UNIVERSITY OF STRATHCLYDE

POST WORLD-WAR-II HOUSING DESIGN AND DEVELOPMENT IN GREAT BRITAIN

A Thesis submitted in the Department of Architecture and Building Science for the Degree of Master of Science

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abstract :

The thesis is a review of housing design and development in the thirty years period 1945-1975, with particular reference to housing standards (of space, fittings and equipment) and the types and internal planning of urban dwellings of both public and private sectors in Great Britain.

Part one of the thesis looks at public sector housing in England and Wales and very briefly in Scotland. It starts by looking at the Historical background from the Industrial Revolution to World-War-II, with particular emphasis being placed on the inter-war period 1918-1939. The chapters following discuss in chronological order the three post-war decades viz: 1945-1955, 1955-1965 and 1965-1975. Each one looks very briefly at the 'spirit of the times' of the decade concerned and discusses all the major reports on housing. Then it examines in detail the development of housing standards as well as the development of the dwellings' plans themselves as given in sample plans in various official housing manuals and reports. Special 'factors', such as the rise and fall in the popularity of high rise housing, industrialised housing and dimensional co-ordination, the consortia movement and so on are dealt with at the appropriate points. Part one concludes with a summing up of the various factors that have influenced the development of housing design, followed by a brief examination of the historical background as well as the types of dwellings and the standards of Scottish Housing since 1945.

Part two of the thesis looks at the developments in the private sector on similar lines to Part one.

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introduction :

An enormous number of often conflicting views and opinions exist about housing. In this study attention has been concentrated only on urban housing for general needs of the average family size. The term 'housing' is defined to mean all types of houses, flats and maisonettes built for sale and/or rent by both public and private sectors.

By 'public sector' is meant housing undertaken by local authorities, government departments and public utility associations as well as other special housing authorities like the S.S.H.A. This sector broadly speaking is meeting its statutory obligations to house populations from clearance or development areas and is also the principal participant in the development of New Towns and major town expansions.

By 'private sector' is meant housing undertaken by the speculative builders and developers. This section is meeting the demands of unplanned population movement, population growth and household formations in the outer urban areas, suburbs and commuter belts.

Also in this housing review, which has been approached under the broad influence of changing official policies, emphasis has been placed on tracing in as factual ways as possible the development of housing standards and plan arrangements, in the belief that such a study will provide a useful factual basis for further discussion in a field where memories are very short indeed.

In order to keep the thesis within reasonable bounds the omission of technical descriptions in certain sections (e.g. on modular co-ordination) where further information is readily available elsewhere, as well as of that five

introduction :

percent of innovatory, eccentric or merely fashionable housing which has tended to occupy the pages of the technical press during the period under review, was inevitable. However we are sure that the bulk of housing built in the period 1945-1975 reflects the changes and developments discussed in the thesis.

PART ONE

PUBLIC SECTOR HOUSING - GREAT BRITAIN

CHAPTER 1: The Background

Section 1.1.1: From the Industrial Revolution to W-War-II

Historically the 'modern' housing problem dates from the Industrial Revolution. For over a century it has steadily accumulated and no concerted effort was made to solve it until the years following the Great War.

Indeed many of our present housing ills may be traced back to the growth of the population and its concentration in towns during the 19th century. Even though the drift towards the towns had begun before 1820's, the growth of urban industry irresistibly attracted people to the towns.

Therefore, the two central factors which were to bring about dramatic consequences and changes in the British housing and in particular on the working-class housing, were the unheralded increase in population on the one hand and the Industrial Revolution on the other. Nevertheless it would be wrong to suppose that up to that time or indeed for a long time afterwards the working man had been adequately housed; at least he lived in the open country side where space and fresh air could to a great extent make up for lack of sanitation and other household inadequacies.

Gradually, the English tradition as well as the English town disappeared under the degradation of slums and byelaw standardised streets, built to house the workers. The byelaw street of minimum legal width, usually on a rigid grid-iron pattern, used to be the model of what such things should be, and a very great improvement of what had gone before the Public Health Act of 1875 came about, from which the 'Byelaw street' sprang. Eventually this Act coupled with the Building Byelaws, enforced a minimum standard and limited the

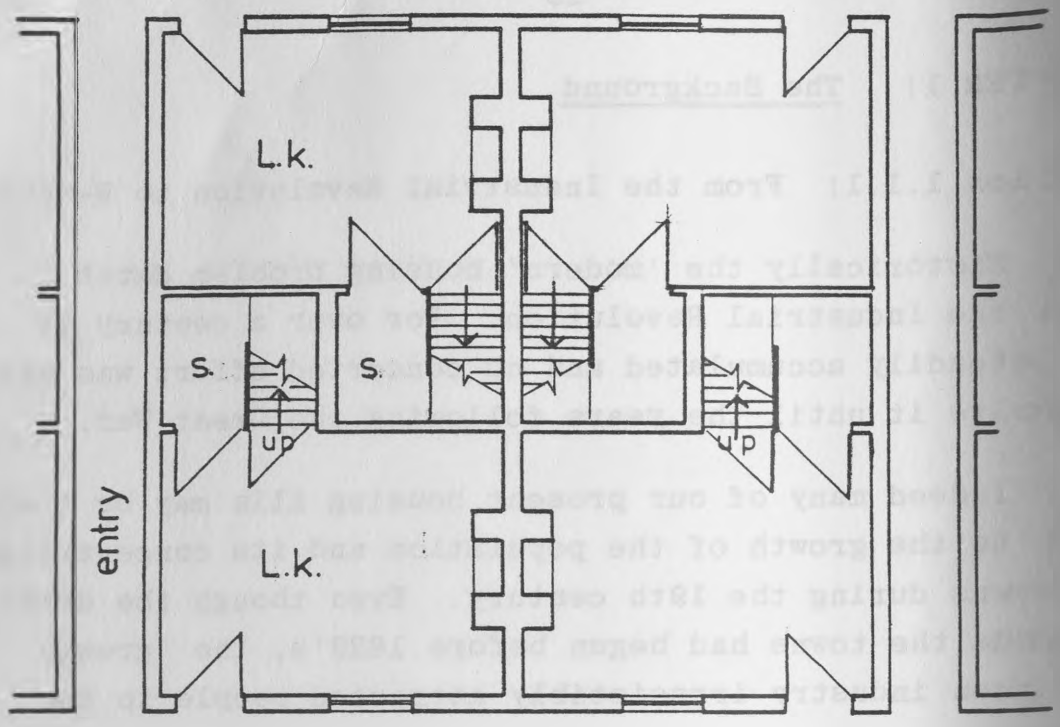

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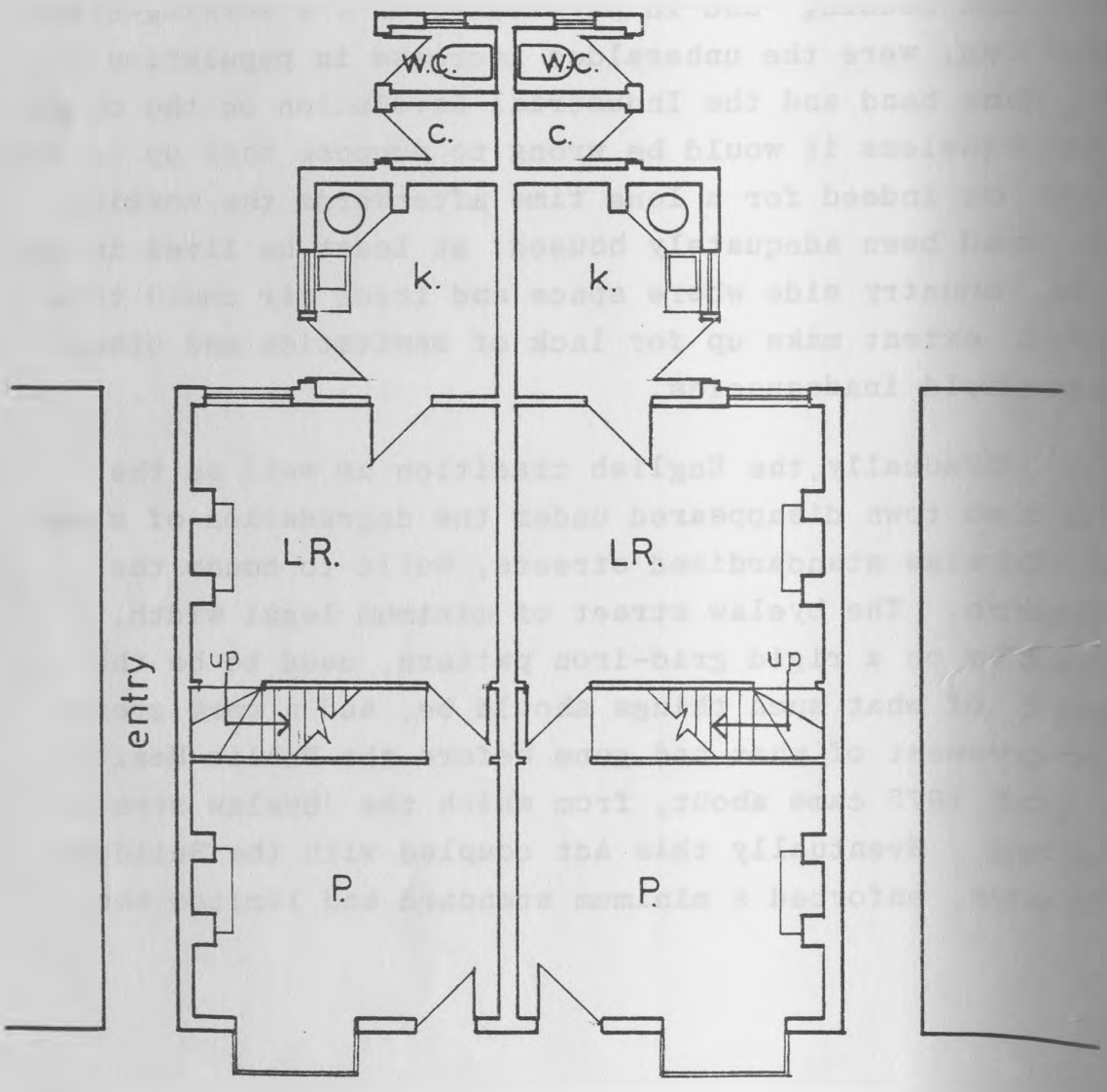
Fig. 1.1 BACK-TO-BACK HOUSES 1800-1875 1:100



ground floor plan

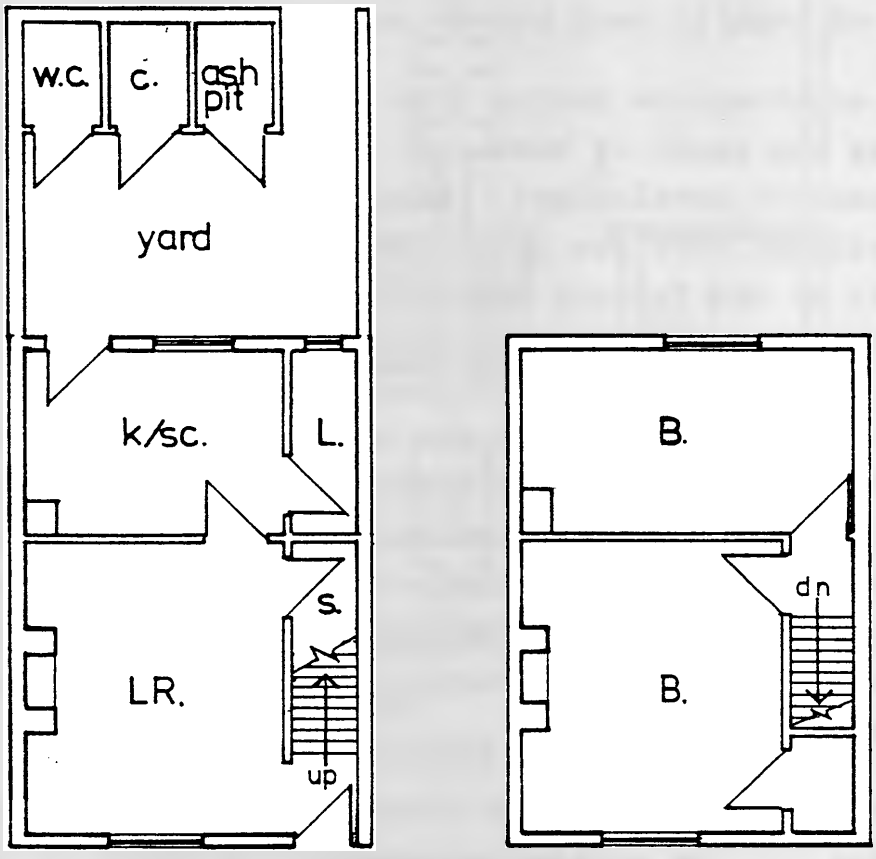
Fig. 1.2 TUNNEL BACK HOUSES 1850-1914 1:100

building of back to back houses see Figs. (1.1 to 1.4).

The architecture during this period no longer expressing the needs of humanity, failed to keep pace with mechanical development. Large numbers of jerry-built dwellings were run up as fast as possible, frequently by the factory owners themselves, as near to the factories as possible and with no thought being given to any consideration of layout, light and air, least of all sanitation. It was not until later in the 19th century when defects in their construction, equipment and layout became only too apparent, that they came to be regarded as slums, with their narrow frontage, dark dingy rooms, the inadequate windows, the squalid back yards; not unaturally, the result was widespread squalor and disease.

During this second half of the 19th century almost all housing for the working population was built to rent either by private developers or by semi-philanthropic and charitable trusts which came into being with the avowed intention of providing good housing for the working populations. Some of the most familiar names are: Peabody, Waterloo, Guiness, all of which almost confined their activities to London. So the great mass of the working people could only look to the private landlord for their accommodation. The Local Authorities' responsibilities at this time were to ensure conditions of sanitation, rather than to provide new housing from public expenditure.

It was 1848 when the FIRST Public Health Act came out, dealing with bad housing conditions from the sanitary approach, following the publication of the 1842 monumental report on the 'Sanitary Conditions of the Labouring Population and the Means of its Improvement'. Similarly, the outcome of the 1884 Royal Commission's Report 'on housing', was the 1890 Housing Act, Part III of which laid the ground for the housing reform movement of the



ground floor plan first floor plan

Fig. 1. 3 BYELAW TERRACE HOUSE 1900-1940 1:100

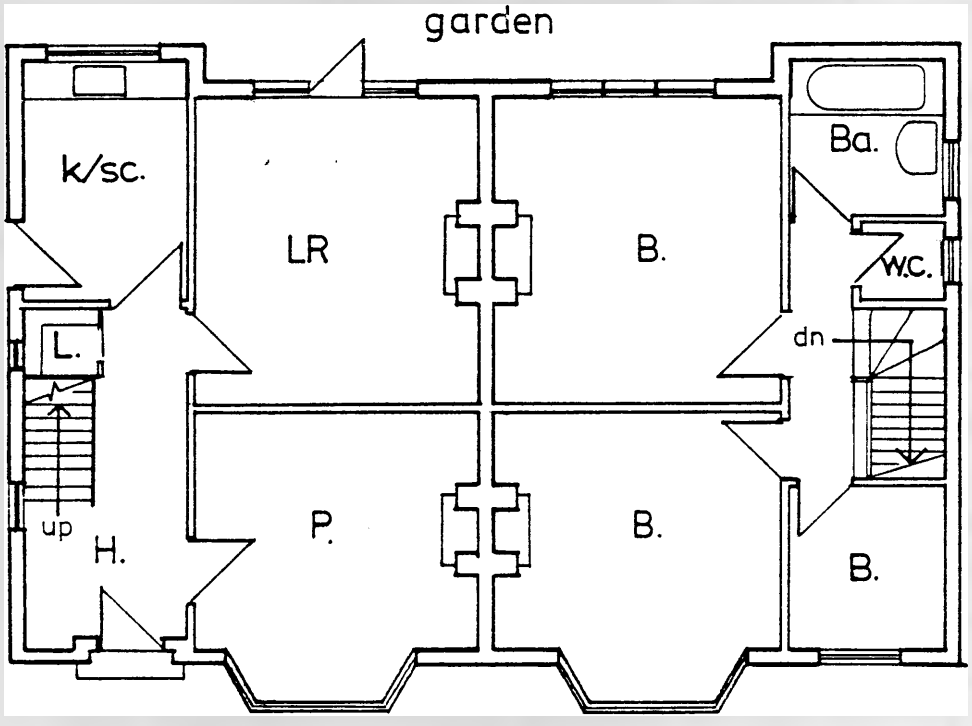


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Fig. 1. 4 SEMI-DETACHED PARLOUR HOUSE 1919-1940 1:100

early 20th century, for it gave for the first time to Local Authorities unequivocal powers to build working class houses. With the housing reform movement of the early 20th century in the lead, with figures such as Alderman William Thomson and Henry Aldridge surrounded by other reformers, philanthropists and architects such as Ladbury, Leverhulme, Unwin, Rowntree and others, was gathering strength, the position of the private landlord was becoming less tenable. By 1900 house building in the United Kingdom was approaching 150,000 a year to fall gradually down to 48,000 a year just before the outbreak of the Great War during which very little new housing was built. Of these w-class dwellings very few were equipped with a bathroom, an unheared provision in those days; also it was not uncommon for it to be necessary to pass through one bedroom to reach another, or to find that the w.c. was not only inside the dwelling, but might very well be situated well away from it , to keep out the smell! Hundreds of thousands of such dwellings with these shortcomings were being built right up to the end of the Great War. Despite the slaughter, the shortage of houses at the end of the Great War - a prewar as well as a war problem - had reached something more than a million. It is this fact coupled with the feeling that those whose lives had been at risk in war should not be less significant in peace, that led to the campaign for 'Homes for Heroes' in the 1918's, and state intervention on larger scale to improve the housing conditions of the working class population and later to increase the supply of w-class dwellings,while the housing reform movement was stepping up its pressure not simply for more but for better standard dwellings. It was all these that forced the Government to the setting up of the John Tudor Walters Committee in 1918 for the provision of dwellings for the working classes in England and Wales and Scotland, whose recommendations were to revolutionalise concepts of working-class housing. And so the first 'experiment' in

the provision of working-class houses was attempted in 1918 with the local authorities being chosen to do the 'job', mainly because 'they were there', upon whom this provision became obligatory for the first time. The production of houses during this period starting after the Armistice (11 November 1918) up to 1931 was more than 1,650,000 dwellings; while during the 1931-39 period raised to 2.3 million. "Of the 4,192,724 dwellings built between 11 November 1918 and 31 March 1940, 1,162,393 were built by local authorities while the rest 3,029,765 were built by the private sector."[1]

With respect to the local authorities building activities during the inter-war period, they fall within two distinctive periods. 1. Housing built with subsidies under the Addison Act of 1919, Chamberlain Act of 1923 and Wheatley Act of 1924, for the 'artisans', the successful and skilled workers who were people to better themselves and more important, they had the skill and sense to do so; a total of 749,917[1] houses were built under the above three Housing Acts over the 1919-1934 period. 2. Housing concentrated on the rehousing of people displaced from slum clearance and the relief of over-crowding. A total of 329,706[1] houses were built, under the Slum Clearance Act of 1930, the Overcrowding Act of 1935-6 and the 1938 Act, with the aid of subsidies for such housing. During this second period, first a direct attack was launched on slum clearance through the 1930's Housing Act. Later, the Lord Moyne and Sir Thomas Whiston Committees, respectively for England and Wales and Scotland, published at the end of 1933 their respective Reports Cmnd. 4397 and Cmnd. 4469 which confirmed the very unsatisfactory conditions especially of overcrowding in larger areas of working class dwellings - conditions which could not be helped from the 1930's Slum Clearance Act - the Overcrowding Act of 1935-6 came to fill in this serious gap in policy. The standards set up by this Act, (which is still in force today throughout the United

Kingdom), related the permitted number of persons to both number of rooms and floor area as follows:

Floor Area of Rooms:	Max. No. of Persons:
110ft.^{2} or more	2 persons
90ft.^{2} or more but less than 110ft.^{2}	1½ "
70ft.^{2} or more but less than 90ft.^{2}	1 "
50ft.^{2} or more but less than 70ft.^{2}	½ "
Less than 50ft.^{2}	—

No. of Rooms (over 50ft.^{2})	Max. No. of Persons
One room	2 persons
Two rooms	3 "
Three rooms	5 "
Four "	7½ "
Five "	10 "
Each additional room in excess of 110ft.^{2}	2 additional persons

The standard requires separate sleeping accommodation for persons over ten years of opposite sexes. Children under ten years count as half, while under one year they are not counted.

Therefore, local authorities between the wars provided during the first period: houses for general need, mainly for the 'artisans', whose requirements prior to 1914 were met by the property investor; while during the second period: for 'slum clearance', for the poorest section of the community, aided by lower subsidies and as such built to lower standards, therefore stigmatised, to make up much of the deprived council house areas of today. A good number of inter-war municipal dwellings were built to "Tudor Walters Report's recommendations which were not strictly followed and in 1936 the following were the usual sizes of rooms in the Greater London Council dwellings:

Living Room approx.:		150-160ft.^{2} (13.9-14.9m^2	against: Tudor Walters	180ft.^{2}
1st Bedroom	"	120ft.^{2} (11.1m^2)		150-160ft.^{2}
2nd Bedroom	"	100ft.^{2} (9.3m^2)		100-120ft.^{2}
3rd Bedroom	"	70ft.^{2}(6.5m^2) for cottages 100ft.^{2}(9.3m^2) for block dwellings"[2]		65-110ft.^{2}

The majority of the dwellings were two storey three bedroom cottages erected in terraces or pairs of approximately 760 sq.ft, with one or sometimes two 'living rooms', and a few blocks of flats in big cities. "Throughout the 1920s and 1930s in both public and private sectors the ideal was the low-density garden suburb. The proportion of flats' contribution to all subsidised dwellings between the wars was..., nationally only about 5 percent."[3] In conclusion the two 'practical advances' of the inter-war years were, firstly, the huge quantities of houses erected by private enterprise and secondly, the slow but steadily growing influence of local authority housing, that is to say the 'official architecture' in the domestic field.

Section 1.2.1: Space Standards of the Three-Bedroom, Five-Person Dwellings: 1918-1939

The development of space standards of the three-bedroom/five-person, working-class dwelling, which was considerd to be the 'required' size throughout the inter-war period (1918-1939), seen through the various Government official guidelines (e.g. Housing Acts, Official Reports and Housing Manuals), is as follows:

a) The Tudor Walters Report recommendations: 1918, see Table 1.1 (overleaf).

b) The Manual of Local Government Board: 1919.

This manual prepared on the basis of the Tudor Walters Committee, and classified the 'non-parlour' and 'parlour' types of houses as 'class A' and 'class B' respectively, see Table 1.2. The overall space standards recommended increased slightly, but it would be exceptionally difficult for anyone looking through a house, even with a very high standard of technical training to say whether a house actually contains 850 or 900 sq.ft. of floor area.

c) The Addison Act: 1919, (concerning state-aided housing schemes).

In the first few years after the first world war, local authorities and private builders to whom subsidies under this Act were available, interpreted the recommendations (b) of the Local Government Board Manual rather generously, and subsidies were made available for the five-person/three-bedroom house with:

Minimum overall area of 950 sq.ft. (88.3m^2)(Non-parlour House).

Maximum overall area of 1,400 sq.ft. (130m^2) (Parlour House).

TABLE 1.1

The Sir John Tudor Walters Report: 1918

Desirable Minimum Sizes of Rooms[4]

House without Parlour	Floor Areas in sq.ft.	Cubic Contents in Cub.ft.*	Overall area exclud. stores
Living Room	180 (16.7m^2)	1,440	
Scullery	80 (7.4m^2)	640	855 sq.ft.
Larder	24 (2.2m^2)	-	(79.4m^2)
1st Bedroom	150 (13.9m^2)	1,200	
2nd "	100 (9.3m^2)	800	
3rd "	65 (6.0m^2)	520	
House with Parlour			
Parlour	120 (11.1m^2)	960	
Living Room	180 (16.7m^2)	1,440	
Scullery	80 (7.4m^2)	640	1,055 sq.ft
Larder	24 (2.2m^2)	-	(98m^2)
1st Bedroom	160 (14.9m^2)	1,280	
2nd "	120 (11.1m^2)	960	
3rd "	110 (10.2m^2)	880	

* The cubic contents were computed by multiplying the floor areas by 8 feet, the assumed average height of the rooms.

TABLE 1.2

Manual of Local Government Board: 1919

Desirable Minimum Sizes of Rooms

CLASS A (Non-parlour House)	Floor Areas in sq.ft.	Overall Area exluding stores
Living Room	180 ($16.7m^2$)	
Scullery	80 ($7.4m^2$)	900 sq.ft.
Larder	12 ($1.1m^2$)	($83.6m^2$)
Coal Store	15 ($1.4m^2$)	
1st Bedroom	150 ($13.9m^2$)	
2nd "	100 ($9.3m^2$)	
3rd "	65 ($6.0m^2$)	
CLASS B (Parlour House)		
Parlour	120 ($11.1m^2$)	
Living Room	180 ($16.7m^2$)	
Larder	16 ($1.5m^2$)	1,080 sq.ft.
Coal Store	15 ($1.4m^2$)	($100.3m^2$)
Scullery	80 ($7.4m^2$)	
1st Bedroom	160 ($14.9m^2$)	
2nd "	120 ($11.1m^2$)	
3rd "	110 ($10.2m^2$)	

With the 1921 slump, housing together with other social services 'suffered' a lot. This became particularly evident with the 1923 Housing Act following.

d) The Chamberlain Act; 1923

The houses in respect of which subsidies were given should have been either:

1) A two-storey, four-persons, two-bedroom house with:
Minimum overall area of 620 sq.ft.(57.6m^2),
(Non-parlour House)
Maximum overall area of 950 sq.ft.(88.3m^2),
(Parlour House)

The Minister of Health was also empowered to permit a reduction in area in s p e c i a l c a s e s to 570 sq.ft.(53m^2). The bulk of the three-bedroom houses built from this date on had an overall area of around 750-850 sq.ft. (53-79m^2) excluding stores.

2) A structurally separate self-contained flat or a one-storeyed house (bungalow) with:
Minimum overall area* of 550 sq.ft. (51.2m^2)
Maximum overall area* of 880 sq.ft. (81.8m^2)

(* O.A. within external and party walls.)

In the early 'thirties a second slump reduced space standards to their lowest levels.

e) Annual Report of the M.o.H.: 1930-31

"Some variation in size is inevitable in view of the varying conditions and aspects of the site and to avoid a dull uniformity of design, but the Minister is advised that, on the experience of the Local Authorities as a whole, that within the limits of variation shown in the following table, completely sufficient accommodation can be provided in houses of

TABLE 1.3

Summary of Fluctuations in the Minimum Area of the Three-Bedroom, Five-Person House (1918-1939)

(Figures represent square feet)

Source:	Living Room	1st Bedroom	2nd Bedroom	3rd Bedroom	Overall Area (exclusive of stores)
1) Tudor Walters Report, 1918	180	150	100	65	855 Non-parlour
	do	160	120	110	1,055 parlour type
2) Manual of Local Government Board, 1919	do	150	100	65	900 Class A
	do	160	120	110	1,080 Class B
3) Addison Act, 1919	do	do	do	do	950 Class A
	do	do	do	do	1,400 max. Class B
4) Chamberlain Act, 1923					750-850 Class A
5) Ministry of Health Annual Report 1930-31					730-760 Class A
					880-920 Class B
6) Ministry of Health Circular 1539/1936					760 Class A

the types named:

1) Homes for aged couples 380-400sq.ft.(35.3-37.2m^2)
2) Two-bedroom non-parlour houses 620-650sq.ft. (57.6-60.4m^2)
3) Three-bedroom non-parlour houses 730-760sq.ft.(67.8-70.6m^2)
4) Three-bedroom parlour or four-bedroom houses 880-920sq.ft.(8.17-85.5m^2)"[5]

One can feel even more the catastrophic effect of the 1930's slump on housing by comparing the above space standards with those of the Tudor Walters Committee just twelve years before.

f) M.o.H. Circular 1539/1936:

"The Minister would himself regard the following standards as being generally satisfactory for a three-bedroom, five-person, non-parlour type of house viz.:

Living Room	180 sq.ft. (16.7m^2)
1st Bedroom	150 sq.ft. (13.9m^2)
2nd Bedroom	100 sq.ft. (9.3m^2)
3rd Bedroom	80 sq.ft. (7.4m^2)
Superficial Area	760 sq.ft. (70.6m^2)."[6]

Section 1.3.1: Types of Dwellings and their Planning: The Tudor Walters Report, 1918.

a) The Types:

The planning of a larger type of building, whether domestic or industrial, is not exceptionally difficult to one trained with a planning mind; but to plan a dwelling, where the floor areas were so limited (as we have seen in section 1.2.1), in order to ensure that each square foot of floor space allowed was made usable, so that a minimum was lost in the way of approaches and connections, is a very difficult problem. In other words one of the architects' greatest difficulties in the planning of a small dwelling was to give an effect of spaciousness which was desperately needed.

The point we wish to make is "How was the small house plan developed" since 1918? Judging from the evidence, the Tudor Walters Committee had received in connection with the working-class dwelling, there was one clearly-marked tendency which affected considerably the arrangements of the accommodation which should be provided. It was evident that working-class occupants generally were more and more wishful to eliminate from the living-room the dirty work and particularly the cooking of meals. For this reason the plan of house which had been so common in the past in many parts of the country, having downstairs a front parlour and a back kitchen and living-room combined, in which were situated the cooking range, the sink, and often the copper, was out of date.

The tendency was to require a scullery in which cooking, washing up and all other similar work was carried on. The kitchen became the living-room in the ordinary sense, which might have been kept for use as a sitting-room, as a meal room, and for the cleaner activities of the family. On the one hand, the older plan of arranging

the living-room to serve also as a cooking room simplified matters; one fire served all purposes, thus saving labour and cost of fuel. In many districts, however, this custom was still common and continued for some time to be followed, particularly in rural areas and in houses where a parlour was provided in addition to the scullery. However the steady tendency to eliminate cooking from the living-room was a fact.

The question of whether the bathroom was to be upstairs or downstairs depended to some extent on the amount of accommodation on the ground floor. So, a house consisting of a living-room and a small scullery on the ground floor, barely could afford sufficient area on the first floor for three bedrooms, and it was not practicable to add a bathroom on that floor. Where a parlour was provided in addition to the living-room and scullery, it was easy to find space for the bathroom on the first floor, together with the three bedrooms.

With reference to the number of bedrooms, an almost unanimous view appeared that houses should not be built with less than three bedrooms.

Therefore, according to the evidence discussed so far, the types of dwellings which were desirable to be provided, were dependent on the different divisions of function between living-room and scullery.

So the three different types of dwellings emerged (described overleaf) to which a parlour might be added, making six types in all. These six types will again be subject to minor divisions according to the location of the bathroom and whether the hot water for the bath was taken from the copper in the scullery, which was the simpler plan, or whether there was a heating boiler in connection with one of the fires and a circulating system for supplying hot water to the bath. Also, there were alternative arrangements which might have been

TUDOR WALTERS HOUSE - TYPES 1919 - 1939

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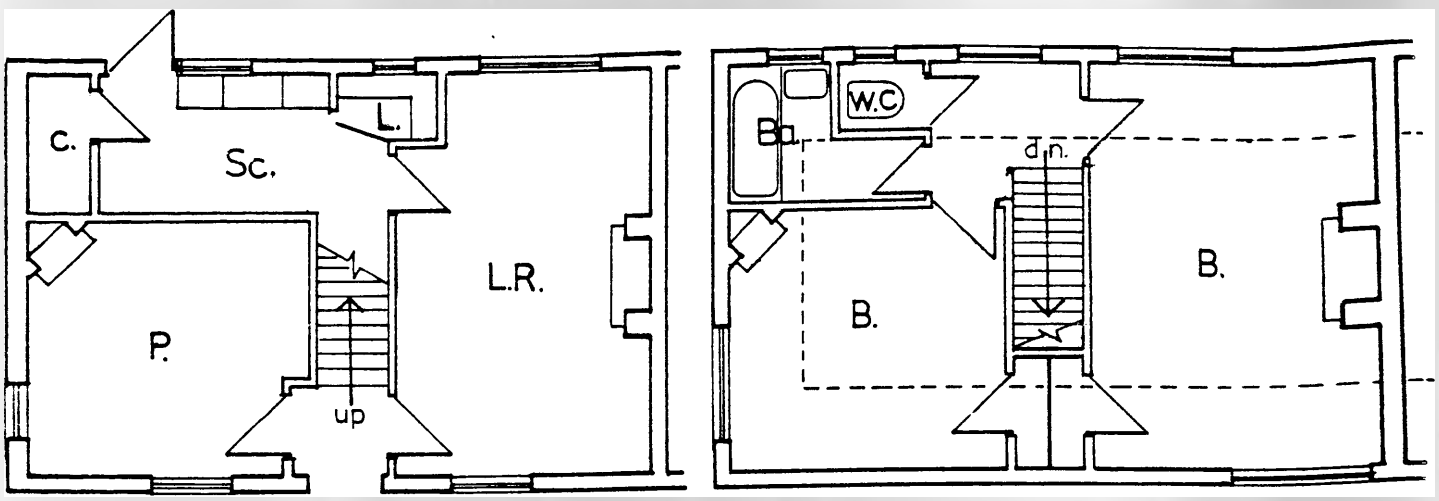


Fig. 1. 5 'ELASTIC' TYPE 1:100

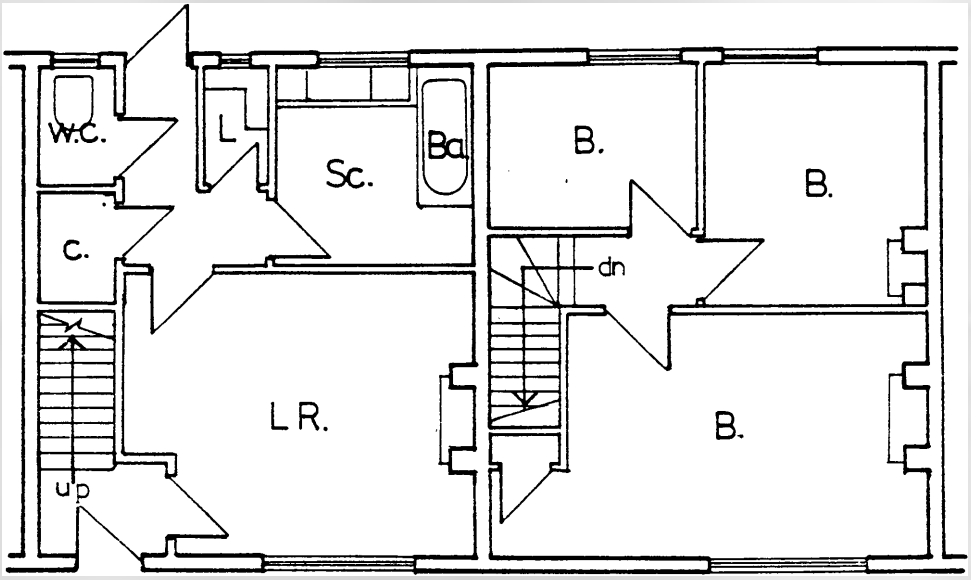


Fig. 1. 6 TYPE I 1:100

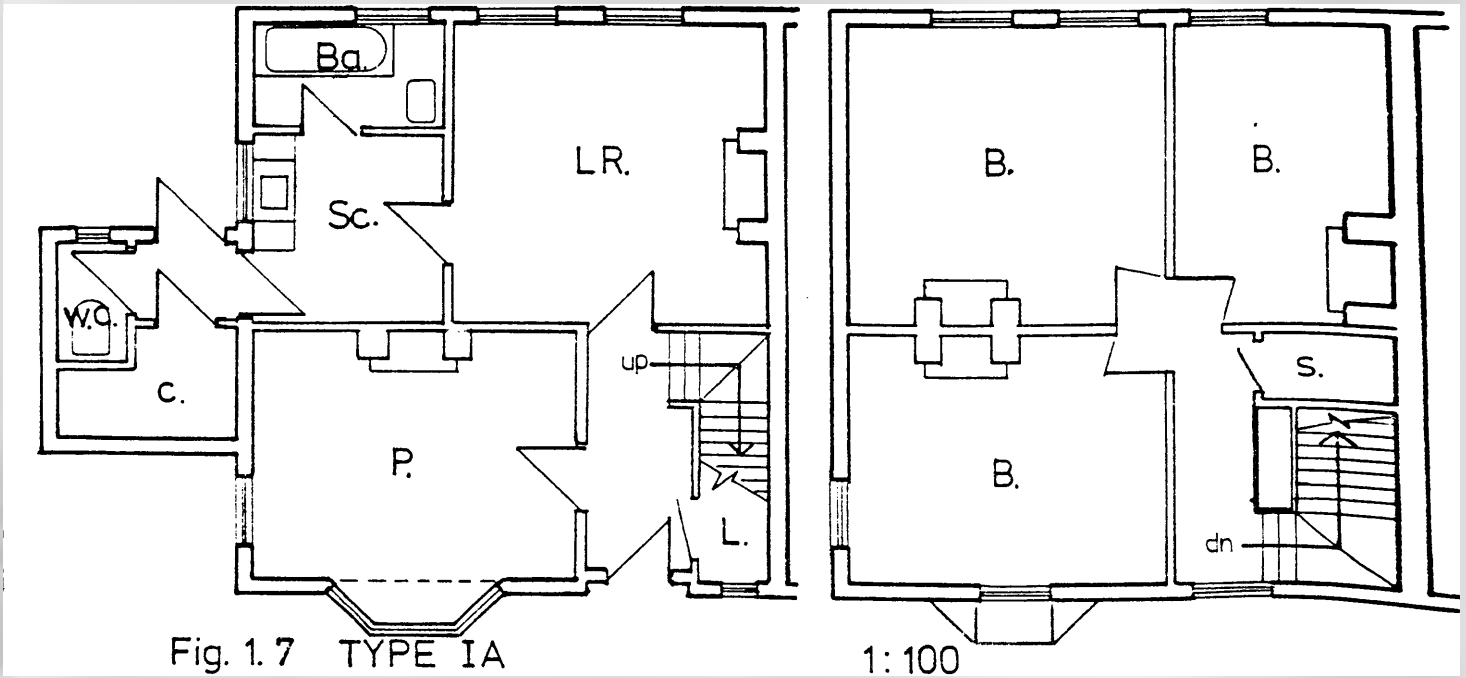


Fig. 1. 7 TYPE IA 1:100

adopted.

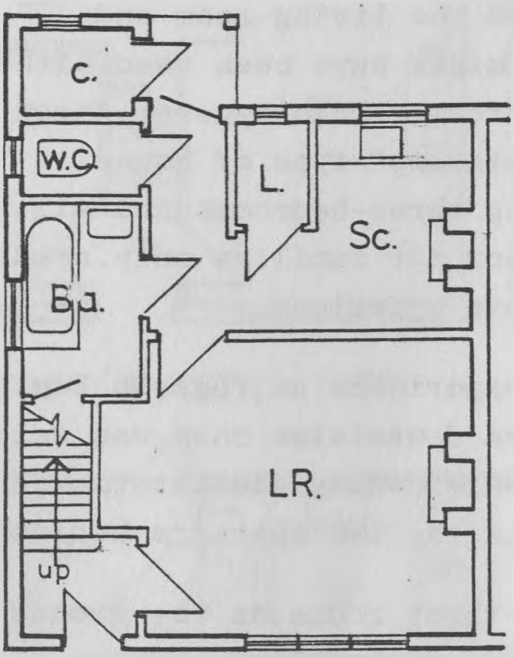
For example, there was the type of house, Fig. (1.5), having two bedrooms on the first floor, and having on the ground floor in addition to the living-room and scullery, a third room, which might have been used either as a parlour or as a third bedroom. This type at first sight would appear to be an "elastic" type of house, suitable for families requiring three-bedrooms and willing to dispense with the parlour, or for families only needing two bedrooms but anxious to have a parlour.

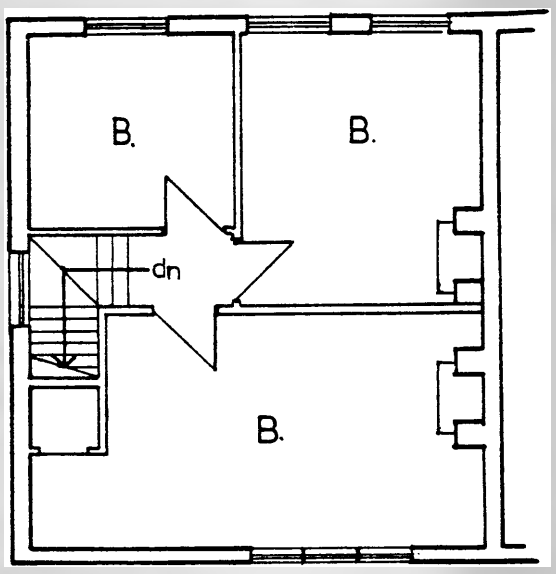
Unfortunately, however, experience as regards England and Wales showed that the extra downstairs room was seldom used as a bedroom even when overcrowding and intermixing of the sexes were the result in the two upstairs bedrooms.

On the whole, there were three rooms on the ground floor i.e. parlour, living-room and scullery and the three-bedrooms on the first floor. These types of dwellings were suggested by the Tudor Walters Committee as the most desirable and economical and were thought to be ideal, containing the minimum accommodation to be provided. They are as follows:

Type I, Fig. (1.6), containing a living-room with cooking range, scullery with copper, sink and gas cooker, or in the absence of gas, in rural areas, e.g. a small grate or stove suitable for drying clothes; the bath situated downstairs, which might have been in the scullery, if no other arrangement was practicable and if it could be closed without cutting off access to the back of the house. The bath however, was better in a small apartment off the scullery, planned to serve the double purpose of bathroom and wash-house; in the latter case it was made a little larger to include the copper as well as the bath; the arrangement was both economic and convenient, in that the water for the bath could have been heated in the copper, while the bath itself might have been made use of in washing operations. The water-closet would be on the ground floor, accessible under cover, possibly from a

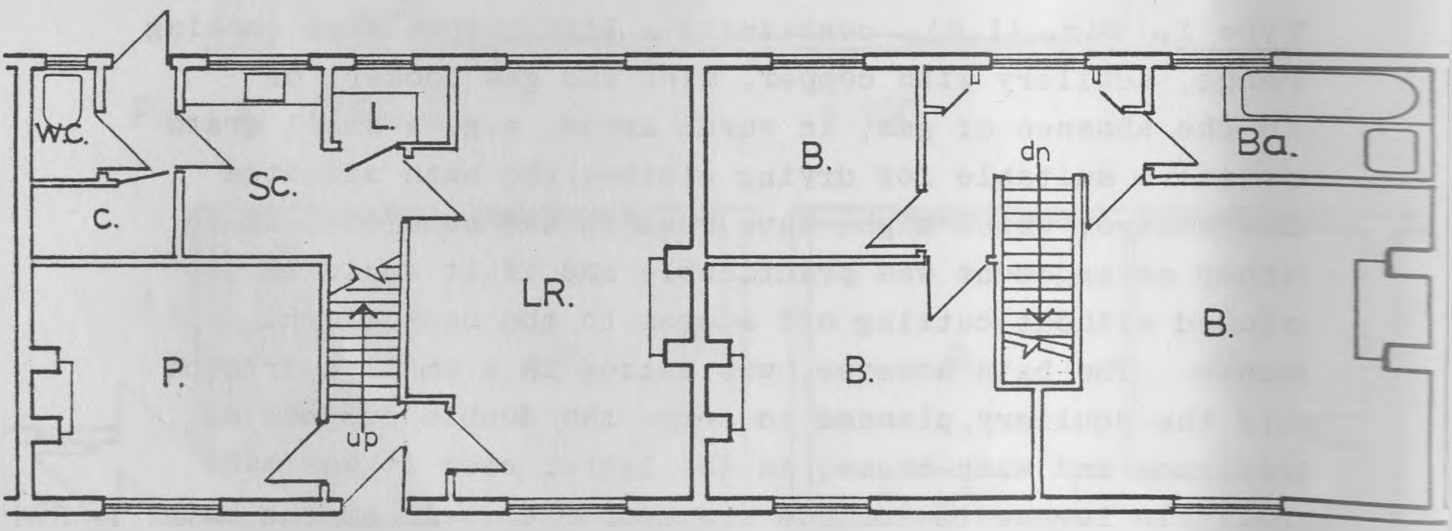
TUDOR WALTERS HOUSE-TYPES 1919:1939





ground floor plan first floor plan

Fig. 1. 8 TYPE II 1:100



ground floor plan first floor plan

Fig. 1. 9 TYPE IIA 1:100

back lobby or porch.

To these must be added in all cases, adequate and well-ventilated larder, coal store and three bedrooms upstairs.

Type IA, Fig. (1.7), containing the same accommodation as Type I but with the addition of a parlour.

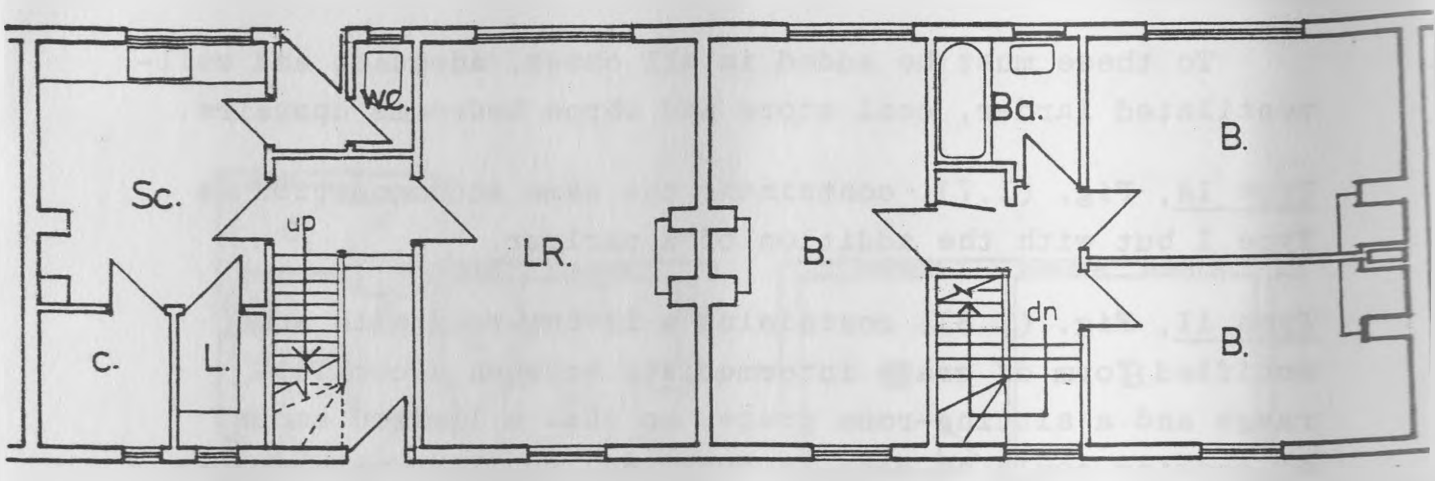
Type II, Fig. (1.8), containing a living-room with some modified form of grate intermediate between a cooking-range and a sitting-room grate, so that a limited amount of cooking could be done on occasion; scullery with copper, sink and gas cooker and also a grate for drying purposes, or in absence of gas, a small cooking-stove. A separate bathroom would be provided, usually on the ground floor; hot water was being supplied by means of a boiler at the back of either the living-room or scullery fire. The water-closet would be on the ground floor as before.

Type IIA, Fig. (1.9), containing the same accommodation as Type II but with a parlour.

Type III, Fig. (1.10), containing a living-room furnished with a sitting-room grate from which cooking operations were definitely banished; scullery (with copper, sink, cooking-range and gas-cooker, if gas was available) sufficiently large to enable all the work connected with cooking and preparation of meals to be carried on there; bath upstairs; hot water supplied from a boiler at the back of the scullery fire; water-closet inside, either upstairs or entered from a downstairs lobby.

Type IIIA, Fig. (1.11), containing the same accommodation as Type III but more spacious. It represented the type of dwelling which was desired by the majority of the artisan class. It contained only what was regarded by them as necessary accommodation for the proper carrying on of the family life.

