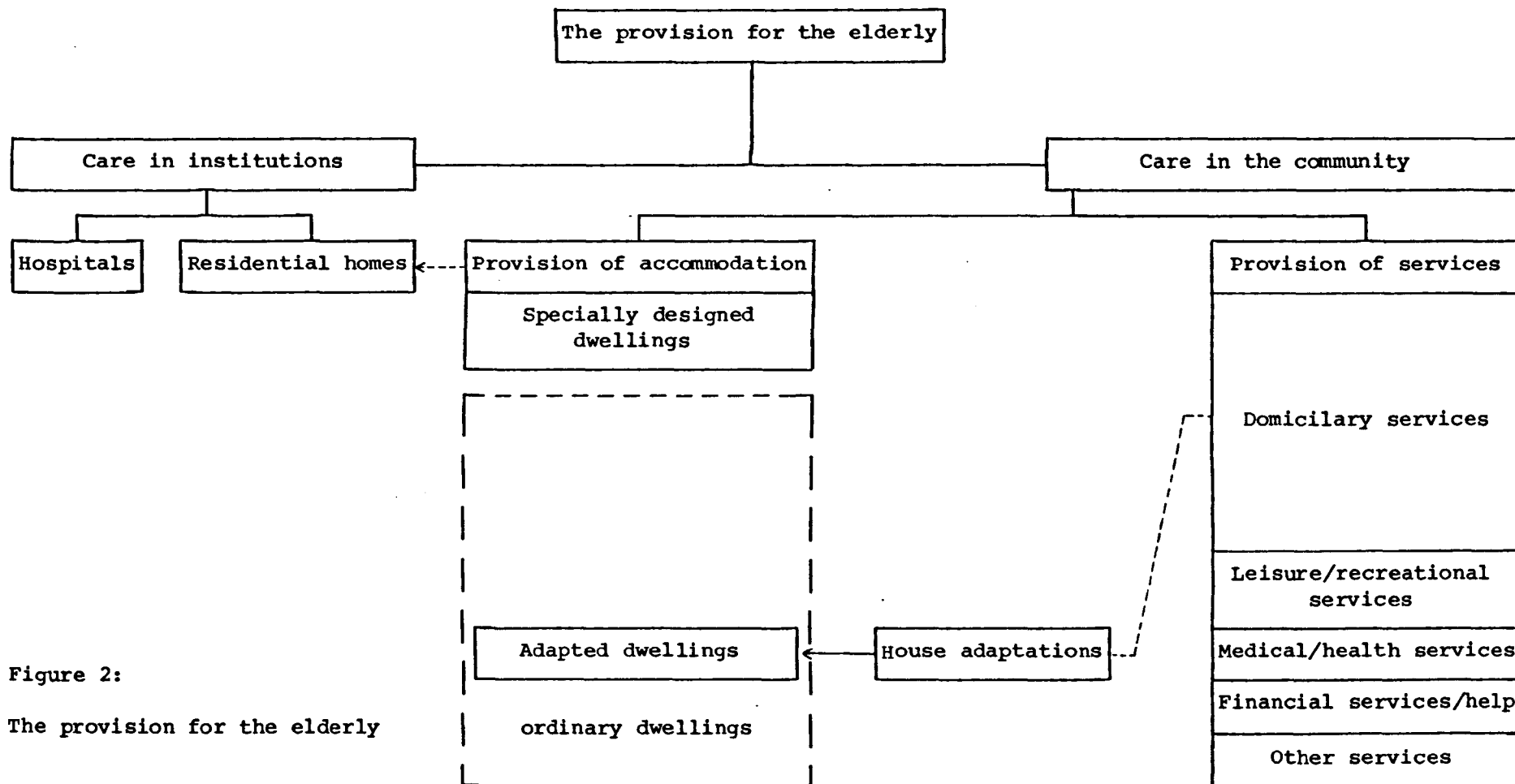


Figure 2:  
The provision for the elderly



particularly important as many elderly appear to need some sort of financial support. As well as financial needs, the elderly need medical services and there are various medical or health services apart from hospital or geriatric wards, for example, general practice consultations, opthalmic, pharmaceutical and dental services for the elderly living in the community.(59)

Apart from financial and health needs many elderly are suffering from loneliness, social isolation and disengagement, thus, they needed companionship, recreational facilities or similar provisions. So, to meet those needs, day centres, lunch clubs, holidays and various recreational and leisure facilities have been provided. The extent of those services increased especially during the 1970's, for example, in 1973 in England there were 8,814 day centre places in local authorities' day centres and in 1981 this had increased to 20,723.(60)

Domiciliary services are provided mostly to help those elderly who may be incapacitated by ill health or handicaps in various activities of daily living (e.g. mobility, self-care, housework) many of whom also live alone. These services are generally considered to be of great importance to help keep the elderly at home.(61) The main domiciliary services are, home helps, meals on wheels, aids for daily living, bath attendant/or district nurse, laundry and chiropody services.

Home helps generally provide cleaning, shopping, washing, ironing, small repairs, and sometimes cooking for the elderly in need.(62) There was a marked increase in this type of service especially since the early 1970's. For example in the year 1971/72 in England, home help was



provided for 404,200 cases and in the year 1979/80 this had increased to 659,500.(63) Despite the increase in number of cases and varieties of help provided there seemed to be some problems with this service. It has been noted that the scope of the help needs to be expanded overall and to cover some self-care activities, such as dressing, washing and so on which are not normally provided by these services.(64)

Although help in cooking is sometimes provided by home helps, many elderly who are unable to cook for themselves need regular cooked meals, and so meals on wheels services were set up to serve meals at home. This service also expanded during the 1970's considerably. For example in 1970 14,200,000 meals were served and this increased to 27,000,000 in the year of 1980/81.(65) However, a lot of old people expressed dissatisfaction with the meal provided.(66) Many of them tried to cook for themselves and it was found that this could be facilitated with various kitchen aids.(67) Other aids for daily living are provided for the elderly to facilitate other activities. Those are generally considered as 'personal aids' and include walking aids (e.g. tripod, frames, sticks) wheelchairs, 'helping hands' kitchen aids (e.g. holding devices, suitable cooking equipment) special beds, commodes and so forth.(68) Especially in recent years there has been an increase in the scope of aids to meet the various needs of handicapped people. Their provision has also increased, for example, in the year of 1979/80 in England 187,612 aids were provided for the elderly and this increased to 204,400 in the year of 1980/81.(69) (70) Although, one of the most common aids are bath aids (e.g.



bath seat, slip mat) still many elderly seem to need extra help in bathing as this is one of the most difficult tasks for many elderly. Many local authorities provide bath attendants or district nurses to help them in bathing. Some local authorities provide services to help with the other most difficult tasks for many elderly, such as cutting toe nails and washing and ironing. However it has been suggested that all those services need to be expanded to meet the demand of increasing numbers of frail elderly.(71) (72)

Despite the varied scope and increase of services the evidence suggested that many services are still not adequate to meet the diverse and growing needs of increasing numbers of the elderly. This clearly points out the need for more flexible and wide ranging services as well as to increase the extent of provision.(73) (74) Nevertheless the effectiveness of the services depends in part on the adequacy of the elderly's housing conditions.

## **2.2. Provision of accommodation**

The majority of the elderly live in ordinary dwellings in the community. Most of them were satisfied with their dwellings. Others, however, particularly the frail or handicapped elderly, were less satisfied especially with certain physical aspects of their homes which they could not manage. However, policies appeared to have failed to provide appropriate alternative accommodation for many of these elderly in need and the existing alternatives (i.e. old people's dwellings) have been found to be inadequate in



many aspects. The evidence indicated a need to use the existing stock of housing in a more efficient and flexible way to enable the elderly to continue living in their own homes. The adaptation of housing was suggested to overcome some of these problems.

Among the elderly living in the community, in 1976 about half of them (48.2 per cent) were owner occupiers, about one third (34.2 per cent) were council tenants, and the others were private tenants (unfurnished 14.6 and furnished 0.7 per cent) and housing association tenants (2.1 per cent).(75) Overall in 1976 most of the elderly (about 63 per cent) lived in 'whole houses' which means dwellings more than one storey, the others: about 12 per cent lived in bungalows, and about 8 per cent lived in dwellings for old people and 12 per cent lived in flats.(76)

In general, the elderly appear to be very satisfied with their homes and to value them highly. Their homes are in many respects important for most of the elderly as 'a house symbolises psychological and social well being rather than simply providing a physical life space'.(77) Kaplan (1974) argued that 'some of the most important aspects of housing of the elderly are socio-psychological'.(78) Rose (1982) pointed out that in relation to their homes the elderly 'valued their freedom and independence most highly'.(79) Luis (1974) asserted that 'independence is best achieved by living in one's own home'.(80) A number of studies attempted to measure the satisfaction of the elderly with their dwellings. There was general agreement on the findings of most of the studies that they found a high level of satisfaction with dwellings among four fifths



of the elderly.(81) (82) (83) Furthermore, in a comparative study, the elderly were found to be more satisfied with their homes than younger age groups.(84)

Yet, this did not mean that they had no problems with various aspects of their dwellings and many of them, particularly the frail and the handicapped, appeared to be less satisfied with many features of their dwellings.

Many studies noted that one of the features of their dwellings which dissatisfied many of the elderly was the stairs.(85) (86) (87) (88) The studies showed that about 6-8 per cent of all elderly were unable to negotiate stairs (89) (90) and a further 27 per cent had difficulties with stairs.(91) However, about three quarters of the elderly lived in dwellings with stairs (92) (93) and Hunt (1978) showed that a large proportion of them had to use stairs to gain access to various rooms and facilities (e.g. bath, W.C.) in their homes.(94)

The other aspects of the dwellings that were suggested to cause dissatisfaction were the lack of amenities and poor condition.(95) (96) (97) (98) In one of the general surveys it was found that in 1980 2 per cent of elderly households had a W.C. inside the building but outside their accommodation and 4 per cent had an outside W.C. and a further 4 per cent had neither a bath nor a shower.(99) It was suggested that using an outside lavatory or having no bath/shower might create particular hardship for frail elderly.(100) In addition about half of the elderly households surveyed were without central heating.(101) Adequate heating, it was suggested, was crucial for many elderly, particularly the frail, due to the increasing incidence of hypothermia among them.(101A) But this did



not mean that all elderly needed central heating as a gas fire or electric fire could be more economical for many elderly who did not need to heat all parts of their houses.

Many elderly lived in relatively larger dwellings (i.e. three bedroomed houses) and some studies suggested that many elderly had a number of difficulties with managing, maintaining and even getting around in them.(102) (103) (104) (105) Heating and repairs were expensive, and cleaning was difficult for many of the frail or very old. Indeed, many studies suggested that the elderly lived in larger homes than they needed.(106) However, some studies asked the elderly what they thought, and according to one survey about 90 per cent of them considered that their dwellings were the right size (107), so this may not be the main problem for most of the elderly that so many studies and policies assumed it was.

Apart from those features outlined above, many features of existing dwellings were found to create a number of potential problems, such as inadequate space provision in bathroom or W.C., or narrow doors for wheelchair users, doors or windows which were difficult to operate for frail elderly, inadequate lighting, inaccessible fittings, fixtures (shelves, cupboards).(108) (109) (110) (111) (112) (113)

However, there were some implications that one such feature alone might not be enough to constitute general dissatisfaction with the dwellings, but rather a combination of features related to the circumstances and capabilities of the elderly.

However, in general, policies appeared to fail to find an appropriate solution to many of the problems of the



elderly. For years, there have been few alternatives to meet their diverse needs and the increase in demand. For example, the main alternative, for many years, has been specially designed housing (e.g. sheltered housing, wheelchair housing and mobility housing).

There were a number of reasons behind why existing alternatives were inadequate to house the elderly appropriately. The requirements for housing the elderly were based on limited data and the elderly were not consulted about what they wanted or preferred. For example it was not discovered that most of the elderly wanted to continue living in their existing homes and in the area in which they had lived for a number of years.(113A) Many features of their dwellings and the importance, and effects, of them to the elderly in various circumstances were not known.(114)

Generalisations about the elderly were often made by policy makers and they and their requirements of housing were assumed to be homogenous.(114A) Thus, the provision of alternative housing remained limited in type, and did not include a range of alternatives to meet various groups of the elderly with various housing requirements.

Furthermore, those alternatives were based on only a few aspects of the elderly's needs, often with a biased view of old age, rather than taking into account many physical, social and psychological factors relevant to the elderly. For example, for years, it was known that the elderly lived in larger houses and their family size was smaller, thus, it was inferred that they needed smaller dwellings and if they were provided with smaller dwellings they would be willing to move there and their larger



dwelling could be used by larger families.(115) It was also believed that 'poor' housing condition was a major problem of old age (116), and one of the solutions proposed was to move old people to live together in specially designed buildings to improve their housing quality.(117) However, neither of those aspects of housing was enough to induce the elderly to move from their own dwellings which in most cases meant more to them than merely a physical life space, but had great socio-psychological value to them.

However, when new alternatives were suggested and planned the dynamism of the elderly people's requirements over time was not taken into account. For example, the capabilities and consequent requirements of the elderly relevant to the physical settings were assumed to be static, when new alternatives (i.e. Category I and II old peoples dwellings) were planned. However, over the years the capabilities of many of those elderly living in dwellings for the more active kind elderly (i.e. Category I) declined and many of the physical features of those dwellings became inadequate for them.(118) (119) Additionally, the wardens' duties increased considerably in many schemes, due to deterioration of the residents' capabilities and the consequent need for care.(120) (121) (122)

Moreover, many social and psychological consequences of the new alternatives were not predicted. For example many elderly had difficulties in getting used to living in grouped dwellings. Many elderly felt isolated (123) (124), many others suffered from restrictions in some schemes, such as not being allowed to keep their pets.(125) Some issues were associated with difficulties of accommodating



people with different social and economic backgrounds in the same scheme or under the same roof.(126) Furthermore, the concentration of infirm and very old elderly revealed or led to an institutional atmosphere in many schemes.(127) (128)

Finally, the views of the elderly on the new alternatives were not taken into account, before the policy was completely adopted. However, recent research showed that the majority of the elderly did not want to live in specially designed old people's grouped dwellings.(129) There was some evidence that many of the elderly did not want to be treated as a distinct group from the rest of the population.(129A)

The evidence indicated a need for more comprehensive and flexible housing policy (130) giving to the elderly, particularly the frail or handicapped, more choice apart from moving their existing homes, as well as a reconsideration of the role and issues arising from specially designed grouped dwellings for 'old people'.

Given that many elderly who had some difficulties with various aspects of their dwellings and were determined to continue living in their homes, the recently developed alternative of the adaptation of existing dwellings would appear to be appropriate in many cases. This seems particularly important due to the recent decline in building specially-designed dwellings.(131) This was expressed in a recent circular:

The adaptation of existing housing is also important ... It usually has the advantage, not always possible with new housing, of enabling people to go on living in familiar surroundings and near to friends and relatives. It can also help when urgent, or unexpected needs arise and purpose-designed housing may not be available.(132)



Because of the provision of adaptations is the main concern and focus of this research, it is necessary to examine it in more detail in order to understand its main dimensions. Thus, in the next chapter, the provision of adaptations, the issues associated with them, the theories behind them and the aspects that still remain to be discovered will be discussed.



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## CHAPTER III

### ADAPTATION OF EXISTING DWELLINGS

The adaptation of existing dwellings was suggested by central government as means of accommodating the elderly (and other handicapped) with various special needs who wanted to stay in their own homes and familiar surroundings.(1) Local authorities were made responsible for the provision of adaptations to elderly persons' dwellings and certain administrative and financial procedures were set up to enable this to happen. However, there appeared to be some inadequacies in the procedures, which were long and extremely complicated, and a number of 'sieves' are applied before the required finance is made available. Yet in spite of these inadequacies, the demand and requirement for adaptations has been increasing considerably for a number of years.(see section 4) The adoption of the policy of providing adaptations has varied from one authority to another, partly due to two conflicting views about A) the various consequences of adaptations, and B) the means to achieve the objective of keeping the elderly out of institutions by the provision of adaptations provided for the elderly. There is a lack of any empirical data to support either of these points of view, in relation to the adaptations. Nevertheless, there are some relevant theories and concepts which raise some questions which, if answered, might fill this gap in the knowledge. Briefly, these concepts are 'fit' or 'misfit', 'handicap', 'physical barriers', 'independence', 'continuous fit'.



## 1. Definition and the aims of the adaptations

Although the term 'adaptations' or 'adaptation of existing housing' or other similar terms are used many times in various studies and official publications (or documents), there appears to be no agreed definition of these terms.(2) In general, 'to adapt' was defined in one dictionary as: 'to fit, to make suitable and to alter so as to fit for a new use' and 'adaptation' was defined as: 'the action or process of adapting; the process of modifying so as to suit new conditions'.(3) In relation to the elderly, and particularly the frail or handicapped, one of the definitions in the literature was that 'adaptations are the reshaping or realignment of the environment to bring about its suitability for a person with a handicap'.(4) In one Outer London Borough, 'adaptation' was defined as 'altering anything that involves the structure of a dwelling or its surround'.(5) In recent DHSS statistics the meaning of 'Adaptation to property' was indicated by giving some examples of what had been provided or done, such as 'door widening, ramps, fixed hoists, rails, special baths, adaptation to WCs, modification of work surfaces, floor strengthening, lift installation etc'.(6)

For the purpose of this study adaptation will refer to anything installed, fixed, extended, altered, added or converted that is related to a building's (i.e. dwelling\*) fabric or its immediate surroundings (i.e. garden), with

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\* The word dwelling refers to 'a building or part of a building which forms a separate or reasonably separate and self-contained set of premises designed to be occupied by a single household'.(7)



the aim of making the dwelling or garden more suitable for the capabilities of the individual living in it. Adaptations cover a great variety of items and works and range from a grab rail, stair rail installation, raising electric sockets, widening doors, a stair lift installation to the addition of a ground floor lavatory or extension to make a ground floor bedroom or living room, all aiming to make a dwelling more suitable for the capabilities of its occupier.

The aim of adaptations to existing dwellings of the elderly provided by the local authorities has been to enable them to remain in their existing dwellings (8) and to secure greater safety, comfort and convenience.(9) In more general terms, adaptations are also one of the provisions, aiming to enable the elderly (and other handicapped persons) to remain in the community for as long as possible.(10)

Local authorities exercise their powers to provide adaptations under certain legislation.

## 2. Legislation

Although the idea of providing adaptations to existing dwellings was first seen in Section 29 of the National Assistance Act 1948, the main developments in the administration of this provision took place after the late 1960s, first, with the Health Service and Public Health Act 1968 which empowered local authorities to make arrangements for promoting the welfare of the elderly (in section 45), and second, with the Chronically Sick and Disabled Persons Act 1970 (section 2, paragraph e). The 1970 Act proposed many services including the adaptation of dwellings for the



handicapped persons which were also available to the elderly 'who need help to cope with daily life'.(11) The Department of Health and Social Security Circular 19/71 listed the services which local authorities were empowered to provide especially for the elderly, one of which was to provide practical assistance in the home including assistance in carrying out works of adaptations or providing additional facilities to secure greater safety, comfort or convenience.(12)

Until 1978, Social Services Departments were exercising their powers under the Section 29 of the National Assistance Act 1948 and Section 2 of the Chronically Sick and Disabled Persons Act 1970 to make arrangements for adaptations. However, in Section 3 of the 1970 Act it was stated explicitly that housing departments also had powers to provide adaptations. Thus, powers of two departments overlapped and this could give rise to uncertainty, which, could in turn delay or deny the help which people were entitled to expect.(13) The joint Circular 59/78, therefore, aimed to clarify the authorities' duties and responsibilities. However, despite the Circular, there appeared to be still some overlaps and ambiguity about the responsibilities of the departments. This was probably partly due to the failure of definition and distinction between the types of adaptation, some of which were the responsibility of one department and some were the responsibility of another. For example, according to Circular 59/78 Social Services Departments were to provide 'minor structural works' (or 'non structural features') and 'aids and equipment' for people living in local authority dwellings and private sector dwellings.



However, in the Circular, it was also stated that 'it is difficult to draw clear distinctions between structural and non-structural works'.(14) Thus, in local authorities, the responsibilities in terms of the provision of various adaptations, appeared to vary. Moreover various distinctions/definitions were assumed about structural or non-structural works or aids or equipment. Nevertheless, in general terms, the Circular did indicate the responsibilities of the departments as follows.

The responsibility for identifying, assessing and advising the persons living in both local authority or private sector dwellings, on the housing needs and the required adaptations to their homes rested with the Social Services Departments in collaboration with the Health Authorities.(15) The Social Services Departments would be the primary source of help in the provision of all types of adaptations for people living in private sector dwellings.(16) The responsibility for the provision of non-structural adaptations and aids and equipments for the people living in local authority dwellings would also rest with Social Services Departments or, where appropriate, the Area Health Authorities.(17)

Housing Departments, however, were to be responsible for major works, or structural adaptations to local authority dwellings and assisting people living in private sector dwellings in the provision of major works or structural adaptations by means of grants.(18)

### 3. Procedures

The administrative and financial procedures to provide adaptations, particularly structural or major works,



appeared to be inadequate in many respects to meet the requirements of the elderly. In many local authorities the administrative procedures were extremely complicated and often resulted in long delays and were troublesome for many elderly people. The finance available was often insufficient in view of the financial circumstances of the elderly and the generally poor condition of their dwellings which needed finance (i.e. grants or loans) for adaptations.

Although the administrative procedures and their implementations varied from one local authority to another, analyses of various studies showed the following main stages were common to authorities in the provision of structural or major adaptations.(see Appendix 1)

A. The procedure is generally started by an inquiry from any person which draws the authorities' attention to a possible need. The inquiry could come from the person in need or a person in the family, friends, general practitioner, social worker, housing officer and so on.

B. The particular need of the individual concerned is identified by an occupational therapist (O.T.), and possible solutions are considered by the occupational therapist and/or head occupational therapist, environmental health officer, or housing officer, architect (local authority or private architect), (and sometimes the district nurse) in conjunction with the person in need (client).

C. Sketch plans are prepared by the architect or surveyor and discussed with the client together with the occupational therapist, and the architect. The plans are selected and/or modified or revised and an approximate cost is estimated.



D. Working drawings are prepared, building regulation approval, and where necessary planning permission is obtained and the detailed cost is estimated by architect or surveyor.

E. Finance is provided. If it is a private sector dwelling, a grant or a loan may be obtained or the cost is met by the private sources of the client. If it is a local authority dwelling, the cost limits are checked and adjusted and finance is normally provided by the local authority.

F. Contractors or builders are approached and the cost is discussed and agreed and a contract is signed.

G. The contract is run and the work is supervised by the architect or surveyor.

H. The client starts to use the completed adaptation.(19) (20)

The evidence showed that, the procedures briefly outlined above, required tremendous paperwork and time, involved many specialists, often took an extremely long time and caused unnecessary delay in the provision.(21) (22) (23) However, especially in the case of the elderly, adaptations were likely to be required promptly, because many elderly were vulnerable to get help from others, particularly those who lived alone, especially in the case of illness, injury or a sudden decrease in their capabilities to use various parts of their dwellings. Furthermore, many elderly might not be physically or psychologically strong enough to follow such a long procedure involving so many stages to be completed. Indeed, some evidence suggested that many of the elderly gave up trying to get adaptations provided because of the



extremely long time required to get it done (24) and the difficulties of following complicated procedures.(25) There was some evidence also, that, in some cases the long delays over the provision meant that adaptations were not completed until after the death of the person in need!(26)

Thus, it seems clear that if adaptations were to be provided to meet the requirements of the elderly quickly and effectively, a point which was also emphasized in the Circular 59/78, paragraph 9, then, the procedures needed to be shortened and a quicker service provided.(27)

The evidence showed that the financial procedures also varied from one local authority to another.(28) In general the cost of minor or non-structural adaptations were mostly met by the Social Services Departments or Health Authorities and the cost limit for these adaptations varied in many authorities and was likely to change every year due to the increase in the cost of items to be provided. This limit in some areas was £100, in another £150 or £200.(28A)

If the cost of the work exceeded those limits, payment was required by the person privately or from available grants to assist in required adaptations.

Although the main sources of finance were 'the house renovation grants' (i.e., improvement grants and intermediate grants), some other grants, such as 'repair grants' or 'special grants' were also available subject to certain conditions.(29) Apart from grants, a number of types of loans might also be provided to meet the required finance. For example 'maturity loans' or 'interest free loans' were increasingly available in many local authorities.(30) Since house renovation grants were the most commonly considered source of finance they are now briefly examined.



Improvement grants can be given for work to adapt a dwelling, if it is inadequate or unsuitable for occupiers in relation to their handicaps. These adaptations range from the provision of a ramp, alteration of gradients, work to windows, doors, provision of electric sockets, to installation of a lift.(31) These grants may be made available at the discretion of the local authorities but do not meet the total cost of adaptations, only a certain proportion (i.e. 75 per cent or 90 per cent in cases of special hardship, earlier these were 50 per cent and 65 per cent respectively and increased in January 1982).(31A) It has been pointed out that a number of 'sieves' are applied to availability of these grants; some of those are related to the person, for example, his legal interest in the property (e.g. owner or tenant); some are related to the property/dwelling (e.g., its age, condition of repair, sanitary facilities and so on) and some are related to the type and level of work to be done.(32) Many local authorities do not pay these grants because some of these qualifications are not met and also because of budget restrictions.(33)

Intermediate grants are available for works involved in the improvement of dwellings which lack any of the standard amenities (e.g. fixed bath/shower, hot and cold water, wash basin, sink, WC) or where these are inaccessible to an occupier because of handicap. Local authorities normally expect some conditions to be fulfilled upon completion of the work, for instance, the standard amenities need to be available for the exclusive use of the occupants, or, the dwelling should be in good state of repair, and so on. Where the conditions are met a local



authority cannot normally refuse to make a required grant available. Yet, these grants also do not meet the total cost of adaptations but only a certain proportion of it (i.e. 75 per cent or 90 per cent in cases of special hardship these were also 50 per cent and 65 per cent respectively before January 1982).(33A)

However, it might be argued that, for many elderly living in older dwellings in poor condition of repair and limited income (i.e. pensions), these grants do not appear to be a viable alternative of finance to adapt their homes. There was also some evidence that many elderly did not have the required adaptation done, because they did not have adequate finance to pay for it.(34) (35) It has also been argued that these grants were inadequate since they were primarily aimed at house renovation and conversion generally, rather than at providing finance for the elderly or handicapped to get adaptations done.(36)

It appears that the existing system of finance to meet the cost of adaptations is often inadequate for the many elderly on low and fixed income living in poor or less well maintained dwellings which are unable to meet the required criteria necessary to obtain finance. Clearly, if the elderly are to be encouraged to adapt their homes in order to enable them to continue living in their homes, the existing system of finance needs to be reconsidered by taking into account the circumstances of the many less well off elderly.(37) (38) (39)

#### 4. Demand and extent of provision of adaptations

Despite the administrative and financial drawbacks to the provision of adaptations, in general, demand for



adaptations (particularly for the elderly) and the extent of the provision has been increasing for a number of years (see Figure 1).(40) It has been argued that there will always be a constant demand for adaptations.(41) There are two basic factors underlying this argument. The first is that a number of studies show that the stock of existing dwellings were very likely to be inadequate to meet the needs of the elderly with declining capabilities and changing requirements for physical settings.(42) The second is that it seems extremely unlikely that all elderly will want to move from their homes just because they have difficulties coping with their dwellings.(43) Moreover, it is unlikely, that the considerable resources needed to provide specially-designed dwellings for all those elderly will be available in the near future.(44)

Detailed statistics showed that the highest proportion of people provided with adaptations were the elderly. For example in the year 1980, 69 per cent of all households provided with adaptations were elderly and in the year 1981, 71 per cent of those households were elderly.(45) (46) This reinforces the need to match this provision to the circumstances of the elderly population in order to meet their requirements efficiently.

Analysis of recent statistics showed that the extent of the provision and the policy of adaptation has greatly varied in many local authorities. While some authorities gave some emphasis to the adaptations, others did not appear to provide any adaptations. Although a greater emphasis on providing adaptations does not necessarily indicate an exclusive policy of adaptation at the expense of other provisions, such as specially designed housing,



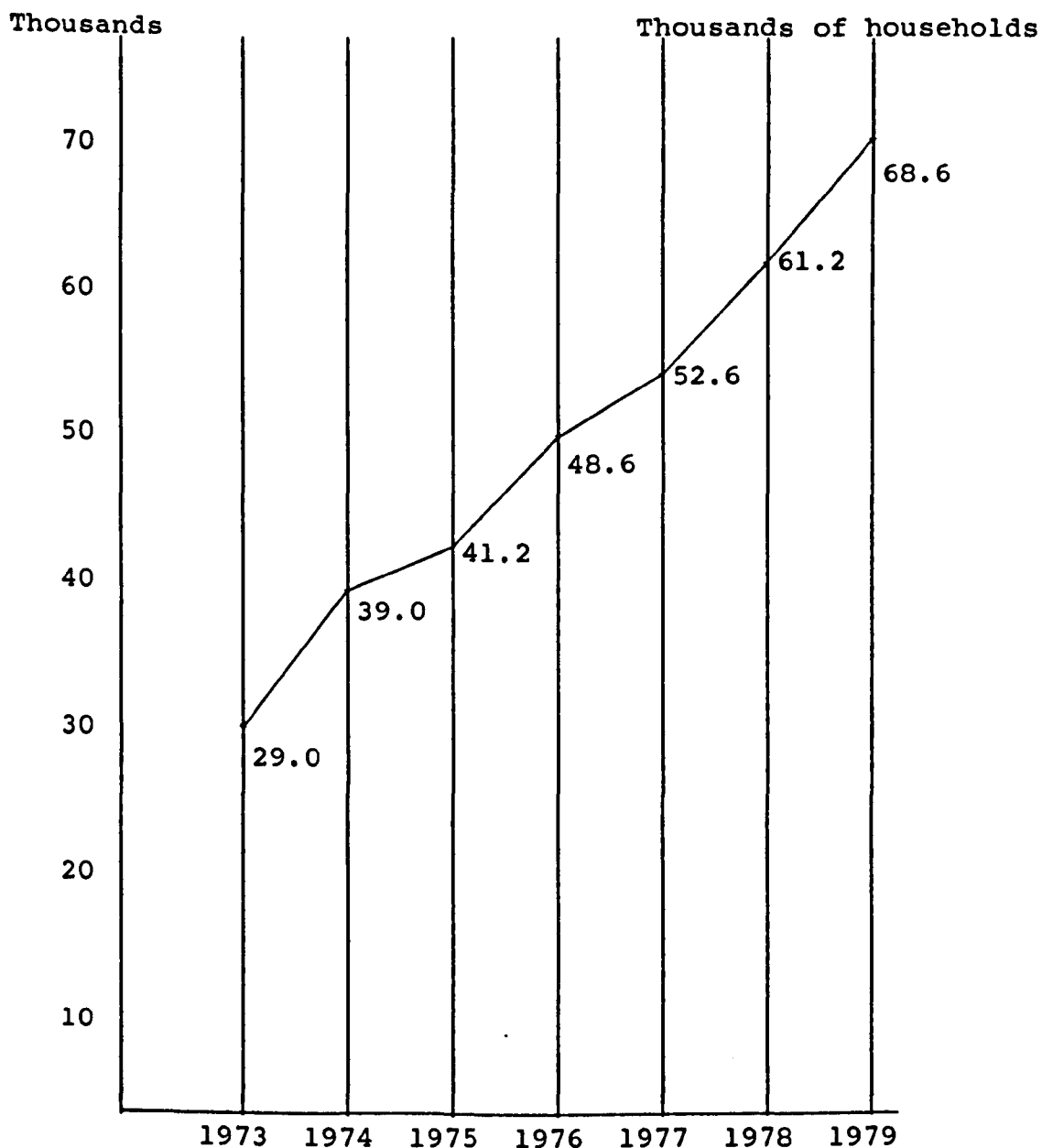


Figure 1: Adaptations provided to households (all households) by the Social Services Departments in England.

Sources: Department of Health and Social Security (1978), Health and Personal Social Services Statistics for England, DHSS, p.159.

Department of Health and Social Security (1982), Health and Personal Social Services Statistics for England, DHSS, p.104.



less or no emphasis on the provision of adaptations may indicate a lack of policy for providing adaptations or concentration on other provisions. But in every local authority, normally, there should be a certain amount of demand and requirement for adaptations because in almost no authority were the other types of accommodation (i.e. specially designed housing) enough to meet the demand for appropriate housing for the elderly, and/or handicapped. Thus, if in an area, no or extremely few adaptations were provided this may indicate a lack of policy of providing adaptations rather than no demand or requirement for adaptations.

In England in some local authorities the rate of adaptations provided per 1000 population remained at 0.0 (zero); however, in some authorities the rate was as high as 8.1 per 1000 population.(47) (see Table 1) One of the main reasons for this difference was that the provision of adaptations has been a relatively recent phenomenon and there were a variety of views about providing adaptations. Not only were the views of local authorities different but also there were widely different views among professionals. The discussion has been continuing on a number of aspects and issues regarding the provision of adaptations. For example, it was argued that adaptations encouraged underoccupancy and resulted in the inefficient use of the existing housing stock.(48) (49) In contrast, it was argued that adaptations could provide efficient use of existing housing stock and prevent keeping a vast reserve of unoccupied specially-designed dwellings which would be needed to accommodate various and unpredictably sized households.(50) (51) The other argument was about



Local Authorities	Rate of adaptations per 1000 population
Non-metropolitan Counties:	
Cleveland	0.0
Buckinghamshire	0.1
Cambridgeshire	0.2
Somerset	1.6
Norfolk	2.7
Surrey	3.7
Inner London Boroughs	
Greenwich	0.4
Islington	0.8
Camden	1.1
Wandsworth	3.6
Lambeth	3.8
Southwark	4.3
Other London Boroughs	
Merton	0.0
Havering	0.3
Barking	0.5
Harrow	3.8
Brent	4.1
Hillingdon	8.1

Table:1 The rate of adaptation provided per 1000 population

Sources: Department of Health and Social Security,  
 Personal Social Services Local Authority  
 Statistics, Domiciliary Services, Meals, Aids and  
 Adaptations, Year ending 31 March 1981, England,  
 Department of Health and Social Security.



whether it would be possible to re-use the adapted dwellings for people needing the adaptations or whether they would be lost to the community after the person who needed the adaptation died or had to move from the adapted dwelling.(52) Moreover in an Office of Population Censuses Survey report it was stated that 'persons without adaptations are not more likely to say they would like to move than are persons who had some adaptations made'.(52A) These arguments have not been resolved and as a result authorities views are divided. Many local authorities are opposed to the idea of 'costly, major adaptations' and they re-housed the people instead of adapting their homes (53), while other local authorities were strongly in favour of the provision of adaptations of any kind.(54)

In terms of design and physical features of adapted dwellings some professionals argued that 'adapted dwellings cannot compete with purpose-designed dwellings' (55), while some others argued that, it might not be possible to build specially-designed dwellings to suit a great variety of capabilities of various groups of handicapped people.(56) In fact some evidence showed that many specially-designed dwellings, for example, Category I old people's dwellings, often needed to be adapted to suit the requirements of their occupants.(57) Nevertheless, some authors proposed a large stock of specially designed housing to avoid the expense of adaptations.(58) On the contrary some researchers argued that there would always be a need for adaptations.(59)

Clearly the ideas of many professionals in this area were varied and often contradictory; some of them strongly defended the idea of specially-designed dwellings, such as,



sheltered, mobility or wheelchair housing whilst others supported the idea of adaptations to existing dwellings to accommodate the elderly.

However, there was no adequate data to support or refute the extent and efficacy of adaptations in terms of meeting the requirements of the elderly in various circumstances. This was noted by Minors and Plank (1975) who examined the housing policies of Greater London Boroughs:

Some local authorities pursue a policy of adaptation of existing dwellings rather than provision of purpose-built accommodation. However, adequate data to support any of these policies or to determine the optimum mix of provision for any particular area do not exist.(60)

Although for many years a number of local authorities have adopted the policy of providing adaptations, only a limited number of studies have been carried out.(61)

Some of those studies investigated administrative and financial procedures for providing adaptations. For example Keeble (1979) and various Centre on Environment for the Handicapped (CEH) publications and seminars argued for improvement in the procedures employed. Some other studies looked at adaptations in more general terms. For example Buckle (1971) examined 'what housing alterations have been made and at what cost'.(62) Some studies considered the housing needs of the handicapped and/or the elderly and attempted to assess their requirements for various adaptations. For example Hunt and Hoyes (1980) aimed 'to locate every disabled person handicapped to the extent of having a housing need and to assess the nature of their housing problem'.(63) Finlay (1978) examined 'housing



needs of physically handicapped people in Rochdale'.(64) Though these studies, to some extent, considered the adaptations provided for those people in the sample, they did not aim to assess whether those adaptations were suitable to meet the requirements of the people with various capabilities and of different households in various size and character of dwellings or relate this to the various services or help provided and/or received.

Thus, there is a lack of empirical evidence about many aspects of adaptations, particularly the adaptations provided for the elderly.(65) (66) (67) (68) In order to tackle and research some of the aspects of the problem, it may be appropriate to investigate some of the theories and concepts involved in order to provide insight into the area of adaptation in general.

##### 5. Some relevant theories and concepts

The adaptations of dwellings for the elderly or handicapped primarily involves making the physical setting (i.e. dwellings) more suitable to the capabilities of the individual (i.e. the elderly person). The requirement for an adaptation results from the relationship between the physical setting and the capabilities of an individual in carrying out the activities, relevant to the physical setting. The main point in this relationship is that physical settings have a relatively 'unchanging character, while the capabilities of individuals are dynamic and may vary according to their health (e.g. illnesses, accidents) and are likely to decline, especially in the later years of life.

In the literature, the relationship between the



individual and the physical setting was often referred to as 'fit' or 'match' or alternatively 'misfit' or 'mismatch'. If a physical setting is suitable for the individual's capabilities, (which represent a diverse collection of abilities, e.g. perception and physical health) (69), to perform activities without constraint, then, this indicates a 'fit' between the physical setting involved and the individual in terms of those activities concerned. If the setting is not suitable for the individual to do so then this indicates a 'misfit' between them.(70) (71) (72) In most cases, particularly in the area of this research, the crucial problem appeared to be achieving a fit between the declining capabilities of an individual and physical setting.(73)

It has been argued that 'fit' is a measure of the degree to which activities are unconstrained by the physical environment'.(74) Fit could vary, depending upon the degree of constraint imposed by the physical setting. If the activities are extremely constrained then misfit occurs, and this disadvantage or restriction in activities of the individual is normally (or generally) referred to as 'handicap'.

The term handicap was defined differently by many authors. For instance, the most commonly accepted definition was Harris' (1971) which was 'the disadvantage or restriction of activity caused by disability' and 'disablement' was defined as 'the loss or reduction of functional ability'.(75) It should be noted that in this context there was no reference to physical settings or any other environmental factors in the definition of a handicap. However, it is becoming more evident that a



number of environmental factors (i.e. factors in physical environment or setting) can also affect and contribute to handicaps of individuals. The other definition was from Agerholm (1975) which was 'a long-term disadvantage which adversely affects an individual's capacity to achieve the personal and economic independence which is normal for his peers'.(76) She grouped the handicaps into two. 'An extrinsic handicap is such a disadvantage arising from the individual's environment or circumstances' and 'an intrinsic handicap is such a disadvantage arising from the individual's own characteristics from which he cannot be separated', and disabilities were defined however as, 'the signs or symptoms of handicaps'.(77) Thus, it could be inferred from her definitions that a handicap could arise from the interaction between the individual's capabilities and the characteristics of the physical setting. The concept (handicap) appears to be closely related to the concept of fit that refers to the characteristics of the individual and the physical setting. Furthermore, it may be inferred that if fit between the capabilities of the individual and the physical setting in terms of certain activities concerned is high then the individual is less likely to be handicapped by the setting and conversely if fit is low then handicap is more likely.

The other relevant concept was 'physical barriers' which 'refer to those problems of handicapped people relative to access and use of buildings and mobility in the environment'.(78) It was argued that:

Physical barriers deny the full use of the environment primarily to the physically handicapped. They are pervasive in their influence in that they reach to all aspects of the built environment, including all building types and the spaces between buildings. Common



physical barriers are found in pedestrian walkways, building entrances, building corridors, stairs, elevators, toilets, and all forms of public transportation.(79)

This concept was primarily related to the physical settings and capabilities of individuals and their handicaps arising from the interaction between them.

Handicap has an adverse affect upon the individual's independence in carrying out everyday activities. Independence is important for almost all people, as much as for the elderly. Carp (1976) pointed out this by noting:

The most dreadful possibility to an older person is that of becoming a burden on others; the most desired personal attribute is independence. As long as a person can take care of his own physical-maintenance needs, he has a sense of independence.(80)

Goble (1971) emphasised the importance of a person's independence to perform certain activities of daily living in order to be able to live in the community and to avoid being institutionalised.(81) Blackie (1980) argued the necessity of 'the old person's sense of mastery over the environment' and pointed out that when they were able to change their environment as it suited them (e.g. opening the window, moving the table etc) it had a positive effect on their well-being.(82)

However, the increase of independence of an individual in his activities related to the physical settings largely depends on fit between his capabilities and the physical setting concerned. In order to achieve a fit two main processes appeared to be involved. The first is the adaptability of the individual to the physical settings. It was suggested that in many situations most people were highly adaptive to various environmental stimulations, including temperature, noise, light and so on. (83) (84)



(85) (86) It is also evident that in many cases, the individual's capabilities, for many of those with handicaps, can be increased with appropriate training (e.g. occupational/physio therapy, teaching skills, etc) and by the use of devices, aids or appliances (e.g. sticks, wheelchairs, special kitchen equipment, bath aids and so on).(87) However, it is evident that there are limits to how far individuals would adapt (88) and the individual nearly always prefers to adapt his environment to his needs (or requirements) rather than himself to it.(89)

Thus, the other way to achieve fit is to adapt the physical setting to the individual, which it was suggested, was not only more viable but also a more appropriate alternative in most cases.(90) (91) (92) However, it was suggested that, in theory, the adaptations of physical settings had to take into account the dynamism of needs, activities and capabilities of the individuals who would be users of the adapted settings. It was suggested by Eastman (1972) that 'if the fit is to remain good, then, the buildings must become continuously adaptive to the activities within it' (93), especially as the capabilities of the individual declined.

It is clear that there are two main general problems which have remained largely unsolved and required further examination and empirical evidence to be supported or refuted.

The first was that whether and to what extent the adaptations could meet the relevant requirements of the elderly living in ordinary dwellings, and having difficulties with some aspects of their dwellings.

The second was that whether, and in what



circumstances, the adaptations could encourage or enable the elderly to remain in their existing homes, on the ground that most want and wish to do so.

The first problem involves the examination of whether and to what extent the activities of the elderly could be eased or facilitated by adapting their homes. This means, whether and to what extent the physical settings affect (i.e. facilitate or hinder) the abilities of the elderly to perform their activities relevant to the settings.

The second problem involves the examination of whether and in what circumstances and in what way the physical settings have an effect on the ability of the elderly to remain in their existing dwellings.

Thus, the examination of those problems requires the examination of various groups of factors (i.e. physical setting, activities, etc) involved and the relationship between them, and requires a theoretical framework to facilitate the examination to be done, and the empirical work to be carried out.

Therefore in the next chapter the theoretical framework which includes a number of propositions about the relationship between these factors involved will be discussed and the boundaries or the area of problem to be investigated in detail will be identified.



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## CHAPTER IV

### THE RESEARCH

The aim of this chapter is to set out the objectives of the research and develop a theoretical framework which can form the rationale for the propositions put forward to facilitate the investigation. An outline of the methodology, limitations of the study and sampling procedures is also presented.

#### 1. The problem and aim of the research

A great majority of the elderly have been living in the community and in their existing dwellings and in their familiar surroundings and want to continue doing so. However, many elderly, particularly the frail, had to move from their homes into institutions (i.e. old peoples homes or hospitals) or specially designed dwellings (i.e. old peoples dwellings), partly because they could not cope with their existing dwellings.

It was clear that, on the one hand institutions were, in many respects, inappropriate and an alternative unwanted by the elderly. On the other hand, specially designed dwellings were also inadequate in many respects, to meet the various and changing requirements of the elderly and to accommodate increasing numbers of elderly people and also appeared to be an unwanted alternative for most of them.

The recent policy and the approach to old age has been to enable the elderly to remain in the community and preferably in their existing homes, and minimise or delay institutionalisation. Various domiciliary services and, in recent years, adaptations have been provided and made available to the frail elderly, to achieve this aim.



However, various aspects of the adaptations provided and the existing dwellings of the elderly have not been assessed and evaluated in depth and thus many crucial points remained unexplored. For example, provision of adaptations for the elderly might indicate that they had difficulties with their existing dwellings and that the adaptations were expected to minimise or eliminate those difficulties encountered. Yet there has been extremely limited data about the features of the existing dwellings which create various difficulties for the elderly, particularly those frail elderly whose physical health and condition deteriorated to a varying extent. Little was known about whether, and in what way, those features adversely affected elderly people's activities essential for day to day living and their remaining in their existing homes. This is a crucial matter in taking preventive action in order to minimise institutionalisation of the elderly and/or if the elderly are to be enabled to remain longer in their homes. Bloom and Blenker (1970) noted that,

Here in the community is where over 95% of older persons live. Here is where programs of preventive action must be taken. Here is where programs of rehabilitation might be undertaken in larger numbers - if we only knew more about how older persons function in their own homes.(1)

Wheeler (1983) called for more imaginative response to and urgency of research into the 'handicapping effects' of existing dwellings in old age.(2) It was generally known that many adaptations were being provided for the elderly living in their homes. However, the search in the relevant literature clearly showed that there was little known about whether and to what extent various adaptations which had



been provided, in fact, minimised or eliminated difficulties of the elderly with various features of their dwellings, and whether or not the adaptations were found useful and appropriate to meet the elderly peoples' related requirements. The time factor appears to be particularly crucial since elderly peoples' requirements are dynamic. For instance, it was self-evident that ageing was a dynamic process and the elderly, in general, were likely to be more and more frail and their condition deteriorate over time.

This raises the question of whether even if a particular adaptation minimised a problem at one point of time it is adequate when the health and condition of the elderly deteriorated further?

Are the adaptations still useful and appropriate to meet their requirements which might change after the adaptations have been provided? What are the consequences for design and applications of the existing adaptations provided if the effectiveness of the provision is to be improved? Moreover, little is known about whether and to what extent and in what way adaptations made an impact upon elderly peoples' remaining at home longer. The elderly as a whole are not a homogeneous group: thus we need to know what types of adaptations were effective or not effective in differing circumstances in which the elderly lived. Therefore, the aim of the research is to seek answers and bring understanding to the above questions. They can be put together under two main questions which are, to some extent inter-related and require further investigation and empirical test.

A. Whether and to what extent the adaptation of existing dwellings can meet the requirements of the elderly relevant



to their dwellings or aspects of them.

B. Whether and to what extent the adaptations of existing dwellings has an effect upon enabling the elderly to remain in their homes longer.

## 2. A theoretical framework

In this study elderly people's requirements relevant to physical setting in their dwellings were considered in two ways. Firstly, if the physical settings are appropriate, then their activities are unlikely to be constrained by the settings. Of course, this will also depend upon the physical health and condition of the elderly people which comprise illness, conditions and resulting impairments or restrictions which can be called intrinsic handicaps.(see Ch.III,5) Secondly, where an elderly person is too frail or his health too far deteriorated to perform certain activities (i.e. self-care, mobility) which are relevant to the settings, then his requirements from the settings would be a setting in which he could be assisted to perform required activities by others with a minimum effort or else the available help (i.e. elderly spouse) could be made more efficient and effective to assist the person concerned.

In respect of probable effect or role of adaptations of the dwellings upon enabling the elderly to stay in their homes longer, an assumption, which emerged from the relevant literature, was made. This was that, if an elderly person is to stay in his home, supposing he is living in a dwelling and has an income sufficient to meet the expenses relevant to food, rent, rates, gas, electricity and so on, at least his essential daily



requirements must be met, certain self-care, mobility and housework need to be performed by the person with or without the help of others or by others for him, to maintain day to day living.

In order to investigate the possible effects of the adaptations provided for the elderly upon the considerations outlined above, (which involves a complex interaction between a great number of factors) a theoretical model which groups those factors and forms a base for proposed relationships between those factors has been developed.

The abilities of a person to perform activities relevant to the physical settings and necessary for day to day living, depends on two broad groups of factors. Firstly, his physical health and condition and being mentally alert (see section 4 for limitations of the study) and has skills to do the tasks concerned, such as, self-care, mobility, and housework matters. Secondly, physical settings and supplies, such as various features of the dwellings, i.e. doors, stairs, corridors, distances, area and the adaptations provided relevant to those features, and equipment and appliances which can be called aids, such as wheelchairs, sticks, special bath and kitchen aids for daily living must be taken into account.

Concerning the second group of factors, the main focus of the study is the physical settings, which include dwellings and adaptations. Other factors such as supplies or aids will also be considered where necessary.

The general ability of an elderly person to stay in his existing dwelling or alternatively having to move to another setting (i.e. another dwelling or institution)



depends on two broad groups of factors; firstly, his abilities to meet his daily requirements; secondly, if he is not able to perform some or all of those activities, the provision of help or services (human help) to assist him in carrying out the activities concerned, such as eating, toileting, bathing, mobility and access at home or outside, provision of food, cooking and so on. The provision of help or services for a person might depend on various social, economical and political factors i.e. a person's social and financial condition and circumstances, such as living alone or with others or having and adequate income to pay privately for help and for the policy of local authority to employ a home help service. These factors are not the main focus of the research to be carried out. The amount and nature of help required by the person to perform his activities concerned depend on the person's abilities to perform the activities and the features of the physical settings. If his abilities to perform activities decreases, his requirements for help increase and if settings are appropriate to assist the person concerned the help required decreases or stays constant. Otherwise it increases.

This proposed theoretical model or relations between various groups of factors is shown in Figure 1.

The main groups of factors which will primarily be considered and involved in the research are as follows:

1. Features of the dwellings of the elderly and the adaptations provided, i.e. stairs, outside steps, doors, corridors, area and adaptations related to those feature, i.e. stair rails, lifts, showers, ramps. These two aspects, combined, will be described as the physical setting.



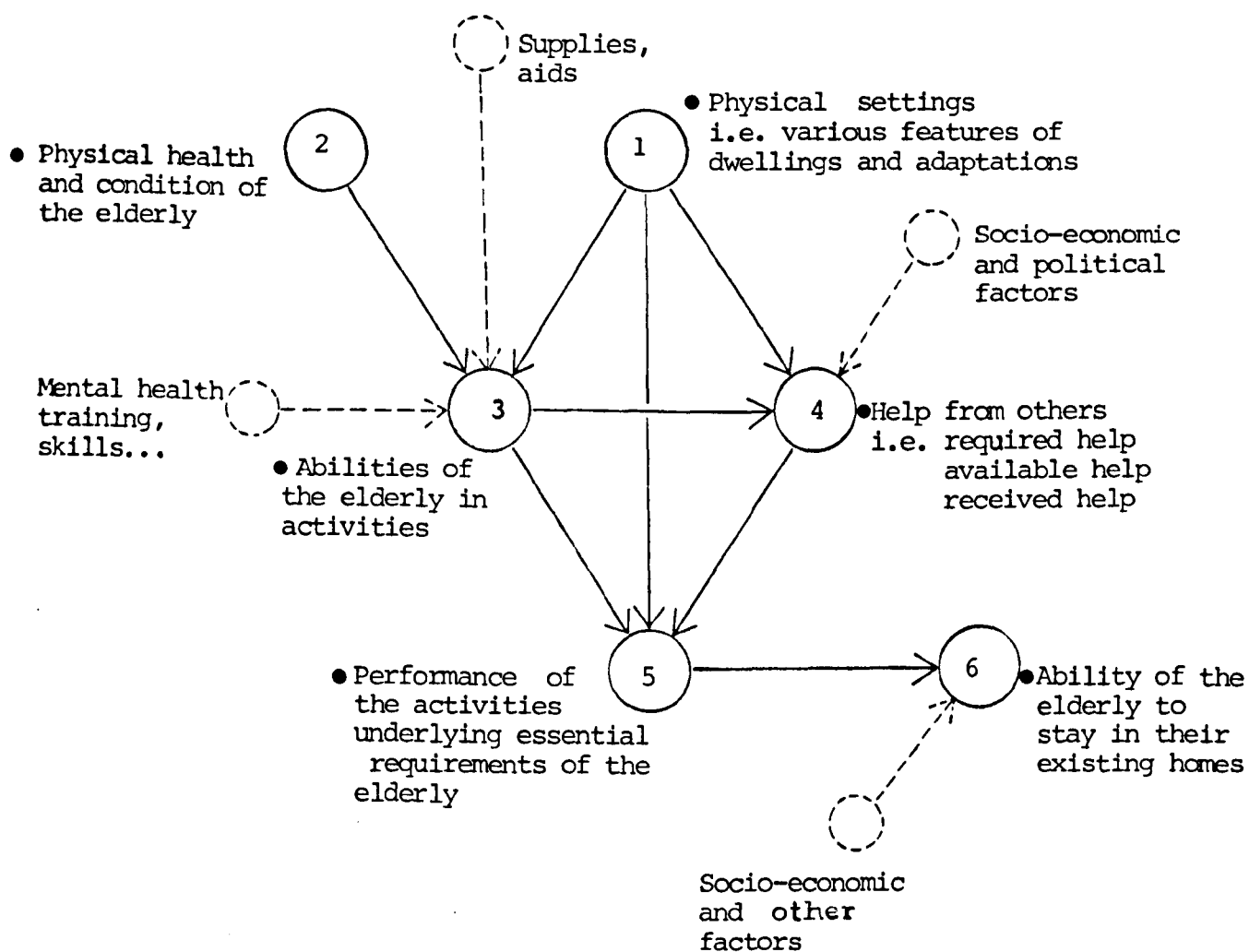


Figure 1: The proposed simplified relationship model between the main group of factors in the context of the study.

The arrows indicate theoretical relationships between the groups of factors concerned.



2. Physical health and condition of the elderly such as restrictions impairments and resulting reduction in functioning of old people i.e. reduced muscle strength, restricted hand/finger, arm, leg movements, impaired manual dexterity, partial sight, hearing.

3. Abilities of the elderly in various day to day activities which will refer to their competence to carry out activities, i.e. gaining access to rooms or facilities at home, bathing, toileting, dressing, eating, cooking, washing clothes, shopping and so on.

4. Help from others in the activities concerned if the person is not able to carry out or complete the activity himself. The factor of help may be considered as, available help, i.e. help from spouses or relatives or organisation, etc. required help i.e. the help needed by the person to perform or complete the activity concerned, help received which refers to assistance (actually received) from others in various activities.

5. Performance of the activities (i.e. as 3 above) involving day to day living. Whether or not those activities are performed regardless by the person himself or with the help of others or by the others for him.

6. Ability of the elderly to remain in their existing homes which it is assumed, will largely depend on meeting at least their essential daily requirements. Socio-economical and psychological factors are assumed to be constant.

In the examination of the relationships, the main concern is the effects of the adaptations or more generally the physical settings on the other groups of factors. Although the reverse effect might also be considered, for instance elderly people might make use of their abilities to change the features of the physical settings or adaptations provided, because the primary purpose of this study is an assessment of the effectiveness of the adaptations on considerations such as elderly peoples' abilities in activities of day to day living and difficulties encountered by them in them, and their help requirements in those activities, and their general ability to continue living in their homes, therefore, these relationships will be considered primarily in terms of



effects or contribution of the adaptations provided in the other groups of factors concerned.

### 3. The propositions

In the light of the theoretical framework, in order to investigate the possible effects of the various features of the existing dwellings on elderly people's abilities in various activities it is tentatively argued that, most features of the existing dwellings have been designed and built with able-bodied and capable persons in mind and when elderly people get frail and less capable they will encounter difficulties with various features or components of their dwellings. Thus, it is proposed that:

1. When elderly people's physical health and condition deteriorate features of the existing dwellings will become inappropriate and their abilities in activities relevant to those features of the dwellings will decline; they will encounter difficulties or be unable to perform the activities concerned.

In respect of possible effects of the adaptation of the dwellings on elderly people's abilities in these activities and on their help requirements two propositions are put forward:

- 2A. When elderly people's physical health and condition deteriorate and their abilities in activities relevant to the settings are reduced adaptation of the dwellings will increase their abilities, adaptations will reduce the difficulties encountered by them or will enable them to perform the activities.

Thus adaptations might decrease the people's help requirements by enabling them to perform their activities themselves. However, where the person is too frail, adaptations might also decrease their help requirements in another way.

- 2B. If an elderly person's condition deteriorated extremely adaptation of the dwellings will result in settings in which



the person can be assisted more easily and the help required by the person in activities will be minimised or reduced.

Physical health and condition of the elderly is dynamic and may decline further over time. Thus, their requirements relevant to the settings may change and adaptations provided may be found less or not useful any more. Thus, it is proposed that,

3. Adaptations provided will become obsolete, i.e. less or not useful, or their effectiveness will change, when a person's health and condition deteriorate further after the adaptations have been provided.

In relation to the probable obsolescence of adaptations over time two propositions are put forward.

3A. If the adaptations provided are designed and applied to the present health and condition of the people, further deterioration in their condition will lead these adaptations to be obsolete.

3B. If the adaptations provided with the likely or anticipated future deterioration of health and condition of the people in mind then the adaptations will accommodate changes and deteriorations in their condition and meet their requirements to a certain extent.

In any case, many elderly people need help from others and if they do not get it they may have to move from their dwellings into another dwelling or institution where either they will not require help or where they will be provided with the help they require. However, from the analysis of the literature it was thought that most elderly people's help (human help) resources might be limited. For example, many lived alone or with elderly spouses who may also need help. Services from organisations were limited in scope and extent. Thus, help may not be increased as required. Thus, probably one of the ways of enabling them to remain longer in their homes might be to keep their requirements for help to a minimum or to reduce the required help by them in essential daily activities, so that they could be



assisted by the help resources that might be available.

Thus, if adaptations increase their abilities to perform some daily activities, this will decrease their help requirements. On the other hand, if adaptations form settings in which the elderly could be helped more easily with less effort, this also will decrease the help required. These may lead to a balance between required help and available help, so that, they might still be able to stay in their homes.

Thus it is proposed that:

4. The contribution and effect of the adaptations upon enabling the elderly to remain longer in their homes is a function of the contribution of adaptations on abilities of the elderly in their activities and on forming settings in which the elderly in need could be assisted more easily, where help resources are limited.

Therefore, to test these propositions empirically there was a need to carry out fieldwork and collect data about the factors and the relationships concerned. The following sections will outline the limitations to the study, sampling and methodology employed in the fieldwork carried out.

#### 4. Limitations to the study

Due to the constraints imposed, the fieldwork was carried out in a limited geographical area, i.e. Oxfordshire, which was not necessarily representative of Great Britain as a whole. A specific group of elderly were studied. All the elderly studied had some degree of physical health problems and impairments. The elderly who were mentally infirm were excluded from the sample. Most of the types of dwellings examined appeared to be reasonably common to most parts of Britain. Adaptations provided in terms of types, design and general procedures



also might vary from one local authority to another, however, data showing these differences or similarities simply do not exist. Therefore, the adaptations studied were specifically related to the area and the local authorities concerned, but may have relevance in other areas and situations.

In general the examination of various aspects of existing dwellings and the adaptations provided aimed at pointing out various relevant issues and providing some limited recommendations many of which were not known before this study. But, the study did not aim to solve all those issues (e.g. of the design and application of adaptations) in detail, rather to examine them in more general terms. However the extreme paucity of data relevant to various aspects and types of adaptations provided for the elderly required information on a wide scale even though it was only possible to reach some general conclusions about aspects of the adaptations concerned.

Thus, instead of concentrating the whole examination on one type of adaptation or one aspect of existing dwellings, various aspects of them and adaptations which were relevant to most common and essential daily activities of the elderly were examined in varying degrees of detail. The criteria for the selection of issues to examine and at what level of detail, emerged from the analysis of the literature and an initial study carried out in six local authorities in Oxfordshire. Thus, some aspects, which were found more crucial and relevant to most common difficulties encountered by the elderly, were examined in more detail, the other aspects in less detail.



## 5. Sampling

In order to carry out the empirical part of the study a selection of the sample was done through restricted access to the files and records of the local authorities concerned (i.e. Oxfordshire County Council Social Services Department, West Oxfordshire District Council Housing Department and Health Department) and among the elderly people who had some physical impairments and were provided with some adaptations. Since, the physical health and impairments of the elderly and their difficulties with their dwellings and the types of adaptations provided greatly varied in types and nature there was a need for criteria for selection. Thus elderly people's most common difficulty in existing dwellings, negotiating the stairs and the provision of the relevant adaptations, such as stair rails, stair lifts or the addition of downstairs facilities were used as the main criteria. Therefore, some 67 elderly people who had some physical impairments and resulting difficulties with stairs and were provided with various adaptations were randomly selected among the cases which met the criteria. With the permission and assistance from the local authorities involved, letters were written to those people asking for co-operation (see Appendix 2) and a high rate of access was achieved. Seven of them did not want to participate, three were away and four of them had died some time before the letters were sent to them. Thus 53 cases (84 per cent excluding deaths) were studied.

## 6. The Methodology

In order to test the propositions, relevant data about



various aspects of groups of variables studied were collected by employing a number of methods which were found to be adequate for the purposes of the study and are outlined below.

A. Records: Confidential local authorities' files about the persons in the sample were examined and certain information about past history of the cases obtained, in addition various aspects of the adaptations provided, i.e. time, finance, health and condition of person concerned, etc., adaptation time, cost, features of dwellings.

B. Structured questionnaires: These were used to collect data which could be easily and quickly collected by verbal answers from the people interviewed (see Appendix 3).

C. Personal interviews: All people were visited and interviewed by using questionnaires and notes were made about points which were necessary to understand the general activities of those dwellings, as well as, specific further points relevant to the data required.

D. Observations: During the visits to interview the elderly which took about 1½ to 2 hours for each case, and after, some observations were made unobtrusively. Some observations, however, were done by requesting the persons to show how they used adaptations or what difficulties they encountered in using them or various parts of the dwellings or to show and explain their restrictions or impairments with various parts of their bodies.

E. Physical measurements and sketch drawings: The data about the plan and layout of the dwellings, a number of aspects of adaptation and various features of dwelling were collected by measurements and drawings.



F. Photographs: Various aspects of adapted dwellings were photographed where the people agreed, which was essential in all cases particularly where the time was limited to draw or take all the design features of the items concerned.

The treatment and analysis of the data collected were done mainly manually by the author and partly, such as basic frequencies and some cross tabulations, by the computer in the Oxford University Computer Centre.

#### 6.1. Designation of types of the dwellings in the sample

In order to investigate the difficulties of the elderly in gaining access to facilities and rooms located on different floors which required negotiating the stairs and the adaptations provided to overcome their difficulties, dwellings in the sample were classified according to five main facilities or rooms. These facilities were:

- a. Livingroom
- b. Kitchen
- c. Bedroom
- d. Toilet
- e. Bath/shower room

The dwellings in which bedrooms, bathrooms and toilet on the first floor and kitchen and livingroom on the ground floor, were designated dwelling Type A. (see Chapter V, figure 2 and Appendix 4)

The dwellings in which all rooms on the first floor but the entrance on the ground floor, were designated dwelling Type B.

The dwellings in which bedrooms on the first floor and



the other facilities, kitchen, livingroom, toilet, bathroom, on the ground floor, were designated dwelling Type D.

The dwellings in which bedrooms, bathroom and toilet on the first floor and kitchen livingroom and another toilet on the ground floor, were designated dwelling Type E.

There were two more dwellings in the sample which were one storey (bungalow). However in one of those the livingroom was on a different floor level, this was designated dwelling Type J and in the other the living room and bedroom were on the same level as the other facilities on the other level, this was designated dwelling Type L.

These above types formed the basis of the categorisation of the dwellings before the adaptation. However, when they were adapted, the adaptations, particularly major structural adaptations i.e. provision of ground floor toilet, shower room or bedroom and major lift adaptations i.e. provision of a stairlift, considerably changed the characteristics and thereby the designation of the dwellings. (see Chapter V, figure 4 and Appendix 5) This method of classification by dwelling types, before and after adaptations, provided a useful and effective method of categorising the effects of adaptations.

Although, initially some more types i.e Type C, F, H, I, or K were designated, these later were not included in the types outlined above both to achieve simplicity and because of little difference between those types.

## **6.2. Classification of the elderly in the sample**

In order to describe various levels of deterioration



in physical health and condition of the elderly in the sample their abilities in mobility were selected as one of the best general indicators of their related physical health.

In the literature, people were often classified either in relation to their ability to walk at home or to walk outside or to negotiate the stairs. However, in this research, to achieve more accuracy, these three measures were combined and used in one classification. In addition the numbers of steps (in their homes) which the elderly in the sample could negotiate also were specifically taken into account.

Finally, four main categories were identified. The persons who were able to walk outside and inside (at home) and negotiate all the stairs (i.e. 11-14 steps) in their homes, were classified as Category 1.

The persons who were able to walk inside only but negotiate all the stairs in their homes, were classified as Category 2.

The persons who were able only to walk inside and negotiate few steps (i.e. 0-2 steps), were classified as Category 3.

The persons who were normally unable to walk and negotiate any steps and using wheelchairs, were classified as Category 4.

In addition to abilities in mobility, people's capacities in sight, hearing, speech, and restrictions with hand/fingers, arms and leg movements were recorded in detail. These, particularly the latter, also were invaluable, in assessing various features of dwellings and adaptations provided in terms of meeting the requirements



of the elderly who had different impariments with various parts of their bodies.

In the following three chapters the relationships and propositions put forward will be, in turn, examined and tested empirically by presenting the relevant data collected and analysed.



#### References Chapter IV

- 1) BLOM M. and BLENKNER M. (1970), 'Assessing Functioning of Older Persons Living in the Community', in Gerontologist, 1970, 10, pp.31-37.
- 2) WHEELER R. (1983), 'The Contribution of House Adaptations', in Design for Special Needs, January/April 1983, No.30, CEH, pp.16-18.



## CHAPTER V

### THE RELATIONSHIP BETWEEN THE PHYSICAL SETTINGS AND THE ABILITIES OF THE ELDERLY IN THE SAMPLE IN VARIOUS DAILY ACTIVITIES AT HOME - I

Many activities of daily living carried out by the elderly take place in physical settings of ordinary dwellings which have been designed primarily for able bodied and capable persons. Normally, most people including the elderly, especially when they are younger and capable, are unlikely to have any difficulties living in their existing dwellings. However, when the physical health and condition of people deteriorates and declines, then many aspects of their dwellings may become inappropriate for their changing requirements, and thus, they may encounter difficulties with various daily activities.

Various adaptations have been provided to change the inappropriate aspects of the existing dwellings with the expectation, primarily, to increase the abilities of the persons to undertake daily activities and lessen the difficulties they have encountered. This implies a relationship between the physical settings and the abilities of the elderly persons to undertake activities. If there is a relationship, then features of the physical settings could facilitate or hinder their abilities, and where these features hinder, then further adaptations to the physical settings may increase an elderly person's abilities in daily activities.

Therefore the aim of this chapter is to examine the relationship between physical setting in existing dwellings and the abilities of the elderly persons in their daily activities, particularly the effects of the settings on



their abilities.

The general propositions to be tested which emerged from the analysis of the literature and from Chapter IV, are as follows:

1. When elderly people's physical health and condition deteriorate features of the existing dwellings will become inappropriate and their abilities in activities relevant to those features of the dwellings will decline; they will encounter difficulties or be unable to perform the activities concerned.

In respect of possible effects of the adaptation of the dwellings on elderly people's abilities in these activities and on their help requirements two propositions are put forward:

- 2A. When elderly people's physical health and condition deteriorate and their abilities in activities relevant to the settings are reduced adaptation of the dwellings will increase their abilities, adaptations will reduce the difficulties encountered by them or will enable them to perform the activities.

Thus adaptations might decrease the people's help requirements by enabling them to perform their activities themselves. However, where the person is too frail, adaptations might also decrease their help requirements in another way.

- 2B. If an elderly person's condition deteriorated extremely adaptation of the dwellings will result in settings in which the person can be assisted more easily and the help required by the person in activities will be minimised or reduced.

Physical health and condition of the elderly is dynamic and may decline further over time. Thus, their requirements relevant to the settings may change and adaptations provided may be found less or not useful any more. Thus, it is proposed that;

3. Adaptations provided will become obsolete, i.e. less or not useful, or their effectiveness will change, when a person's health and condition



deteriorate further after the adaptations have been provided.

In relation to the probable obsolescence of adaptations over time two propositions are put forward.

3A. If the adaptations provided are designed and applied to the present health and condition of the people, further deterioration in their condition will lead these adaptations to be obsolete.

3B. If the adaptations provided with the likely or anticipated future deterioration of health and condition of the people in mind then the adaptations will accommodate changes and deteriorations in their condition and meet their requirements to a certain extent.

In order to test these propositions, it was necessary to investigate the physical health and condition of the elderly, various features of their existing dwellings which were involved in various daily activities at home, abilities, (i.e. difficulties or inabilities) of those elderly in various daily activities and the adaptations provided to overcome the difficulties encountered by them in the activities concerned and the resultant help requirements. In addition the dynamism of the requirements of the elderly needed to be taken into account and examined also.

The analysis of the related literature showed that most of the existing dwellings in which the elderly have been living are more than one storey and those people had to negotiate the stairs to gain access to various facilities and rooms located on different floors in their homes.

However, many studies also showed that one of the most difficult tasks for many elderly people was to negotiate the stairs. Especially when they get older, the incidence of this difficulty increased sharply.

Therefore, in theory the dwellings in which various



rooms and facilities were located on two or more floors would appear to be inadequate for many elderly persons whose health deteriorated. Moreover, the ability of an elderly person to have access to facilities and rooms at home has an important effect on the performance of many daily activities.

Consequently, it was thought that there would be a great demand for adaptations, and many adaptations of different types provided to overcome their difficulties. The initial part of the fieldwork was carried out in six different local authorities in Oxfordshire which gave some support to this assumption. It became clear that, one of the most frequently provided adaptations for the elderly was related to their access problem to various facilities because of the stairs in their homes. There were mainly three types of adaptations provided in relation to the difficulty of the elderly with the stairs: 1. Minor adaptations, 2. Major lift adaptations, 3. Major structural adaptatons.

All these different adaptations might have been provided in the various types of dwellings for elderly people with different abilities in mobility thus in relation to above adaptations a sub-proposition is put forward that each specific adaptation provided to specific types of dwellings for specific persons with specific abilities will better meet their requirements relevant to this difficulty, and particularly be more responsive to change/deterioration in their health over time. In other words, these adaptations should not be provided on ad-hoc basis, and the dwelling layout (i.e. location of various facilities) and various aspects of people's health and



abilities as well as their related activities within their homes should be taken into account.

In order to test these above propositions by taking into account changes/decline in condition of the elderly over time and to find out the design consequences of these adaptations it was necessary to examine these three types of adaptations, various types of dwellings of the elderly with various health and abilities in the three periods of time,

- i) Before the adaptations were provided
- ii) When the adaptations were provided
- iii) Over the passage of time.

1. Abilities of elderly persons in access to facilities/rooms at home and the physical settings (i.e. dwellings, adaptations)

There were 53 elderly persons in the sample whose physical health had deteriorated. All had various illnesses and conditions, most of which are common to old age, resulting in restrictions with various parts of their bodies and contributing to a reduction in their abilities in mobility, namely, walking at home or outside and negotiating stairs.

However, they were living in the dwellings in which facilities and rooms were located on different floor levels and involved negotiating various numbers of steps. Although almost all of the people were able to walk (or propel their wheelchairs) at home, primarily due to difficulties or inabilities in climbing stairs their ability in gaining access to some of the facilities/rooms required to be used was reduced. Many found stairs extremely difficult; some others were not able to go up and



down at all. Then, when the dwellings of those persons were adapted to suit their health and condition, almost all of them experienced fewer difficulties or were fully able to gain access to the required facilities and rooms in their homes. However, over time, many of these people's health deteriorated further, i.e. many found the adaptations less useful or not useful at all, and the abilities of those people in gaining access to facilities and rooms tended to reduce again.

### **1.1. Before the adaptations were provided**

In order to examine the effects of the physical settings on the abilities of elderly people in access to facilities/rooms at home, it is necessary to outline the physical health and condition of the elderly and identify certain features of the setting (i.e. dwellings) in which they lived.

#### **1.1.1. The elderly persons**

All the elderly in the sample had been suffering from one or more long standing illnesses or conditions common to old age resulting in various restrictions with various parts of their bodies and reduction in physical functioning. The most prevalent illness among them was arthritis (i.e. rheumatoid or osteo arthritis). For example, 23 (43.4 per cent) of them were arthritic. The other more common illnesses or conditions were, stroke (hemiplegia), various heart diseases, unsteadiness of feet, and multiple sclerosis (see Table: 1).

Apart from those illnesses and conditions, about a third of them (30.2 per cent or 16 persons) were partially



capacitated (e.g. having one-eyed sight, or with both eyes experiencing some degree of restrictions) with sight.

It was very difficult to measure and evaluate the great number of factors underlying those people's general physical health. It would require precise electronic equipment and special laboratory setting and an extremely long time. Instead, their abilities in mobility were selected as one of the best general indicators of their related physical health as this was more appropriate for the purposes of the study. In addition to that, as it will be presented and used in later sections/chapters, their restrictions with hands/fingers, arms, legs/feet were also recorded.

There were 18 persons (34 per cent) who were able to walk outside and inside (at home) and climb all the stairs (i.e. 11-14 steps) in their homes and classified as Category 1\* and 11 persons (20.7 per cent) who were able to walk inside only but climb all the stairs in their homes and classified as Category 2, 15 persons (28.3 per cent) who were able to walk inside and climb only few steps (i.e. 0-2 steps) and classified as Category 3 and there were 9 persons (17 per cent) who were normally unable to walk and climb any stairs, and used wheelchairs and classified as Category 4. Most of them (6 out of 9) were able to propel their wheelchairs at home (see Figure 1).

It should be remembered that firstly, although ability to walk outside and inside and climb stairs indicates general ability to do so, it does not necessarily indicate

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\*For details of theses Categories see Chapter IV, 6.2.



Illnesses or conditions	Number of persons	Percentages
1. Osteo or rheumatoid arthritis	23	43.4
2. Stroke hemiplegia	8	15.1
3. Heart diseases (various)	7	13.2
4. Unsteadiness on feet (no diagnosis)	6	11.3
5. Hip trouble (i.e. repacement operation)	5	9.4
6. Multiple sclerosis	5	9.4
7. Spinal problem (i.e. spinal fusion)	4	7.5
8. High blood pressure	4	7.5
9. Parkinson's disease	3	5.7
10. Obesity	3	5.7
11. Chest condition (i.e. asthma)	2	3.8
12. Paget's disease	2	3.8
13. Diabetic	1	1.9
14. Cataract	1	1.9
15. Paraplegia	1	1.9
16. Sarcoidosis of central nervous system	1	1.9
17. Fracture, broken bones	1	1.9
18. Epileptic fit	1	1.9

Table 1: Number and percentage of the persons who were suffering from the specific or combination of illnesses or conditions.



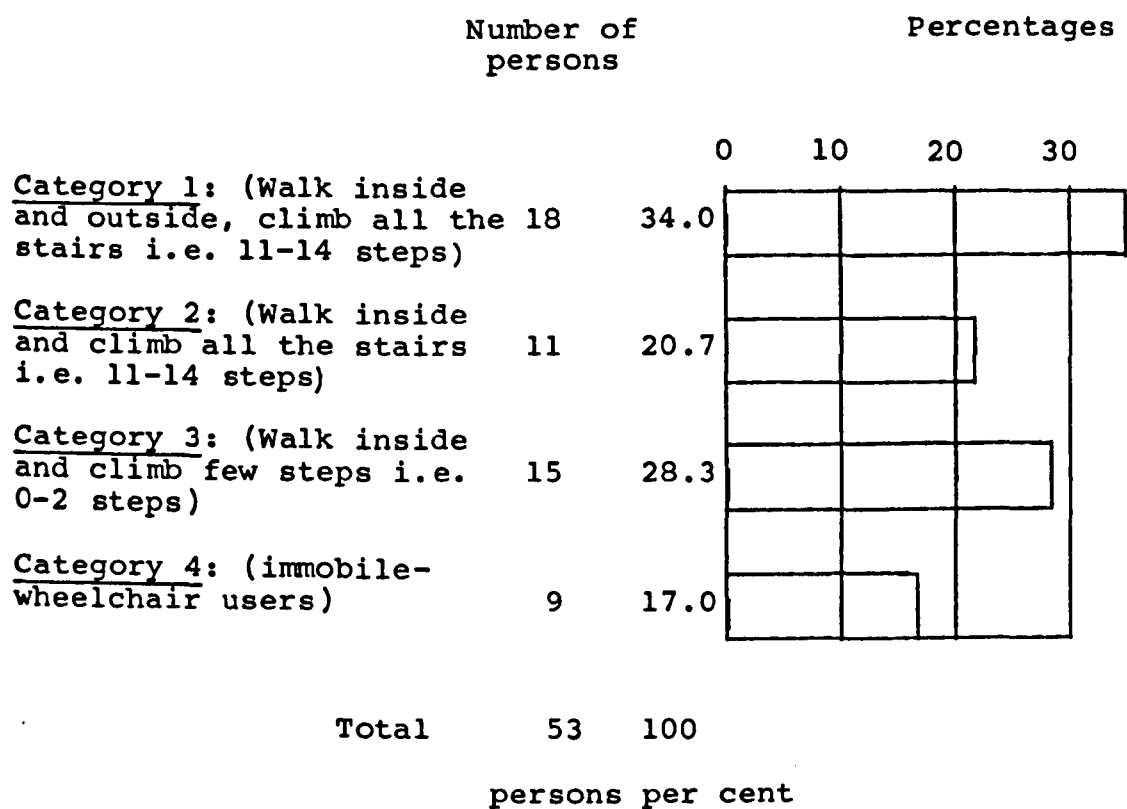


Figure 1: Abilities of the elderly persons in mobility.



that those persons in Category 1, could more easily climb stairs than those persons in Category 2 who were unable to walk outside but walk inside and climb stairs.

Nevertheless, in general, most of the persons classified under Category 1 were more capable in terms of related activities as a whole.

Secondly, although the persons in Category 1 and 2 were able to climb stairs, they had various levels of difficulty in doing so. This will be discussed later.

### 1.1.2. The dwellings

Since the main sources of difficulty and inability of the elderly was in connection with the facilities and rooms located on different floors which required negotiating stairs, dwellings were classified in relation to location of five facilities or rooms, kitchen, living room, bedroom, bathroom, toilet.

In the sample, there were 21 (39 per cent) dwellings in which bedrooms, bathroom and toilet were on the first floor and kitchen and living room on the ground floor; those were designated for the purposes of the research dwelling Type A. There were 4 (8 per cent) dwellings in which all rooms were on the first floor but the entrance on the ground floor; those were designated dwelling Type B. There were 11 (21 per cent) dwellings in which bedrooms were on the first floor and the other facilities including bathroom and toilet on the ground floor; those were designated dwelling Type D. The other 15 (28 per cent) dwellings in which bedrooms, bathroom and toilet were on the first floor and kitchen, living room and another toilet on the ground floor, were designated Type E. There were two more dwellings in one of which the living room was on a



different floor level; this was designated Type J; in the other the living room and bedroom were on the same level the other facilities on the other level. This was designated Type L (see Table 2, Figure 2). Examples of layouts of the dwellings in the sample which were drawn by the author during the visits to the persons may be seen in Appendix 4.

The analysis of the data showed that before various adaptations were provided all the persons in the sample had various difficulties and inabilities in getting access to some of the main facilities or rooms in their dwellings. About half of them (54 per cent) who were able to climb stairs but with extreme difficulty partly because of inappropriate railing on the stairs, found access to various facilities and rooms extremely difficult. The others (46 per cent) who were unable to climb the stairs in their homes were completely unable to get access to some facilities and rooms in their dwellings.

Because their dwellings and their physical health and abilities in mobility were different, inaccessible facilities and rooms or the difficult and unsatisfactory routes between the facilities were different in those dwellings. In general, for the persons living in dwelling Type A the most unsatisfactory and difficult route was living room to toilet, in dwelling Type B however that between entrance door and other facilities was the most unsatisfactory. In dwelling Type D toilet to bedroom and in dwelling Type E living room and bedroom were the main troubles.

The difficulties or inabilities encountered in getting access to various facilities resulted in various problems



Types of dwellings	Numbers	Percentages
A	21	39
B	4	8
D	11	21
E	15	28
J	1	2
L	1	2
Total dwellings:	53	100

Table 2: Numbers and percentages of various types of dwellings in the sample.



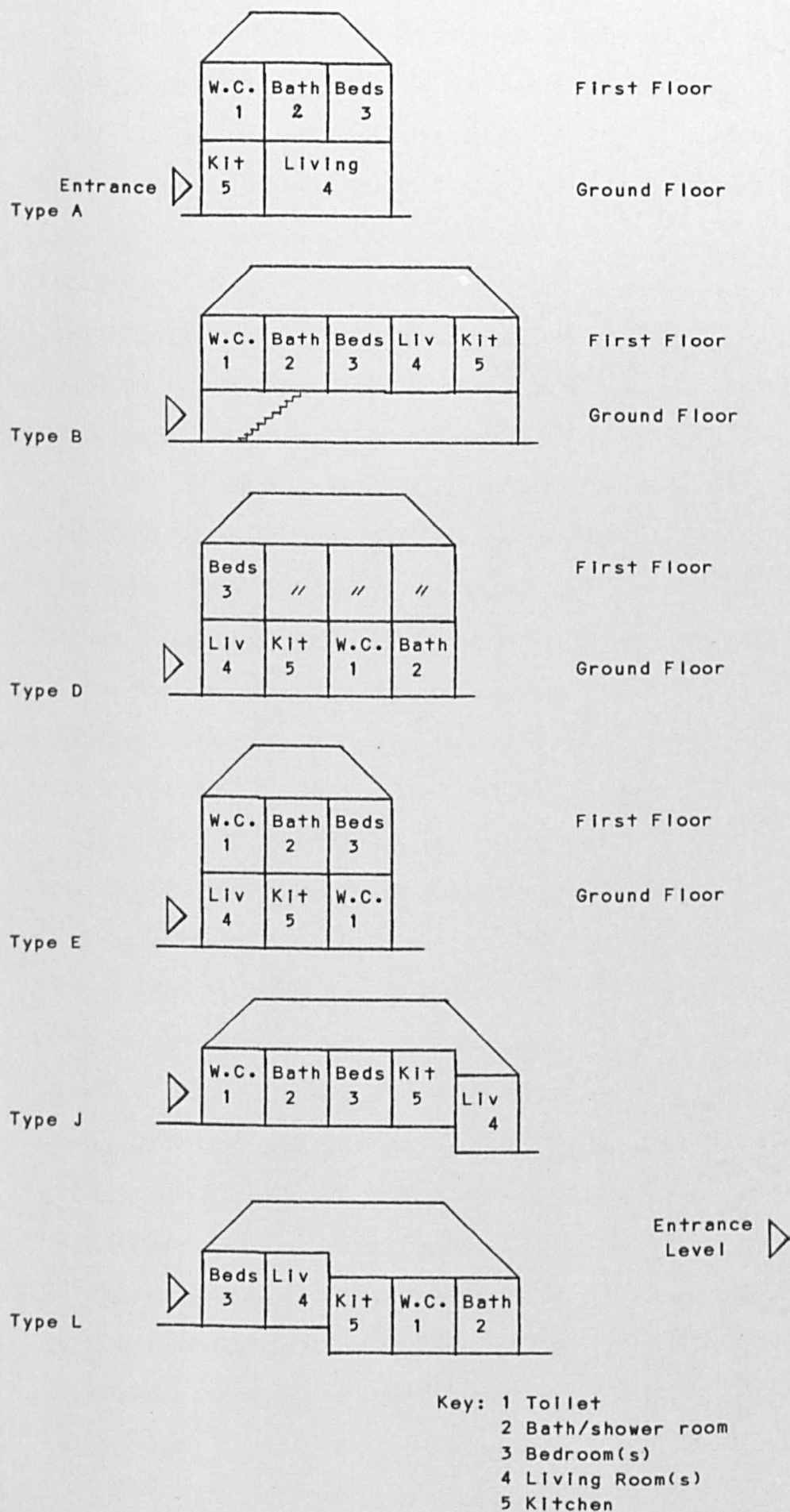


Figure 2: Types of dwellings (schematic cross sections)



for those people. Before the adaptations were provided some people had to live for months on the ground floor without using some of the facilities and rooms which they had normally used. Some had to use commodes during the day and night because toilets were inaccessible by them; however this as all agreed, was socially and psychologically unacceptable as well as physically difficult to deal with for many infirm elderly (i.e. cleaning, emptying the cup/bottles, reservoir etc.).

For example, Mrs. T. who was 65 years old, had spinal fusions with restricted use of both legs, was able to walk at home with the aid of a stick but not able to climb any steps. Bending was also impossible for her, having to rely on a reacher to pick the things up from the floor. She was living with her elderly husband in a dwelling in which a living room, dining room and kitchen were on the ground floor and two bedrooms, a store room, bathroom and toilet on the first floor. It was impossible for her to use any of the rooms, including the bathroom and toilet, on the first floor. She had to sleep in the dining room and used a commode during the day and at night. This she said had been dreadful, and extremely worrying for her. She had not been able to get access to the bath either. Later, since the stairs in the dwelling were a straight flight and suitable for a stairlift installation, she had been provided with a stairlift. She was then able to reach upstairs rooms using the lift herself, without help from her husband. Previously this had not been possible even with his help.

In another case, Mrs. P., who was 79 years old, had a severe chest condition and a hip operation. Although she



was extremely frail, she was able to walk at home very slowly and could climb the stairs very slowly with great difficulty due to her chest and hip trouble. She was living alone in a dwelling in which the kitchen, living room and dining room were on the ground floor and two bedrooms, one store room and a bathroom and toilet on the first floor. There was no downstairs toilet and it was impossible for her to go frequently up and down the stairs to use the upstairs toilet. Firstly, she had been given a commode to be used during the day, but she had been extremely dissatisfied with it and refused to use it. Then, a stairlift was considered but as the stairs had a landing and two flights as well as not being wide enough, a lift was not suitable. Consequently, the alternative downstairs toilet and wash basin were provided. As a result she was able to avoid climbing stairs to get access to the toilet, particularly during the day. Although it was difficult, she was managing to go up the stairs to sleep in her bedroom and go down in the morning.

An example of a less serious problem was Mrs. S. who was 73 years old, had high blood pressure and unsteadiness on one of her feet. She was living alone and in a dwelling in which the living room, dining room and the kitchen were on the ground floor and three bedrooms and bathroom and toilet on the first floor. Although she was able to walk at home and outside, climbing the stairs was becoming more difficult for her, as the stairs had a bannister on only one side and this was not sufficient for her: she needed more railing. She had to climb the stairs at least several times a day. This was making the problem more troublesome. She was provided with a stair rail fixed on



the other side of the stairs and her difficulty was lessened to a certain extent, and she was able to put up with that.

Figure 3 shows types of dwellings, abilities of the persons in mobility and difficulties (relevant to the stairs) in access to facilities at home. In terms of difficulties encountered on the stairs, it was not possible for those persons to get sufficient help from other persons when they required help any time during a day or night. Firstly, stairs to be climbed were not, in almost all cases, wide enough for two people to negotiate and help one another. Indeed, most of the stairs were 75-84cm width. Secondly, in nearly all cases, there were no strong people in those persons' households to help them to negotiate stairs. Most of them lived with spouses or alone, that is (34 per cent) 18 persons lived alone and 25 persons (47.2 per cent) lived with their spouses only. Most of those spouses were also elderly and sometimes frail (see Table 3).

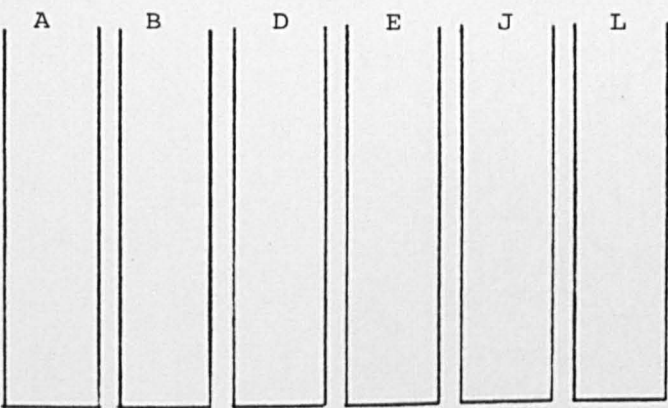
#### **1.2. When the adaptations were first provided**

In order to overcome the difficulties and inabilities encountered by those persons in gaining access to facilities and rooms which involved climbing stairs, three types of adaptations were usually provided. In 23 cases (43.4 per cent) minor adaptations (i.e. second stair rail on the stairs) were provided for the persons who were able to walk at home (and/or outside) and negotiate stairs but with extreme difficulty partly due to the lack of railing on the stairs. Those were the persons classified in Category 1 and 2 in respect of abilities in mobility.

In 14 cases (26.4 per cent) major adaptation took the

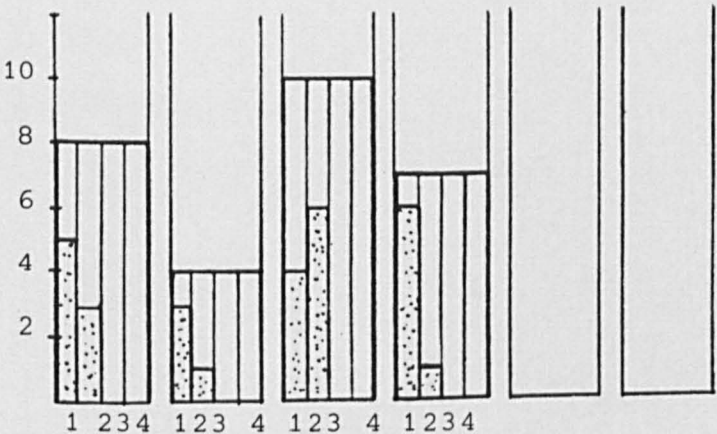


Types of dwellings



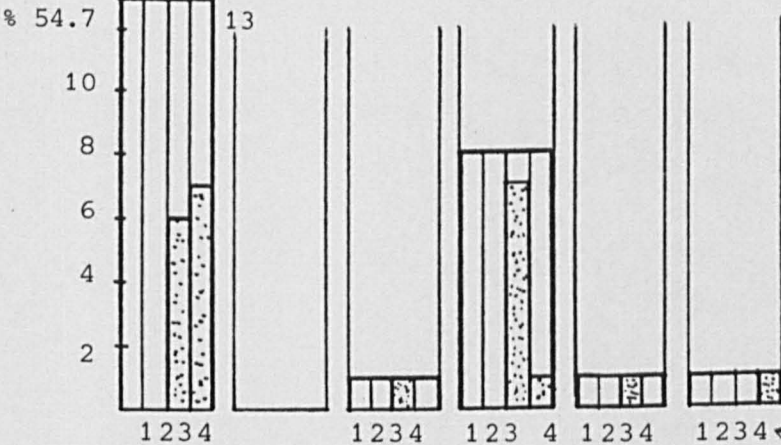
X :  
The persons who had no extreme difficulty in gaining access to facilities because of the stairs

Sub total - - - - -



Y  
The persons who had extreme difficulty in gaining access to facilities because of the stairs

Sub total 29 8 4 10 7 - -



Z  
The persons who were completely unable to gain access to facilities themselves because of the stairs

Sub total 24 13 - 1 8 1 1

% 45.3

Grand total 53 21 4 11 15 1 1

% 100.0

categories of persons in mobility

Figure 3: Types of dwellings and abilities of the persons in mobility and difficulties encountered in access to facilities/rooms in dwellings (before the adaptations were provided)



Numbers of persons in households	Number of cases	Percentages
1 person	18	34.0
2 persons	25	47.2
3 persons	6	11.3
4 + more persons	4	7.5
Total	53	100.0
Types of household		
living alone	18	34.0
living with spouse only	25	47.2
living with spouse + child + others	5	9.4
living with other relatives	5	9.4
Total	53	100.0

Table 3: Numbers of persons in households and types of households.



form of lifts, particularly stair lifts which were mostly provided for the persons who were able to walk at home but generally not able to climb stairs, yet were capable of using a stair lift; these were the persons mostly in Category 3 in respect of mobility.

In 16 cases (30.2 per cent) major structural adaptations were provided i.e. the addition of toilet or bath or shower room on the ground floor. Most of those were provided for the persons who were immobile (i.e. wheelchair user), or only able to walk at home and climb few stairs; those persons were mostly in Category 3 and 4.

In general, most of the persons in Category 1-2 were provided with minor adaptations, most of the persons in Category 3, with major lift adaptations and most of the persons in Category 4 with major structural adaptations (see Table 4).