TUDOR WALTERS HOUSE-TYPES 1919-1939



ground floor plan first floor plan

Fig. 1.10 TYPE III 1:100

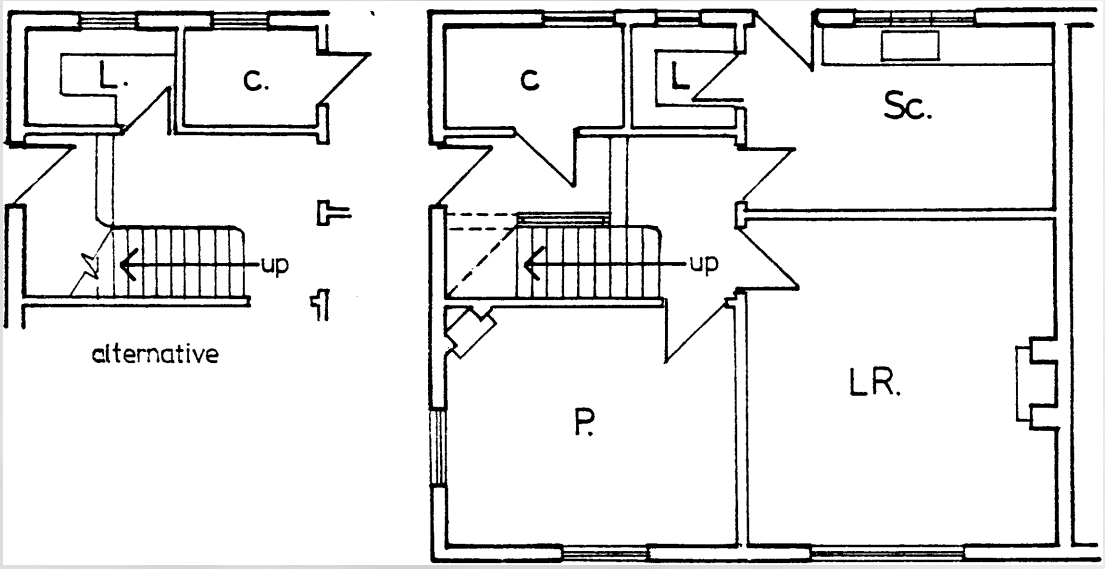
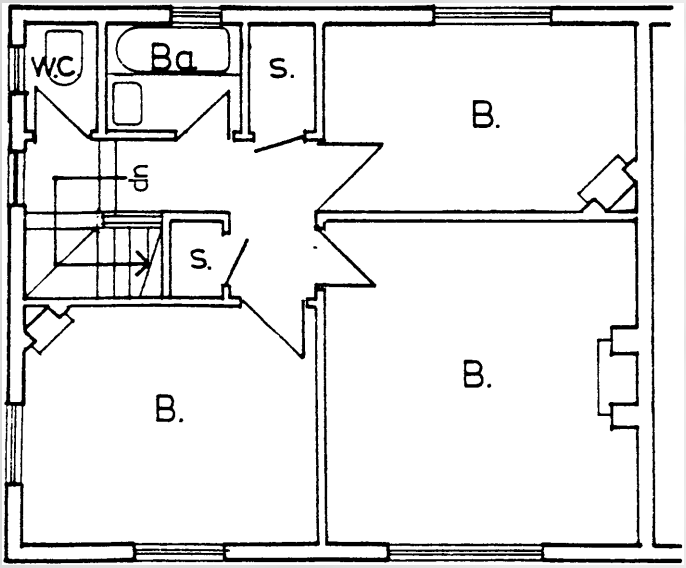


Fig. 1.11 TYPE IIIA ground floor plan 1:100



first floor plan 1:100

The three 'main types' (I, II, III) of dwellings (set out above) have been described not on account of any great variation, but because they correspond to t h r e e m e t h o d s o f a r r a n g i n g t h e l i f e a n d w o r k o f t h e h o u s e, and because all the details of the planning of each room and its equipment must accord with one or other of these 'methods' throughout, if each dwelling was to be thoroughly convenient for one or other 'method' of life. Types IA, IIA, IIIA correspond to the three 'main types' with the addition of a parlour. All the above described plan arrangements were applicable to two-storey houses, parlour and non-parlour type, to 'flatted houses' and to the single-storey.

With respect to flats, they were unpopular with large sections of the population. To some extent this was accounted for, by the defects of many of the flats that were built between the wars.
The most common of these defects were:

1) Dreary and barrack-line appearance and surroundings.
2) The absence of lifts.
3) Unsatisfactory means of access.
4) Difficulties of removing refuse (in the absence of chutes).
5) Cramped accommodation.
6) Inadequate laundry facilities.
7) Absence of gardens and
8) Lack of communal amenities.

b) The Planning:

Here we are examining in detail the planning of each one of the rooms of the two-storey, three-bedroom, five-person dwelling.

1) Parlour

"Perhaps the most debatable point with reference to accommodation was whether a parlour should be provided in addition to a living-room and scullery. The need for the parlour (or the 'third room') was remarkably widespread both among urban and rural workers who were quite emphatic that the parlour should not be given at the expense of the necessary accommodation and area of the living-room and scullery, but should either be given in addition to these or omitted altogether."[7]

This room which had an area of not less than 120 sq.ft., mainly for social uses, had very seldom more than one door, which if possible, should not open directly across the window or across the fire, and in arranging the door, the windows and the fire, a suitable position for a piano should be kept in view! It had direct access from the entrance lobby. A room of an oblong shape will often be a great advantage in giving a little more length of wall for a sofa or piano. As it was generally occupied in the afternoon or evening, a west aspect was the most suitable, and where the living-room could have been given a S-E frontage, the parlour might face north-west, with little disadvantage. In conclusion, a western aspect parlour was the most desirable.

2) Living-room

The living-room is undoubtedly the most important room in the dwelling. It was the room in which meals would be cooked and eaten (originally), and all other family activities were carried out; there the family assembled and carried on the greater part of its life. The use to which this room was put had been changing gradually since 1919. "We find today a growing desire to use it for the social and recreational side of family life, undisturbed by constant interruption of meals, and this tendency, coupled with the greater convenience of

eating in the same room in which the food was cooked, had no doubt led to the custom of taking most meals in the scullery, despite its unsuitability for this purpose. We do not think it is generally realised how frequently separate meals have to be prepared for a working family, where meal-times depend on hours of work and school and where on week-days it rarely happens that the whole family can sit down to the table at the same time. The following timetable is not unusual in an average working household:

7a.m. Breakfast for husband	6p.m. Tea for husband
8a.m. Breakfast for children,	7-8p.m. Supper for children
12.30p.m. Lunch for children,	9p.m. Supper for husband
4.30p.m. Tea for children	

If all these meals were eaten in the living-room it is clear that it would seldom be available for any other purpose, whereas our evidence shows an increasing need for a quiet place for study, social intercourse and recreation. These needs cannot properly be met by a room which was never free from the constant bustle of getting meals."[8]

A south-east aspect was given to this room, but when not possible the most sunny aspect was given, and the windows were so placed as to secure the most attractive prospect available. The room had an area of not less than 180 sq.ft. The fireplace was planned on one of the walls at right angles to the window; the doors were at the opposite ends of the room, so placed and hung as not to involve the reservation for passage space of the best lighted or most comfortable parts of the room. There were no more doors in this room, than one to the entrance lobby and one to the scullery.

3) Scullery

In the case of this room, perhaps more than in any other, the useful size depends on the planning. It was planned as a domestic workroom such as its arrangements did not encourage its use as a living-room. It was far too small. This was largely due to changes in our manner of living.

When the original council house was evolved, cooking on a coal-range was almost universal. The range was frequently the only source of heating in the house and was therefore commonly placed in the living-room and, at first all meals were cooked and eaten in that room. But with the widespread extension of public services this practice had changed, except in mining areas and in country districts where no services were yet available. So the gas or electric cooker was, however, usually placed in the scullery, and most of the weekly cooking was then carried out there instead of on a coal range in the living-room.

The natural tendency had been for all the kitchen equipment including the dresser, to follow the stove into the scullery, where most of the week-day meals were then taken. It included provision for the following:

(i) A sink 30 x 36 in. long and 18 x 20 in. wide, with draining board on the left hand side and ledge or table on the right hand side together with plate racks etc.

(ii) A washing copper fitted with a steam outlet communicating from under the copper lid into the flue if coal fired, into open air if gas fired. A fixed hood above the copper was used as well, with an outlet ventilator into the flue or into the open air, so that when the lid opened the steam from the copper could be quickly extracted from the scullery.

(iii) a) A gas cooker where gas was available.
b) A simple grate or stove for drying cloths in wet weather, (in Type II dwellings).
c) A cooking range for all purposes or to supplement a gas cooker (in Type III dwellings).

(iv) In certain districts a bread-baking oven.

(v) 'Ample' shelves and cupboard space for utensils according to distribution of functions in the three types of dwellings and provision made elsewhere.

(vi) Standing space for the mangle or wringer and other washing utensils.

The scullery, in addition to the above provisions, had a window with sill about 3'6" from the floor, above or near the sink, and overlooking the garden so the housewife could have a full view of the children playing in the garden.

4) Wash-House

Generally, the provision of a separate room for use as a wash-house was not an economical apportionment of space in view of the importance of making the most effective use of the limited space, bearing in mind, for which purposes, as a rule, it would have been used once a week. But the bath and washing equipment were suitably combined in a small chamber of the back lobby or scullery, especially where it was intended to heat the bath cover in the washing copper. The placing of the washing copper outside the house in a covered lobby or yard was not uncommon in some districts, instead of having it in the scullery, provided that the lobby was enclosed. In rural areas the wash-house usually was combined with the barn or out-house and so space saved in the scullery with the possibility of it being a little smaller in this case.

5) Bath

When the "fixed bath" was first introduced (Chamberlain Housing Act 1923) into the dwelling (3-bedroom, 5-peron) and became a statutory obligation for all subsidised houses, economy reasons suggested that it might be placed in the scullery. Indeed water and drainage were both available there at the minimum cost; and the washing copper was to provide hot water without the introduction of any circulating system. Nevertheless, no matter how convenient such an arrangement was, certain obvious drawbacks had been increased, as the custom of cooking in the scullery instead of the living room had grown. In such cases the difficulty of keeping the scullery shut whenever any member of the family wanted to bathe was much greater.

An alternative plan was a larger bathroom, placing the copper in it, and using it as a wash-house also. Where this combined use was adopted, the bath itself apart from its main function could have been used as a good rinsing tub on wash-days. In any case the housewife did not want members of the family washing in the scullery when she was preparing breakfast; her desire was a separate bathroom containing a lavatory basin and fitted with a constant supply of hot water.

In the case of the parlour type of dwellings there was sufficient space without cramping the bedrooms, the bathroom was placed on the first floor and the hot water was supplied from the back of the cooking range. The bath placed in the scullery was fitted with a hinged table-top as a cover, usually served as one of the ledges adjacent to the sink. The baths obtained were 5 feet overall (though 5'6" was a desirable length) and 2'2" wide; a copper was 2'3" if portable, and rather more if it was set in brickwork, so that a length of about 8' was needed to accommodate both bath and copper if arranged against the same wall. If the bathroom was also to be

used as a wash-house, a width of not less than 5' was required. If to serve for bathroom only a 4'3" was sufficient, but 5' was desirable.

6) Water-Closet (w.c.)

The w.c. in the smaller Types I, II of dwellings (in particular) was generally regarded best, on the ground floor, accessible from the back lobby or porch. In slightly larger dwellings, having a more roomy entrance lobby or passage it might be entered from there, or, where there was space on the first floor, it might well be placed there adjoining the bathroom. It was undesirable to place it in the bathroom and objectionable when the bathroom was entered from the scullery. Where either entrance lobby or landing was sufficiently large and was well ventilated, the water-closet might be entered from one of them. Sometimes it was combined with the bathroom, though this arrangement was neither desirable nor convenient for a house occupied by a large family.

7) Larder

The larder was placed on the cold side of the house, on the north, north-east (side of the house); when not facing north its windows would have been protected from the rays of the sun.

It was entered from the scullery or back lobby except when a better aspect might have been secured by entering it from the front lobby. It was kept away from chimney breasts, w.c., drainage, gulleys and ash bins. Its area of 12 to 16 sq.ft. was regarded as the minimum for urban sites, while an 18 sq.ft. area was regarded as acceptable. In rural districts, extra space was required and provided with approximate dimensions of 8 x 6 or 10 x 4 feet. Also, the space under the stairs was used for the larder, provided the ceiling was properly treated to prevent dust or plaster shaking down. Its windows and

ventilators were provided with flyproof gauze or perforated zinc.

8) Coal Store

It was usually entered from an outside lobby or passage, and not from the scullery where possible, but accessible in any case under cover; its floor usually sunk one step below the lobby floor. The store was large enough to hold at least a ton of coal, and provide some space for firewood;(a ton of coaloccupies about 45 cubic feet). A minimum of 15 sq.ft. of floor area was just enough to avoid having to pile up the coal too high; nevertheless coal-boards were usually fitted to the doorway if a ton of coal was to be stored.

9) Bedrooms

All bedrooms were directly accessible from the landing. Care was taken to plan them so that good positions were provided for the beds and other furniture; a space of 6'6" x 4'0" was required for the majority of double beds used by working-class tenants; sometimes a 6'6" x 4'6" double bed was used in the larger rooms, and occasionally a 6'6" x 3'0" single bed in the smaller rooms. The bedrooms were provided with wardrobe-cupboards. At least two of the three bedrooms had fitted fireplaces while the third not, so fitted that there was suitable and efficient ventilation.

10) Outbuildings

The majority of the houses built between the wars had no outbuildings at all. Fuel was commonly stored in the body of the house with resulting dust and dirt. Nor was there any place for keeping bicycles, tools, garden produce or other things commonly kept in a shed. As a result local authorities were constantly applying to the Ministry of Health for permission to add outbuildings to their existing houses.

Section 1.4.1: Wartime Housing: 1939-1945

a) Immediate effects of the war on housing:

One thing is certain; that the war lowered the standard of housing just as it lowered the standard of living on the whole. Yet, whereas the standard of living, apart from housing, could have been raised again in a comparatively short time, as soon as the manufacture of armaments gave place to the manufacture of consumption goods; the change in the housing standard, on the other hand, was not just a simple process and required more than a change in housing policy.

The war's immediate effects on housing can be summarised as follows:

1) The stopping of all building by private enterprise.

2) The Government postponed the demolition and replacement of unfit houses including houses condemned prior to the war as no longer fit for human habitation.

3) The regulations laid down in the 1935 Overcrowding Act were, to all intents and purposes, interrupted as long as the re-housing of the people living in the overcrowded houses was impossible.

   That is to say, the new standard of housing established only, four years ago, in 1935, was for the time being more or less abandoned.

4) Repairs and maintenance were not being executed at all or on the same scale as in pre-war times, and nothing was more apt to create new slums than the insufficient overhauling of existing buildings, old and new ones as well.

5) The rent restriction, necessary and social as it might have been, reduced real rents (measured in terms of building material prices); the landlord was therefore hard hit and could hardly be expected to

spend more on his property than the minimum necessary.

6) There were other factors which were bound to bring about a deterioration of housing standards. In the areas experiencing an influx of inhabitants the number of persons per room had, of course, increased whereas in other parts, dwellings had been left empty and uncared for. This uneven spread of population tended for obvious reasons to cause deterioration of the houses.

b) The housing situation:

Wartime housing consisted basically of:

1) family houses
2) flats
3) hostels and
4) camps.

These had been built by a variety of bodies, ministries, councils and private firms connected with the war effort. All new work had to be approved and civil buildings over £100 in value were licensed by the Ministry of Works and Buildings. In spite of this it appeared that each Authority was responsible for the plans of buildings it sponsored, and there was a variety of standards both as to type plans, construction and measures for air-raid precautions. The major housing needs being catered for by new buildings were:

1) factory workers in Government and civil factories
2) agricultural workers
3) homeless in bombed towns and
4) Services.

The location and extent of this provision was guided by the following factors:

1) nearness to work, subject to passive air defence (e.g.

factory housing)

2) wartime operational needs (e.g. camps)

3) transport facilities and

4) labour.

All building labour was short and rationed, but was particularly short in skilled and mechanical tradesmen, who were needed for other war purposes.

Most of this housing was built with no clear thoughts as to its post-war value, and there were often situations such as camps in which it was not possible to site industry after the war. Yet in spite of the seeming temporary nature of this housing, much of it had a 'longer life' for the following reasons:

1) The long gap created after the war, before housing shortage was made good.

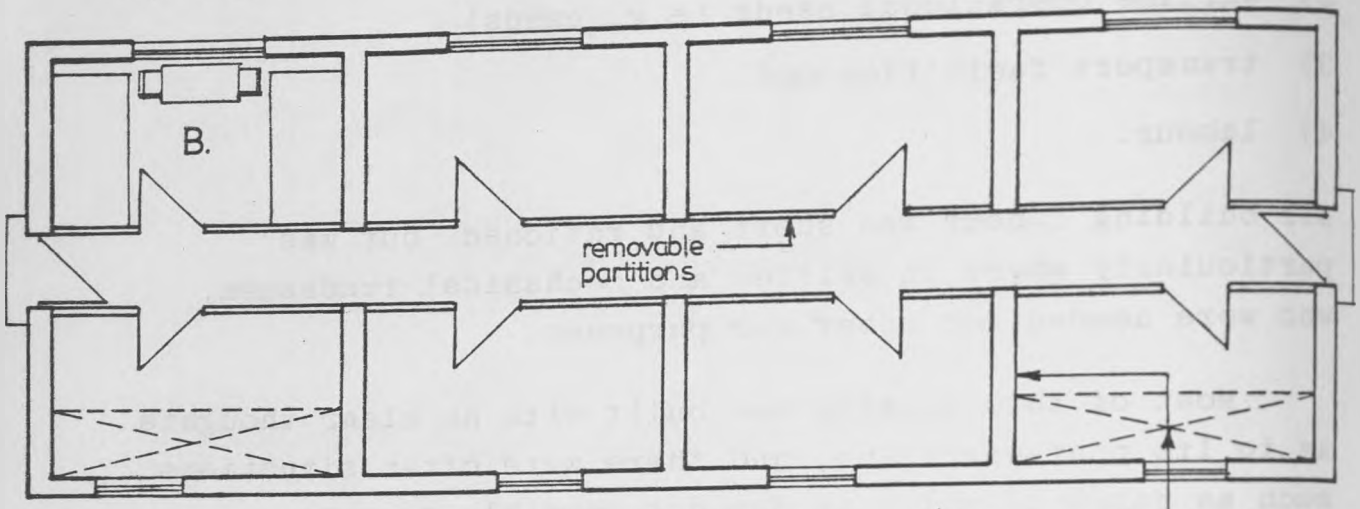
2) The then acute shortage would increase and not diminish and

3) Due to the uncertainty as to how long the war would last.

These had to a certain extent a bearing on the selection of type plans and standards of construction. The Government's policy appeared to be guided by the i m m e d i a t e situation to provide a high degree of c o m m u n a l rather than family living in buildings which were regarded as temporary.

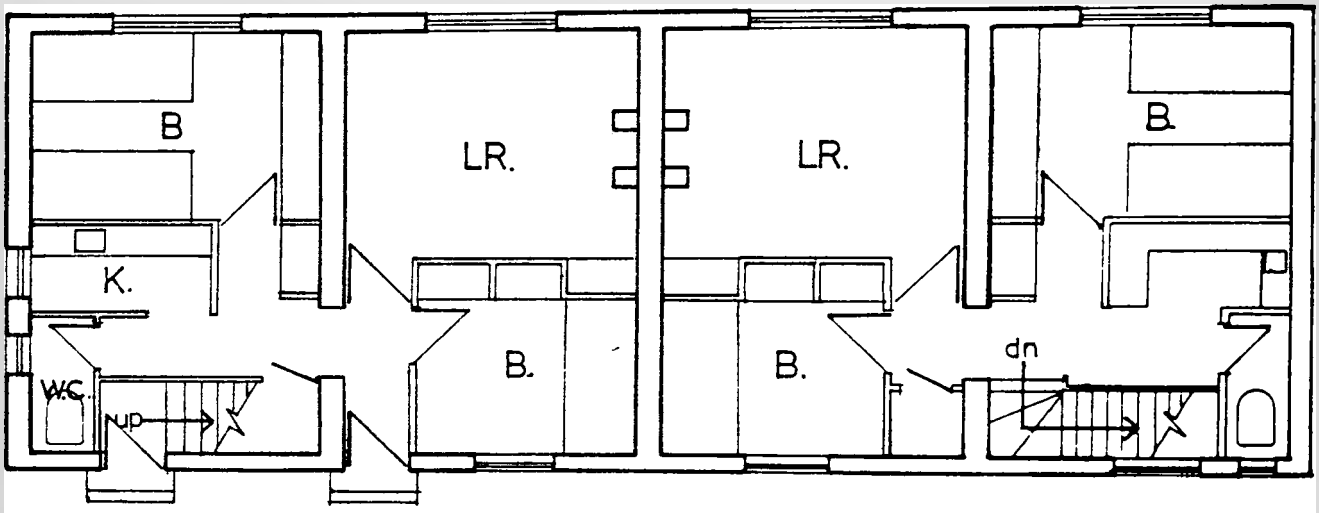
R.I.B.A. PROPOSED WARTIME DWELLING 1941 1:100

Fig. 1.12



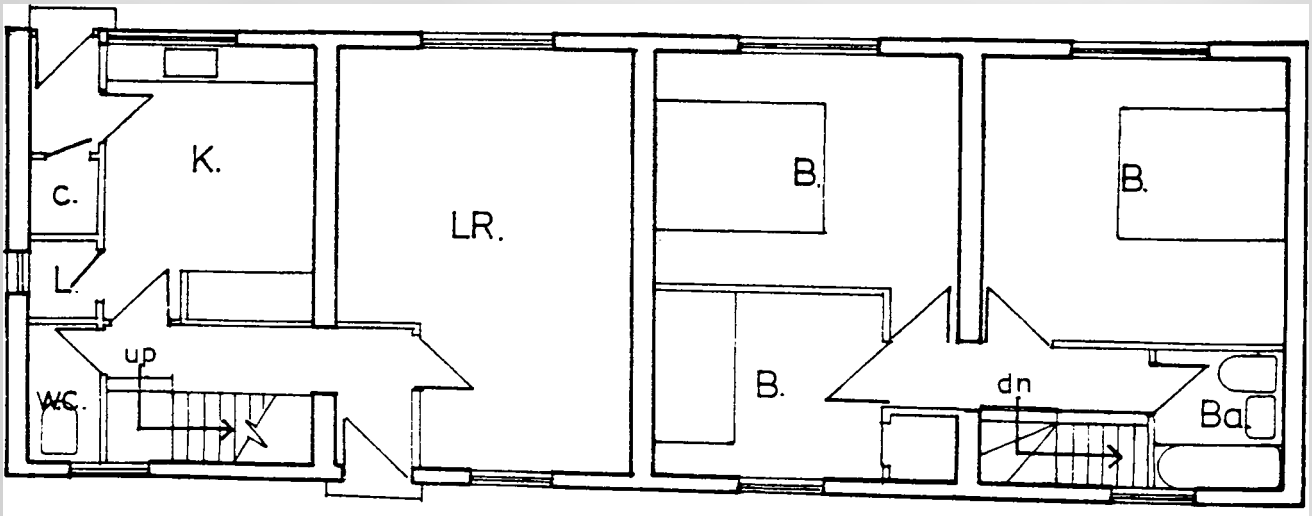
ground floor plan first floor plan

Hostel type plan for wartime use.



ground floor plan first floor plan

Two bed 'flated type' dwelling for wartime use.



ground floor plan first floor plan

Three bed non-parlour house for peacetime.

c) The RIBA recommendations:

The RIBA Reconstruction Committee, Housing Group, recognising the seriousness of the war situation recommended that the fully equipped family house of peacetime standards, be abandoned during wartime, and a type of hostel dwelling providing minimum living and sleeping accommodation and protection be substituted. This building was designed such as to be convertible to peacetime housing standards, see Fig. (1.12). It was assumed that provision for feeding, heating, washing and relaxation should be communal not only to economise in labour and materials but to meet the effects of womens' entry into factory work.

At that time there were two main types of buildings: temporary and permanent. With regard to the construction of the purely temporary buildings it was recognised that the lightweight sectional structures were the best available at that moment; while with regard to the permanent types, two and three-storey structures of permanent materials were recommended (i.e. brick and concrete); economy in erection being obtained by standardisation. As far as the P.A.D. (passive air defence) was concerned for permanent wartime structures, it was recommended that at least parts of the building (ideally the sleeping quarters) should afford protection, but it would vary according to the location of the building structure.

They also recommended that:

i) The new permanent types of two and three-storeys structures should be built with the maximum amount of standardisation. This accommodation should be designed so as to be converted later to peacetime housing standards.

ii) The choice between permanent and temporary building types be governed by long-term as well as by immediate considerations and

iii) That the important economies in layout should not be overlooked.

References:

1. H.M.S.O., "Private Enterprise Housing", The Felix Pole Report, M.O.H., C.H.A.C., 1944, Appendix IV, p.49.

2. Building Centre Committee, "Housing", A European Survey by the Building Centre Committee, 1936, Volume One, p.38.

3. Reiss, R.H., "Housing Floor Space Standards", Town and Country Planning, Vol. 24, 1956, p.613.

4. H.M.S.O., The 'Tudor Walter's Committee Report', Local Government Boards for England and Wales and Scotland, Cmnd. 9191, London 1918, paragraph 102.

5. H.M.S.O., "Design of Dwellings", The Dudley Report, M.O.H., 1944, Appendix I, p.48, paragraph 213.

6. Ibid., paragraph 214.

CHAPTER 2; The 1945-1955 Decade

Section 2.1.1: Introduction

As far as housing is concerned, the difference between the two major wars is that the designs and attitudes of the 1920's and 1930's were almost a straight development from the 1890-1914 period; by contrast the 1945-50 period was the ferment which provided the ingredients of the 1950's and subsequent years. Despite the four or so million houses built during the inter-war years, the 'Homes for Heroes' remained still largely a dream, while the slum clearance efforts were far from complete in 1945. By 1951 the number of households (13.3 million) continued to supersede the number of dwellings (12.5 million); a shortage of nearly a million.

The formation after the war of the Ministry of Town and Country Planning (later absorbed by the Ministry of Housing and Local Government, the present Department of the Environment), and the special Commission which was set up on planning and housing problems, gives some clue as to the urgency which was felt by the coalition government of the time. The result of their groundwork was to be realised in a number of progressive Planning Acts; the 1944 and 1957 Planning Acts, the 1946 New Towns Act, the 1946 and 1949 Housing Acts, which together with the parent Housing Act of 1936 provided the legislative basis for a major advance by the public authorities. Together with a series of Advisory Committees' Reports, the issue of Circulars and Housing Manuals for the guidance of local authorities, they expressed the determination of war-weary Britain to make a better job of the peace and the re-building, than was made after the first world-war.

Emerging from the war, people wanted to enter a new and constructive epoch which was to be more than the re-building of bomb-shattered cities. They wanted to throw off the tyranny of the nineteenth century industrial

cities and the structure of the society these cities stood for. The second world-war was the e n d o f a p e r i o d, and the start of a new one, of which the first decade began with men and women returning from the war back to this country with their eyes opened by experience of Africa, Burma, France, Greece, Italy; by new skills learned by experience of the authority, adversity, improvisation and endurance. They were determined in the popular phrase of those days to Build a Better Britain. This meant equal opportunity and fair shares for all; including higher standards of living and above all educational opportunity; hence priority for schools and housing and to a lesser extent health buildings, was given by both local and central government. People were ready for change and new ideas. The ideas of the modern movement although they had been enunciated by the twenties, only now in the forties was the will strong enough to realise them. In his inaugural speech as Head of the Architectural Association School of Architecture in January 1949, R. Furneaux Jordan said: "... We move from an age of private and commercial patronage to an age of state patronage...." The welfare state - the idea that all kinds of responsibilities which men had previously undertaken for themselves (if they could) should be taken over by the community -was under way.

In architectural affairs every aspect such as heating, lighting, noise, prefabrication and so on, was reviewed systematically in the thirty postwar Building Study Reports published by the then Ministry of Works. They symbolised the determination of the profession that design and construction should, at last, start to catch up with younger industries and disciplines. There was a firm agreement that architecture could, and indeed should promote good life. There was a new attitutde to design briefs; any building project was begun with an examination of what the user really needed. At the A.A. School of

Architecture for example, ex-captains and squadron leaders went out knocking on doors to question housewives before they set about their housing design programmes. Technology and education were the essential passport, the main means to 'culture' - using the word just in its common sense. Liberation from 'hardwork', from inequitable bondage to employers and landlords was the main social idea of the times. It was salvation through industrial/technological advance - through science. And indeed, it was in part a culminating liberation of the working classes after generations of struggle.

None of the ideas such as : 'work is only or mainly a means to an end', 'the product takes precedence over the production', were new in the forties and fifties; but what was new, was that the post-war world allowed them to be realised at an amazing pace and scale.

Section 2.2.1: Temporary Prefabricated Housing

When the term 'prefabrication' is employed in modern contexts dealing with house construction, it is taken to mean manufacture and assembly of materials or units otherwise than in their final position. In this sense 'prefabrication' may be considered from two points of view:

i) As a supplement to traditional methods of building, that is by the extension of the range of 'ready made' standardised components, e.g. windows, doors, house fittings and so on and

ii) As a process, alternative and supplementary to traditional building processes, that is the machine manufacture of the complete kit of parts of the whole house, which is the 'case' of this section, i.e. the production under factory conditions of complete 'units' ready for assembly.

The Temporary Housing Programme was introduced by the Government with the Housing (Temporary Accommodation) Act of 1944, to overcome the immediate post-war housing shortage. This programme was brought to its peak through the White Paper (Cmnd. 6686) of October 1945 and to its end by the White Paper (Cmnd. 7304) of January 1948. It was intended that prefabricated dwellings would only be provided by Government and Local Authorities. It was also agreed that the Ministry of Works would have taken responsibility on behalf of the Department of Health, for the manufacture, transport and erection of the temporary prefabricated houses on the specially prepared sites provided by the Local Authorities which were held responsible for the provision and laying out of sites, including the installation of services. After completion, they were to be managed by the Local Authorities and at the end of ten years were to be due for demolition.

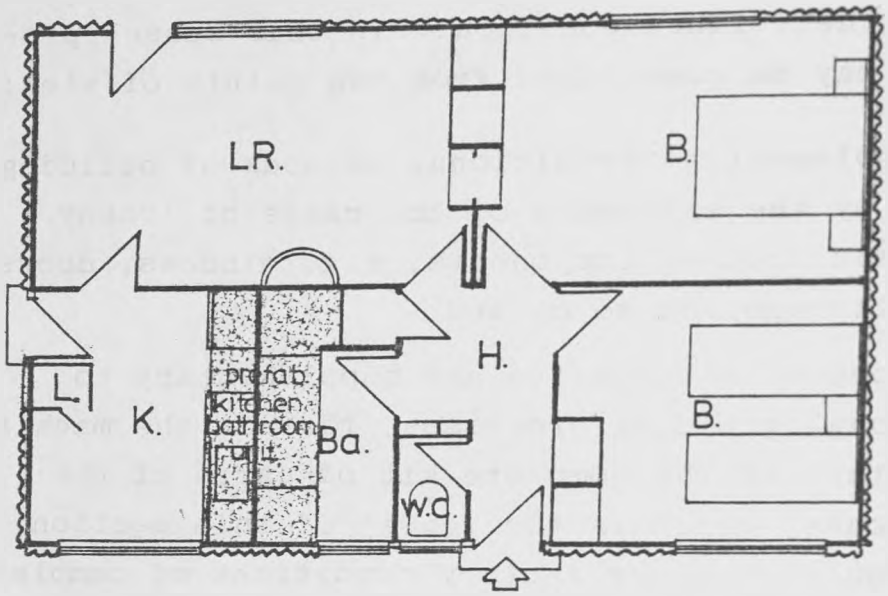
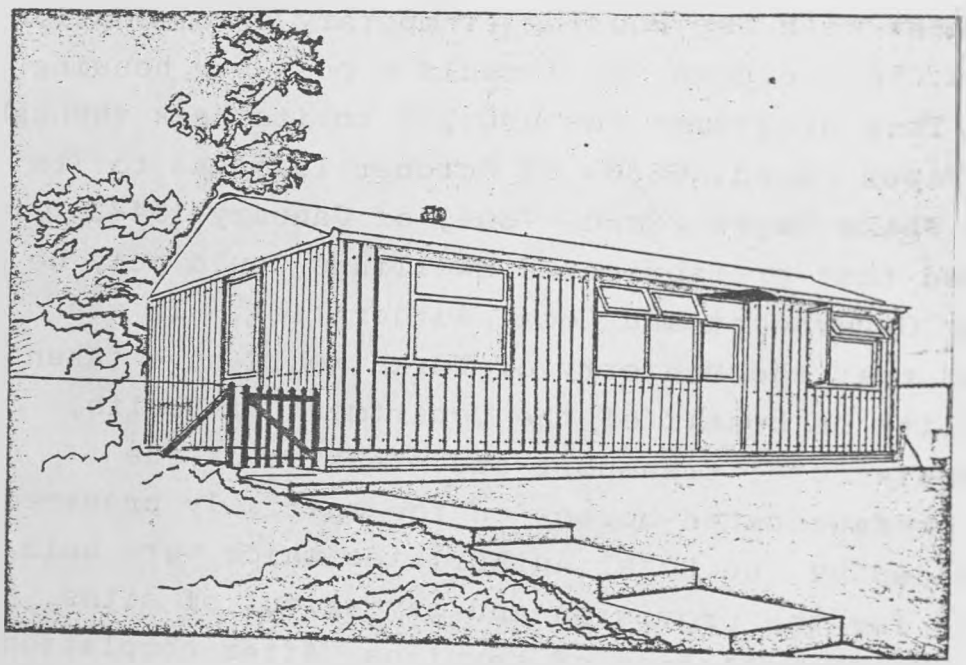


Fig. 2.1 The ARCON prefabricated house 1:100



To meet its promises which finally fell short, the Government through its White Paper of 1945, issued some two hundred licenses for experiments into new types of construction, such as steel cladding, precast or concrete in situ walls and steel framing with asbestos or metal cladding. Eighty three of these licenses were for the erection of complete prototype prefabricated houses, "of which the largest numbers were from the Arcon, Uniseco, Tarran and Aluminium groups" [1], Figs. (2.1, 2.2).

In all, under the Temporary Housing Programme, were provided about 157,000 temporary dwellings, (to be precise 157,146), throughout Britain as follows:

Total Provision of Accommodation: May 1945-December 1949

Year	Erection of Temporary Houses			Construction of New Permanent Houses
	England & Wales	Scotland	Gt. Britain	Gt. Britain
1945-46	79,900	12,500	92,400	58,400
1947	34,400	12,000	46,400	139,700
1948-49	10,700	7,700	18,400	425,200
Total Completed	125,000	32,200	157,200	624,300
Initially Allocated	130,700	34,300	165,000	-

Note: The last two figures are rounded to the nearest hundred

Despite the rather pejorative connotation in the word 'temporary', these small houses proved very popular with their tenants who enjoyed in them an unusually high standard of internal finishes. Most of them embodied, [Fig. (2.3)], the 'kitchen-bathroom plumbing unit', including an electric or gas cooker and refrigerator and a drying cupboard; fittings never before offered to tenants of Local Authorities in this country. As Sir William Beveridge said in the opening

Fig. 2.2 The ALUMINIUM prefabricated bungalow 1:100

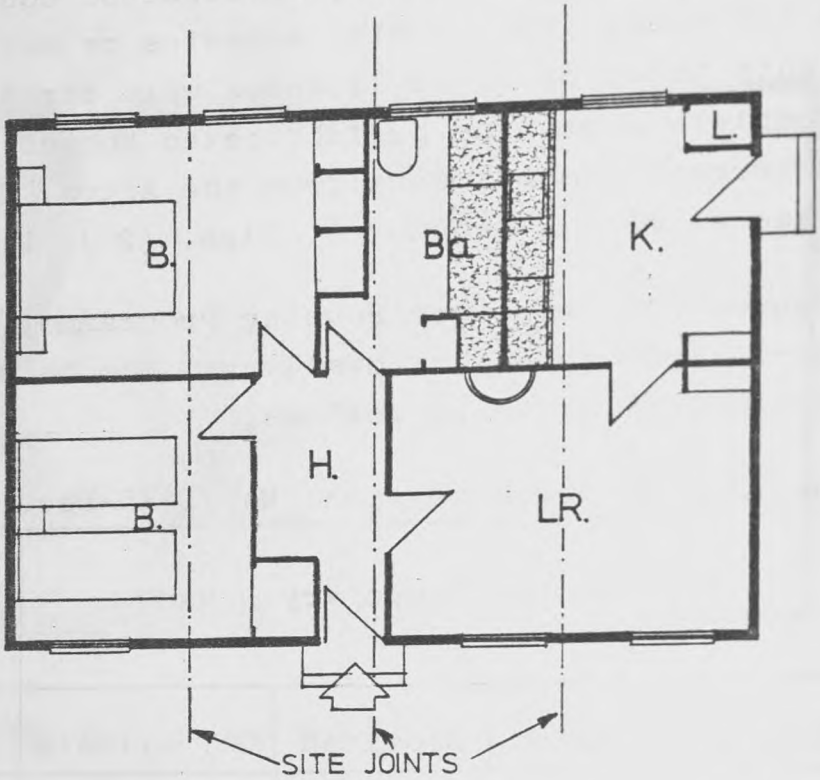
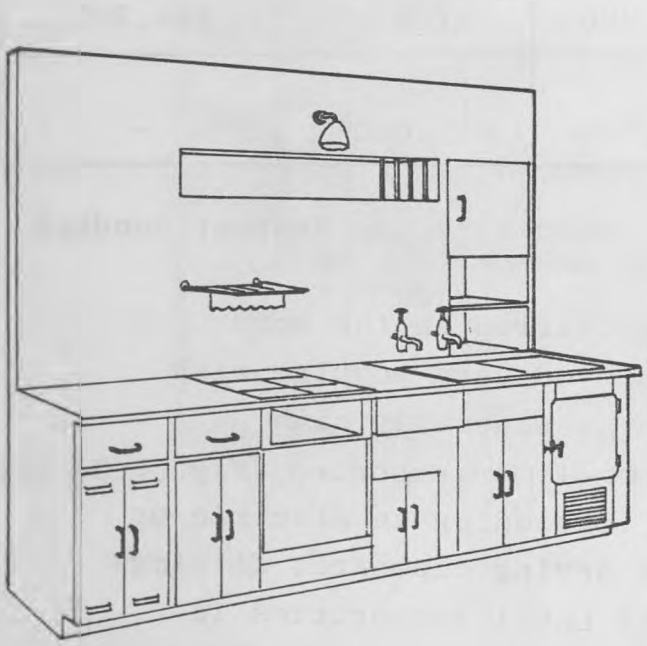
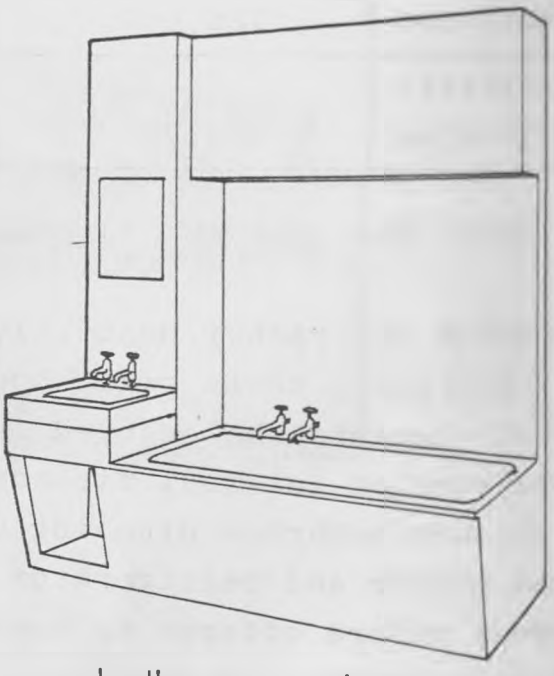


Fig. 2.3 The prefabricated Kitchen-Bathroom Unit



kitchen side



bathroom side

of the RIBA exhibition on 'Rebuilding Britain': "..... those who believed that traditional methods and materials would provide all the houses required, have failed to grasp the immensity of the task confronting us. It will be necessary not only to increase the supply of labour available for the vast housing requirement, but great improvements must be made in the methods of construction and the speed of building operations".

The prefabricated temporary houses, no matter how relatively small their numbers may seem today, had certainly relieved the situation. This was the first time modern technology was brought to bear in house-building, but when immediate pressure passed, we returned to traditional forms and materials. Why? Was it public rejection? Conservatism of architects? Of course there were many arguments for and against the policy of 'short life housing', a high controversial subject indeed. For sure, certain people, including officers of public authorities have viewed prefabrication with suspicion. "Viewed in historical perspective, it stands out as an immense but rather heterogeneous effort, as a disappointing episode of under-estimated costs and over-estimated potentialities which tended to give prefabrication a bad name among the public, among local authorities, and in Parliament, but which nevertheless exerted considerable influence on future developments".[1]

Basically it was the heterogeneity of the whole Programme, "... temporary houses from eleven different sources were used",[1] and the dramatic changes of the 'underestimated cost', which made Parliament restive at the presentation of each new request for more money for this Programme, and to demand a 'statement' which took the form of a White Paper (Cmnd. 7304) which was the most severe set-back for the development of prefabrication.

An example: The aluminium prefabricated house

It was originally sponsored by A.I.R.O.H. (Aircraft Industries Research Organisation on Housing), and the Ministry of Aircraft Production and later was officially approved by the Ministry of Works under the 1944 Housing (Temporary Accommodation) Act. The first prototype was built by the Bristol Aeroplane Co., Westonsuper-Mare. It differed from the other designs of prefabricated houses in being the most highly-finished in the factory. Only forty man-hours were needed for assembly on prepared foundations. The house is assembled complete in four units, which require little more than bolting together on the site, and one connection each to water and electricity supplies and to drainage. Each unit is about 22 ft. 6 in. long and 7 ft. 6 in. wide and it is transported complete on a lorry.

The basic structure is a frame with roof trusses, built up of extruded aluminium sections. The floor surface consists of boarding on timber joists bolted to the floor frames. The wall units have externally painted aluminium sheet and plasterboard internally. The inner face of both these sheetings (towards the frame) are coated with bitumen to act as a safe water seal and the interspace is filled with a lightweight foamed concrete as thermal insulation and stiffening. The roof is covered with aluminium sheet decking consisting of a corrugated sheeting underneath and a flat sheeting above. Partitions were of a construction similar to the external walls but faced on both sides with plasterboard. Also the house incorporated the kitchen-bathroom plumbing unit. It is fully wired in the factory; electrical connections between the 'units' are made on the site by means of plug and socket joints.

Section 2.3.1: Government 'Official Guidelines'

During this first post-war decade a good number of Official Reports and Housing Manuals had been issued by the Government in order to give guidance and assist the Local Authorities in their house building duties. A brief overall review of each of these manuals, in chronological order, is the subject of this section.

The 'Dudley Report' 1944:

This report entitled "Design of Dwellings", is the product of a subcommittee under the chairmanship of Lord Dudley, appointed early 1942 "To make recommendations as to the design, planning, layout, standards of construction and equipment of dwellings for the people throughout the country.". The reasons for such a report were partly changes of habit and outlook between the wars; changes in ways of life and steady rise in the general standard of living. Also because men and women having become conscious, during the war, of the potentialities of modern scientific developments, expected to enjoy the benefit of these discoveries at home. The report anticipated much of the 1944 Housing Manual (following) in the domain of tenants' requirements and planning, if not in technical matters.

It is divided into two parts, the first setting out the general recommendations and the grounds on which they were based, and the second containing detailed 'technical notes' on the way in which they thought their recommendations could best be carried into effect. Part I opens with an examination of the layout and standards of construction and equipment of the inter-war houses. It discusses terraced houses, flats and the provision of maisonettes as a means of avoiding the access disadvantage of the 'balcony access' flats, as well as housing for 'special groups'. On the twin subject of prefabrication

and standardisation noted: "the case for entire pre-fabrication was by no means established". Five reasons were given in favour of the increased standardisation of fittings as follows:

1) They could be cheaper and production would assist in a time of scarcity of materials.

2) The limitation of types would encourage mass production and again reduce costs.

3) Proper specification and good design could be more readily ensured.

4) Detailed manufacturing costs could be more readily obtained and this meant a check could be provided on unstandardised articles; (a little optimistic reason) and

5) ease of replacements.

On the matter of equipment and fittings, the great need for further research and experiment on many aspects of domestic economy was particularly stressed, along with their recommendations fully described in Part II which explain in great detail the very high standards of space and equipment (that have been recommended in general terms in Part I), to be examined in the sections following. At the end of the report, a separate section on site planning and layout in relation to housing, work of a Study Group of the Ministry of Town and Country Planning, was reproduced, in so far as it concerns the report's terms of reference, suggesting means for the 'erection' of complete communities rather than the development of purely residential estates for a single social class.

'Housing Manual 1944':

With its companion volume of 'Technical Appendices', it constituted in a sense a contemporary 'Tudor Walter's Report' with the added advantage of the experience gained in the inter-war years. It also incorporated many of the 'Dudley Report' recommendations. The 1944 Housing Manual could perhaps be described as the English version of the admirable Scottish Report 'Planning our New Homes' of the Scottish Housing Advisory Committee 1944, though its presentation is far drier and less attractive. Chapter I of the Manual deals with site planning and was largely contributed by the Ministry of Town and Country Planning, with much emphasis on neighbourhood planning. Chapter II is on the 'house in its surroundings' with continual emphasis on aesthetic issues. ChapterIII, on the three bedroomed house for which there was most demand, is introduced by an interesting remark: "While it is not possible to anticipate with certainty how each family will elect to use the accommodation provided, the architect is bound to make his plan with a clear idea in his own mind of the way in which this accommodation can most conveniently be used. His plan must be developed out of a particular way of living in the house.". Chapter IV deals with 'some special occupants' and finally Chapter V is on flats. It points out that flats may be included in estates mainly of houses and will certainly be required in areas where high densities are unavoidable. Possibly the most interesting sections of the Manual, because they contain most new matter, are those on efficiency in building and on materials and equipment. The use of available standardised fittings was advocated for such items as sinks, table-tops, kitchen cupboards, dresser and so on. The section on fuels and appliances contributed by the Ministry of Fuel and Power is one of the longest and best.

'Housing Manual 1949':

Its scope was to offer further advice to those concerned with the provision of housing accommodation, mainly coupled by the five years experience in post-war house building and the progress of research in techniques and methods during these years. By contrast to its predecessor Manual of 1944 where the emphasis was laid primarily on the provision of three-bedroom two-storey house, this Manual endeavoured to cover a far wider field of types of accommodation. Special attention had been directed to the importance of layout in both town and country, the siting and design of individual dwellings and the proper grouping of buildings in relation to each other, the neighbouring area and the landscape. Indeed it brought great changes in public housing policy (emerged since 1944), such as the new emphasis on the provision of suitable homes for 'families' of all sizes and of varied income ranges; and the consequent possibility of catering for various types of accommodation in the same schemes , thus creating both balanced social communities and more lively groupings of buildings. Another trend encouraged is a return to the urbanity of the three-storey terrace house. Housing policy had been geared as never before to the results of research and of inter-departmental co-operation, typical of the whole tone of this Manual. Gone too is the self-defeating search for cheapness at all cost. A truer sense of value was encouraged and made up of long-term considerations such as maintenance cost and more importantly the tenants' comfort of body and spirit, the pleasure of the passer-by, the integrity of the landscape and the relation of the house to the neighbourhood.

Its companion volume 'Technical Appendices' has been prepared by the Ministry of Works in close collaboration with the Ministry of Local Government and Planning, the Building Research Station and the Ministry of Fuel and

Power advised on matters relating to heating installations. This volume sought to establish a minimum code of practice in the construction of all types of dwellings. Since the publication of the Technical Appendices to the 1944 Housing Manual, much building research work had been undertaken and the field of experience in new building techniques had been considerably widened. These investigations had resulted in the publication of a very large number of important documents such as those issued in the series of Post-War Building Studies, the National Building Studies, the British Standard Codes of Practice and new British Standard Specifications. The aim throughout this volume had been to examine these investigations in so far as they were applicable to the constructional design and functional requirements of dwellings and to present their results in concise and convenient form. Some of the technical matters covered are on construction and materials, heating and electrical installations, functional standards, finishes and so on.

'Houses 1952':

Is the second supplement to the Housing Manual 1949; (the first one is on 'Housing for Special Purposes' - which falls out of this thesis scope). It signalled the beginning of an 'economy drive' although great stress was laid on the necessity to preserve standards. "....Since we are not dealing with ephemeral or temporary projects, we must preserve standards....."[2] the Minister of Housing and Local Government said. In fact cuts in space were pushed not so much in the sizes of rooms as in circulation areas and lobby space. The emphasis was therefore on compact plans with as little loss of convenience as possible. This handbook gave also the first encouragement to what might be called 'neo-terrace' housing, as a means of reducing cost and at the same time avoiding the monotony of the semi-detached pairs. The plans, illustrating 'Houses 1952', skillfully designed,

exemplifying how and what could be done by skillful planning even within the limits imposed by the Ministry of Housing and Local Government Circular 38/1951. It indicated how space and materials could be saved without loss of standards and amenity.

'Houses 1953':

Is the third supplement to the Housing Manual 1949. It carried the design of 'neo-terrace' housing a stage further and included two and three storey flats, as well as designs of houses and flats for corner sites to save road frontage. The plans show a considerable loss of amenity and clear room shape. In the forward of this booklet the Minister of Housing and Local Government said: "it shows new ways of saving labour and materials, and adds a third and vital element - saving land.". "Badly planned estates may mean untidy development, needless roadwork, most costly services, urban sprawl, long walks to shops and schools, traffic danger to children and waste of land. The estate layout and the house designs should be planned together from the start. 'Houses 1953' seeks to show how this forethought can provide attractive yet economical schemes, better integrated with the towns they serve and more jealous in their regard for the land they use."[3] In its introducion the booklet emphasised the need to raise densities and reduce development costs by better integration of house design and layout, a subject which "has not received sufficient attention". Part 1 of the booklet deals with houses and flats' plans; Part 2 with the integration of houses' plans with layouts; Part 3 with road services, design and construction and finally Part 4 gives layout studies for an actual site.

Section 2.3.2: Standardisation in Housing

What may be new to many people is that if three months are required to build the exterior of the typical council house, it may take a further six months to complete the interior, although it requires only about a third of the manhours of the whole house; and that the number of man-hours taken for the completion of the whole house (of 850-1,000 sq.ft.) can vary (according to the Building Research Station), from 1,565 to 4,645, an astonishing variation indeed! Is this accounted for, mainly by different degrees of efficiency in organisation? To investigate the 'case' a Committee under the chairmanship of Sir Donald Bailey was appointed to 'consider and report on what action can be taken to increase speed and efficiency in the construction of house interiors'.

The Bailey Report entitled 'Quicker Completion of House Interiors', published in March 1953, and was in a sense a fourth supplement to the '1949 Housing Manual'. What this Report really did, was to confirm at a late stage and consequently with more data, the policy of standardisation of interior fittings and their dimensional co-ordination as advocated by the Prefabrication Section of the Ministry of Works Standards Committee, the Building Industries National Council and others. The Report's recommendations are classified under the following headings:

a) Simplification of Design,

b) Choice of Materials and

c) Improvement of Organisation;

while the principal conclusions summarised by its Committee are as follows:

1) House-building to a small number of interior plans will make the greatest, single, immediate contribution to speed, efficiency and lower costs.

2) British standard products ought to be more widely used in house-building.

3) British standards should be examined with a view to a further co-ordination of dimensions.

4) It is urgently necessary to press on with the Building Standards Institution's study of modular co-ordination. Meanwhile we suggest house plans should be drawn to a 'preferred dimension'.

5) There are many new and alternative materials, which, if properly used, can save substantial time and labour, and sometimes also cost.

6) Good organisation from start to finish is essential and in the long run can make the greatest contribution to speed and efficiency.

The Report then elaborates these conclusions, the main points of which are summarised below:

Design: Simplification; the limitation of the variety of designs of house interiors is urgently necessary. In any house the convenience of the interior has the first appeal to a housewife and it is the convenience and simplicity that gives the home its human and lasting qualities.

British Standards: All local authority housing plans should be designed to use standard components and only these should be specified. Local authorities were asked to do so as long ago as 1945 through the Ministry of Health Circulars 211/1945 and 150/1946.

Modular Co-ordination: The bringing of the different building components into relation with one another in size and the design of houses to fit the same range of measurements, has many potentialities, and its examination, already started by the British Standards Institution,(B.S.I.) should be hastened.

Preferred Dimensions and Planning Grid: It is quite common for the internal dimensions of a house to include odd inches, or even half inches and rarely the overall or room dimensions of one house plan bear any relationship to those of another. Consequently the advantages of using standard size materials increased.

Dimensions related to one common dimension, the 'preferred dimension', to minimise cutting and reduce waste, asserted by the Building Standards Institution, was also endorsed by the Bailey Committee, which having considered the respective advantages of 2 ft., 3 ft. and 3 ft. 4 in. module, adopted the 3 ft. x 3 ft. planning grid, having regard to the scale of the small house and the normal activities in it. Also the adopted 3 ft. module fits the dimensions of bricks and blocks and is suited to the widths of staircases, passages and w.c.s in a small house. The grid lines of the Committee's Report, coincided withthe inner faces of external and party walls and the internal partitions were set on one sideor the other of the grid line, whichever seemed to make a better plan. Plans based on this grid were allowed a downward tolerance of areas of 3 percent.

The plans of this Report were basically those of the 'Houses 1952', second supplement to the '1949 Housing Manual', redrawn to the adopted 3 ft. module and in general reviewed to ascertain how far they met their requirements of simplicity and efficiency in production. Also, the range of plans included types of plans with special features such as 'open planning' and 'cross-wall' construction; and for these reasons additional plans including flats and maisonettes have been added.

Features of Economical and Efficient Designs: Some of the simpler planning needs are walls and partitions and should be planned to give economical spans with a minimum of breaks and angles. Staircases should be straight. The kitchen, bathroom, w.c., linen-cupboard and water

heating appliance should be arranged compactly together, and on no account should the fireplace be on the outside wall. The number of internal load-bearing walls should be reduced to a minimum. In most small house plans economy will result if internal load-bearing partitions are replaced by beams supported on a central pier or chimney stack and on the external or party walls. This will make it possible to complete the shell independently of the interior, provided the roof is designed without any internal supports.

The Case for Selecting Fewer Plan Types: In the search for more economy and speedier building, the Bailey Committee recommended a more limited range of plan types, while the RIBA's reply to the Bailey Committee's questionnaire was: "Standardised parts should be applicable to a diversity of types, but the types should be planned to use the standards.... Variety of house is essential, not only aesthetically but also to cater for variable human requirements; standardised parts need not restrict the designer, and flexibility in planning is often more economical than rigidity. We are not in favour of regimenting house-design. We agree that simplification of the various interior fittings is desirable, but would emphasise that much more flexibility in planning is required if economy is to be achieved.".

Section 2.4.1: Space Standards Development

Anyone looking through the Housing Manuals and Reports issued by the Government since the second w-war, I am sure would regard the Dudley Report of 1944 as a landmark among all the 'official guidelines' of this decade. It recommended an increase in overall area from 760 sq.ft. of the Ministry of Health Circular 1539, issued in 1936, to a minimum of 900 sq.ft. for a three-bedroom,five-person house. Also,the report recommended for the first time, the 'aggregate living space standard' set at 300 sq.ft. for the five-person house. Although the Dudley Report standards were acknowledged as the basis for those in the 1944 Housing Manual, there was a tendency evident to lower them quietly. Indeed,the introduction to the section headed 'plan arrangements' of the 1944 Housing Manual says: "Plans for the average size house for five persons range from the minimum house of 800 sq.ft. to the full 900 sq.ft. recommended in the Report on the 'Design of Dwellings",[4] (the Dudley Report). It is disturbing,of course, to find the Dudley's emphatic statement printed in italics: "We recommend that the minimum overall floor area that is necessary to give effect to the foregoing recommendations (for the three-bedroom house) is 900 sq.ft....."[5] turned by a phrase into a maximum. Also the Housing Manual 1944 abandoned both 'overall area' and 'aggregate living space' controls. The plans illustrating the manual show an average overall area of 850 sq.ft. and an aggregate living area of 330 sq.ft. for the three-bedroom,five-person house, Table 2.1.

The following year Circular 200/1945 of the Ministry of Health raised the minimum overall area of the house to 900 sq.ft.; while five years later the 1949 Housing Manual re-introduced 'overall area control' and set it at 900-950 sq.ft. for the five-person house, exclusive of outbuilding, leaving out the 'aggregate living space' standard. On April 28th, 1951, Circular 38 of the

TABLE 2,1

The 1944-1955 Space Standards Development of the Three-Bedroom House

(Figures represent square feet)

Sourse:	Dining Kitchen	Working Kitchen	Kitchen Living Room	First Bedroom	Second Bedroom	Third Bedroom	Aggregate Living Space	Overall Area Exclusive of Stores
The 'Dudley Report',1944	110-135	100-120	160-170	135-150	110	70	330	900 min.
Housing Manual,1944	110-125	90-100	160-180	135-150	110-120	70-80	A	A, 800-900 max.
Circular 200/1945	110-130	90-110	180-200	135-150	110-120	70-80	A	900 min.
Housing Manual,1949	do.	do.	do.	do.	do.	do.	A	900-950
Circular 38/1951	110	90	180	135	110	70	320	A
'Houses 1952'	do.	do.	do.	do.	do.	do.	do.	A, 820-860*
'Houses 1953'	do.	do.	do.	do.	do.	do.	do.	A,820-860*
The 'Bailey Report',1953	do.	do.	do.	do.	do.	do.	do.	A,826*

A = Abandoned

* Average area from 'example plans' illustrating the reports.

TABLE 2.2

The Dudley Report's Min. Space Standards of the Three-Bedroom House

(Figures represent square feet)

Ground Floor	Dining Kitchen House	Working Kitchen House	Kitchen Living-Room House
Dining Kitchen	110+25 = 135		
Living room	160 160		
Utility	35 35		
Total	305		
Unallocated	25		
MIN. AGGREGATE LIVING SPACE	330		
Working Kitchen			
Living room with dining recess		100+20 = 120	
Total		210 210	
Unallocated		310	
MIN. AGGREGATE LIVING SPACE		20	
Kitchen-Living Room		330	
Scullery			160+10 = 170
Sitting Room			50 50
Total			110
Unallocated			320
MIN. AGGREGATE LIVING SPACE			10
			330

First Floor	Applicable to all three types of house	
	EITHER	OR
1st Bedroom	135+15 = 150	135 135
2nd Bedroom	110 110	110+15 = 125
3rd Bedroom	70 70	70 70
Total	315	315
Unallocated	15	15
MIN. AGGREGATE LIVING SPACE	330	330
Outbuildings		
Shed	50	
Fuel Store	20	
Total	70	

Ministry of Local Government and Planning brought the standards down to 'square one'!

In 1952 and 1953 the handbooks 'HOUSES 1952' and 'HOUSES 1953' were issued, respectively second and third supplements to the 1949 Housing Manual. Overall area control was abandoned once again and the aggregate living space standard re-introduced at 320 sq.ft. for the five-person house. The specimen plans illustrating these handbooks averaged 820-860 sq.ft. Soon after, followed the Bailey Committee Report with the five-person house's average area dropped down to 826 sq.ft.

The Tables 2.3, 2.4, 2.5 and 2.6 following, are not included in the Manuals they represent, but were 'constructed' from the areas of the sample plans given by the respective Housing Manuals and Reports, to facilitate further discussion and comparison as to the development of the space standards.

TABLE 2.3

"HOUSING MANUAL 1944"

Average areas of each dwelling type
from analysis of example plans.

N = net storage S = storage	Number of people (i.e. bed-spaces) per dwelling						
	1	2	3	4	5	6	7
	m^2	m^2	m^2	m^2	m^2	m^2	m^2
HOUSES							
1 storey							
semi N		39	49.6				
terrace N		40					
2 storey							
semi N				66.8	79.3	88.6	
terrace N					79.4		100.3
FLATS		45.3					

STORAGE: "The outside store should be about 50 sq.ft. (4.65m^2) in urban areas and 70 sq.ft. (6.50m^2) in rural areas. There should be a fuel store of 12 to 24 sq.ft. (1.1 to 2.2m^2)."

NOTE: The "Plans range from a dwelling for two persons having a floor area of 420 sq.ft. (39m^2) to a house for a family of seven having a floor area of 1080 sq.ft. (100.3m^2). The plans for the average size house for 5 persons range from the minimum house of 800 sq.ft. (74.3m^2) to the full 900 sq.ft. (83.6m^2) recommended as minimum in the Dudley Report "Design of Dwellings 1944."

TABLE 2,4

"HOUSING MANUAL 1949"

Average areas of each dwelling type from analysis of example plans.

N = net storage S = general storage space	Number of people (i.e. bed-spaces) per dwelling						
	1	2	3	4	5	6	7
	m^2	m^2	m^2	m^2	m^2	m^2	m^2
HOUSES							
1 storey N		*43.2	52.4				
S							
2 storey rural N				70.7	87.6		
semi or end S				14.6	12.9		
intermediate N							108.8
terrace							11.7
2 storey urban N				73.9	86.6	98.2	
semi or end S				5.8	7.9	8.3	
intermediate N					86.7	95.7	105.8
terrace					9.9	10.7 **	10.3
3 storey N					98.3	94.39	110.0
(excluding S garage if built in)					3.4		6.3
FLATS N		47.1	55,4				

* excluding inset porches

** 1st and 2nd floors only

Fuel store should not be less than 12 sq.ft. (1.1m^2)

NOTE: The plans range from a dwelling for two persons having a floor area of 428 sq.ft. (39.8m^2) to a house for a family of seven having a floor area of 1,210 sq.ft. (112.4m^2). The plans for a house for four persons range from a floor area of 761 sq.ft. (70.7m^2) to 798 sq.ft. (74.1m^2) and for five persons, from 908 sq.ft. (84.3m^2) to 953 sq.ft. (88.5m^2).

TABLE 2.5

"HOUSES 1952"

Average areas of each dwelling type
from analysis of example plans.

N = net storage S = storage		Number of people (i.e. bed-spaces) per dwelling						
		1	2	3	4	5	6	7
		m^2	m^2	m^2	m^2	m^2	m^2	m^2
HOUSES								
2 storey semi	N				64.2	79.4		
	S				5.8	5.8		
2 storey terrace	N				66.8	78.3		
	S				5.8	6.0		

NOTE: The plans range from dwellings for four persons having floor areas of 679 sq.ft. (63.1m^2) to 737 sq.ft. (68.5m^2) and for five persons from 825 sq.ft. (76.6m^2) to 863 sq.ft. (80.1m^2).

TABLE 2.6

"HOUSES 1953"

Average areas of each dwelling type
from analysis of example plans.

N = net storage S = general storage space		Number of people (i.e. bed-spaces) per dwelling						
		1	2	3	4	5	6	7
		m^2	m^2	m^2	m^2	m^2	m^2	m^2
HOUSES								
2 storey terrace	N				66.8	77.1		
	S				4.9	5.2		
FLATS								
2 storey terrace	N		45.1	51.6	61.4			
	*							
3 storey blocks	N		46.6	56.4	59.7			

* Storage not stipulated.

NOTE: The plans range from dwellings for two persons having floor areas of 378 sq.ft. (35.1m^2) to 502 sq. ft. (46.6m^2), for three persons from 540 sq.ft. (50.2m^2) to 607 sq.ft. (56.4m^2), for four persons from 641 sq.ft. (59.6m^2) to 743 sq.ft. (69m^2), for five persons from 808 sq.ft. (75m^2) to 870 sq.ft. (80.8m^2).

WAYS OF LIVING IN THE HOUSE

Arrangments of ground floor in three-bedroomed house.

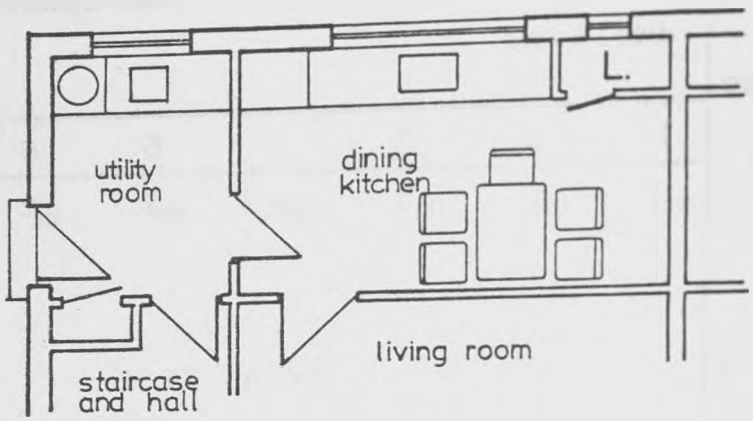


Fig. 2.4 The Dining Kitchen 1:100

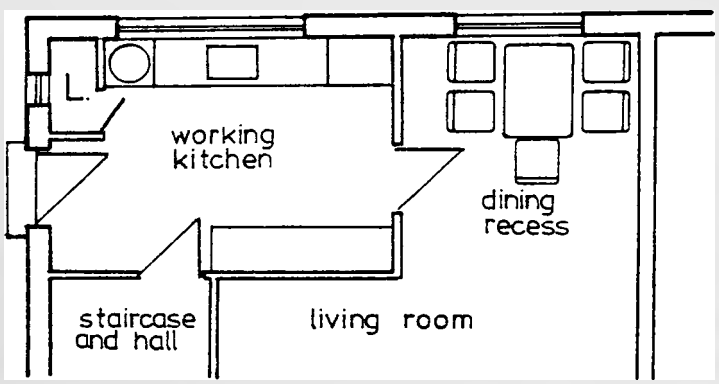


Fig. 2.5 The Working Kitchen 1:100

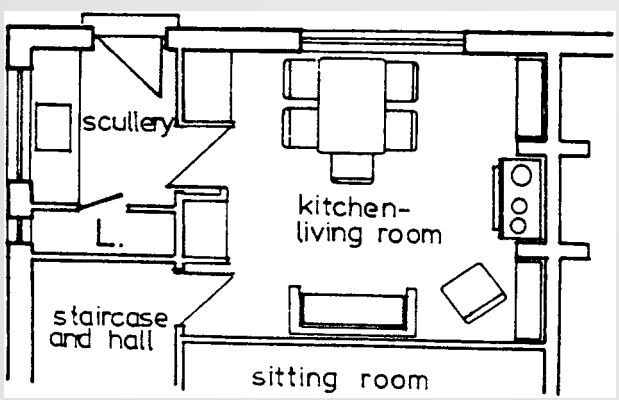


Fig. 2.6 The Kitchen-Living Room 1:100

Section 2.5.1: Types of Dwellings and their Planning

Houses: The vast majority of the dwellings built by the local authorities between the wars, was the three-bedroom, five-person, semi-detached type, wasteful of land in an urban community and inadequate as a basic unit to build-up a 'decent' town, either architecturally or from the point of view of proximity of all dwellings to shops, transport and other amenities or public services. Nevertheless, during the post-war period of 1945-55, local authorites continued in general, to concentrate on the provision of the same type of house, as in the inter-war period, but also to a good proportion of other types, e.g. smaller and larger terrace houses, flats and maisonettes. Indeed from 1949, the emphasis on a much greater variety of types of houses became apparent.

The three alternative ways of arranging the ground floor of a three-bedroom house were as follows:

1) the dining kitchen, (D.K.), where a living room and a kitchen with space for meals is provided, see Fig. (2.4).

2) the working kitchen, (W.K.), where a living room with dining recess and a separate kitchen is provided, see Fig. (2.5) and

3) the kitchen-living room, (K.L.), where a large kitchen-living room and a scullery is provided, see Fig. (2.6); (this alternative was suitable for country districts where cooking continued to be done on a coal range).

All three alternatives, initially described in the Dudley Report, had been found in practice to meet most of the varying needs throughout the country, and so were retained with certain modifications required by the improvements in housing standards. Indeed they provided what had been the long felt want of the average family, that is a clear

SEMI-DETACHED HOUSES H-MANUAL 1944.

ground floor plan first floor plan

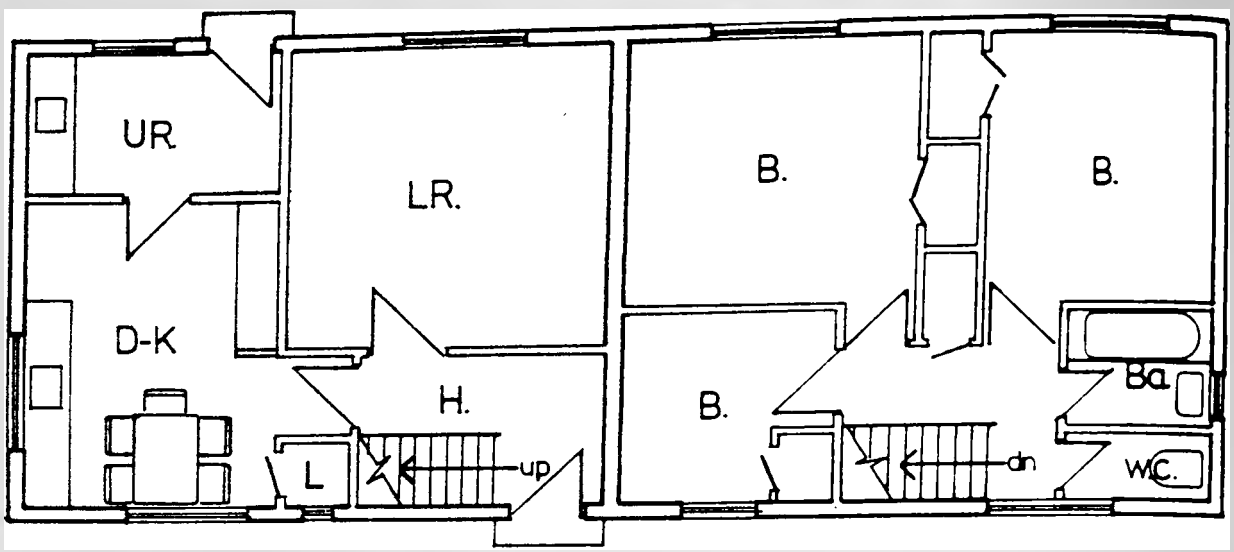


Fig. 2.7 Dining Kitchen S-D. 1:100

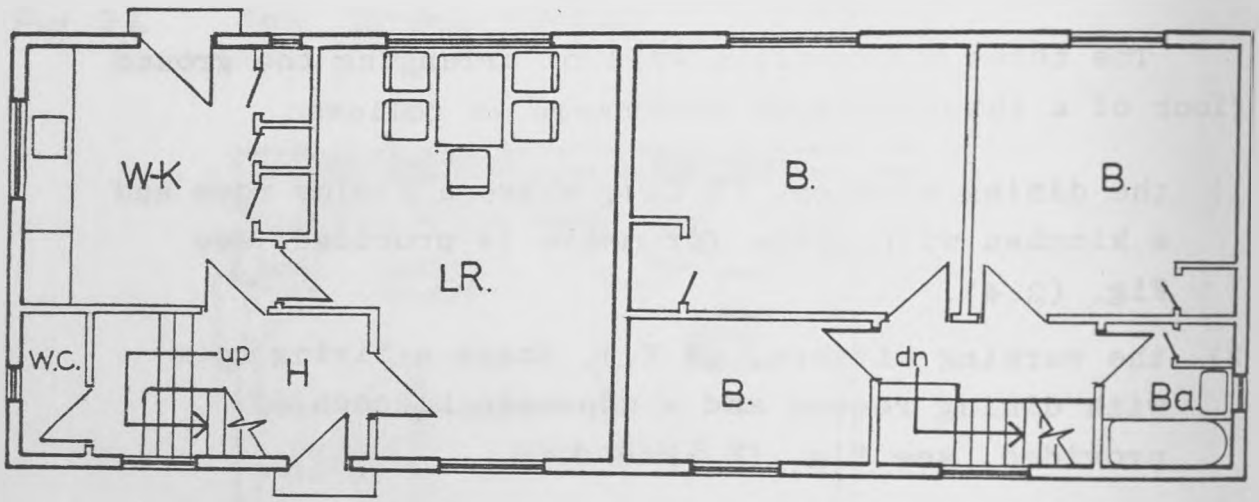


Fig. 2.8 Working Kitchen S-D. 1:100

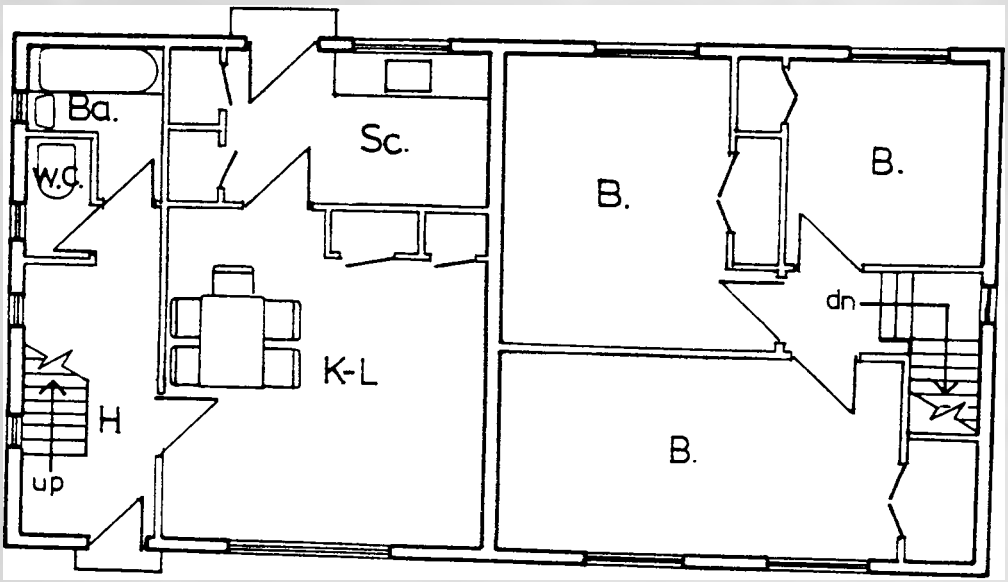


Fig. 2.9 Kitchen-Living Room S-D. 1:100

cheerful room where meals were taken - the dining kitchen - large enough for the table and all the kitchen fittings and equipment; and another more private room - the living room - for other activities; the Tudor Walter's Report expression 'parlour' had been dropped altogether as old fashioned and obsolete. The dirty work such as washing clothes had been moved into a separate small compartment, the 'utility room', to 'make' the kitchen a really livable room.

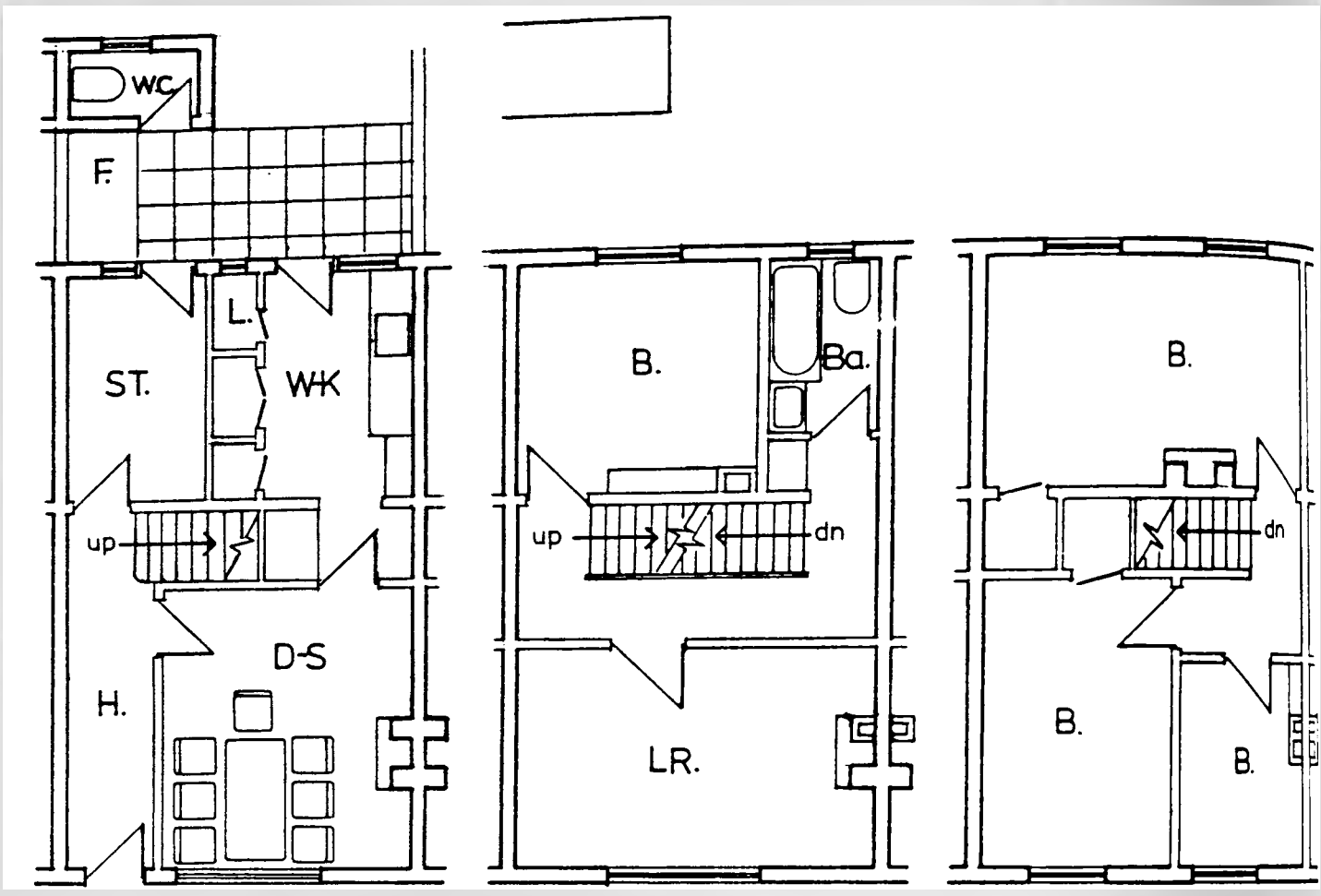
Of the most important 'changes' concerning the types of dwellings of this period, was the substitution of the semi-detached pairs of the 'normal' three-bedroomed houses by terrace housing. This substitution, mainly after the early 'fifties, was the by-product of the Government's economic drive of the 'fifties, which compelled local authorities to take advantage of the economies of land, site works and construction which terraces can provide. On the whole the lead given by the M.H.L.G.'s 'Development Group' from 1953 onwards in cross-wall terrace housing does not seem to have been followed by local authorities to the extent it was hoped.

Semi-Detached Houses: Of these the most suited to urban areas were those ones based on the W.K. and D.K. plan arrangements, Figs. (2.7, 2.8, 2.9).

As far as the planning of the houses is concerned, special attention was drawn to the arrangements of their outbuildings. So on level sites the outbuildings (of the two adjoining houses) were grouped to form a screen separating the back doors and providing an effective link between the blocks of houses; on sloping sites, the outbuildings were attached to the side of the wall of the house. With respect to their internal planning the following 'principles'[6] should have been observed in every case viz:

Fig. 2.10 NARROW FRONTAGE TERRACE HOUSE 1:100

H.-MANUAL 1949



ground floor plan first floor plan second floor plan

1) All rooms were to be of simple and convenient shape;

2) there should be a separate access to each of the principal rooms in the house from a common entrance hall or landing;

3) no room should be so arranged as to serve as a passage;

4) the living room should have a sunny aspect and

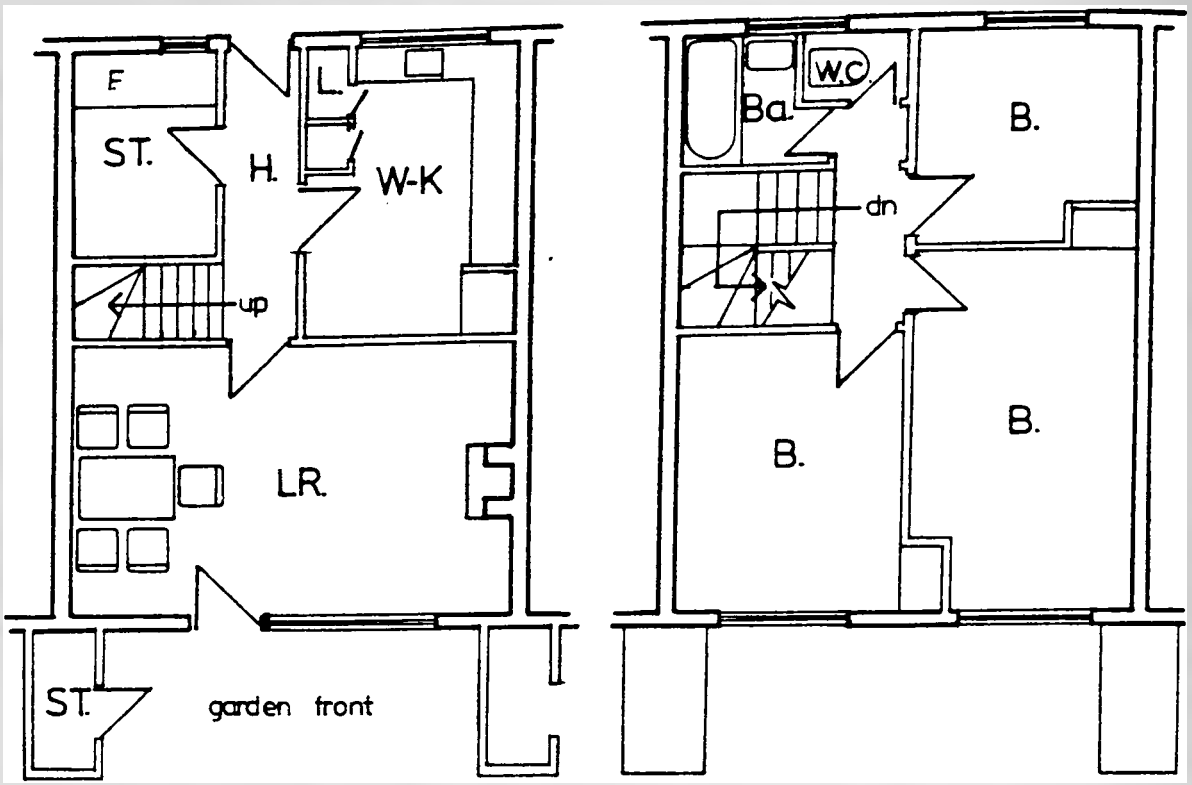
5) in planning the bedrooms, account should be taken of the beds and other furniture they are to contain and the intended position of the beds should be shown on the plans.

Terrace Houses: The re-introduction into urban areas of this traditional type of house has much to commend it, not only on the ground that it provides more suitable family accommodation in high density areas, but also because it enables an urban character to be given to housing developments. The designs of terrace houses are divided basically into two groups: a) the narrow-frontage and b) the wider-frontage, each subdivided into two sub-groups depending on whether they are 2 or 3 storeys high. In every plan provision is made for access from the front to the back of the house, the access was provided by a covered passage serving each house or adjoining houses.

a)1. The narrow frontage three-storey terrace house: see Fig. (2.10).

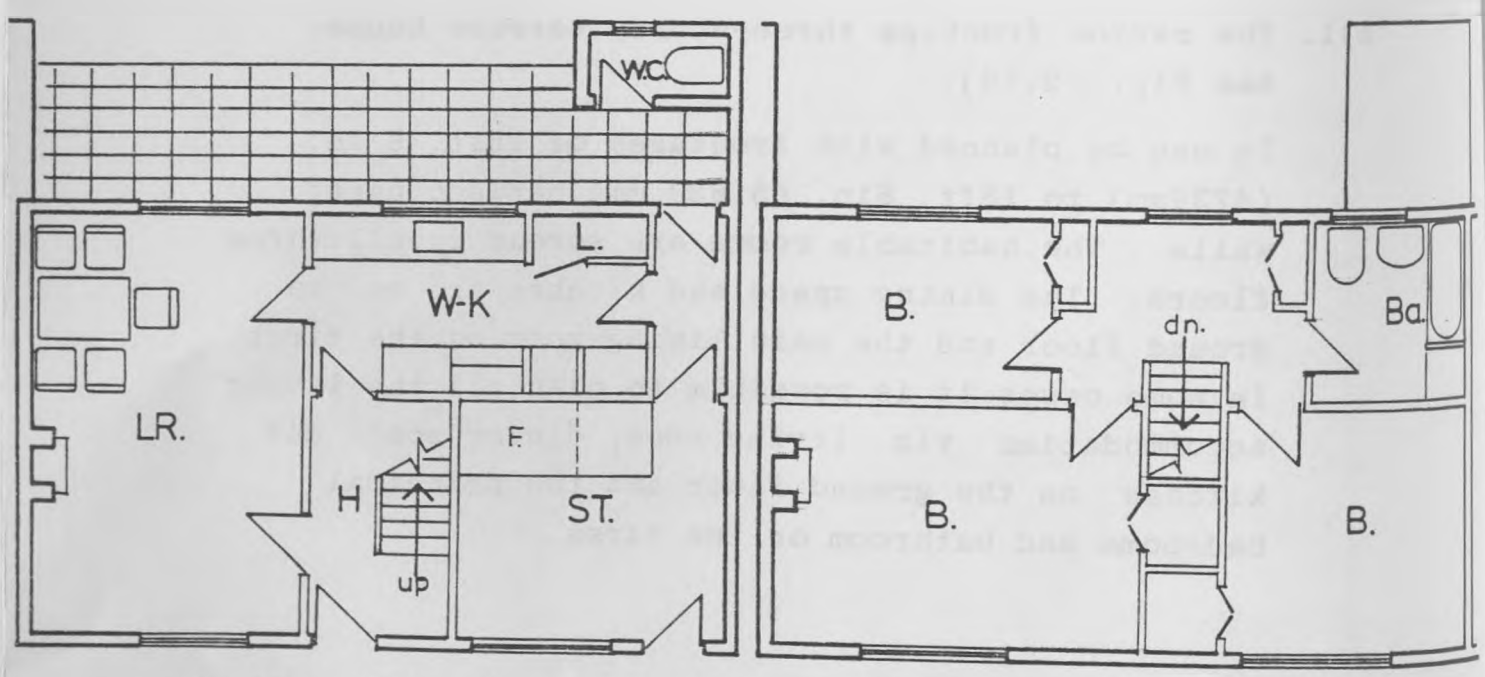
It can be planned with frontages of 15ft. 6 in. (4,724mm) to 18ft. 6in. (5,639 mm) between party walls. The habitable rooms are spread on all three floors. The dining space and kitchen are on the ground floor and the main living room on the first. In some cases it is possible to plan all the living accommodation viz living room, dining space and kitchen on the ground floor and the principal bedrooms and bathroom on the first.

Fig. 2.11 NARROW FRONTAGE TERRACE HOUSE 1:100
"Houses 1953" MANUAL



ground floor plan first floor plan

Fig. 2.12 WIDE FRONTAGE TERRACE HOUSE 1:100
H.-MANUAL 1949



ground floor plan first floor plan

a)2. The narrow frontage two-storey terrace house: see Fig. (2.11).

In this type of house the dining-kitchen and living room are always on the ground floor with the sleeping accommodation and bathroom together on the first.

b)1. The wide frontage three-storey terrace house:

This type had a very limited application in local authority schemes and was generally used by the private sector for higher income families. The accommodation is raised above ground level to allow an entrance hall, a garden terrace, garage and store to be provided within the main containing walls. It practically provides all the same conveniences as the normal two-storey terrace.

b)2. The wide frontage two-storey terrace house: see Fig. (2.12).

In this type the working-kitchen or the dining-kitchen with the entrance lobby and the living room are on the ground floor while the bathroom and the sleeping accommodation are upstairs.

To these we must add another group of terraces;

c) the 'odd group'; the aim of which was to reduce the overall size of the house as far as can be reasonably done and to plan a house in which the circulation space is reduced to a minimum. The plans of these houses are classified on the various combinations of the following 'points' viz :

1) Whether separate access from the entrance hall to the kitchen is provided;

2) how access is to be given from the front to the back of the house;

3) whether storage is outside or within the house and

4) the use of a particular type of heating installation;

in three broad groups as follows:

"Houses 1952" MANUAL 1:100

Fig. 2.13 TERRACE HOUSE WITH REDUSED CIRCULATION

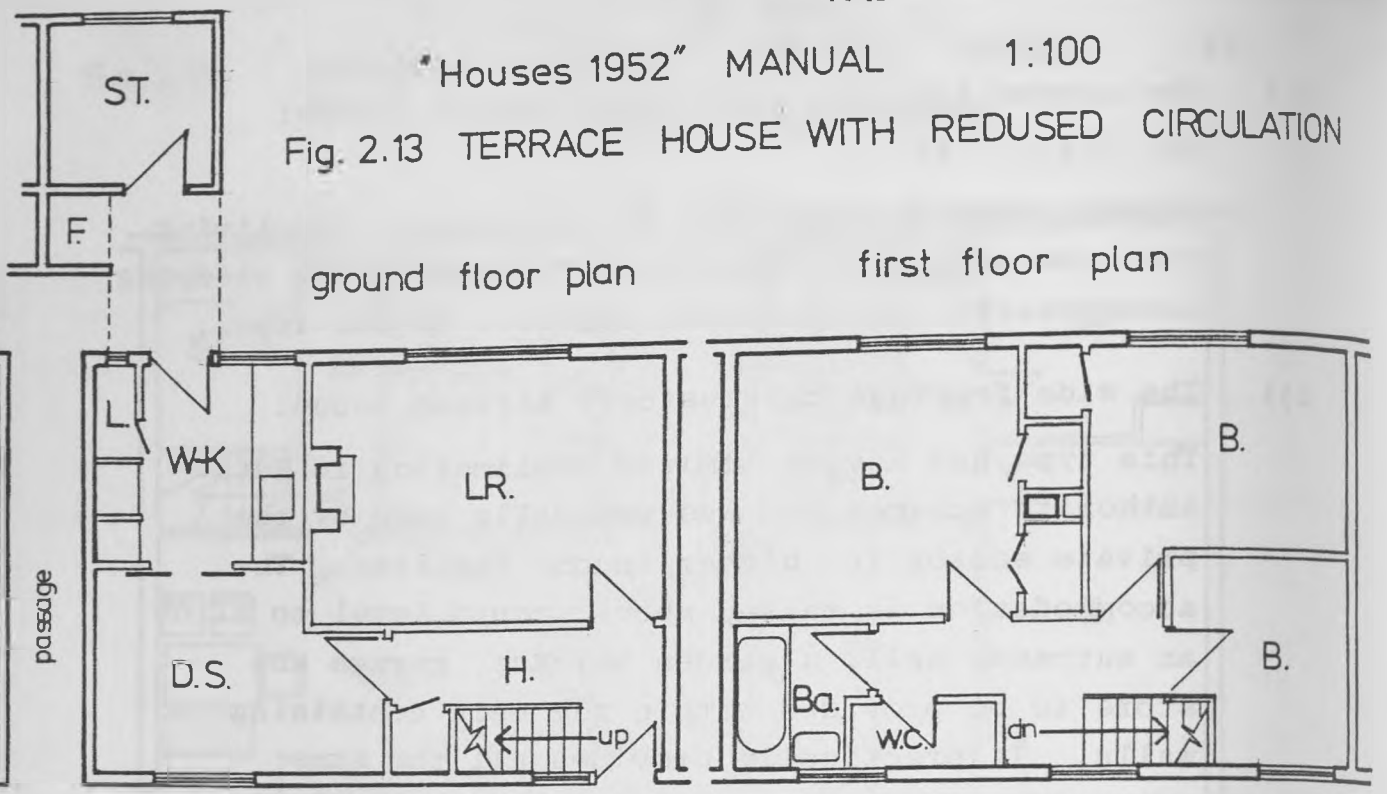


Fig. 2.14 TERRACE HOUSE WITH ACCESS THROUGH THE STORE AND KITCHEN

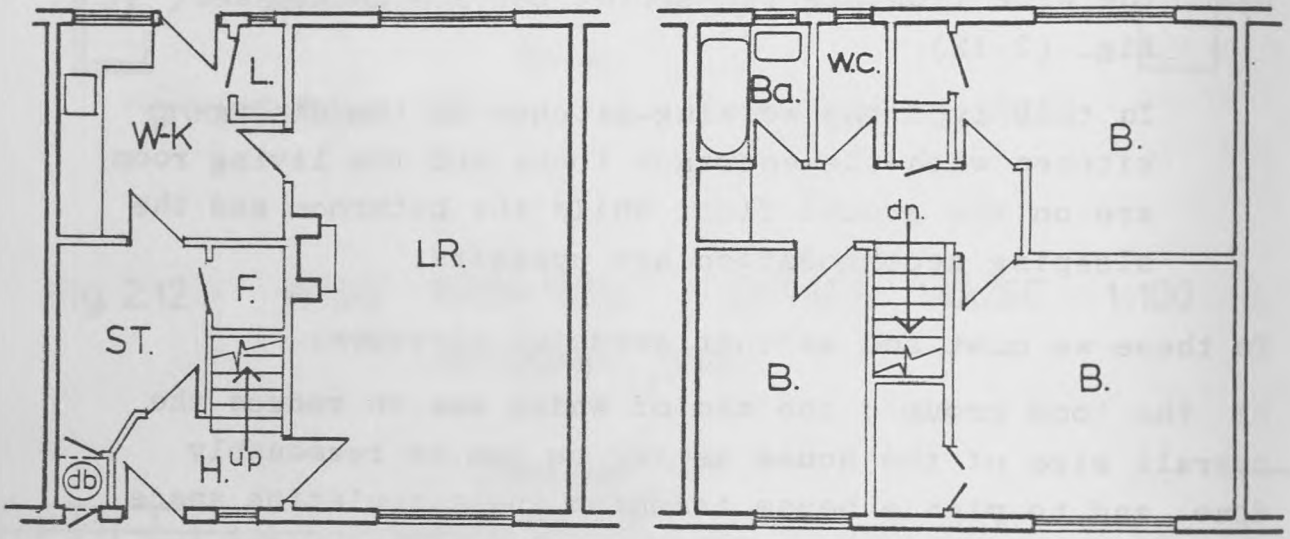
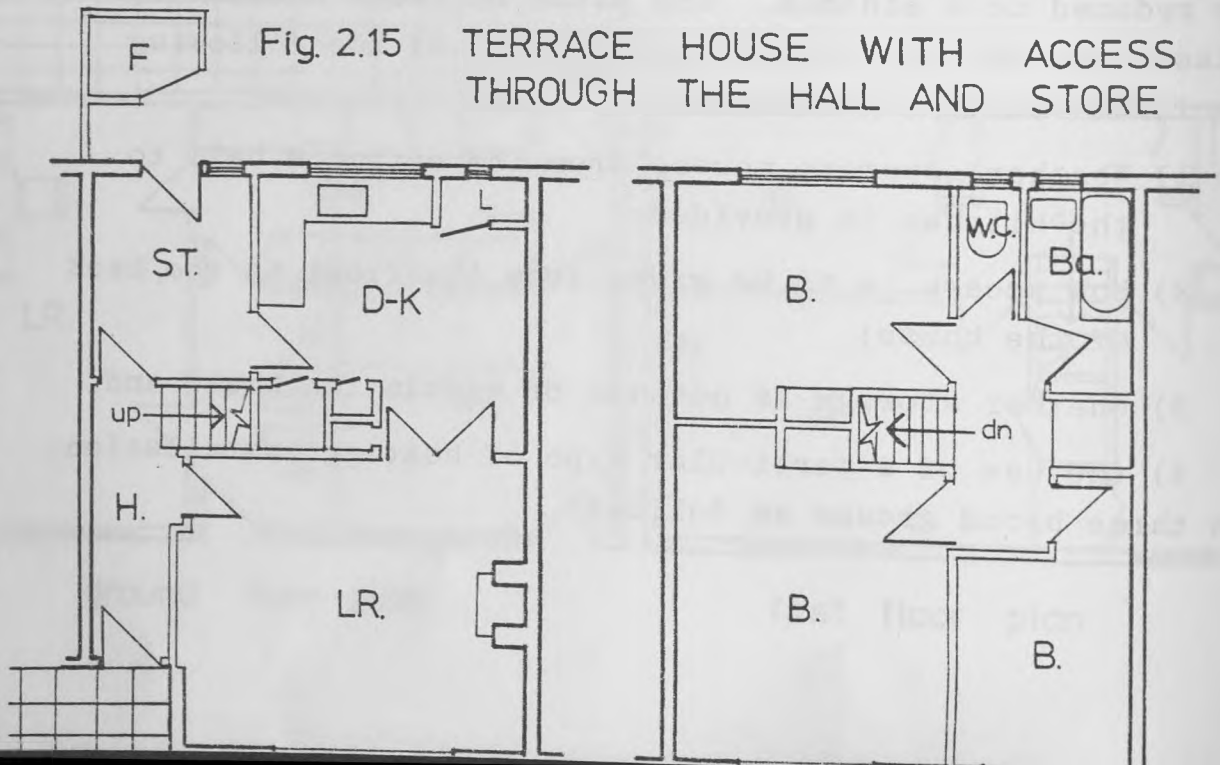


Fig. 2.15 TERRACE HOUSE WITH ACCESS THROUGH THE HALL AND STORE



c)1. The 'orthodox type' of terrace house;

a) with reduced circulation
b) with variation in methods of access from front to back of the house:
b) (i) with access through the store and kitchen,
(ii) with access through the hall and store.

c)2. The 'dining hall' terrace house and

c)3. The 'large living room' terrace house.