The adaptations provided, particularly lifts and structural adaptations, significantly changed the characteristics of dwellings so the dwellings needed to be re-classified by taking into account these changes. For example the addition of a ground floor toilet to dwelling Type A made it Type E, or the addition of a ground floor bedroom and bath/shower room to Type E resulted in another type of dwelling (i.e. Type G). Alternatively, a dwelling with a stair lift resulted in another type of dwelling (i.e. Type A + Lift) (see Figure 4). Examples of layouts of the dwellings adapted may be seen in Appendix 5. After the adaptations were provided, the evidence showed that all the persons in the sample overcame or reduced the extreme difficulties and inabilities in access to facilities due to the stairs in their homes, in other words their abilities



Abilities in mobility	Types of adaptations provided			
	Total persons	Minor	Major lift	Major structural
Category 1	18	14	3	1
Category 2	11	9	-	2
Category 3	15	-	9	6
Category 4	9	-	2	7
<hr/>				
Total	53	23	14	16

Table 4: Abilities of the persons in mobility and types of adaptations provided



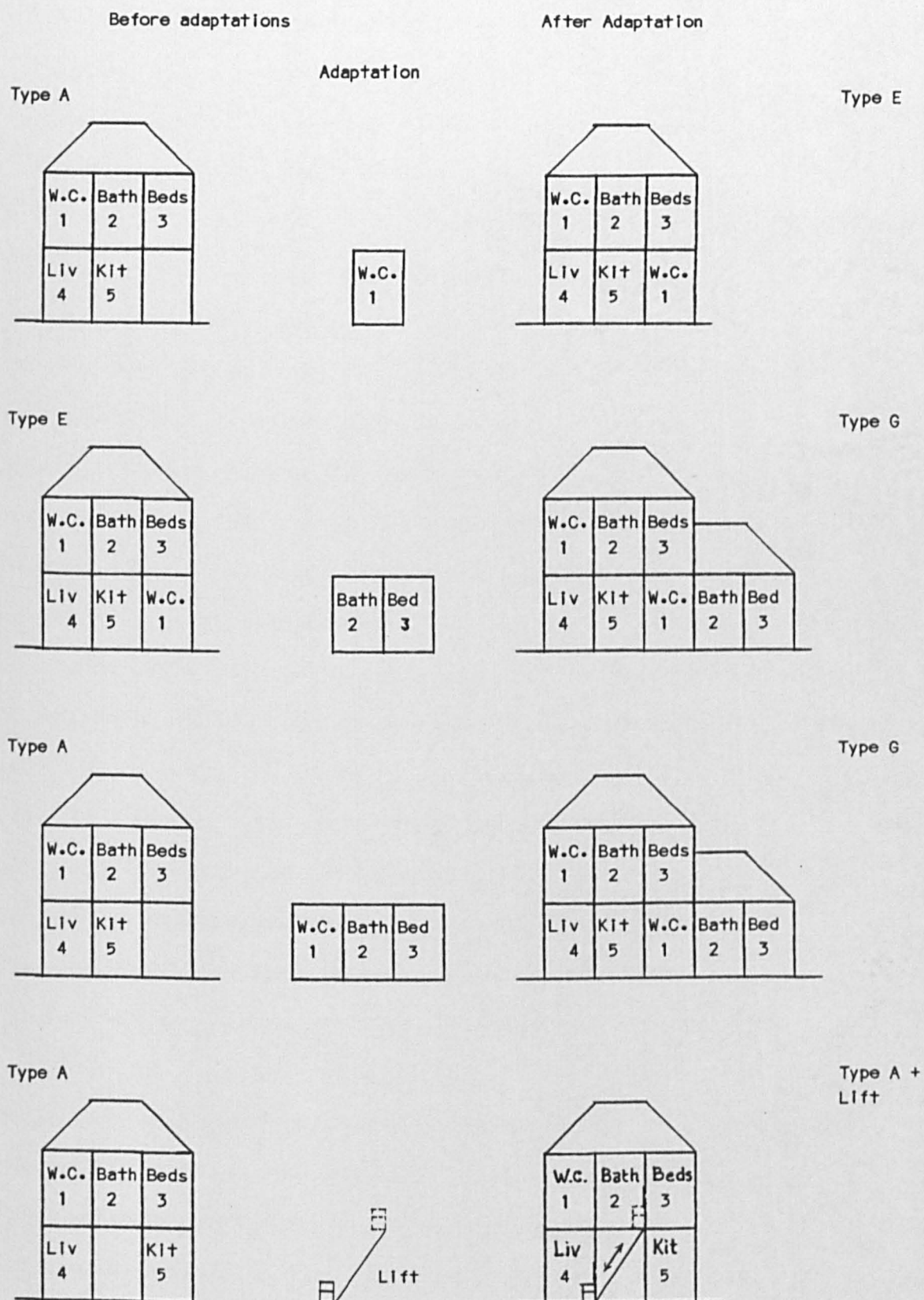


Figure 4: Changes in types of dwellings after adaptations provided

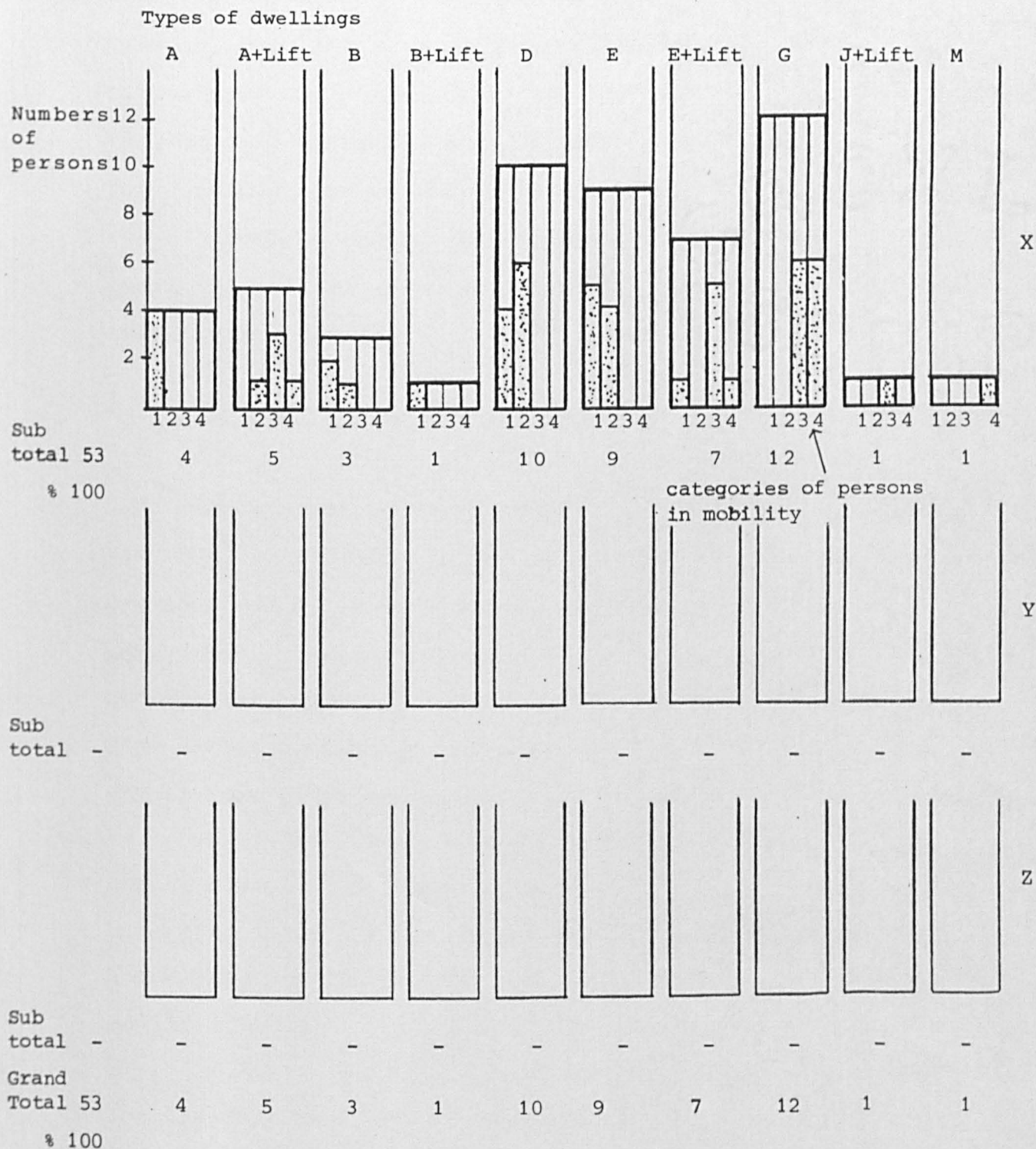


to do so were increased by changing the settings.

All the persons who were able to walk at home (or outside) and previously had extreme difficulties in negotiating stairs were able to do so with less difficulty with the help of additional stair rails. All the persons, who were able to walk at home but unable to climb all the stairs involved were also able to overcome their inabilities; some were doing so by using lifts some others no longer had to climb stairs to gain access to facilities, because their dwellings were adapted, providing all the main required facilities on the same floor level. All the persons who were mainly wheelchair users who were able to propel their own wheelchairs, no longer had inabilities due to the stairs. Most of them were also able to gain access to the main facilities themselves, due to adaptations which provided all the facilities on the same floor level. A few (three) persons who were completely immobile (i.e. unable to propel their wheelchairs) however, could be easily helped by their spouses to get access to the facilities on the same level, where previously this was impossible.

In those cases, change in settings was mostly of use in terms of creating settings in which those people could be helped. Figure 5 shows types of adapted dwellings and the abilities of the people concerned in mobility and difficulties encountered in access to facilities and rooms in their homes. The persons' satisfaction with their adaptations was recorded; all the persons in the sample expressed a high level of satisfaction with the adaptations when they were first provided. For example 35 of them (66 per cent) were satisfied and 18 of them (34 per cent) were very satisfied with the arrangements done. From the





- X: The persons who had no extreme difficulty in gaining access to facilities because of the stairs
- Y: The persons who had extreme difficulty in gaining access to facilities because of the stairs
- Z: The persons who were completely unable to gain access to facilities themselves because of the stairs

Figure 5: Types of (adapted) dwellings and abilities of the persons in mobility and difficulties encountered in access to facilities/rooms in dwellings (when the adaptations were first provided)



analysis of data it was not possible to find out exact reasons about why some said they were satisfied while some others were very satisfied, but this was partly attributed to personal factors; that is some people appeared to be more content by nature with what has been provided for them. Table 5 shows the person's satisfaction with the adaptations first provided, according to the types of the adaptations.

### 1.3. The value of adaptations provided: over the passage of time

The data was collected some time after the adaptations had been provided. The newest adaptations had been provided less than six months earlier and the oldest ones more than 4 years before. Nevertheless most of the adaptations were 1 to 3 years old. The Table 6 shows the time since the adaptations were done, according to types of adaptations provided.

During that time, some of the persons' physical health had deteriorated. This was noted during the interviews by recording people's own views about their physical health and condition in general and using a five point ordinal scaled schedule. 13 of them (24.5 per cent) were agreed that their condition was considerably worse since adaptations done, 17 of them (32.1 per cent) were agreed that their condition was slightly worse and 23 (43.4 per cent) of them said their condition had not changed (see Table 7).

These expressions of the elderly were about their general physical health and condition primarily related to their abilities in mobility. However, it was thought that



	Minor Adaptations		Major Structural Adaptations		Major Lift Adaptations		Total	
	No's	%	No's	%	No's	%	No's	%
Very satisfied	7	30.4	2	12.5	9	64.3	18	34
Satisfied	16	69.6	14	87.5	5	35.7	35	66
Neutral	-	-	-	-	-	-	-	-
Dissatisfied	-	-	-	-	-	-	-	-
Very dissatisfied	-	-	-	-	-	-	-	-
Total	23	100.0	16	100.0	14	100.00	53	100

Table 5: Satisfaction of the elderly, in the sample, with the adaptations first provided according to the types of the adaptations (Number and percentages).



	Types of adaptations provided				
	Total cases	%	Minor	Major structural	Major lift
Under 6 months	2	3.8	-	1	1
6 months to 1 year	5	9.4	4	1	-
1 year to 2 years	19	35.0	12	5	2
2 years to 3 years	15	28.3	7	2	6
3 years to 4 years	9	17.0	-	5	4
4 years or more	3	5.7	-	2	1
Total	53	100.0	23	16	14

Table 6: Time since adaptations were done, according to types of adaptations provided.

	Types of adaptations provided				
	Total No. cases	%	Minor	Major structural	Major lift
Considerably worse	13	24.5	7	-	6
Slightly worse	17	32.1	5	9	3
The same	23	43.4	11	7	5
Total	53	100.0	23	16	14

Table 7: Change in condition of elderly persons since adaptations were done, according to types of adaptations provided.



various hand, arm, and leg movements and restrictions might be also a crucial consideration, and closely related to their ability to negotiate the stairs by using the rails provided and to use and operate the lift provided. Therefore, in order to assess effectiveness of the adaptations provided over time, detailed information about restrictions in their limbs were also collected. This will be presented where necessary.

The data which was collected from the records and files of the local authority and from the interviews with the people showed that the changes in their physical health led to changes and decline in their abilities in mobility. Thus, abilities of some of the elderly in mobility had declined, while the other persons' remained constant. 15 of them (28.3 per cent) were still able to walk inside and outside and climb all stairs, 10 of them (18.9 per cent) were only able to walk inside and climb all stairs, although many of them said that they could do it but with more difficulty than before. However, those were again classified in Category 2 and further notes were taken to be used where necessary. 14 of them (26.4 per cent) were able to walk at home and climb only a few steps. The remaining 14 persons (26.4 per cent) were immobile and using wheelchairs; two thirds (9 persons) were able to propel their own wheelchairs at home.

It is possible to see the differences in abilities of the elderly in mobility which changed over time in the Table 8.

In practice the adaptations and the dwellings were not changed or re-adapted as some persons' health deteriorated. Almost all of those elderly whose health



Abilities of persons in mobility when adaptations done			Difference each category		Abilities of persons in mobility over time		
	Numbers of persons	%	In number	%		Numbers of persons	%
Category 1	18	34.0	- 3	-16.6	Category 1	15	28.3
Category 2	11	20.7	- 1	- 9	Category 2	10	18.9
Category 3	15	28.3	- 1	- 6.6	Category 3	14	26.4
Category 4	9	17.0	+ 5	+55.5	Category 4	14	26.4

Movement between categories (number of persons)

	Cat. 1	Cat. 2	Cat. 3	Cat. 4	Result
Category 1	-3				-3
Category 2	+1	-2			-1
Category 3	+2	+1	-4		-1
Category 4		+1	+4		+5

Table 8: Change in abilities of persons in mobility over time



had not worsened or only slightly worsened, which formed the majority (32 persons or 61.5 per cent) were able to gain access to facilities in their homes. However, some of the elderly, particularly those whose condition had considerably worsened over time were becoming handicapped by the stairs, and their abilities in access reduced again. For example, 21 (or 39.6 per cent) said that they had extreme difficulties, some were completely unable to gain access to certain main facilities in their homes because of the stairs. However, interestingly, there was not a close relationship between the period of time since adaptations were done and obsolescence or insufficiency of the adaptations provided. As Table 9 shows, in general, there was no difference between the age of adaptations of people who were still satisfied and able to utilize adaptations and of people who were dissatisfied and found the adaptations less or not useful. This evidence is important and suggests that there is no time pattern for adaptations to become obsolete and useless, and if they are provided to the right person and dwelling, they will be useful until at an unpredictable time the condition of the user changes to a certain extent.

#### **1.3.1. Factors relevant to effectiveness of adaptations overtime**

However, some factors appeared to be related to adaptations being insufficient to meet their requirements over time. There were:

- A. Changes and deterioration in physical health and conditions.



Time since adaptations done	Numbers of cases	Numbers of persons who were satisfied or very satisfied	Numbers of persons who were dissatisfied
Under 6 months	2	1	1
6 months - 1 year	5	2	3
1 year - 2 years	19	13	6
2 years - 3 years	15	8	7
3 years - 4 years	9	6	3
4 years or more	3	2	1
Total	53	32	21

Table 9: Time since adaptations done and persons' satisfaction with the adaptations over time.



- B. Types of dwellings (i.e. location of the facilities in the dwellings).
- C. Types of adaptations provided (i.e. minor, major lift, major structural).
- D. Design features of adaptations (i.e. features of rails or lifts).

A. Change and deterioration in health were important in many ways. Firstly, deterioration in health which resulted from extreme difficulties and inabilities in negotiating stairs and walking (which were associated with hand, arm, and leg restrictions) inevitably contributed to existing arrangements being insufficient and those persons started experiencing difficulties again. Some (four) persons were no longer able to negotiate stairs with the help of a second stair rail provision, sometimes due to increase in restrictions with hand/fingers sometimes with arms or legs or both. Some (five) persons were no longer able to use the lift provided. Some were not able to transfer themselves on to the seat of the lifts and some were having difficulties with using the control buttons or mechanisms of the lifts partly due to the restrictions with their hands/arm/legs, among other things, increased. Secondly, change in general health required some persons to use the toilet many times (and more frequently than before) during the day or night. Thus, existing arrangements which were previously sufficient, became insufficient. For example, some persons living in dwelling Type D suffered a great deal from being unable to use the downstairs toilet at the required frequency during the night as their condition/health changed and required them to do so.

B. Types of dwellings or location<sup>of</sup> facilities in the dwelling were another group of crucial factors. For



example, in some dwellings types e.g. Type B or particularly E, persons who had difficulty with stairs, or using the lift provided, were more able to avoid going up and down the stairs than people in some other dwellings e.g. Type A and D. This also meant that the location of the toilet and numbers of toilets (i.e. one on ground floor and one on the first floor level) were the key factors in most existing dwelling types. Easing the persons' travel in the most frequent and difficult travel routes, for example, living rooms to toilet or bedroom to toilet was, in many cases, needed.

C. Types of adaptations, however, were also important. Some adaptations appeared to be less responsive to changes in the condition or physical health of the person. For example, when the condition of users of minor adaptation deteriorated, they became completely unable to climb the stairs and it was not possible for them to be helped in doing so. Lift users, however, when their health deteriorated, as long as they could walk and transfer and control the lifts could overcome the stairs or they can be helped to do so. Most major structural adaptation users, however, could potentially avoid using stairs, and even if they were completely immobile, they could be helped more easily in access to facilities or rooms.

D. Design features of adaptations were also crucial in maintaining the sufficiency of setting provided over time. For example many users of lifts had difficulty or inability in using/operating the lift provided and became unnecessarily dependent upon others, partly because of design features of the lift (e.g. an inappropriate



control mechanism or an insufficiently high footrest or seat provision). (see Chapter VI, 1.1.2.A)

Thus because of a combination of many factors some of which are outlined above many adaptations became less or not useful, and some of the persons had difficulties or inabilities in gaining access to required facilities over time, despite the adaptations provided. This appeared to largely affect the people's satisfaction with the provision over time, and there were marked changes in the level of satisfaction of minor and major lift adaptation users due to the reasons given above. Interestingly, there were no changes in the satisfaction of major structural adaptation users. Although, users of major structural adaptations were more frail than the users of the other adaptations, their requirements were better met in that these adaptations were more responsive to further deterioration in the condition of users and also that, in terms of types and design, were more appropriate to meet the requirements of those exceedingly frail elderly most of whom were in Category 4 (see Table 10).

The main features of the circumstances of those persons whose physical health deteriorated and had extreme difficulties or inabilities in gaining access to various facilities can be outlined as follows:

#### 1.3.2. Difficulties of the persons in gaining access to facilities over time

The persons who were still able to walk inside and outside and climb the stairs (Category 1) but with more difficulty than before, and living in dwelling type D and A and using minor adaptations found those



	Minor Adaptations		Major Structural Adaptations		Major Lift Adaptations		Total	
	No's	%	No's	%	No's	%	No's	%
Very satisfied	5	21.7	2	12.5	4	28.6	11	20.8
Satisfied	5	21.7	14	87.5	2	14.3	21	39.6
Neutral	-	-	-	-	-	-	-	-
Dissatisfied	13	56.6	-	-	8	57.1	21	39.6
Very dissatisfied	-	-	-	-	-	-	-	-
Total	23	100.0	16	100.0	14	100.00	53	100

Table 10: Satisfaction of the elderly, in the sample, with the adaptations over the passage of time according to the types of the adaptations (Number and percentages).



adaptations insufficient because they had to go up and down the stairs many times a day or night. This was becoming increasingly more difficult for them.

The persons who were able to walk at home and climb the stairs (Category 2) with quite a difficulty and living in dwelling D and using minor adaptations found these adaptations insufficient due to the same reason. Some three elderly people living in dwelling Type E also found those adaptations insufficient, because they became extremely frail and had difficulty in negotiating the stairs even once or twice a day. Thus their problem was slightly different from the others living in dwelling Type A or D. Where the latter complained about the frequency of travels on the stairs, these people complained about climbing stairs even once a day.

The persons living in dwelling Type A who were able to walk at home and climb a few steps (Category 3) with quite some difficulty and for whom lifts had been provided were no longer able to manage using lifts many times a day, while some others were unable to use the lift themselves and required help to do so. Some people however for whom minor adaptations were provided were completely unable to gain access to upstairs rooms. Thus, they all in general, found the adaptations less or not at all useful.

The persons who were immobile (Category 4) i.e. who used wheelchairs, and had been provided with lifts, found adaptations less useful, because they could not use the lift themselves and needed help from others many times a day. Moreover, some others who were provided with only minor adaptations were completely unable to use upstairs



facilities.

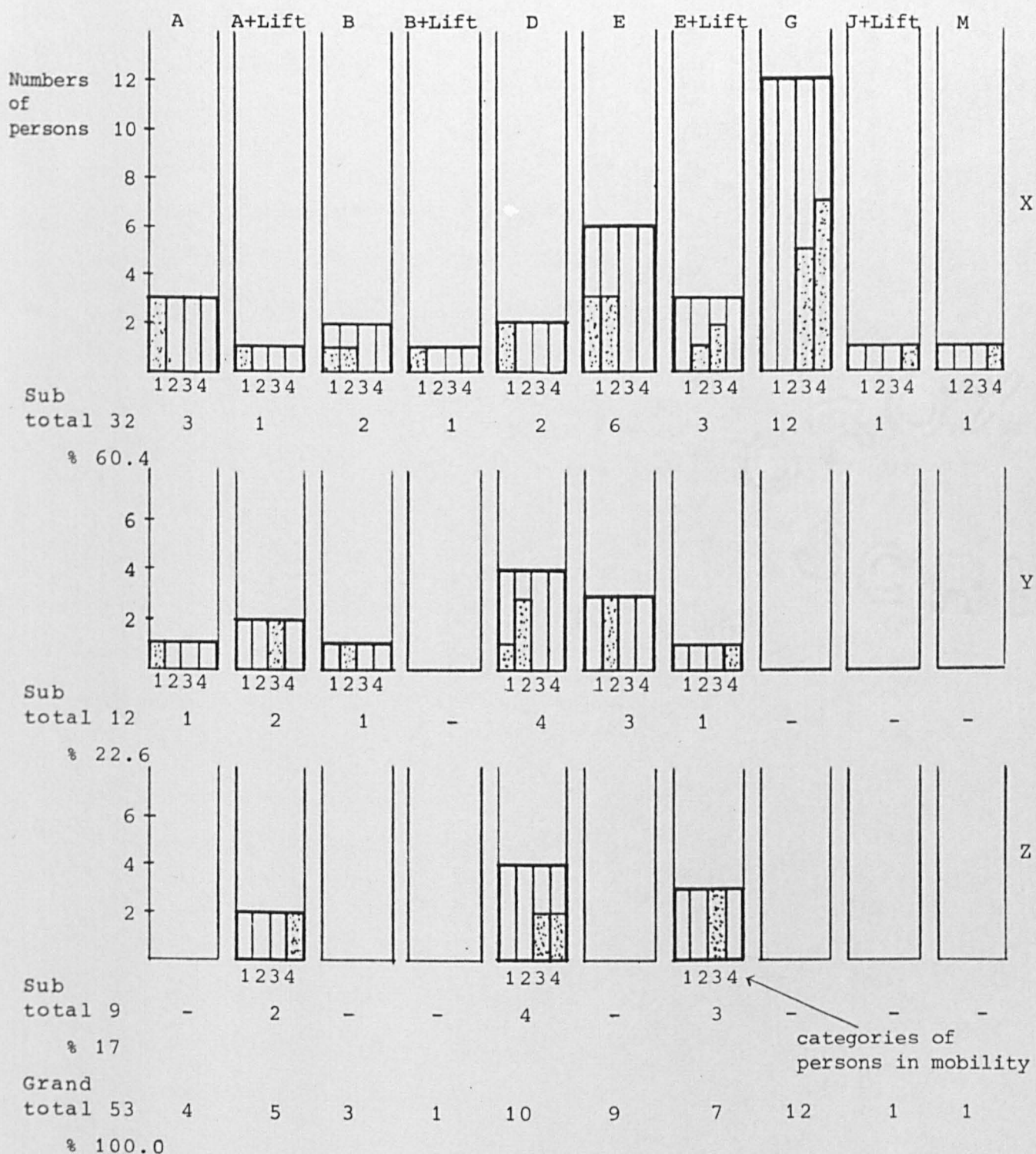
This is shown in Figure 6, however giving some brief account of circumstances of those people will better summarize the three stages experienced by those people. For example:

Mrs. A. was 70 years old and had arthritis and only able to walk at home with the help of her husband and a walking frame. She was living in a dwelling which had three bedrooms on the first floor and a small living room, kitchen, bathroom and toilet on the ground floor. She had been provided with an additional stair rail about two years ago, and then she could manage the stairs. However, over time her health deteriorated and she was no longer able to do so. She was sleeping in the living room because she could not use the upstairs bedrooms. Her husband who was helping her with many tasks also had to sleep there in order to help her during the night. But, the living room was too small (i.e. 14 m<sup>2</sup>) to accommodate two beds in addition to the furniture of the living room. They were extremely dissatisfied. In this case, the adaptations provided became insufficient to meet their requirements and was completely useless.

Mr. B. who was 74 years old and had multiple lesions of his spine was living with his elderly wife in a dwelling in which three bedrooms and bathroom, including toilet were on the first floor and kitchen, dining room and living room on the ground floor. He had been provided with a stair lift about three years ago when he was able to walk at home with difficulty and by using a stick and was able to use the lift provided to go upstairs and use upstairs facilities, particularly the toilet during the day or



# Types of dwellings



X: The persons who had no extreme difficulty in gaining access to facilities because of the stairs

Y: The persons who had extreme difficulty in gaining access to facilities because of the stairs

Z: The persons who were completely unable to gain access to facilities themselves because of the stairs

Figure 6: Types of (adapted) dwellings and abilities of the persons in mobility and difficulties encountered in access to facilities/rooms in dwellings (after the passage of time)



night. However, over the last three years he gradually became wheelchairbound and could not walk any distance and/or use the lift himself. It was not possible for his elderly wife to help him many times a day in access to the upstairs toilet. Thus he was using a commode in the same living room where he was staying all day. Although they said they initially had been satisfied with the lift provided, in a few years, when his condition deteriorated, it became inappropriate to meet his requirements and they were quite dissatisfied with the circumstances, in which they were.

Mr. C. was 83 years old and had arthritis and a hip replacement and was able to walk at home and outside along the street to take a walk by using a stick, and climb the stairs with a quite difficulty and very slowly. He was living with his wife in a dwelling which had three bedrooms on the first floor and living room, kitchen, bathroom and toilet on the ground floor. He had been provided with a stair rail to ease his difficulty on the stairs, some years ago. He said he had had no problem then. However, his condition changed and he needed to use the toilet during the night much more frequently. This was not possible for him while there is no upstairs toilet and he said it was impossible for him to go down to get to the toilet even once. Thus, he was using a commode in his bedroom during the night and he was extremely dissatisfied with this and said he badly needed at least an upstairs toilet to stop using the commode.



#### 1.4. Suitability of types of adaptations to persons living in various types of dwellings

Suitability and effectiveness of various types of adaptations, in a section of time and particularly over time (e.g. when a persons physical health and condition deteriorated) appeared to be dependent on a great variety of factors, some of which are outlined above including change and decline in a person's condition and health, features of dwellings and adaptations. By analysing the data collected, it was possible to make some general observations about possible suitability of various types of adaptation provided in relation to different abilities in mobility and various types of existing dwellings as follows.

##### 1.4.1. Minor adaptations

The data collected suggested that provision of minor adaptations i.e. a stair rail, might be sufficient to overcome difficulties encountered in the use of stairs for access to various facilities by the persons who were able to walk inside and/or outside and climb the stairs, using the additional railing and with moderate difficulty and living in dwelling types A, B, D, E. However, where the persons had to climb stairs frequently or several times a day or at night (i.e. to use the toilet on the other floor level) which this is the case in dwelling Type A and D, adaptations might not be sufficient to their requirements. Or where the person found climbing the stair (more) or very difficult, again these adaptations for persons living in dwelling Type A and D might not be the suitable solution. Alternatively, these adaptations appear most likely to be



sufficient for persons climbing the stairs with moderate difficulty and living in dwelling Type B or E, even if they had to use the toilet frequently during the day or night because they would not have to climb stairs frequently since there was a toilet on the ground floor. Thus, in general sufficiency of these adaptations for persons living in dwelling Type A and D appeared to be dependent on, among other things, certain conditions or factors (i.e. frequency of usage of the toilet during the day or night). Thus, on balance, these adaptations might be sufficient for persons who are able to walk inside and outside, climb the stairs with moderate difficulty as far as they became house-bound (i.e. unable to walk outside), and are able to climb the stairs. In terms of dwellings, persons living in dwelling B and E are more likely to be satisfied with these adaptations when they become house-bound than those people living in dwelling Type A or D. These adaptations were seemingly unlikely to be sufficient for persons who were unable to climb the stairs or immobile, and wheelchair users.

#### 1.4.2. Major lift adaptations

These adaptations appear most likely to be sufficient for people living in dwelling Type A, B, E or J, who are able to walk at home (or also outside) and climb stairs but who find it increasingly difficult, or due to medical reasons (i.e. heart disease, asthma, or pulmonary conditions) have to avoid climbing stairs. However, at least they should have sufficient ability to use and operate the lift to be provided.

These adaptations are also likely to be adequate for people who are able to walk at home and climb a few steps



and are able to transfer and use/operate the lifts without much difficulty. For the persons who are immobile and using wheelchairs it seems less likely, without help of others, to use the lifts provided many times a day or at night if that is what is required. Thus, provision of a lift appears less likely or even quite unlikely to be sufficient for those persons living in dwelling A and D and who require frequent usage of lifts.

In every lift provision the persons need to be able to use/operate the lift themselves if at all possible, otherwise they will be unnecessarily dependent on others, with varying frequency and this largely reduces the adequacy of the provision.

Thus, on balance, it might be said that a lift provided a person who is able to walk and climb the stairs with difficulty, and living in dwelling B and E or J might be sufficient as far as his condition and health deteriorate and he becomes less or immobile, if he can still use the lift or only needs help a few times a day in using the lift and that help is available. For the person with similar characteristics living in dwelling A and D, a lift might be sufficient as far as he is able to walk and climb a few steps and use the lift himself without too much difficulty: otherwise, this provision is less likely to be sufficient for those people when they become less mobile, because they will require frequent help, many times a day or night, to get to the toilet or have to use commodes both of which appeared to be most unwanted consequences.

#### **1.4.3. Major structural adaptations**

Major structural adaptations (i.e. provision or addition of facilities providing all facilities on the same



floor level or the required floor level e.g. ground floor), are most likely to be sufficient for persons with various abilities and conditions. Living in a dwelling in which all facilities on the same level is a desirable situation for almost all the elderly having difficulties with stairs. However, converting dwellings, with the addition of a downstairs toilet (i.e. dwelling type A becomes type E) or upstairs toilet (i.e. dwelling type D becomes type E) might only be sufficient for those persons who are able to walk and climb the stairs involved, as explained in the section concerning minor adaptations. (see Figure 7)

## 2. Conclusions

It appears that the propositions initially put forward have been largely supported.

In the 53 cases in the sample it was clear that certain features of the existing dwellings (i.e., location of facilities, certain aspects of stairs e.g. railing or existence of the stairs) became inadequate for those elderly people whose physical health and condition deteriorated and they had difficulties or inabilities in gaining access to various facilities at home, primarily due to the stairs involved; this evidence gave support to Proposition 1. Various adaptations which were provided to overcome this aspect of their difficulties, increased, in almost all cases, their abilities in gaining access; this supported Proposition 2A. While in a few extreme cases (i.e. persons who were immobile-wheelchair users and cannot propel their wheelchairs) adaptations provided a setting in which those persons could be easily helped to get to the facility required; this evidence supported Proposition 2B.

Thus, the adaptations of any types were sufficient for



Minor adaptations:

Abilities in mobility	A	B	D	E	Dwelling Type
Category 1					
Category 2					
Category 3					
Category 4					

Major Lift adaptations:

Abilities in mobility	A	B	D	E	J	Dwelling Type
Category 1						
Category 2						
Category 3						
Category 4						

Major Structural adaptations:

Before adaptations	A	A	E	D	D	L	Dwelling Type
After adaptations	E	G	G	G	E	M	
Abilities in mobility							
Category 1							
Category 2							
Category 3							
Category 4							

- Key:
- Completely unlikely to be suitable
  - Less likely to be suitable
  - Likely to be suitable
  - More likely to be suitable
  - The most likely to be suitable.

Figure 7: Probable suitability of various adaptations to elderly people with various abilities and living in various dwellings



almost all the persons when first provided.

However, over time, some of the adaptations (39.6 per cent) became less sufficient or insufficient and obsolete to meet those people's requirements and thus Proposition 3 was supported. There appeared to be no close relationship between insufficiency of the adaptations over time, and the passage of time since the adaptations were done. Obsolescence of adaptations provided over time, appeared to be more related to some other factors. For instance, change and deterioration in the condition and health of the person concerned, various features of dwellings and adaptations provided were some of the main factors. Thus, this evidence suggested that, an adaptation might be sufficient to meet related requirements of a person for years, depending on the factors some of which are outlined above. The deterioration of health and condition was a crucial factor. Almost all cases, where a person's condition did not change, all types of adaptations were still sufficient to their requirements. However, the evidence indicated that the physical health and condition of the elderly, in most cases, were likely to deteriorate over time. Some of those adaptations which were not responsive to changes or deterioration in physical health and condition of persons, became obsolete over time, while many adaptations which were more responsive to changes in condition of the elderly, were still appropriate. This indicated the necessity of adaptation provision responsive to changes in the condition of the elderly. Otherwise, there was a need for replacement of the adaptations provided with the more appropriate ones. This evidence above gave support to the propositions 3A and 3B.



The evidence showed that types and design of adaptations and various features of the existing dwellings were important factors in providing adaptations more responsive to further decline and deterioration of physical health and condition of the elderly. For example, in general, most of minor and major lift adaptations were less responsive, while most of major structural adaptations were more responsive to further deterioration in people's condition. In terms of dwelling layout, location of main facilities, particularly of toilets, were the key factor in making the provision more responsive. Moreover, the evidence indicated that providing specific adaptation to specific persons with certain abilities and living in a specific type of dwelling was important to increase the effectiveness of adaptations. This supported the sub-proposition relevant to these specific adaptations.

In the next chapter the propositions put forward will continue to be tested by detailed analyses of various features of the dwellings, which are involved in various daily activities, and the relevant adaptations provided including minor and major lift, and major structural adaptations. The effects of those features and adaptations in the abilities of the elderly in related activities and their requirements for help will be examined and design consequences for various adaptations will be discussed.



## CHAPTER VI

### THE RELATIONSHIP BETWEEN THE PHYSICAL SETTINGS AND THE ABILITIES OF THE ELDERLY IN THE SAMPLE IN VARIOUS DAILY ACTIVITIES AT HOME - II

Many activities of daily living, such as bathing, toileting, washing, cooking, and getting access to facilities and rooms require the use of many of a dwelling's features - the stairs, bath, toilet various fixtures and fittings, doors, corridors and so on. It is suggested that the characteristics of these settings are important by facilitating or hindering the abilities of persons in related activities, particularly those elderly people whose physical health has deteriorated to a certain extent and are living in their existing dwellings, which have been primarily designed for able bodied and capable persons.

The aim of this chapter is to explore this relationship in general and to continue to test the propositions (Propositions 1, 2A, 2B, 3, 3A and 3B) put forward in the Chapter IV by detailed analyses of various aspects of the dwellings in the sample, the adaptations provided and their effects upon the abilities of elderly persons and their help requirements in various activities of daily living and or the activities which form some of those activities. This will be done by examining various features of existing dwellings and discovering their inappropriate aspects hindering the elderly people's abilities in various daily activities. Types and design features of adaptations provided to overcome the difficulties will be examined and evaluated, taking into account dynamism of the requirements of the elderly. The



implications for type, design and application of adaptations to be provided will be discussed.

Since it was impossible to examine all features of the dwellings, thus, only those features which are most frequently used and involve daily living were selected to be examined.

These features of the existing dwellings and the adaptations provided relevant to them can be examined under the following headings:

1. Access inside and outside; internal stairs, outside steps.
2. Use of sanitary facilities; baths, toilets.
3. General household tasks; area provision, doors, windows, fittings and fixtures, heating and lighting systems.

Because the stairs are one of the most usual sources of difficulty for many elderly people, design features of stairs and related adaptations will be examined in slightly more detail.

#### 1. Access inside and outside

Abilities of people to gain access to various facilities and rooms at home as well as to and from the dwellings they live are crucial not only in carrying out a great variety of activities but also in maintaining their sense of independence in their immediate surroundings.(1)(2) The main components of existing dwellings which often hinder elderly people's abilities, are internal stairs and outside steps. Thus, in this section aspects of these components and the related adaptations provided are examined.



### 1.1. The internal stairs (stairways)

When the elderly persons' health and abilities deteriorated over a period of time, many design features of the existing stairs or their very existence in their homes were inappropriate to their requirements and they had difficulties or were unable to negotiate the stairs, and consequently, unable to gain access to various parts of their homes.

One of the most unsuitable features of the existing internal stairs for most of the elderly people in the sample was the extreme steepness of the stairways and steps. 26 (87 per cent) out of 30 persons who were asked to state their opinions, said so.

Analysis of the measurements taken of the stairways showed that the great majority of the stairways (87 per cent or 47 stairways out of 53) had steps of which risers were higher than 19 cm, and all those elderly said this was very high for them to negotiate (see Figure 1). Some of them said by describing the height, that if the risers were about 15-16 cm high, they might be able to use them much more easily. However, there was no possibility of testing this proposition.

The measurements revealed, however, that most of the pitch angles of the stairs were also relatively high, being more than 44° (see Figure 2). This might be partly due to most dwellings in the sample having been built before the Building Regulations 1965, which put a limit to pitch angles of (private) domestic stairways of 42° maximum. In the sample only a few (5 or 9.5 per cent) of the stairs had pitch angles of 42° or less, and it was not possible to test whether this might be appropriate or how many degrees



would enable them to negotiate stairs more easily. Yet, it was clear that  $44^\circ$  of pitch angle appeared unsuitable and furthermore it seemed to be doubtful whether even  $42^\circ$  would be adequate for these elderly. This indicates that the stairs should probably be much less steep than  $42^\circ$ , in order to have risers less than 19 cm and treads suitable to the risers. According to the Building Regulations 1976 for example if risers are 16 cm then goings should be 23 cm which present about  $35^\circ$  of pitch angle. If risers are 17 cm then goings should be 22 cm and this presents about  $37^\circ$  of pitch angle.

The other inadequate aspect of the stairs existed in the dwellings in the sample, was the lack of landing on or about the half way up the stairways, to get a few minutes rest. Only 6 (11.3 per cent) of the stairways had landings on or about the half way of the stairs (see Figure 3, type 5, 6, 7, 8, 9). 8 (26.7 per cent) out of 30 persons felt this was a problem. The main characteristics of those 8 persons were that some of them were extremely frail and their lower limbs were too weak to negotiate the stairs in one effort. Some others, although they had less restrictions with lower and upper limbs, were suffering from heart, or circulatory or pulmonary conditions and were not able to climb the stairs in one effort. Most of the stairways had 12-14 steps (see Figure 4). Thus, they needed a few minutes' rest or to sit somewhere, after climbing half or about 5-7 stairs. In fact, in one case the elderly man had to put a chair on the mid-landing, and showed how he could manage to climb stairs by having some rest/breath on his chair on the mid-landing (see Figure 3, type 5), although he was extremely frail and had some



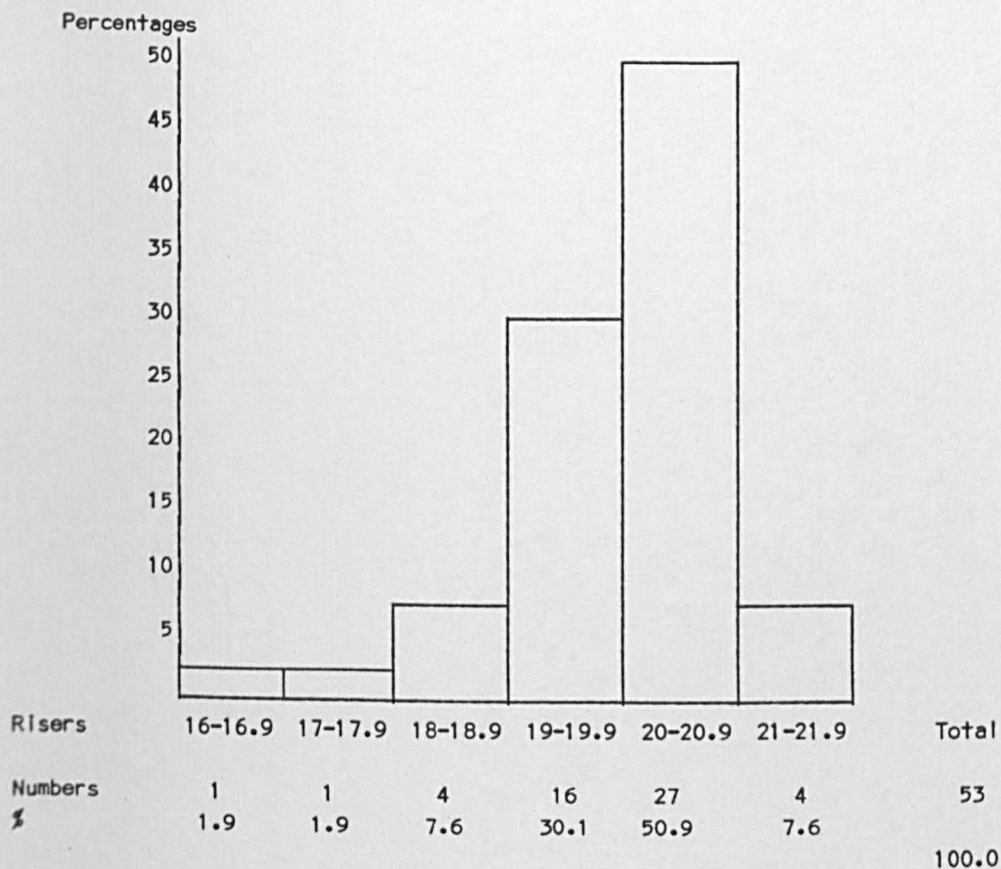


Figure 1: Risers of the stairs. (cm)

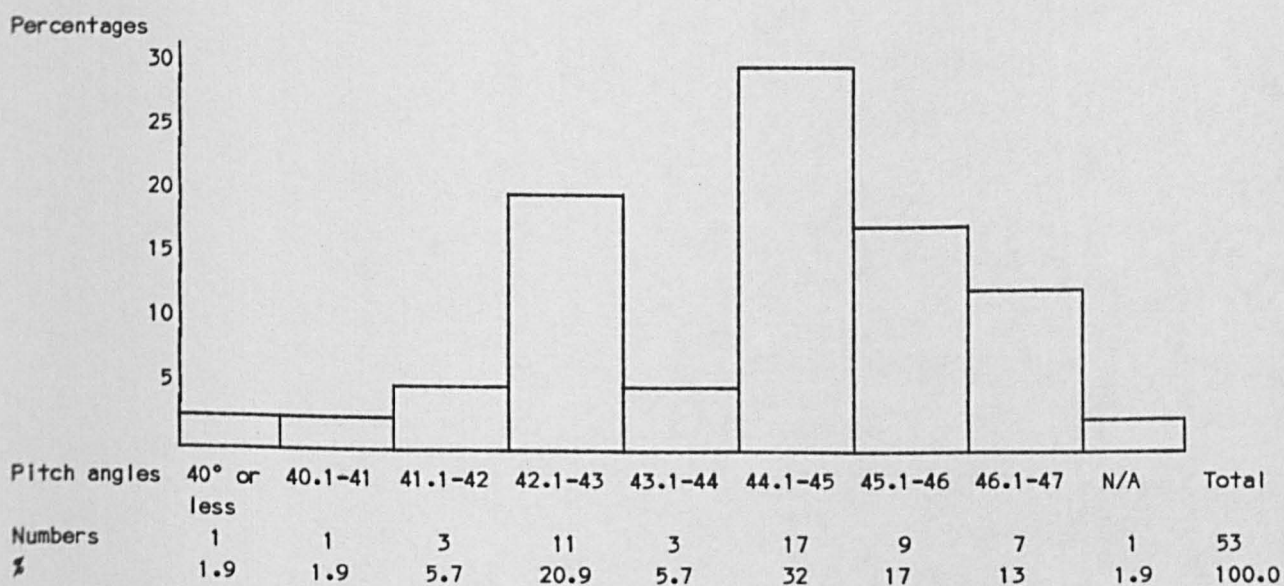


Figure 2: Pitch angle of the stairs (°)



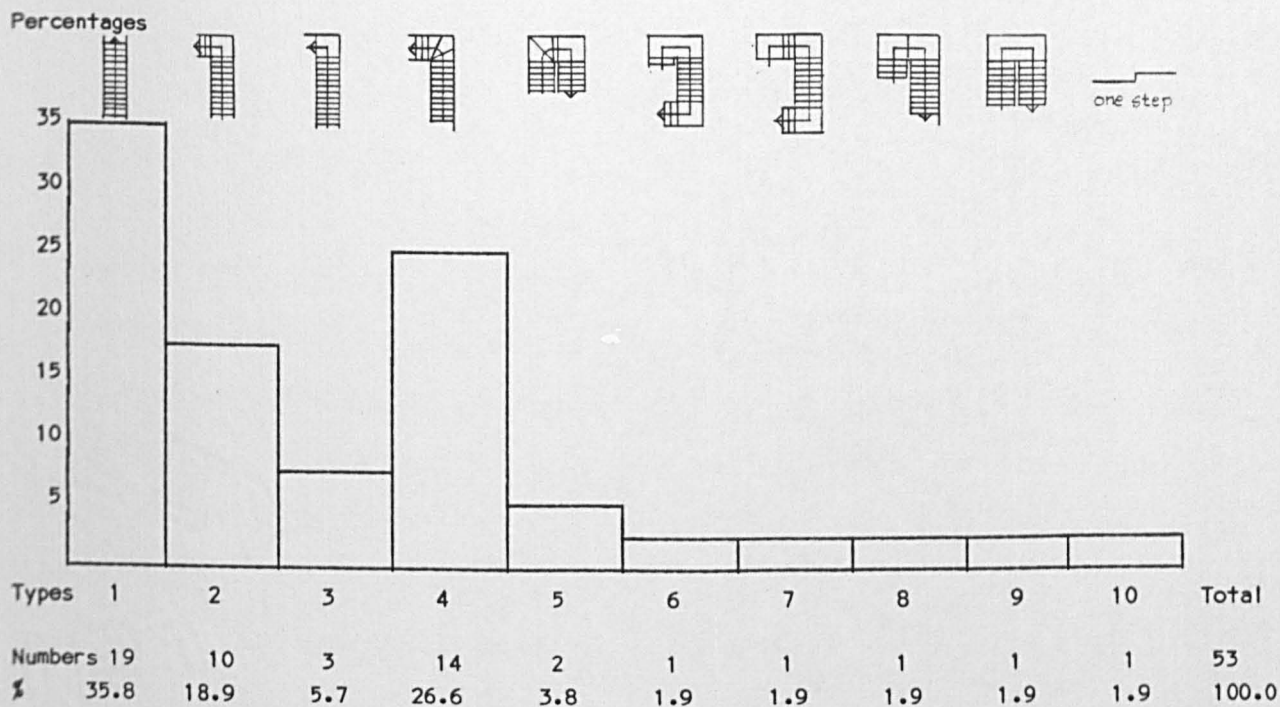


Figure 3: Types of Internal stairs

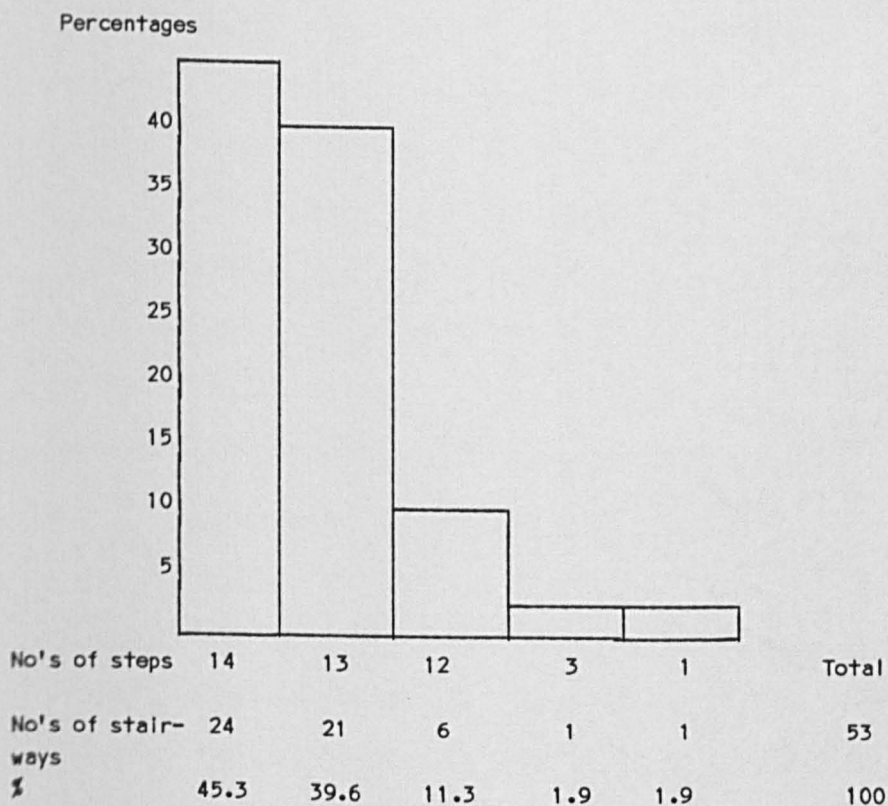


Figure 4: Numbers of steps on the main internal stairways (stairs)



restrictions of both upper and both lower limbs.

Some other aspects of the stairs became insufficient and created problems for the elderly as their health deteriorated. For example some three persons complained about stairs with winders. They said that the shape of the stairs made climbing hard. Two people said treads of steps were very narrow and that they needed more space to step/stand firmly. Measurements showed that those steps had 22 and 24 cm treads on pitch line uniform goings. Although in this sample there was only one incidence this might create problems to many elderly who were not represented in this sample that this feature of the stairs which might make climbing more difficult for the elderly with partial sight was inappropriate colouring of the carpet covering the stairs. For example an elderly woman with partially restricted sight found the carpet colouring (which was dark blue) very dark and made it difficult to differentiate the steps from each other.

The other common inadequate aspect of the existing stairs was the lack of railing. Almost all of them had had originally a railing only on one side i.e. a bannister or a stair rail fixed on walls by stairs. However, this was insufficient for most of the elderly in the sample.