Each of these groups is briefly described below:

c)1.a; see Fig. (2.13); A familiar type of plan. Access to the ground floor rooms is from the entrance hall. The access to the back of the house is by a covered passage common to two houses. This passage serves no other purpose. The storage accommodation is provided in outbuildings. To overcome the objection to the covered passage, the alternative was: ground floor rooms entered from a hall and access to the back through a store within the walls of the house.

c)1.b)(i); see Fig. (2.14); In this type the store is in the front of the house and includes fuel storage. The dustbin is in a special compartment accessible from the front. Access to the back from the store is through the kitchen. The 'exceptional' thing about this plan is that access to the kitchen is either from the living room or from the store.

c)1.b)(ii): see Fig. (2.15); A separate access from the hall to the rooms on the ground floor is provided here. The fuel store and dustbin are at the back of the house.

c)2.; see Fig. (2.16); In this type of house which has a 'proper hall', the staircase rises from the dining space. Radiators heat the dining space and kitchen and heat rises to the bedrooms upstairs.

c)3.: see Fig. (2.17); The living room of this group of houses is larger than those previously examined. A 'proper hall' is provided in place of the normal staircase hall. The kitchen is entered from the living room and the store. The staircase rises from

Fig. 2.16 THE DINING HALL TERRACE HOUSE 1:100
"Houses 1953" MANUAL

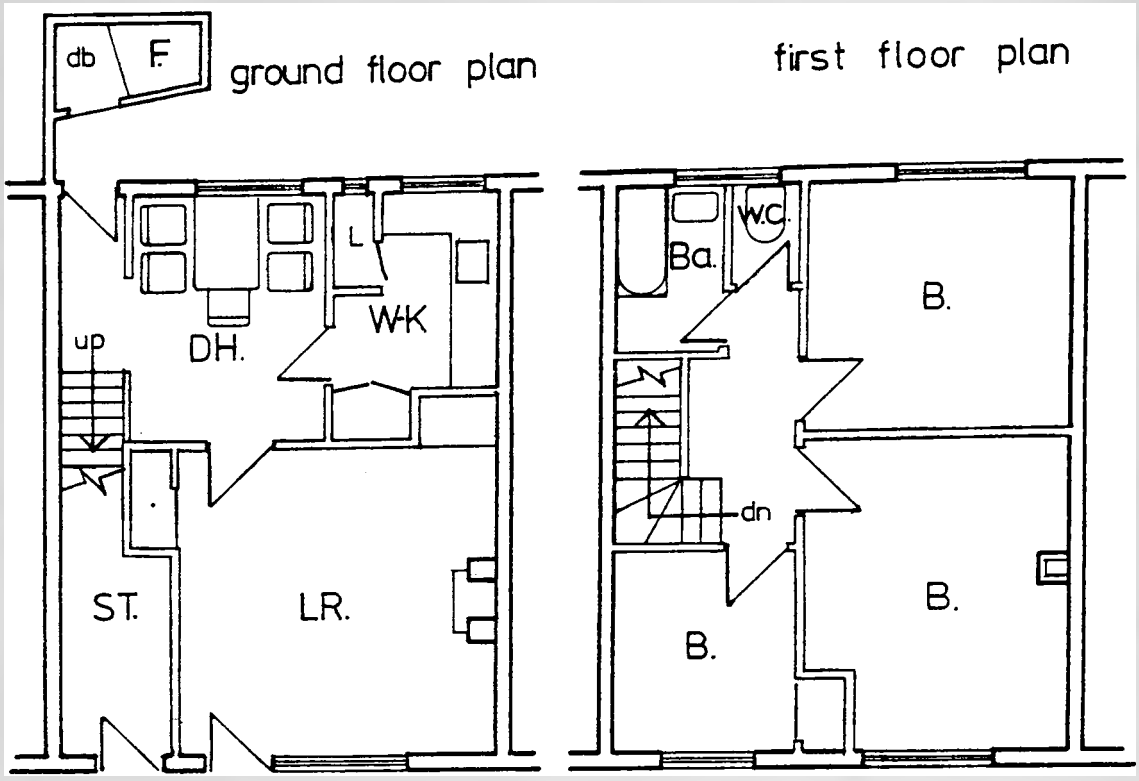
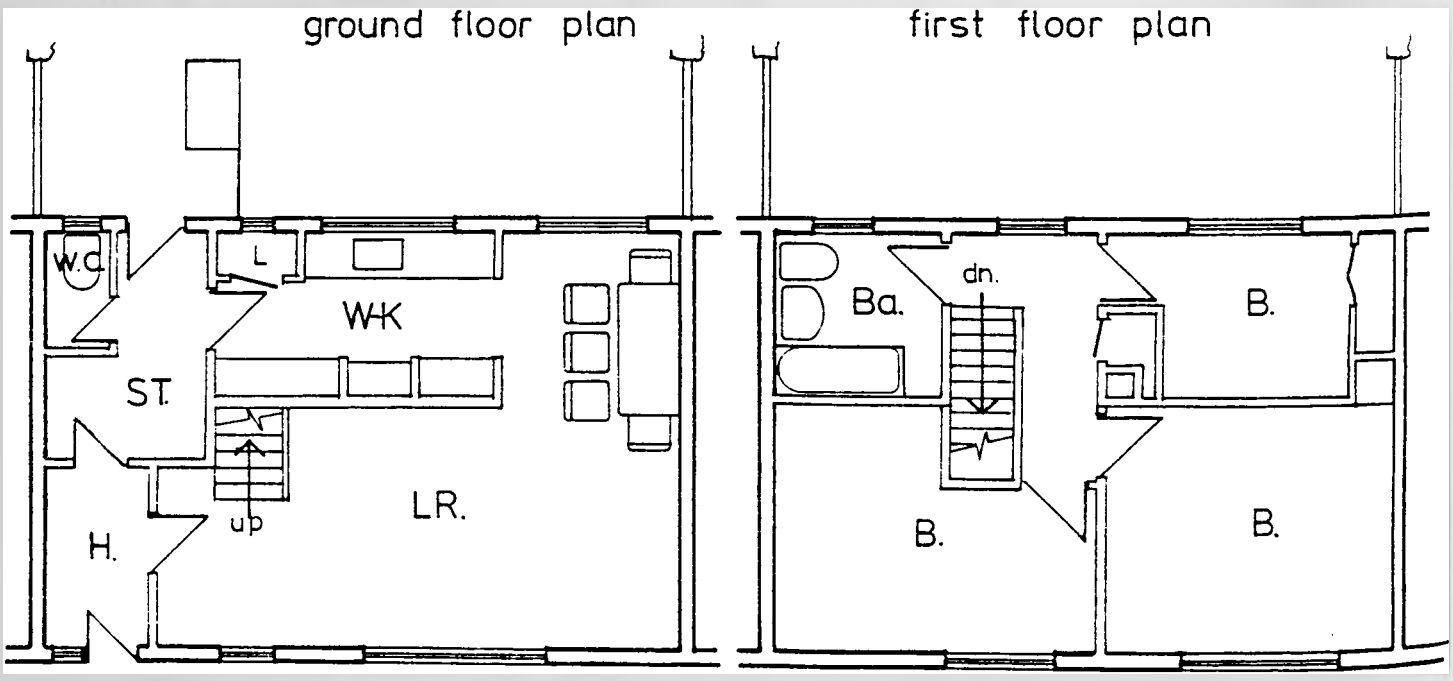


Fig. 2.17 THE LARGE LIVING ROOM TERRACE HOUSE 1:100
"Houses 1952" MANUAL



the living room and allows heat to circulate to the bedrooms upstairs.

Flats and Maisonettes: For the first five years or so after w-war-II, multi-storey housing consisted almost exclusively of straightforward rectangular blocks of balcony access or staircase access flats These were mainly from three to five-storeys in height, with occasional high density schemes containing eight to ten storey blocks, e.g. Churchill Gardens, Pimlico, Stevenage New Town. The following five years (1950-55) saw the introduction of a whole variety of new block forms: point blocks, T-blocks, Y-blocks, cruciform blocks, containing essentially similar individual flat units to the earlier types and also some new types of flat units based on the use of mechanical ventilation for internal bathrooms. Also this period saw too the widespread introduction of the maisonette units arranged generally in straight balcony-access block forms.

Flats: There are two broad categories of blocks of flats:

1) Low blocks of flats without lifts, two to three storeys high, see Fig. (2.18) and

2) high blocks of flats with lifts, five or more storeys high, see Fig. (2.19).

The average flat dwelling contains an entrance lobby from which are approached a living room, two-three bedrooms, a bathroom and a w.c. The room areas vary between 100 to 160 sq.ft. Generally room sizes are much the same as in houses for the same number of occupants. The W.K. and D.K. plan arrangements are the most suitable ones. Fuel storage is so planned that fuel can be delivered without

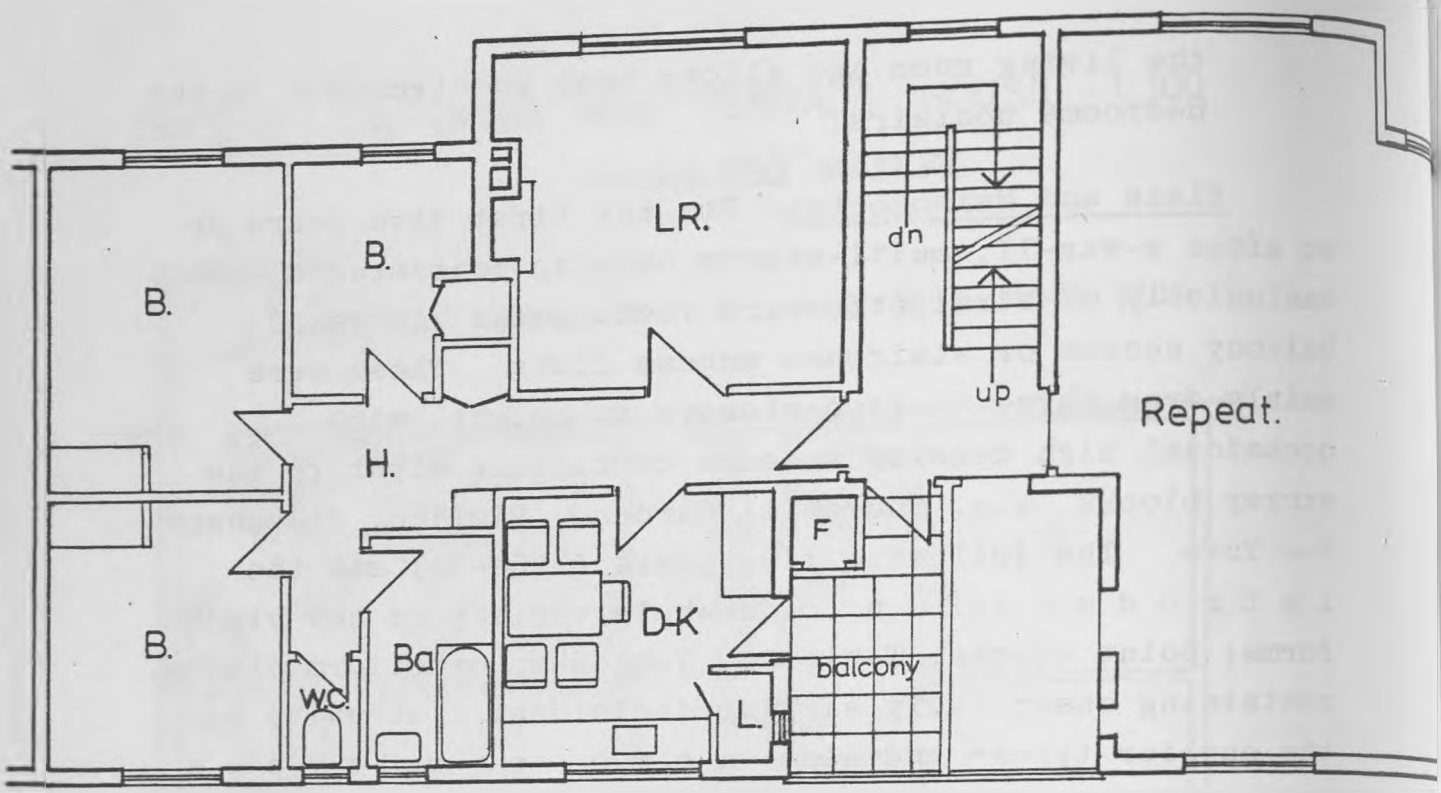


Fig. 2.18 3-STOREY "WALK-UP" FLATS 1:100

H.-MANUAL 1949
upper floor plan

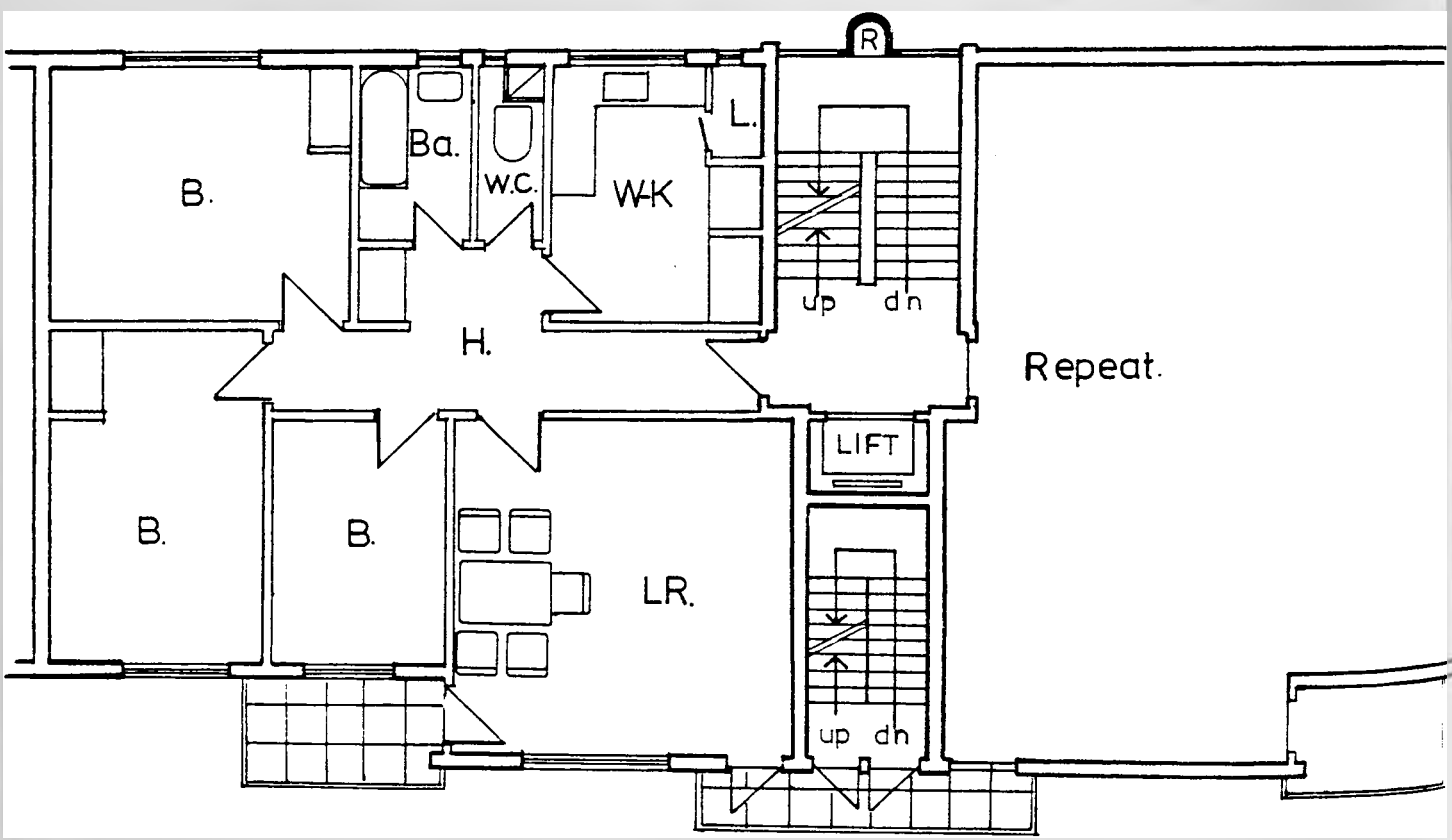


Fig. 2.19 5-STOREY FLATS WITH LIFTS 1:100

H.-MANUAL 1949
upper floor plan

entering the dwelling while the tenant can have access from within. In general the disposal of refuse in high flats is accomplished by the provision of chutes on each floor, within easy reach from the flats. The chutes discharge into receptacles which can be closed when full and removed by the sanitary authority. For blocks of flats of not more than three storeys, portable bins are used. As to the best arrangements for laundry work there were two schools of thought. One favoured the communal laundry and the other preferred arrangements for doing the job in the flat itself. Small communal laundries or communal utility rooms with less elaborate equipment were planned at the end of the balconies, (balcony access flats), off the staircase, (fire exit), in conjunction with communal drying rooms. With those who preferred to do their washing in their houses, the washing equipment was placed either in the bathroom with a separate w.c., or in the kitchen, but no provision of a separate utility room was made in either case. Communal drying rooms were provided in the roof space, at the ends of the access balconies or opening off the staircases.

A rather 'odd' subgroup of the low-block of flats is the specially designed corner block, see Fig. (2.20), a by-product of the early 'fifties economic drive, to economise in the use of road frontage. There were both 'internal corner' and 'external corner' blocks of flats which in turn subdivided into those corner blocks linking terraces at right angles and parallel to one another.

Maisonettes: Similarly to the flat's sub-division, they can be classified into two main groups:

1) The four-storey blocks of maisonettes without lifts, see Figs.(2.21, 2.22), and

2) the high blocks of maisonettes with lifts, see Fig.(2.23).

Fig. 2.20 TWO-STOREY INTERNAL CORNER FLAT 1:100

"Houses 1953" MANUAL

ground floor plan first floor plan layout

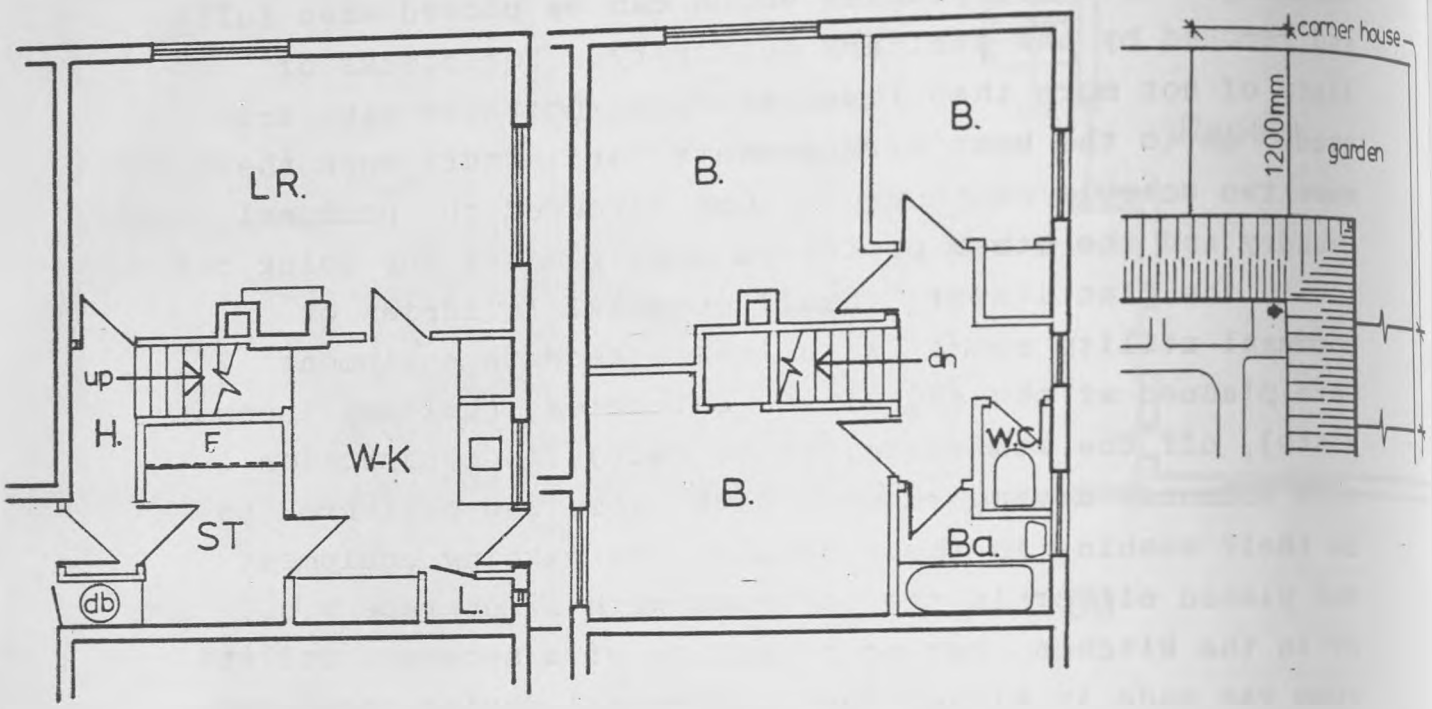
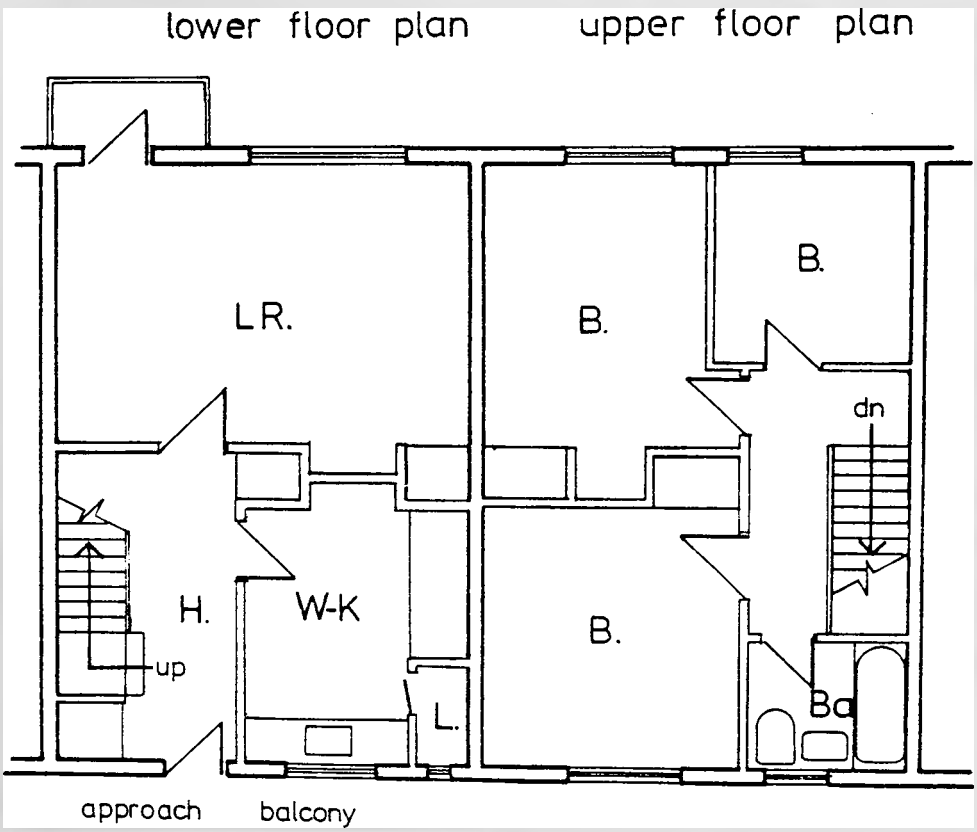


Fig. 2.21 FIVE-PERSON MAISONETTE IN A FOUR-STOREY BLOCK

1:100 H. MANUAL 1944



The maisonette has been found a satisfactory compromise between the family flat and the separate house with the garden. A typical arrangement of the group 1) dwellings is that with access to the upper maisonette from a balcony. The advantage of such an arrangement is that balcony access and sound insulation need only be provided on alternative floors. Room sizes and superficial areas of maisonettes are approximately as those of houses for similar households. The D.K. plan was used where communal facilities for laundry were to be provided, otherwise the W.K. plan arrangement was the best one for a maisonette.

As to the 'advantages of maisonettes versus flats', they have been summarised by Cleeve Barr,[7] as follows:

1) They allow twice as many dwellings to be planned with direct access to the ground, and as a corollary of this, twice as many dwellings can have private gardens or at least small private yards bordering a communal open space.

2) Access from the ground to front door is quicker, with fewer lift stops.

3) As compared with balcony access flats, (the normal alternative at similar cost), there is greater privacy because bedrooms and bathrooms need not be placed on access galleries and there is less overshadowing of rooms by balconies.

4) In 4 storey blocks they avoid the use of lifts, since the walk-up to the third floor level is generally accepted as reasonable.

5) They produce a better scale in taller buildings and are cheaper because every second floor is timber.

6) Social surveys made by the Greater London Council sociologists of the Architect's Department, showed that maisonettes were more popular with tenants than flats.

Fig. 2.22 FIVE-PERSON MAISONETTE IN A FOUR-STOREY BLOCK

1 : 100 H.-MANUAL 1949

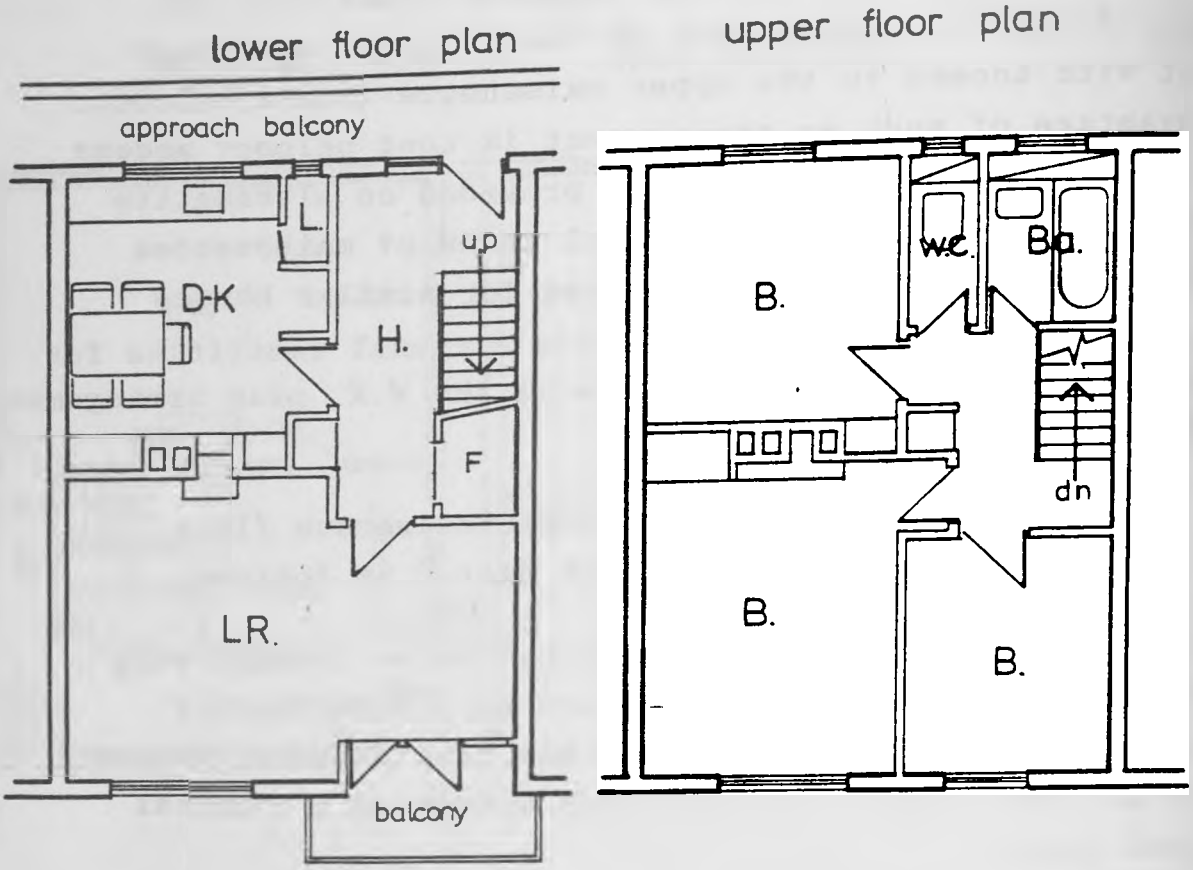
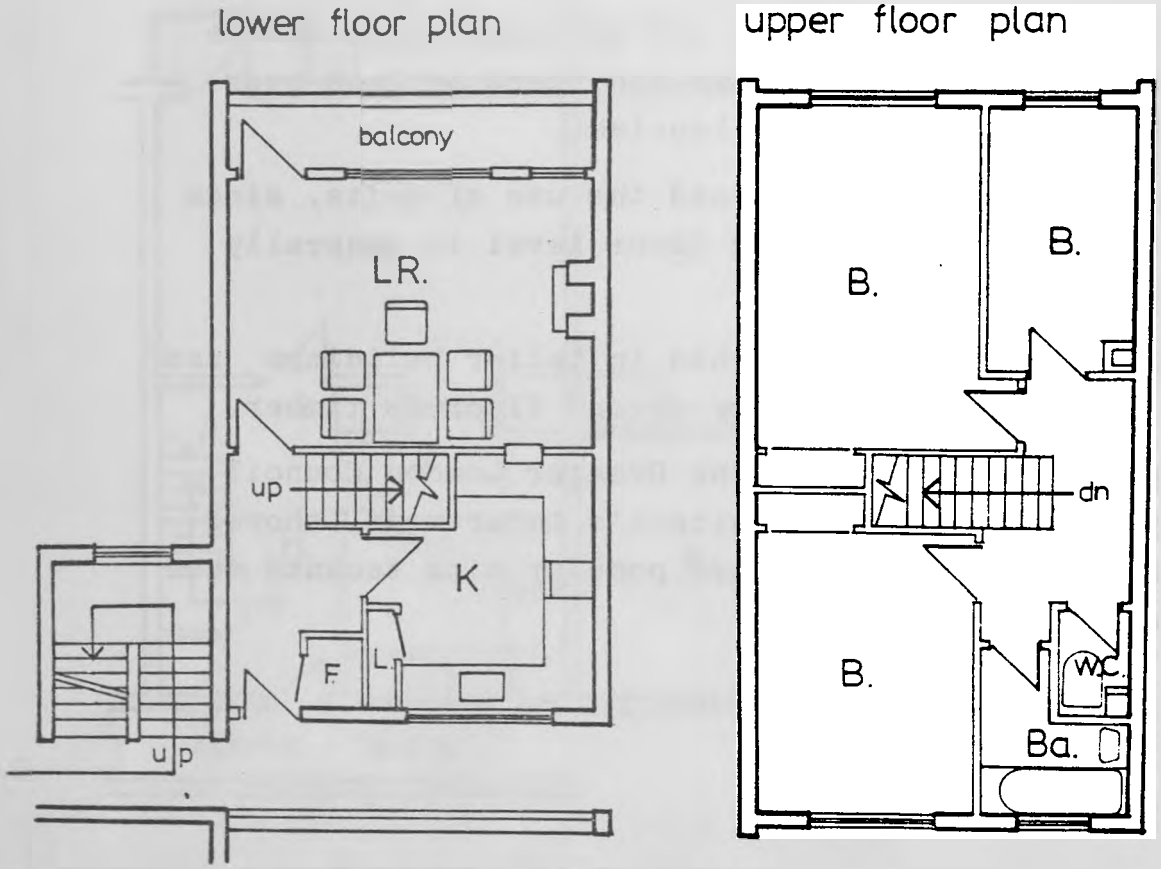


Fig. 2.23 A MAISONETTE FOR A FOUR-STOREY OR HIGHER BLOCK
(subject to the provision of approved means of escape)

1 : 100 "Houses 1953" MANUAL



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2. H.M.S.O., "Houses 1952", Second Supplement to 1949 Housing Manual, M.H.L.G., 1952, Foreward by Harold Macmillan, Minister of Housing and Local Government.

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4. "Housing Manual 1944" reviewed, RIBA Journal, October 1944, Vol. 51, p.314.

5. H.M.S.O., "Design of Dwellings", The Dudley Report, 1944, p.15, paragraph 48.

6. Ibid, paragraph 49.

7. Barr, A.W. Cleeve, "Public Authority Housing", B.T. Batsford, London, 1958, p.65.

CHAPTER 3: The 1955-1965 Decade

Section 3.1.1: Introduction

On the social context of this decade the 1955-65 generation was the first one for a very long time who had never known anything but conditions of economic growth and prosperity in every direction. During this period the number of car owners was doubled from about 8 cars per 100 population at the start of the decade to 16 cars at the end of it, whilst television sets ownership rose from 36 percent to 80 percent of households. These years were also of the great boom in consumer goods, the transistor radios, tape recorders, cameras and the boom in overseas packaged holidays. In 1951 the Conservative Party won and remained in power for the next ten years, perhaps confirming the old saying: "that people vote Labour in adversity but Tory in prosperity". Looking back one can see the justice of Harold MacMillan's saying: "You have never had it so good.".

But what was happening in architecture with this tremendous burst of prosperity? The year 1955 marks the final removal of wartime restrictions on building. Housing output fell sharply in 1955 and stayed around 250,000 a year (for England and Wales alone) or 300,000 for Great Britain as a whole until the end of the decade; an increasing proportion was private enterprise. The number of houses was growing almost in parallel with the number of households with virtually no shortage of dwellings.

"The decade began with the austere, diagrammatic anonymous manner exemplified in Elsom's Eastbourne Terrace offices... By its end we were in the béton brut era of the Hayward Gallery. There are distinct signs in the early sixties of two things: a retreat from the metal curtain wall and a certain sort of mannerism... The belief in letting the plan speak through the elevation,

has been sophisticated out of recognition by the need to create an image."[1] On the housing front, housing architects were obsessed by two building types: the point-block and the Unité d'Habitation (the slab block). Their imagination was fired by two essentially separate aspects of the 'Corbusian Architecture': the idea of the superblock, i.e. housing an entire residential community together with shops, nursery schools and other communal facilities, served by horizontal 'streets' at various levels and the idea of the duplex cell, i.e. interlocking maisonettes, instead of the flats, as the basic unit of multi-storey housing, (up to 14 storey high), which was on growth throughout this decade.

Section 3.2.1: Government 'Official Guidelines'

During this second postwar decade the number of 'Official Guidelines' in the form of Manuals and Reports issued by the Government had been reduced, while 'their advice' to local authorities was increasingly taking the form of 'Design Bulletins' and Circulars. The most important ones of this decade are:

'Flats and Houses' 1958:

The purpose of this Manual of the Ministry of Housing and Local Government (M.H.L.G.) says in its foreward (by the Minister Henry Brooke) that it is to help local authorities who face house-building problems at high density, without taking it as an encouragement to "use densities or multi-storeyed buildings where they are not really necessary".[2]

The material of this book differs in kind from that in the Government's previous manuals, which have given guidance on standards and illustrated those standards in plans of dwellings and sometimes layouts, in that it is illustrated mainly for the purposes of comparison and its aim is NOT to recommend but to illustrate possible solutions. The material also differs in another way from that in previous manuals; that is the relative complexity of its subject: 'design and economy'. Even with two-storey houses, there is a wide range of possible solutions to any given problem in design and layout, but when it is a matter of providing good dwellings at high density, the number of possible solutions becomes very large indeed; therefore the material shown in this manual hoped to illustrate whether economies can be found without reducing the quality of dwellings or the architectural standard of design and are not claimed as the best possible solutions.

Chapter 1 shows how economy in a layout of high density depends upon the choice and the way in which the

various types of dwellings and blocks are used together in a 'mixed' form, and in particular of keeping to a minimum the proportion of high building. In Chapter 2 some of the problems of using to best advantage the space around the buildings are considered. Chapter 3 returns to the main theme of 'design and economy'; "that thousands of pounds can be saved by planning for only the minimum of high building, or often none at all";[3] while Chapter 4's main 'subject' is the planning of the various building types themselves as a further possible source of savings. On the whole with the exception of the Second Chapter the manual concentrates on the selection of building types in a layout and the use of economical dwelling and floor plans.

The 'Parker Morris Report' 1961:

Entitled 'Houses for Today and Tomorrow', it is the product of the Sub Committee (of the Central Housing Advisory Committee), under the chairmanship of Sir Parker Morris.

This very readable report is not just another new look at housing standards and not just recommendations for a bit more space. It has not carried on the tradition of providing lists of minimum room sizes and it looks at needs for the first time. Two of the most important merits are: its understanding of the affluent society and of being sensitive to the aspiration of architects.

The most radical thing about this report is its rejection of minimum room sizes; instead it substituted minimum overall sizes for the dwelling, related to the size of the family, thus leaving to the architect the scope and authority about how to maintain standards. It is this that liberates the architect from the tyranny of minimum room sizes, so that he becomes free to plan the total space - itself increased - to satisfy the family

requirements. The crux of this report comes in paragraph 21 which leaves no doubt of the necessity for the architect's skill thus: "Our recommendations are made on the basis that architects must be employed as the designers of houses...." The use of the word 'must' (not 'should') did not pass unnoticed afterall. It is indeed for this premium that the report places on the architect's skill, that Cleeve Barr described it as the "Architect's Charter", while Eric Lyons added:"To me is this remarkable idea .... quite audacious, of improving housing design by using architects ... This concept that designing houses is a special job ...., it will surprise an awful lot of lay experts in the housing world and a lot of architects too. This is indeed a challenge to architects to be set free from the old shackles."[4]

Nevertheless this 'quite audacious' idea in itself is not all new of course; it was the Tudor Walters Report, forty three years before which said: "We recommend that every housing scheme submitted to the Local Government Boards for approval shall be prepared by a competent architect whose duties shall include the preparation of the layout plan and the design and planning of all houses";[5] an unmistakable influence of Raymond Unwin, prominent member and principal writer of the Tudor Walters Committee Report.

The Parker Morris Report's main recommendations can be summarised as follows:

1) Provision for one car per house (or flat) with extra provision for visitors.

2) Space for the new kitchen gadgets and a bit more space for those still to be invented.

3) More electric socket outlets.

4) More storage space generally.

5) Space heating.

6) A second w.c. and

7) Children's play spaces.

The report declares that flats or maisonettes should be as big as houses. After all, it argues, people living in flats have no gardens of their own and if anything are entitled to more space. The recommendations about kitchens are interesting; not only should they be designed for efficient working and so on but there should be room for two or three people to sit down to meals comfortably. The Committee made the suggestion that plans should have the furniture marked on; at least this makes the architect think about what is going into the rooms which he designs. Other aspects of this Report dealt with are those of the housing environment and the 'externals' of housing development such as landscaping, car parking, play spaces for children, gardens and layout in general. It concluded by maintaining that: "Good homes are worth paying for, even at the sacrifice of some other things;...."[6]

Design Bulletin No. 6: 'Space in the Home', 1963:

This bulletin of the Ministry of Housing and Local Government was 'designed' to follow up the Parker Morris Report which adopted a new approach to house design as well as recommended new minimum standards. The bulletin set out to do three things:

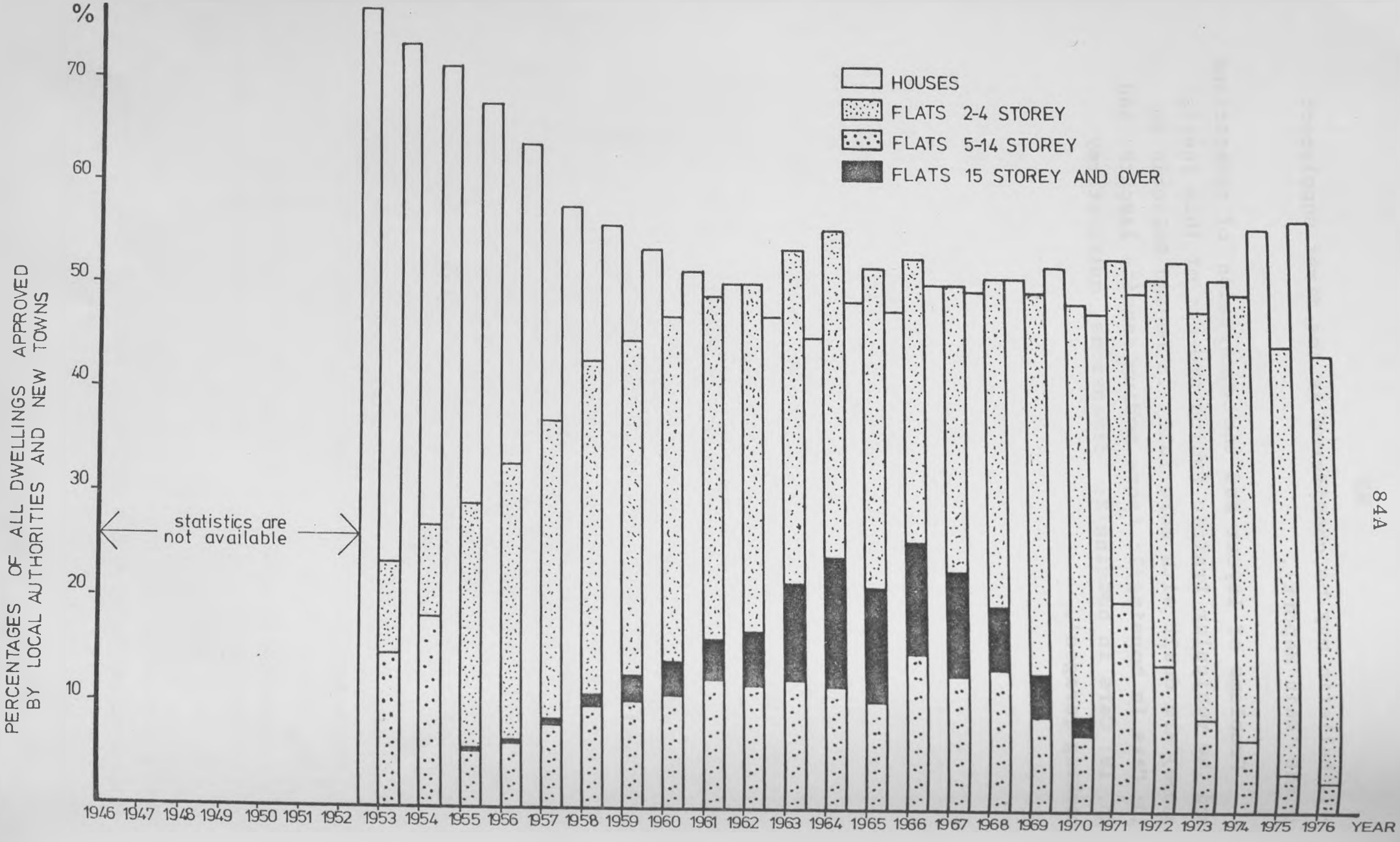
1) To illustrate some of the main family and person activities for which the design of a house has to cater;
2) To set out in quickly accessible form, suggested space and furniture requirements related to activities and
3) To provide a specimen analysis of a house plan to illustrate the approach and the standards recommended in the 'Homes of Today and Tomorrow'.

The bulletin is not a substitute for the Parker Morris Report which remains the basic document. In other words

this bulletin may be considered as the first supplement to the 'Main Report'.

Problems of layout and the segregation of pedestrians and the vehicular traffic (which are out of this thesis' scope) are dealt with more fully in Design Bulletin No. 10: Cars in housing/1: 'some medium density layouts' and No. 12: Cars in housing/2: 'dimensions, multi-storey parking garages'.

Fig. 3.1 HIGH RISE HOUSING 1953-1976. ENGLAND AND WALES.



Section 3.3.1: The 'Rise' of the High Blocks of Flats

Officially the 'high flats' are defined thus: ".... high blocks of flats or maisonettes with lifts, of five or more storeys...."7

Official statistics show that the proportion of dwellings in blocks of five storeys or more averaged 6.9 percent from 1953 to 1959, rose to a peak in the mid-sixties with a maximum in 1966 of 25 percent and fallen to their lowest ever in 1976 to 3,5 percent, see Fig. (3.1). Almost all dwellings in high blocks have been provided by the local authorities in three distinct phases viz : the 1953 to 1960 of 'gradual increase', the 1961 to 1966 of 'sharp increase' and the 1967 to 1970 of 'marked decline'.

Out of what is the explanation of this innovation of 'high rise', which in statistical terms is more than just a visible fact? Of the most powerful conceptual basis of this innovation was the widespread influence of the 'Modern Movement' on the generation of architects who were coming to professional maturity in Britain in the inter-war years and the prominent part they played in post-war developments. Apart from its place in the origins of new thinking about local authority housing, the 'Modern Movement' as an ideology - which was winning increasing loyalty - gave a thrust and coherence to the high-rise innovation too.

One of the most influential 'sources', which diffussed the high-rise housing more widely, is to be found in the work of the London County Council (now the G.L.C.) Architects' Department, after its reorganisation around 1950 and the establishment of the Housing Architects' Division, through which an era of experiment and innovation was starting to open. The high slab-blocks which were built at Roehampton akin in form though

not in size and complexity of function to L'Unité d'Habitation, together with the point-blocks and other buildings on the estate formed the model upon which much subsequent high flat design was based.

Aesthetic considerations weighted heavily too in the decision to use high buildings. As Nikolaus Pevsner said: "The result was a striking visual effect such as could not have been achieved by a uniform distribution of lower building";[8] or in the Deputy Secretary of the M.H.L.G. own words: "There is nothing it seems to me more appalling, more deadening in the urban landscape than a uniform mass of low buildings covering acres and acres... I think really very high dwellings - are an enormous enhancement of the scene."[9]

High-rise housing was seen by many authorities and their professional advisers as capable of taking an important place in the slum clearance and urban renewal programmes which were undertaken with increasing vigour, resources and support from the Government from 1953 onwards in terms of the White Paper: 'Houses: The next step', Cmnd. 8996, 1953. As early as 1949 the Ministry of Health had advised that: "a greater variety of housing would be needed"[10] than had been envisaged in its previous advice of 1944 to local authorities.

During the 1950's an increasing number of authorities, particularly the largest ones, such as London, Birmingham, Liverpool, were facing shortages of building land within their boundaries. The extension of their boundaries to take in unbuilt land was very unlikely to be approved by the Government which was increasingly concerned to control urban sprawl; so another force was added to the already existing ones.

In the course of the years between 1956-1967, financial support (subsidies) from the Government was formulated so as to offset in varying degrees the extra costs to local authorities of high building. This was strengthening the case for local authorities to review their standards of density and the possible contribution from high rise housing. Indeed as the M.H.L.G. noted in its report of 1956: "while the building of multi-storey flats was still infrequent, the new subsidy arrangements provided for the first time for the subsidy to increase with the height of the block".[11]

In conclusion the following reasons can be seen as the main ones which have given rise or actively contributed to the 'rise' of high-rise housing viz :

1) High flats were seen as the means for providing a better accommodation and an improved physical environment at an anticipated 'cheaper cost', even though it was known at an early stage that they were more expensive to build per dwelling than other dwelling types, this was not expected to remain the case.

2) It was assumed that people would like 'these' dwellings, and judging from their response during the 1950's, they actually did approve of them. According to a survey's findings,(carried out by Margaret Willis), she said: "I found that not only had they become accustomed to having their homes up in the air but the majority gave positive reasons for liking it that way and did not want to move lower. In fact, out of the 156 families interviewed who were living from six to twelve storeys up, about 90 percent said that they would choose to live on a high floor rather than go lower if they were given a choice." [12]

3) High flats appeared to be both necessary, in relation to high density and open space in order to make slum clearance and open-planning at high density possible.

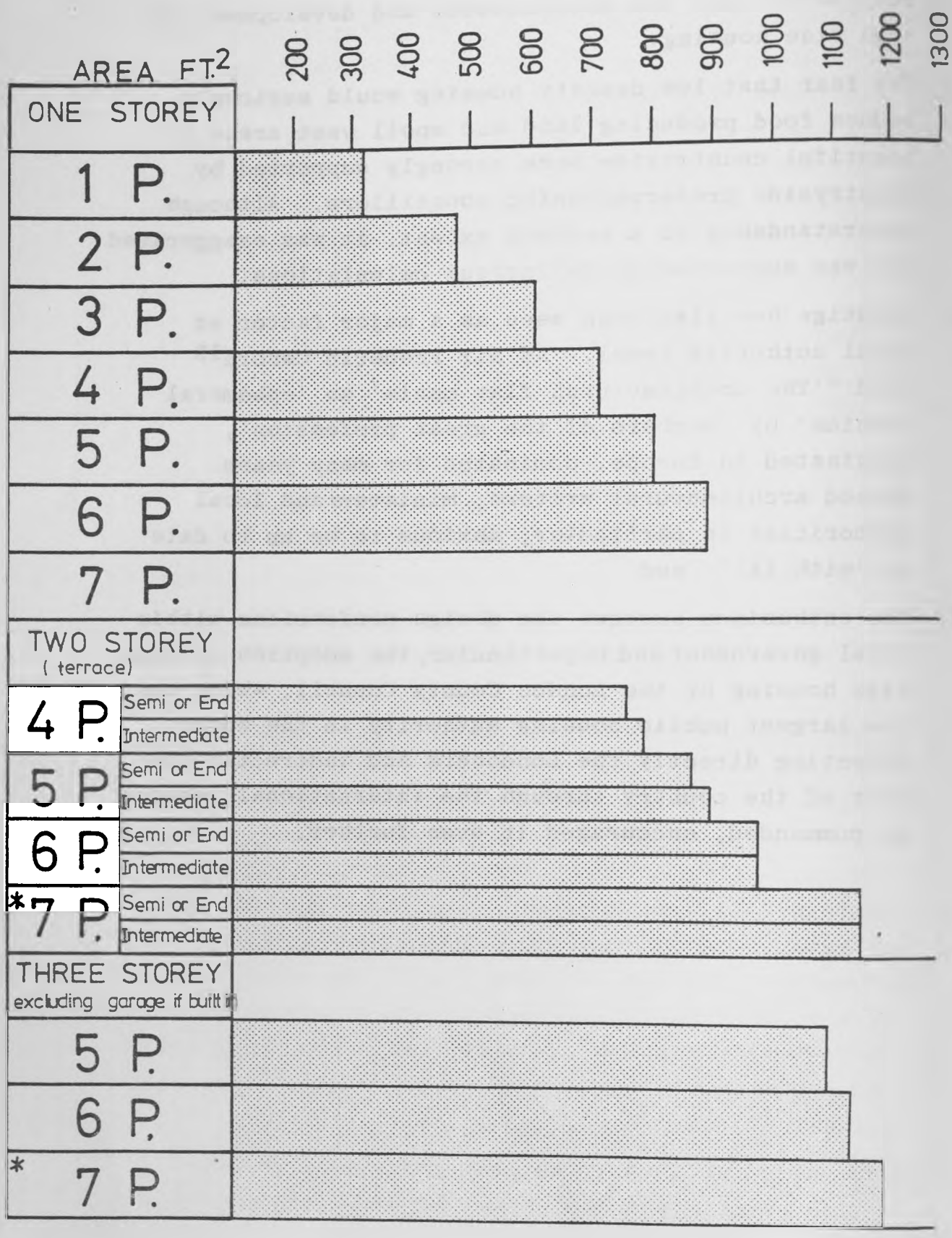
4) The application of science and technological advances to building provided both the motivating force and the link between the different parties responsible for the introduction and development of high rise housing.

5) The fear that low density housing would seriously reduce food producing land and spoil vast areas of beautiful countryside were strongly supported by countryside preservationist councillors. Although understandable to a certain extent, it was exaggerated and was supported by fallacious calculations.

6) Prestige has also been seen as a major factor at local authority level. As Sir Frederic Osborn[13] said:"'The architectural flat mania' an 'ephemeral fashion' by 'members of the great profession', originated in Europe, dominated for many years indeed architectural writers, ministers and local authorities in particular, anxious to be up to date or 'with it'" and

7) The enthusiasm amongst the design professions within local government and in particular, the adoption of high rise housing by the London County Council, which was the largest public housing authority in the world, affecting directly the Londoners and indirectly the rest of the country through the international respect it commanded, encouraged it even further.

Fig. 3.2 THE PARKER MORRIS' HOUSE SPACE STANDARDS



REF: M.H.L.G. Circular No. 36/67.

* Added in 1967 by the above circular.

Section 3.4.1: Space Standards Development

a) Houses: The 'Parker Morris House'

A critical look at the Parker Morris space standards, see Fig. (3.2), show that lower standards were specified for two-storey end-terrace four and five-person house. These are in fact 30 ft.2 (2,8m^2) less than the comparable intermediate-terrace house. The reasons as to why this should be so are unclear!

Despite the Report's recommendations that: "houses for four persons with three, rather than two bedrooms, can and should be provided at figures in excess of the minima which we have set down",[14] no such house was specified in its statutory tables. The reasons are not clear!

b) Flats and Maisonettes: 1944-1961

The following extracts of flats and maisonettes' space standards were taken from all major official reports on public authority housing which included such recommendations. They are as follows:

1) The 'Dudley Report', 1944:

   a) Flats: Para. 86: "... We recommend that the areas of rooms which we have specified for houses shall always be observed in flats."

   b) Maisonettes: Para. 186: "... the standards will be similar to two-storey houses."

2) 'Housing Manual' 1944:

   a) Flats: Para. 83: "Generally room sizes in flats should be much the same as in houses for the same number of occupants."

The manual does not give any specific figures of overall areas, (shown in the table following), which we have deduced from the sample examples illustrated in it.

Housing Manual 1944: Space Standards of Flats and Maisonettes

Plans' No.	No. of Persons	Area sq. ft.	Mean Area Sq. ft.	
90	2	432	432	FLATS
91	3	561	561	
82	4	712		
82	4	700	701	
87	4	692		
88	4	700		
84	5	786		
85	5	788	788.7	
86	5	792		
83	5	868	868	MAISONETTE

3) 'Housing Manual' 1949:

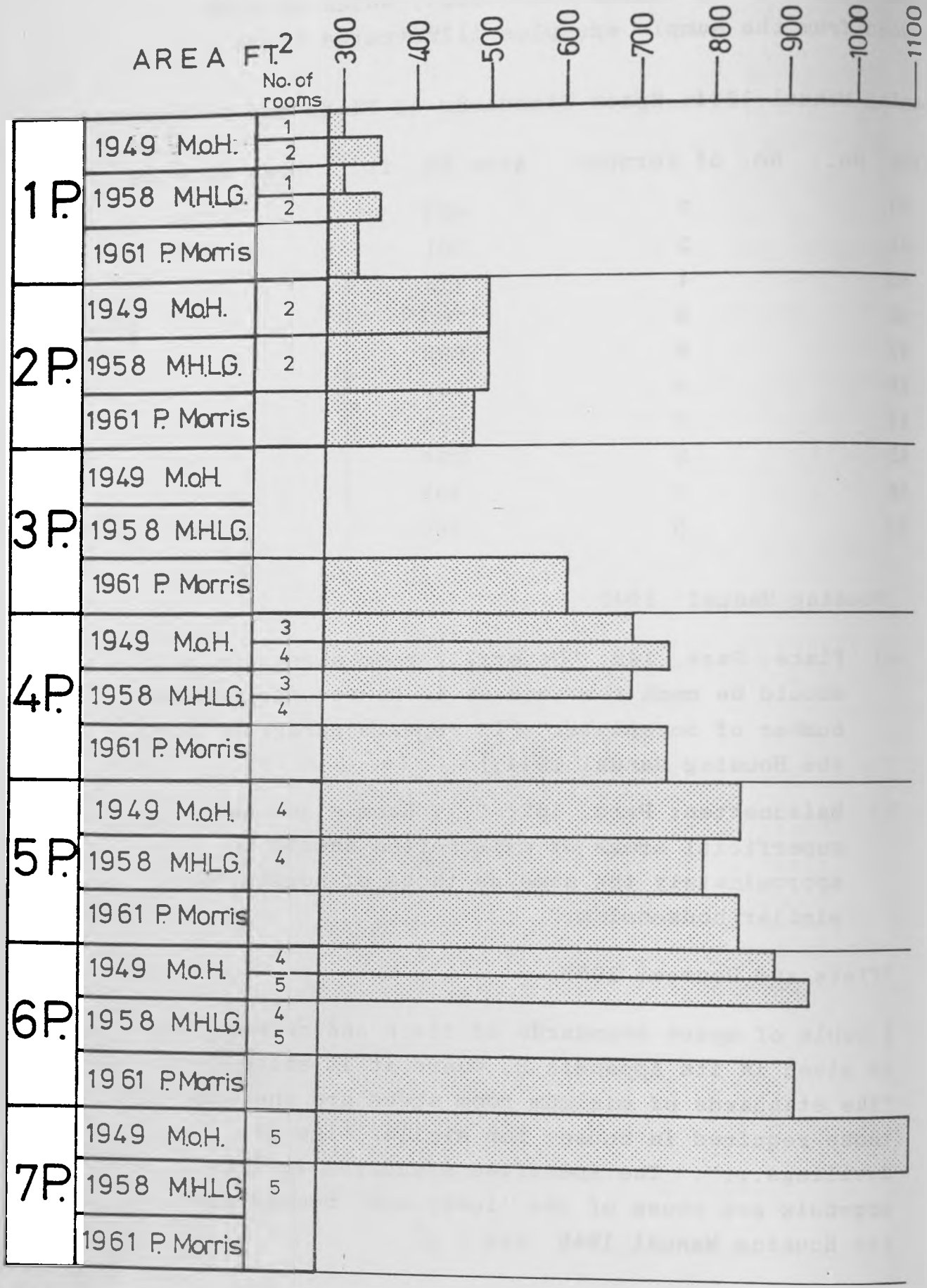
a) Flats: Para. 142: "Generally room sizes in flats should be much the same as in houses for the same number of occupants." (It repeats paragraph 83 of the Housing Manual 1944.)

b) Maisonettes: Para. 152: "... Room sizes and superficial areas of maisonettes should be approximately the same as those of houses for similar households."

4) 'Flats and Houses' 1958:

A table of space standards of flats and maisonettes is given in its Appendix E, where it is stated that "the standards of minimum room areas are the same as those required in houses for similar size of dwellings...". The specified standards in this appendix are those of the 'lower-end' recommended in the Housing Manual 1949 viz :

Fig. 3.3 FLATS' SPACE STANDARDS



REF: H. MANUAL 1949, Paragraph 149.
"HOUSES 1958" M.H.L.G. Appendix E, page 153.
P. MORRIS REPORT 1961, Table of page 35.

	'H. Manual' 1949	'1958 Manual'
	A D-K house for 5	A D-K flat or maisonette for 5
Living Room	160-200 sq.ft.	160 sq.ft.
Kitchen	110-170 sq.ft.	110 sq.ft.

5) The 'Parker Morris Report' 1961:

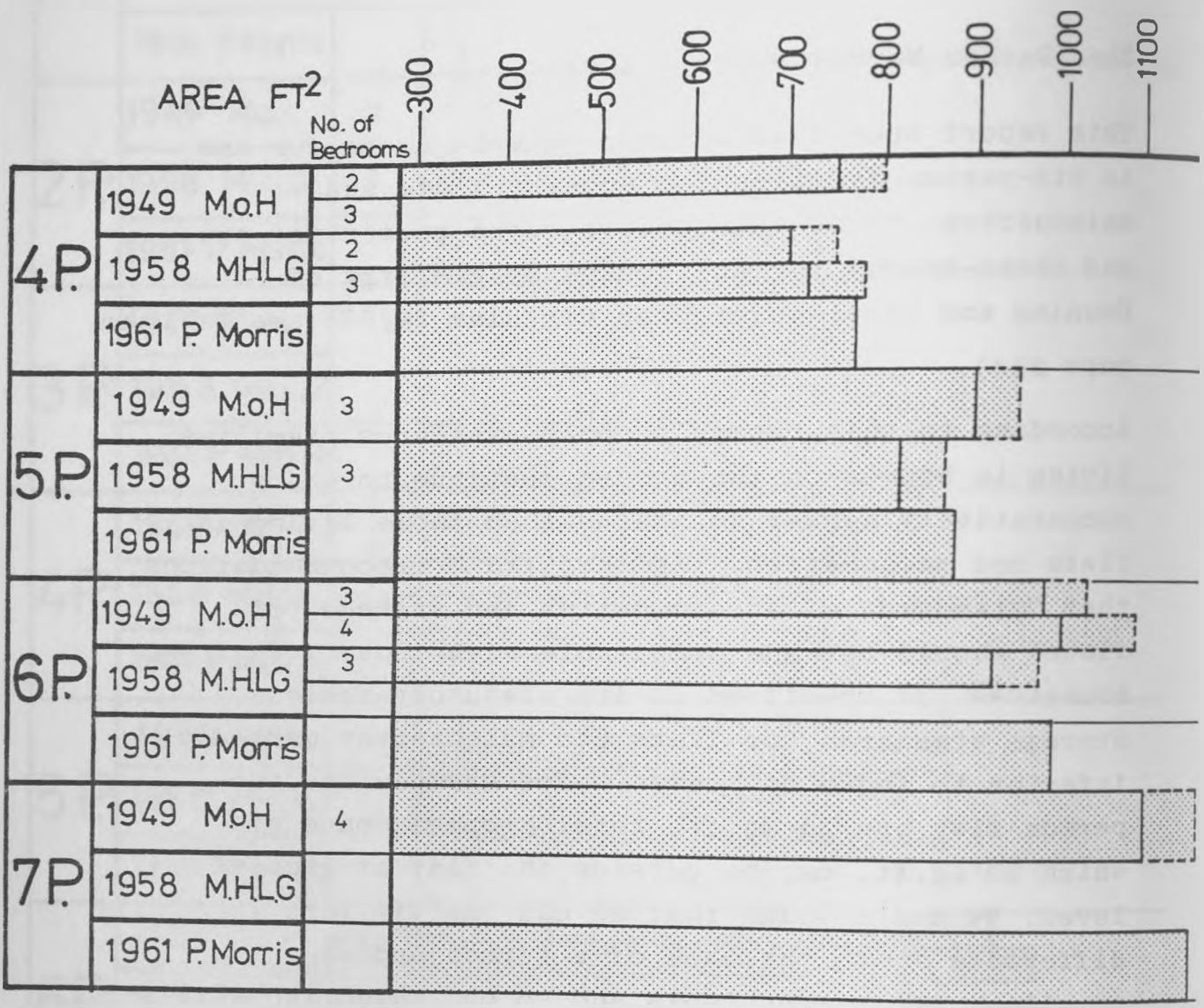
This report specified minimum overall areas for one to six-person families for houses, flats and maisonettes, to be extended to seven-person for two and three-storey terrace houses by Ministry of Housing and Local Government Circular 36/67;(see Table on page 214).

According to this report's space standards, families living in houses on the ground continue to enjoy comparatively higher standards than those living in flats and maisonettes. Against its own recommendations, that "standards of accommodation and storage (of flats) should be made comparable with those for houses"[15], it specified in its statutory tables storage standards for flats and maisonettes markedly inferior to those of houses. For example the two-person flat has 35 sq.ft. total storage space of which 20 sq.ft. may be outside the flat at ground level. We don't think that we can justify this difference due to the lack of a garden and as a corollary the garden tools and so on, which the flat's householders are deprived of.

Conclusions:

A cross-examination of the flats' and maisonettes' space standards; see Fig.(3.3) and Fig.(3.4), has shown that:

Fig. 3.4 MAISONETTES' SPACE STANDARDS



REF: H MANUAL 1949, MoH, Appendix B, page 143.
"HOUSES 1958", MHLG, Appendix E, page 153.
P MORRIS REPORT 1961, Table of page 35 and
CIRCULAR 36/67, page 10.

a) With respect to the flats, the Parker Morris recommended standards compared with those of the Housing Manual 1949 remained u n c h a n g e d for the one, five and six-person flat, while for the two-person flat the recommended Parker Morris overall area fell well below that of the 1949 Housing Manual by 20 sq.ft. (i.e. from 500 sq.ft. down to 480 sq.ft.). Also, the Parker Morris Report failed to recommend an overall area for the seven-person flat while the 1949 Housing Manual DID so twelve years before.

b) As far as the Parker Morris recommended areas for maisonettes are concerned, in comparison with those of the 1949 Housing Manual, they remained unchanged for the six-person, almost the same or slightly increased for the four-person and reduced for the five-person maisonette.

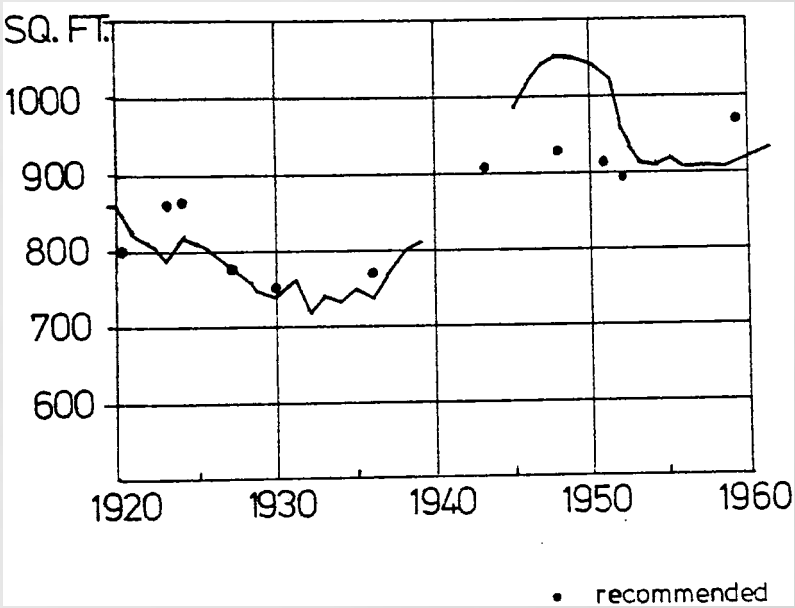
Again the Parker Morris Report failed to specify an overall area for the seven-person maisonette, which was added to the statutory table of space standards with the M.H.L.G. Circular 36/67. Even then, nearly twenty years later the seven-person maisonette specified standard is below that of the 1949 Housing Manual.

c) It is becoming apparent that there are no 'substantial' improvements on the Parker Morris space standards of flats and maisonettes compared with those of the Housing Manual 1949.

d) With respect to the five-person Parker Morris' space standardshouse, assessed on the background of reduced overall space standards and overtight, if ingenious planning, of the 1952 and 1953 Manuals, it is a significant increase indeed from the 840 sq.ft. average (of the 1952 and 1953) to

the 910 sq.ft. recommended by the Parker Morris. But if on the other hand compared with the 1949 Housing Manual standard of overall areas between 900-950 sq.ft. it is more than obvious that the Parker Morris' recommended standard for the five-person house is well below that of 1949.

The development of the typical five-person, two-storey house's recommended and achieved standards since first-world-war are shown in the following figure.



Section 3.4.2: Other Housing Standards

In this section we review the heating and fittings and equipment standards. Before we proceed to any conclusions on their development, we are presenting them as they appear in the Official Reports and Manuals issued by the Government since the second world war. They are as follows:

a) Heating standards: see Table 3.1 (overleaf)

b) Fittings and equipment:
   i) Provision of electric socket outlets: see Table 3.2
   ii) Sanitary provisions: see Table 3.3
   iii) Food storage provisions: see Table 3.4
   iv) Kitchen fitments, clothes and linen cupboards as follows:

The 'Dudley Report', 1944:

Para. 133: "We recommend... as a minimum: sink, two draining boards, work table top, plate rack, store cupboard, dresser, broom cupboard and open shelving."

Para. 138: "We recommend the provision of built-in clothes cupboards in all rooms. There should also be in every dwelling a full length ventilated linen cupboard."

Para. 198: "The fittings required for a five-person family are:

	Width	Depth	Height
A dry goods cupboard (in one or two pieces)	(1'9",2'0")1'6"	x 1'6"	x 8'0"
A dresser fitting (two pieces)	(3'6",4'0")3'0"	x 1'6"	x 8'0"
A broom cupboard	(1'9",2'0")1'6"	x 1'6"	x 8'0" ."

TABLE 3.1

Recommended Heating Standards: 1944-1975

Source	Provisions
'Housing Manual' 1944 'Technical Appendices' Volume 2. Appendix F.	Para. 15: "Background warmth might be of the order of 50°F (10°C), and if 65°F (18.3°C) is the desirable temperature for the normal sedentary occupation, 15°F is left to topping up."
'Housing Manual' 1949	Para.169: "It is recommended that facilities should be provided to maintain the living room at 65°F (18.3°C) with background heating 45-50°F (7.2-10°C) throughout the house."
'Houses 1952'*	Para. 19: 'Dining Hall' houses: "Taking reasonable room temperatures at about 65°F (18.3°C) for the living room, between 50°F and 55°F (10°C to 12.8°C) for the dining space and 40°F to 45°F(4.4°C to 7.2°C) for bedrooms, with outside temperature of 30°F (-1°C)." Para. 21: 'Large living room' houses: "65°F (18.3°C) on ground floor and 55°F (12.8°C) on first floor, with an outside temperature of 30°F (-1°C)."
The 'Parker Morris' Report 1961	Para. 69: ".. The minimum standard should be an installation capable of heating the kitchen and the areas used for circulation to 55°F (12.8°C) and the living areas to 65°F (18.3°C), when the outside temperature is 30°F (-1°C)."
M.H.L.G. Circular No. 36/67 as metricated by Circular No. 27/70	Appendix IV: "The minimum standard shall be an installation with appliances capable of maintaining kitchen and the circulation spaces at 13°C, and the living and dining areas at 18°C when the outside temperature is -1°C.

*Para. 19: "The average winter temperature in Great Britain is 43°F (6°C).

(Note): Min. thermal insulation standards to be those of the Building Regulations (England & Wales 1965 (Part F).

TABLE 3.2

Recommended Number of Electric Socket Outlets of the Five-Person House: 1944-1975

Source	House Type	Hall	Sitting Room	Living Room	Dining Space	Kitchen	Scullery	Double Bed-Room	Single Bed-Room	Bed-* Sitt-ing Room	Bed-** Sitt-ing Room	Total of A 5-Person House
'Housing Manual' 1944	Kitchen Living	1	2	-	-	3	1	2	1			12
	Dining Kitchen	1	-	3	-	2 or 3	1	2	1			12-13
	Working Kitchen	1	-	2	2	2	-	2	1			12
'Housing Manual' 1949	Kitchen Living	1	1 or 2	-	-	2	1	1 or 2	1			8-11
	Dining Kitchen	1	-	2	-	2	1	1 or 2	1			9-11
	Working Kitchen	1	1	2	1	2	-	1 or 2	1			10-12
'Parker Morris' Report 1961	(Min.)	1	-	3	1	4	-	2	2	3	5	15

Source: H. Manual 1944 Para. 143
H. Manual 1949 Para. 196
P. Morris Report Para. 115

* Single bedsitting rooms in family dwellings

** Single bedsitting rooms in self-contained bedsitting room dwellings.

TABLE 3.3

Recommended Sanitary Provisions: 1944-1975

Source	Family Size	W.C. and W.H. Basin Provisions	
'Housing Manual' 1944 (Para. 60)	1 to 4 person	1 w.c. may be placed in the bathroom.	
	5 person	A separate w.c. is generally desirable.	
	6 person	w.c. and bathroom should be separate compartments.	
'Housing Manual' 1949 (Para. 103) *	4 person	w.c. and bathroom combined.	
	5 person or larger in two levels	A w.c. separate and a w.c. combined with bathroom. "It is desirable that a w.h.b. should be incorporated in the w.c. compartment."	
'Parker Morris Report' 1961 (Para. 43) and table following (Para. 158.)	1 to 3 person	1 w.c. may be placed in the bathroom	
	4 and 5 person in one level	A w.c. separate from bathroom	where a separate w.c. does not adjoin a bathroom, it must contain a wash basin
	6 person or larger in one level and 5 person or larger in two or three levels	1 w.c. separate and 1 w.c. combined with bathroom	

* Also deduced from the illustrating the Manual 'example plans'.

TABLE 3.4

Recommended Food Storage Provisions: 1944-1975

Source	Family Size	Provisions
'Dudley Report' 1944 (Para. 193)	5 person	5 ft.^{2} of ventilated larder
'Housing Manual' 1944 (Para. 158)	5 person	4 ft.^{2} (min.) of ventilated larder
'Housing Manual' 1949 (Para. 217)	5 person	4 ft.^{2} (min.) of ventilated larder
'Parker Morris Report' 1961 (Para. 87, 89)	4 and 5 person	80 ft.^{3} of installed storage space; part of this provision shall comprise a cool cupboard
M.H.L.G. Circular No. 27/70 (Appendix E)	1 and 2 person 3 person or larger	60 ft.^{3} (1.7m^3) 80 ft.^{3} (2.3m^3) Part of this provision shall comprise a ventilated cool cupboard

'Housing Manual', 1944:

Para. 5: "Bedroom cupboards, minimum depth back to front 1'8"; desirable length 2 feet run per person."

Para. 7:"Recommended:

A two piece dresser:	width	Depth	Height
lower part	42" x	19" x	81"
upper part	42" x	12" x	81"
groceries (cupboard)	21" x	12"(19") x	81"
brooms (cupboard)	21" x	19" x	81"."

'Housing Manual', 1949:

Para. 219: "Kitchen storage units should be in accordance with British Standards 1195."

Para. 220: "In addition to cupboard storage, about 8 feet of plain shelving is required."

Para. 221: "British Standards 1292/1945 sets out the requirements for clothes storage units which should be taken as minimum requirements."

The 'Parker Morris Report', 1961:

The standards concerned as brought 'up to date' by the M.H.L.G. Circular No. 27/70 are as follows:

Appendix E; C2: "Linen storage: A cupboard shall be provided giving 0.6m^3 (21ft.^{3}) of clear storage space in four-person and larger dwellings, or 0.4m^3 (14 ft.^{3}) in smaller dwellings."

C3: "Kitchen fitments comprising enclosed storage in connection with:

a) preparation and serving of food and washing up

b) cleaning and laundry operation and

c) food

shall be provided as follows:
3-person and larger dwellings 2.3m^3(80ft.3)
1- and 2-person dwellings 1.7m^3 (60ft.3)..."

Also the Parker Morris Report in its final 'Summary of Main Conclusions and Recommendations' says:

Para. 35: "For all except the main bedrooms (and preferably these as well) there must be clothes cupboards at a rate of 2 feet of rail per occupier, not less than 21" deep internally."

Conclusions:

Having examined in detail the full development of the above housing standards throughout the post world-war-II period, we came to the following conclusions. They are:

a) Space Heating:

There were no improvement in the heating standards since 1949. The Parker Morris Report introduced only a minor change in the level of heating for the rest of the house; that is kitchen and circulation areas which were to be heated at 55°F (13°C) against the 45°F - 50°F (7.2° - 10°C) background heating throughout the house recommended in the 1949 Housing Manual.

b) Fittings and Equipment:

i) Electric socket outlets:

There was a drop of the standard of this provision in 1944. As far as the Parker Morris recommended standard on this provision is concerned, it is quite an improvement indeed. Another indisputable improvement introduced by the Parker Morris Report is the provision made for the smaller dwellings (e.g. bedsitting rooms). Looking individually into each

room, improvements took place in the number of socket outlets of the living areas, the single bedroom and the kitchen in particular.

ii) Sanitary provisions:

The Parker Morris Report does not affect, in any way, the small dwelling's standards which remain the same as before. The improvements took place in the larger dwelling; for example the five-person one level dwelling was 'given' by the Parker Morris Committe a separate w.c. which was 'generally desirable' according to the 1944 Housing Manual's standard. To a bigger contrast this provision of a separate w.c. became mandatory for the four-person one level dwelling too. In the case of the five- and six-person, two level dwellings there is no improvement at all since 1949, when a separate w.c. with a 'desirable wash basin in the w.c. compartment' was recommended and in 1961 re-introduced by the Parker Morris Committee with a 'must' for the wash basin's provision. A further point, rather questionable, about the Parker Morris recommendations is that while for five people living in a two-storey house 2 w.c.s must be provided, one in a separate compartment from the bathroom, the same family if it was to live in a flat or a single storey house, only one w.c. need be provided!

iii) Food storage:

There was a small drop of this provision from the 1944 Dudley Committee's recommendation to that of the 1949 Housing Manual's, while in 1961 the Parker Morris Committee did not specify how much should be given for food storage, out of the 80ft.^{3} (2.3m^3) enclosed kitchen storage recommended. Another point is that the Parker Morris Report considered "... Of itself, ventilation of the larder has no obvious value." (Para. 89), breaking years of tradition by specifying as a minimum provision a 'cool' cupboard. This very

point was later rectified by M.H.L.G. Circular No. 36/67, which re-introduced the provision of a 'ventilated cool' cupboard.

iv) Kitchen fitments etc.:

As far as the clothes cupboard provision is concerned, the Parker Morris Report added nothing new but just re-introduced the 1944 Housing Manual's standard already seen. The 'kitchen fitments and equipment' B.S. 1195, were recommended by the 1949 Housing Manual (Para. 219) as the standard to which the kitchen units should be in accordance with. This same B.S. 1195 is still with us today after being revised in 1973. On the whole what the Parker Morris Report added on this matter is the organisation and the planning of the kitchen units into orderly and compact working arrangements suitable for all house types and all room sizes. Indeed, until late 'fifties - early 'sixties the kitchen was still designed as an assembly of separate units and appliances. It is after 1961 that we started to see a growing number of kitchens with their kitchen units to house and match the domestic appliances into an efficient and satisfactory place to work in, as a kitchen should be.

Fig. 3.5 THREE STOREY FLATS. CRAWLEY NEW TOWN.
TYPICAL FLOOR PLAN OF THE "STAR" FLATS.
1:100

Section 3.5.1: Types of Dwellings and their Planning: Flats and Maisonettes

a) Houses:

As early as February 1962 the Ministry of Housing and Local Government's Circular No. 13/62 "commended the Parker Morris Report to all housing authorities and their architects as a basis for making a fresh assessment of the sort of houses they should build in future". However, the standards were only permissive, and many authorities, for various reasons, continued to build according to the 1949 and 1952 Housing Manuals. In other words the period 1962 to 1968 was a 'dual standards' period, during which it was open to the authorities to adopt the Parker Morris Report's recommendations as a whole or in part. So for example some authorities had adopted the Parker Morris space standards only and retained all the other 'items' to the 1949/52 Manual's standards.

Therefore, the sort of houses produced during this decade is a continuation of the previous one (of 1945-1955) plus a "little bit more" of better standards and design towards the mid-sixties.

b) Flats and Maisonettes:

The flats and maisonettes illustrating this section mostly are those of the 'Houses and Flats : 1958' Manual. The main types of flat and maisonette block can be subdivided into two broad categories: the 'low block' and the 'high block'. In turn the 'low blocks' can be subdivided into: the two or three storey blocks of flats better known as 'walk-ups', see Fig. (3.5), and the four-storey blocks of maisonettes; both without lifts. On the other hand the 'high-blocks' can be subdivided into: the 'slab blocks' and the 'tower or point blocks'.

Fig. 3.6 BALCONY ACCESS FLATS IN 12 STOREY SLAB BLOCK.
1:100

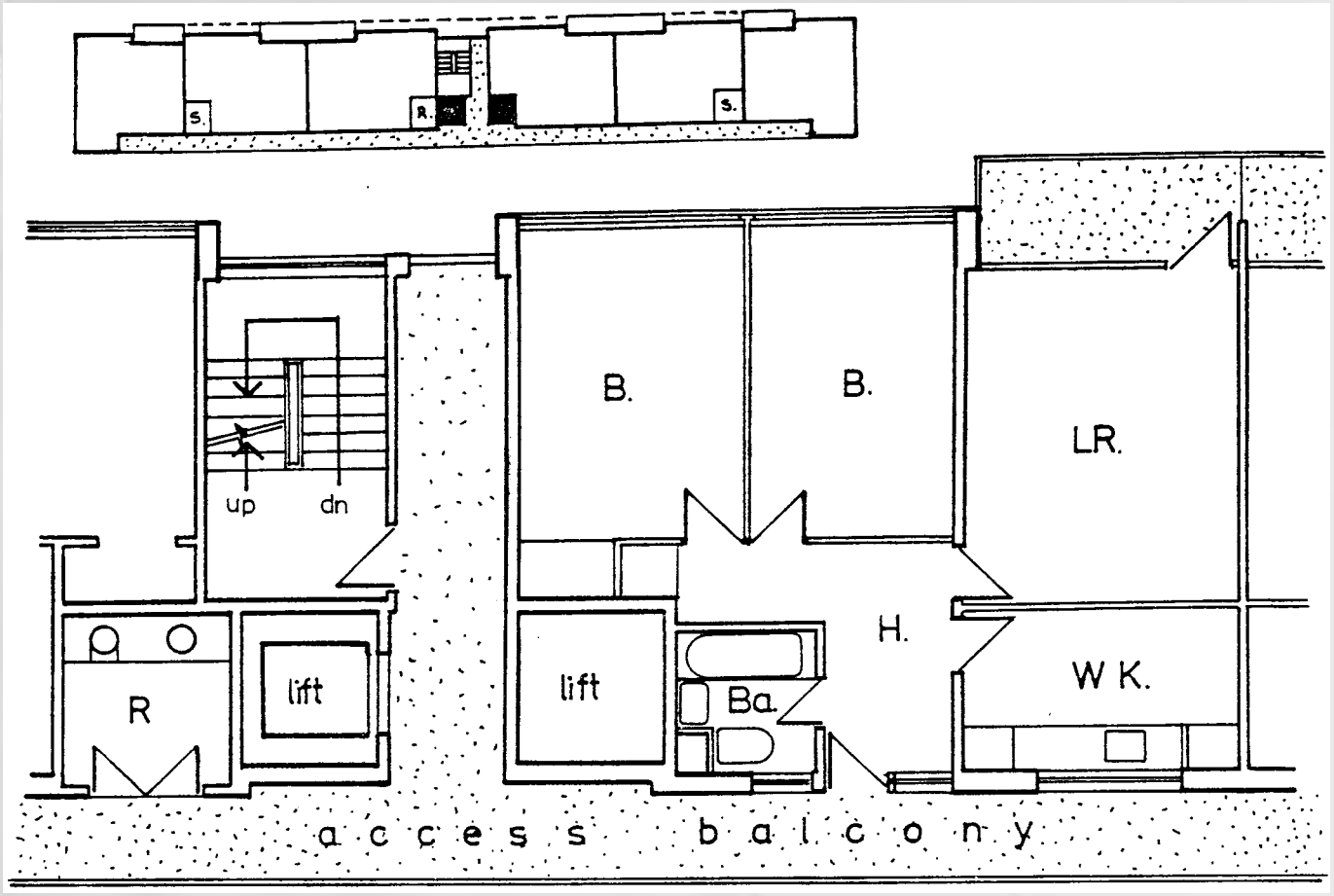
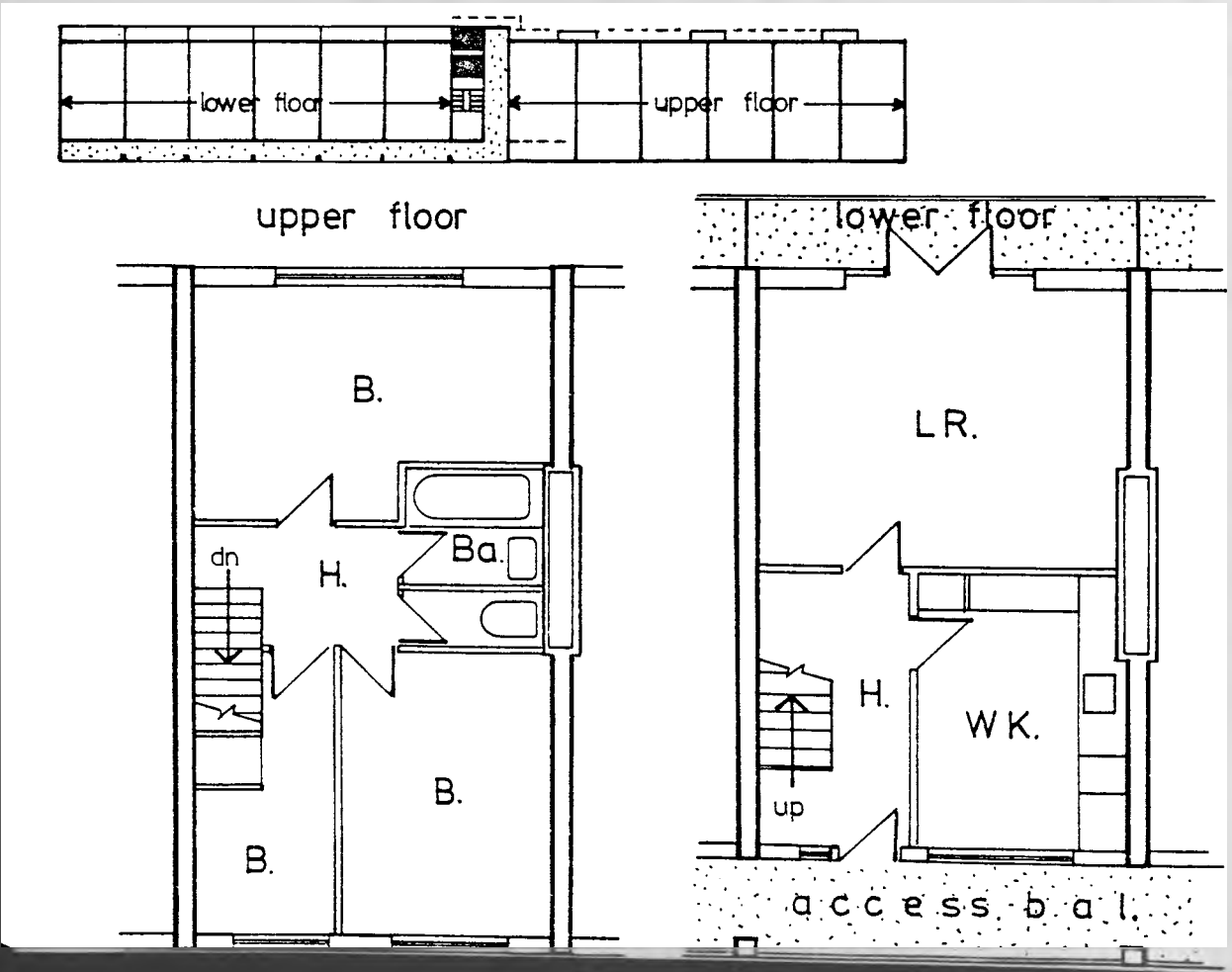


Fig 3.7 BALCONY-ACCESS MAISONETTES IN 12 STOREY SLAB-BLOCK. 1:100. 5-PERSON DWELLINGS.



The 'slab-block' of flats and maisonettes according to its means of access can be futher subdivided into the following three groups:

1) The balcony or gallery access: provided by means of open galleries fed by stairs and lifts. This type of access, while it may be more economical and more convenient as a means of escape from fire and for the provision of refuse chutes, lacks privacy, overshadows the rooms below and is noisy; see Figs.(3.6, 3.7, 3.8).

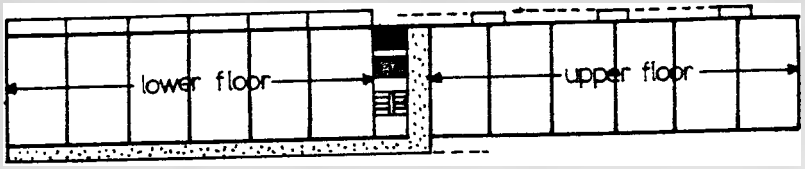
2) The central corridor access: provided by means of internal passages, with flats or maisonettes on both sides, fed by staircases and lifts at convenient points; see Figs. (3.9, 3.10).

3) The separate staircase or direct access: the flats (this method of access is not applicable to maisonettes) entered immediately from halls fed by staircases and lifts. It is the most convenient access for the low blocks as well, although this alternative in the high blocks of flats may be more expensive than the 'balcony or gallery access', but it largely overcomes the latter's disadvantages; see Fig. (3.11).

The 'tower or point' block, on the other hand, was used mainly for the provision of flats. The most common type is the 'common access hall' fed by staircases and lifts. Generally, the common hall serves three or four flats on each floor; see Figs. (3.12, 3.13, 3.14). It can serve a bigger number of flats if a 'T', 'Y' or 'cruciform' plan arrangement of flats is adopted.

Another, rather unique type of block of the early 'sixties is the 'Scissors' block of maisonettes, not easy to understand with its interlocking upstairs

Fig. 3.8 BALCONY ACCESS MAISONETTES IN 12 STOREY SLAB BLOCK. 4-PERSON DWELLINGS.



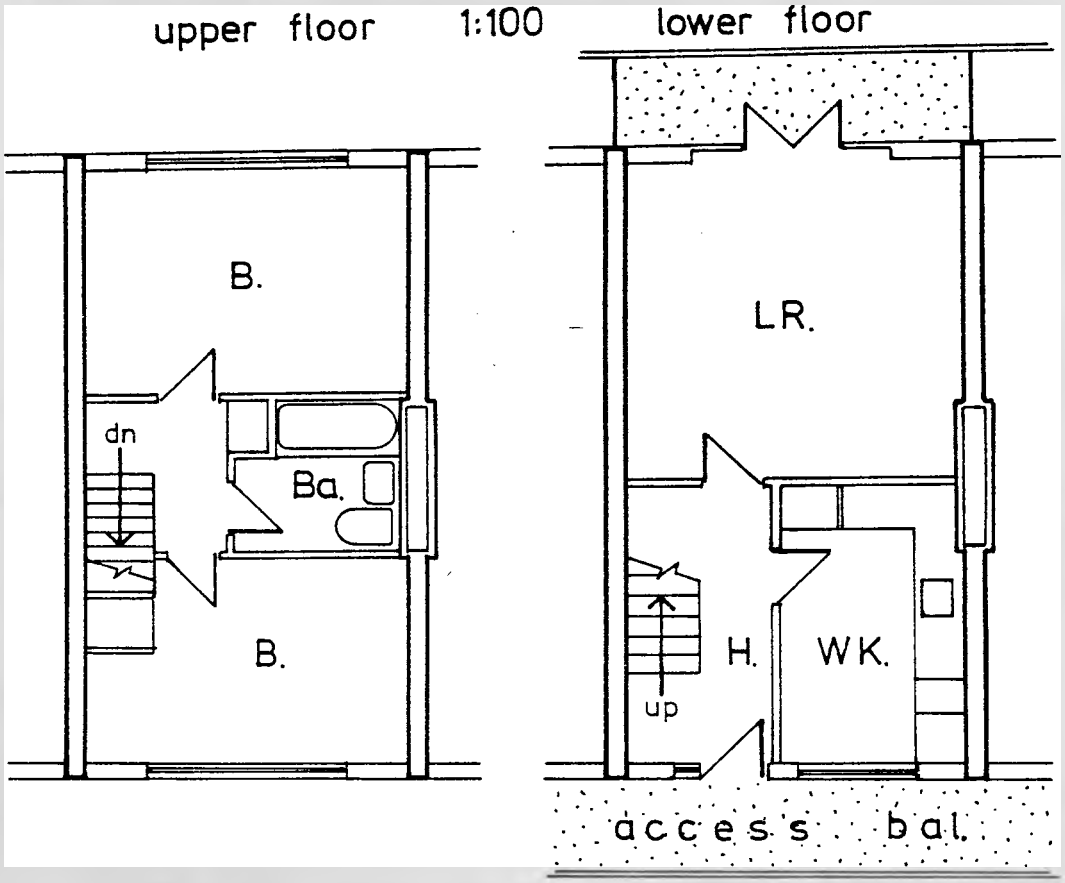


Fig. 3.9 CENTRAL CORRIDOR ACCESS FLATS IN 11 STOREY SHORT SLAB BLOCK.

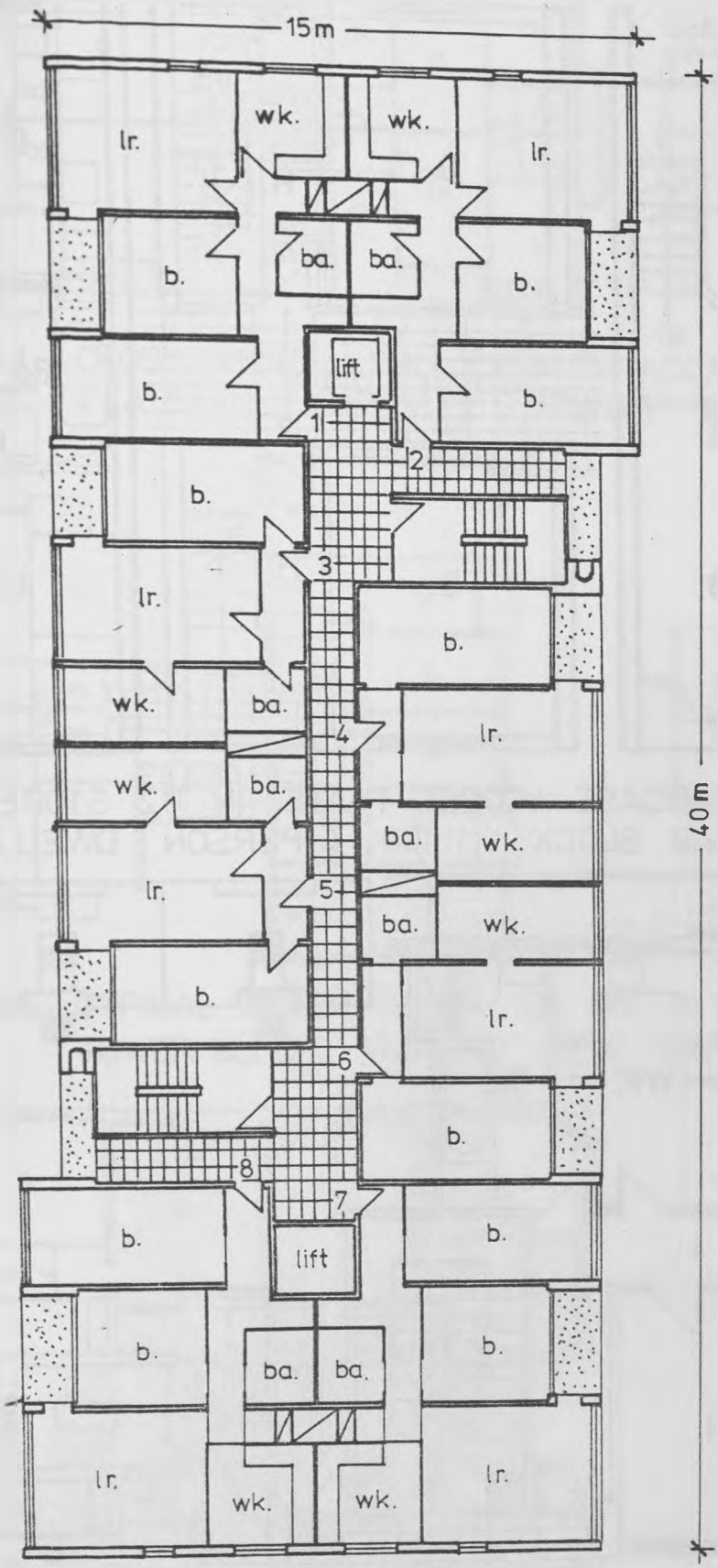


Fig. 3.10 CORRIDOR ACCESS MAISONETTES IN 12 STOREY SLAB BLOCK. 1:100

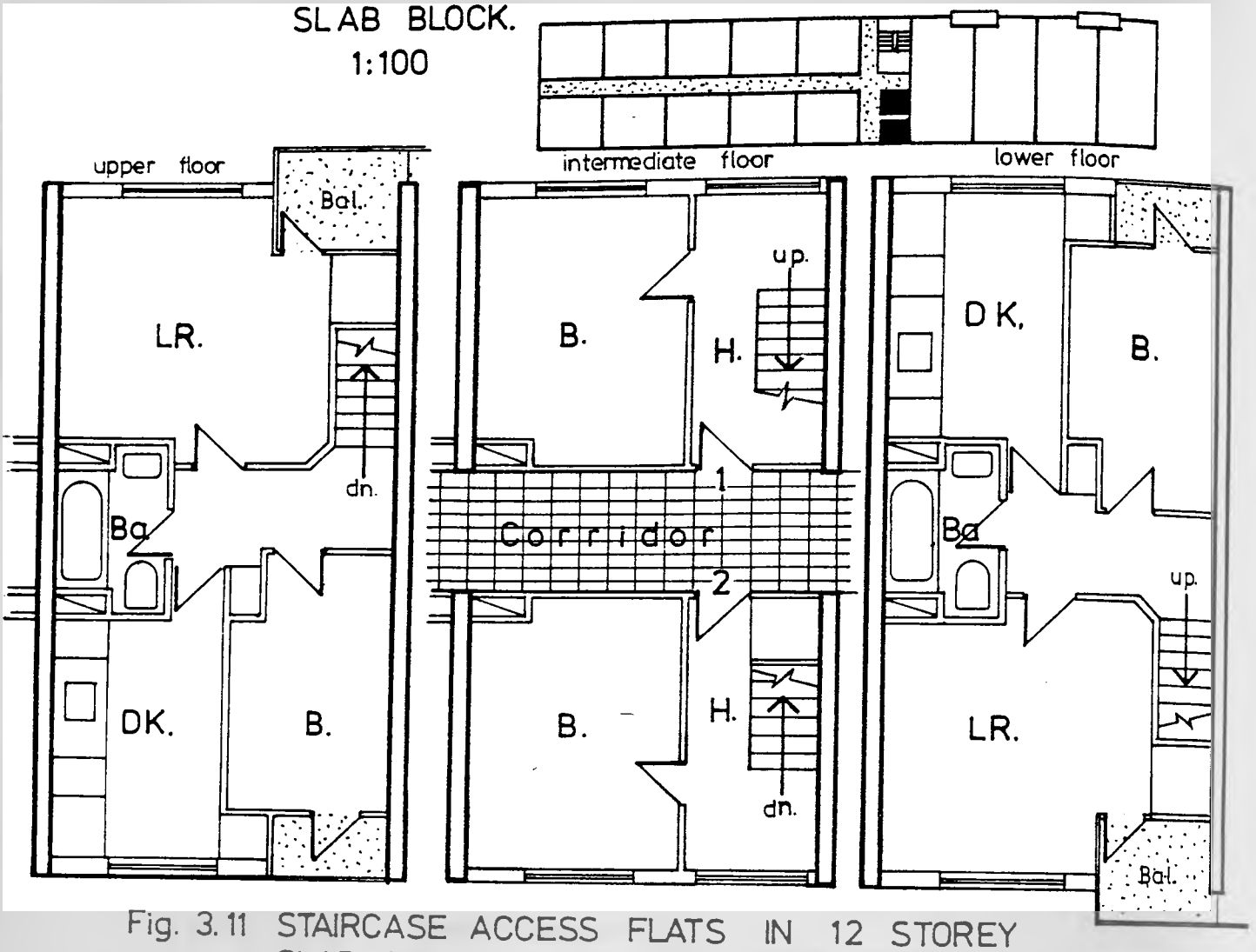


Fig. 3.11 STAIRCASE ACCESS FLATS IN 12 STOREY SLAB BLOCK. 1:100. 4-PERSON DWELLINGS.