Although most existing bannisters appeared to be sufficient in terms of design (see Figure 5) many existing stair rails appeared to be insufficient primarily in terms of their sections or locations (e.g. too near to wall) for many elderly people who needed to hold them firmly. (see Figure 6). For example, many were not able to hold the rails shown in Figure 5 because they were too near to the wall, or sections were not suitable for grasping.

The majority of adaptations to the stairs were to make



up for the lack of railing by providing an additional stair rail and in some cases replacement of an existing railing was undertaken. Analysis of the data collected showed that in general this kind of adaptation could be useful and facilitate use by the elderly who had no or slight restrictions with upper limbs (hand/arms) with slight or moderate restrictions in one or both lower limbs (i.e. Category 1 and 2). Those adaptations were less likely to be useful or facilitate the elderly who had moderate or severe restrictions with both upper and both lower limbs (i.e. Category 3 and 4). However, the general efficiency of these adaptations in dealing with the problems of the elderly in access to facilities at home was also dependent on the types of dwellings i.e. the location of facilities/rooms and the frequency of usage of those facilities and rooms by the elderly as was examined in the previous chapter.

#### **1.1.1. Stairs rails provided**

Although 37 persons had had this kind of adaptation as their condition deteriorated most of them found these adaptations to be no longer sufficient to meet their requirements and facilitate their climbing the stairs. Subsequently, 14 of them had been provided with other adaptations such as lift or structural adaptations. However, among all those persons who were using or had used the stair rails provided a few found that the design or application of it to the stairs was inadequate. One reason for this was that the railing provided was not continuously fixed from the bottom to the top of the stairs; this caused the difficulty. The person was too frail and needed to hold two rails all the way up and down the stairs.



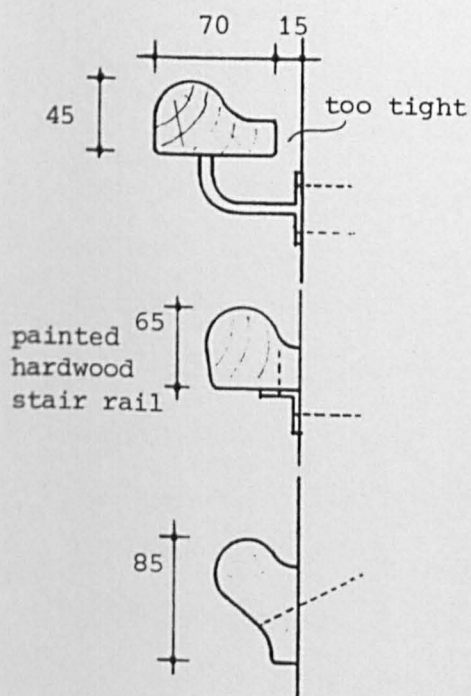


Figure 5: Typical sections of the existing stair rails which were found to be insufficient and difficult to hold firmly.

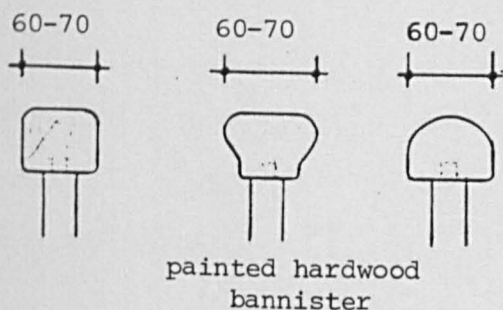


Figure 6: Typical sections of the existing bannisters which were found to be adequate.

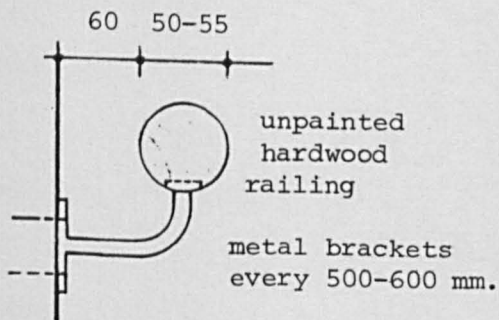


Figure 7: A standard stair rail provided as adaptation to the stairs.



In another instance the rails provided were not strong enough due to the gap between the fixing brackets 800 mm was too much and the person could not lean on it because it was almost cracked from the stress put on it.

Most of the other stair rails were fixed with gaps between the brackets about 500-600 mm and neither of the persons using them complained about this point, and this appeared to be an appropriate gap.

Thus, this indicates that the railing should be continuously fixed from the beginning to the top of the stairs and the gaps between brackets should be about 500-600 mm if the sections of a wooden rail is a circle with a diameter of 50-55 mm.

Apart from those instances, the elderly were generally satisfied about the features of the rails provided. For example, the height of the rails was similar or the same to the height of the opposite side bannister or existing rails which radically changed between 630 mm and 960 mm and was found, in all cases, to be sufficient, probably because they had already got used to use that height railing for years. Figure 7 shows a standard rail provided as adaptation to the stairs.

#### **1.1.2. Lifts provided**

The other type of adaptation provided was lifts. There were mainly three types of lifts - stairlift, homelift and steplift.

A stairlift is defined as 'An appliance for transporting a person or person with a wheelchair between two or more levels by means of a guided carriage moving substantially in the direction of a flight of stairs and travelling in the same path in both upward and downward



directions'.(3) (see Figure 8)

A homelift is defined as 'A permanent lifting equipment, installed to serve defined landing levels in a private dwelling or residential home, that comprises a car, whose dimensions and means of construction clearly permit the access of passenger(s) and/or passenger in a wheelchair, running between rigid vertical guides'.(4) (see Figure 9)

A steplift however is a lift for transporting a person or a person in a wheelchair from one floor level to another when only a few steps (not usually more than 6) are involved (see Figure 10).

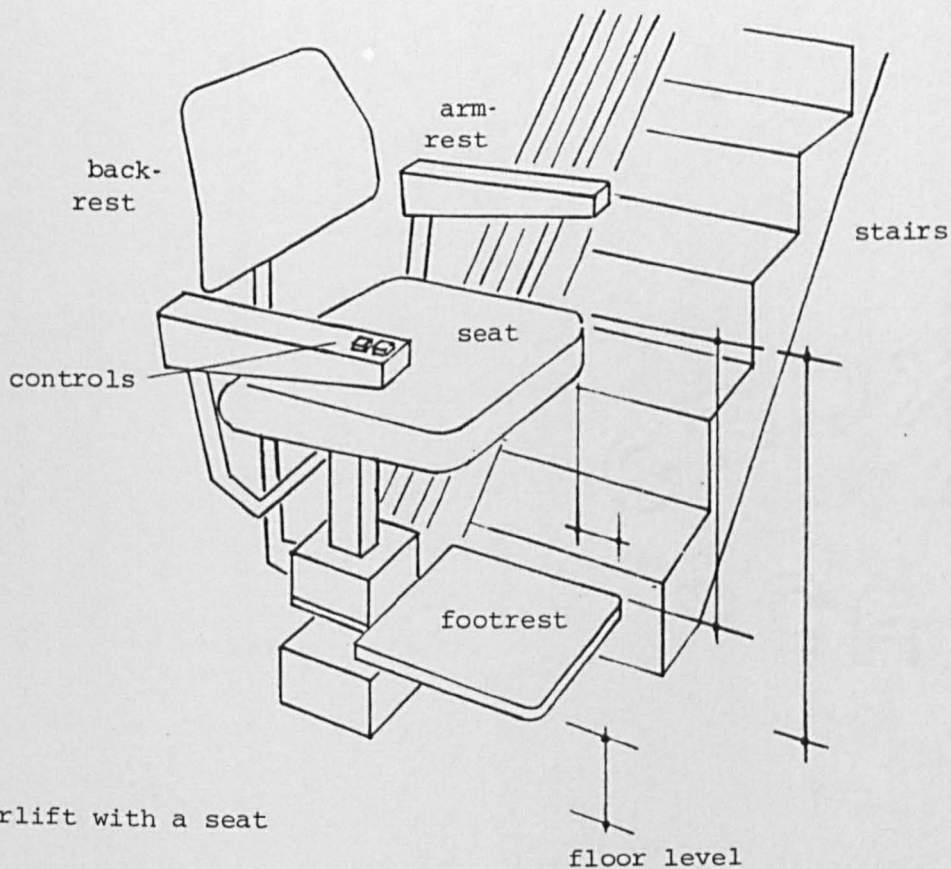
There were 12 stairlifts (8 of which with seat and 4 of which a standing platform and a folding seat) one home lift and one steplift in the sample.

In general, provision of lifts had a great impact on the ability of those 14 people in mobility and access to various facilities at home, particularly when they were first provided. Then, all were able to use and operate the lifts and were completely independent in doing so.

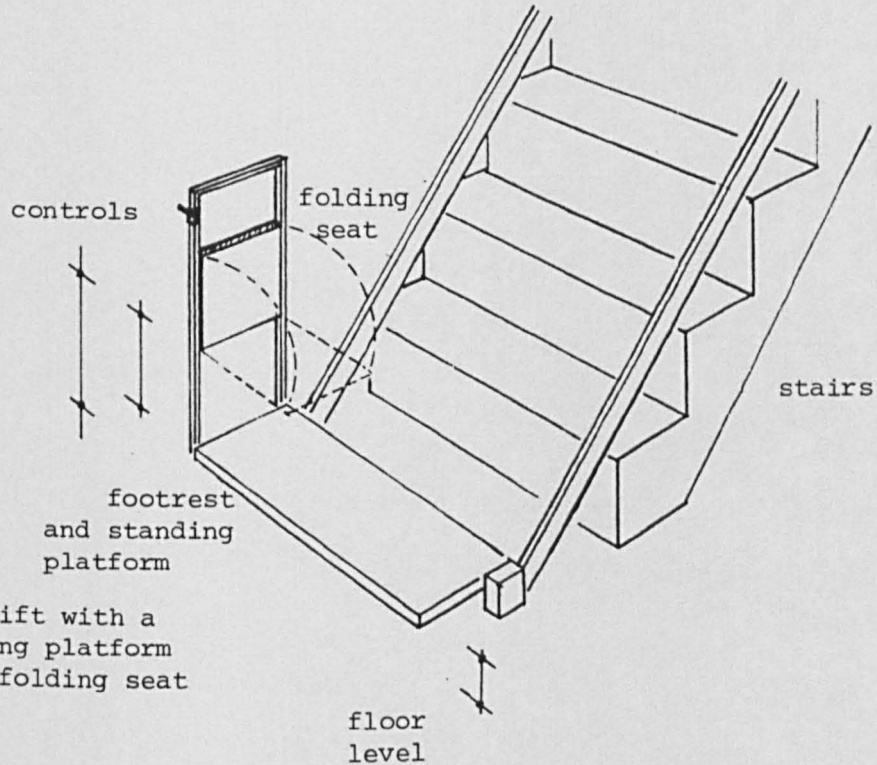
However, over time when many of the people's physical health deteriorated (i.e. many had more restrictions in their hands, fingers, arms and legs) certain features of most of the lifts (which were not designed by taking into account lower limits/state of physical health and abilities of the prospective users) became insufficient for their physical health and consequently the persons' ability to use and operate the lifts were reduced. As a result, some 5 persons (35 per cent) were unable to operate and or use the lift independently and while the others were able to do so, many of them encountered difficulties.



Figure 8 : Stairlifts



A. Stairlift with a seat



B. Stairlift with a standing platform and a folding seat



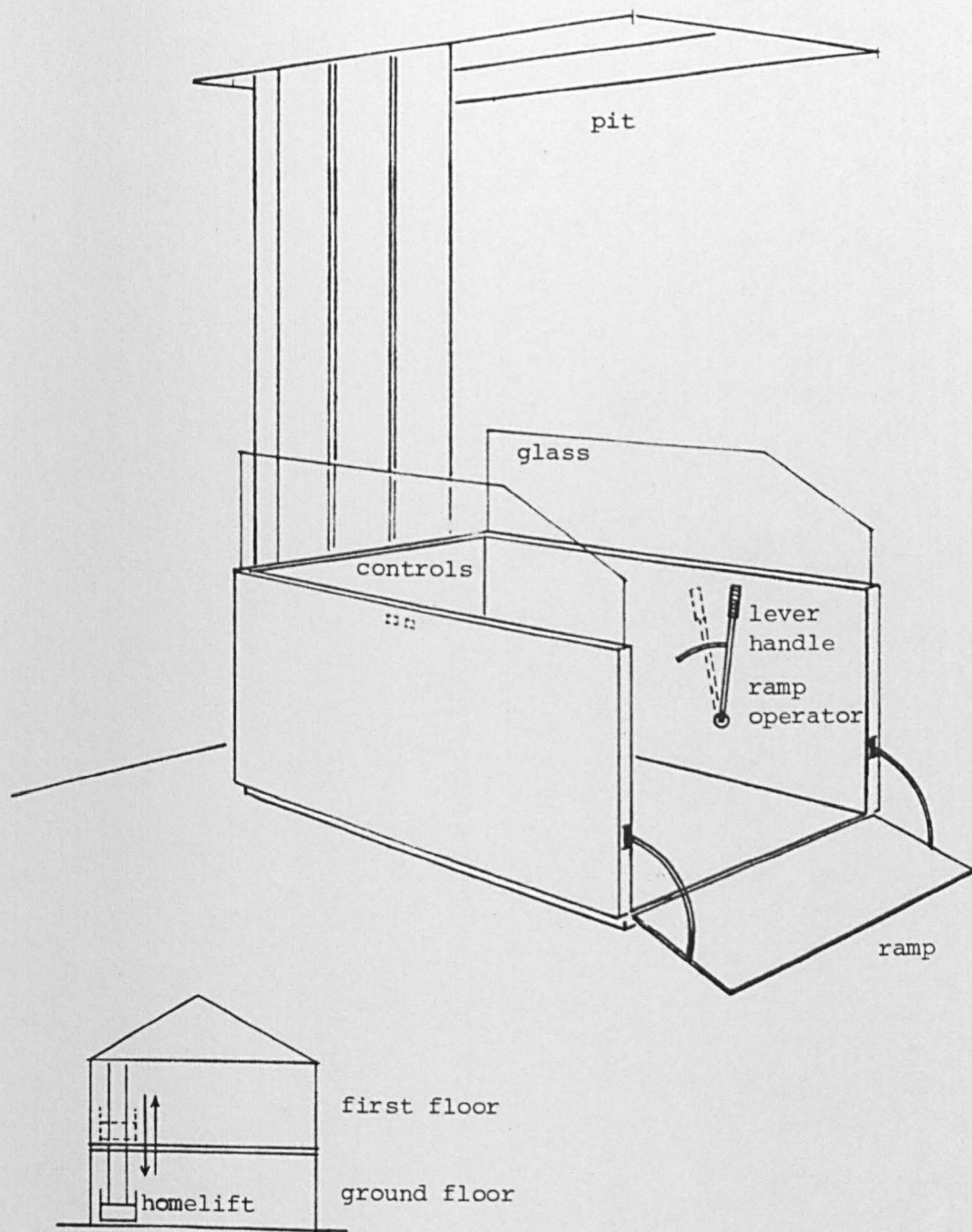


Figure 9 : A homelift



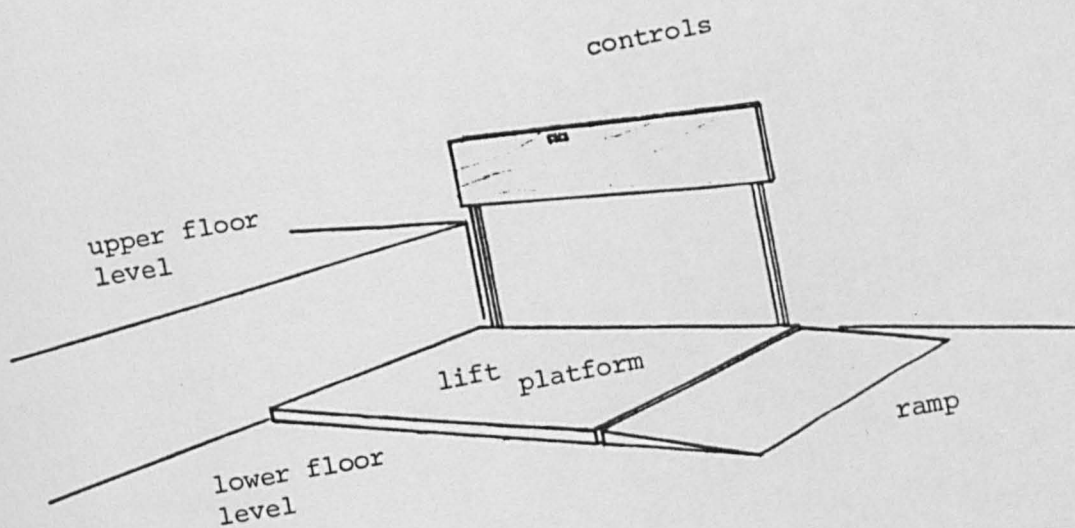
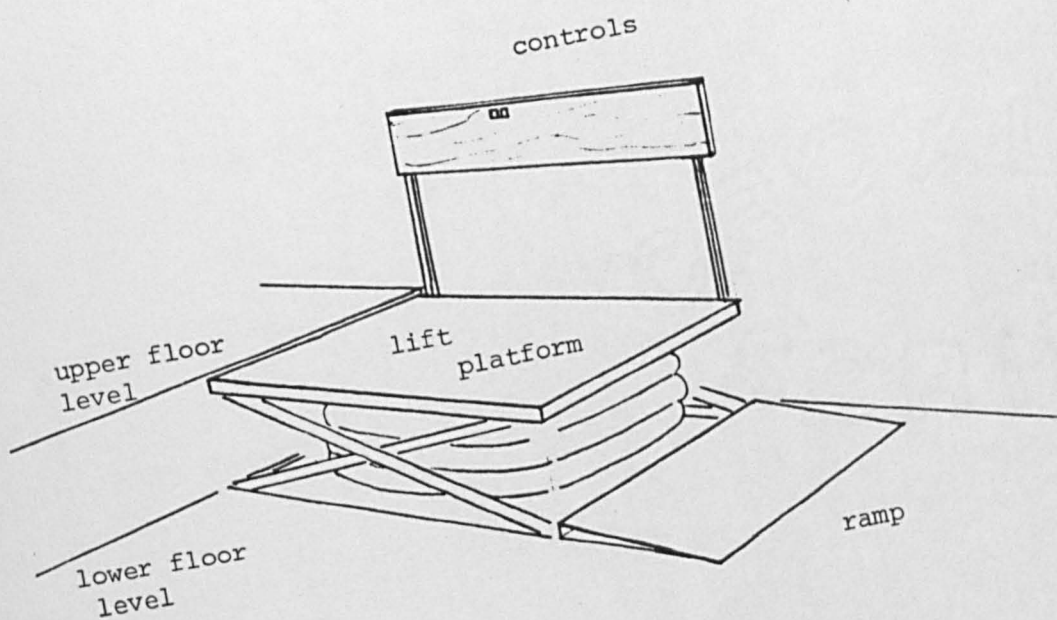


Figure 10 : A steplift



#### A. Some inappropriate design features

The evidence showed that, in general, most of the lifts had various (one or more) inappropriate aspects which are pointed out below.

Some of the critical features of the various brands of lifts which contributed to the difficulties or inabilities encountered were as follows (see Figure 8, 9).

##### Stairlifts:

- . The height of the seat, from the footrest and from the floor.
- . The height of the footrest or standing platform from the floor.
- . The horizontal location of the footrest (nearness to the seat line).
- . Control mechanism (i.e. buttons/switches);
  - shape, size,
  - types of operation,
  - location (on the lift or elsewhere i.e. wall or bannister).

Two persons in the sample were unable to use the stairlifts partly because the seats were very high from the floor. One of them who was a wheelchair user was able to stand up from the wheelchair, but was unable to sit on the seat of the lift due to the height of the seat being very high for him (i.e. 62 cm from the floor). The other person who was only able to walk at home but not climb any steps, was unable to sit on the seat because the seat was 86 cm high from the floor and the footrest was 40 cm high from the floor and required her to climb two steps to get on it. However, in some cases, the person complained about the height of the footrest or standing platform; these



were between 16 cm to 19 cm from the floor. One elderly woman had had a half step made to step up to the standing platform which was only 17 cm high. She said otherwise she could not get on the platform. In another instance the seat was very low (42 cm) from the footrest and the person could not sit on it; she had arthritis in her knees and hips, and had to ride the lift (lift with standing platform and a seat) by standing up and felt uncomfortable and unsafe. In one other instance, however, the person could sit on the seat only with great difficulty because the footrest was located almost underneath the seat and she could not stand up on the footrest to turn and sit on the seat. She could not directly sit on the seat, because the seat was very high from the floor, although the height of the seat from the footrest was sufficient for her.

Another main inadequacy of most lifts was related to the control mechanism. All (12) the stairlifts were push-button or switch operated. However, some lifts had buttons which were 10 mm in diameter and strongly sprung and people who had restricted use of hands, fingers, or wrists, found them extremely difficult to push. They did not have strong enough fingers to press on such a small and strongly sprung button with the required pressure. Some switches however had also unnecessarily small levers (18 mm) and were very difficult to operate by those persons with restricted use of their hands. These difficulties were coupled with other difficulties related to inappropriate features of the controls. Almost all the lifts had continuous pressure buttons or switches. This means a user must continuously press the button or switches during the ride to keep the lift going up/down.



Unfortunately, half of the lift users had, to varying extents, restricted use of their hands/fingers and more than half of them also had weak and restricted use of arms and elbows. Thus, many of them found it extremely difficult or impossible to apply continuous pressure. Some complained that the lift stopped many times in a ride and shook them unnecessarily, and created the risk of falling, especially where users used the lift by standing up, because they could not press, or feel that they were pressing, the buttons or switches continuously. All of those lifts with a standing platform were lacking safety bars or belts. In some cases, the location of the controls created problems. Some of them were located by the seat or on the bannister or on the wall but relatively far from the lift. These were particularly unsuitable and caused difficulties and even sometimes inability to use the lifts.

### Homelifts

- . The material and gradient of the ramp.
- . The type and location of the ramp operator (to lower/lift the ramp).

Although there was only one case in which a homelift was being used, some inadequate design features were possible to identify.

The person who was a wheelchair user and could not use the lift independently, could do so, when the lift was first provided. But firstly the ramp leading into the lift was very steep (1:5 gradient) and slippery and the person was no longer able to negotiate the wheelchair into the lift due to deterioration in his right arm and both hands. Secondly, the lever handle to operate (i.e. lower/lift) the ramp was on the right hand side of the lift and he was not



able to use it with his left hand (see Figure 9) and his right arm was too restricted to use. Thus as a result of these inadequate points not only did he become dependent on others but also the amount of help required by him to use the lift enormously increased.

### Steplifts

In another case there was a steplift and the person who was a wheelchair user, was very satisfied with it. The ramp leading to the lift was 1:12 gradient and the controls could be reached by the person and the lift platform was on the same level as the floor levels when it was up. (see Figure 10)

This elderly woman was completely independent in her access to any part of the dwelling.

Nevertheless, although in this one instance many features appeared to be appropriate for its user some of the points of the lifts, for example, location of the controls and lack of safety bars-edge on one side the lift would appear to need re-consideration if the lift was provided for a more frail elderly person or with future deterioration of abilities in mind.

### B. Design implications for lifts

From the research, the following design implications concerning crucial features of the lifts emerged.

### Stair lifts

Problems with height of seat from the floor and footrest was noticed in elderly with various capabilities, and habit/style of sitting on the seat. There appeared to be no definite pattern in the relationship between the



appropriateness of the height of the seat and a particular frailty. This rather seemed to depend on a combination of a great variety of factors, such as various degrees and types of restrictions with various parts of the body and habit/style of sitting on the seat. In addition because of the dynamics of the requirements, a particular height which had been appropriate then became inappropriate to the same person using the lift.

Thus there was no particular height which might be suitable/appropriate to all those elderly people and to their physical health and condition which possibly decline over time. The measurements showed that a very similar or same height of the seat both from the floor or the footrest was perfectly appropriate for one person, while completely inadequate for another.

Therefore, this appears to indicate that one possible response might be to design a degree of adjustment into the lift's seats to the floor or footrest. However, it might be argued that adding this feature of design is likely to increase the cost of a stairlift. But it seems that this increase in cost is most likely to be much less than the replacement of one lift with another, or this relatively small increase in cost could prevent the lift from being completely useless, and wasting all its initial cost. Additionally, using a lift independently means a lot for all the elderly, not only those living alone but also living with others. Psychologically such independence is a most desirable object.

In respect of the height of the footrest and horizontal location of the footrest, the circumstances varied and there appeared to be no 'one' pattern.



Therefore, the following design implications were drawn from the analyses of the detailed data collected.

Before doing this it should be noted here that, many design recommendations made about stairlifts in the British Standard Institution's Specifications for Powered Stairlifts were inappropriate to the requirements of the people in this sample. For example, it was said that 'the height of the seat above the footrest (or foot-supporting platform) would normally be between 400 mm and 450 mm to suit the user'.(5) However, the seat being 420 mm was completely inappropriate for one elderly person in the sample investigated. Also it was recommended that the height of the footrest or standing platform should not exceed 200 mm.(6) However, there were many people in this sample who found 170 mm or 190 mm completely impossible or very high to step up on the footrest. Another point which was in most cases a vital concern was that in British Standard Specifications it was not stated that there should be a safety bar enclosing a person who uses the lift by standing on the standing platform, nor was any belt harness etc. recommended. However, many elderly in this sample were very frail and stated that they did not feel safe when riding on the lift by standing up. Thus, these examples show that appliances or equipment which are designed for less able people and not for able bodied people should be designed for possible or predictable lower limits/state of physical health of their prospective users. Then, they are more likely to be responsive to future changes in physical health of their users, and those could be used more easily by them when they are first provided also.

Thus, the following design implications about



stairlifts were drawn.

The height of the seat from the footrest and from the floor needs to be adjustable according to the user's physical health and abilities (and their possible change over time) and the habit or style of using the lift.

The height of the footrest or standing platform from the floor needs to be as near/close to the floor as possible and to be adjustable to the user's condition (i.e. leg movements or restrictions) and habit/style of using the lift.

The horizontal location of the footrest needs to be adjustable to the user's habit/style of using the lift (i.e. whether the user first gets on the footrest then sits on the seat or directly (e.g. backwards) sits on the seat then pulls and puts his feet on the footrest).

Control mechanism: Shape and size of the buttons or switches needs to be easily operated with restricted hand/fingers, should not be strongly sprung, and should in many cases be bigger. Colouring seemed to be also important to make the person aware of the buttons and not to operate the lift inadvertently before sitting on or standing up on the lift. This is especially important in cases where the user has some restrictions in sight. Types of operation need to be not through continuously pushing a button or switch, but rather pushing/pressing once should be sufficient for a once up or down ride, or any other type of control allowing the frail user to operate the lift with much less effort and competence should be considered. Location of the controls need to be adjusted according to the user's condition (i.e. arm restrictions) and ability to



reach them.

The lifts that could be used standing up need to be adjustable/convertible so that the user should be enclosed by safety bars. This is especially vital, when the user of the lift is very frail and vulnerable to sudden stops of the lift for any reason (i.e. insufficient control mechanism, or power failure etc.).

### Home lifts

The material of the ramp of homelift needs to be non-slippery (i.e. rubber rib coated) and its gradient needs to be about 1 in 12 or less.

The location and type of the ramp operator (i.e. lever handle) needs to be adjustable in terms of height or place (i.e. on the right or left hand side) to users physical health (i.e. restriction with arms) and their possible decline/change over time.

### 1.2. Outside steps

Almost all the dwellings in the sample had outside steps from inside to outside the dwellings.

24 (45.2 per cent) persons in the sample encountered various difficulties in access to their dwelling from outside or in leaving them partly due to certain features of steps or even the existence of the steps (see Figure 11).

Most had to climb one or two steps (see Figure 12). The common aspects of the steps which were described by the persons who experienced difficulties or inability to negotiate them, were the steepness of stairs and absence of railings (see Figure 13). Data showed that most of the height of the the risers of the steps complained about were between 180 mm to 240 mm. These aspects of the steps



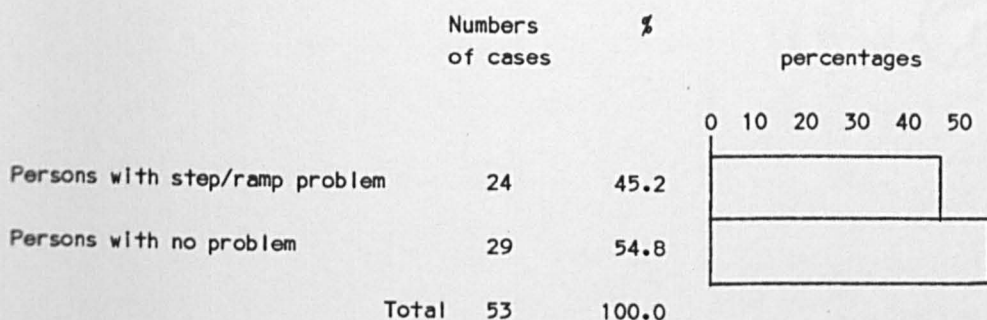


Figure 11: Number and percentages of persons who had difficulties or Inabilities with outside steps/ramps.

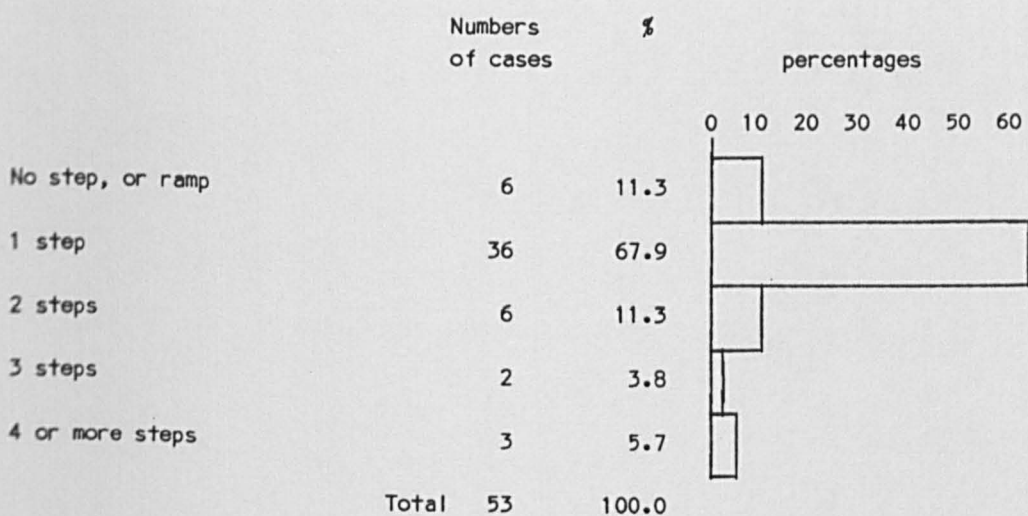


Figure 12: Number of steps outside.

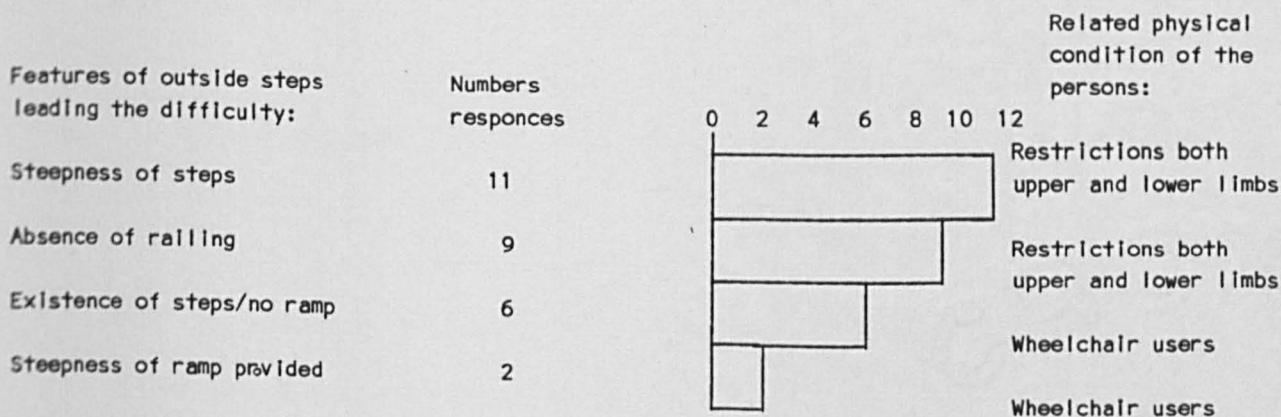


Figure 13: The nature of problems and relevant physical condition of the persons.



created problems primarily for the persons who were either severely or partially restricted in lower limbs and had some restriction with one or both upper limbs; mostly these were in Category 3 and 2 in terms of their mobility. The existence of steps, however, was the main source of difficulty for the wheelchair users in that 6 wheelchair users were living in dwellings with outside steps. As a result a total of 10 (18.9 per cent) persons were prevented from getting access to front or back gardens and streets, most of whom were wheelchair users.

Various adaptations had been provided in accordance with the features of the outside steps and the condition of the people. Some 6 persons had been provided with rails to the steps and some 6 persons with ramps and one person had had step alterations providing shallower steps (i.e. 80 mm). Except for the persons whose health and condition deteriorated and were no longer able to use the adaptations provided most were satisfied and found the adaptations to be very useful. For example, 2 persons were not able to use the rails provided and another person said he needed more railing (i.e. rails on both side of steps). However, in two cases where ramps were provided the people were dissatisfied and found the provision to be useless, because the ramps were 'very steep' with gradients of 1 in 5 and 1 in 6, and even with the help of their elderly spouses, it was impossible to negotiate the ramps provided. In other four cases, where the gradients of ramps varied between 1 in 14 and 1 in 30 the persons were generally satisfied because some of those persons could propel and climb those ramps themselves, while the others who could not propel their wheelchairs, could be pushed to climb the ramp by



their helpers who in all cases were also elderly.

## 2. Use of sanitary facilities

Use of sanitary facilities at home, particularly baths and toilets are crucial in carrying out self care activities. However, many features of these facilities in existing dwellings often hinder the abilities of the elderly in the activities concerned. This section discovers some of those inappropriate aspects and examines the related adaptations provided.

### 2.1. Baths

The baths in the existing dwellings of the elderly were in many respects, inadequate for most of them. Most of the elderly had encountered difficulties or inabilities in bathing and most of them had had various adaptations made to overcome unsuitable features of baths.

During the field work it was possible to identify six main defective features of existing baths, on which almost all the people agreed. However, the difficulties and inabilities encountered in using baths (the most common difficulty was to get in and out of the bath tub, among other things, which included difficulty in washing themselves) often arose from a combination of those aspects rather than from one of them. These aspects were: 1. the height of the edge of the baths, 2. lack of railings, 3. deepness of the baths, 4. lack of a place to sit and wash in the bath, 5. lack of a place to sit and get in or out of the bath, and 6. slipperiness of the baths.

The measurement taken showed that the height of the edges of almost all of the existing bath tubs in the sample



was between 54-60 cm and this was generally found 'very high' by most of the people particularly by the persons with severely restricted lower limbs. The depth varied between 43-48 cm and most persons particularly persons with severely restricted one or both upper limbs found this very deep to get up from. All the baths were made of metal or plastic material and had slippery surfaces all over. Most elderly people expressed the feeling that this was a dangerous and worrying aspect of baths. In almost all the existing baths there was neither a place for persons to transfer or get into the bath gradually or in two or three stages of action, nor a place to sit and wash themselves without having to lie down in the bath.

Then, it was almost impossible for most elderly to get up again.

Originally, there had not been railings to hold/grab, in order to ease getting in and out of the bath which might also lessen the risk of falling or slipping.

#### **2.1.1. Adaptations provided**

To overcome these defective features of bath tubs various adaptations had been provided. These may be examined in two groups. The first group of adaptations were grab rails or folding bath rails with a combination of various bath aids such as a bath board, bath seat and slip mat; the second group was the provision of showers or special (shallow) baths, sometimes combined with hoists.

##### **A. Provision of rails and bath aids**

Concerning the first group, grab rails or folding bath rails, which aimed at facilitating the elderly in getting



in and out of baths had been provided with a combination of other items. For example bath boards were provided to help them get in and out of the bath gradually by seating themselves on the board and with two or three stages of movements; bath seats were primarily to help them have a bath in a sitting position and without having to lie down in the bath; slip mats were put in the bath to overcome the slipperiness and to lesson the risk of falling. A typical pattern of this kind of combination was provision of a grab rail one side of the bath, (or a folding rail in 6 cases, see Figure 15) one bath board, one bath seat and one slip mat. This had been provided for more than half of the persons (see Table 1 and Figure 14).

Analysis of the data showed that this sort of typical combination was found very useful by elderly people who had slight or no restrictions with upper limbs, and had slight - but not severe - restrictions with either or both lower limbs and they facilitated their having a bath themselves. (Those persons' mobility categories were 1 and 2). However, many other elderly who were partially restricted in either or both upper limbs and severely restricted with either or both lower limbs but still able to walk at home, found that just one side grab rail was not sufficient and they needed a grab rail on each side to help them get in and out of the bath and sit on and get up from the seat provided. This aspect was also evident in two cases where the persons had had two grab rails, one on each side. They found this very useful, although they were relatively more restricted in both upper and lower limbs than many others yet still could manage to have a bath themselves (see Figure 16).



	<u>No's</u>	<u>Percentages of</u> <u>persons</u>
1. <u>Adaptations:</u>		
One grabrail by bath	19	35.8
Two grabrails by bath	2	3.8
A bar rail on bath	1	1.9
Folding bath rail	6	11.3
2. <u>Aids</u>		
Bath seat	27	50.9
Bath board	16	30.2
Slip-mat	29	54.7

Table 1: Number and percentages of people who were provided with minor adaptations to bath and bath aids.



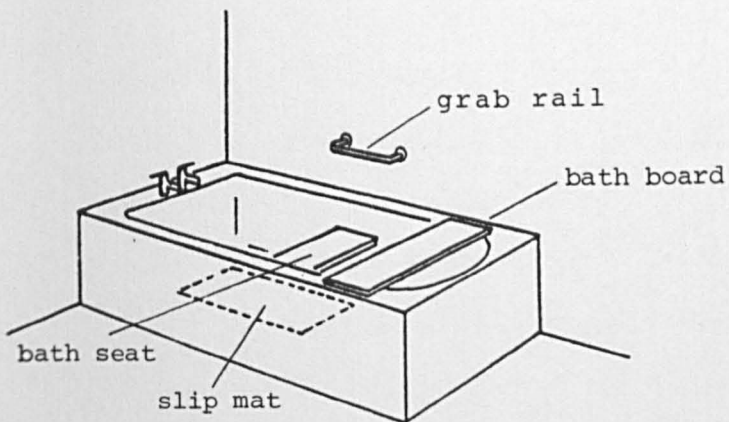


Figure 14: Bath aids and adaptations

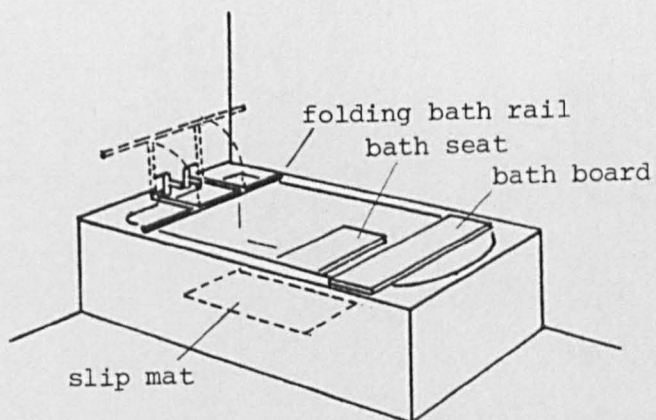


Figure 15: Bath aids and adaptations

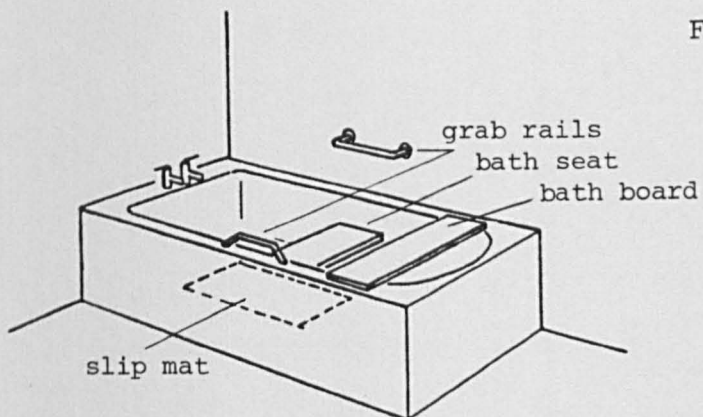


Figure 16: Bath aids and adaptations

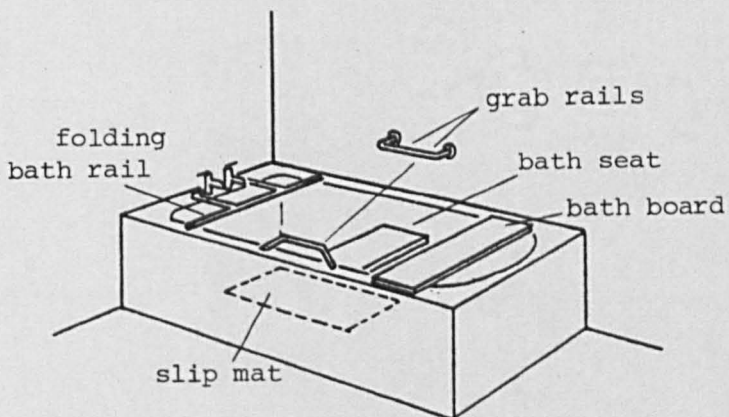


Figure 17: Bath aids and adaptations



Concerning the folding bath rails, however, the data suggested that in comparison, folding bathrails were found slightly more useful than the one side grab rails provided. But, on balance, it was clear that in order to increase efficiency of this kind of minor adaptations for those persons with some restrictions with upper and lower limbs, grab rails at least needed to be provided on two sides of bath tubs and a provision of a folding bath rails in combination with other aids (see Figure 17).

Of course, some elderly whose health deteriorated over time and had partial restrictions with upper and severely restricted with lower limbs who could walk with difficulty found these kinds of adaptations insufficient to enable them to bath themselves. However, many stated that although these adaptations became insufficient for them to bath themselves independently, nevertheless, these rails or other aids made it possible for them to have a bath with the help of their spouses, which otherwise would have been much more difficult or impossible. But immobile (i.e. wheelchair users) persons said these adaptations were completely useless either way.

#### **B. Provision of showers and hoists**

Some 10 persons most of whom were immobile had been provided with the second group of adaptations, such as showers (which were provided in 9 cases) or special shallow bath (which was provided in one case) and hoists (which were provided in 5 cases). In general these adaptations provided were found very helpful by those persons who were able to walk but were restricted in both upper and lower limbs and who were living alone and had no helpers. They could bath themselves without help. Others who were



immobile, in some cases only with the help of other persons and in some cases with an additional aid of hoists (electric or manual) could be bathed in the shower provided. Otherwise it would not have been possible for them to bath at all.

Concerning the design aspects, some deficiencies in the showers provided emerged. Some shower rooms had been covered with carpets because users had wanted it to be so, but the edging around the shower, separating wet and dry floors, was very narrow (i.e. 100 mm) so that all the floor covered with carpet always got wet from water splashing from the shower, although a curtain was provided. In some other cases, there were no curtains, so users complained about the wetness of the whole floor after a shower. This suggests that, covering the shower with carpet may not be as appropriate as ordinary tile or vinyl covering being not slippery but if the persons want it to be so then the bordering between the shower (or wet area) and dry area needs to be wider so that splashing water does not wet the whole room. A curtain or shower screen in all cases (i.e. carpet covering or other coverings) is needed.

Apart from those points, there were some elementary defects in some provision. For example, in one case, the slope of the shower floor was away from the drain and the water overflowed and got into other parts of the house. Due to this defect the provision had been used only once since it had been provided.

Apart from those points outlined above, the showers provided in general appeared appropriate as all showers were provided with thermostatic anti-scald hot and cold water controls. An important point needs to be



emphasized. In shower provision there should be room for helpers to help the elderly having a shower, or helping him/her to sit on or get off the shower seat, that most of very frail or immobile people used seats when they were having a shower. This would also be useful for those people who are able to bathe themselves at the time of the adaptations provided, when their condition deteriorates and they need help in bathing.

## **2.2. Toilets**

There were primarily two features of the existing toilets which were most commonly found inadequate and caused difficulties to the elderly people in the sample. The first was the height of the toilets, about which a number of elderly complained. The data showed that almost all of the existing toilets were between 38 cm to 44 cm from the floor that since most of the persons had various lower limb restrictions due to arthritis or other illnesses, they found it very difficult to sit on and to raise themselves from it. The difficulty was compounded because there were originally no grab rails to help with this problem.

### **2.2.1. Adaptations provided**

Concerning the height of the toilets, some 7 (13 per cent) elderly people had a toilet riser, which is an item easy to fix on the toilet to raise its height and in general found it very useful, although some complained about difficulties in cleaning the items, since flush water does not flush it, as it is on the top of the toilet. Some 15 persons (28 per cent) however, had had toilets raised structurally from the floor, and adjusted to their requirements. All those elderly were very satisfied and



found the provision useful. One person however was using a commode over the toilet to help him sit and get up from it. However, there were still 4 persons who had no adaptations or aids, and were having extreme difficulties because of the inappropriate height of toilets. Some of the toilets were situated in bathrooms, some in separate small rooms. Concerning the absence of railing, some 11 (21 per cent) persons had had grab rails fixed on the wall by the toilet. Most of the toilets were fitted with one grab rail. In general, most of the persons found such rails very useful. Most also were using the edge of the bath or other items to ease sitting on and getting up from the W.C. However, a few elderly stated that one rail was inadequate and said they needed two grab rails, one on each side, as their condition deteriorated (those toilets in either separate rooms or there was no object to lean on by the toilet). Apart from them, some 6 (11 per cent) persons were provided with portable (unfixed) toilet rails, and nearly all of them said these were not safe because they were not fixed and were shaky. There was always a risk of falling. This clearly showed that this kind of provision needed to be re-considered for very frail elderly people.

In general, in terms of railing the data showed that where possible and where required (i.e. if there is no edge of bath or another appropriate item to hold or lean on) provision of two grab rails one on each side could better meet the requirements of most elderly and were more responsive to changes in their condition over time.

In one case, a clos-o-mat, an automatic toilet, incorporating warm water washing and hot-air drying, was provided for an extremely frail man. He was exceedingly



satisfied with it, because it made him independent in this activity. He was in a wheelchair and severely restricted in both upper and both lower limbs, and in nearly all other activities was dependent on others. However, unfortunately, primarily due to relatively high cost, this kind of adaptation was rarely provided.

### 3. General household tasks

Many features and components of dwellings are crucial in facilitating the abilities of the elderly in a great variety of day to day activities. This section examines those features which are most frequently used and involved in many household tasks and the relevant adaptations provided. These features are: the space provided, doors, windows, fixtures and fittings, heating systems and lighting systems.

#### 3.1. The space provided in dwellings

The amount of space in existing dwellings and its relation and effects on the abilities of the people in various daily activities were examined in relation to the area of individual rooms, the area of circulation (i.e. passages and corridors) and the overall area of the dwelling.

##### 3.1.1. The area of rooms

Whether the area provided in different rooms was sufficient for the requirements of the persons varied and largely depended upon their physical health and condition of the persons concerned.

While, in general, almost all the rooms in the



dwelling were satisfactory to those who were ambulant and had little or slight restrictions of their upper and lower limbs, rooms of a similar area became insufficient to persons who were less able or to the wheelchair users or those who were ambulant but had more or severe restrictions with upper and lower limbs, and this created various difficulties in performing day-to-day activities.

Living rooms and bedrooms, in general, had sufficient area to meet the requirements of all the elderly in the sample including wheelchair users.

In kitchens, the area became insufficient for some elderly where previously it had been sufficient, and reasons for this varied. For example for some 6 persons who had restricted use of their arms, were able to walk only at home and were living alone, the area in the kitchen became insufficient because there was no room to put a table and chair in it to have meals. Thus, they had to carry the food into the livingroom, but this was extremely difficult due to arm restrictions. To overcome this difficulty, some of those elderly had been provided with trolleys to carry food where possible i.e. if there was no step or floor differences between living room and kitchen. However, it should be noted that, smaller (i.e. 30-40 mm diameter) wheeled trolleys were extremely difficult to push on the carpeted floors. In some cases the area in the kitchens was insufficient because there was no room to put a washing machine. This became a difficulty as a person's ability of walking outside the dwelling and carrying laundry to a laundrette declined. Those persons said they were no longer able to take their clothes or things to the laundrette and although they could afford to buy a washing



machine and use it themselves there was no room in the kitchen to put a machine. Thus, they became unnecessarily dependent on a laundryman or their relatives or friends in this task.