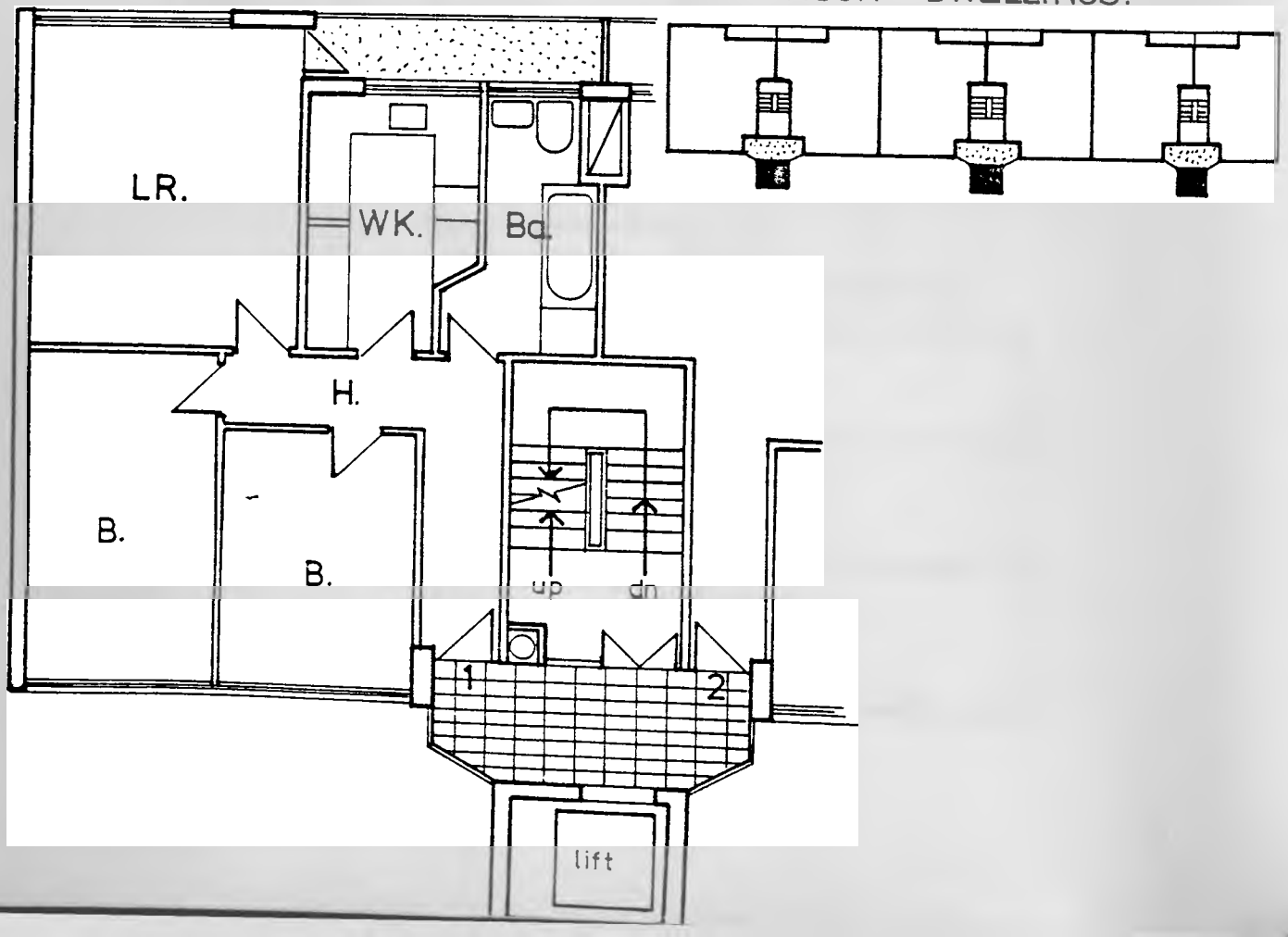


Fig. 3.12 "ENCLOSED COMMON ACCESS HALL" FLATS IN 11 STOREY TOWER BLOCK.

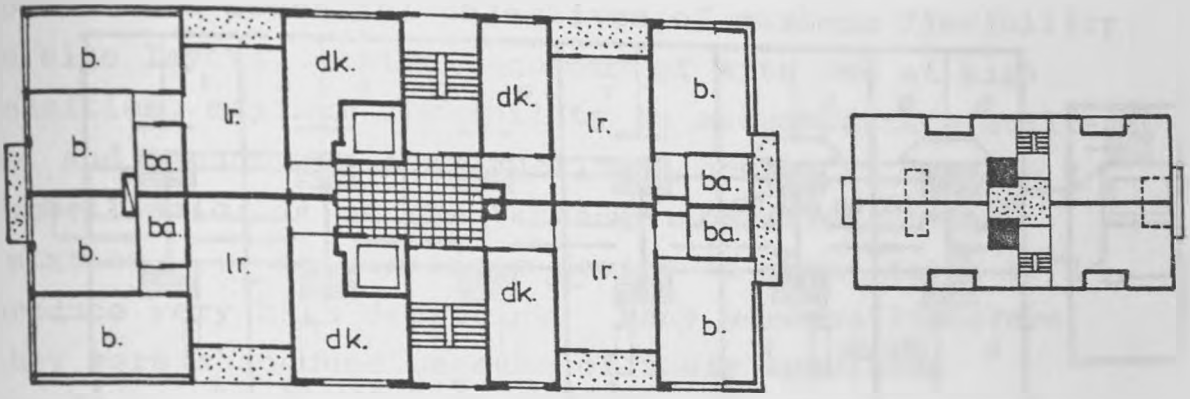


Fig. 3.13 "CROSS VENTILATED COMMON ACCESS HALL" FLATS IN 11 STOREY TOWER BLOCK.

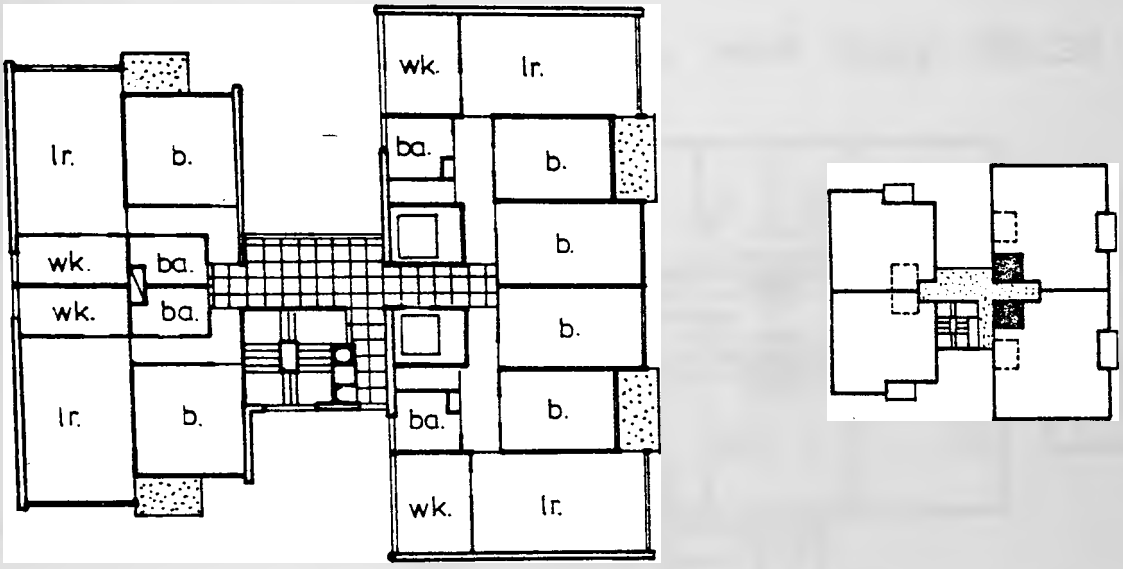


Fig. 3.14 TYPICAL FLOOR PLAN OF AN 11 STOREY TOWER BLOCK. HARLOW NEW TOWN.

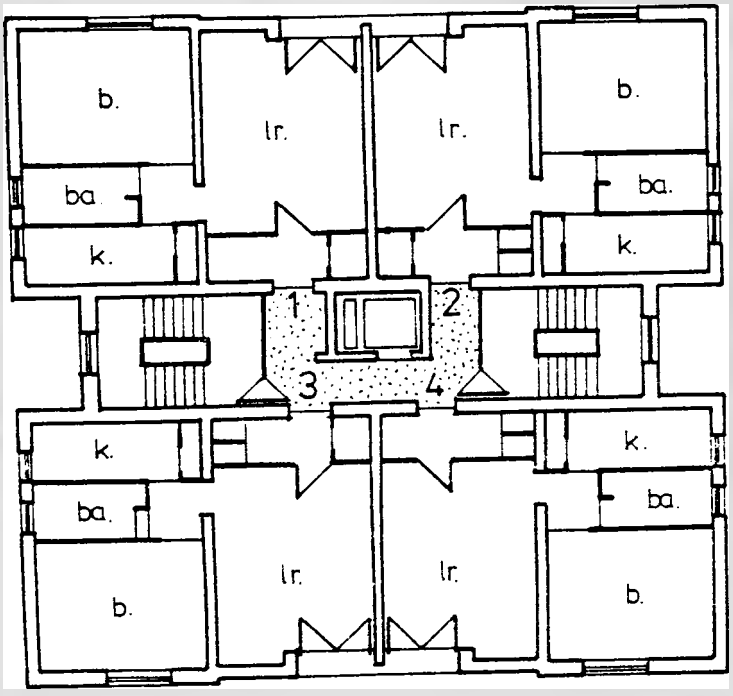
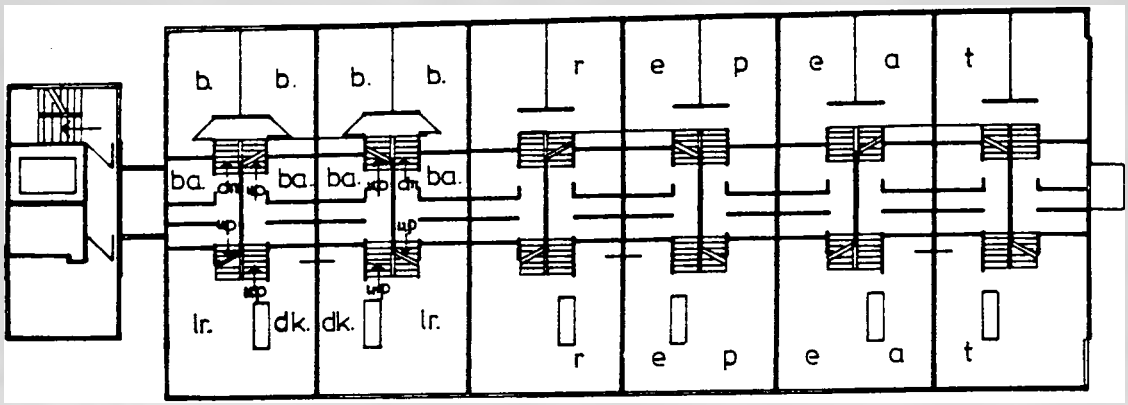
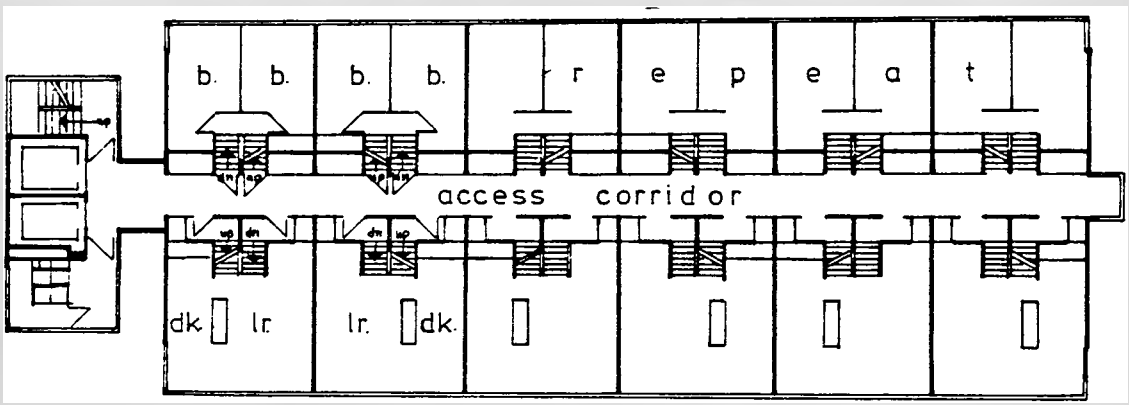


Fig. 3.15 THREE ROOM "SCISSORS" MAISONETTES IN TALL BLOCK.

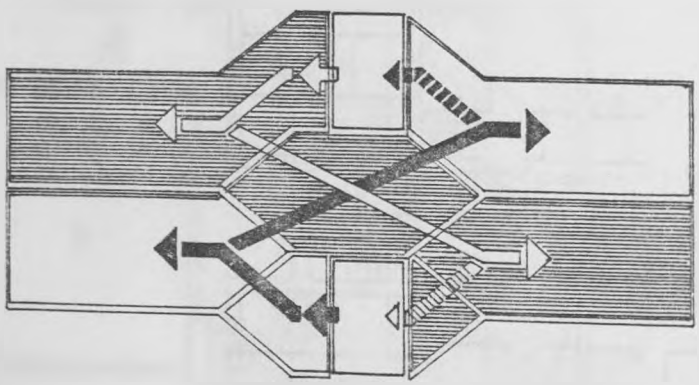


ABOVE, typical floor plan at intermediate, bathroom floor level.

BELOW, typical floor plan at access corridor level.

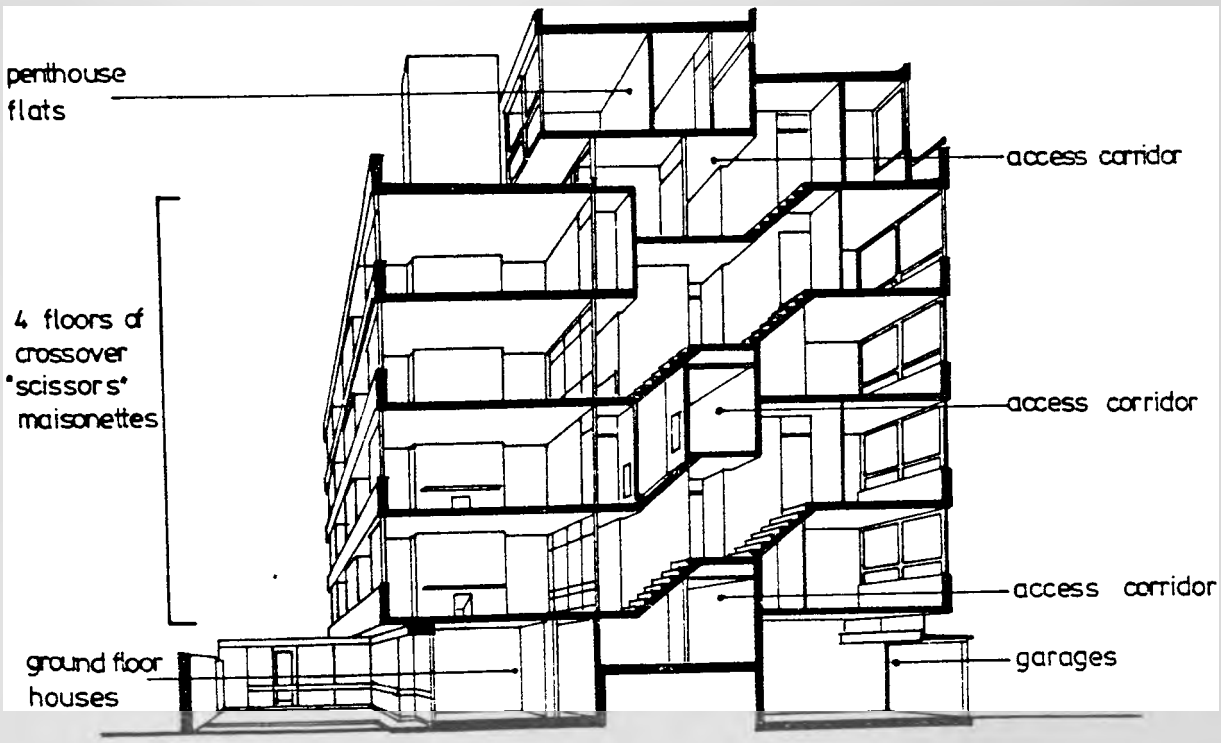


CIRCULATION DIAGRAM showing two interlocking maisonettes, linked by dog-leg stairs to access corridor at one level and bathroom level at alternate level, with escape door to corridor above.



and downstairs. It represents the outcome of long research for methods of planning dwellings that combine the essential objectives of maximum flexibility in site layout, maximum economy of site use at high densities, maximum flexibility in accommodation built-up and economy in constructional cost. As Kenneth Cambell said; it is the "strange aberation of the 'sixties, ... an ingenious device of great depth to produce very high densities. Many were built before they were abandoned because of their appalling complexity and consequent high cost. They were difficult to build, men got lost in them or could not be found (not quite the same thing)",[16] see Figs. (3.15, 3.16).

Fig. 3.16 SECTIONAL PERSPECTIVE OF A 6 STOREY BLOCK OF MAISONETTES SHOWING CIRCULATION SYSTEM.



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10. H.M.S.O., "Housing Manual, 1949", Op.cit., p.11.

11. M.H.L.G. Command Paper No. 193, 1957, p.10.

12. R.I.B.A. Report on "High Flats", Op.cit., p.17, (Margaret Willis' paper on 'Living in high flats').

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14. H.M.S.O., "Homes for Today and Tomorrow", Op.cit., para. 153.

15. Ibid., para. 117.

16. Cambell, Kenneth, "Housing Since the War - Changes in Design Expectations", Housing Review, Vol. 23, Nov. - Dec., 1974, p.157.

CHAPTER 4: The 1965-1975 Decade

Section 4.1.1: Introduction

"Looking back, one has the impression that it was not so much that things began to go wrong from the mid 'sixties but that the errors of the previous twenty years only now began to show.... How was it possible, after more than 20 years of unremitting effort by governments of both colours to improve, upgrade and increase housing, that SNAP (Shelter Neighbourhood Action Project) could arise and be needed; that BRS (Building Research Station) would have to produce a study Wilfull damage on housing estates? A spirit of militant protest - quite absent in the early 'fifties - began to be apparent."[1]

During the beginning of this decade a second attempt to industrialise housing through the development of 'building systems' was launched. Because 'systems' were only viable in big contracts, too big for most local authorities, a reorganisation into fewer and bigger 'economic units', the consortia was necessary. The word 'system's itself got a slightly mystical significance in a world becoming gradually very concerned with 'communication' and 'co-ordination' in view of the rising indigestible information in professional work. The computer appeared on the scene as a 'rescuer', and soon computer expertise and 'information systems' became a central preoccupation.

Architectural style in general continued much as it was in the early 'sixties. As design management skills and programming techniques grew in sophistication, the projects had been getting larger too. The Ronan Point block of flats collapse in 1968 was a bad experience for the architectural profession as a whole, which was losing public credibility, while the feeling around was that 'Big may not be so beautiful after all!'.

Also, it is during this decade that Britain, for the first time since the second world war, has a surplus of more than half a million of dwellings. In fact this surplus started to build up gradually from 1968 onwards to reach the figure of 18.1 million of dwellings (for England and Wales) against the 17.6 million of households, by the end of 1976, (see Appendix I, page 326).

Section 4.2.1: Dimensional Co-ordination and Industrialised Housing

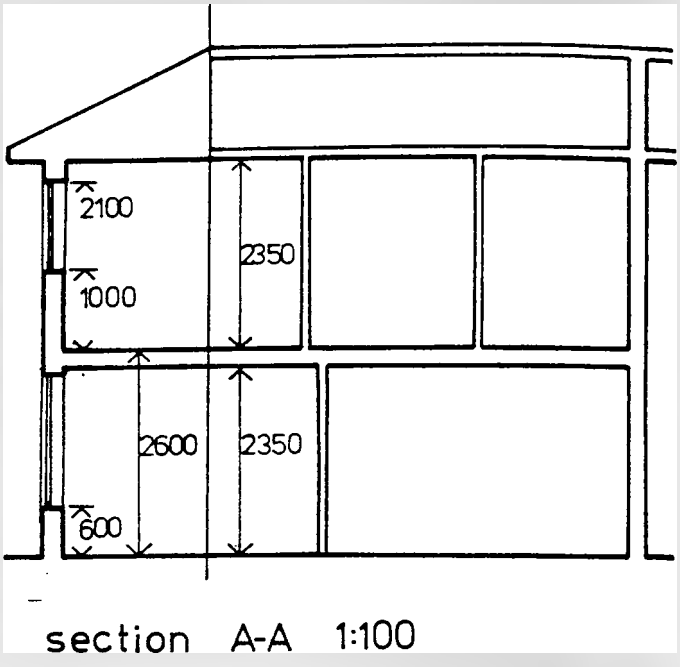
a) Dimensional Co-ordination: Its development

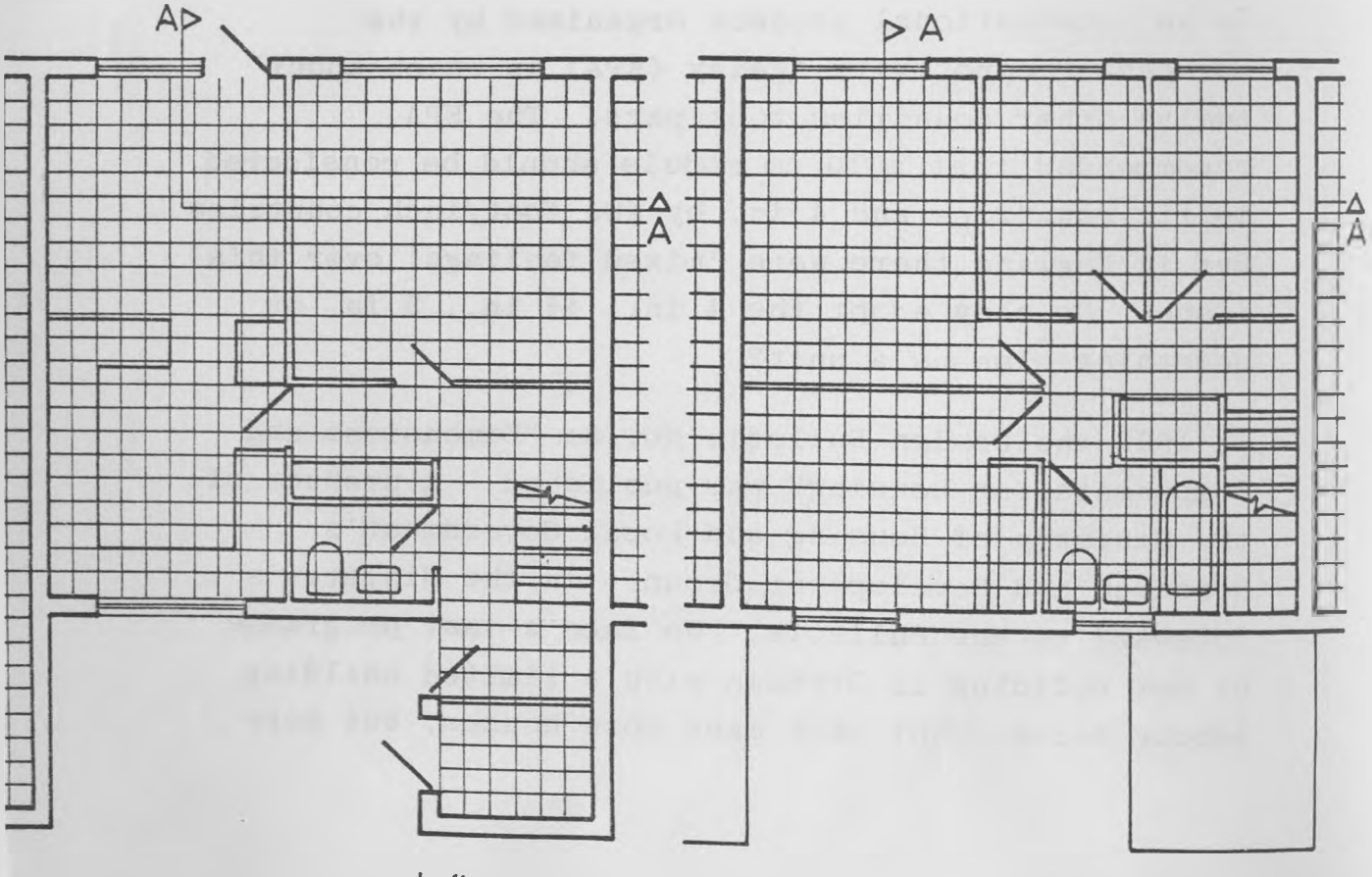
As a subject in its own right, it started in this country in 1944 with the publication of the Post-War Building Study: 'standard construction for schools', which recommended an 8 ft. 3 in. unit for school buildings. The original motive was purely that of economy, the reduction of variety and of 'cut and fit' on the site ; the preparation for fully industrialised techniques and interchangable components.

About ten years later (i.e. in 1953) the Modular Society - an association of professionals and manufacturers - was formed. At the same time the Building Research Station (BRS) had begun a study of the module, and the British Standards Institution (BSI) of component dimensions. Also both the BRS and the BSI, during the period 1954-61, co-operated in an international project organised by the European Productivity Agency (EPA) in which about twelve other countries took part. The EPA recommended that a 10 cm module should be considered metric countries and 4 in. by the foot/inch countries. But in England there were 'mixed feelings' over this issue. Do they adopt the 4 in., 4½ in., 3 in. or something else as a unit?

In 1963 the Design Bulletin No. 8: "Dimensions and Components for Housing" was published - a product of the Ministry of Housing and Local Government's Research and Development Group. In the Minister's foreward to the Bulletin: "We face a vast programme of new building in Britain with a limited building labour force. Not only many more houses, but more

Fig. 4.1 AN INDUSTRIALISED BUILT TERRACE HOUSE FOR STANDARDISED COMPONENTS.



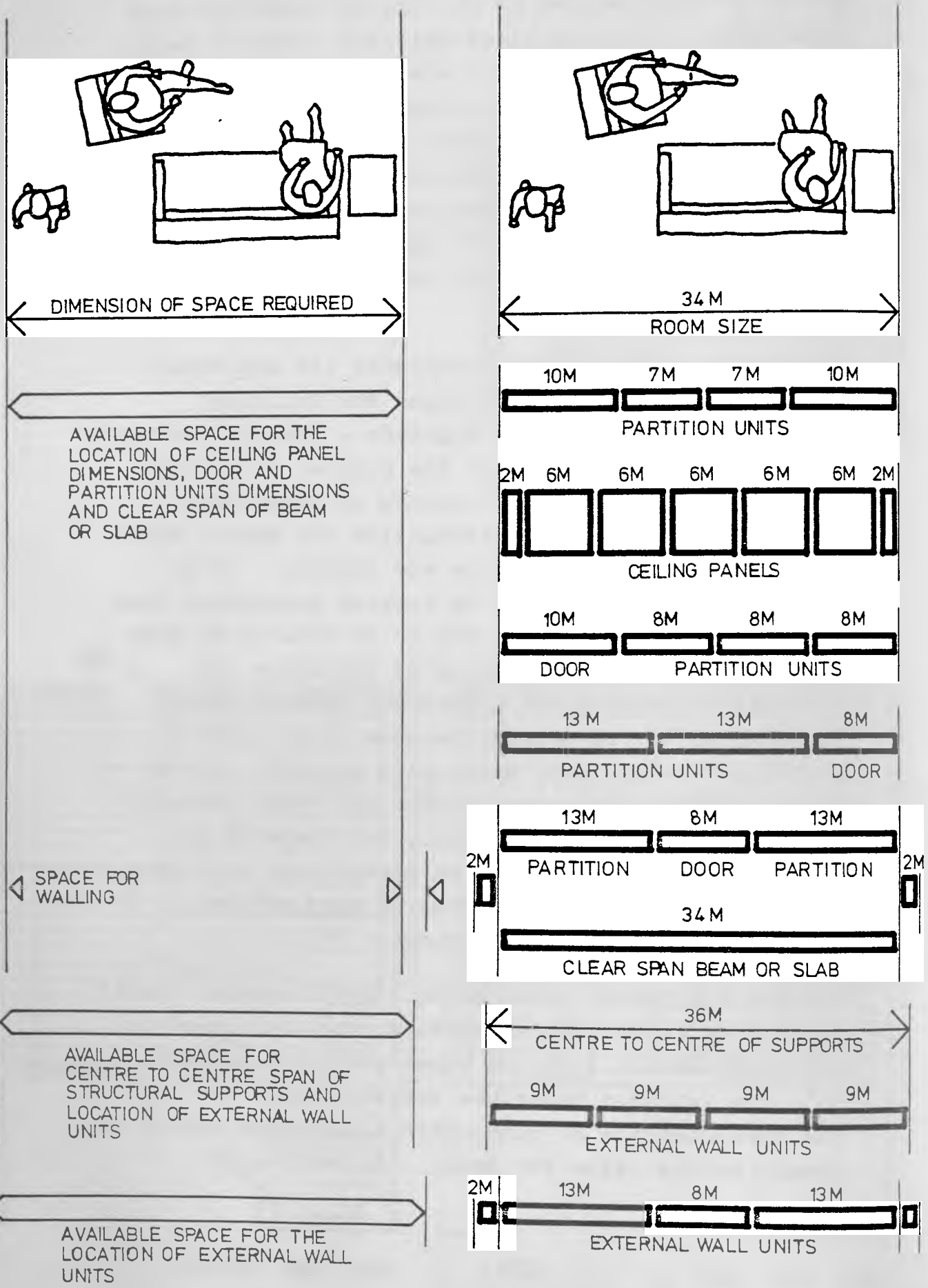


schools, hospitals and other buildings of every kind have to be built. Traditional methods have therefore got to be supplemented by the use of industrialised techniques. Industrialised building requires large scale production; and large scale production to be fully economic, means standardisation and simplification of components." This Bulletin sets out a scheme of preferred dimensions for standardising components to be used when building houses and flats by industrialised methods; see Fig. (4.1). It applies them both to the actual dwelling plans and to anthropometrics; see Fig. (4.2) overleaf.

In November 1965 the RIBA published its own Report: "The Co-ordination of Dimensions for Building", which in a way put things together - already available but scattered around - with the purpose of giving architects a better understanding of dimensional co-ordination. In its introduction the Report says: "The subject is both complex and dynamic. It is complex because it cannot be treated separately from the process of design; it has to be related to user requirements, to the planning of buildings, to methods of construction and to the manufacture of components. It is dynamic because it is still evolving. It has been developing gradually for 30 years. Today certain principles are clear, development is proceeding more rapidly but there is no finality. The development of dimensional co-ordination in the future will be an integral part of the development of building technology."[2]

Finally, the Design Bulletin No. 16: "Co-ordination of Components in Housing - metric dimensional framework" was published in 1968 and superseded that of 1963. This new Bulletin describes the objects of the work on the co-ordination of components - the major one is to obtain better value for money - in housing by

Fig. 4.2 A DIAGRAM FROM THE RIBA REPORT WHICH DEMONSTRATES ALTERNATIVE COMBINATIONS OF UNITS ALL FITTED INTO THE SAME OVERALL DIMENSION.



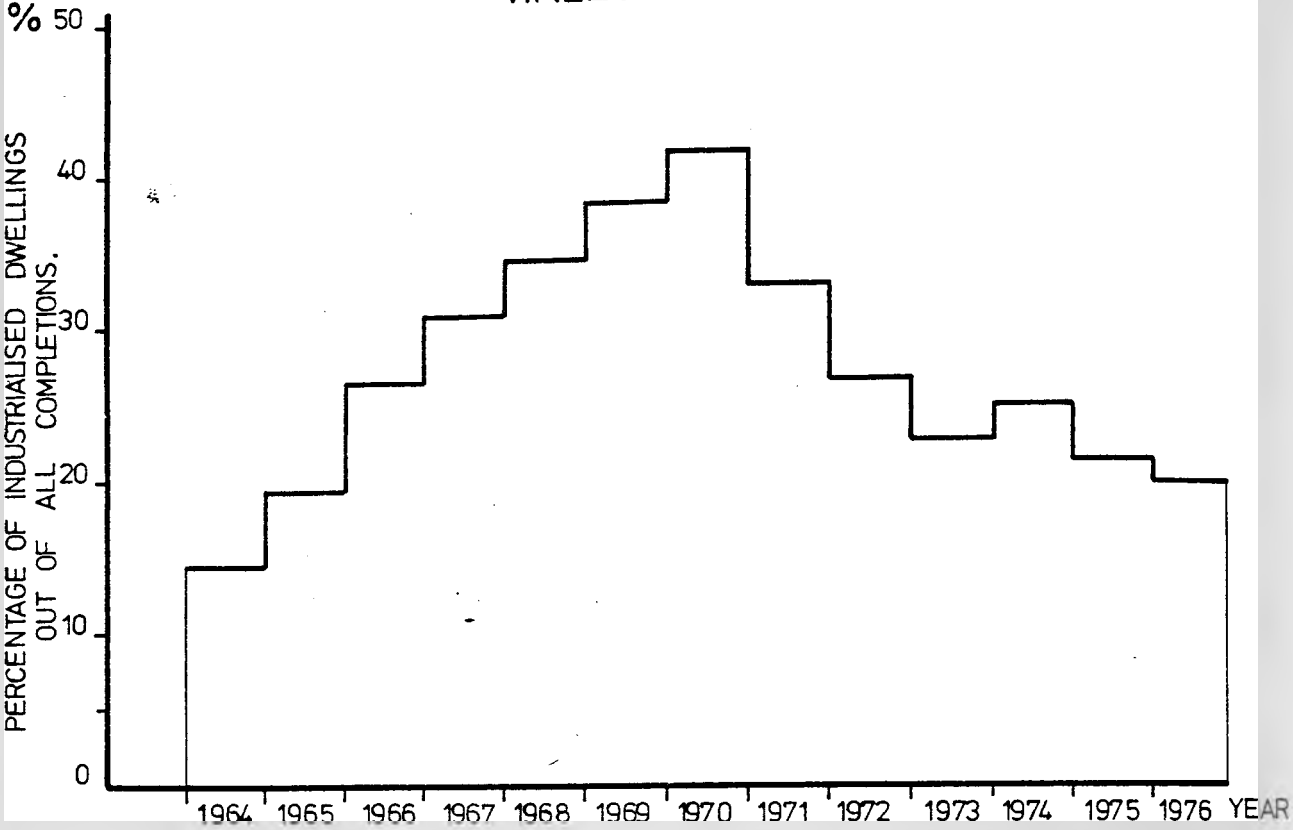
increasing the use of mass produced components. It states the approach to the dimensional co-ordination of components and it makes recommendations for a dimensional framework to be used in design so that buildings will be sized to accept standard components, giving examples for the guidance of the building designers. This Bulletin is still in force and all local authority housing has to comply with it.

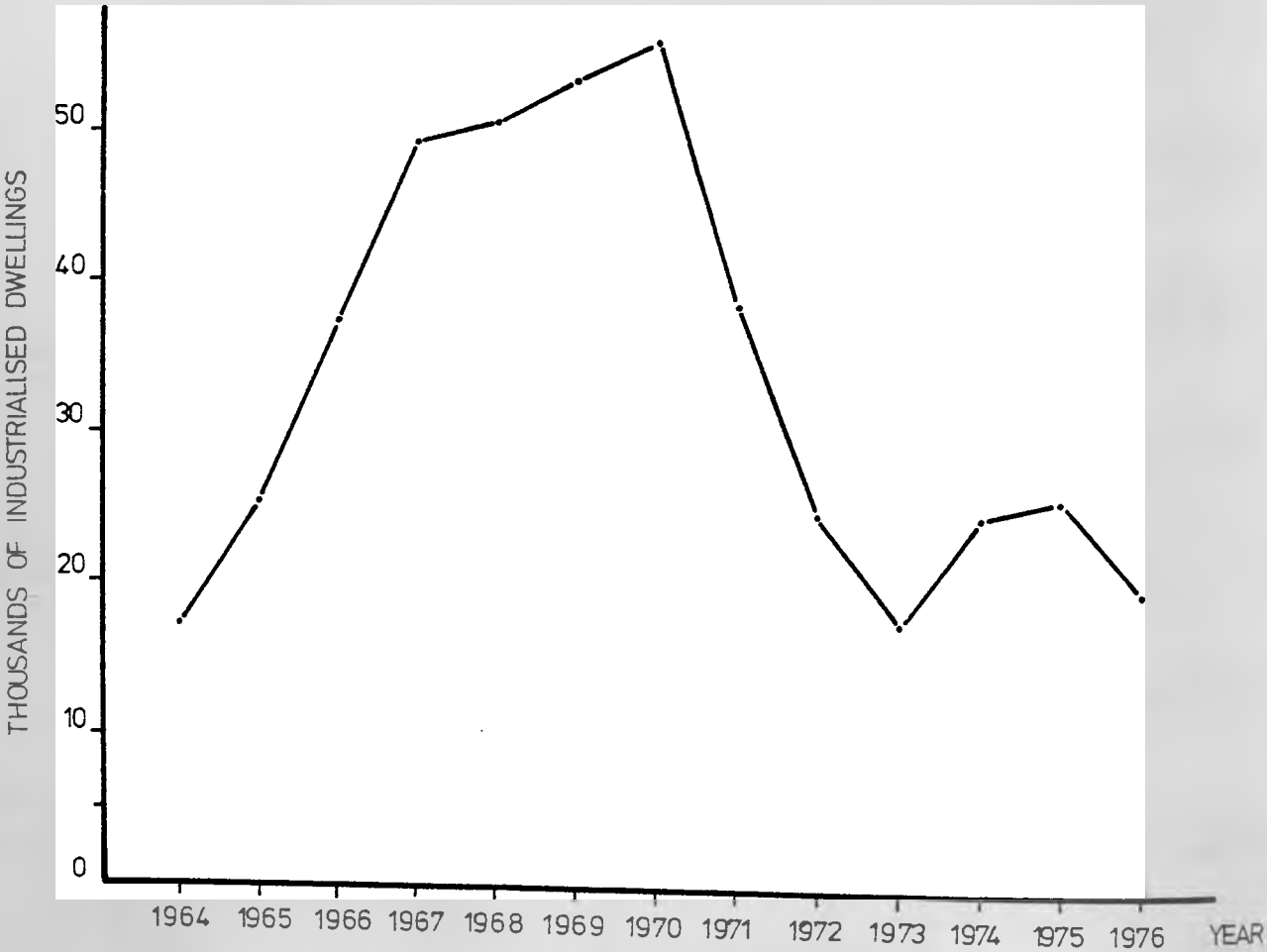
b) Industrialised Housing:

It was in 1962 when industrialisation, as an idea and its elevation to the status of a panacea took place. The analogy with the motor car was frequently pressed into service; if it was possible to mass-produce cars, it was equally possible to mass produce houses too!! The industry's enthusiasm for industrialised methods may be judged by the very fact that in 1964 there were over 400 'systems' under development, most of which never got beyond that stage. "However - and this is perhaps the nation's greatest tragedy - most of the earlier experience of the two immediate post-war periods was lost, with the result that we have been covering similar ground all over again since 1962."[3]

No financial incentives were introduced during this decade (1965-75) to encourage industrialised housing; by contrast to the previous two post-war decades where the Governments of the day subsidised pre-fabricated dwellings in the hope of achieving economies and increase output. The new product - the industrialised dwelling - usually reflected the vested interests of its sponsors; Building Contractors' 'systems' tended to centre on a reduction of site labour usually achieved by adopting large building components for the carcass of each house; Building Materials Manufacturers' dominated 'systems' tended, for obvious reasons, to emphasise a particular

Fig. 4.3 INDUSTRIALISED DWELLINGS COMPLETED BY LOCAL AUTHORITIES AND NEW TOWNS IN ENGLAND AND WALES 1964-1976.





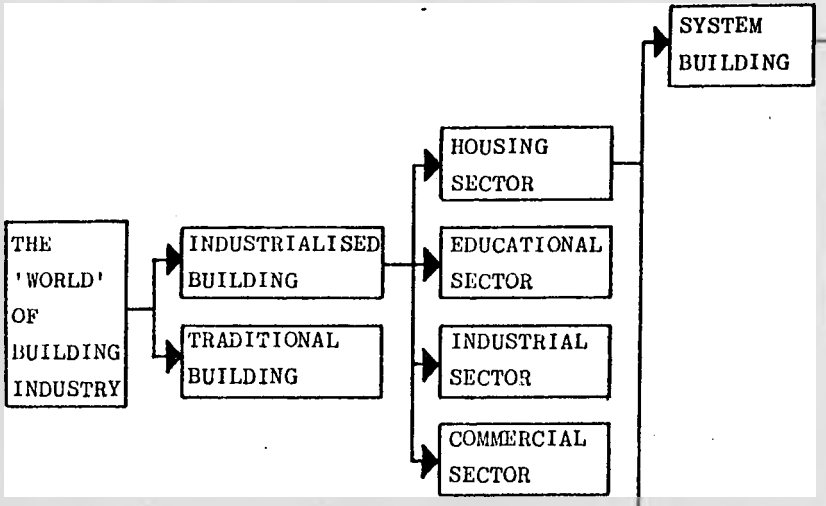
material or process. "A study of the 69 systems in England and Wales which have received NBA certificates of approval, reveals that the majority are only a hair's breadth away from traditional building. Nearly eighty percent employ brickwork and tiled pitched roofs. The situation has been epitomised by the advertisement of one system building illustrating two houses in brick and tile which asks the reader to guess which one is a 'system' and which 'traditionally' built."[4]

These 'system building' solutions proposed can be classified in four major groups viz : the large precast concrete panel systems, the systems with either steel or concrete frame, the lightweight open component systems on modularly co-ordinated bases and the completely industrialised buildings, see Table 4.1. These were all technically complete packages but experienced difficulties because they could not be absorbed by the existing building organisation since they offered no alternative procedures; indeed it is hard to see how they could. Also from the start local authorities didn't give 'system building' a chance, and in most cases they were not prepared to concede neither to minimum departures needed from a standard design nor to the size of the order needed to become economic. So with the 'fall' of the high rise housing - where 'system building' made beyond any doubt its biggest contribution, see Fig. (4.3) - the chapter of 'system building' was to close around 1968, but industrialised housing continued its contribution through the 'component building' particularly used for low-rise housing developments.

The 'component building', while allowing considerable industrialisation for component manufacture and 'fitting' into existing procedures of the building

TABLE 4.1

'System Buidling' and 'Component Building' Solutions



LARGE PRECAST CONCRETE PANEL SYSTEMS

Are the most extensively used of the commerically produced systems and most examples of their implementation take the form of low and high rise flats for L.A.s.

SYSTEMS WITH EITHER STEEL OR CONCRETE FRAME

Most of these are designed for low-rise buildings.

LIGHTWEIGHT OPEN COMPONENT SYSTEMS ON MODULARLY COATED BASES

The most famous example is the CLASP. The systems have usually been developed by teams of research and development architects operating in various government directorates.

COMPLETELY INDUSTRIALISED BUILDINGS

This category covers buildings entirely produced in factories and then transported to the site. CALDER homes are an example of this type.

STANDARD COMPONENTS

Made by industry to its own designs and specifications without a specific job order, the relationship and connection of which to each other the architect himself determines for each building.

SPECIAL COMPONENTS

Designed as a kit of parts for a building or range of buildings. In this case the architect works to a set of rules drawn up by the system designer for the relationship and connection of components.

organisation, offered no assurances of complete technical integration - right through to assembly - embodied in the 'system building'. The two main problems of the 'component building' were:

How to control dimensions which affected the relationship between components - the 'co-ordination of dimensions' - already solved in 1963, and the second one was in the field of jointing techniques. Nevertheless, by mid 'sixties the jointing problem was solved too, when there was a considerable standardisation in large precast construction in jointing floor plates to wall units, and the use of the open drain joint between wall panels. Also there were inumerable baffles, gaskets and the like on the market for weatherproofing external joints between both similar and unsimilar components. However, due to the great increase in the number of standardised components on the market, it was possible in 1966-67 to erect "most types of building including low-rise housing, completely by the assembly of such components".[5]

The main 'favourable points' of 'component building' can be summarised as follows:

1. It is more economical than 'system building', as components were mass produced for a national market, (e.g. the standard metal window).
2. It fitted better into the existing structure of the construction industry which is basically a component industry, whereas 'system building' required sweeping changes to operate.
3. It retained the element of choice for the designer, necessary for functional and aesthetic reasons, however this choice being within the disciplines of dimensional co-ordination.
4. It enabled all 'sizes' and 'types' of client to benefit from industrialised techniques and

5. It allowed for continual development in all aspects of building; not only the introduction of new materials and methods but also changes in the type and design of dwellings.

In conclusion, the development of industrialised housing, once again verified that within the world of building industry, the housing sector is the one where tradition is perhaps the strongest and in the end, to be successful, the new methods have to be better than the traditional ones.

Section 4.2.2: Housing Groups or Consortia

They are economic units for building purposes formed by Local Authorities and New Towns which got together voluntarily in order to promote grouped contracts to allow the advantages of scale or order, which will permit their objectives, see Table (4.2), they themselves decided upon to be achieved.

The original aim of the consortia movement was to organise the market as a whole, in readiness for the large scale of production particularly associated with industrialised local authority housing. As Len Madden puts it: the consortia were regarded at the start "solely as midwives for the birth of industrialised housing".[6]

"By the end of 1969 more than half the number of municipal schemes in England and Wales were with 25 or fewer housing units each. In fact 29 percent were for 1-10 units and 25 percent were for 11-25 units. By the end of 1970 21 percent of all schemes were for 26-50 units, 12 percent for 51-100 units and 7 percent for 100-200 units. Only 5 percent of them were of the really sizeable kind involving 250 units or more."[7] It is obvious that local authorities did not have sufficient programmes individually and a high proportion of all countracts let annually were very small indeed. Under such 'conditions' which were even worse during the early 'sixties, the Consortia started to form. Also, adequate resources of technical staff required to do the necessary work were not available, even though many consortia attempted to provide these by part time working of the technical staff of their member authorities.

It was actually these very sort of problems that the Government, in order to help, decided to set-up in 1964 the NBA (National Building Agency) — a quasi-governmental

TABLE 4.2

Housing Consortia

Activities:	Objectives:	Difficulties:
1. Exchange of experience 2. Formulation of housing briefs 3. User requirements studies 4. Range of plan types 5. New building techniques 6. Performance specification 7. Tendering procedure 8. Contract document 9. Negotiation of joint tenders 10. Building programme networks 11. Site and layout standards 12. Car parking studies 13. Cost planning 14. Bulk quotations 15. Rehabilitation of dwellings	1. The planning of bulk quotations to gain advantages of lower cost and better quality, more closely related to the requirements of their authorities. 2. Design and development work to produce a rationalised form of construction. 3. The production of a high quality of contract documentation and working drawings for traditional or forms of rationalised traditional construction. 4. The grouping of contracts as serial contracts to permit the funding of the technical work involved and to obtain through scale and order, lower prices, whether for traditional, rationalised traditional or system building.	1. POLITICAL 2. BUSINESS OPPOSITION 3. ADMINISTRATIVE a. Immense variety of local requirements. b. Influence of elected members of consortium decisions. 4. HUMAN NATURE a. The 'voluntary basis' b. Civic pride c. Personal prejudice of chief officers d. Lack of faith in the effectiveness of consortium working.

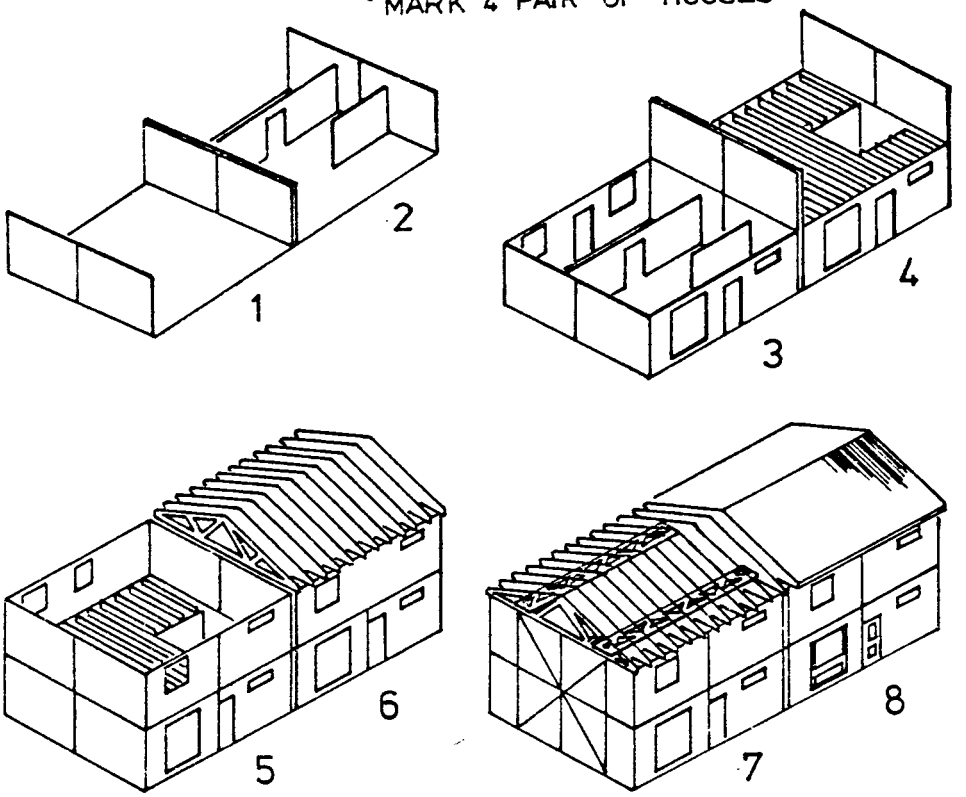
body — with its main objective to make availabe skilled and specialised resources where required, both at technical and administrative levels.

On the successful side of the consortia movement, according to Len Madden: "By March 1970 there were 43 housing consortia or groups in England and Wales nominally involving 494 member authorities, including New Towns. Though this number represented little more than one third of all housing authorities in the country, they were responsible for 54 percent of the population and 52 percent of all municipal houses completed. More significantly perhaps, among the authorities in the consortia were 54 percent of those who built more than 100 dwellings a year and 61 percent of those who annually build 200 dwellings and more."[8] Perhaps, the most important of their achievements is a marked increase in the technical collaboration among all the 'groups', much of which cannot be quantified or demonstrated in measurable form. As W.A. James (Development Architect of the Midlands Housing Consortium) had emphasised speaking about his own 'group', "the group did not come into being to undertake joint programmes - it has never had a joint scheme as such - but the technical collaboration and feedback which has been achieved is considered to be of appreciable long-term value".[9] Similarly, G.H. Vivian (Hertfordshire Consortium Administrator) is quoted as saying that: "the main benefits have been a gain in technical communication and a higher and more economical rate of house building".[10]

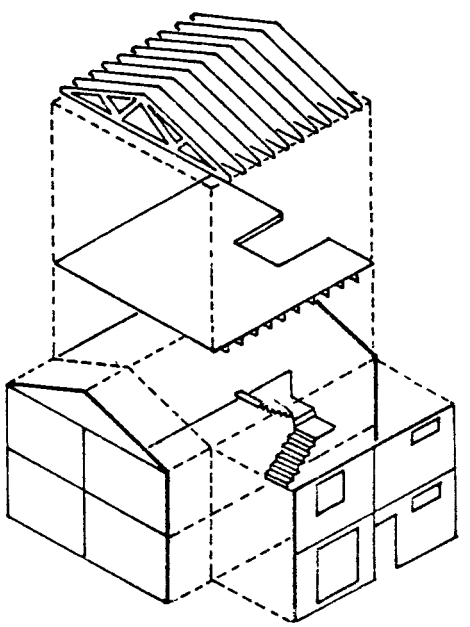
On the whole the 'housing groups' may differ widely in their composition, the way they operate and often in their views of their immediate priorities. However, all of them are approaching the same 'destination' by different routes perhaps. Also the consortia movement may well have departed from its original aims, but its successes of technical collaborative thinking, exchange of experience and the provision of 'backroom boy' services to all its members, leading to a more economical rate of house

Fig. 4.4 THE M.H.C. 'MARK 4' METRIC SYSTEM.

THE SEQUENCE OF OPERATIONS IN THE ERECTION OF A 'MARK 4' PAIR OF HOUSES.



1. Ground floor party wall panels set out erected and fixed to pre-prepared site slab.
2. Internal structural partitions erected and fixed.
3. External wall panels to front and rear walls erected and fixed. Continuous runners fixed. Party wall cover panels fixed.
4. First floor joists positioned and fixed in notches in continuous runner. First floor party wall panels errected and strutted until front and rear wall panels are erected.
5. First floor external wall erected and fixed. Continuous head binders fixed. Party wall cover panels fixed.
6. Roof trusses positioned and fixed.
7. Wind brace trusses fed into position and fixed to roof trusses and party wall. Site fixed sheathing to gable walls fixed.
8. Roof cladding, floor boarding staircase etc. completed. Windows and doorsets fixed. Now ready for cladding and for internal finishes.



Mark 4 components: The M.H.C. metric houses are designed in compliance with the nationally accepted zones and grid lines. The component parts of the houses are therefore applicable to any other housing or similar building types using these co ordinated dimensions.

building are facts of success of voluntary co-operation on the basis of goodwill.

An Example: The Midlands Housing Consortium (M.H.C.)

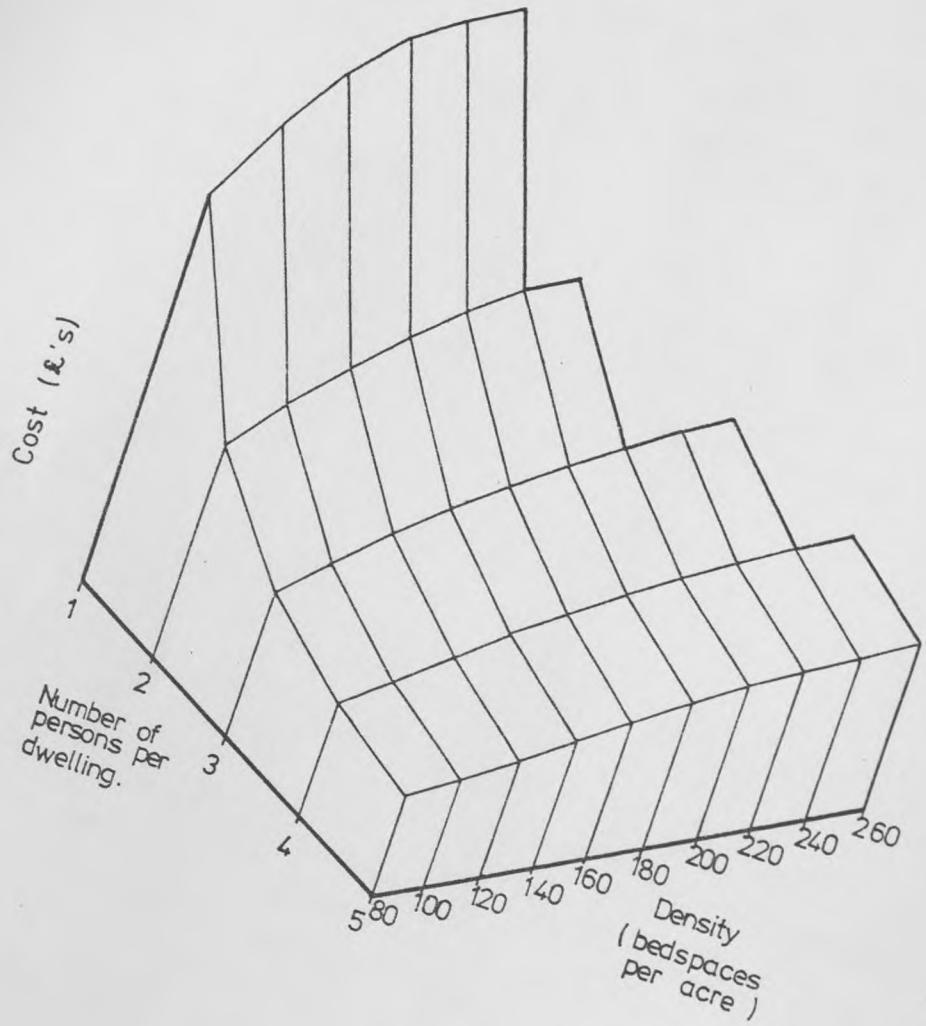
It was established in 1963 with ten housing authorities as founders. The original brief was to organise bulk tendering arrangements for certain items such as kitchen units, rainwater goods, flush doors, ironmongery, floor finishes and so on, and to develop a low-rise housing system.

The M.H.C. low-rise housing system developed, was the only client controlled system of its type in the country at the time, designed to suit the requirements of its member authorities. The system evolved through 'Mark 1, 2 and 3' to the latest metric component system 'Mark 4'. The major changes which had led to the introduction of a new 'Mark' had resulted from external causes viz : 'Mark 1' was replaced by 'Mark 2' in 1966 as a result of the Parker Morris Committee recommendations and the introduction of the 1965 Building Regulations, 'Mark 3' followed in 1968 after the introduction of the 'Housing Cost Yardstick' and provided dwelling types available to accommodate from one to six-person.

With the introduction of 'Mark 4' in 1971-72 the use of 'Mark 3' gradually ceased completely. The components of 'Mark 4', see Fig. (4.4) are all metric, designed in accordance with the mandatory modular requirements for local authority housing (Design Bulletin 16 - Co-ordination of Components in Housing). It was intended that the components will be used in two ways:
First in a series of standard plans fully documented and available off-the-shelf, as a 'M.H.C. System' and secondly in member authorities' own plans which have been designed in accordance with the same modular principles. So the M.H.C. 'Mark 4' components in effect can be used

practically in all low-rise housing built by the member authorities, with either 'traditional' construction or the 'M.H.C. system' as a whole.

Fig. 4.5 RELATIONSHIP BETWEEN COST, DWELLING SIZE AND DENSITY IN COST YARDSTICK TABLE.



Section 4.3.1; Housing Cost Yardstick's Effects on Design

a) An Introduction into the 'Device':

The housing cost yardstick is perhaps the most controversial legislative 'device' any administration has ever produced in the field of public sector housing during the last thirty years. It first appeared with the publication of the Design Bulletin No. 7: "Housing Cost Yardstick" of the Ministry of Housing and Local Government, which placed great emphasis throughout on exploitation in design and secondly with the introduction of the M.H.L.G. Circular No. 40/1963 which embodied two important relationships: a) that cost of housing provision increases with density and b) that costs decrease as the average number of persons per dwelling rises, see Fig. (4.5). In other words, costs and density were tied together. At that time it was not yet mandatory and its explicit aim was to assist in cost planning.

A second major step was taken by the Government in 1967 with the publication of the Manual "Density of Residential Areas" by the M.H.L.G. and the Introduction of the Circular No. 36/67 through which cost, density and certain Parker Morris design standards were tied together. (Similar legislation was passed in Scotland with the Circulars 19/68 and 20/68 of the Scottish Development Department - S.D.D.)

Even though costs were constantly monitored by the Government, revisions had not been frequent enough nor of sufficient magnitude to keep pace with rising costs in the building industry. So by mid-1973 the yard-stick 'device' was almost in total disrepute; it had become as A. Crossland said: "... a sick joke in the whole local authority...".[11] The Government having realised the difficulties experienced by local

authorities started to take a more flexible attitude, which can be seen in Geoffrey Rippon's (Secretary of State) own words: "We have abandoned the rigid yardstick system and replaced it by a more flexible and I think more sensible system of having regard to market forces."[12] The D.O.E. Internal Housing Instruction Note 10/72 gives further details about this 'more flexible' system Geoffrey Rippon referred to above. Finally a review party was set up by the Secretary of State in 1975 with the objective to discuss "the matter of placing more responsibility on local authorities for cost control and allowing them more flexibility in determining the types and sizes of accommodation required to meet the local needs".[13]

b) The Effects on Design:

In 1971 an RIBA Memorandum composed of two reports was submitted to the Minister of Housing and Construction (Julian Amery), presenting the extent and nature of local authorities' difficulties in operating the housing cost yardstick. The memo.'s conclusions were the outcome of a survey of 31 local authorities and 15 New Town corporations in the U.K. The memorandum indicated that there were widespread misgivings about the workings of the 'device' and its effects on housing layouts and standards. It was discovered that many local authorities had been forced to make use of the 10 percent tolerance allowance in order to meet minimum Parker Morris requirements. New Towns were not allowed to use the tolerance and thus their reactions were more critical than those of local authorities. The memo. concluded that the principle weaknesses of the yardstick system lay in the inadequacy of review procedures, the amount of the increases made and the imbalance in the cost tables which together resulted in an undue influence of the yardstick on design.

The report which analysed the 31 schemes of local authority housing showed that while standards of layout, internal space, fittings and equipment and heating had on average increased since the introduction of the yardstick in April 1967 (this reflected the influence of the Parker Morris report), the standards of the external works had tended to decline. As to the extent to which housing design briefs were distorted by various 'boosting' techniques such as manipulation of density and the type of construction, it was found that had been used by a large number of authorities. For example in the 'density boosting' the designer increased the proportion of the dwelling type which was most favourable in yardstick terms. In many cases two and five-person dwellings had been used to subsidise the more expensive four-person unit. In the 'mix beating' the proportion of less expensive types of construction was increased. For example more low rise dwellings were used than was allowed for in the cost tables. The effect of this was a fall in standards of children's play areas, private open space, privacy and protection against noise.

According to Dean Hawkes: "the erratic fluctuation between real costs and yardsticks with only variable in the system the density, had as direct consequence the restriction of the design freedom and the density and policies being determined by yardstick rather than by social criteria. The 'game' of 'yardstick beating' had encouraged higher densities than were desirable, or even necessary."[14]

The New Towns which participated in the survey found it difficult to provide the mix of dwellings asked for in the brief. Many were worried because they were forced not only to adopt cheaper materials and specifications, but also to include cheap materials which had been insufficiently tested, resulting thus

in excessive maintenance costs in the course of time. The increase in design time was a serious and continuing problem in several towns. This made programming difficult, affected staff and caused delays both in commencement and completion of the schemes.

In conclusion the effects of endeavouring to design within the yardstick limitations were as follows:

1) A very high proportion of schemes carefully designed with the object of meeting the yardstick ceiling failed to do so.

2) Schemes in the lower density ranges failed to meet the yardstick limits by a greater margin than those in the middle and higher density ranges.

3) The yardstick criterion became predominant and the mix of dwelling types and sizes determined by the authority's social requirements had to be seriously distorted to meet that criterion.

4) This distortion became even greater and even more unrealistic in the case of small sites.

5) Schemes containing a high proportion of one-bedroom dwellings at low density could not meet the yardstick limit.

6) The yardstick criterion being based on sites of reasonable shape, was not applicable to awkwardly shaped sites.

7) Instead of the 10 percent tolerance being used as an option for authorities to provide higher standards, it was frequently used to gain acceptance of schemes designed to minimum standards.

8) Expenditure on 'external works' had to be so reduced that inferior finishes were used and desirable features eliminated. Alternatively, if reasonable finishes were kept, the 10 percent

tolerance was used up either in whole or in part.

9) Standards of heating and insulation were reduced, tenants had less choice on heating methods and were faced with greater running costs.

10) Maintenance costs were increased because of reductions in building specifications and

11) Design costs were increased too, since the time spent in designing and redesigning to meet the yardstick was increased substantially mainly because of the increase in abortive work due to the 'device'.

The above 11 points are actually a summary of the main points of the evidence received by the RIBA Housing Working Group of the Professional Services Board, from its member architects some eighteen months after the introduction of the M.H.L.G. Circular No. 36/67.

Section 4.4.1: The 'Fall' of the High Rise Housing

The housing problems that the country had been faced with, particularly during the 'fifties, were so great that "for anyone to refuse to use the whole range of the tools available - including the tall block - was irresponsible".[15] Nevertheless the numbers of dwellings in flats above nine storeys for which tenders had been approved fell by 90.5 percent (from 27,557 to 2,688) between 1966 and 1970 and from 32 percent to 5.7 percent of all flats for which tenders had been approved. An explanation into the causes of the 'fall' of the high rise housing can be given at three levels:

1) By reference to particular contingencies such as the Ronan Point[16] disaster for example in 1968. The prime significance of this unique case is to be found in the nature and problems of innovation in building. However, even if this disaster had not happened the decline of the high flats might have been less abrupt but would have still have taken place. Criticisms of the social effects of living off the ground were seen as another factor against high rise as well.

2) In terms of 'relations' between central and local governments, the removal of additional subsidy for flats above six storeys, with the passing of the Housing Subsidies Act 1967, ended an arrangement which since 1956 had helped the local authorities with the high cost of high blocks. At the same time developments in the system of assessing financial support for housing led to the introduction of the 'Cost-Yardstick' in 1967 (nearly a year before the Ronan Point disaster). The 1967 economic crisis resulted too in £100 million worth of building being cut. The new housing policy of 'old houses into new houses' also shifted attention from new building into rehabilitation.

All these facts cast an entirely different light on the matter suggesting that the social criticisms, subsidies removal, 'Ronan Point' and cost yardstick were not the real cause of the decrease of the high-rise housing but their economic nature which had finally been accepted by local authorities, who had ceased to rely upon to the same extent as they did in the past. In short the Government during the second half of the 'sixties was reducing incentives and increasing its restraints on high-rise building by means of financial and technical arrangements.

The architectural press (e.g. the Architectural Review) which in the 'fifties and earlier had played a prominent part in turning attention to high rise housing both by its praise of the work of the Modern Movement and by its attacks on the New Towns and 'prairie planning', during this decade turned its criticisms against high-rise housing.

The last analysis of public sector high-rise housing points to the conclusion that it was an innovation that failed, or according to Kenneth Cambell 'became the victim of fashion'. This follows not simply from the decline shown in statistics or from the various kinds of criticisms but is an implication of the fact that the problems with which the innovators of the high flat were concerned have not been resolved and persisted strongly. This last point brings us to the third level of explanation as to the fall of the high-rise housing viz :

3) The new information and experience accumulated about the consequences of this innovation, which was very poor, if not in existence at all until 1970.

With respect to the question 'what went wrong with the tall block?' Kenneth Cambell[17] gave the following eight reasons as follows:

a) The original purpose of the tall block (to provide flexibility in the remainder of the housing) was lost or blurred.

b) It became a prestige symbol.

c) It became an easy solution without professional advice or with inadequate professional services. "It was easier than tackling the hard, grinding work of providing a proper environment. It became the easy option.".

d) It provided an opportunity for architects in the brutalist period to produce "large, grim and squalid monuments, rather than small ones".

e) Cost of all factors which produced good architecture became overriding and this led to cutting down standards (reduction of floor areas, omission of balconies), where high standards were essential.

f) The gross housing shortage led to inappropriate families moving into tall blocks.

g) The inadequacy of the architecture, planning and investment in the environment of tall blocks and

h) Tall blocks were the easiest way to 'sell' industrialised building.

On the whole it would be wrong to interpret both the 'rise' and 'fall' of the high-rise flats as an innovation to meet a limited emergency on the analogy of a new weapon produced to meet needs of a war and then abandoned with the peace. On the contrary it was an innovation which failed because it was grossly misused, after all the struggle for housing continued with little assistance from the high-rise housing, but with more and more from the low-rise industrialised housing.

The general swing to low-rise high density (which had been heralded by experimental schemes in the early 'sixties), with the 'fall' of the high-rise housing

during this decade saw its full development, to become by mid-seventies the panacea for the problems of new inner city housing. Its central idea is to house families at or near the ground level to give equal, though different, conditions of private outside space, entry and internal amenity for each unit. Although not always applicable low-rise high density housing offers the following possibilities:

a) maximum contact with the ground for the maximum number of people

b) the grouping of small units allows for adaptation to both topography and site boundaries

c) the ability to mix dwelling sizes allows family size mixing so avoiding the isolation of any single group and

d) low-rise dwellings close together tend to be cheaper in construction costs than medium-rise or high-rise flats and/or maisonettes. Indeed the more dwellings per acre the less land costs per house.

However, despite the above 'advantages' everyone is aware that in higher densities there could be problems, increasing as the densities rise, particularly over the 100 p.p. acre level. Complaints of lack of privacy, noise and nuisance from children's play are the most common. To deal with such problems new dwelling types, new patterns of access for people, cars' movements and services had to be devised. It appears almost certain that the present trend of low-rise high density will continue without much opposition into the future.

Section 4.5.1: Types of Dwellings;
The N.B.A.'s 'House Shells'

a) An Introduction into N.B.A.'s Organisation:

It was established in 1964 by the Ministry of Public Buildings and Works as an independent advisory body. "Our immediate task is to make an impact on public authority housing; not our only task by any means. In collaboration with others we are studying systems and components for hospital buildings; buildings for medical group practices; problems of design and standardised methods of construction for lettable factories; also acting as consultants on the development of systems and components."18, said Cleeve Barr, Chairman and Chief Architect of the N.B.A. almost a year after its establishment. But as the Agency grew, it became apparent that the majority of its activities were concerned with local authority house building. So in 1966 the responsibility was transferred to the Ministry of Housing and Local Government (M.H.L.G.). A wide range of skills are represented, although quantity surveyors, civil engineers, structural engineers and architects predominate (simply for the reason that they are the professions with knowledge and education in building and building construction).

The N.B.A.'s work is divided between two divisions: the 'architectural division' and the 'operational division', but a complex relationship exists between the two and separation kept to the minimum possible with many projects undertaken jointly. The architectural division is mainly concerned with: rationalisation of demand in terms of design, contract procedure, selection and use of industrialised methods in building. Among the significant contributions this division made to rationalisation of design, are the work of metric house shells (examined later on) and

the work of the Brick Development Association on traditional brick housing. The Operational Division is concerned principally with productivity and efficiency of pre-contract organisation and of site operations, in one word 'management services'. Also it has pioneered the introduction, into local authorities and new towns, of project co-ordination techniques using network analysis. The "systems' appraisal" activity for which the Agency is best known is a joint function between the two divisions.

b) How Did the 'House Shells' Come About?:

Throughout the 1960's a battle was fought to improve housing standards on the one hand and on the other to hold down government expenditure on housing to one of the lowest in Europe, about 3 percent[19] of the gross national product. That both sides were vigorously respresented within the M.H.L.G. is shown by an examination of the Ministry's publications and pronouncements, which also constitute the background of the N.B.A. 'House Shells'.

1961: The Parker Morris Report: The starting point for thinking about homes and flats must be "the activities that people want to pursue in their homes".[20]

1962: M.H.L.G. Circular No. 13/62: The Ministry commended the Parker Morris Report to all housing authorities.

1963: M.H.L.G. Design Bulletin No. 6 Space in Home: "Adaptability to allow alternative uses of space in the one house is essential."[21]

1965: M.H.L.G. Circular No. 21/65: The Ministry urged local authorities to start adopting at least some of the Parker Morris recommendations.

1966: Chief Architect to the M.H.L.G.: "44.3 percent of all dwellings in the public sector are being built with at least the improved floor space and space heating standards and 25 percent have all improved standards."22

1967: M.H.L.G. Circular 36/67: Parker Morris Standards to become mandatory. The yardstick comes into being, which withheld subsidy from schemes which exceeded a 10 percent cost tolerance.

1968: M.H.L.G. Circular 1/68, "Metrication of Housebuilding": A dimensional discipline including a 300 mm basic planning grid was introduced for local authority housing. Not to depart unreasonably from the dimensional disciplines laid down by Design Bulletin No. 16.

1969: M.H.L.G. Circular 69/69, "Metric House Shells": Local authorities were required generally" to use house shell dimensions for all four, five and six-person houses where the upper and lower floors are of equal area."23 In order to "reduce the proliferation of individual solutions which is a waste of the nation's productive resources".23

In short the context of the 'battle' was to build faster and cheaper and improve the productivity and quality of design.

c) House Shells: The theory:

The N.B.A has developed the principles of generic house forms and metric house shells with the intention of improving quality of design, increasing productivity and reducing costs by encouraging greater standardisation of components and site operations.

N.B.A.'s two main publications: 'Metric house shells - 2 storey plans'and 'Single storey housing - A design

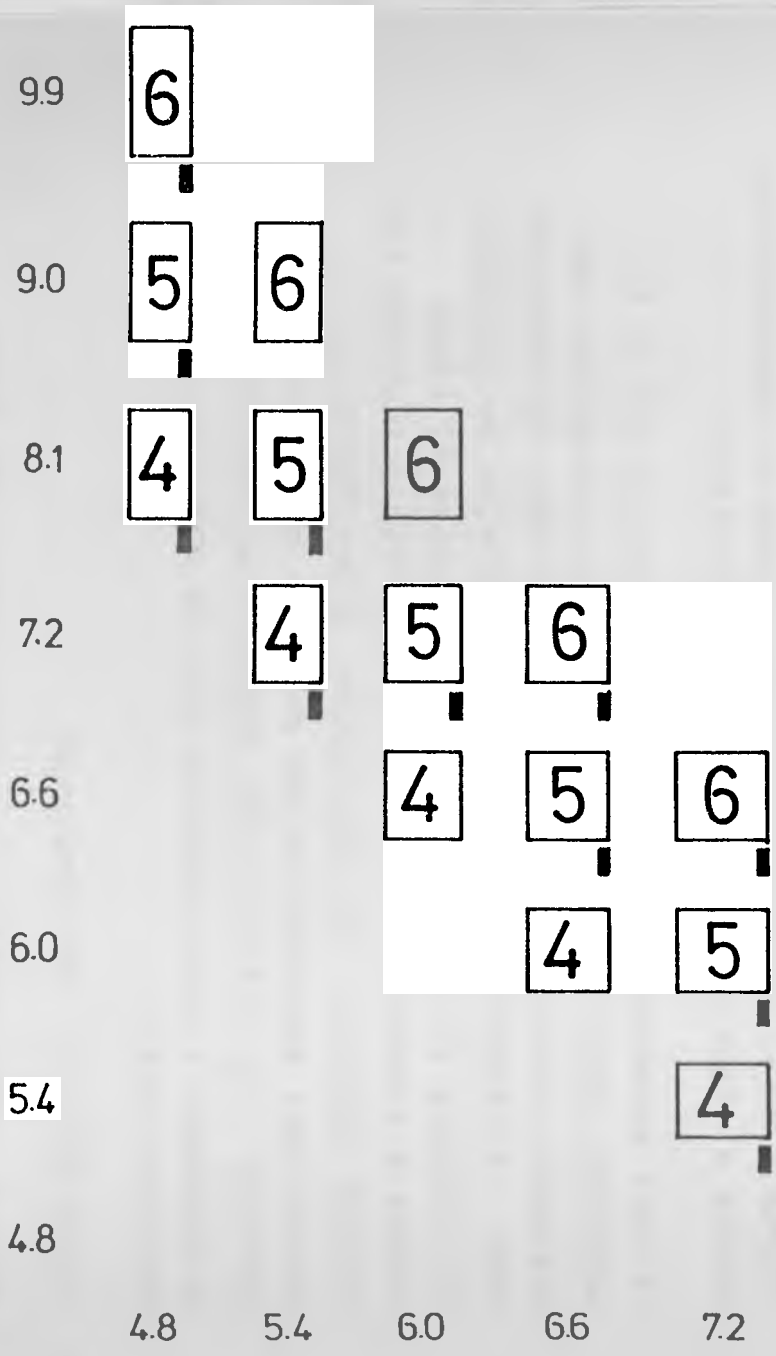
guide' suggest that through widespread adoption of the 'selected ranges' of house shells, building productivity will be increased and cost reduced by a decrease in the variety of components and advantages in added efficiency may accrue to the designer through savings in time when tendering, the production of standard sets of working drawings and ease of exchanging information.

The Metric House Shells publications have to a degree achieved a means of defining a range of situations for component designers and systems manufacturers to meet. What the publications do not do is create a system which allows for the parameters to be questioned and for differing solutions to be developed. The concept of both the generic plan forms and the house shells, as presented, is based on a pragmatic classification of what exists and on continuation of the status quo, rather than on defining the total range of possibilities within a clearly defined set of constraints.

If real advances in the quality of design are to be achieved, what is required are tools to question and evaluate existing constraints rather than to continue them. An improved quality of design will be achieved by allowing for a continuous interchange of ideas within a framework where the generating principles are clearly defined. In conclusion, House Shells are a theoretical approach to the nation's housebuilding problems - an intellectual geometrical exercise of how to arrange 'a room within a box' or box-like rooms into box-like shells.

d) 'House Shells': The practice

'Metric house shells - 2 storey plans' was first published by the N.B.A. in April 1968, it contains examples of plans for four, five and six-person


9.9
9.0
8.1
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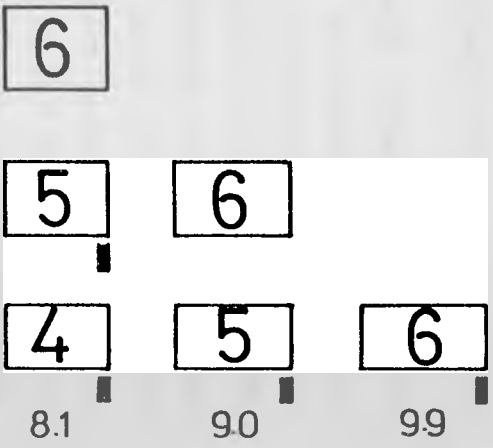
4.8
4.8
5.4
6.0
6.6
7.2

Fig. 4.6 THE RANGE OF 4,5 AND 6 PERSON METRIC HOUSE SHELLS PUBLISHED IN THE M.H.L.G. CIRCULAR 69/1969. SOME OF THE SHELLS REQUIRE AN EXTERNAL STORE; THESE ARE INDICATED DIAGRAMMATICALLY.



houses which conform with the Ministry's dimensional disciplines and mandatory requirements, see Fig. (4.6). The plans consist of box-like rooms fitted efficiently into the required box-like shells. The classification system enables plans to be selected according to either a required depth or frontage and from related designs for different sized dwellings. Storage space is used as the regulator to balance the areas of the upper and lower floors but often at the expense of the habitable areas. The fact that a number of shells require external storage adds force to the argument that the mandatory requirements were drawn up with the wrong priorities; above all to save money rather than to obtain good value for money.

With respect to the 'Single storey housing - A design guide' published by the N.B.A. in January, 1971, it is essentially a sequence of the above described 'Metric House Shells - 2 storey plans' study. The complete range of shells shown in Fig. (4.7) comprise all those shell sizes that are theoretically possible within the disciplines of the existing Ministry standards. All the shells are based on the minimum net living areas and general storage required by the Ministry of Housing for one, two and three-person houses (Circular 27/70 'Metrication of housebuilding: Progress') and they are based on 300 mm grid according to Design Bulletin No. 16, 'The co-ordination of components in housing - metric dimensional framework'. In all, over 900 different basic plan arrangements can be accommodated within the 205 shells in the complete range and within each of them further minor variations are possible.

For the purpose of rationalisation a limited range of two and three-person shells have been selected. The advantages of rationalisation do not apply to one-person or four-person single storey houses to the

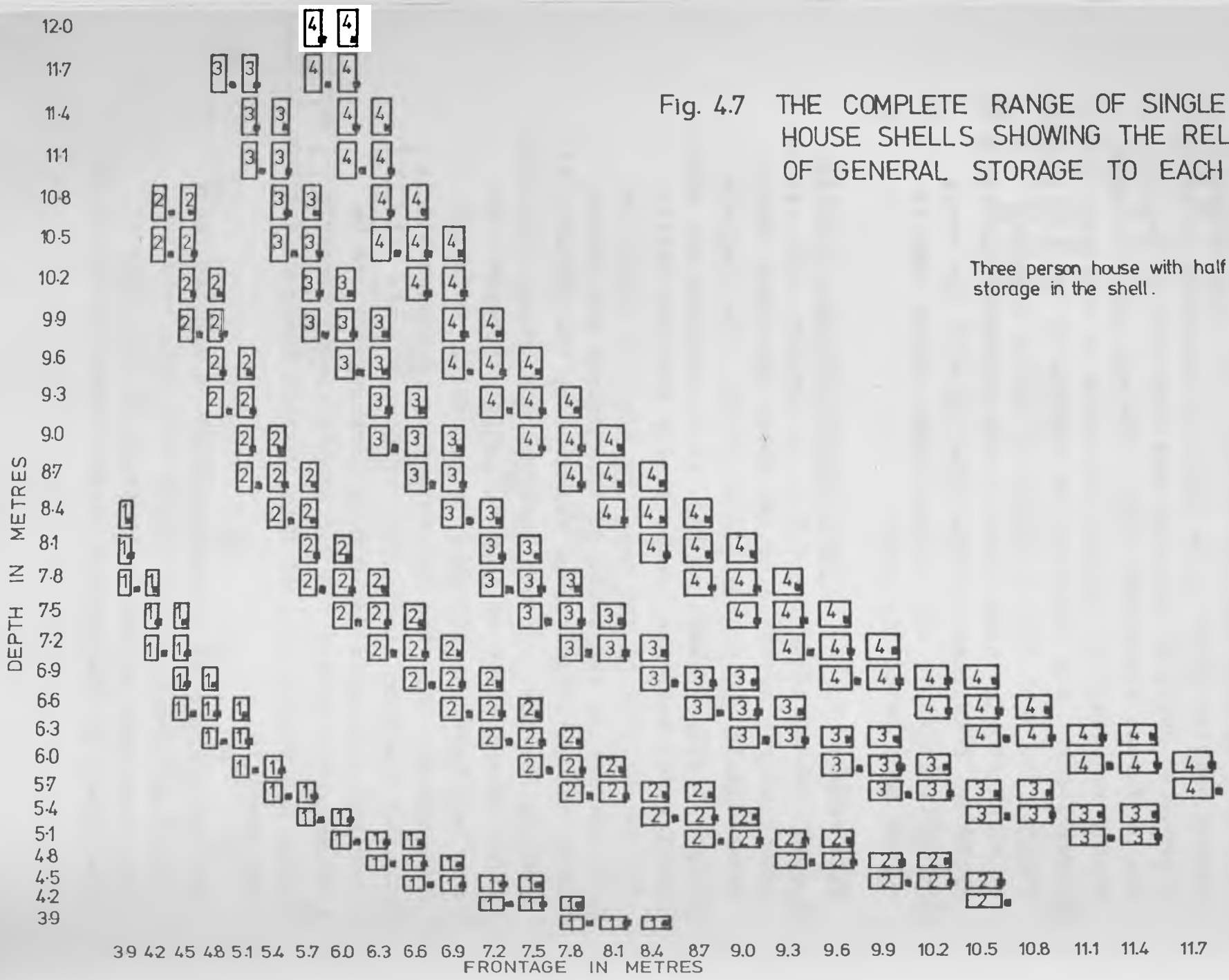


Fig. 4.7 THE COMPLETE RANGE OF SINGLE STOREY HOUSE SHELLS SHOWING THE RELATIONSHIP OF GENERAL STORAGE TO EACH SHELL.

Three person house with half the storage in the shell. [3]

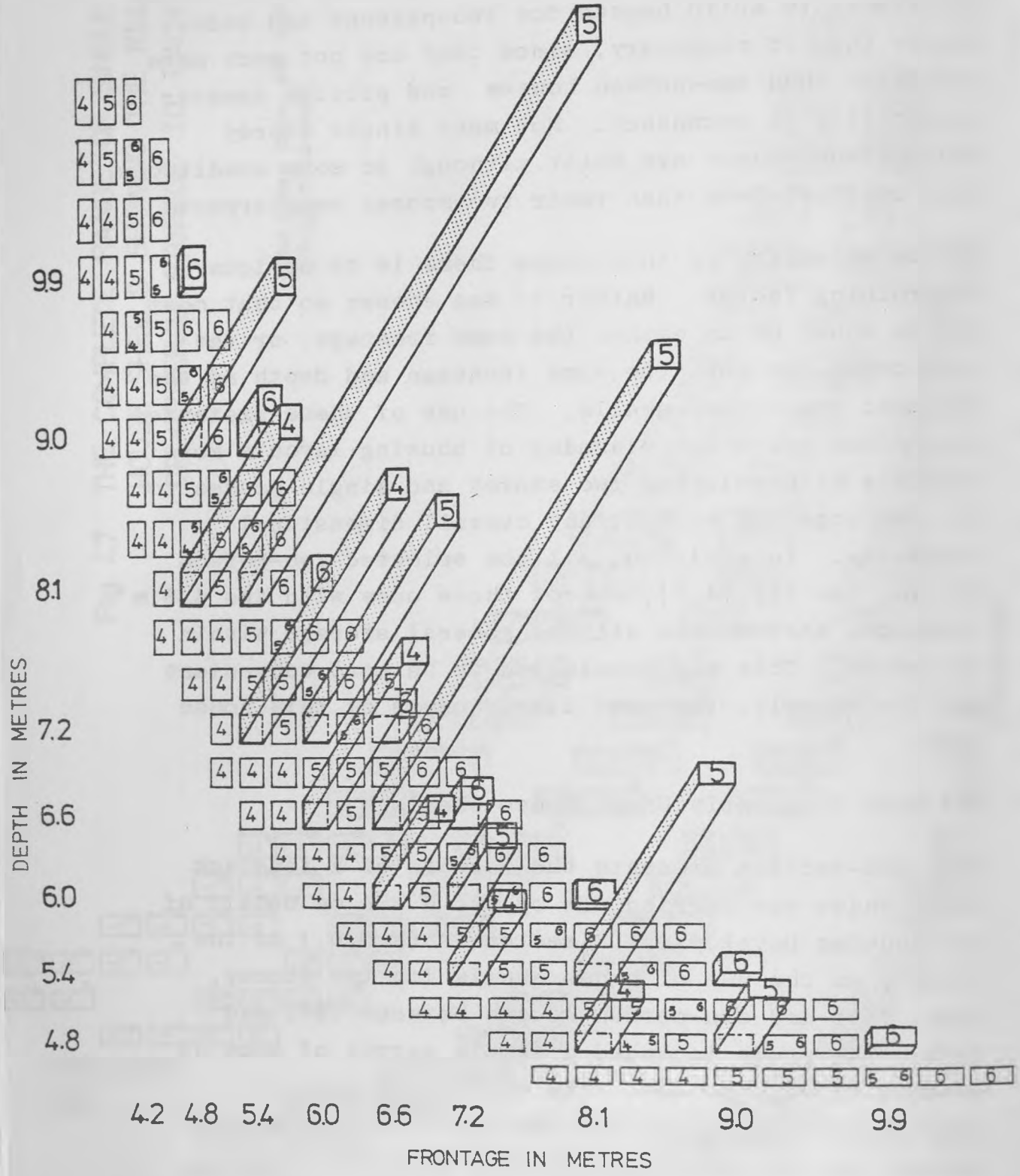
same extent, as very few of them are built by local authorities and therefore no specific shell dimensions are recommended. Most authorities consider it a better investment to build houses for two-persons and under occupy them if necessary, since they are not much more expensive than one-person houses and provide greater flexibility in occupancy. Not many single storey four-person houses are built although in some conditions they can cost less than their two storey counterparts.

In the selection of this range there is no obvious determining factor. Rather it was chosen so that most shells would be on either the same frontage, or the same depth, or both the same frontage and depth as the selected two storey shells. The use of these preferred dimensions makes the planning of housing layouts more flexible by permitting two storey and single houses to be used together without any overall dimensional disparity. In addition, all the selected two-person shells. see Fig.(4.7), except those ones with the 4.8 m frontage, accommodate all the general storage within the house. This was considered to be more convenient for the elderly, the most likely users of this house type.

e) The Most Frequently Used 'House Shells':

This sub-section presents the results of a feedback study which was carried out by the N.B.A on behalf of the Housing Development Directorate (H.D.D.) of the D.O.E., on the use of house shells for two storey, four, five and six-person houses between 1971 and 1973. The study included a sample survey of some 92 schemes of such houses. The objectives were to supplement the analysis of the D.O.E.'s statistical returns on the use of shells with more detailed information on the use and non-use of the selected range of shells and plans. For example, the use of

Fig. 4.8 SELECTED HOUSE SHELLS USED IN ENGLAND AND WALES 1971 TO 1973.
(two storey houses)



[5] A selected 5 person shell.

[5] A 5 person shell.

rectangularly planned houses outside the selected range of shells and the use of non-rectangularly planned houses.

The analysis of the frequency of use of different shell sizes and plan types shows that the most frequently used shells are [see Fig. (4.8 and 4.9)] as follows:

4 person: 4.8m, 5.4m and 6.0m frontages
5 person: 4.8m, 5.4m, 6.0m 6.6m and 8.1m frontages.

The most frequently used frontage is 5.4m for both four and five-person shells, followed by 6.6m frontage of five-person shells. Less used were the wider frontage shells with the exception of the 8.1m five-person shell. All the most frequently used plans are shown in generic form in Fig. (4.10), while the plans themselves are also shown in Appendix III.

In conclusion the study showed:

1) A 71% take up in the use of the selected shells for four, five and six-person two storey houses, see Fig. (4.8) and Appendix III;

2) A further 15% in the selected shells but with modifications to the disposition of the nett area and storage;

3) 12% of the houses were in rectangularly planned houses outside the selected range of shells shown in Appendix III along with houses in the selected shells. No conclusions were drawn as to why these types were preferred and

4) The remaining 2% of houses were planned in a non-rectangular form.

Fig. 4.9 SELECTED HOUSE SHELLS USED IN ENGLAND AND WALES 1971 TO 1973.
(two storey houses).

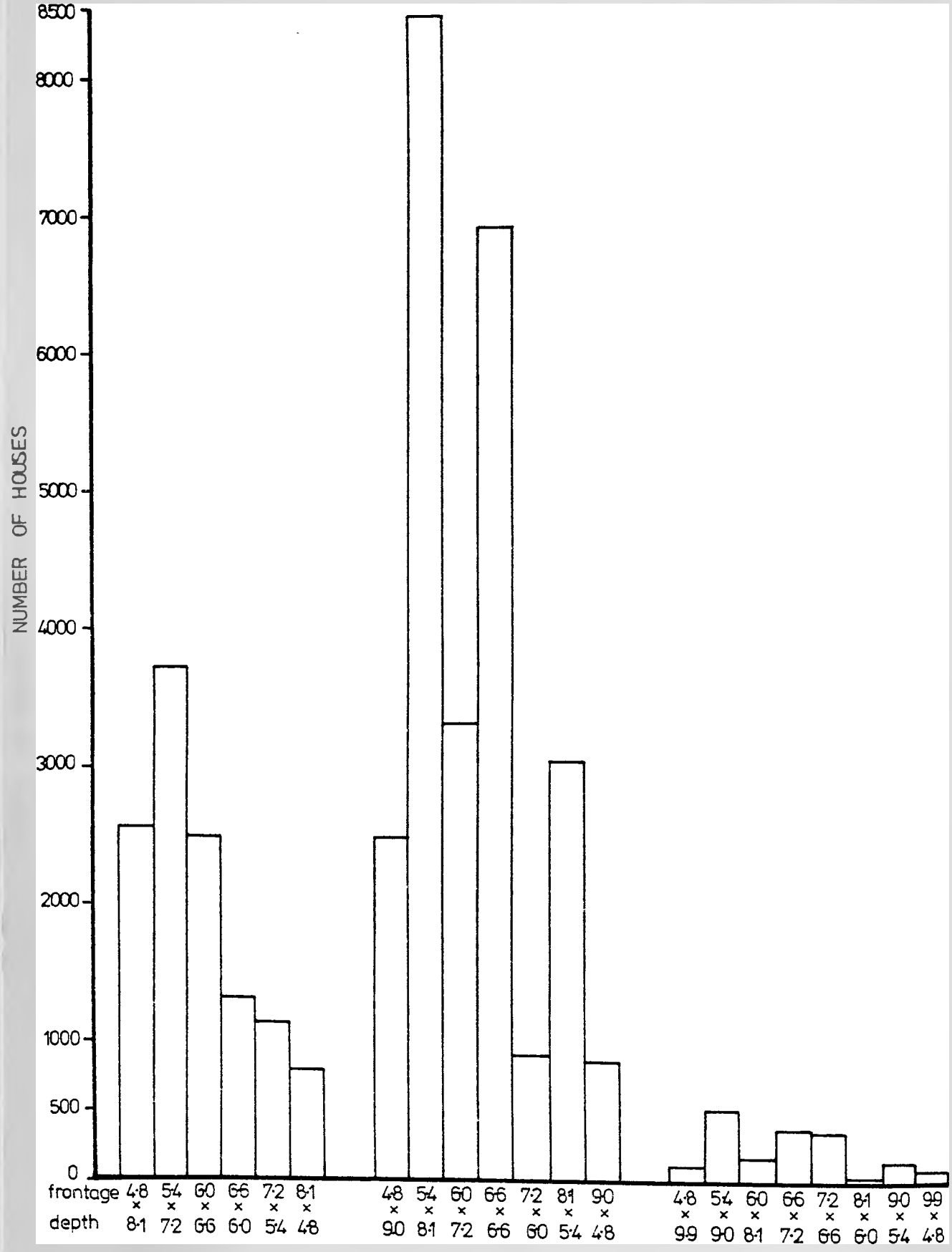
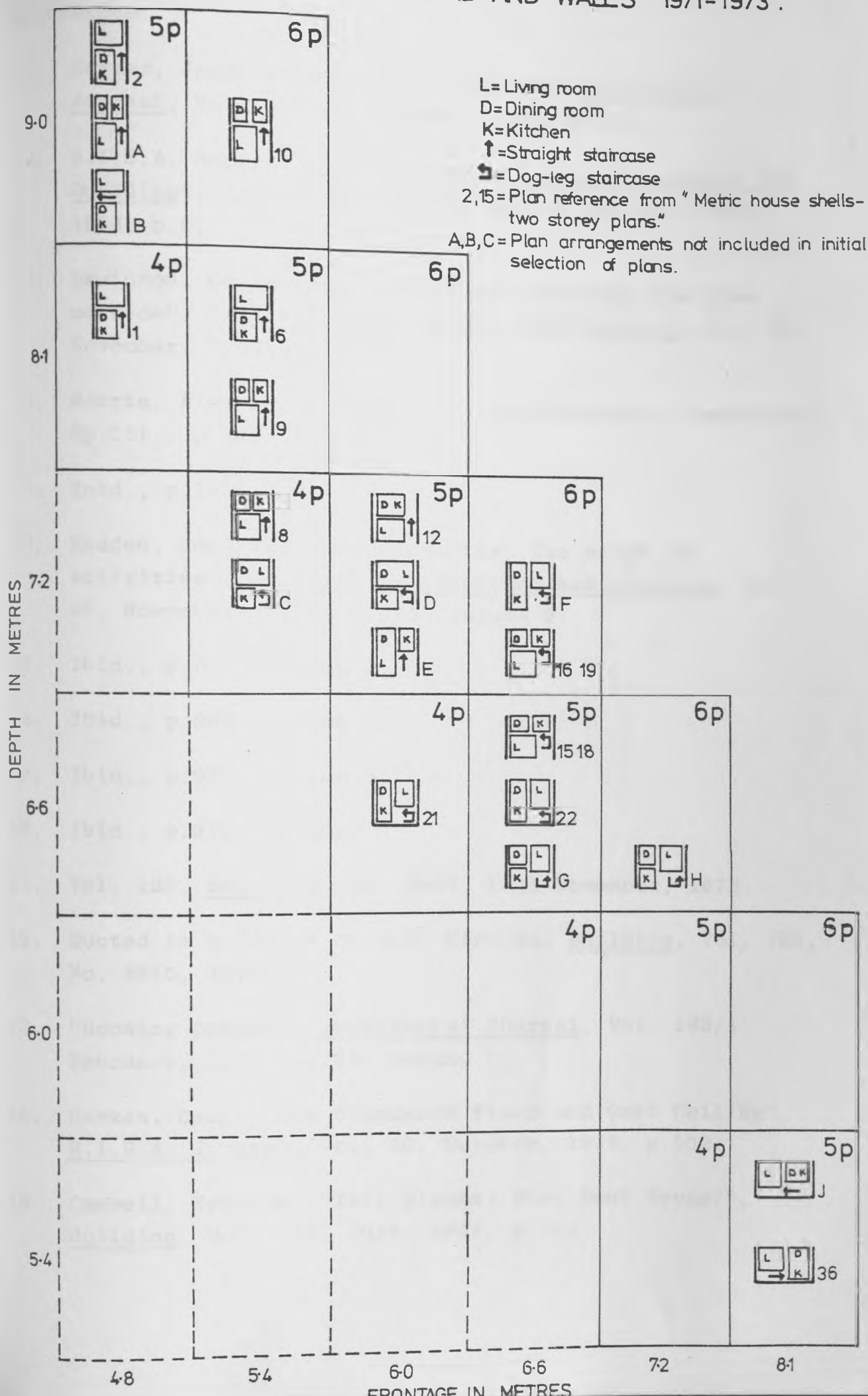


Fig. 4.10 THE MOST FREQUENTLY USED N.B.A. "SHELLS" ENGLAND AND WALES 1971-1973.



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CHAPTER 5: Thirty Years On: 1945-1975

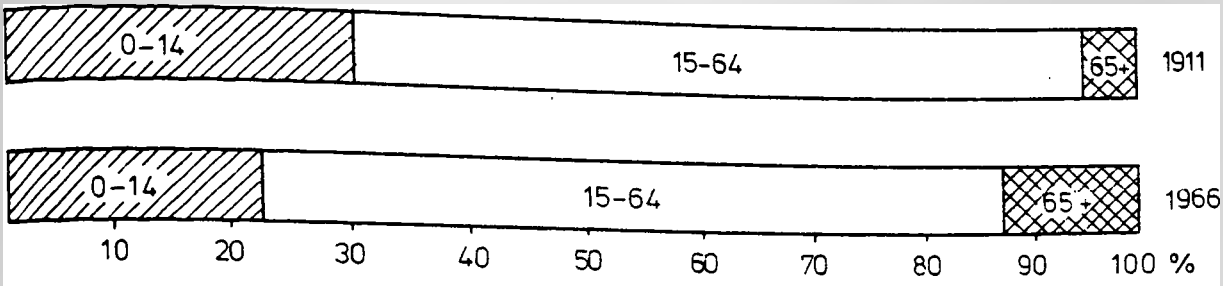
This chapter summarises trends over the three decades since 1945 and looks ahead into the kind of housing we shall be building, at least, into the near future.

Section 5.1.1: Factors that Influenced Housing Design in the 1945-1975 Period

A number of broad trends may be distinguished during the last three decades, such as rapid technological development, increased productivity, rise in the standards of living, changes in the patterns of earning and so on, which are reflected in the smallest details of our daily lives. Also they affect families' needs and desires and have a direct influence on the home environment, the dwelling the architects are designing for. Some of the most important factors that influenced the dwellings' plans during the past thirty years are:

1) Demographic Changes:

As far as housing is concerned we are particularly interested in those 'units of individuals' called households, because of the direct link with the kind of dwellings built and the household 'size'; (size being defined as the number of persons in the household). Also changes in the age composition of the population tend to accelerate the process of differentiation of households; (by process of differentiation we mean differences of the population brought about by the grouping of individuals into separate units). Such a change in the increase in the number and decrease in the size of households of this country are shown in the figure overleaf:

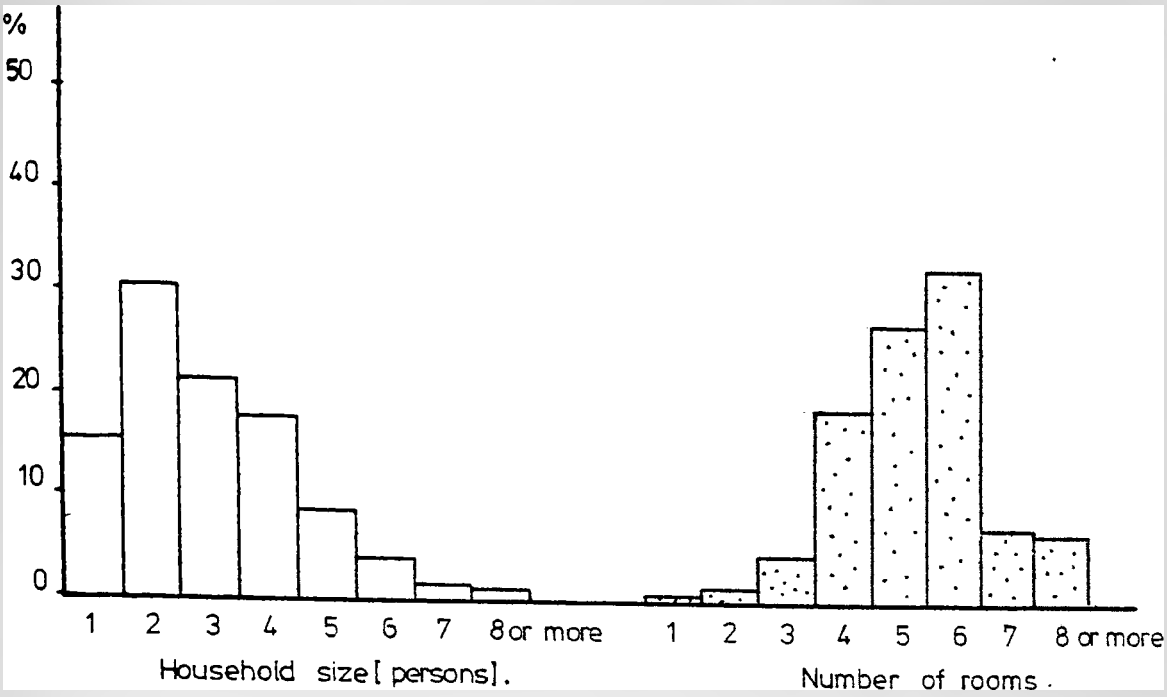


Age distribution of the population of England and Wales.