For most wheelchair users the area in the kitchens was insufficient and this was most felt, where the housewife was immobile or the person was living alone. This, however, occurred only in a few instances. To overcome this difficulty, in 3 cases, kitchens had been enlarged; thus, the women could do most of the kitchen work, and they were very satisfied about the adaptations provided.

The area of bathrooms and toilets, whether they were separate or in the same room was generally sufficient for almost all elderly who were able to walk at home.

For wheelchair users, however, most of the bathrooms which included the toilets, and likewise separate toilet rooms seemed to be hardly sufficient, since most of them were designed for an able-bodied person's usage.

However, most of those people were provided with additional facilities (structural adaptations) and they, in general, found space provision sufficient in them (see Appendix 5 plans of houses/adaptations).

### **3.1.2. The area of circulation; passages and corridors**

The data collected showed that unless an elderly person was a wheelchair user, the area provided in the passages and corridors in existing dwellings were not likely to create problems to their occupiers. However, more than a third of the wheelchair users (5 persons) had difficulties due to insufficient area in the corridors. The crucial feature was that, especially at corners and the end of corridors where the door was on the right or left



side of the corridor walls, there was insufficient space for wheelchair turning. This resulted in one person being unable to use all facilities in his dwelling, and one person being unable to use the lavatory even with the help of his helper. The details of the corridor dimensions and points which caused the problems are given in Figure 18.

Most of the other wheelchair users had less difficulty in terms of area in the corridors and passages; at least with the help of their helpers they could manage to manoeuvre their wheelchairs.

However, in general, data showed that many corridors and passages, particularly at the corners, in existing dwellings might not be suitable for wheelchair usage; just because of their dimensions, they were not wide enough; data suggested that only 50 or 100 mm more width in most cases (that majority of the corridors were about 800 mm in width) might be adequate to accommodate wheelchair usage in many dwellings. Yet adaptation and widening those corridors would be relatively highly expensive, and troublesome. Largely, due to this reason there was no adaptation done to corridors and passages in the dwellings of the elderly in the sample.

### **3.1.3. Total area provided in the dwellings**

The total area of the dwellings and the rooms provided were found to be sufficient and appropriate to their requirements by most of the elderly.

In the literature, it was always assumed that large houses were one of the main problems for older persons.(7) Moreover, most surveys and studies assumed that one bedroom and the other facilities and rooms (i.e. living room, kitchen, bathroom, toilet etc) were appropriate for an



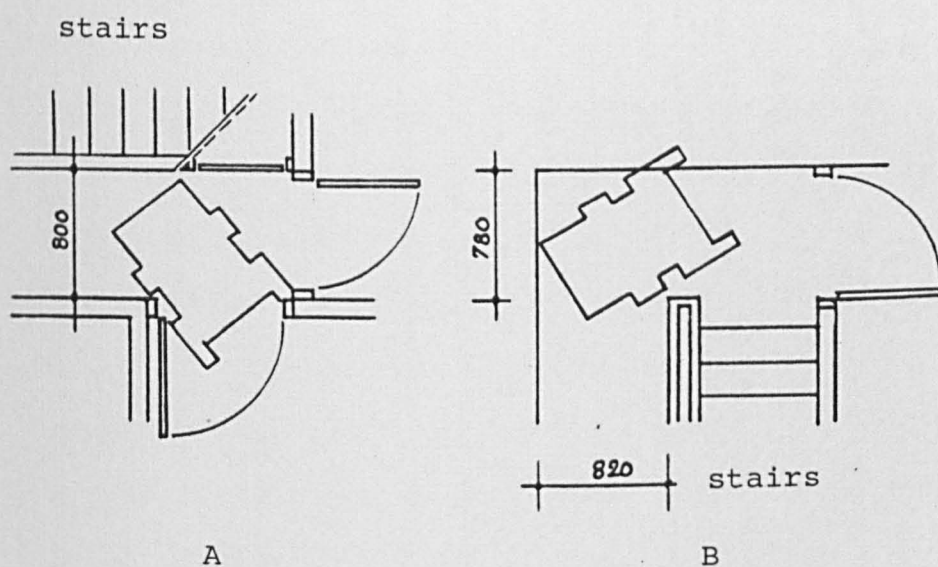


Figure 18: Details of the corridor dimensions and points which caused problems for wheelchair users.



elderly person or a couple (8) and assumed that in most cases there was a mismatch between the household size and dwelling size (i.e. number of bedrooms, or overall area).(8A) However, the data collected for this study showed that this was not always the case and appropriateness of the area or rooms provided in the dwelling depended on various factors. For example, in the sample most of the elderly lived in dwellings with 4 or 5 rooms, which included living room, dining room and bedrooms but excluded kitchen, bathroom, toilet and utility room, and total net areas (i.e. including all rooms, and facilities) between 55 m<sup>2</sup> to 84 m<sup>2</sup> (see Figure 19, 20). The majority (60.4 per cent) of the elderly found the size of their dwellings to be the 'right size' for their requirements, although most of them (81.1 per cent) lived in one or two person households (see Figure 21). The ratio of the number of bedrooms in the dwellings to the number of persons in the households was 2.8 where the persons were living alone, was 1.3 for an elderly couple or two person households, and was 0.8 for households consisting of three or more persons. However, in terms of their attitudes towards the size of the houses, there were no considerable differences. Elderly people living in one and two person households found the size of the dwellings right or large or very large in roughly the same proportions.

The analysis of the data showed that this was related to a number of factors rather than just the size of households. In addition to the size of households, sleeping patterns whether in a separate or the same room, having relatives or children visiting the person, socio economical class and getting used to a certain size of



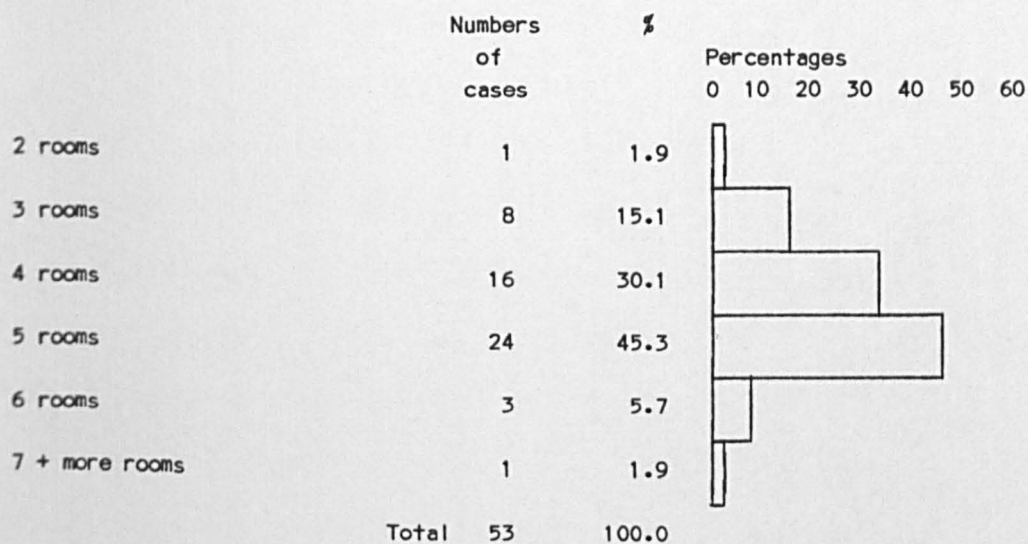


Figure 19: Number of rooms in dwellings

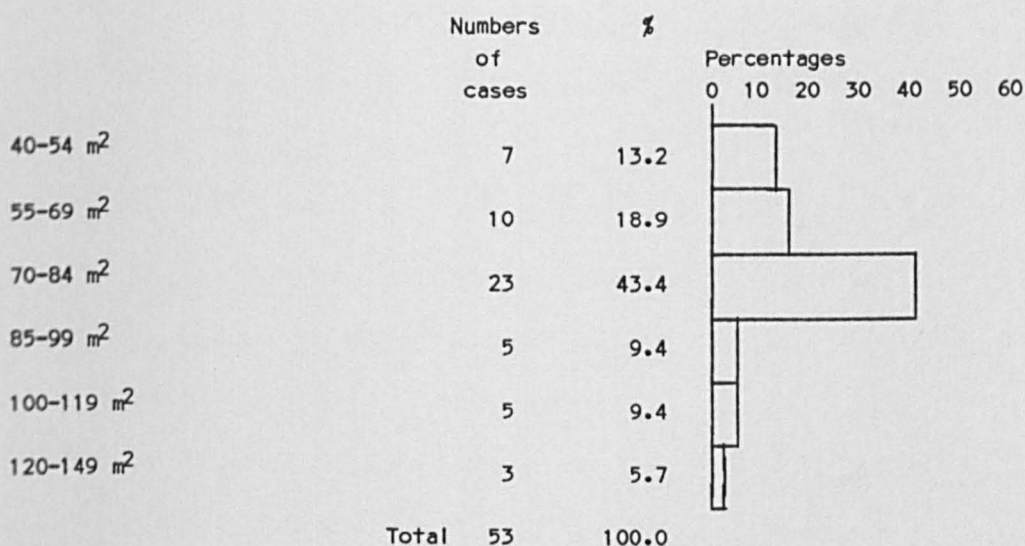


Figure 20: Total net area in dwellings

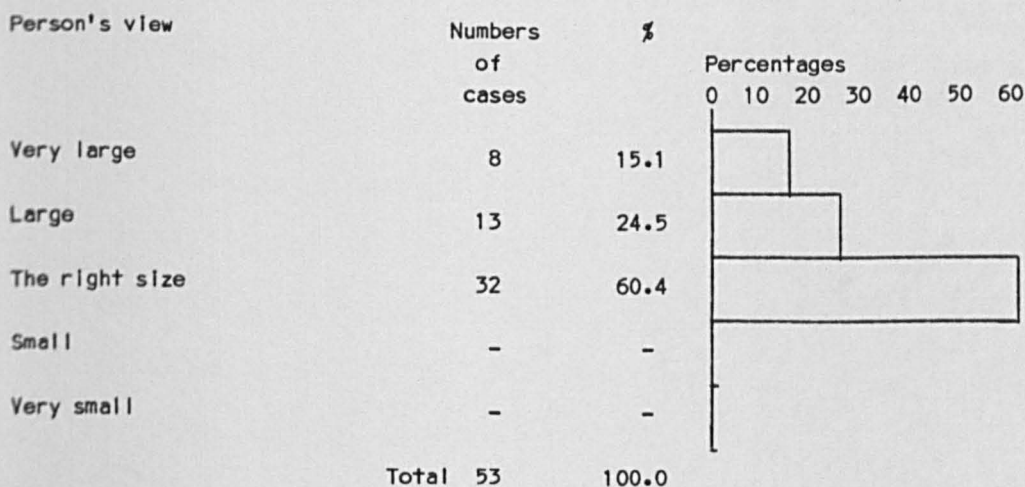


Figure 21: Person's view about the size of their dwellings



dwelling, abilities and/or physical health and condition of a person, desire of a person to keep his/her furniture, goods etc., hobbies and pastimes of the person were some of the factors underlying the attitudes about the size of dwellings. For example, some couples were sleeping in separate rooms for various reasons, so at least two bedrooms were needed to do so. Many elderly who had one or more spare bedrooms said those bedrooms were for their children or grand-children visiting them and staying over night or for days; many said having extra room was absolutely necessary because their children were far from the place where they lived and they normally stayed at least a night in the elderly persons' house. Some persons who got used to living in a comparatively large sized dwelling said their dwellings were just the right size and not large at all, while others living in smaller dwellings did not say so. For example, an elderly man living with his wife in a dwelling of 132 m<sup>2</sup> said that was the right size dwelling because he had always lived in larger dwellings and was used to it. Abilities and physical health was another factor; many persons who were housebound and always at home said that there should be some place at home to walk around otherwise staying always at home would be extremely boring. Some people on the contrary said they found their dwellings to be too large because it was difficult to clean. Many elderly people in the sample had a desire to keep the furniture or goods belonging to themselves or their relatives or spouses. Particularly those people who had recently lost their spouses, were very keen on keeping all the furniture, etc., belonging to their close relatives. Another factor was that many elderly men



and women, particularly those always staying at home, had various hobbies or pastimes occupations, such as sewing or model making, and were using one of the (spare) bedrooms for those purposes. Thus, it seems clear that there are many factors, some of which are outlined above, underlying the appropriateness of the size of the dwellings and the attitudes of the elderly towards this.

In terms of the effect of size of the dwellings on the abilities of the elderly in some activities at home, e.g. cleaning some 8 (15.1 per cent) of the elderly said the size of the dwellings made cleaning difficult, while 45 (84.9 per cent) said it did not.

### 3.2. Doors

Doors are components of the dwellings which are continually used in day to day activities and a person's ability to open, close or pass through the doors in his home is essential.

However, partly due to the design of the doors the ability of many elderly persons to use the door becomes reduced. They encountered various difficulties or were unable to use the doors in their homes.

As many as 14 (26.4 per cent) persons had extreme difficulties with or could not use the doors (see Figure 22).

The nature of problems with doors were various, not only in their relation to design of the doors, but also in their relation to the physical health and condition of the elderly. One of the inadequate features of the door was the shape of the door handles. For example, knob style door handles created problems primarily for persons who had restricted movements of arms or hands/fingers in both upper



limbs, because these handles were difficult to turn and required a strong grasp.

The other inadequate feature of some of the doors was the location of the door handles. Some were extremely high, for example 130 cm or more from the floor level; further some doors were very stiff and therefore hard to operate. These features of doors created problems for the persons with restricted use of their arms. Although many doors in the sample had similar characteristics, unless those two factors (i.e. the first, restrictions with both upper limbs and the second, knob handles or higher door handles or stiff doors) came together people did not have problems or complain about the doors (see Figure 23).

Other aspects of the doors which were outlined below mostly affected , and nearly always prevented the persons using wheelchairs around their dwellings. The width of the doors found completely inappropriate was between 650-700 mm (clear); a height of as little as 30 mm and 50 mm the threshold was too much for and most doors with swing openings, particularly those in tight space provision, i.e. at the corner of the rooms or the end of the corridors and opening towards walls, created problems (see Figure 24). As a result, in a total of 6 (11.4 per cent) people, 4 of whom were wheelchair users, and 2 of whom were extremely restricted with both upper limbs but able to walk at home, 3 were prevented from using the toilets in their homes and the other 3 from access to their gardens because of difficulties in width and/or location of doors and too high thresholds and inappropriate door handles. The others had various difficulties. For example, one woman was leaving the internal doors open



because she could not open the door closed due to the knob door handles but complained that during the winter the rooms were draughty and difficult to keep warm.

Adaptations to doors varied according to the nature of the difficulty and design of doors. For example, some persons had had door handles changed, knob handles had been removed and lever handles or ball and catch handles had been put on instead, and they were satisfied with this adaptation. The other adaptation was door widening for a wheelchair user to allow him to use some facilities by himself. In another case a sliding door to a toilet was provided for a very frail man who had fallen on the floor of the toilet several times, and could not be taken out of the room, because of the door opening into the toilet room.

Since the toilet was on the landing of the stairs, a sliding door had been considered to be an appropriate solution, not obstructing the landing. In both cases the persons were satisfied about the adaptations which solved their problems to some extent.

However, some features of doors which were provided as part of major structural adaptations (e.g. toilet built or bathroom built on the ground floor) were completely inadequate. The main feature was that handles (latches) of the sliding doors were extremely difficult or impossible to operate by the persons who had restricted use of arms and hands or fingers, (see Figure 25, type 4), and in many cases the persons complained strongly about them.

### **3.3. Windows**

Windows which are frequently used every day often had features that created difficulties for many elderly people.

Firstly, opening and closing some windows, especially



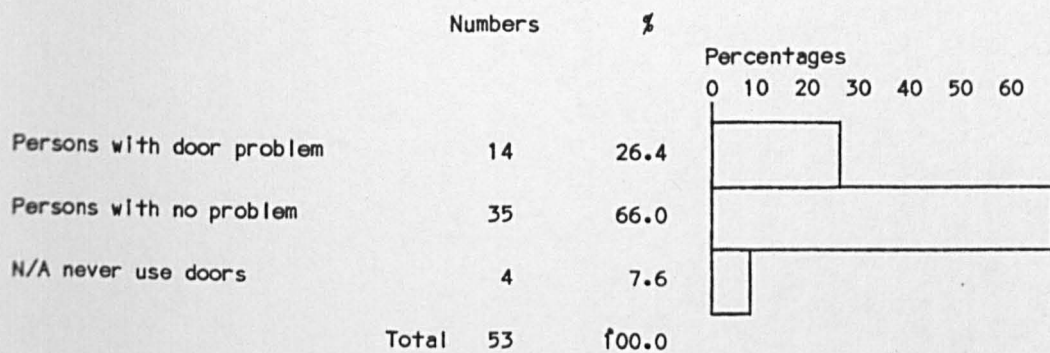


Figure 22: Numbers and percentages of the persons who had problems with doors

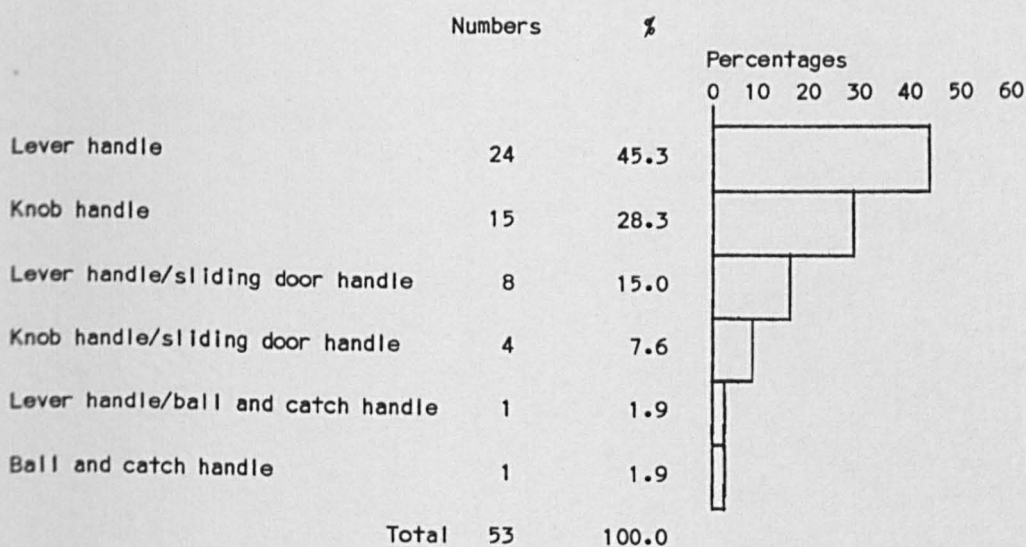


Figure 23: Types of door handles (internal doors)



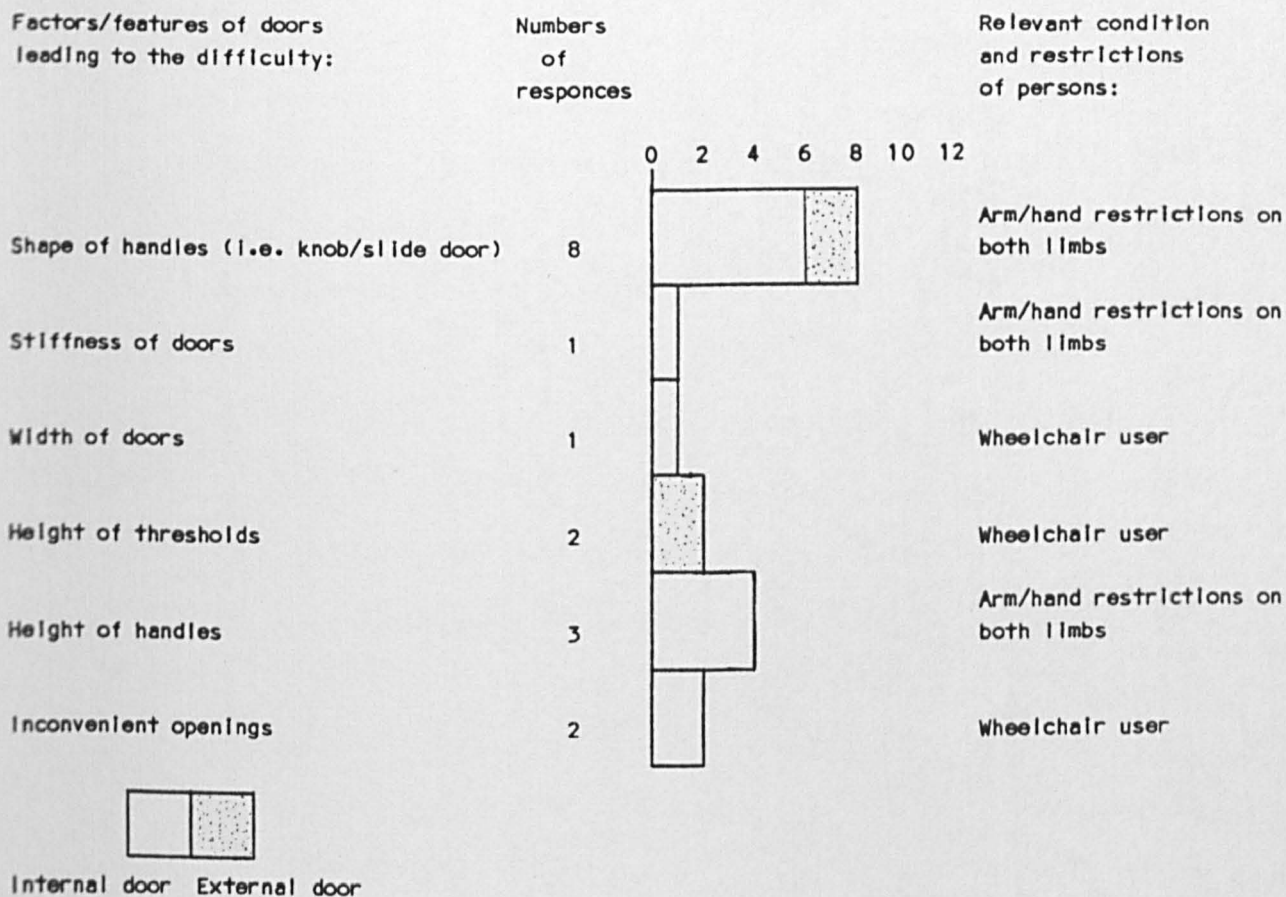


Figure 24: The nature of door problems and the relevant condition and restrictions of persons.

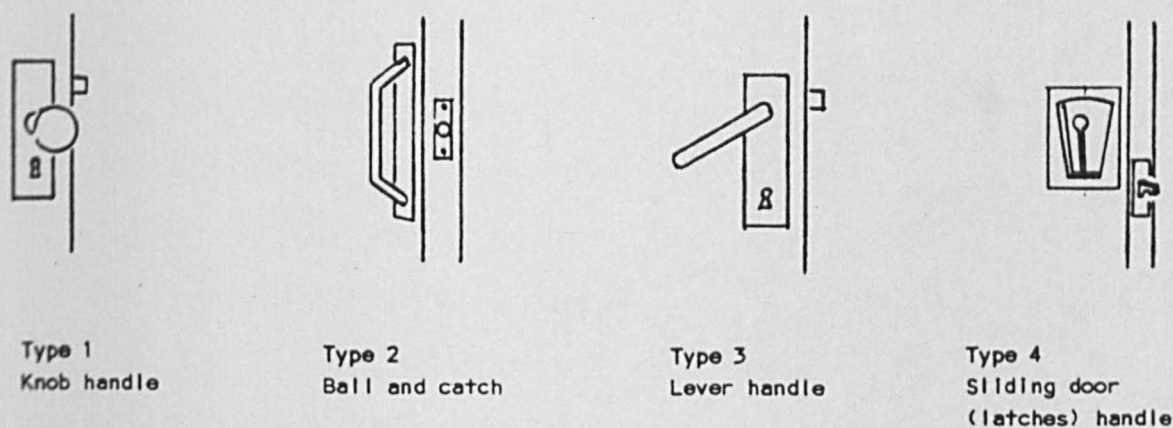


Figure 25: Types of door handles (internal doors)



in the kitchen over the worktops or sinks was impossible for most elderly in the sample. This was primarily because the mechanisms of windows were extremely high. While most mechanisms were about 160-170 cm from the floor, although some were 140-150 cm high, not only the persons who were using wheelchairs but also the persons with restricted use of arms but ambulant were not able to reach them. Most design guidance however recommended a maximum height of 155 cm for use of ambulant elderly but that was completely inadequate for this group of elderly people in the sample.(9)

Secondly, cleaning the windows (from inside) was difficult; the upper parts especially were impossible to clean by almost all elderly in the sample. Most windows were relatively large and most of their parts were relatively high for elderly people to clean.

Thirdly, in a few cases the height of the window sills, particularly of the living room, was inappropriate and too high for anyone sitting in a chair to see outside. All persons (3 persons) in the sample who had this kind of window complained about them. The height of those window sills varied from 120 cm to 130 cm from the floor of the rooms.

Most of the elderly in the sample were always at home and watching the outside world through the window was a major social activity. Those who had relatively lower windows (i.e. most of those were between 70-90 cm) did not complain. One woman who was housebound had had the window sill lowered and said she, since then, felt psychologically much better because she could watch outside and felt less isolated from other people. Except for that instance no



adaptations had been carried out in relation to windows.

### 3.4. Fixtures and fittings

Cupboards, shelves and built-in wardrobes are used every day in relation to many activities of daily living, such as cooking, dressing etc.

The height of the fixtures and fittings in the existing dwelling was in many cases inadequate for many elderly people who were restricted with both arms and who were wheelchair users. The most common difficulty was that cupboards in the kitchen were not accessible by many of them, although the lower shelves were 130-160 cm high from the floor. Yet much design guidance literature stated that that was an appropriate height for an ambulant disabled or elderly.(10) However, ambulant did not mean that they had no upper limb restrictions. Furthermore, some elderly who were able to walk but with severely restricted use of their arms found the kitchen worktops were extremely high for them (i.e. 95-100 cm).

One of them had had it adapted (i.e. lowered to 73 cm) and was able to do some kitchen work to help her husband or for herself. For wheelchair users as well as those persons with restricted arm use it was impossible to use most of the upper parts of the cupboard and wardrobes. Moreover, some of the elderly who had restrictions using both arms could not pull the drawers because they were relatively stiff and heavy for them. Although, for years they had been using them, they became inappropriate to their physical health which had deteriorated over the years. There was no adaptation provided, except for the instance of work top alteration, in relation to these components of the dwellings.



### 3.5. Heating systems

The appropriateness of various heating systems used in the dwellings were examined in two respects. Firstly, whether the elderly themselves could use/operate the heating system in their homes, secondly, whether the heating system itself was adequate to their physical health and resulting requirements. For example many elderly who were less mobile might need more warmth than more mobile or able bodied elderly.

About one third of the elderly had central heating, about two thirds had combination or only gas fires, electric fires, solid fuel and paraffin heaters (see Table 2, 3).

In respect of usage and operation of the heating systems, about one quarter of them said they could not use the heating system themselves. These persons mostly those wheelchair users Category 4, and some of those people in Category 3 and 2 who were severely restricted in both arms or hands. Although, in most cases, they said they had no difficulty in terms of heating because their spouses or relatives were available to help them. However, some 5 (9 per cent) elderly who were living alone and had a solid fuel heating system as their main source of warmth and restricted with either or both arms and hands in varying degrees and both legs had various difficulties in carrying the coal required and expressed great dissatisfaction about the heating system they had to use.

In terms of adequacy of the heating system, almost all said they were satisfied with them. However, there were 3 persons (6 per cent) with ceiling (central) heating who all said the heating was not adequate because it heated the



	<u>No's</u>	<u>%</u>
Combination of solid fuel and electric or gas fire	7	13
Solid fuel only	7	13
Combination of electric or gas fire and paraffin heater	19	36
Central heating only (all sorts)	17	32
Combination of central heating and electric or gas fire	3	6
Total	53	100

Table 2: Means of heating in the dwellings

	<u>No's</u>	<u>%</u>
Solid fuel	14	26
Gas fire	10	19
Electric heater/fire	20	38
Central heating (all sorts)	20	38
Paraffin heater	1	2

Table 3: Numbers and percentages of the elderly using various heating systems in their homes.



upper part of the rooms, but most of the days they sat on chairs because they had difficulty in walking or standing and they always felt cold.

On the other hand, other persons who were using gas and electric heaters in combination of other means of heating (i.e. solid fuel or central heating) expressed great satisfaction about them because they could use them any time of the day when they felt cold, which was often the case, because they are less mobile and hence tend to have a lower body temperature. There appeared to be no adaptations provided in relation to heating systems.

### 3.6. Lighting systems

In general the lighting systems were adequate. But in many cases, where the elderly persons, were restricted in arm movements, location of electric switches created difficulties for them. For example, light switches at above 130-150 cm high from floors were found to be insufficient by those persons, with varying height and restrictions in their arms. This indicated that location of light switches in the dwellings needed to be carefully considered, taking into account the elderly with arm restrictions. A height of light switches of about 80-90 cm from the floor where possible, probably would be more appropriate since most of the elderly with extreme restriction in use of their arms were able to reach that height.

The other inappropriate feature of the electric system was the location of electric power sockets and switches particularly those very near to the floor level (i.e. 10 cm from the floor). This created various difficulties for many in the sample due to the fact that they could not bend



and reach to use those sockets and switches. For example some persons were leaving the television or other electric equipment plugged in and the socket switched on for days and nights due to the difficulty of unplugging them or switching them off. Many said that they needed power sockets at least about 50 cm or more from the floor level so that then they could reach them with less trouble.

#### 4. Conclusions

The data showed that where the physical health of the elderly deteriorated, many features of the existing dwellings were likely to become inadequate to facilitate the person's abilities to perform various activities of daily living, as well as various ancillary activities involved in them. This evidence supported Proposition 1.

However, in general, it was evident that with the provision of suitable adaptations (or by adapting the setting to the physical health of the person which declined) it was possible to overcome almost all of the deficiencies in the existing dwellings. The evidence showed that in almost all cases, adaptations not only increased the abilities of the elderly to carry out related activities, but also largely reduced the amount of help those exceedingly frail elderly needed, by forming settings in which they could be helped more easily. Thus, the Propositions 2A and 2B were supported by this evidence.

Possible continuous decline in the physical health and condition of the elderly presented a crucial problem. While, almost all the adaptations appeared to be sufficient to facilitate the abilities of the person in their activities when they had been first provided, over time, when their conditions gradually deteriorated, many



adaptations became less and less useful and ultimately useless. This evidence provided support to Proposition 3. However, because no further adaptations were provided, all of those persons having obsolete adaptations, remained with unmet needs, encountered difficulties and inabilities in various vital activities or became unnecessarily dependent on others.

The findings suggested that most of those people who encountered inabilities and difficulties in many day-to-day activities could certainly be helped or in many cases problems overcome if appropriate adaptations or further adaptations were provided. Thus, the evidence strongly indicated that if adaptations are to meet the requirements of the elderly they must be continuously checked and increased and changed, where necessary. But in the first place this process could be eased by giving more attention to design and application of adaptations. The evidence showed that adaptations which were designed and/or applied taking into account possible deterioration in the physical health and condition of persons who will use or do use them, were not only more useful and facilitated the abilities of users in their activities better, but also were more responsive to a possible further deterioration in their physical health and condition. Moreover, these adaptations resulted in infrequent or no further adaptation of settings to make them adequate to users' changing requirements. Thus, Proposition 3B was supported by this empirical evidence. On the other hand, the adaptations which were designed and/or applied by considering only a few aspects of their users' physical condition, or assuming that users had only certain restrictions with certain parts



of their body and their physical health and that their condition and restrictions were static rather than dynamic, became obsolete and useless or else required further adaptations to make the settings suitable to their deteriorating condition this evidence supported Proposition 3A. For example, stairlifts designed on the assumption that hands and arms of the users were not restricted or that they were able to step up on the footrest 20 cm high from the floor became obsolete after a while, because users could not reach or use the controls and could not step up on the footrests provided since their condition deteriorated. Had it been, say 10 cm at the outset it would have been useful much longer. An outside ramp with 1 in 6 gradient might be negotiated by a handicapped man, who has strong arms, for years, but in the case of an elderly man in a wheelchair it became obsolete and completely useless in a few years and even with the help of the elderly wife he could not go up and down the ramp. Had the ramp been 1:20 in the first place, the couple would have managed to use it for much longer. Thus, provision of adaptations which were designed and applied by considering many aspects of users' physical health and abilities and possible future or further decline of them may mean using the existing financial resources more usefully and purposefully.

In respect of a general view to the propositions put forward, the evidence indicated that features of the physical settings in the existing dwellings had an important effect on the abilities of the elderly in many activities related to the settings. The settings facilitated or hindered their abilities to perform various



activities. It was also evident that in general, particularly when they were first provided, the provision of adaptations (or adaptation of the existing settings) not only facilitated or increased the abilities of the persons studied but also in extreme cases, e.g. where the person was exceedingly frail to carry out the required activities himself, adaptations considerably reduced the amount of help required by the person to perform his activities.

In the next chapter, whether and to what extent, adaptation of the existing dwellings had an effect or role in enabling the elderly to stay longer in their homes will be discussed.



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## CHAPTER VII

### THE EFFECTS OF ADAPTATION OF EXISTING DWELLINGS IN ENABLING THE ELDERLY TO STAY LONGER IN THEIR HOMES

In the previous chapter the effects of various features of existing dwellings and the adaptations provided on the abilities of the elderly in various activities of daily life, and on the help provision required in those activities were examined.

The aim of this chapter is to discuss in the light of Proposition 4 (Chapter IV) whether the adaptations of existing dwellings had a role in enabling the elderly to stay longer in their homes.

It is further suggested that, I. With the provision of adaptations and the help/services (where required) the elderly can stay longer in their existing dwellings. II. As the physical health and condition of the elderly deteriorate they will need more help and more adaptations in order to be able to stay in their existing dwellings. To tackle this problem, from the analysis of the literature, two assumptions were made. Firstly, if an elderly person is to stay in his home, at least his essential daily requirements need to be met; secondly, in meeting these requirements there are two broad groups of factors: A. abilities of the elderly person in performing the activities relevant to his requirements for day to day living, B. provision of help in the activities concerned, if he cannot do so.

Therefore in order to discuss the role of adaptations in enabling the elderly to stay longer in their homes, it is necessary to examine their abilities in various activities necessary to their essential daily requirements



and the help received by them (if any) in those activities. In order to do this, there was a need to select some essential activities performed in day to day living, because it was impossible to examine all activities of the elderly involved in their daily life. From the analysis of the literature three groups of activities which were generally considered to be essential for daily living were identified and selected. (see Chapter I, 4.1) These were a. self care, b. housework and c. mobility and access. The main assumption behind these activities was that those were the activities which an elderly person living alone needs to be able to do supposing he has been receiving no help. If she/he is able to do these tasks, it is generally accepted that she or he is able to stay in his/her home, even if she has no help from other people. (see Chapter I, 4.1)

Self care activities are mostly relevant to a person's own personal and basic daily maintenance and requirements, such as having a bath/shower, washing hands and face, dressing, putting on shoes, socks or stockings, getting in and out of bed, having meals (eating) and using the toilet.

Housework activities involved are generally relevant to the provision of essential daily requirements like provision and preparation of food, washing and ironing clothes and cleaning the dwelling in which they live.

Mobility and access are relevant to a person's movements at home or outside which are necessary for most of their self care and housework activities, as well as for a great variety of day to day activities. Basic activities involved are walking outside (along the street), walking at home (or propulsion of a wheelchair if the person is using



it), and negotiating stairs or steps.

Although most studies used the above activities to judge a person's mobility at home or outside, but, as examined in Chapter V, abilities of people in these activities were not enough to indicate a person's abilities in getting access to various facilities and rooms at home or to and from their dwellings as well as the help required and received by them. Therefore, in this study, a person's abilities in gaining access to various rooms required to be used by him/her were examined in addition to their abilities in those basic activities of mobility.

In respect of self care and mobility and access, one of the characteristics of them is that these activities need to be personally performed by the person himself with or without help from others. Housework activities, however, do not necessarily require the person to perform those activities personally; they could be performed by others for that person. Therefore the abilities of a person in self care and access activities are generally considered crucial in maintaining his sense of personal independence as well as his basic daily requirements.

The three main groups of activities will first be discussed separately and then the findings from these will be discussed and an assessment made about whether adaptations had made it possible for the elderly to stay longer in their homes.

### 1. Self care

Many elderly people in the sample were unable to perform self care activities and needed help from other persons who were either living with them or elsewhere. Thus, the performance of many self care activities which



were vital for maintaining life were dependent on help where the person's own ability was reduced because of deterioration in the physical health and condition or a combination of this factor and inappropriate settings relevant to the activity in question.

The data showed that some activities were found more difficult than others and more elderly people needed help in those activities. For example, bathing was the most difficult task and 68 per cent of the elderly in the sample were unable to perform it without help. 47 per cent were unable to put on shoes, socks and stockings and 45 per cent were unable to dress themselves without help. In getting in and out of bed 32 per cent and in toileting 25 per cent of them needed help. Washing hands and face, in which 11 per cent of them needed assistance and having meals, in which 2 per cent needed help, were found much less difficult (see Figure 1).

However, abilities of people in performing self care activities tended to change with their physical health and condition. It was not possible to produce a measure indicating all aspects of their physical health and condition. Nevertheless, their abilities in mobility would appear to a reasonably accurate indication of their general physical health and condition.

From the data in this research it was apparent that when elderly people's abilities in mobility declined, their abilities in self care also declined. For example, persons in Category 1 were able to perform almost all the self care activities without help from others, except that 33 per cent of them were unable to bath themselves. Of persons in Category 2, 50 per cent were unable to be self sufficient



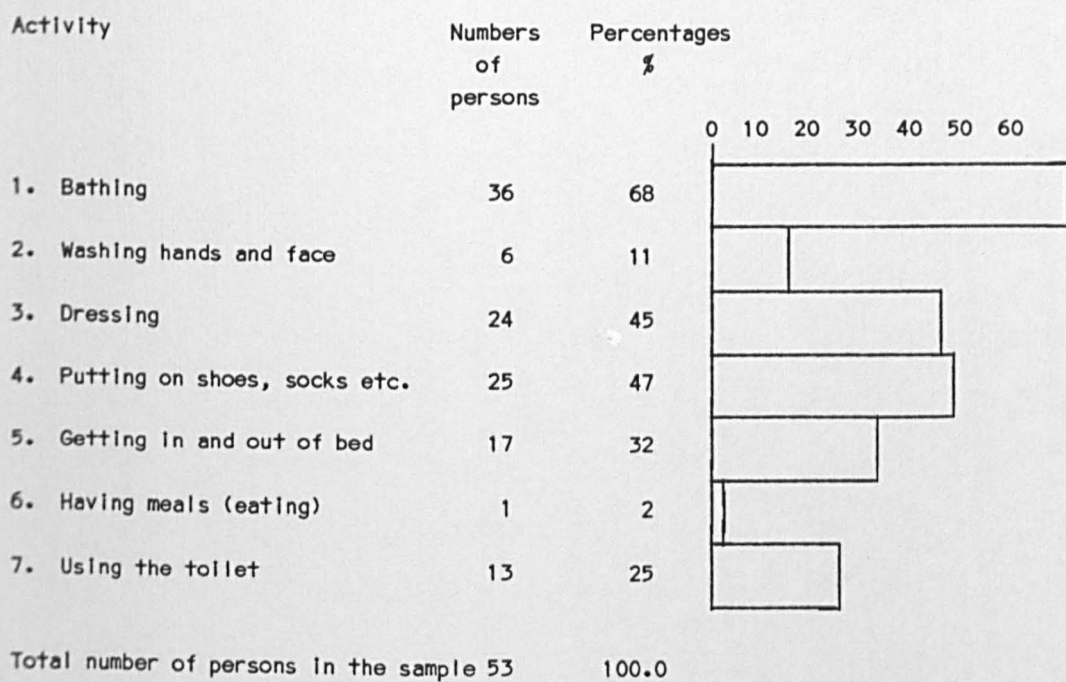


Figure 1: Number and percentages of people in the sample who were unable to perform various self care activities.



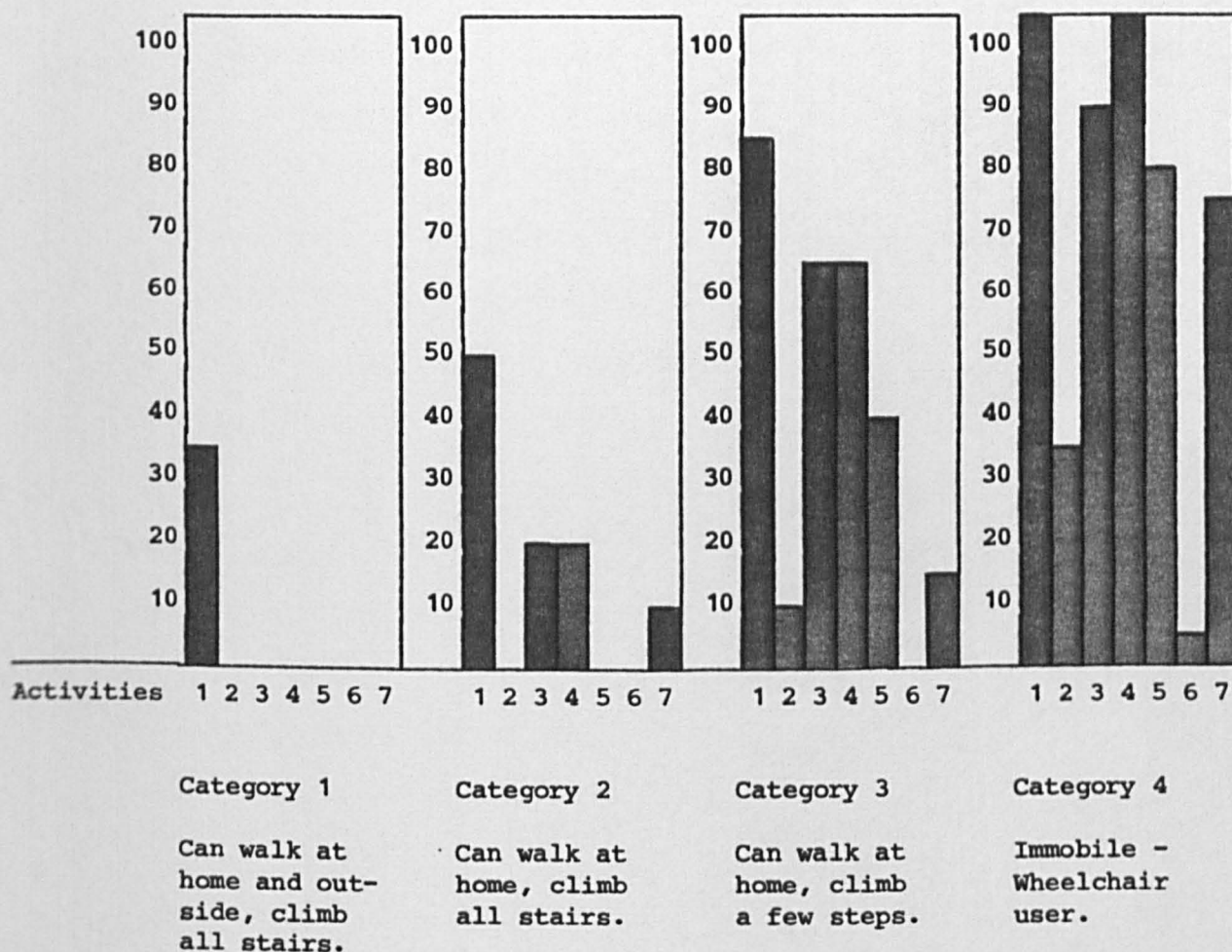
in bathing, and 20 per cent in dressing and putting on shoes, stockings or socks and 10 per cent in toileting. However, persons in Category 3 were much more incapacitated as 86 per cent were unable to be independent in bathing, 64 per cent in dressing and putting on shoes, stockings or socks, and a further 50 per cent in getting in and out of bed. Most of the persons in Category 4 were unable to manage bathing, dressing, putting on shoes, stockings or socks, and toileting on their own (see Figure 2).

This indicated important consequences, in terms of help needed in these activities, by various categories of elderly people. For example, most of the elderly in Category 1 and 2 could maintain themselves without having external help from the others in these activities. However, a great majority of persons in Category 4 and most of those in Category 3, needed extensive help from others to perform these vital activities. This meant that the ability of those persons in Category 3 and 4 to live in their own homes depended on the availability of the help in performing those activities.

In almost all cases, the help required was being provided for those elderly who needed it. Except in bathing, the main source of help in the other activities was from relatives or spouses of the people who were living in the same household. In bathing however, some 16 (44 per cent) persons out of 36 persons who were unable to bath themselves, were receiving help from the local organisations particularly the Area Health Authority. A district nurse and/or bath attendant was provided for 13 (36 per cent) persons and 3 (8 per cent) people were being taken to day care centre or day hospital and bathed there.



# Percentages



## Notes:

### Activities

- 1 - Having a bath/shower
- 2 - Washing hands and face
- 3 - Dressing
- 4 - Putting on shoes, socks or stockings
- 5 - Getting in and out of bed
- 6 - Eating
- 7 - Using the toilet

### Numbers and percentages of categories in the sample

	No's	%
Category 1	15	28.3
Category 2	10	18.9
Category 3	14	26.4
Category 4	14	26.4
Total	53	100.0

Figure 2: Percentages of elderly people in the sample who were unable to perform the activities (without help from others) according to their abilities in mobility.



Although services were provided for helping the elderly in bathing there was further demand for this service e.g. some 5 (9 per cent) elderly who were living alone, complained about not having this service and said they had encountered great difficulties in bathing and had nobody to help them. Some of them still were having baths and some were only having an overall wash. In all the other activities, such as dressing, putting on shoes, getting in and out of bed, using the toilet, the help received came from the persons living in the same households, particularly from their spouses (see Table 1). This meant that, for many elderly, who were unable to care for themselves the main factor enabling them to be able to remain in their homes, was having helping relatives. Otherwise, it might not have been possible for most of them to do so, because, in the present system of services provided by the local authorities, this kind of help in these vital activities was not provided. Thus, unless a person in need and living alone could get this help privately, which appeared unlikely for most of the elderly in the sample (and for the elderly population as a whole) given their low income, this could prevent their remaining in their homes.

In terms of the role of adaptations in these activities, as seen in Chapter VI, the adaptations provided were helpful in two ways. Firstly, certain adaptations in many cases with combination of aids and items, were useful in reducing the difficulties encountered and for making the activity possible. Particularly in bathing and toileting, showers, various rails to baths with bath seats, boards, mats, and rails to toilets, toilet risers, and automatic (clos-o-mat) toilets were useful. Secondly, certain



Sources of help (numbers and percentages %)

Activity	Help from relatives or spouses		Help from the organ- isations		Total persons helped	
	No's	%	No's	%	No's	%
Bathing	20	56	16	44	36	100
Washing hands/face	6	100	-	-	6	100
Dressing	24	100	-	-	24	100
Putting on shoes, etc.	25	100	-	-	25	100
Getting in/out of bed	17	100	-	-	17	100
Having meals (eating)	1	100	-	-	1	100
Using the toilet	13	100	-	-	13	100

Table 1: Sources of help received in self care activities.



adaptations in many cases where the person was unable to perform the activity, were useful because they formed the setting in which existing help (e.g. an elderly spouse) could be efficient, and the person could be helped more easily. Railings and aids in baths, toilets, showers and hoists, were particularly invaluable in reducing the helper's tasks and enabling them to help their frail spouses or relatives. The evidence suggested that, if there were more adaptations appropriate to a person's physical health and condition declined over time, many of those persons might have been able to bath and toilet themselves and might have needed much less help from others.

## 2. Housework activities

Most of the housework activities were found very difficult and in performance of these activities, most of the elderly were dependent upon the help from various sources provided for them. However, some elderly had various problems in getting that help provided.

Regarding the housework, some activities were more difficult and almost all elderly needed help in them, while in some others the elderly were more competent. For example, shopping and washing clothes and ironing were the most difficult tasks. 87 per cent of them needed help in shopping and 81 per cent of them in washing. Light daily cleaning of the house was also difficult for most; 68 per cent were unable to do it. Cooking hot meals which 49 per cent of the elderly were unable to do, and making a hot drink and snack which 34 per cent were unable to do were generally found less difficult (see Figure 3).

In general, abilities of the elderly in housework



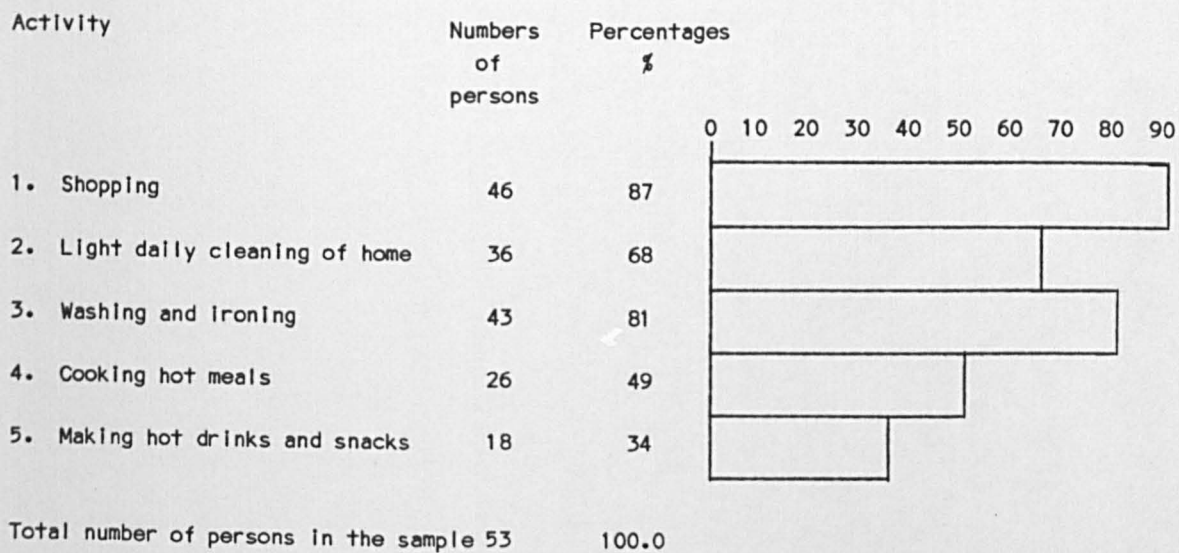


Figure 3: Numbers and percentages of people who were unable to perform various housework activities

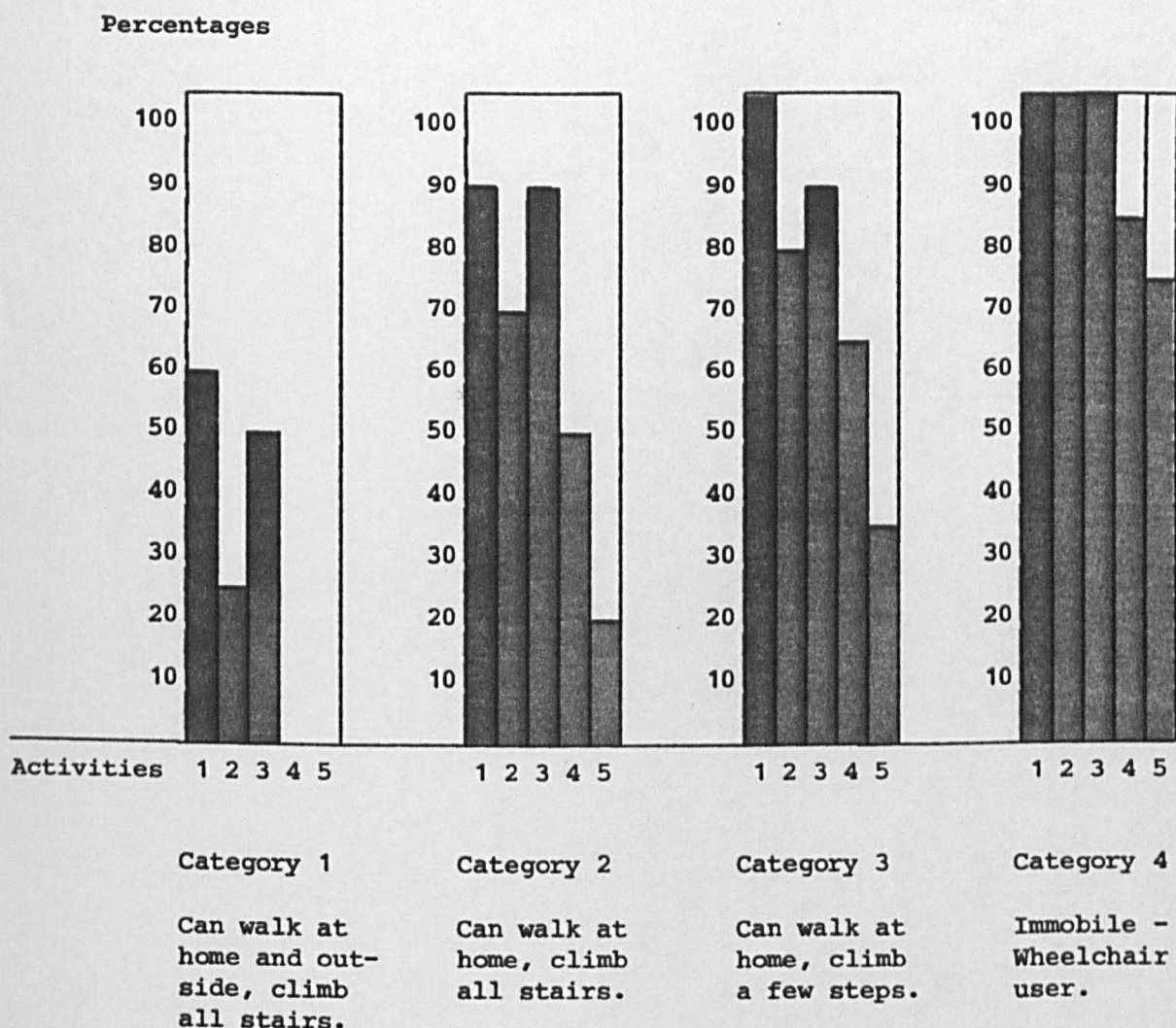


activities changed in accordance with their abilities in mobility. Most of the persons in Category 1, except for shopping, were able to carry out most of the housework activities themselves. Most of the persons in Category 2, however, needed help in shopping, washing and ironing and light daily cleaning of the house, and half of them were unable to cook meals. Incapacity in most of these activities increased among the persons in Category 3, and Category 4 so that almost all of the persons in the latter group were dependent on the provision of help in all these housework activities (see Figure 4).

The consequences of these figures are important in respect of provision of help required by those persons with various abilities. For example a majority of persons in Category 1 could carry out most housework tasks, if their shopping was done by the others. Most of the persons in Category 2, 3 and 4 required much more help in various daily housework activities and they largely depended on the help provided for them.

The sources of help in these activities varied. For example, to help the elderly in shopping, cleaning the house and washing and ironing in 19 cases home helps were provided. This formed 41 per cent of help received by them in shopping, 53 per cent of cleaning and 44 per cent of washing and ironing. In addition to that, some 11 elderly were getting help in these tasks by paying their helpers privately. This formed 24 per cent of help received by them in shopping, 31 per cent of help in cleaning and 26 per cent of help in washing and ironing. Almost all the rest were being helped by their relatives living with or not living with them in the same households only in two





Notes:

Activities		Numbers and percentages of categories in the sample	
		No's	%
1 - Shopping	Category 1	15	28.3
2 - Light daily cleaning of house	Category 2	10	18.9
3 - Washing and ironing	Category 3	14	26.4
4 - Cooking meals	Category 4	14	26.4
5 - Making hot drinks and snack			
Total		53	100.0

Figure 4: Percentages of elderly people in the sample who were unable to perform the activities according to their abilities in mobility.



cases were their neighbours doing shopping for them. In respect of cooking, the major source of help was the relatives or spouses of the elderly living in the same households. In 6 (23 per cent) cases mostly where they lived alone and were very frail meals on wheels were provided and in one (4 per cent) case, the person was paying privately for cooking. Almost all the remaining were getting help from their spouses or other relatives in the same household. In making a hot drink or preparing a snack all the elderly unable to do so were getting help from the persons living in their households (see Table 2).

It appeared that in these activities, the role of help from the organisations, such as the Social Services Department and the Area Health Authority was considerable. This provision of help assisted many of the elderly to stay in their homes, which otherwise for some elderly might not have been possible, particularly in the cases of the elderly in need who had no relatives or friends nearby to do those tasks.

However, despite the high proportion of this provision, some 5 elderly, most of whom living alone, complained about having no home help services and said it was extremely difficult for them to get help from their relatives or children who were, in most cases, living far from them.

Concerning the role of adaptations in these activities, as examined in the previous chapter, kitchen enlargements and worktop alterations increased those person's abilities to do kitchen work, i.e. cooking, washing up etc. In addition, various adaptations, i.e. rails to stairs, lifts assisted the elderly to gain access



Sources of help (numbers and percentages %)

Activity	Help from relatives or spouses		Help from the organ- isations		Privately paid help		Total persons helped	
	No's	%	No's	%	No's	%	No's	%
Shopping	16	35	19	41	11	24	46	100
Light daily cleaning	6	16	19	53	11	31	36	100
Washing and ironing	13	30	19	44	11	26	43	100
Cooking hot meals	19	73	6	23	1	4	26	100
Making hot drink and snack	18	100	-	-	-	-	18	100

Table 2: Sources of help received in housework activities.



to various parts of their dwellings to clean and tidy them up. Moreover, particularly, the structural adaptations, i.e. provision of downstairs toilets, bedrooms and shower rooms, largely reduced the tasks of the helpers of those frail elderly, especially in cleaning, serving food or hot drink as well as in many other daily tasks. Thus, adaptations made a contribution to the performance of many housework activities. However, from the detailed notes taken during the interviews the evidence suggested that in most tasks, i.e. washing, cooking and cleaning a. provision of appropriate adaptations i.e. kitchen alterations, enlargements adjustment of height of fittings and fixtures and equipments, b. provision of suitable equipment i.e. washing machine, dryer, appropriate vacuum cleaner, special kitchen equipment i.e. holding devices, appeared to have increased the abilities of many elderly in those activities.

### 3. Mobility and access

People's mobility and access at home, can be considered in two respects, firstly access to facilities and rooms in the dwelling, secondly, access to and from the dwelling to the garden and/or street.

In respect of access to facilities and rooms at home, the great majority (74 per cent or 39 persons) were able to gain access to all facilities and rooms which they normally used or needed to use. Yet, a significant minority (26 per cent or 14 persons) were unable to do so, without help from others, this included 5 (9 per cent) wheelchair users who could not propel their wheelchairs. Although in most cases (9 cases, 64 per cent) help which was required by them in doing so, was available and possible from the persons



living in their households, in some cases (5 cases) the required help was usually not available. This, was mainly due to a combination of two factors: firstly, in almost all cases the settings were not suitable to help them, secondly the required help in most cases was too great for an elderly spouse or even an able bodied adult. For example, some 3 persons who were unable to climb stairs (i.e. one was a wheelchair user, the other two were only able to walk at home) living in dwellings in which bedrooms, bathrooms or toilet were on the first floor, were unable to gain access upstairs and had to sleep in living rooms and/or had to use commodes downstairs all day and night. In another exceptional case, the elderly man who was a wheelchair user, however, was being carried, by his son 17 years old, up all the stairs to sleep in his bedroom.

Concerning access to and from the dwelling to the garden or street, the great majority (77 per cent or 41 persons) were able to do so without help, some 12 (23 per cent) including 5 persons (9 per cent) who were completely immobile needed help from others. Although in 7 cases (58 per cent) the help required was available and came from the persons living in the same households, in some 5 cases it was normally impossible for those elderly people to get help required primarily because of the factors outlined above. For example, an elderly man was immobile (i.e. using wheelchair) and living in a dwelling having three outside steps and it was not possible for his elderly wife to carry him or to help him get down or up those three steps. Therefore, he was normally unable to go out to the garden or elsewhere with the help that was usually



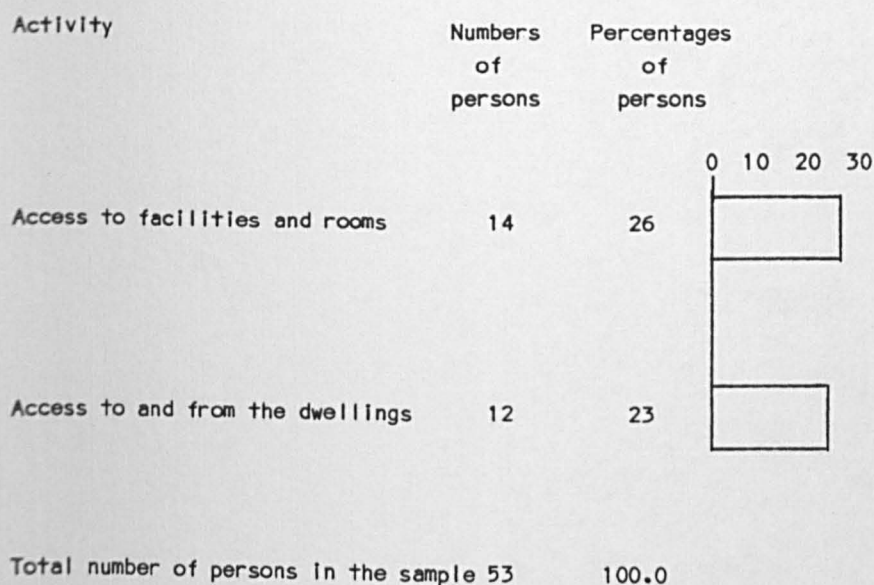
available (see Figure 5).

However, in general, abilities of the elderly in gaining access to facilities and to and from the dwelling varied in accordance with their abilities in mobility. For example, all the persons in Category 1 and 2, in general terms, were able to get access to the required facilities, although many of them had extreme difficulties in doing that at the required frequency (i.e. to use the toilet located on the other floor level, see Chapter V). About one third of the persons in Category 3 and about half of the persons in Category 4 (including those 5 completely immobile persons) were unable to gain access independently to some facilities which they normally used or required to use, in their dwellings. In respect of access to and from the dwelling, about one third of the persons in Category 3 and about half of those in Category 4 were unable to gain access to and from their dwellings without receiving appropriate help (see Figure 6).

In general, in terms of mobility and access at home, almost all of those persons were dependent upon other people, particularly their spouses, living in their households (see Table 3).

Help from the organisations (i.e. The Social Services Department, or the Area Health Authority) in these activities is not available on anything like the scale which would be required to replace the help given by relatives and spouses. The evidence indicated that in the existing circumstances it might not have been possible for many elderly and certainly impossible for those completely immobile (i.e. wheelchair users who were unable to propel their wheelchairs) to be able to reach various necessary

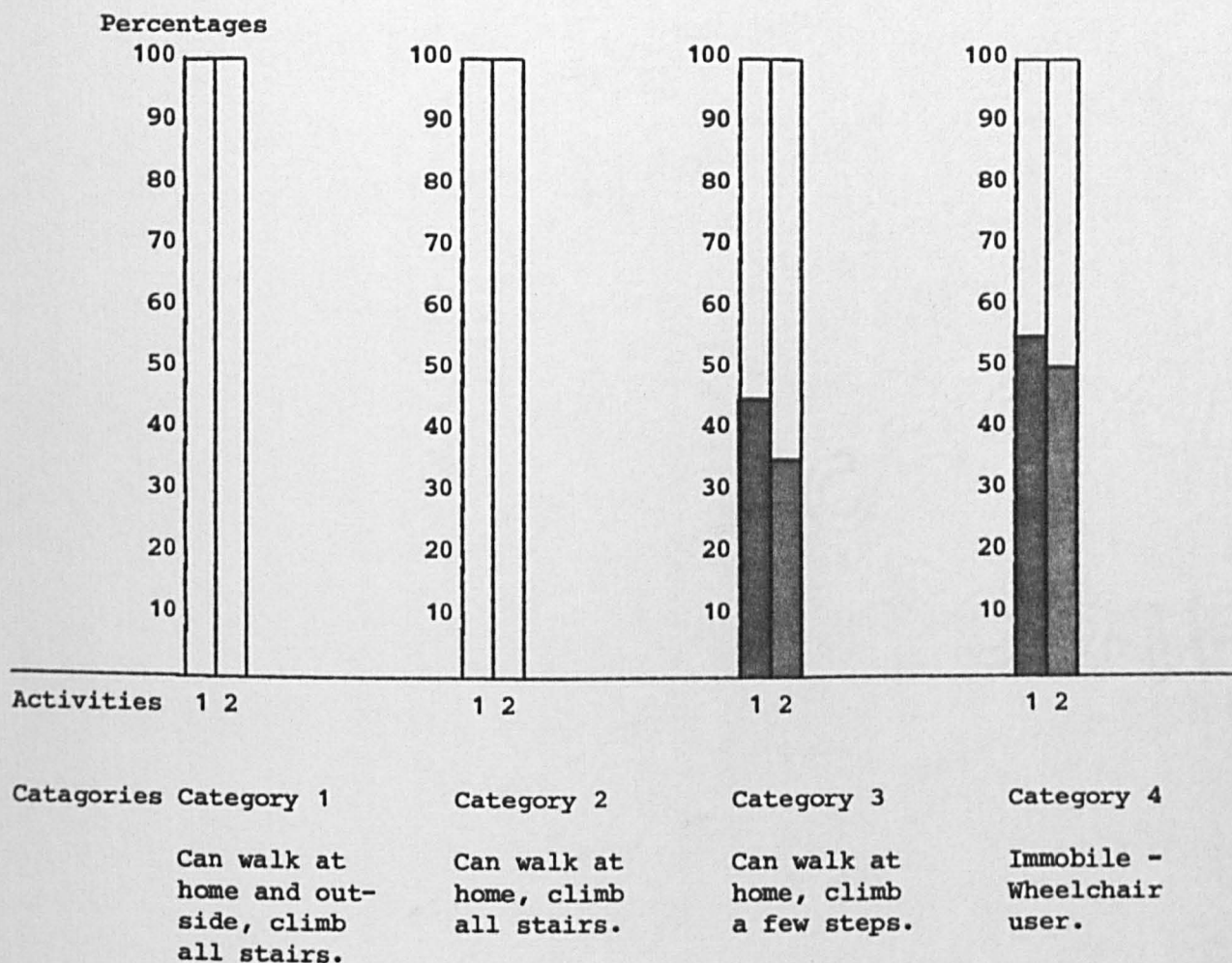




Note: These numbers and percentages includes those people who were completely immobile (i.e. wheelchair users who were unable to propel their wheelchairs) 5 persons (or 9 per cent).

Figure 5: Numbers and percentages of people who were unable to gain access to some facilities and rooms and/or to and from the dwellings (mobility and access activities)





Notes:

Activities	Numbers and percentages of categories in the sample		
		No's	%
1 - Gaining access to various facilities at home	Category 1	15	28.3
	Category 2	10	18.9
2 - Getting access to and from the dwelling	Category 3	14	26.4
	Category 4	14	26.4
	Total	53	100.0

Figure 6: Percentages of elderly people in the sample who were unable to gain access to some facilities at home and to and from the dwelling.



Sources of help (numbers and percentages %)

Activity	Help from relatives or spouses		Total persons helped	
	No's	%	No's	%
Access to facilities and rooms	14	100	14	100
Access to and from the dwelling	12	100	12	100

Table 3: Sources of help received in mobility and access activities.



facilities without help received from their spouses or relatives. Of course, for elderly people living alone who need help for mobility and access, and without long daily visits from relatives or friends help from the Social Services Department or Area Health Authority is essential if they are to remain in their own homes, and this help is rarely forthcoming.

In respect of mobility and access to facilities at home and access to and from the dwelling, the role of adaptations was of great importance and too large. As shown before, before the adaptations due to various features of the existing dwellings, primarily the stairs, outside steps and doors, corridors and passages, almost half of all the elderly in the sample had been completely unable to gain access to facilities at home, and more than half of them had been unable to move to and from their dwellings. Most of them had also been unable to receive appropriate help, primarily because of the features of settings were not suitable and in most cases their helpers were also elderly and frail and it was not possible for them to provide the help required in those settings. However, when the settings were adapted, majority of those elderly were able to get access to the required facilities without help, while some others, wheelchair users who could not propel their wheelchairs and persons who could not use the lift provided (due to deterioration in health over time) found that the adaptations enabled their helpers to provide the required assistance. Thus, in most cases adaptations became of use in two ways, firstly, they increased the ability of persons in access at home, secondly, they provided settings in which those elderly who



needed help in mobility and access at home, could be helped by their helpers, in ways that previously were not possible.

However, ten persons, who within the limits of the state of their dwellings could not utilize the helpers who might have helped them, the evidence strongly suggested that with provision of appropriate adaptations to their dwellings those persons would be able to get access to the required facilities, either by themselves or with help. This had happened in similar cases where people with many of the same problems had had their dwellings adapted successfully.

#### 4. Staying at home and in familiar surroundings

Findings of many studies in the relevant literature suggested that most or all the elderly would normally want to stay in their homes and in their familiar surroundings (see Chapter II). In general, almost all the elderly in the sample said they wanted to continue living in their existing dwellings and the neighbourhood in which they lived. The data showed that a great majority (86 per cent) were particularly satisfied with their neighbourhood, and the majority (75 per cent) were satisfied with living in their dwellings. 25 per cent, that is some 13 people, however, were less satisfied, primarily because of the certain aspects of their homes and among these people 10 of them intended to move. The main reasons for wishing and acting to move were their difficulties in mobility and access within the home, and primarily because of the stairs. There were other reasons. For example, one person said she wanted to move to a dwelling nearer to shops and town centre, and another said the garden of her existing



dwelling was too big to manage. But these were additional reasons as all had difficulties with stairs and the types of dwelling which they intended to move to were either a bungalow or a ground floor flat.

There were several reasons why they intended to move rather than adapt their dwellings. These were that: i. Six of them did not know that grants or assistance were available to adapt their homes; ii. Two of them knew about grants or provision but were refused; iii. Nine of them were not able to finance adaptations themselves without grant aid; iv. Two of them were told the adaptations they needed (i.e. major structural adaptations) would take a long time. These reasons alone, or in combination, necessitated a move.

Four of the council tenants for example said they did not know that the Council (i.e. district council, housing department) might provide structural adaptations which could have been adequate to meet their requirements, and they had applied for a bungalow, or ground floor flat. Two people said they knew about and had applied for a suitable adaptation, but, the Council did not consider it and offered to put their names on the waiting list for a ground floor flat instead. Two people who were owner occupiers, said they knew about and had applied for suitable adaptations to the Social Services Department, but they were told that it would take at least two to three years to get it done, (see Appendix 6) and one of them also had insufficient finance to meet the part cost, thus, they preferred to sell their houses for more suitable ones. Others said they had no idea about the provision of adaptations by the Council, and their only thought was to



sell their houses and buy another one (see Appendix 7). Nevertheless, all of them said they would much prefer to continue living in their present dwellings and the neighbourhood if it were possible. The remaining 3 who were dissatisfied with their dwellings had applied for some additional or new adaptations to overcome problems with access. For example, one requested an additional railing on the stairs, another the addition of a bathroom or shower room on the ground floor, and the other was buying their council dwelling to adapt it privately, in order to have ground floor facilities, such as a bedroom, and a shower room.

This evidence has important consequences. Firstly, this shows that when people have extreme difficulties with the setting which badly affect or interrupt their daily life and essential requirements, they may intend to move (or change i.e. adapt the setting). Because, their ability to stay in those settings is reduced, settings no longer meet their essential requirements. Secondly, it demonstrates the great effect of provision of appropriate adaptations upon enabling the elderly to stay longer in their homes. This was evident from the fact that the main difference between most of the elderly people who did not consider to move and those who were moving from their dwellings was that the former group had adaptations which were appropriate to their requirements and were encountering no or less difficulty in mobility and access the latter group had inappropriate or obsolete adaptations and were encountering great difficulties in doing so.

## 5. Conclusions

The assumption that if an elderly person is to stay in



his home, at the very least his essential daily requirements need to be met. In consequence, the various activities involved in daily living were examined. Almost in all cases, all those activities, i.e. self care, mobility and access and housework, were being performed by those elderly either with or without help or by their helpers for them. Had for one reason or another they not been able to perform these activities, then they would not have been able to stay in their homes, but would have had to move to receive help elsewhere.

The evidence confirmed that when people get less mobile their ability to perform most of the activities is reduced. Thus, many needed more and more help from others. However, the evidence showed that the help available was generally limited especially in the activities which required more frequent help, such as self care and mobility and access. There were three main reasons for this. Firstly, most of the helpers of the elderly were also elderly themselves and sometimes frail and were not able to help them in many activities, such as, bathing, mobility and access e.g. climbing stairs. Secondly, many elderly persons were living alone and help was limited, particularly for every day and immediate needs. Thirdly, the existing provision of services from the Social Services Departments or the Area Health Authority help in only a limited range of activities which require infrequent assistance was normally available, such as, housework, once or twice a week and in activities which require frequent assistance, such as self care e.g. dressing, toileting etc. or mobility and access, help normally was not available.



Given this, and for most elderly any increase in the provision of help or services appeared unlikely. As a consequence of this, if they were to stay at home; some means of reducing the help required or of keeping their requirements for help constant would be necessary.

Adaptations to their dwellings, it has been argued, could help to do this. The evidence showed a relationship between the help required and the adaptations provided. Firstly, adaptations to dwellings increased the abilities of most people in various activities and minimized or eliminated the help required in many activities. Secondly, where people were completely immobile or exceedingly frail, adaptations also reduced the level of help required, by providing settings in which those elderly could be helped. This meant that adaptations made it possible to use what help was available more efficiently.

Concerning self care activities, the adaptations provided e.g. rails to baths, provision of showers, special baths, hoists, rails to toilets, toilet risers, provision of higher toilets and automatic toilets, were of great importance in increasing the abilities of the elderly in bathing toileting and reducing the amount of help they needed in these activities also.

In respect of housework, adaptations e.g. kitchen enlargements, worktop alterations, rails to stairs, lifts and structural adaptations, increased the abilities of the elderly and largely reduced the amount of help needed by them in these activities.

Regarding mobility and access, the adaptations e.g. structural adaptations i.e. provision of ground floor toilets, bedrooms, shower rooms, various types of lifts,



rails to the internal stairs outside steps, ramps, had a large positive impact, not only increasing the abilities of the elderly but also reducing the amount of help they needed in these activities.

Adaptations, therefore, made a substantial contribution to the performance of those activities which are essential in enabling the elderly to remain in their homes.

This conclusion was confirmed by the fact that some people had to move and intended to move from their dwellings, because they were living in settings which were no longer appropriate to perform certain essential activities of daily living (i.e. mobility and access).

In terms of how much adaptation and help the elderly may have needed the evidence suggested that, the majority of people in Category 1 and 2 could stay at home, if some adaptations were provided, such as the addition of a railing on the stairs or provision of a toilet on the required floor, and with some less frequent help or services such as a home help or bath attendant once a week. However, it should be emphasized that, with adequate provision, i.e. showers, the need for a bath attendant was generally not necessary. Most of the people in Category 3 could stay at home, with appropriate adaptations, especially those that helped mobility and access, such as, lifts, addition of toilet and so on, and with provision of some daily help i.e. for dressing, in addition to less frequent help i.e. home help for housework and bath attendant. Even bath attendants might not be necessary for most Category 3 people, if showers were provided for them. Most of the people in Category 4 could stay at home if more



adaptations were provided i.e. addition of toilet, shower room, bedroom, and/or lifts, hoists, but most of them would also require a considerable amount of frequent help in self care or mobility and access, in addition to less frequent help with the housework.

It appears that empirical evidence from this part of the study gives support to Proposition 4.



## CHAPTER VIII

### SUMMARY OF FINDINGS AND CONCLUSIONS

The aim of this study was to examine two main interrelated questions which emerged from the analysis of the literature. Those questions required further investigation and empirical testing. The first question was whether and to what extent the adaptation of existing dwellings could meet the requirements of the elderly in the physical settings involved in various activities. The second question was whether and to what extent the adaptation of existing dwellings had an effect upon enabling the elderly to stay longer in their existing homes. To investigate these problems various propositions were put forward. Now, let us consider each proposition and the relevant main findings which emerged from the empirical part of this study.

#### 1. Proposition 1

1. When elderly people's physical health and condition deteriorate, features of the existing dwellings will be inappropriate to their requirements; their abilities in activities relevant to the physical settings will decline. They will encounter difficulties or will be unable to perform the activities concerned.

In the light of this proposition various features of the existing dwellings in the sample which are most commonly and frequently involved in carrying out necessary daily activities were selected and examined. The evidence showed that many features of dwellings became inappropriate to elderly people's requirements, when their physical health and condition deteriorated. They then encountered various difficulties and often became unable to perform the activities which previously they were able to do. As a



result they became increasingly dependent on others in the activities concerned.

The main features of the dwellings examined in varying detail were: firstly, the features relevant to access inside and outside, i.e. the location of facilities, internal stairs and outside steps, secondly, use of sanitary facilities, i.e. baths and toilets, and thirdly, general household tasks i.e. area provision, doors, windows, fitting and fixtures, heating and lighting systems.

### 1.1. Access inside and outside

#### 1.1.1. Location of facilities and internal stairs

It was clear that the location of main facilities and rooms in the dwellings was one of the main concerns for all the elderly in the sample. All encountered varying difficulties and many became unable to gain access to certain facilities (i.e. toilet, bedrooms) in their dwellings when located on different floor levels. Inaccessibility of facilities varied according to their location (i.e. on the ground or first floor) in the dwellings and the condition and health of the person concerned. In general, the main problem was the stairs in two storey dwellings. This contributed to difficulties in access to various facilities and rooms, particularly when a toilet was only on one floor, and was being used frequently during the day and, in most cases, at night also. In some particular cases, even one, two or three steps difference between floors created a great barrier gaining access to essential facilities in their homes.

As a consequence, many elderly who were able to negotiate the stairs but with varying difficulty (Category



1 and 2) experienced difficulties in gaining access to the facilities, particularly to the toilet; the others who were unable to negotiate stairs (Category 3 and 4) were completely unable to gain access to facilities on the first floor, and their helpers (usually spouses) were also not able to help them in doing so.

Because the stairs were the main problem, various features of them were examined in detail. The main aspects which were most commonly found to be inappropriate were steepness of the stairs (i.e. particularly the height of risers and its relationship to the goings of the steps and resulting pitch angles) and lack of railings. The other aspect, which was also found inappropriate by many elderly people was the lack of a landing about mid-way up the stairs. The evidence suggested that the pitch angle of  $44^{\circ}$  or  $45^{\circ}$  and the risers of 19 cm to 20.9 cm which were measured in most dwellings were inappropriate. Furthermore, the upper limit of pitch angle (i.e.  $42^{\circ}$ ) which resulted up to 22 cm of height of riser allowed by the current building regulations is probably also unsuitable. This conclusion is based on their suggestions about more appropriate height of risers, which they held to be 15 or 16 cm. This forms about  $35^{\circ}$  of the pitch angle. Concerning the railing, the data showed that, originally, almost all the stairs had one-sided railing, either a bannister or a stair rail. This was inappropriate for most elderly, who had some restrictions in one or both upper or lower limbs. They needed hand-railings on both sides of the stairs. Another inappropriate aspect of the stairs was the lack of a landing. The evidence suggested that some people (i.e. particularly those who had heart



diseases, and/or were exceedingly restricted with both lower and upper limbs) said they needed to have a few minutes rest after climbing 5-7 steps or half of the stairs. Thus they needed a landing mid-way up the stairs.

Ch. V, 1.1.

Ch. VI, 1.1.

### 1.1.2. Outside steps

Concerning the outside steps, the inappropriate aspects were similar to the internal stairs; lack of railings and steepness of the steps (i.e. particularly where the height of the risers was around 20 cm or more) and in cases where the persons were wheelchair user, existence of steps in itself became a problem. Thus, many elderly experienced difficulties in gaining access to and from their dwellings.

Ch. VI, 1.2.

## 1.2. Sanitary facilities

Another feature of existing dwellings which became inadequate to the requirements of the elderly were baths and toilets. Many aspects of baths, such as lack of grab rails, lack of a place to sit and have a bath in the bath-tub, the height of bath edge and so on were found inadequate by most elderly, and they had difficulties in bathing or some were completely unable to do so. Concerning the toilets, the height of the toilet which was too low for them and the lack of rails to help the elderly people sit and rise from the toilet were the main problem in most cases. Due to those



features, many encountered various difficulties in using the toilet.

Ch. VI, 2.1., 2.2.

### 1.3. Area provision

In terms of the area provision, the dwellings were examined in three respects; area in rooms, area in corridors and passages and total area. In general, area in rooms, such as living room and bedroom appeared to be adequate for almost all elderly including those people using wheel chairs. The area in most existing bathrooms, toilets and some kitchens, however, appeared to be less adequate for wheelchair users, but adequate for most of the others who were able to walk at home.

The area in passages and corridors in general was appropriate for most, except most of the wheelchair users. They, in some cases, had difficulties and a few elderly wheelchair users were completely unable to gain access to certain facilities at home.

Total area in the dwellings in almost all cases was adequate. Most elderly people considered the size of their houses 'the right size'. Various reasons for this were discovered and this indicated that while often assumed in the literature to be a major problem, the size of the houses was not a major problem or even a minor one for the elderly in this sample.

Ch. VI, 3.1.

### 1.4. Doors

Over a quarter of the elderly experienced difficulties with doors, particularly some types of door handle (i.e. knob handles) and width of the doors (i.e.



65 cm clear); high thresholds (i.e. 3.5-5 cm in height) appeared to be inadequate particularly for the elderly who had both arms and or hands restricted or were using wheelchairs.

Ch. VI, 3.2.

#### 1.5 Windows, fixtures and fittings, heating and lighting systems

Apart from those features outlined above, windows, fixtures and fittings, heating and lighting systems were also examined. Many windows and their mechanism were impossible to reach and open and shut by most elderly. Fixtures and fittings also created various problems, i.e. particularly shelves in the kitchens were too high for many elderly. Certain aspects of heating and lighting systems, particularly solid fuel heating and location of light switches and sockets in many cases were inadequate to the changing requirements of many elderly infirm.

Ch. VI, 3.3., 3.4.  
3.5., 3.6.

The examination of various features of the existing dwellings outlined above appeared to support Proposition 1 to a great extent. It was clear that, in general, many aspects of dwellings became inappropriate to many elderly, particularly when physical health and condition deteriorated exceedingly in relation to the activities concerned and many had difficulties and many also became completely unable to perform various activities, partly due to these inappropriate features.

Thus, to overcome these aspects, many adaptations were provided for many elderly people.



## 2. Proposition 2A and 2B:

2A. When elderly people's physical health and condition deteriorate (i.e. in relation to the activities concerned) and their abilities in activities relevant to the settings are reduced, adaptation of the settings will increase their abilities, either by reducing the difficulties encountered or by enabling them to perform the activity, which was previously not possible.

2B. If elderly people's health deteriorated extremely, adaptation of settings will result in settings in which those people can be helped more easily, or adaptations will reduce the amount of help these people need by making the settings more suitable.

In general, the adaptations provided made a great impact on people's abilities to perform various activities particularly when they were first provided. In almost all cases, people generally encountered lesser or no difficulty and many became completely independent in many day to day activities. The effects of adaptations on the abilities of people were in general greater where the person's physical health and condition still enabled that person to walk (i.e. persons in Category 1, 2 and 3). However, for those persons whose condition had deteriorated exceedingly (i.e. persons in Category 4) in relation to the activity concerned, the effect of adaptations on their abilities was not too large. Where the people's condition had deteriorated exceedingly the adaptations were, almost always, of use in creating a setting in which these people could be helped by the existing help available e.g. an elderly spouse. Thus, in these cases, and in many activities the adaptations reduced a large proportion of help which those persons required and made the existing



help efficient. To test the propositions, various adaptations provided to overcome difficulties relevant to certain features of dwellings, which became inappropriate to the requirements of the elderly, were examined.

## **2.1. Access inside and outside**

### **2.1.1. Location of facilities and internal stairs**

Concerning the difficulties or inabilities of people in gaining access to various facilities at home which were primarily relevant to inappropriate location of facilities and inappropriate aspects of the internal stairs (i.e. lack of railings), mainly three types of adaptations were provided. Those were minor adaptations (i.e. addition of stair rail), major lift adaptations (i.e. stair lift) and major structural adaptations (i.e. addition of a toilet or bathroom on the ground floor). Although, in general, major structural adaptations were, in most cases, the ideal and long term solution and users of them showed great satisfaction, the study showed that minor and major lift adaptations were also, in many cases where appropriate to users' requirements and circumstances (i.e. physical health and condition, ability to use lifts, layout of dwellings), found useful. The potential suitability of these three types of adaptations to people with various abilities in mobility and types of dwellings were shown and discussed in Chapter V, 1.4., Figure 7. Ch. V, 1.2., 1.4.

### **2.1.2. Outside steps**

In respect of difficulties encountered relevant to the outside steps, various adaptations, such as bannisters, shallower steps and ramps, were found useful. Those, in many cases, made the persons independent in gaining access



to and from their dwellings and in some cases lessened the difficulties encountered by them. While in many cases, where persons were exceedingly frail (i.e. those wheelchair users who were unable to propel their wheelchairs), the adaptations (i.e. ramps) largely reduced the help required by those persons and made possible their gaining access to and from their homes with the assistance of their helpers.

Ch. VII, 1.2.

## 2.2. Use of sanitary facilities

Various aspects of baths and toilets in existing dwellings also created problems for the elderly. Adaptations, such as minor adaptations to bath (i.e. grab rails, folding bath rails) in combination with various bath aids (i.e. bath seat, bath board, slipmat), in general, were found to be useful. Showers, shallow baths and hoists (i.e. manual or electric) were also provided and found very useful. With these provisions, many frail elderly (i.e. persons in Category 1, 2 and 3) became able to bath themselves and said this greatly eased their difficulties and made this task much safer, while the others who were too frail (i.e. persons in Category 4) could be helped by their helpers in the adapted settings.

Adaptations to toilets, were, in most cases, toilet risers or the provision of higher toilet and grab rail(s) on the wall by the toilet. These, in general, were found to be useful and facilitated people's abilities in using the toilets themselves. Many no longer needed help from others.

Ch. VI, 2.1., 2.2.



### **2.3. Area provision**

Concerning the area provided, adaptations such as kitchen enlargement and addition of toilets and shower rooms or bathrooms were adequate and enabled those elderly who were provided with them, most of them being wheelchair users, to get to and use those facilities themselves or with the help of their helpers. Ch.VI, 3.1.

### **2.4. Doors**

Adaptations to overcome elderly people's difficulties with doors, e.g. provision of lever handles, sliding doors were generally found to be useful and facilitated their abilities to use the doors at home. However, almost all of the handles (latches) of sliding doors which were provided as part of major structural adaptations were inadequate and needed to be carefully designed by considering people's restrictions in fingers/hands. Ch. VI, 3.2.

### **2.5. Windows, fixtures and fittings and lighting systems**

Despite, the windows, fixtures and fittings, heating and lighting systems in the dwellings created various difficulties for many elderly, few adaptations (i.e. kitchen worktop alterations) were provided, although these also were found useful in facilitating thier abilities in related activity. Ch. VI, 3.3., 3.4., 3.5., 3.6.

In general, the evidence showed that almost all the adaptations were found useful and in most cases increased persons' abilities in various activities, while in some cases, where the persons were too frail, adaptations reduced a large proportion of the help they



required in those activities. Thus, this indicated that, where appropriate adaptations are provided not only most of the inappropriate features of the existing dwellings, which constrained and often hindered elderly people's abilities in various activities, can be overcome, but also, available help resources can be used effectively and efficiently to assist the elderly infirm in need. Therefore, this evidence clearly gave support to the propositions 2A and 2B to a great extent.

### 3. Proposition 3, 3A and 3B

Since the physical health and condition of the elderly is dynamic and likely to decline over time, their requirements relevant to the settings are likely to change and adaptations provided may become obsolete and this may necessitate provision of further adaptations. Thus, the third proposition put forward was that:

3. Adaptations provided will become obsolete, i.e. less or not useful, or their effectiveness will change, when a person's health and condition deteriorate further after the adaptations have been provided.

In relation to the probable obsolescence of adaptations over time two further propositions are put forward.

3A. If the adaptations provided are designed and applied to the present health and condition of the people, further deterioration in their condition will lead these adaptations to be obsolete.

3B. If the adaptations provided with the likely or anticipated future deterioration of health and condition of the people in mind, then the adaptations will accommodate changes and deteriorations in their condition and meet their requirements to a certain extent.

The evidence from the study supported these propositions to a large extent. Many people's condition



and physical health deteriorated in varying extent over time. Some of the adaptations provided became obsolete, as either they were less useful or not useful at all. However, the data indicated that design and application of the adaptations played a crucial role in providing adaptations responsive to the changes of the peoples requirements over time. Many adaptations which were designed and/or applied taking into account likely lower limits of condition of the people, were still useful after time elapsed and their condition deteriorated. However, some of the adaptations which just matched to their condition when those adaptations first provided became less or not useful when the people's condition deteriorated over time.

The research showed that, in most cases, there was no provision of further adaptation, or no system to check the adaptations provided to see whether they were still useful, and no reassessment of the changing requirements of people. Thus, in many cases, people's requirements which changed over time, were not met. This clearly indicated the need for a continuous process in providing adaptations in order to meet the requirements of the elderly changing over time.

The effectiveness of various adaptations when they were first provided and over a passage of time, were examined. Factors affecting their suitability over time were, change and deterioration in people's condition, types and design aspects of adaptations and the features of the dwellings adapted. Considering the types of adaptations, most of the minor adaptations and major lift adaptations provided primarily because of the difficulties of the



elderly with stairs, became obsolete when people's condition and health deteriorated. While in general, major structural adaptations were more responsive to changes in people's condition over time. However, the research showed that features of adaptations, particularly in the lift provision and the features of dwellings, were also crucial. For example, provision of two toilets, one on each floor level was a key factor making some of the minor or major lift adaptations more effective. Various design features of the lifts (i.e. the height of seats and footrests, types, shape and location of the controls), which became inappropriate over time when people's condition deteriorated, were important and largely reduced the value of this provision. Over a third of the elderly in the sample became dependent upon others or encountered extreme difficulties; three were completely unable to get access to various facilities and rooms at home even with the assistance of their helpers. The circumstances were similar with most other adaptations. For example, grab rails provided on one side only of the baths in many cases became insufficient to minimize or eliminate the difficulties of the elderly whose condition deteriorated. Two of the ramps provided (with a steep gradient i.e. 1 in 6) became inappropriate and were found extremely steep, primarily due to change in condition of their users, even if found adequate when first provided. However, four ramps were still sufficient partly because the ramp gradients were much shallower (i.e. 1 in 14 or 1 in 30) and this feature of the provision made it more responsive to further deterioration in people's condition.



The obsolescence of adaptations may be minimized or delayed by designing and applying the adaptations to accommodate lower limits of physical health and condition of the elderly concerned. The evidence showed that a careful consideration of as many features as possible of the adaptations provided and installing some adaptations rather than others to certain types of dwelling or setting would certainly increase the responsiveness of adaptations to further changes in the condition of the elderly.

However, in respect of types of adaptations (i.e. minor, major structural adaptations) it may not always be possible to predict people's future state and condition and providing such adaptations may not always be a viable and economical solution. Thus, coping with the changing requirements of the elderly appears to require a continuous assessment and provision of new adaptations or modification of the existing adaptations where required, (see section 5.3.) as well as paying maximum attention to design and application of the adaptations. In general, it appears that the propositions 3, 3A and 3B were largely supported by the evidence which emerged from the study.

Ch. V, 1.3., 1.3.1., 1.3.2.,  
1.4.

Ch. VI, 1.1.2., 1.2., 2.1.1.

#### 4. Proposition 4

From the analysis of the literature, many elderly people need help from others in many daily activities and if they do not get it, they may have to move from their dwellings into another dwelling or institutions where either they will not require help or where they will be



provided with help they require. However, many elderly people's help resources are limited and might not be increased as they get frail and need more. Thus, many elderly may need some means of reducing their help requirements in order to remain in their own homes. It was proposed that:

4. The contribution and effect of the adaptations upon enabling the elderly to remain longer in their homes is a function of the contribution of the adaptations on the abilities of the elderly in their activities and on forming settings in which the elderly in need could be assisted more easily, where help resources are limited.

The evidence showed that various adaptations provided for the elderly had a considerable effect on enabling them to stay longer in their existing dwellings. When elderly people's abilities to perform various daily activities declined they required help in many activities, and this need for assistance increased with deterioration in health and condition. In many cases, insufficient help was available. Thus, in order to be able to stay at home, they needed some means of reducing or keeping the help required constant. The provision of various adaptations played a crucial role in reducing the amount of help they required mainly in two ways; firstly by enabling them to perform many activities of day to day living themselves, secondly, by forming a setting in which they could be helped more easily.

Most of the elderly in the sample needed help in many activities of daily living, although their difficulties were largely minimized by various adaptations provided. In general most of them were able to continue living in their existing homes without much difficulty. A balance was



established between the help required by the persons and the help available for them in many essential daily tasks which involved using various parts of their dwellings. In this balance, the impact of adaptations provided was so large that it reduced a high proportion of the help required by the persons in many essential activities. This was very important, primarily because the help resources of most elderly were limited, most lived alone or with spouses who were elderly and sometimes frail also. Clearly, as many said if they were not provided with various adaptations, they could not cope with some features of their dwellings such as stairs, absence of a toilet near to the living room or bedroom and so on, and they would have to move from their dwellings. This conclusion and their opinions about it were confirmed by ten (or 19 per cent) cases in which elderly people had to move, because, in almost all cases, they needed a great deal of help and this help was not available and possible, primarily due to inappropriate features of their dwellings. Had adaptations, which could minimize their problem been provided, or the existing adaptations been revised, the move would not have been necessary.

Based on the evidence from this part of the study it appeared that the adaptations made a considerable effect upon enabling many elderly, particularly those too frail, living alone or with their elderly spouses, to remain in their homes longer. Therefore, proposition 4 has been largely supported by this evidence. Ch. VII, 1., 2., 3., 4.



5. Some considerations that have emerged from the research

The number and proportion of the elderly people in the whole population has been increasing, parallel to increasing life expectancy. A great majority of the elderly have been living, and wish to continue living in their existing dwellings and in their familiar surroundings. To help the elderly in terms not only in the direction of their wishes but also to minimize various social, psychological, physical and economic problems from housing them inappropriately in other alternative ways, such as specially designed old people's dwellings, adaptations, properly reviewed, should be carried out.

This is a more natural and viable alternative to the problems of the elderly, i.e. to be housed appropriately where most want to be and need to be. Thus, the conclusion answered the main question of this study which was whether the elderly could be accommodated in their homes longer with provision of adaptations, given that existing services remain least constant. Based on the evidence which emerged from the empirical part of the study, the very important and broad conclusion drawn is that, with appropriate adaptations the elderly, in general, can be enabled to remain in their existing dwellings longer. Of course, many of them, particularly those more frail, living alone and whose help resources are limited may also need some services from the organisations available (i.e. Social Services Departments). In some cases, they may need some services i.e. assistance for dressing, which at the moment are not available for the elderly. The provision of adaptations is a relatively new phenomenon and many aspects



of it needed to be considered. In this study, analysis of the data collected pointed out some considerations which appeared to be crucial in providing appropriate adaptations which would not only meet the requirements of the elderly better but use the existing limited resources more purposefully and usefully also.

Ch. I, 1.

Ch. II, 2.1., 2.2.

### 5.1. First assessment of requirements

Providing adaptations is a process in which many professions or specialists (i.e. occupational therapist, general practitioner or specialist doctors, architects, surveyors, builders and so on) are involved and requires a multidisciplinary approach. Assessment of requirements is one of the most crucial stages in this process.

The evidence indicated that not only the present state of the elderly persons health and circumstances (i.e. dwellings, provision of help) but also their predictable future state (where possible) needs to be taken into account.

The first consideration is the physical health and condition (i.e. illnesses, chronic conditions, restrictions, impairments and resulting limited physical functioning) of the person concerned. At this stage: a. his/her present condition needs to be assessed and what is required needs to be studied; and b. where possible his/her likely future condition and abilities need to be considered. This is important and should affect the design, types and application of the adaptations to be provided.

The second consideration is the features of dwellings or the existing physical resources and usage of them by the person. Assessment of them is crucial not only to provide



adaptations more effective at the moment when they are provided but also over time; thus minimizing the difficulties encountered by the person in many essential everyday tasks. For example, similar adaptations resulted in different effectiveness in different dwellings, although the people concerned had similar characteristics of health and condition.

The third consideration is the factor of help, particularly the balance between the help required by the person in related activities and the available help likely to be given. This requires an assessment of help requirements of the person concerned and whether that is met by spouses or other persons living with the person or help paid privately or by the local authority.

This assessment might include the abilities of the helper to help and his/her availability of any time or specific times a day or week, as well as the predictable future state of these considerations. For example, it should be considered whether the helper of the person is an able bodied adult or an elderly frail person and whether the helper is always available or only at certain hours a day or week and whether there are any implications of a sudden decrease in the quality and quantity of the help to be received in the predictable future.

In relation to those points above, it should be emphasized that assessment of requirements should include many activities of the person concerned which are essential for day to day living. It was evident from the research that in most cases, assessment of requirements included only a small group of activities or only one activity (i.e. climbing stairs, bathing) and many essential daily



activities and related requirements (i.e. outside steps, doors, light switches, sockets, so on) were not considered. As a result many elderly were unable to perform various activities or encountered extreme difficulties, partly because relevant adaptations which in most cases required small or minor works, were not provided. For example, a rail to outside steps, or change to a door handle or rehanging of a door, or lowering light switches, in most cases, were not considered and provided. This created various problems to many elderly people in their daily lives.

Ch. V, 1.2., 1.3.  
Ch. VI, 1.2., 3.2.,  
3.3., 3.6.

## **5.2. Design and application of adaptations**

Another crucial stage of adaptation provision with which this study is concerned, is the design and application of adaptations. One of the main considerations in this stage is that adaptations of any kind should be designed bearing in mind that the user, whether known or unknown, might have or will have a number of restrictions or impairments in various parts of the body and their functioning might be reduced over time. Another point is that many elderly might suffer from different or varying degrees of illnesses and conditions. As a result, their general way of using the objects or adaptations might differ from one person to another. Thus, this requires adaptations to be responsive or adjustable to the person's physical health and condition as well as to his habit and style of using them. This point is important at least in two respects: firstly, such adaptations might be more easily used when they are first provided because they can



be adjusted to individual requirements, and/or they are already designed to accommodate even more infirm people's requirements. Secondly, over time, when the users' condition changed or deteriorated these adaptations will be adjustable to their changing requirements, and/or, to some extent, they can accommodate changes in persons' condition. These features are particularly important for adaptations in which most or all parts are designed and manufactured beforehand e.g. stairlifts, and later changes are relatively very difficult and much more expensive, and for the adaptations of which further modifications or additions are much more expensive, i.e. structural adaptations. For instance, the evidence showed that most of the sliding doors provided were inappropriate, even unusable, because they required greater strength than the user possessed. In many cases of structural adaptations e.g. provision of a bedroom, bathroom and toilet on the ground floor, which, in most cases, were provided for wheelchair users or people who were expected to be wheelchair users, provision of a ramp was omitted. Sometimes, a ramp was too steep and needed to be altered. In all these cases it was much more expensive to make subsequent alterations than to incorporate them in the initial provision.

Adaptations should also meet varying requirements of the people concerned. Many adaptations could be adjusted to a person's requirement when they are being installed, such as height or location or a grab rail or a stair rail, light switches and so on. A careful consideration of requirements during the installation can give an advantage of adjustability of items to people's requirements and may



result in better use of the adaptations.

In respect of the types of the adaptations it may not always be a viable and economical solution to provide adaptations to match the possible far future state or condition of the elderly concerned. For example, it may be unnecessary to provide major structural adaptations to an elderly person who has some difficulties with stairs and whose needs could be met, for years, with a stair rail installation on the stairs. This decision largely lies within the area of the medical profession. In cases where the person's condition is seemingly very likely to deteriorate in a certain direction and in a certain time, then, certain types of the adaptations which are basing on this diagnosis should be considered. However, in certain cases where the person's condition is likely to be constant for a certain time, (i.e one or more years) then the types of adaptations must be considered with this in mind. However, each type of adaptation must be designed and applied by taking into account as much as possible future deterioration in a person's condition. For example, as the type of adaptation, the provision of railing to the bath may be decided, then, the shape, material, number of railings as well as their location and so on, need to be studied carefully in order to increase the provision's efficiency. Nevertheless, because elderly people's condition and requirements are dynamic most of the adaptations provided are likely to become obsolete over time and require to be renewed or modified. This point relates to another consideration which is explained below.

Ch. V, 1.3.

Ch. VI, 1.1.2., 1.2.,  
1.3., 3.2.



### 5.3. Reassessment of requirements and continuity of provision of adaptation

An essential step necessary not only to provide adaptations meeting the requirements of elderly people which might change over time but also to achieve economy in their provision, is reassessment of requirements and continuity of provision of adaptation. Adaptations and their suitability to the person's requirements should ideally be checked at certain intervals and where necessary, renewed or modified accordingly.

Physical health and condition of many elderly people and their resources and resulting requirements relevant to settings are dynamic and vary over time. This can affect the effectiveness of the adaptations provided. It was evident from this research that many adaptations became obsolete over time. In most cases new adaptations were not provided or the existing ones were not modified. Thus, essential requirements of many elderly people were not met. This, in many cases, resulted in various levels of dissatisfaction with the provision and unmet needs and even in people having to move from their dwellings in which they actually wished to continue living. Moreover, most of the elderly in the sample, did not know and were not aware of the provision of adaptations and various types of adaptations which were available to them and could minimize their related problems. Although all the dwellings in the sample had some minor or major adaptations many of the elderly, especially users of minor adaptations who were encountering extreme difficulties with some aspects of their dwellings (i.e. stairs or baths) did not know about the availability of other types of adaptations; therefore



they did not ask for the required adaptations.

Thus reassessment of requirements and continuity of provision of adaptations and information about what is available are essential to maintain the match between the persons and the physical settings over time. This assessment, as required in the first assessment of requirements, should include many aspects of the settings and the person's physical health and abilities in various activities of daily living which might have changed over time. In cases where the person needs or might need help from others (i.e. spouse or organisation) the condition and availability of helper needs to be taken into account also.

Ch. V, 1.3.2.

Ch. VI, 1.1., 1.2.,

2.1.1., 2.2.1.

Ch. VII, 4.

#### 5.4. Timing

Another important consideration in provision of adaptations to the elderly is timing. This means provision of appropriate adaptations to the people at the appropriate time. Inappropriate timing, in most cases, coupled with lack of reassessment and reprovision, resulted in various unmet needs, unsatisfactory provision and sometimes vital consequences. For example, in some cases, especially where some major structural adaptations were required, it was too late for elderly people to put up with the building work or the possibility of a temporary move in order to have some additional facilities built in their dwellings in their absence. They were too frail to contemplate it. Some, for this reason, wanted to move. Some, however, stayed put with great difficulties and unmet needs in their homes. In some other cases, serious accidents might have been avoided



with the appropriate adaptations. Four elderly who were very infirm had fallen on the stairs or in baths in their homes and had broken various limbs as a result of these accidents, they had become extremely handicapped and unable to do many tasks which previously they had been able to do. This was partly due to not being provided with appropriate adaptations at an appropriate time.

Ch. V, 1.3.2.  
Ch. VII, 4.

### 5.5. Procedures

In relation to provision of adaptations at the appropriate time, procedures for adaptation need to be straight forward. In particular structural adaptations, both the administrative and financial procedures which to some extent are interrelated, were too complicated and took an extremely long time. The average time taken was 2 to 3 years for these adaptations. This seems quite inappropriate and needs to be shortened. According to the evidence from this study, in all cases, the elderly who were provided with such adaptations, complained about the time adaptations took. Many elderly had a lot of difficulties; some had to use commodes and sleep in their livingrooms for some years due to delay in the provision. In some cases, the long time taken by the administrative procedures coupled with difficulties encountered in making the finance available for the adaptations to be provided, due to complications in financial procedures, resulted in increase in the cost of adaptations due to the inflation in prices of building materials and labour. This resulted in various arguments between the parties and caused unnecessary dissatisfaction about this aspect of, and also



further delay over the provision. As was noted before, two elderly in need of this kind of adaptation gave up and considered moving from their homes, because of not being able to put up with such a long delay and not deal with such complicated procedures.

Thus, it was clear that, if the effectiveness of the adaptations is improved it is necessary to overcome complications in procedures and resulting delay over the provision.

Ch. VII, 4.

## 6. Discussion in a wider context

As it was noted before previous policies appeared to have failed to house the elderly in an appropriate fashion. The existing options for most of the frail elderly to continue living in the community have been very limited (i.e. sheltered housing) and many appeared to be inadequate and not what old people wanted; and in any case, only about 5 per cent of the elderly live in such specialised accommodation.

Evidence from this study as well as from many other studies showed that almost all elderly people preferred to remain in their existing dwellings and in their familiar surroundings. What is needed is adaptation of those dwellings, particularly for those who are infirm, living alone and on a low income and wish to remain in their existing homes. The evidence from this study supported the idea that most of the elderly could remain longer in their existing dwellings where they wished to be, if some adaptations were provided. The study also showed that, where the people became more frail they are likely to need more adaptations and more help related to many activities of daily living. This emphasized the importance of the



help factor in addition to the adaptations to be provided. To some extent these considerations are interrelated. Although various adaptations may greatly reduce the help required by those persons who are extremely frail (e.g. wheelchair users), in most cases, they may still need continuous help in many daily activities. Their ability to remain in their homes, then, might also largely depend upon the help provision, in addition to the adaptations to be provided.

However, according to the previous surveys (see Chapter I, 4.1.) only 1 to 3 per cent of the elderly population appear to be as extremely frail as some people in this sample (i.e. Category 4 people) were, while the very great majority i.e. 97 to 99 per cent appear to be less frail than those 1 to 3 per cent who were unable to walk inside and outside their homes. The implication of this is important, that is, not many people need the extensive adaptations and/or help and services which require the greatest expense to be able to stay at home.

Further, the research indicated that in addition to provision of appropriate adaptations, a slight increase in the amount of the existing services and more care given to their distribution, such as home help, meals on wheels and bath attendants and a possible expansion of types or scope of these services (which might include a daily visit to some elderly who are frail, living alone and need some daily assistance to help them in dressing or similar tasks) would probably be invaluable and adequate to enable a great majority of the elderly who are in the handicapped, but not in the immobile, category to remain in their homes longer. Indeed, a slight increase in provision of services or help



is particularly important taking into consideration that most of the women and a high percentage of men in the older age groups are living alone and incapacities in self care become increasingly common among them.

Concerning the social and psychological aspects, the evidence from this research, in general, showed that a great majority of the elderly in the sample were particularly satisfied and pleased to live in their existing homes and familiar surroundings and to be in contact with neighbours and friends, many of whom were known to them for long years. This clearly emphasised the social and psychological benefit of enabling the elderly to stay at home.

Thus, lastly it can be said that evidence from this study showed that most of the elderly people are determined to stay in their homes and familiar surroundings and most of them can be maintained in their homes with provision of appropriate adaptations and help or services. This, then, would probably be not only a more appropriate way of meeting their physical requirements (i.e. relevant to physical settings) but also their social and psychological requirements, their homes and familiar surroundings which in most cases mean a lot for them.

This is a pilot study which was carried out in a relatively small geographical area and therefore cannot be generalised to the whole country but may have relevance in other areas and similar situations. However it was intended that the findings of this study would throw a light and bring some understanding into one of the major issues in the subject of old age, which is the accommodation of or housing the elderly, particularly those frail and



very old, in an appropriate way, and maybe more importantly, in accordance with the wishes of almost all elderly people.

Ch.I, 3.,4.1.

Ch. II, 2., 2.2.

Ch. VII, 1.,2., 3., 4., 5.

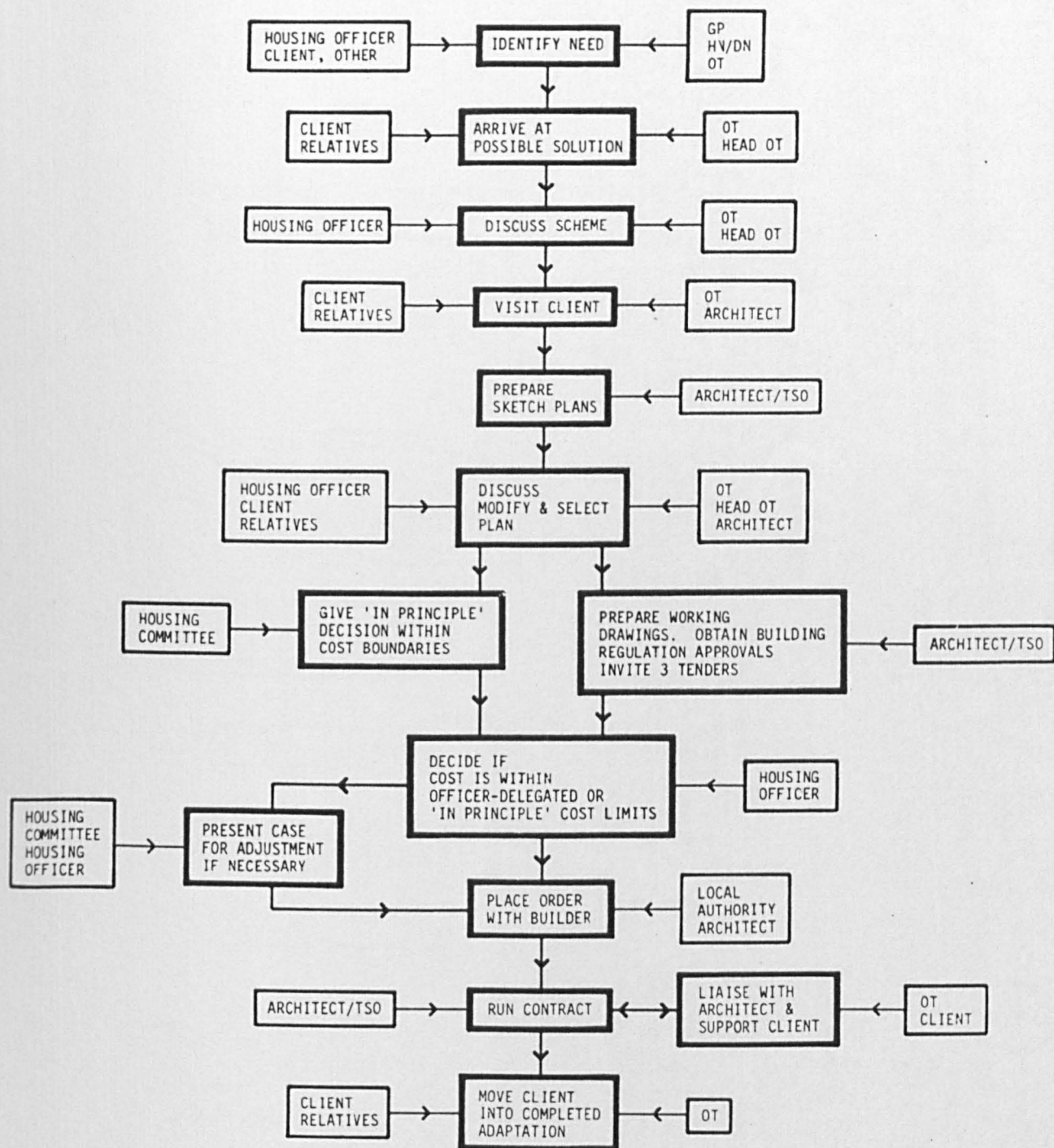


## APPENDIX 1

### Procedures for major adaptations

The following diagrams, taken from Penton J. and Barlow A. (1980), show the procedures for major adaptations in the public sector (i.e. local authority dwellings) and in private sector (i.e. private sector dwellings).





KEY: GP General Practitioner  
 HV Health Visitor  
 DN District Nurse  
 OT Occupational Therapist  
 TSO Technical Services Officer

Figure 1A : Procedures for major adaptations in the public sector

Source: Penton J., Barlow A. (1980), A Handbook of Housing for Disabled, People, London Housing Consortium West Group, p.40.



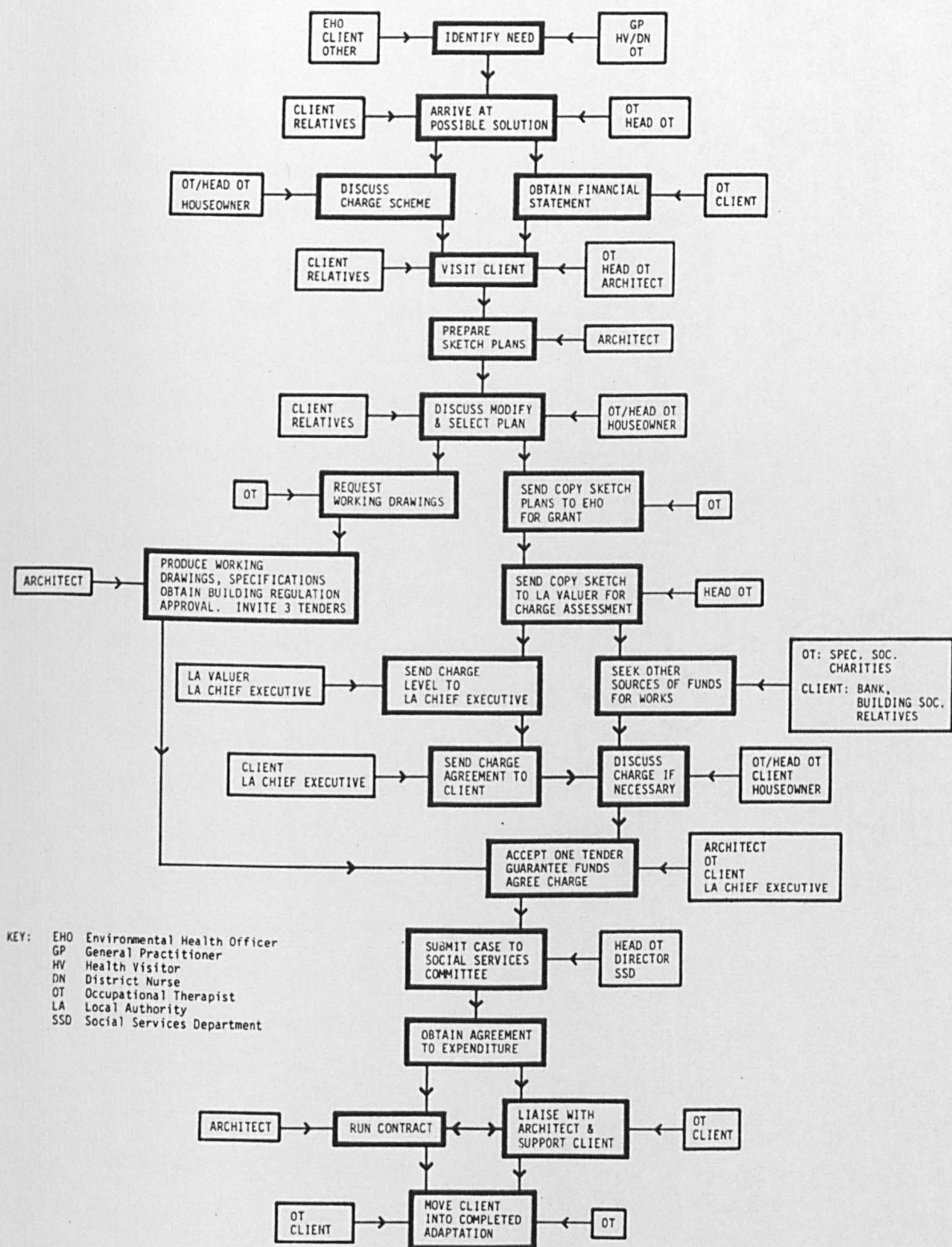


Figure 1 B: Procedures for major adaptations in the private sector

Source: Penton J., Barlow A. (1980), A Handbook of Housing for Disabled People, London Housing Consortium West Group, p.41.



## APPENDIX 2

### Letters written to the elderly

Initially a few pilot cases were carried out to test the efficiency of the questionnaire designed, adequacy of the information to be collected, wording used and the duration of each interview with the elderly persons. It emerged that each interview was to take 1½ to 2 hours. Therefore, it was necessary to inform the elderly persons to be visited in advance and have their approval to participate. Initially, a few letters were written to the persons by the author, however, it revealed that the elderly, many of whom were living alone and handicapped, were extremely worried and anxious about being visited by a person to whom they had not been familiar or not coming from an organisation familiar to them. Therefore, later, the letters were written by the Director of Oxfordshire County Council Social Services Department, and the Head of the Oxford Polytechnic Department of Architecture Post Graduate Research School. This, in fact, made a great impact and a high rate of response was achieved.

The copies of two types of letters written to the persons asking for their participation with the research carried out and the standardised reply paper to be filled in and sent by the elderly in the prepaid and addressed envelope, are shown below.



# Oxfordshire County Council



Social Services Department  
27 Park End Street  
Oxford OX1 1HU  
Telephone - Direct line (0865) 81 5992  
Switchboard (0865) 722422

John Llewellyn  
*Director of Social Services*

My reference	Your reference	Please ask for	Date
NJK/CS		Mr Kennedy	6 May 1982

Dear

Chronically Sick and Disabled Persons Act

The Department of Architecture at Oxford Polytechnic are carrying out a survey to find out the effectiveness of adaptations and alterations which have been carried out under the Chronically Sick and Disabled Persons Act. From the survey it is hoped to advise on the design of future housing as well as on the existing provision of aids and adaptations.

It would be a most useful contribution to the survey to receive the views of people who have had work done. Their answers would of course be treated in the strictest confidence.

If you would like to help in this survey, Mr Pakdil from the Department of Architecture would like to visit you to discuss the work that has been carried out to your home.

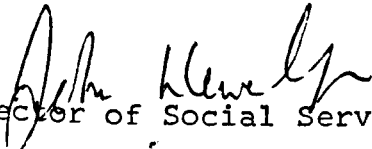
Would it be possible for Mr Pakdil to call at your home on

If he does not hear from you he will assume that this time is convenient. However, if this is not convenient could you suggest a more appropriate time on Part I of the enclosed paper and return in the enclosed envelope. If you do not wish to participate could you tick Part 2 of the paper and return it.

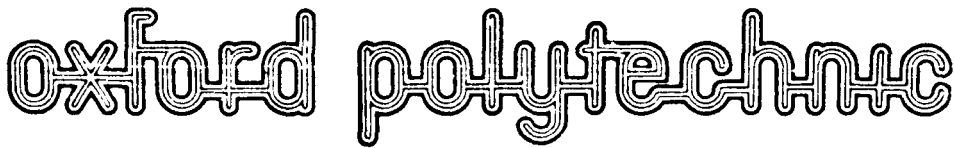
If you are agreeable to Mr Pakdil visiting you, he will carry an identity card which you should ask him to show you.

Should you have any questions about the survey you may contact Mr N Kennedy, Principal Administrative Officer on Oxford 815992.

Yours sincerely

  
Director of Social Services





Headington Oxford OX3 0BP Tel (0865) 64777 Director B L Tonge BSc PhD CChem FRSC MBIM

Department of Architecture  
Post Graduate Research School  
Reader: Dr R J Newman MA DipSoc DPhil FRSA

We are carrying out a survey with the co-operation of West Oxfordshire District Council, to find out the effectiveness of adaptations and alterations which have been done to assist people to live more conveniently in their homes. From this survey we hope to advise on the design of future housing as well as on the existing provision of aids and adaptations.

Your opinion would be a most useful contribution in this survey; please could you help us by answering a few questions. Your answers, of course, will be treated in the strictest confidence.

If you would like to help us, Mr Pakdil who is an architect would like to visit you during a weekday. When he comes to see you he will carry a special identity card which you can ask him to show you. If you have any questions about the survey you may contact Mr Lance Cartwright Principal Environmental Health Officer, West Oxfordshire District Council.

Can we suggest to you that Mr Pakdil calls at your home at  
on

If we do not hear from you we will assume this time is convenient for his visit. However if this is not convenient could you suggest a more appropriate time on Part 1 of the enclosed paper and return it to us. If you do not wish to participate could you tick Part 2 of the enclosed paper and return.

There is a pre-addressed and pre-paid envelope enclosed for your use, so no stamp is needed.

Yours faithfully

Dr R J Newman



PART 1

I would like Mr Pakdil to visit me

at ..... on .....

PART 2

I do not wish to participate ☐



## APPENDIX 3

### Questionnaire

In the following pages, the questionnaire designed and used in this research project, is shown. It consists of three parts. The first part is the main questionnaire and was used in all cases in the sample which were 53 cases. The second part was used only in 14 cases where major lift adaptations were provided. The third part was used only in 16 cases where major structural adaptations were provided.



Date: / /1982

Subject No.

--	--	--	--

Is the person interviewed the subject yes ☐ no ☐

If no what is their relationship to the subject ?

Specify:.....

Housing

1. How long have you lived at this address ? Years

0-4 ☐

5-9 ☐

10-19 ☐

20-29 ☐

30-over ☐

2. Do you(or does a member of your household) own this house or is it rented,  
if so, from whom ?

Owner occupier ☐

Council tenant ☐

Private tenant(unfurnished) ☐

Private tenant(furnished) ☐

Housing association tenant ☐

Other.... ☐

Profile Data

3. Are you married ☐  
single ☐  
widowed ☐  
divorced/separated ☐

3a. Sex: Male ☐ Female ☐

4. Date of birth: Are you about ... years old? ☐  
 60 - 64 ☐  
65 - 69 ☐  
70 - 74 ☐  
75 - 79 ☐  
80 - 84 ☐  
85 - over ☐

5. Occupation: Are you retired ? (if Yes) What was your occupation? or  
Your husbands occupation? or Head of your households occupation?

Specify:.....

--



6. Is there any other person(s) living with you in the same household ?

Spouse(Husband/wife) ☐

Children ☐

Other relatives ☐

Friends/.... ☐

Alone ☐

Total ☐ person(s)  
in the same household.

6a. Is there any other person(s) living in this dwelling or house ?

Lodger(s) ☐ Pays him/her or his/her household.

Other family/person ☐ Pays to the owner-other than the subject or his

Other..... ☐ or her household.

Total ☐ other person(s)

### Services

7. Are you getting any services or help regularly from the Social Services or any other organisation ? Yes ☐ No ☐

If Yes;

		Days a week	Days a fortnight
Home help	<input type="checkbox"/>		
Meals on meals	<input type="checkbox"/>		
District nurse	<input type="checkbox"/>		
Bath attendant	<input type="checkbox"/>		
Health visitor	<input type="checkbox"/>		
Other.....	<input type="checkbox"/>		

7a. Do you pay anybody for help?(Paid help) Yes ☐ No ☐

If Yes;

Specify:	Days a week	Days a fortnight
.....		
.....		

### Disabilities (intrinsic handicaps)

8. Have you got any complaints or restriction of use with your

Complete capacity    Partial capacity    Very little or no capacity

Hands.....(Left)			
(Right)			
Arms.....(Left)			
(Right)			
Legs/foot.(Left)			
(Right)			

9. Have you got any condition or complaints (illness) affecting any of your activities ? Yes ☐ No ☐

If Yes; Specify:.....



10. Have you got any difficulty with your,  
 Complete capacity    Partial capacity    Very little or no capacity

Sight

Hearing

Speech


Self care and daily activities

11. Can you do following activities yourself ?

	Without or with slight difficulty	With (moderate) difficulty	Not poss ible with out help	Help available Yes No	
1 Doing (your) shopping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Doing light daily cleaning of the house	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Washing clothes/ironing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Cooking a hot meal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Making a cup of hot drink or snack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Having a bath or shower	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 Washing hands and face	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 Dressing yourself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 Putting on shoes, socks or stockings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 Getting in and out of bed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 Having your meal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12 Using the toilet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comment about these activities:

- |    |     |
|----|-----|
| 1. | 7.  |
| 2. | 8.  |
| 3. | 9.  |
| 4. | 10. |
| 5. | 11. |
| 6. | 12. |



Mobility - Access, circulation (Horizontal)

12. How do you find walking around the house ? (Without climbing stairs, steps)

Without or With Not poss  
with slight (moderate) ible with  
difficulty difficulty out help

☐ ☐ ☐

13. Can you walk outside , along the street, how do you find it ?

☐ ☐ ☐

14. Do you use;

No/ Never Occasionally Always

Stick(s) or crutche(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walking frame	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* Wheelchair at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* Wheelchair outside	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\*If you use wheelchair do you ;

At home Outside

propel it on your own	<input type="checkbox"/>	<input type="checkbox"/>
need to be pushed	<input type="checkbox"/>	<input type="checkbox"/>
sometimes need to be pushed	<input type="checkbox"/>	<input type="checkbox"/>

15. Do you ever experience giddiness / dizziness ?

No / Never ☐

Very seldom (ones every few-2;3-months or less) ☐

Occasionally (ones or twice a month) ☐

Frequently (ones or twice a week) ☐

Very frequently (ones or more times a day) ☐

Comment:.. ...

16. Do you or did you experience a fall(s) in recent years? If so, how frequently it happens ?

No / Never ☐

\* Very seldom (ones or less in a year) ☐

\* Occasionally (few-2;3-times in a year) ☐

\* Frequently (ones in every 1 or 2 months) ☐

\* Very frequently (ones or more in every month) ☐

16a. \*If you experience falls , did it happen when you;

Walking ☐

Negotiating steps ☐

Other..... ☐

(Bathing etc.)

Comment:.... ...



Mobility - Access ,circulation (Vertical)

17. How about climbing stairs ? Can you climb all/some parts of the stairs ?

	Without or with slight difficulty	With (moderate) difficulty		Without or with slight difficulty	With (moderate) difficulty
None			Steps		
One or two steps			0		
A third of it			1-2		
Half of it			3-5		
Nearly all/all			6-9		
Any stairs			10-14		
			15-+		

18. What aspect of the stairs do you find inconvenient or awkward ?

Stairs are too steep

It is winding or cornering

Railing            i) Not enough amount of railing

ii) Not easy to hold firmly.

- iii) Its height is not appropriate

iv) Other...

Landing i) No landing on the stairs at all

ii) It is not in appropriate location-too near to GF

iii) " " " " " " -too near to FF

iv) Other...

Others, specify; (flooring, lighting etc)

● ● ● ● ● ● ● ● ● ●

.....

• • • • •

.....



## Adaptations

What adaptation have you had (recently or lastly) in relation to your difficulty with stairs ?

Specify:....

Minor

Major.Structural

Major.Lift

<input type="checkbox"/>	_____	<input type="checkbox"/>
<input type="checkbox"/>	_____	<input type="checkbox"/>
<input type="checkbox"/>	_____	<input type="checkbox"/>

19. How long ago did you get it done ?

Less than 6 months ☐

6 months-12 months ☐

1 to 2 years ☐

2 to 3 years ☐

3 to 4 years ☐

4 years or over ☐

20a. How are you satisfied / dissatisfied with this adaptation now ?

Very diss. Dissatisfied Neither sat/diss. Satisfied Very sat.

☐☐☐☐☐

Specify reasons;.....

.....

.....

.....

20b. How were you satisfied / dissatisfied with this adaptation when it was first done ?

Very diss. Dissatisfied Neither sat/diss. Satisfied Very sat.

☐☐☐☐☐

Specify reasons;.....

.....

.....

.....

20c. Do you still use it ?

Yes ☐

No ☐

21. Do you think your condition has changed in last.....?  
(look Q.19)

Considerably  
worse

Slightly  
worse

No change

Slightly  
better

Considerably  
better

No opinion

☐☐☐☐☐☐

22a. Do you remember how long it took you to get this adaptation done ?

Do not remember

Days

Months

Years

☐☐☐☐



22b. What aspect of (procedures of) getting this adaptation done most worried or disturbed you ?

Reasons:

- Waiting for a long time ☐ .....
- The cost was too much ☐ .....
- Writing letters to SS or L.A. ☐ .....
- Construction, mess, noise, etc ☐ .....
- Neither of aspects ☐ .....
- Other.... ☐ .....

Other ideas/suggestions about the procedures; ..... ☐

22c. Do you think that this adaptation is one of the most appropriate (helpful) adaptation or solution to your need- difficulty with stairs ? (Read next Q)

Yes ☐ Do not ask following 2 Q.s.  
No ☐

22d. If No, which other adaptations or solutions would be more appropriate ?

(Tick max. two and point 1-2)

- Additional bannister/grab rails to the stairs ☐
- A stairlift installation ☐
- A home lift installation ☐
- Provision of a downstairs toilet, bathroom, bedroom etc. ☐
- Moving into a more convenient dwelling (e.g. a bungalow). ☐
- Other..... ☐

22e. Why did not you get that (above) adaptation or solution provided ?

'Because;

- |   | 1                        | 2                        |
|---|--------------------------|--------------------------|
| Cost was too much   | <input type="checkbox"/> | <input type="checkbox"/> |
| Too much time would be required   | <input type="checkbox"/> | <input type="checkbox"/> |
| Too much trouble, mess, noise, labours, etc.  | <input type="checkbox"/> | <input type="checkbox"/> |
| The house (or stairs) was found unsuitable for it   | <input type="checkbox"/> | <input type="checkbox"/> |
| I did not know that there are other alternatives (e.g. above)                                 | <input type="checkbox"/> | <input type="checkbox"/> |
| I knew them but, I did not know that I might have had it done.                                | <input type="checkbox"/> | <input type="checkbox"/> |
| Others (O.T. Surveyor etc.) decided about it (existing adapt.) and did not ask my preference. | <input type="checkbox"/> | <input type="checkbox"/> |
| Other.....  | <input type="checkbox"/> | <input type="checkbox"/> |

23. Have you applied (or intended) for another adaptation or alternative accommodation ? Yes ☐ No ☐

If Yes; Specify: ..... ☐



Other Adaptations

24. Did you get any other adaptations done to make life easier ? Such as;  
bath rail, toilet rail, replacement of door handles, kitchen alteration,  
heating replacement, etc.

Yes ☐

No ☐

24.1. Specify:

.....

☐

a). How long ago did you get it done ? Months                      Years  
0-6 6-12 1-2 2-3 3-4 4-+  
☐ ☐ ☐ ☐ ☐ ☐

b). How are you satisfied / dissatisfied with this adaptation now ?  
Very diss.   Dissatisfied   Neither sat/diss.   Satisfied   Very sat.  
☐                      ☐                      ☐                      ☐                      ☐

Reasons; if not sat/V.sat:.....☐

c). How were you satisfied / dissatisfied with this, when it was first done?  
Very diss.   Dissatisfied   Neither sat/diss.   Satisfied   Very sat.  
☐                      ☐                      ☐                      ☐                      ☐

Reasons; if not sat/V.sat:.....☐

d). Measurement - Comment.



□

a). How long ago did you get it done ?      Months                  Years

0-6	6-12	1-2	2-3	3-4	4--
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reasons; if not sat/V.sat.:.....

Reasons; if not sat/V.sat.:.....

2). Measurement - Comment

25. By using all these / this adaptations do you consider yourself safer or less safe in terms of falls or accidents at home ?

Reasons:.....

Reasons:.....

Reasons:.....

V.much dep. More dependent Neither More independent V.much indep.



28. Would you like to say anything you like or dislike about these / this adaptations ?

Specify:.....

.....☐

Aids

29. Do you use any (special) equipment or aid to do your activities easier ?  
e.g.reacher,bath-seat,slip-mat, dressing aid, kitchen aid,commode,etc.

Yes ☐

No ☐

(If Yes; What are those?)

29a. Are you satisfied with them ?

Neither  
Diss. Sat/Diss. Sat.

1.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comment/drawings:

Access - Circulation. Doors-Passages,Corridors-Outside steps

30. Have you got any problem in opening ,keeping open, closing doors ?

Yes ☐

No ☐

N/A ☐

If Yes; Is it internal or external door(s)?    Internal ☐    External ☐

Is this due to;

Internal    External

Door handles are not easy to operate

☐

☐

Door is heavy or stiff

☐

☐

Doorway is too narrow

☐

☐

Threshold is too high

☐

☐

Other....

☐

☐

Does this difficulty make impossible to get access any of the rooms or to get out of the house yourself ?    Yes ☐    No ☐

If Yes; Specify:.....

Observation:

Internal doors have; Lever handles ☐

Knob handles ☐ .....



31. Have you got any difficulty with passages/corridors in your home ?

Yes ☐ No ☐

If Yes; Is it due to that passages/corridors are (is)

Too narrow ☐  
Flooring slippery/uneven ☐  
No appropriate railing ☐  
Too long to walk ☐  
Cold/wet, outside weather condition ☐  
Other..... ☐

Does this difficulty make impossible to access any of the rooms or to get out of the building ? Yes ☐ No ☐

If Yes; Specify:..... ☐

32. Do you find difficult to negotiate external or outside steps?

Yes ☐ No ☐ no steps ☐ N/A ☐

If Yes; Is it due to that steps are

Too steep ☐  
No appropriate railing ☐  
Slippery/during rain or snow ☐  
Other..... ☐

Does this difficulty make impossible to get out to the garden and/or outside the building ? Yes ☐ No ☐

If Yes; Specify:..... ☐

#### Housing - General

33. Do you think, this house is large or small or the right size of accommodation for you (and your household) ?

Very large ☐ Large ☐ The right size ☐ \* Small ☐ \* Very small ☐ \*

If it is Large/Very large; Reasons for this;

(\* do not ask next:Qs)

Cleaning is difficult ☐  
Heating is difficult/expensive ☐  
Maintenance/decoration is difficult/expensive ☐  
The rooms are not in use ☐  
Other..... ☐

Have you ever considered taking lodgers ? Yes ☐ No ☐

Comment:..... ☐



34. Is there anything, you would like to say about your house that you had not had a chance to say it ?

Living room:

☐

Kitchen:

☐

Bedroom:

☐

Bathroom/shower room:

☐

Toilet and wash basin:

☐

Heating system:

☐

Other:

☐

35. By taking into account your condition and all these aspect of your house which we already discussed, are you satisfied with living in this house now ?

Yes ☐

No ☐

No opinion ☐

If not Yes; What kind of house would you consider to live in ?

Specify:..... ☐

36. Are you satisfied with living in this neighbourhood ?

Yes ☐

No ☐

No opinion ☐

Thank you very much indeed for your cooperation .



# Adaptations-Stairlifts


Seated ☐  
 Standing platformed ☐  
 Wheelchair platformed ☐

Make and type:.....☐

1. Can you use or operate this lift completely without help from others ?

(Ask followings then tick) Yes ☐ No ☐

Can you get on and off the lift **downstairs** or G.F. ? Yes ☐ No ☐

If No;.....☐

Can you get on and off the lift upstairs or F.F. ? Yes ☐ No ☐

If No;.....☐

Can you use the control buttons / twist rail etc.? Yes ☐ No ☐

If No;.....☐

Can you sit or stand on the lift during rides? Yes ☐ No ☐

If No;.....☐

Other difficulties to operate it ?.....☐

.....☐

2. Has the lift ever broken down ? Yes ☐ No ☐

If Yes ; a. Upstairs ☐

Where were you then? b. Downstairs ☐

c. Mid-way ☐

What did you do ? How long you stayed there ? Who helped you?

a.....☐

b.....☐

c.....☐

Did it disturb you a lot ? Yes ☐ No ☐

3. Have you had any accidents caused by the lift or when you were using the lift?

Yes ☐ No ☐

Specify:.....☐ Yes No

4. Do you feel **safe** , when you are using the lift? ☐ ☐

If No;.....

5. Do you use safety belt or harness on the lift ? ☐ ☐

6. Do you use the lift **anytime** (everytime) you need to get to downstairs or upstairs facilities (e.g.toilet, bedroom,livingroom etc. and during nights)?

Yes ☐ No ☐

If No; Specify:.....☐



7. Do you think that;

Yes No

this lift is too noisy (for you or your household) ?

☐ ☐

it makes too difficult cleaning the stairs ?

☐ ☐

it obstructs the stairway considerably ?

☐ ☐

it gives you anxiety if you use it when you are alone at home

☐ ☐

Other inconvenient or

annoying aspects ?.....

☐  
☐

Comments:

Features:

Types of control

Push button

☐

Twist rail

☐

Continuous push strip

☐

Pressure switch on the lift

☐

Location of the control(s)

On the seat/platform only

☐

At bottom/top of the stairs only

☐

Both places

☐

Safety

belt fitted ☐

harness fitted ☐

neither of them fitted ☐



Adaptations - Major Structural

☐☐☐☐

Specify:.....

.....☐

1. Permanent facilities provided in units (rooms)

Unit 1.....☐

Unit 2.....☐

Unit 3.....☐

2. Is this new unit(room) appropriately located and easily accessible by you or with a help of your helper from other rooms used by you ?

If no please specify

Unit 1.....Y.☐☐ N

If no :.....☐

Unit 2.....Y.☐☐ N

If no :.....☐

Unit 3.....Y.☐☐ N

If no :.....☐

3. Is the size of the new room (unit) appropriate for your requirements?

If no please specify reasons

Unit 1.....Y.☐☐ N

If no :.....☐

Unit 2.....Y.☐☐ N

If no :.....☐

Unit 3.....Y.☐☐ N

If no :.....☐

4. Is there any (new) facility that you do not or cannot use it these days? Y ☐ ☐ N

If yes specify 1.....☐

2.....☐



Main reason(s) for this

1.....☐

2.....☐

5. Is the facility-ies provided appropriate for your requirements in terms of design ,location and operation?

Toilet (W.C)...Y..☐☐ N

If no specify:.....☐

Wash basin....Y..☐☐ N

If no specify:.....☐

Shower unit...Y..☐☐ N

If no specify:.....☐

Bath-tub.....Y..☐☐ N

If no specify:.....☐

.....Y..☐☐ N

If no specify:.....☐

6. Are any aspects components or parts of the rooms/facilities provided inappropriate for your requirements?

1.....☐

2.....☐

3.....☐

4.....☐

5.....☐

Sketches:

Comments:



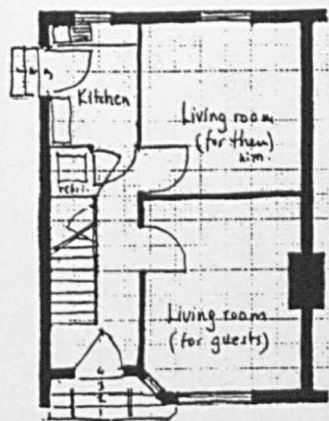
#### **APPENDIX 4**

##### **Dwelling types and layouts (before adaptations)**

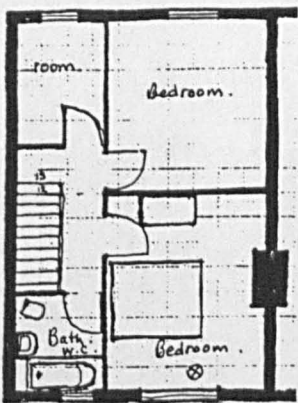
The following plans of the dwellings, which were drawn by the author during the visits to the persons, demonstrate the actual layout of and the types of the dwellings designated in the sample before the adaptations were carried out.



Type A

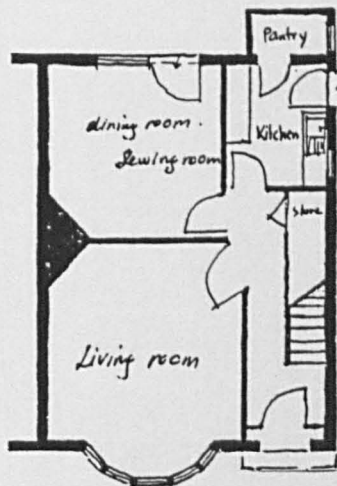


Ground floor

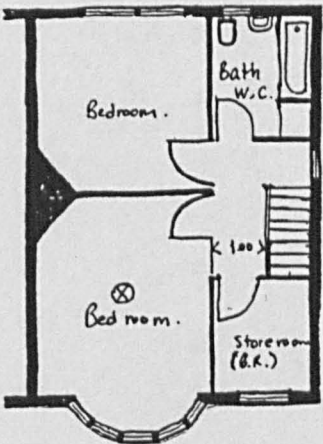


First floor

Type A

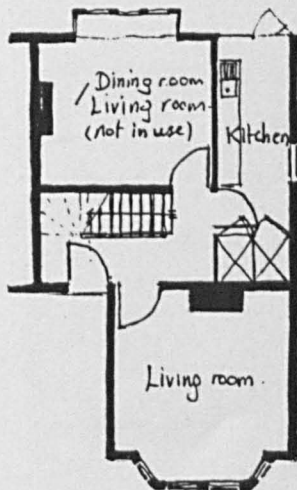


Ground floor

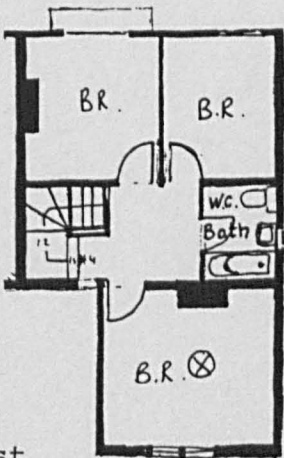


First floor

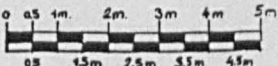
Type A



Ground floor

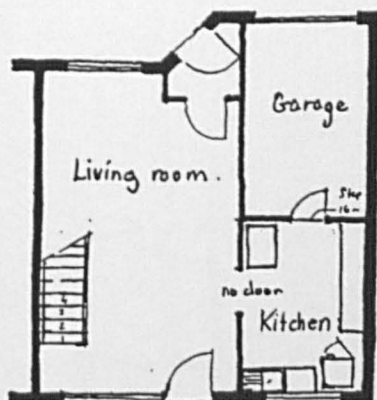


First floor

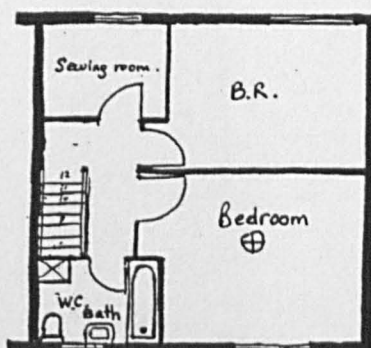




Type A

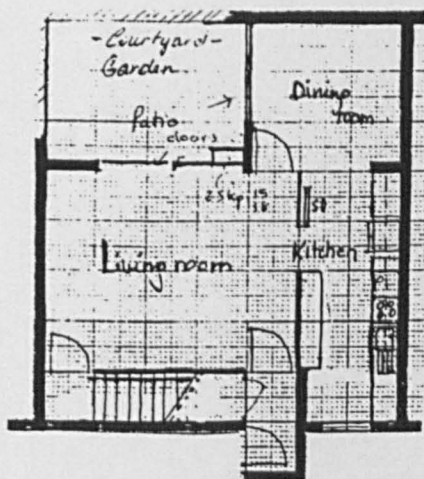


Ground floor

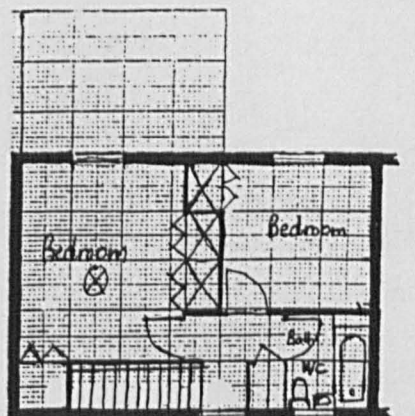


First floor

Type A

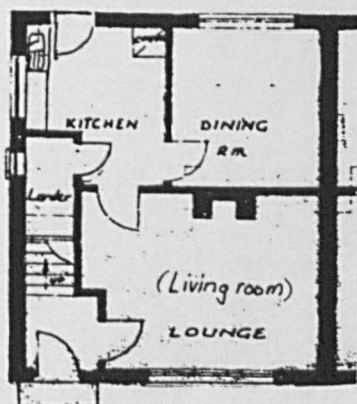


Ground floor

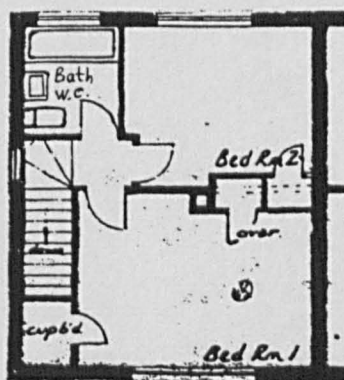


First floor

Type A

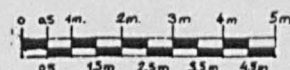


Ground floor



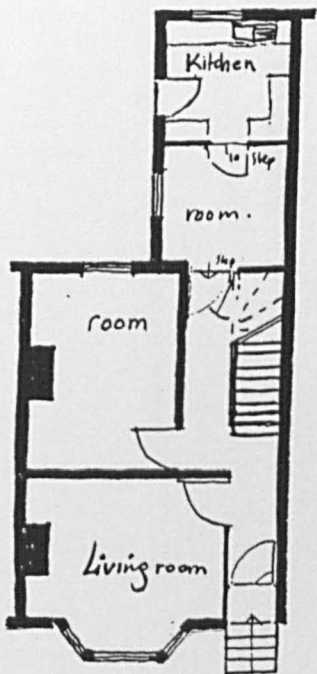
First floor

Scale:

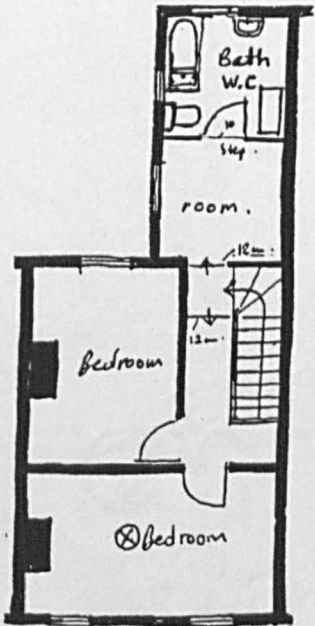




Type A

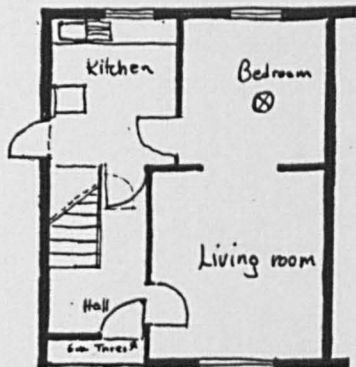


Ground floor

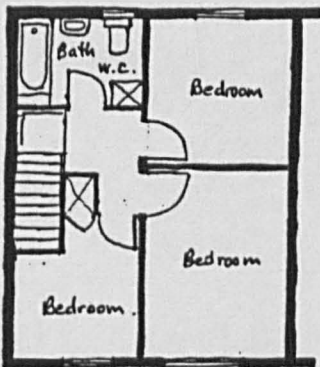


First floor

Type A

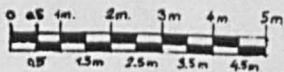


Ground floor



First floor

Scale:





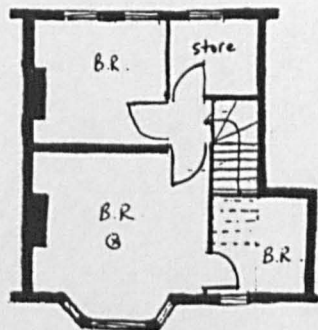




Type D

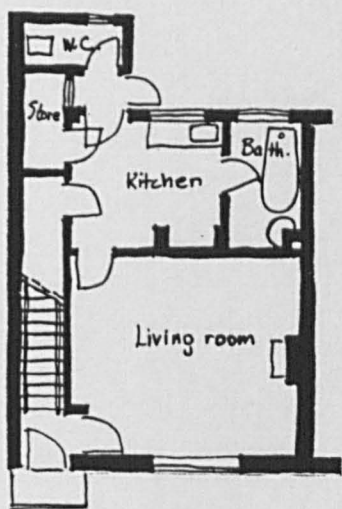


Ground floor

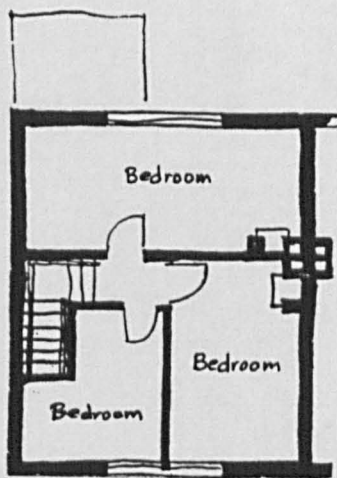


First floor

Type D

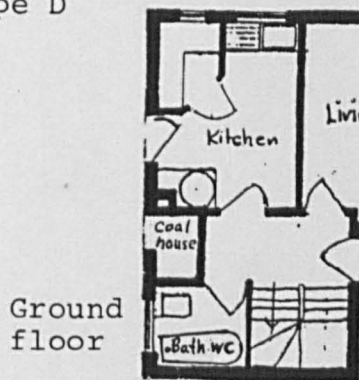


Ground floor

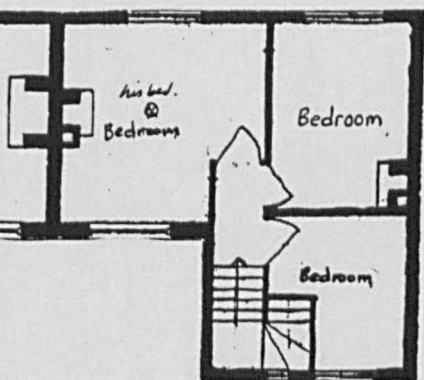


First floor

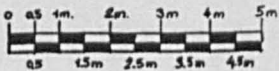
Type D



Ground floor

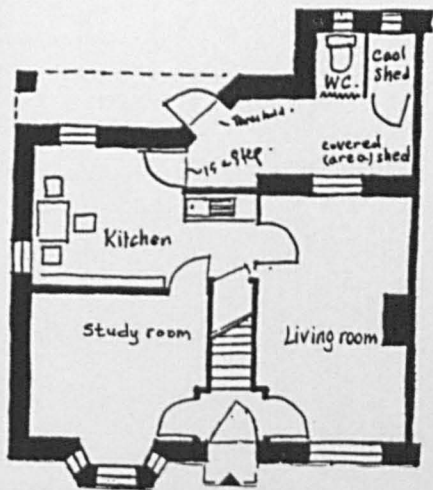


First floor

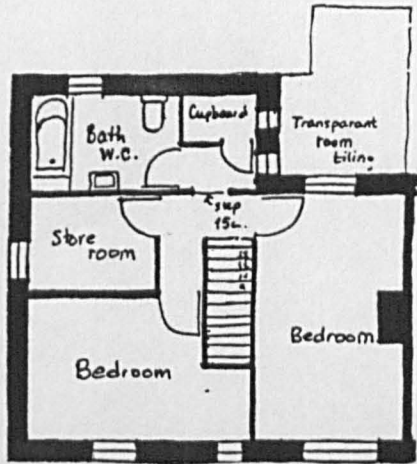




Type E

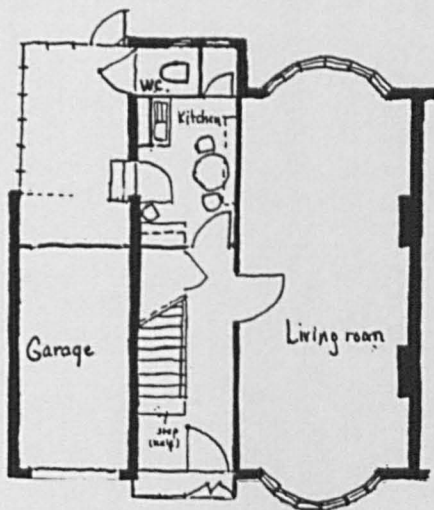


Ground floor

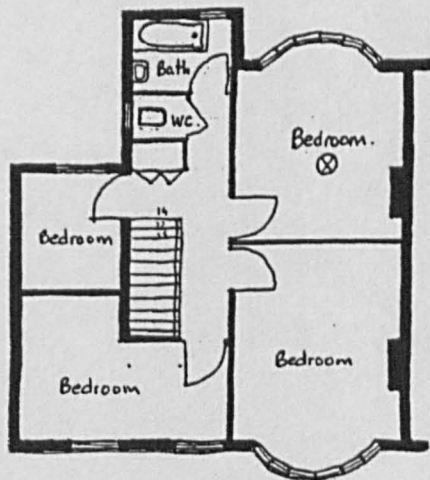


First floor

Type E

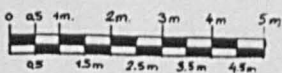


Ground floor

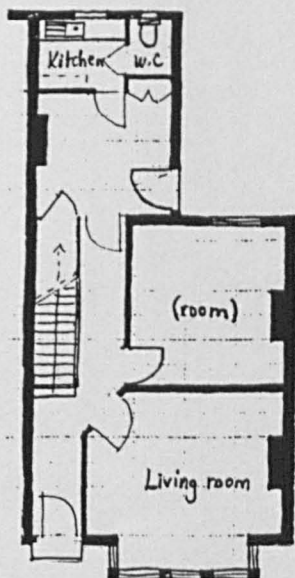


First floor

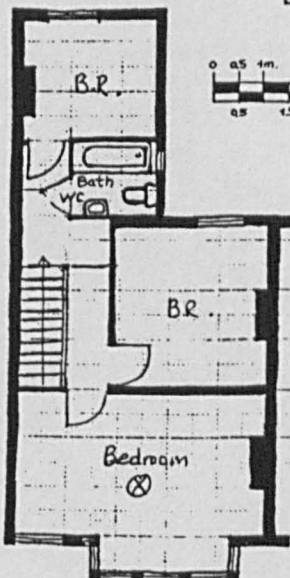
Scale:



Type E



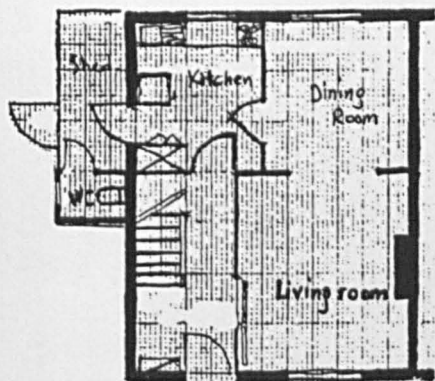
Ground floor



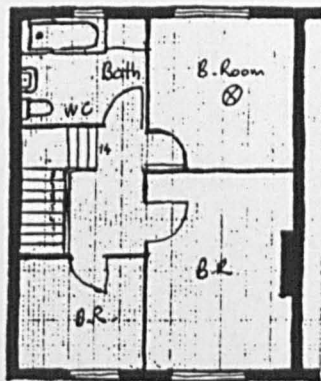
First floor



Type E

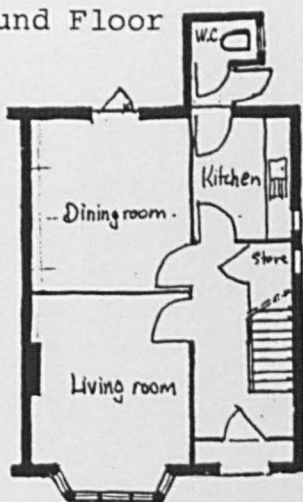


Ground Floor

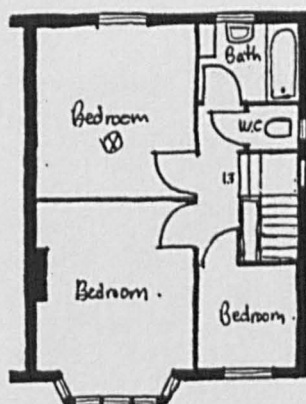


First floor

Type E

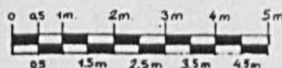


Ground floor

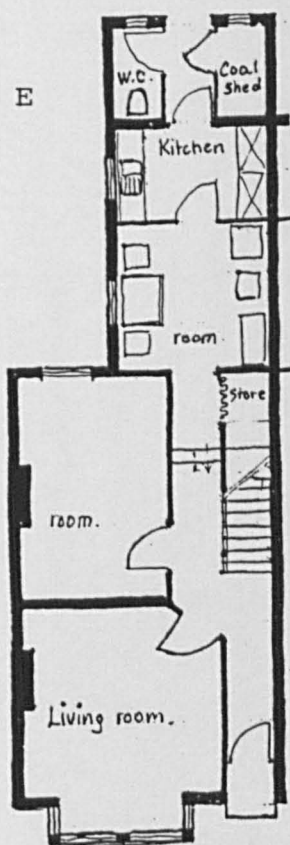


First floor

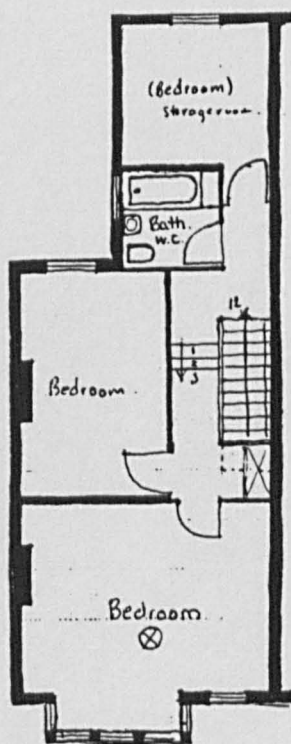
Scale:



Type E



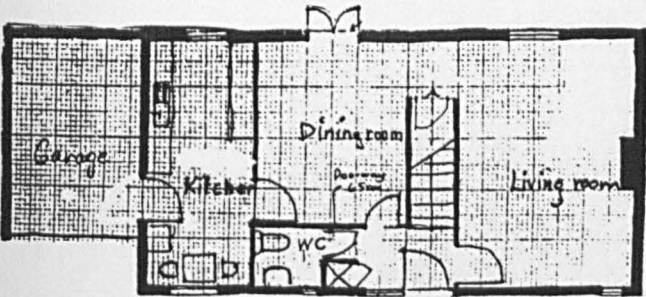
Ground floor



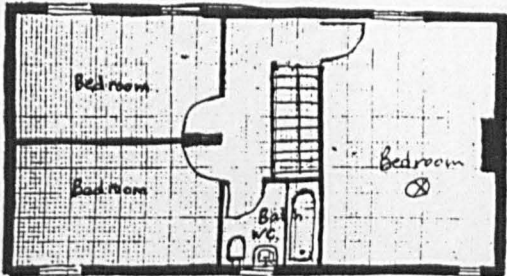
First floor



Type E

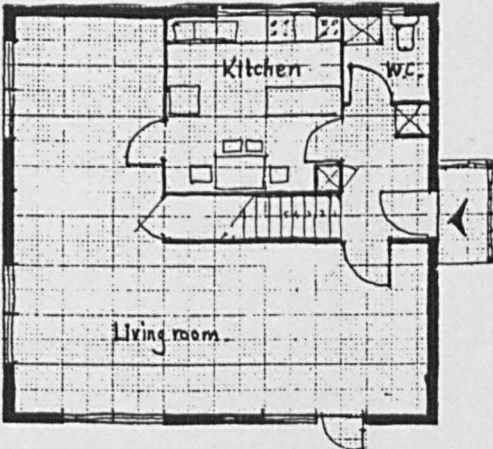


Ground floor

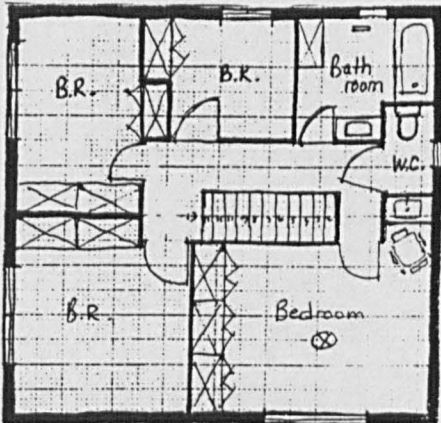


First floor

Type E

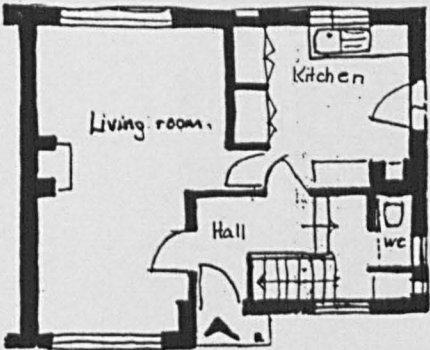


Ground floor



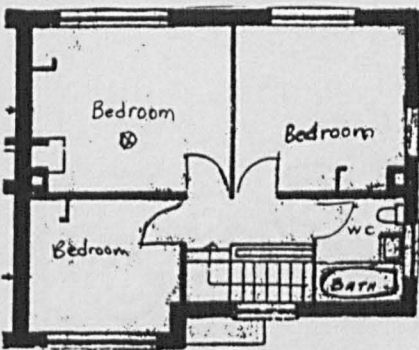
First floor

Type E

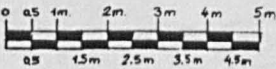


Ground floor

First floor

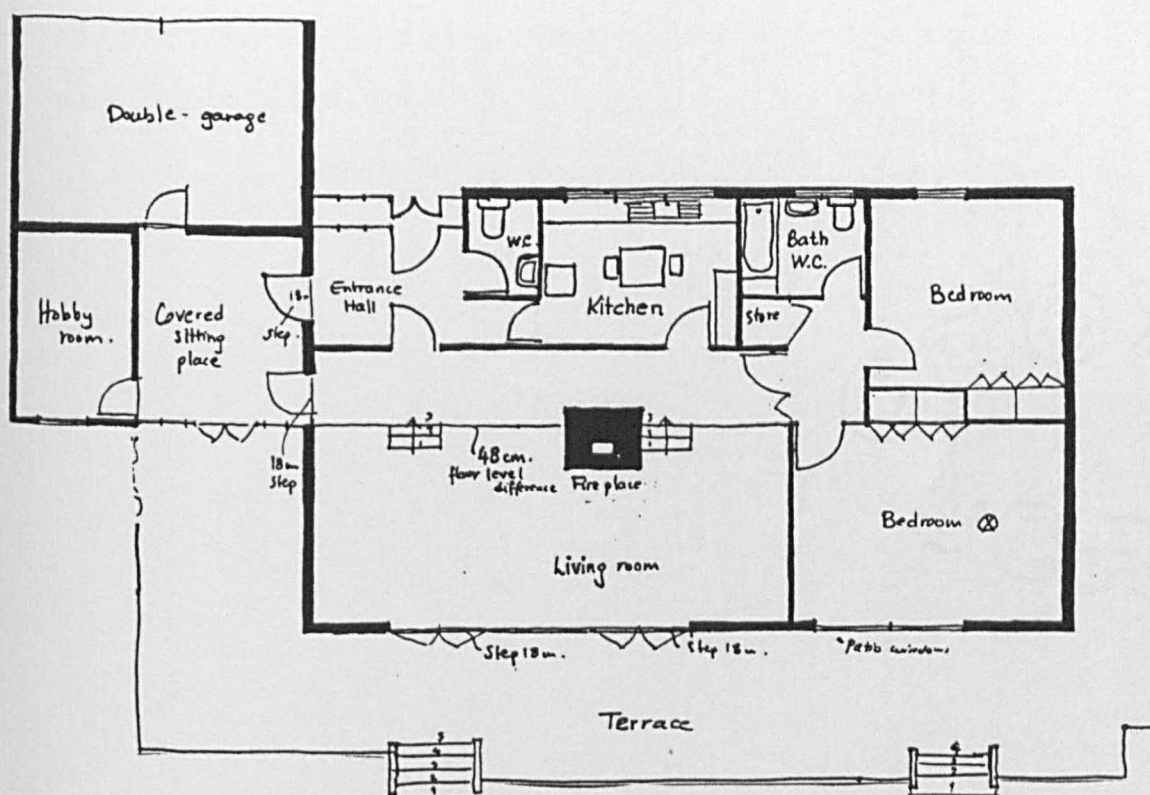


Scale :



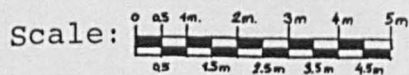
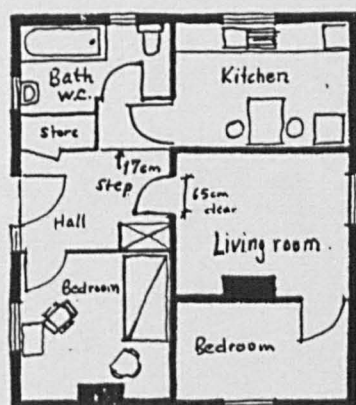


Type J



Ground floor plan (Bungalow)

Type L



Ground floor plan (Bungalow)



## APPENDIX 5

### Layouts of the dwellings adapted and changes in dwelling types

The following plans of the dwellings demonstrate the actual layouts of the dwellings before and after the adaptations were carried out and changes in types of the dwellings in the sample.

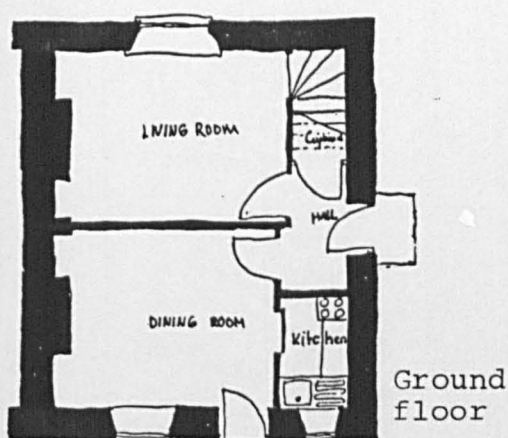


# 1. Major structural adaptation, changes in the dwelling types

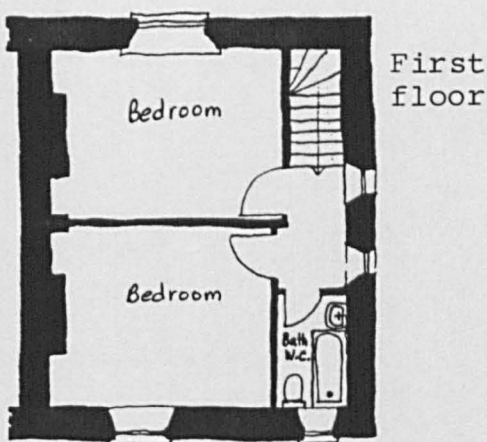
Before adaptation

After adaptation

Type A

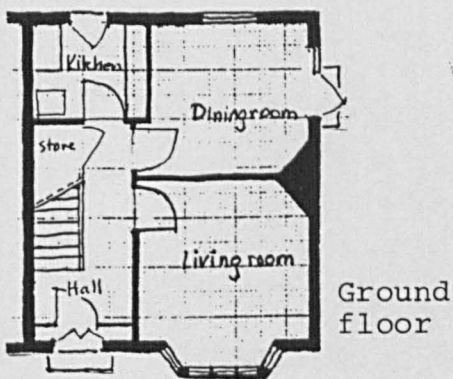


Ground floor

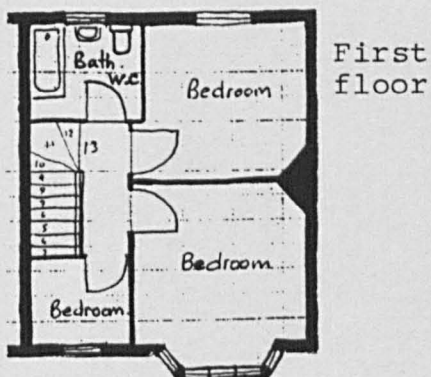


First floor

Type A

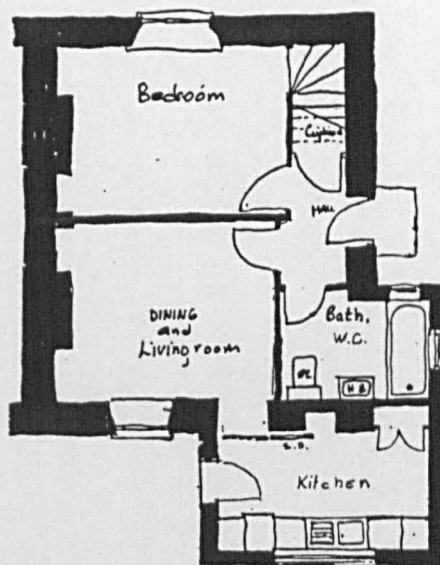


Ground floor



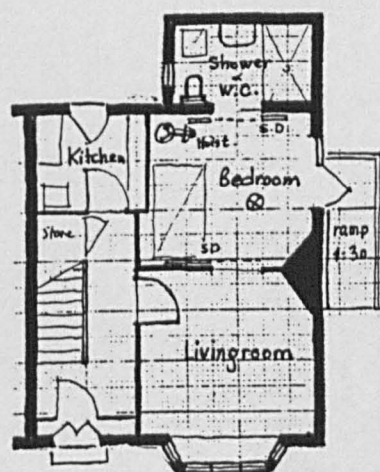
First floor

Type G



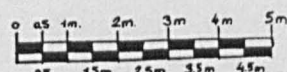
Ground floor

Type G



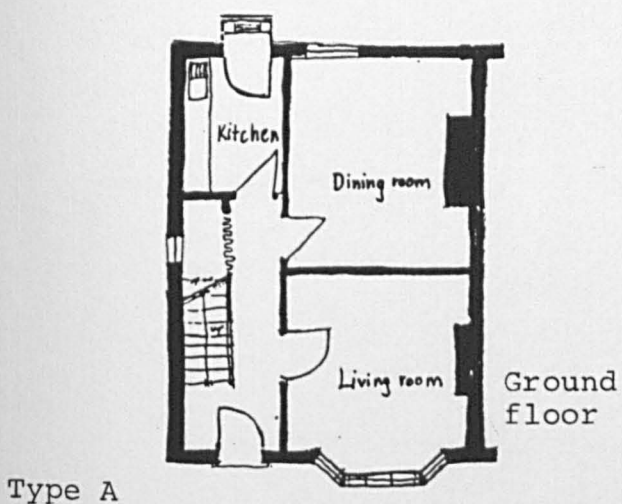
Ground floor

Scale:

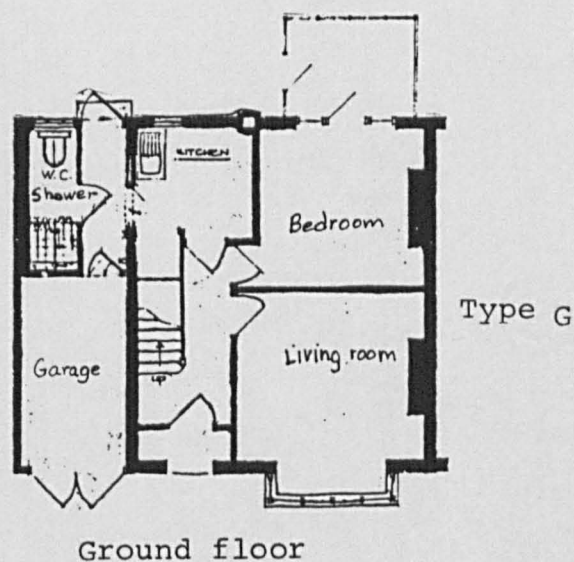
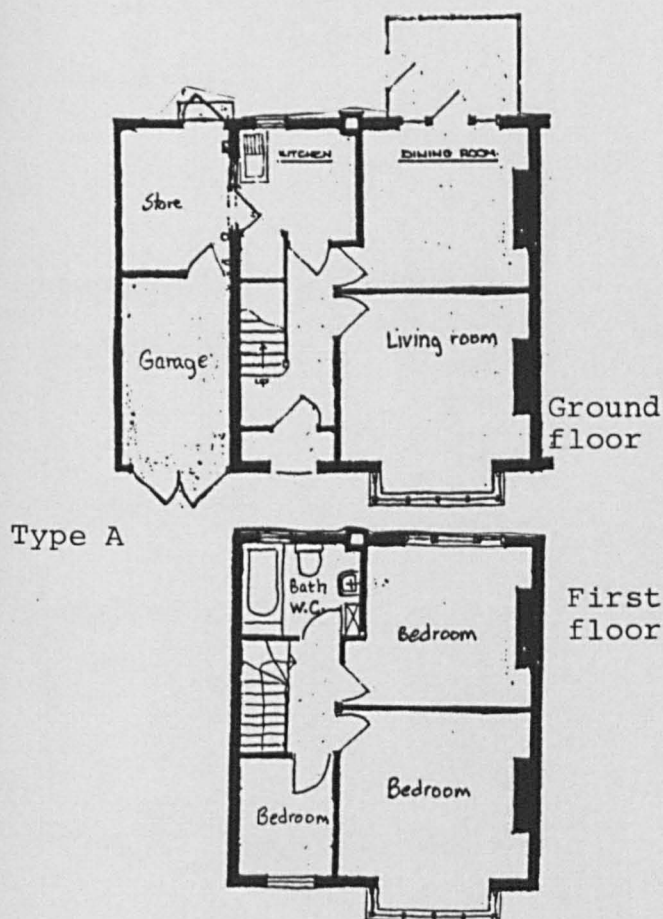
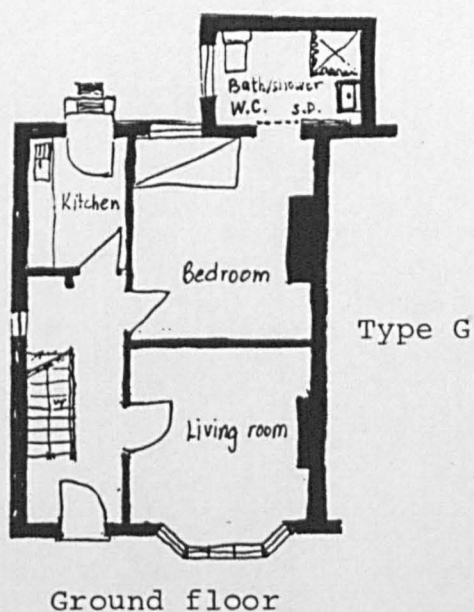




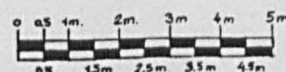
Before adaptation



After adaptation



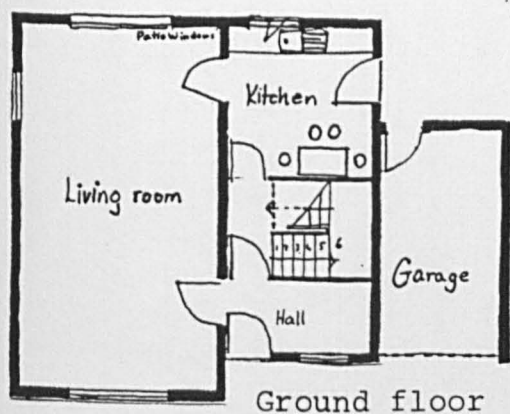
Scale:





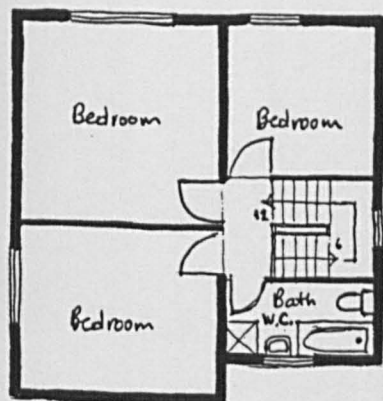
Before adaptation

After adaptation

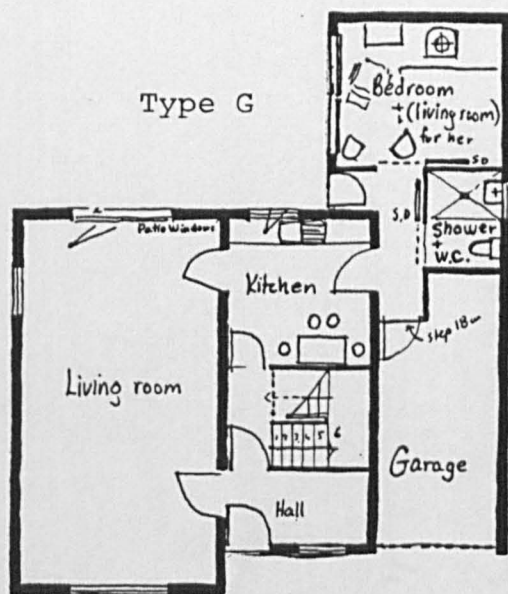


Ground floor

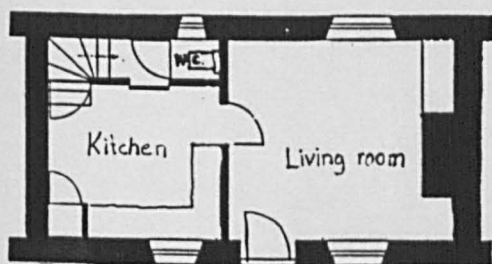
Type A



First floor

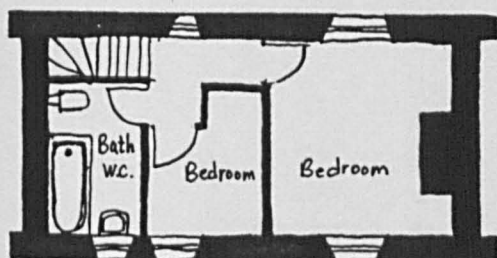


Ground floor

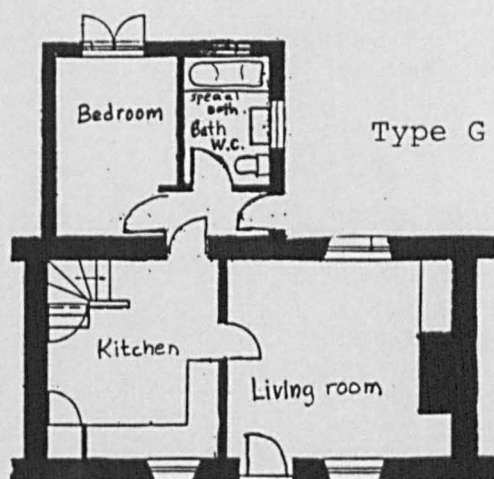


Ground floor

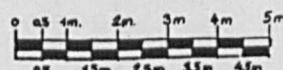
Type E



First floor



Ground floor





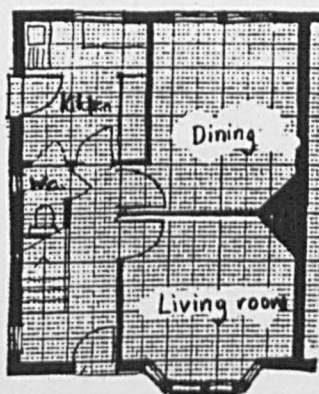
Before adaptation

After adaptation



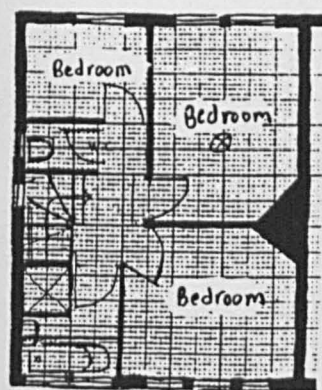
Ground floor

Type A



Type E

Ground floor



First floor



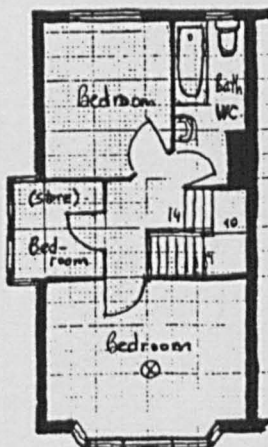
Ground floor

Type A



Type E

Ground floor

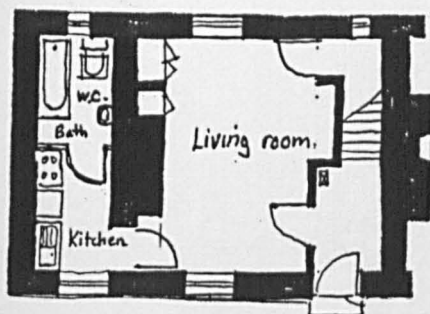


First floor



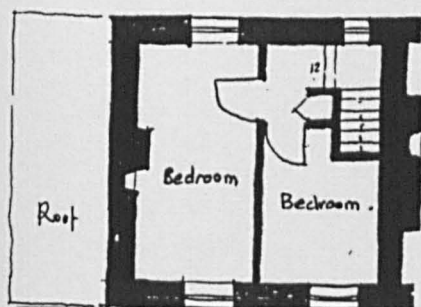
Before adaptation

After adaptation

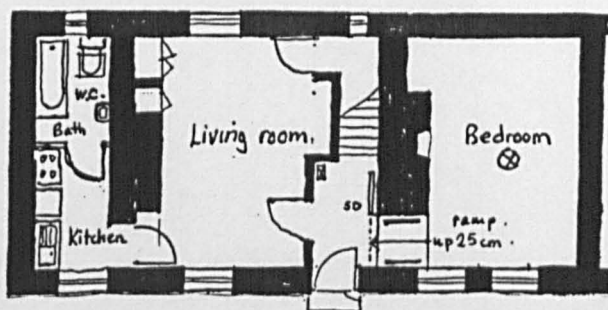


Ground floor

Type D



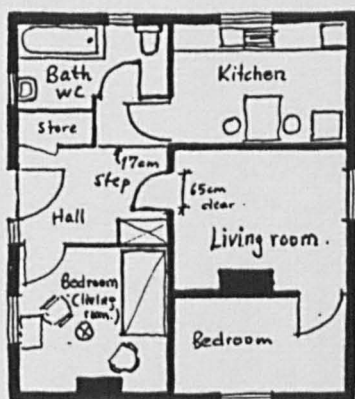
First floor



Ground floor

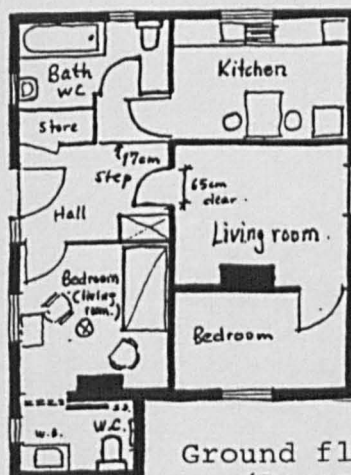
Type G

Type L



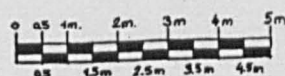
Ground floor plan (Bungalow)

Type M



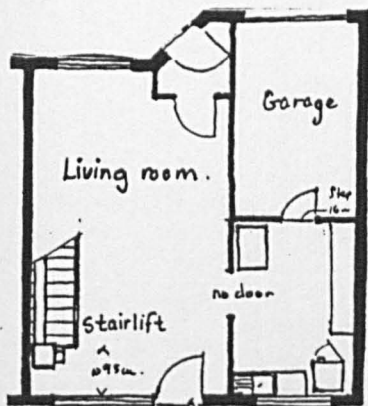
Ground floor plan (Bungalow)

Scale:

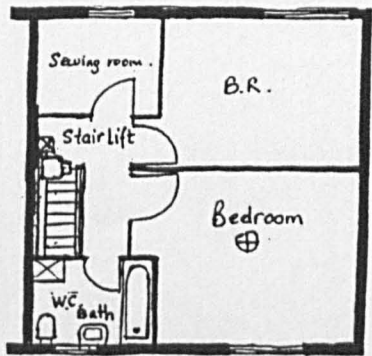




2. Major lift adaptation, changes in the dwelling types

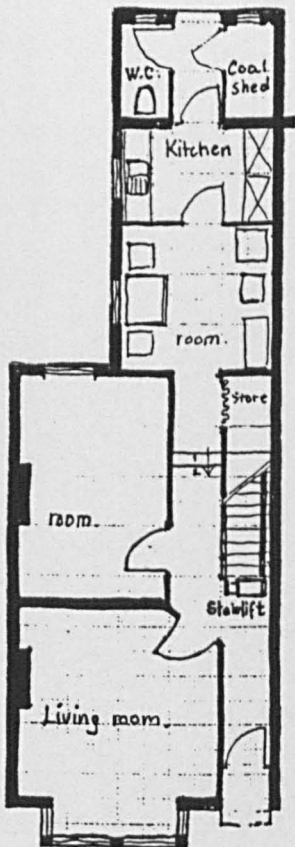


Ground floor

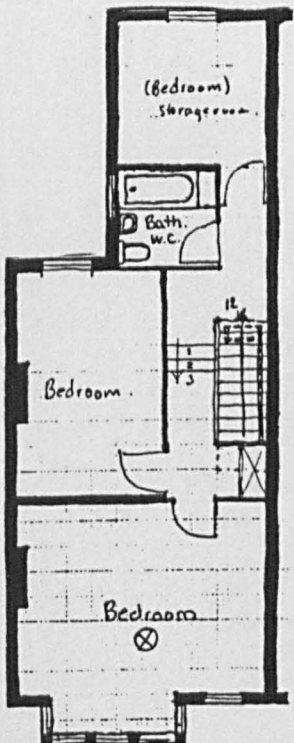


Type A+Lift  
(Stairlift)

First floor

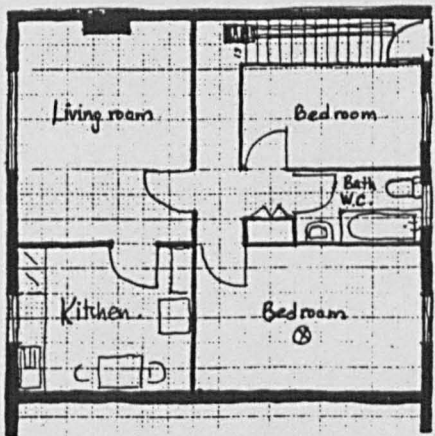


Ground floor



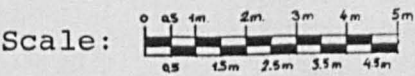
Type E+Lift  
(Stairlift)

First floor

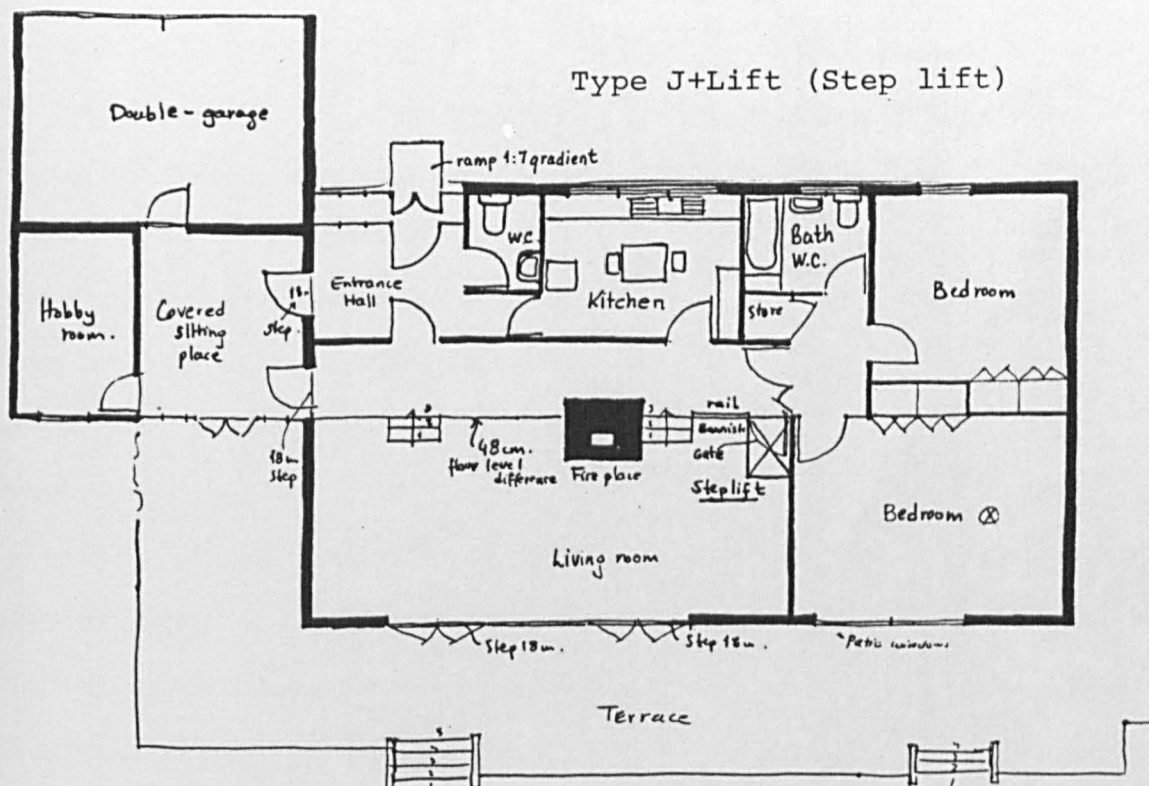


Type B+Lift  
(Stairlift)

First floor

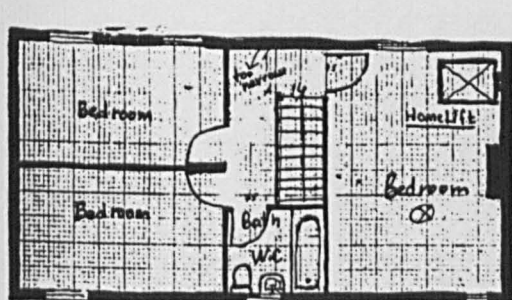




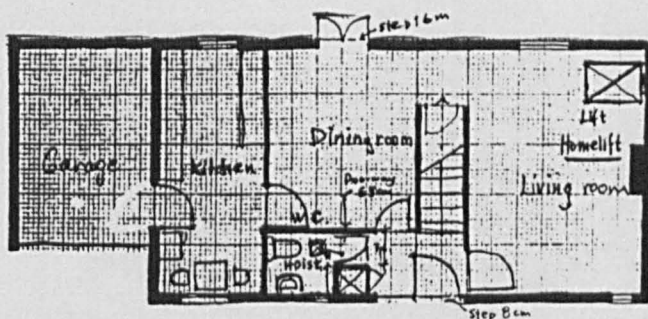


Ground floor plan (Bungalow)

Type E+Lift (Home lift)

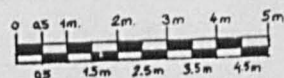


First floor



Ground floor

Scale:





## APPENDIX 6

### Time taken by adaptations

The time taken by the adaptations was examined. Particularly major structural adaptations took an extremely long time. All the users of this kind of adaptations found the time taken was extremely long and inappropriate. They encountered a number of difficulties such as many had to sleep in living rooms or use commodes for several months, many had to put up with construction and builders in their homes for months, in some schemes builders left the work incomplete and one year later came back to complete it. The following table shows the time taken by three types of adaptations; minor, major structural and major lift adaptations, from first application to the local authority to the completion of the work done. As it is seen the average time for major structural adaptations is about 2 to 3 years that was found inadequate.



	Minor Adapt- ations	Major Structural Adapt- ations	Major Lift Adapt- ations	Total Cases
2- 3 weeks	13	-	-	13
1- 2 months	10	-	-	10
3- 5 months	-	-	4	4
6- 8 months	-	-	4	4
9-12 months	-	4	4	8
13-18 months	-	3	1	4
19-24 months	-	2	1	3
25-36 months	-	4	-	4
37-48 months	-	2	-	2
49-60 months	-	1	-	1
Total	23	16	14	53

Table 6A: Time taken by the adaptations.



## APPENDIX 7

### Awareness of the elderly about the provision of adaptations.

There were 21 (39.6 per cent) persons in the sample who were dissatisfied with the adaptations provided (relevant to the stairs), because their requirements changed over time. When they were being interviewed in relation to the questions 22c, d, e (see Appendix 3) it was discovered that 13 (62 per cent) of the persons had no idea about the provision of major structural or major lift adaptations and grant aids or loans that might be available to them. Moreover, almost all the elderly who were unable to bathe in the ordinary baths and needed provision of showers or hoists did not know about that those might have been provided for them and therefore did not apply to the relevant authorities to ease their difficulties. The analysis of the data by the computer revealed that particularly most of the users of minor adaptations (i.e. stair rail or bath rail) were unaware of this kind of provision. In addition cross tabulations showed that in general the persons in lower classes (i.e. manual, skilled or unskilled workers) were more likely to be unaware of the provision of many types of adaptations than persons in higher classes (i.e. non-manual workers, professionals). Thus, this evidence particularly emphasized the need to check the adequacy of the adaptations provided at certain intervals as well as the need for more publicity about what is available for the elderly who require various types of adaptations to ease their difficulties.



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