Apart from the size, the biological condition of households is also of equal importance to the kind of dwellings built. For example, it is generally agreed that for families with young children houses with gardens are preferable to flats.

2) User Needs:

They vary according to the number, age, sex and marital conditions of the household and by enlarge of the people and their social status. Obviously the needs of old age pensioners differ considerably from those of newly married couples with children to come, of middle age childless couples or of families with small children. Therefore, considering the question of 'what sort of dwellings should be built?', it is plain that they should build to suit the particular needs of the particular groups of households, by contrast to the tendency of the past to cater for only the needs of the average 'normal' type of household, as a consequence of which there is a mismatch between what is required and the sort of dwellings built, (see figure overleaf); hence the recent rise in concern about "special needs" housing - not only the small households discussed in Section 5.3.1 - but also for the aged, physically handicapped, etc.



Distribution of household size and dwelling sizes. England and Wales 1966.

3) Changes within the 'Family':

A complex series of changes have occurred in the composition and organisation of the 'family' during the past thirty years. In the first place families have been getting smaller. A Victorian couple for example had an average of five or six children to rear, a couple married around 1925 had only two; since 1956 the number of children per family rose to three or four while the last census of 1971 showed a further decline in the birthrate and a clear mismatch between households and housing stock. As we shall see shortly (in Section 5. 3.1) more than 50 percent of households in Britain today consist of one and two persons. Therefore the single, whether young or elderly, the single parent family, the aged couples, taken together are a majority not a minority group as it was the case until the mid-sixties.

Some other changes which took place in the household unit are:

a) Unmarried adults and old people tend to set up separate homes for themselves.

b) Resident domestic servants have virtually disappeared from the middle class home.

c) The family is arriving earlier at the stage in the life cycle when children leave home and

d) The role of women changed. Since w-war-II they have been entering an increasing number of paid jobs. This led to the demand for 'easy to keep' homes with all 'up to date' facilities so that they are still free to have paid jobs.

4) Technology:

There is no doubt that technological developments have given all of us more time for leisure and fewer working hours per week with even far better output results. Women now work both at home and elsewhere thanks to the labour saving devices technology provided them with, for which the architect has to provide sufficient room in the house.

Technology too, had an important effect on:

a) Heating: we have moved from the solid-fuel range of the 'forties to the fully centrally heated and automatically controlled houses of today.

b) Various appliances and equipment: The refrigerator substituted the larder, the electric cooker the coal-range and so on and

c) The high rise housing: which cry out for attention as the best example of the advances in Building Technology which made them a 'reality'.

5) Rising Standards of Living:

People's desires have been changed and keep changing quite drastically. Part of this change is explained by the improved 'means', for doing household tasks, offered to them by 'technology'. The widespread increase of television sets for example, not only provided a new use of space but altered the arrangement of furniture of the living room and became a competing focus to the already existing one, the fireplace. The continuing increase in car ownership imposes further demands for space as well. These amount to what in human terms mean a rising standard of living and as it continues to rise, the demand for more space will continue to rise too, which in turn affects the dwelling's plans.

6) Economic Factors:

By these we mean the overall public investment policy and the proportion of the national resources spent on housing. It is the so called 'housing bill' which allows for a new household formation rate of houses built and a replacement rate of houses demolished. It is the shrinkage of this 'bill' in the 'fifties that forced down the standards of houses built during that period.

In addition to the factors discussed in this section, there are three other topics which relate to the three decades since 1945 and the future viz :

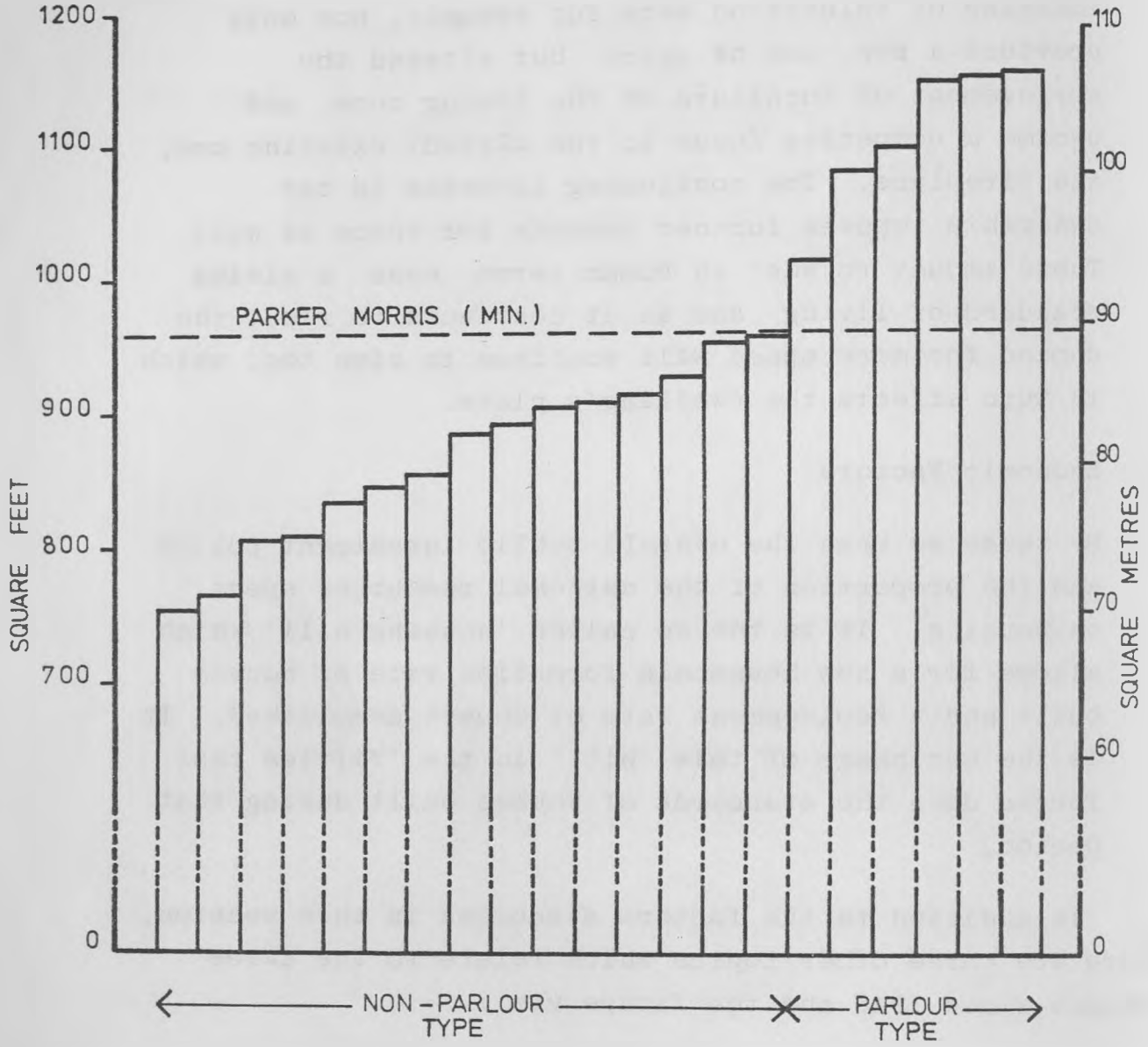
1) Changes in official space standards;

2) The 'small house concept' and

3) The architects' role in housing design.

These are discussed in detail in the following sections.

Fig. 5.1 GROSS FLOOR AREAS OF ALL TUDOR WALTER'S REPORT PLANS
(five person dwellings)



Section 5.2.1: The Three Major Reports on Public Sector Housing Since 1918: A comparison of space standards with respect to five-person house

These three major reports are:

1) The "Tudor Walters Report", 1918
2) The "Dudley Report", 1944 and
3) The "Parker Morris Report", 1961.

a) Tudor Walters Compared to the Parker Morris Report:

Of the main aims of the Tudor Walters Report were: "to secure houses good enough to remain above the accepted minimum standard for at least 60 years, despite the rising material aspirations of occupants" and profoundly to "influence the general standard of housing in this country". Nevertheless, by the time the Parker Morris Report appeared in 1961, very few identifiable influences of the Tudor Walters Report could be seen, such as the general acceptance of two storey houses with gardens.

In this comparison of space standards the emphasis is placed on the five-person house only. The gross floor area of a l l Tudor Walters plans are shown in Fig. (5.1) with the minimum Parker Morris standard (subsequently observed in practice as maximum) shown as a broken horizontal line at 89.3m^2 (961.2$\simeq$ 960 sq.ft.). The surprising thing that emerges is that more than a quarter of the Tudor Walters plans' space standards are higher than those of Parker Morris. In fact, the three larger Tudor Walters plans are bigger than Parker Morris by more than 16.7m^2 (190 sq,ft.). If the comparison is confined into Tudor Walters 'parlour-type' plans o n l y, the results are equally striking. Indeed, the 'mean area' of these plans rise to 102.8m^2 (1,104.2 sq.ft.), almost 14.5m^2

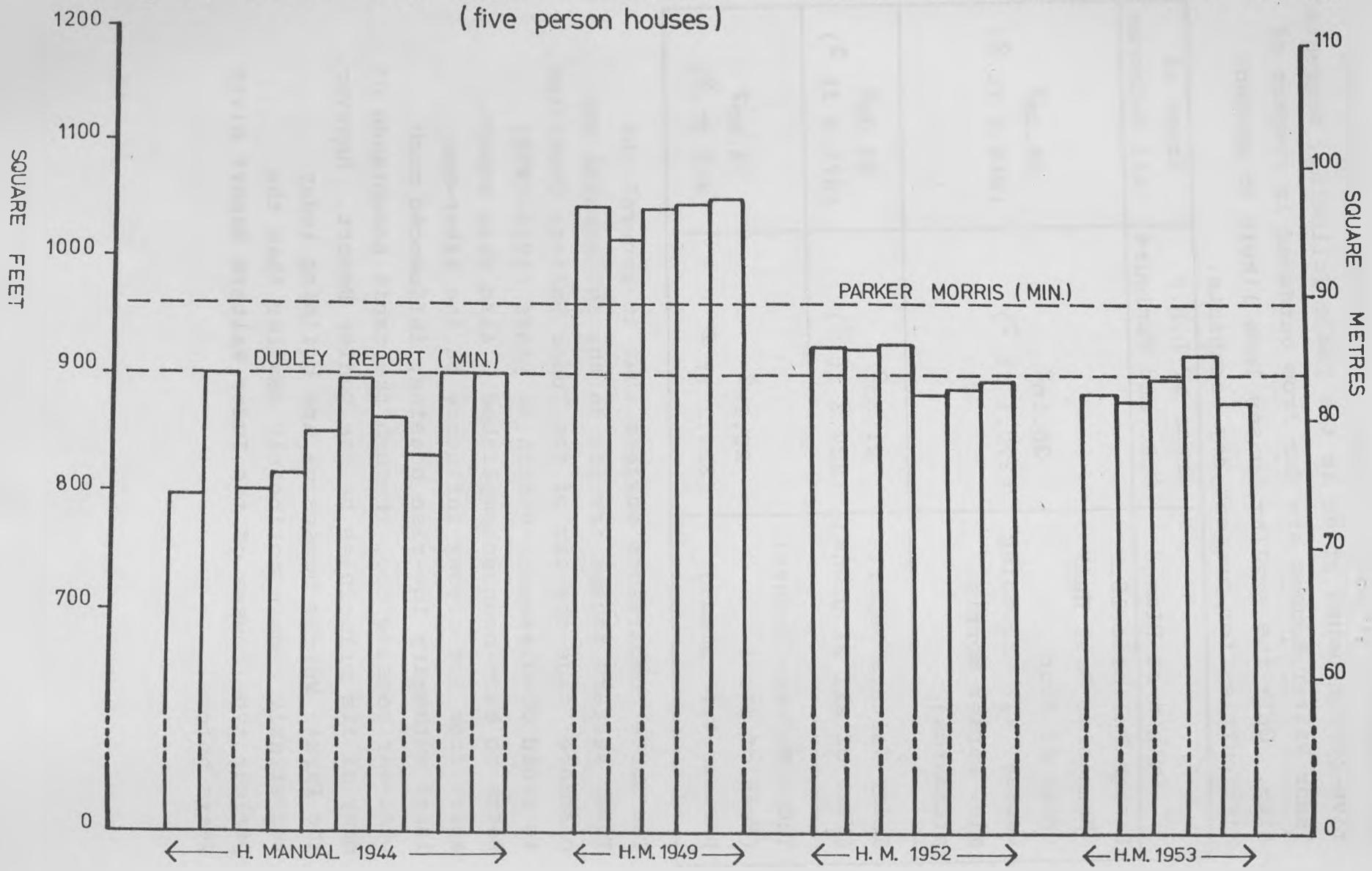
(156 sq.ft.) larger than Parker Morris.

The comparison of the living and bedroom areas of the five-person house given in the Table following, suggests that Tudor Walter houses are far from outdated in respect of size. Only the smaller houses look likely to present difficulties for present day occupants.

Origin of Plan	Areas of L.R./ D.R. and Parlours	Areas of all Bedrooms
Design Bulletin 15: "Houses at West Ham" (Mean of four houses, all exceeding min. Parker Morris standards)	25.1m^2 (270.1 ft.^{2})	29.1m^2 (313.2 ft.^{2})
Tudor Walters Report: (Mean of all 21 plans)	21.3m^2 (229.3 ft.^{2})	34.5m^2 (371.3 ft.^{2})
Tudor Walters Report: (Mean of its 6 parlour-type plans)	29.2m^2 (314.1 ft.^{2}	38.9m^2 (418 ft.^{2})

The above comparisons suggest that in general the Tudor Walters houses are not in any fundamental way obsolete; thus the aim of the Tudor Walters Committee to avoid obsolescence within 60 years (1918-1978) seems to have been accomplished. Also this report, apart from its strong influence on the inter-war local authority low-rise housing, influenced much post-war housing too, through the tacit acceptance of many of its principles by the Dudley Report. However, the Parker Morris houses we are building today regrettably remain noticeably smaller than the parlour type houses of the Tudor Walters Report sixty years before!

Fig. 5.2 GROSS FLOOR AREAS OF THE MAJOR POSTWAR-II HOUSING MANUALS' PLANS.
(five person houses)



b) Dudley Report and Subsequent Housing Manuals Compared with the Parker Morris Report

"When we went back to the Dudley Report, there was not a great deal one could complain about. It set fairly high standards, but.... those Dudley standards had been reduced. We also set our minds on one thing, that we were going to produce proposals which would get back at any rate to the Dudley standards, and if possible, provide something rather better or a little more adventurous, or which would meet the needs of today rather better than even Dudley."[1], Sir Parker Morris said.

In Fig. (5.2) are shown the space standards of a few of the five-person, two storey 'sample plans' of each of the Housing Manuals, following the publication of the Dudley Report. From this, it is obvious that the Parker Morris minimum standard of 910 sq.ft. (84.54m^2) of net floor area (excluding storage) is slightly above the minimum average area standard of 900 sq.ft. (83.6m^2) exclusive of outbuildings, of the Dudley Report; and well above even the overall areas of the 1944 Housing Manual and the 'Houses 1952' and 'Houses 1953' (supplements of the 1949 Housing Manual) and also slightly above the lower standard of the 1949 Housing Manual of 900-950 sq.ft. (83.6 - 88.2m^2).

Bearing in mind all the above, the general conclusion with respect to the space standards of the five-person, two storey house is that there is no change or a very small upwards one since the First World War.

Section 5.3.1: The 'Small House Concept'

After the last census of 1971 it became apparent that there was a substantial increase in the number of small households particularly of young married couples, elderly individuals or couples and single parent families. "About 50 percent of households in Britain now consist of one or two people. The fall in birthrate, the increase in life expectancy, greater mobility and the tendency for young people to leave home earlier, all suggest that this proportion will continue to increase."[2]

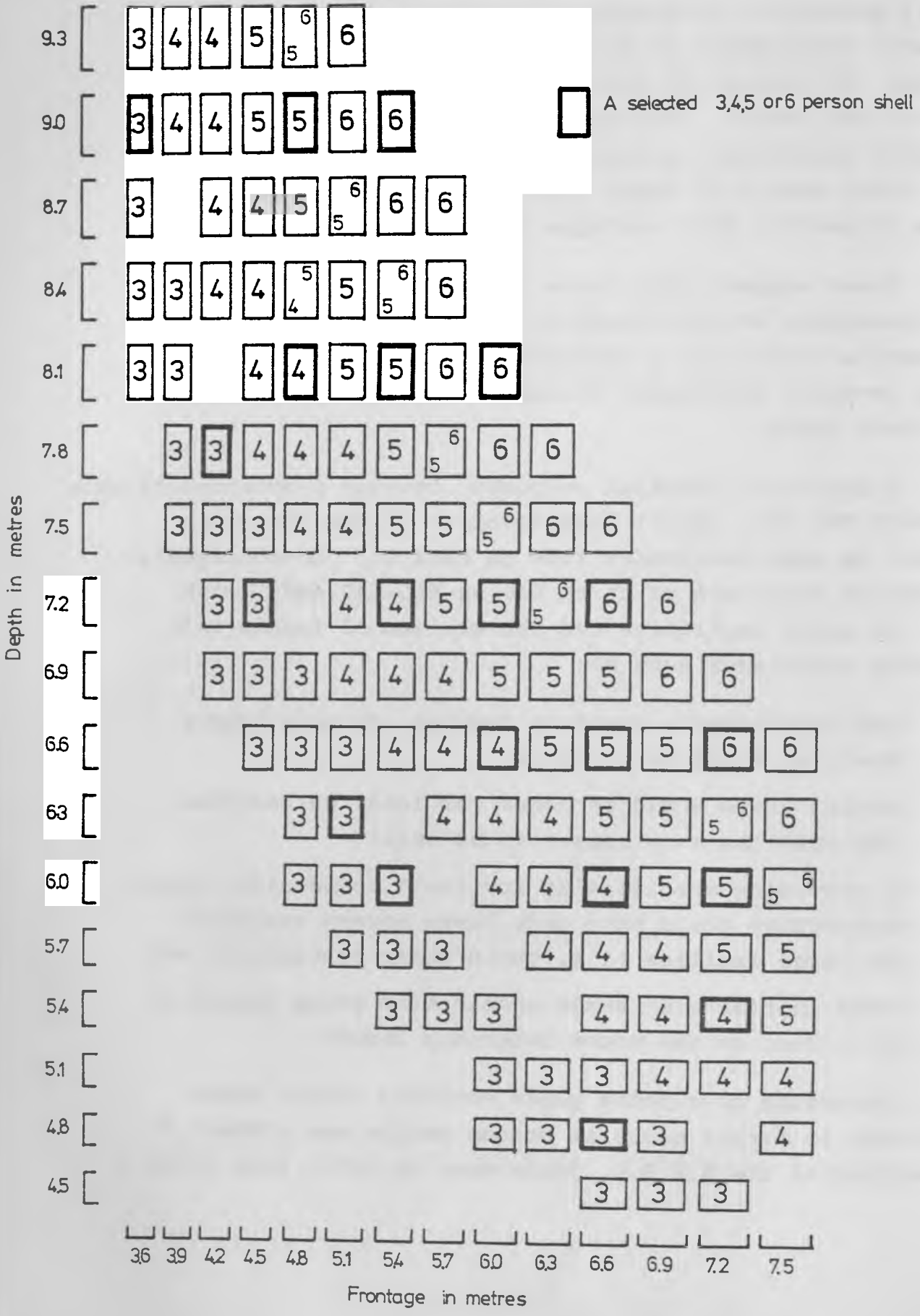
These suggest that there is a substantial mismatch of households and dwellings in the current housing situation leading to a considerable under occupation of some property and people living in dwellings unsuitable to their needs.

A positive 'planning response' towards a solution of this problem was the 'Small Home Concept' or the 'Starter Homes' as some developers like to call it. It envisaged a permanent structure of up to 510 sq.ft. (47.4m^2) with all the usual facilities and the minimum of frills with several advantages such as:

1) Land requirements would be reduced because higher densities would be possible;
2) Initial costs would be lower for local authorities thus enabling more houses to be built;
3) By providing specifically for small households, local authorities would have more large houses available for large families (i.e. avoid under occupancy) and
4) Lower initial cost would enable more young people to get a foot on the house-ownership ladder.

According to a joint paper entitled 'Small homes tailored to market needs at prices people can afford',[3] presented at the N,H.B.C. Conference in 1971, from which I

Fig. 5.3 THE SELECTED RANGE OF SHELLS FOR THE THREE PERSON TWO STOREY HOUSE SHOWN WITH THE SELECTED RANGE OF SHELLS FOR 4,5 AND 6-PERSON HOUSES, 1977.



quote: "Letters to 67 planning authorities revealed that 75 percent recognised the need, that the present quantity of low prices housing was too small, and agreed that there is a large potential market for small homes among the newly-weds, elderly and single people." Therefore a majority of 75 percent taking England and Wales and Scotland, recognises the need for small homes and welcomes the idea. Also "In the past five years about 60 percent of house building by local authorities has been in the form of one and two bedroom dwellings."4

Government movements to this end found expression in the D.O.E Circular No. 24/75: "Housing: Needs and Action". In this Circular the local authorities were asked to recognise the need for a greaterproportion of one, or two bedroom houses, maisonettes or flats. It further asked both public and private sectors to concentrate on "new production of dwellings which are well adapted to small households and take into account the financial circumstances of people seeking a first foothold on the ladder".

To this end too, the H.D.D. (Housing Development Directorate) of the D.O.E., on the basis of the growing interest on the part of many authorities, in two and three-person dwellings, issued its 'Housing Development Note IV'[5] as an aid to those local authorities to build dwellings of this type. Fig. (5.3) shows the range of three-person shell sizes recommended by the H.D.D. alongside the four, five and six-person, two-storey shells. The rooms' disposition of the three-person shells is similar to that of the larger four, five and six-person 'house shells' already seen. Some twelve plans of the three-person shells suggested are shown in Appendix IV.

Fig. 5.4 'BACK TO BACK' HOUSE. 'MAYFAIR' TYPE 1977.
CENTRAL SCOTLAND. BARRATT DEVELOPMENTS LTD.

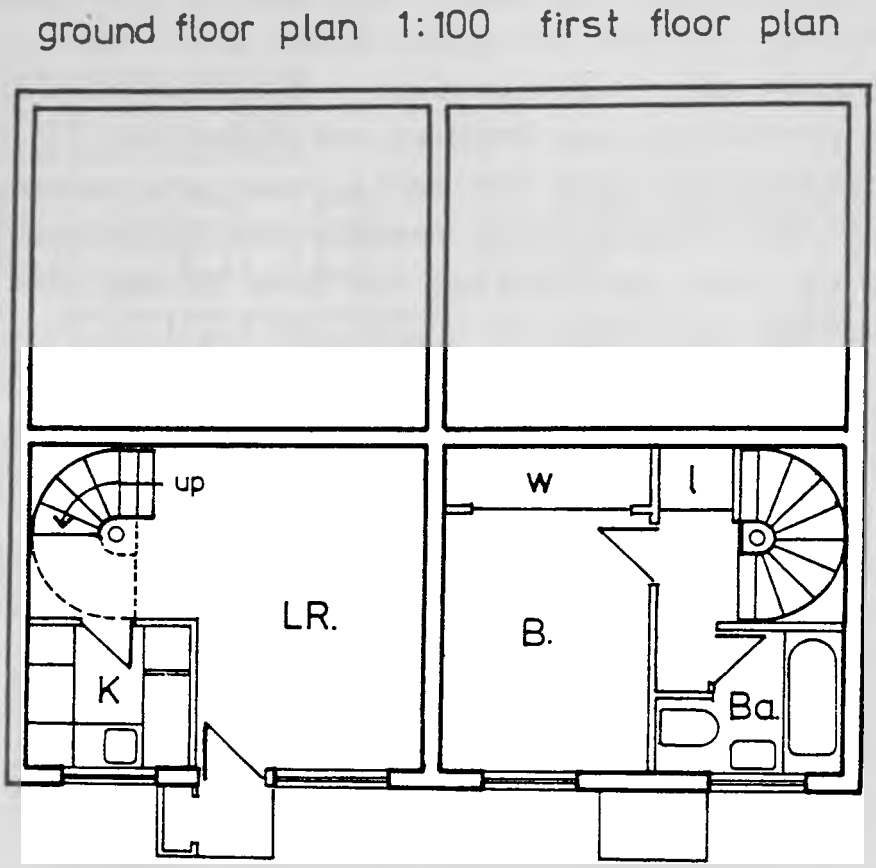
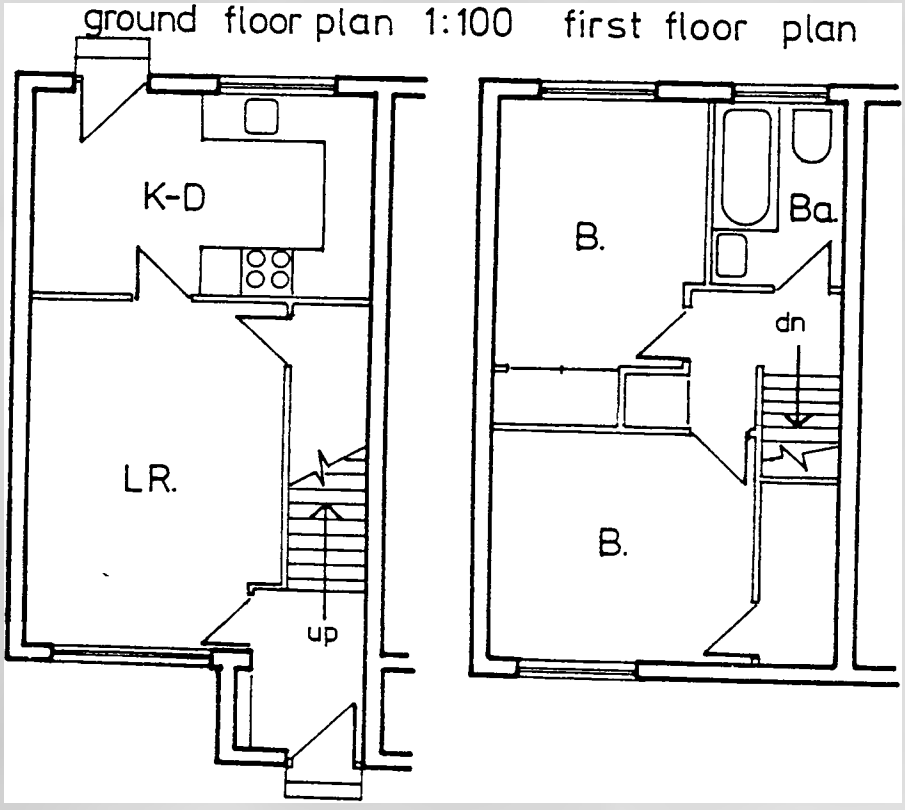


Fig. 5.5 'RAASAY' TYPE TERRACE HOUSE 1977.
CENTRAL SCOTLAND. BARRATT DEVELOPMENTS LTD.



As far as the Private Sector is concerned, it took up the challenge of 'tailoring small homes to market needs at prices people can afford' with both hands and from 1972 onwards a variety of such dwellings started to crop up, like the Barratts 'Mayfair type' of back to back two apartment house, see Fig. (5.4), of an area of $42m^2$ ($452\ ft.^2$) excluding entrance porch and the 'Raasay type' of two-bedroom terrace house, see Fig. (5.5), of $62m^2$ ($667\ ft.^2$). Other dwellings of this type range from bed-sit flats at $36.2m^2$ ($388\ ft.^2$), bungalows at $34.3m^3$ ($370\ ft.^2$), one and two-bedroom flats (some in the form of mews flats over garages) to small two-bedroom houses from $53\text{-}62m^2$ ($570\text{-}660\ ft.^2$).

As Laurie Barratt[6] said: "60 percent of the group's output is now in one or two-bedroom units. Yet we constantly find planning authorities who would cheerfully allow 40 bedrooms to the acre in three or four-bedroom units refusing to countenance the same number of bedrooms in two-bedroom units and insisting on reducing the number of houses, which pushes up the land element in the price." Similarly Andrew W. Tait[7] Director General of the N.H.B.C. to a question put to him by the 'Building' magazine, if he sees any changes in the type of house the industry is building such as extendable houses or smaller houses, he replied: "There are no ideas now being considered that are wholly new, but I think we will see more smaller homes being built for first time buyers and perhaps single people."

Section 5.4.1: The Architects' Role in Housing Design: 1945-1975

Before the Second World War, the local authority architects were not highly regarded. Councils were not required to appoint a chief architect and they didn't. Those architects salaried by the local authority worked usually in the engineers' department. Indeed it was professionally humiliating for them to have the designs approved by a senior officer (chief engineer) who was less qualified in design. As Elizabeth Layton puts it "... It took the Second World War and the expectation of major housing and school programmes to breach the engineers' citadel and to bring about a more widespread division of function of the engineer and the architect through the creation of separate departments."[8]

By the end of W-War-II it became clear that the architectural profession had to face an unparalleled opportunity to rebuild cities such as London, Liverpool, Bristol, which had been severely damaged during the war. In spite of the material shortages of the time, architects had found a much greater demand for their services than before the war. Indeed during the years 1945-1951 architects were able to make and made their biggest contribution ever to house building in this country, in relation to the size of the programme, than at any time since the Industrial Revolution. This was due to the growth in size and importance of local government which brought a steep increase in the proportion of official and salaried architects because of Government policy to concentrate the house building task into the local authorities' hands. The architects were given the opportunity for which they had been waiting for.

The then Minister of Health, competently advised by his Chief Housing Architect J.H. Forshaw, led local authorities clearly to understand that qualified architects should be placed in charge of both house design and the

layout of housing estates. The Government's faith in architects as leaders of the housing team was almost total and was fully confirmed by the launching of the Housing Medals Award Scheme in 1950. The domestic architecture had already changed from a personal service rendered to a single client to a community service of value to society as a whole - the mass client. Local authorities as employers of architects had to make available the architects' services to the people in need - the working classes - which could not afford under other circumstances to pay for architectural services.

At the beginning of 1952, therefore, architects found themselves firmly in control; their unique position with regard to house design and layout were more generally recognised than ever before. Unfortunately, with the financial depression of the early 'fifties and the rising costs, the architects' 'part' had changed quite drastically. They had to point the way to more economic house building programmes, otherwise they could have found themselves thrown out. In other words they had to prove beyond doubt that they were the best equipped members of the building team to advise on the means to save costs and increase production too. Their 'part' from mid 1952 onwards could be summed up as follows:

1) To build houses at less cost;

2) To build more houses, quicker and with the minimum amount of labour and materials;

3) To plan housing schemes in the most comprehensive economic sense, embracing site preparation, services, roads and the like and

4) While doing these, still to safeguard the quality of the houses and the amenities in layout.

During this period, a major breakthrough for the housing design of this country as a whole was the formation of the HOUSING DIVISION, (in 1950), in the Architects' Department of L.C.C. (G.L.C.), with H.J. Whitfield Lewis as the first Principal Housing Architect. This Division became later on, the 'training grounds' for many Borough Architects and academics besides the advisors to the Ministry of Health (the present D.O.E). These 'official' architects, former senior leading officers of the L.C.C. Architects' Department (Housing Division) played a very important role indeed from within the Government system in setting up the housing standards laid down in the 'Government's Official Guidelines'. They were:

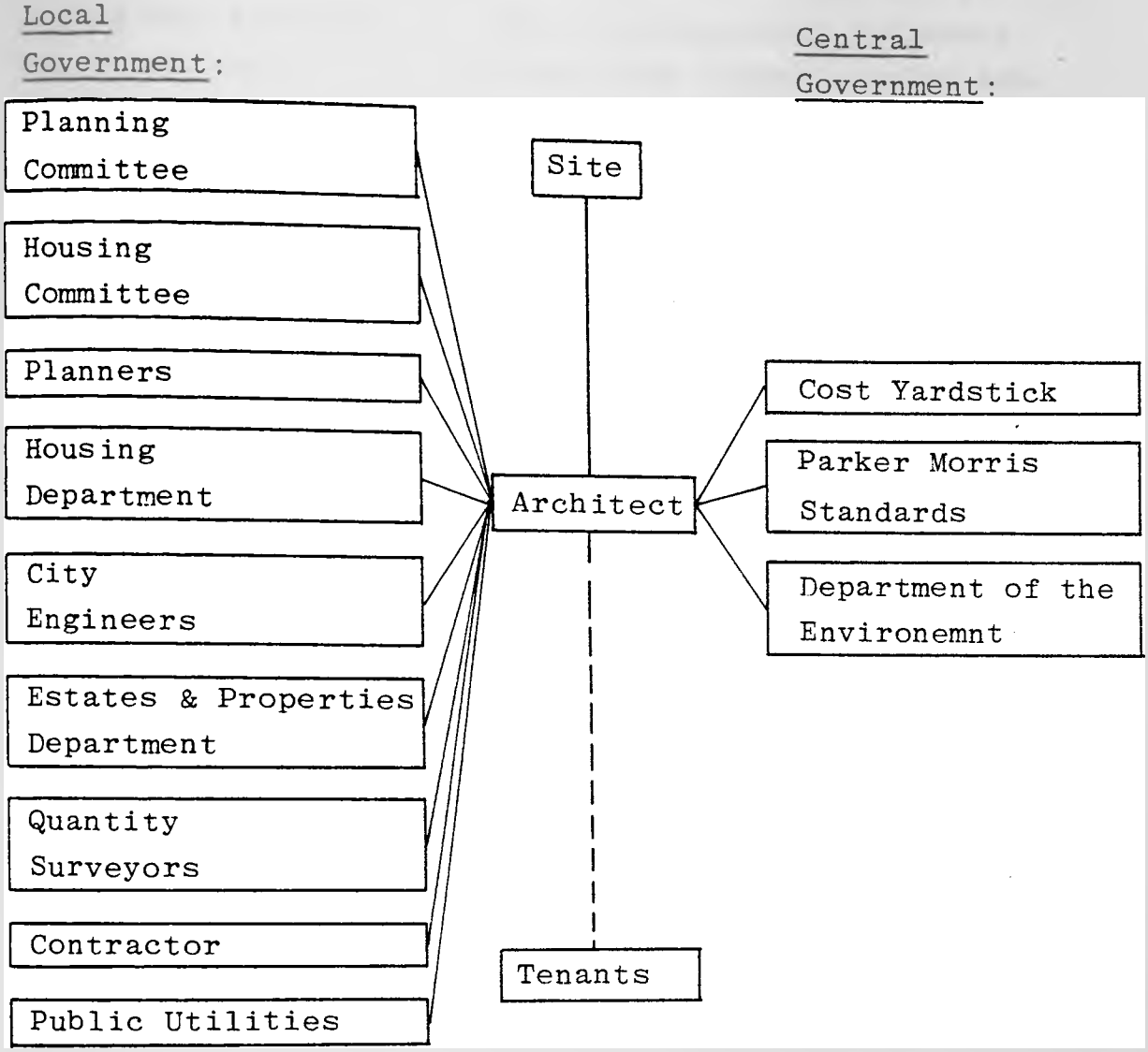
1) J.H. Forshaw, Chief Architect to the M.O.H.: 1945-59.

2) A.W. Cleeve Barr, Chief Architect to the M.H.L.G.: 1959-64 (and Director of N.B.A. 1964-76).

3) H.J. Whitfield Lewis, Chief Architect to the M.H.L.G.: 1964-71.

Unfortunately, their influential role was slackened and in the late sixties was lost completely with the change in emphasis within the M.H.L.G. to research into human aspects of design and the set-up of the N.B.A., a quasi-governmental body for technical/design advice.

On the other hand, the architects' freedom to introduce innovations in the design of council housing has been subject to close control by the Government which had supplied them with plenty of Housing Manuals and Reports setting out in detail the 'guidelines' which they were expected to pay very close attention indeed. Some of the 'constraints' and 'interest groups' they had to consider are shown in the figure overleaf:



Usually there was no connection or communication link between the architect and the tenants whose wishes and needs "interpreted" by local authority officials and social scientists of the Department of the Environment (D.O.E.). Only very recently has direct communication been set up between them. Also the architects were in the unenviable position of having to design dwellings out of the agreed decision of 'others', over which they had very little control. It is not an exaggeration at all that the role of local authority architects has been reduced (in particular since mid-sixties) gradually down to the provision of technical drawing service supplemented by the supervision of building construction. Therefore it

is not unusual at all to see local authority architects acting not according to their professional judgement, but according to instructions from 'above', rules and procedures which are the result of the bureaucratisation of the local authority-central government relationship.

As very altruistically the Society of Chief Architects in Local Authority (S.C.A.L.A.) said: "... The architect has already suffered a loss of his place and importance in the public sector, where he is increasingly denied the chance to assert his skills to the benefit of the community. In the last fifty years, the best local authority architecture has invariably come from authorities where the architect was an unfettered chief officer."[9]

References:

1. Barr, Cleeve, A.W., "Housing in the Sixties", R.I.B.A. Journal, Vol. 69, April, 1962, p.158, column 3.

2. D.O.E., "Monitoring Provision for Small Households", Interim Report of a Study of Eight Private Sector Schemes, Housing Development Directorate, April 1976, paragraph 2.

3. N.H.B.C., Summary of the Main Points of the N.H.B.C. Conference: "The Future of Private Housing" held at the Royal Lancaster Hotel on 12th July, 1971, D.O.E. Library reference: N.A.C. 1431.8, N.2 (pamphlet box); The joint paper on "Small Homes Tailored to Market Needs of Prices People can Afford" was by:
F.B. Pooley - County Architect and Planning Officer of Bucks;
A.W. Cleeve Barr - Director of N.B.A.;
Peter Trench - Chairman of Building Centre and
Y.J. Lovell - Consultant to the Housing Research Foundation.

4. D.O.E., Housing Development Note VI, "House Shell - Part2", Housing Development Directorate, summary, p.1.

5. Ibid., The H.D. Note VI.

6. Barratt, Laurie, "The Growing Barratt Way", Building, Vol. 233, June, 1977, p.66.

7. Tait, W. Andrew, "Tait's Help for the Homeless", Building, Vol. 227, October, 1974, p.82.

8. Layton, Elizabeth, "Building by Local Authorities", Allen and Unwin, London, 1961, p.138.

9. S.C.A.L.A. (Society of Chief Architects in Local Authority), Year Book 1976-77, "Study Meeting: 24th October, 1975 - Paper 2", p.127.

CHAPTER 6: Scottish Housing: 1945-1975

Section 6.1.1: The Background: 1800-1945

"The end of the 18th century saw the beginning of the prototype of the tenement in the cities and larger towns of Scotland. Edinburgh of course had such dwellings for centuries before but these originallywere the town dwellings of the aristocracy.... Glasgow was quite a little place by comparison... pleasantly situated by the banks of the Clyde, surrounded by cornfields, kitchen and flower gardens and beautiful orchards."[1]

The first quarter of the 19th century saw the beginning of the Industrial Revolution and all that it stood for. Accommodation had to be found for the workers, which took the form of the tenement, mainly due to economy reasons. "Its common close and stair, its three or four and sometimes five storeys, its common wash-house and washing green, all made for economy in building and running... With no thought for town planning, these high buildings shouldering one against the other turned the comparatively narrow streets into veritable canyons where the sun rarely penetrated. The common close and staircase forever smelt of a strange mixture of cats, pea soup and pipeclay and were the scenes of what came to be known as 'stair-heid-rows'."[2] The sanitary conveniences consisted of one water-closet on the half-landing common to three or more 'flats', the inevitable concealed bed in the kitchen, the nauseous kitchen jawbox (a rectangular cast-iron sink) used by the household for all cleaning purposes including the washing of themselves, were some of the black spots of our civilisation. Bearing in mind that each of the three (for Glasgow) or four (for Edinburgh) houses off each landing was inhabited by a family of five or six-persons, a total of between 80 to 100 persons might be housed up one common close of a typical four-storey tenement.

Also some attempts had been made by big industrial firms to provide organised housing for their workers. Such an example is the 'model village' of New Lanark, built by the industrialist Robert Owen round his factories, around 1800.

The tenement seemed to answer the housing problem and the public conscience seemed content to leave it at that, at least until 1917, when the Royal Commission's Report on Housing brought into light the horrors of the appalling housing conditions the industrial population of Scotland lived in. An extract from the Report states:

"These are the broad results of our survey: unsatisfactory sites of houses and villages, insufficient supplies of water, unsatisfactory provision for drainage, grossly inadequate provision for the removal of refuse, widespread absence of decent sanitary conveniences, the persistence of the unspeakably filthy privy-midden in many of the mining areas, badly constructed, incurably damp labourers' cottages on farms, whole townships unfit for human occupation in the crofting countries and islands, primitive and casual provision for many of the seasonal workers, gross overcrowding and huddling of the sexes together in the congested industrial villages and towns, occupation of one-room houses by large families, groups of lightless and unventilated houses in the older burghs, clotted masses of slums in great cities, monotonous miners' rows flung down without a vestige of town plan or any effort to secure modern conditions of sanitation, ill-planned houses that must become slums in a few years, old houses converted without the necessary sanitary appliances and proper adaptation into tenements for many families, thus intensifying existing evils, streets of new tenements in the towns developed with the minimum regard for amenity."[3]

The horrifying findings of the Report would have raised the whole country from its apathy, had it not been for the fact that in 1917 the nation was fighting for survival and therefore little could be done to ameliorate the shocking

Fig. 6.1 TYPICAL GLASGOW TENEMENT PLAN 1:100 .

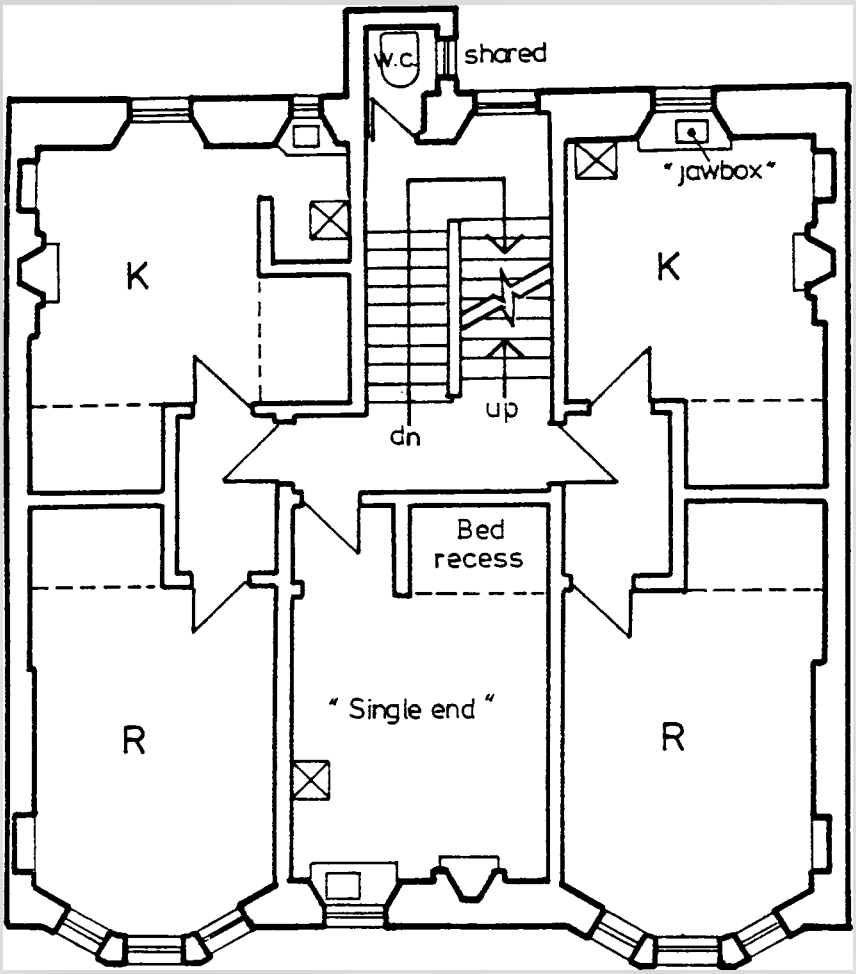
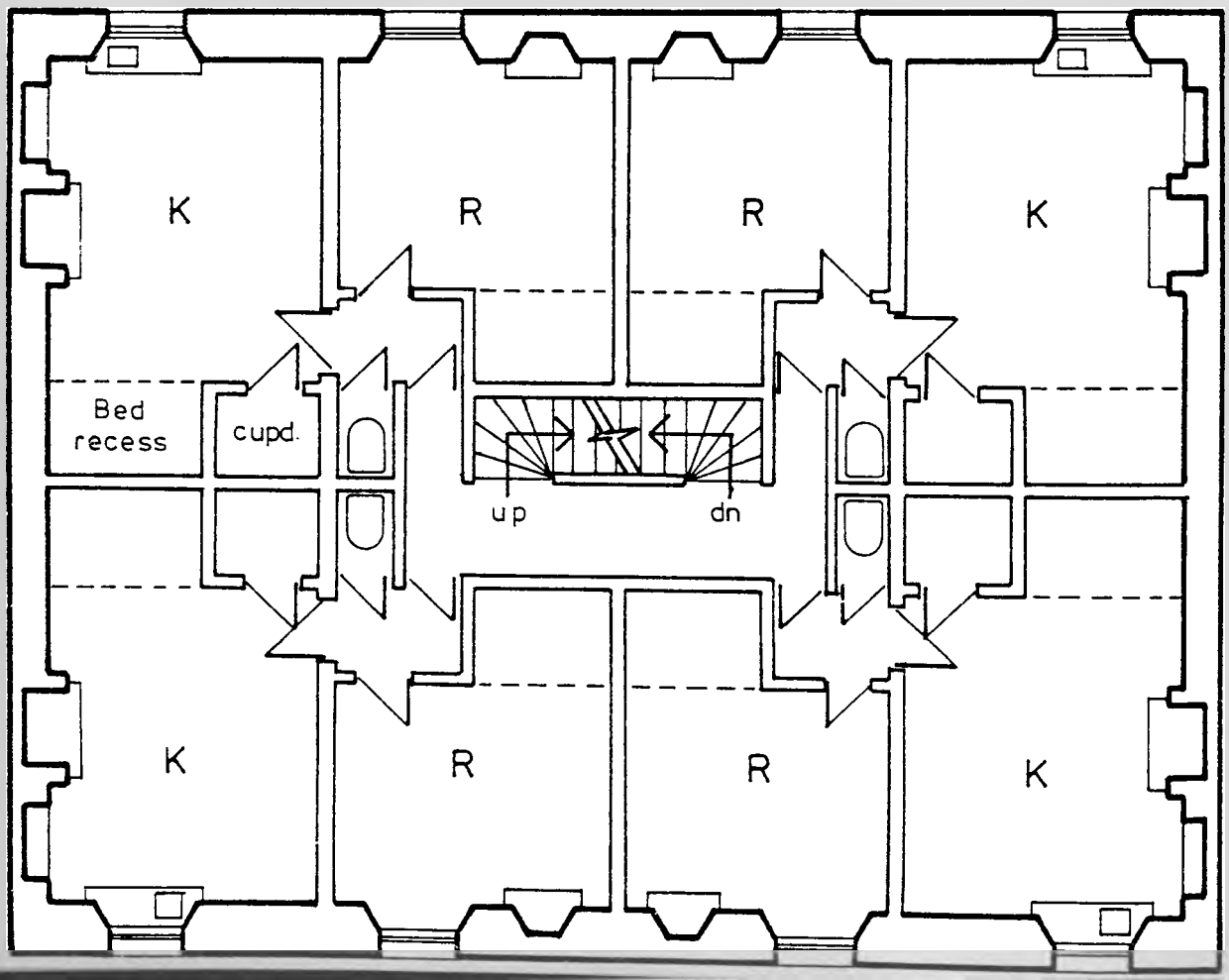


Fig. 6.2 TYPICAL EDINBURGH TENEMENT PLAN 1:100 .



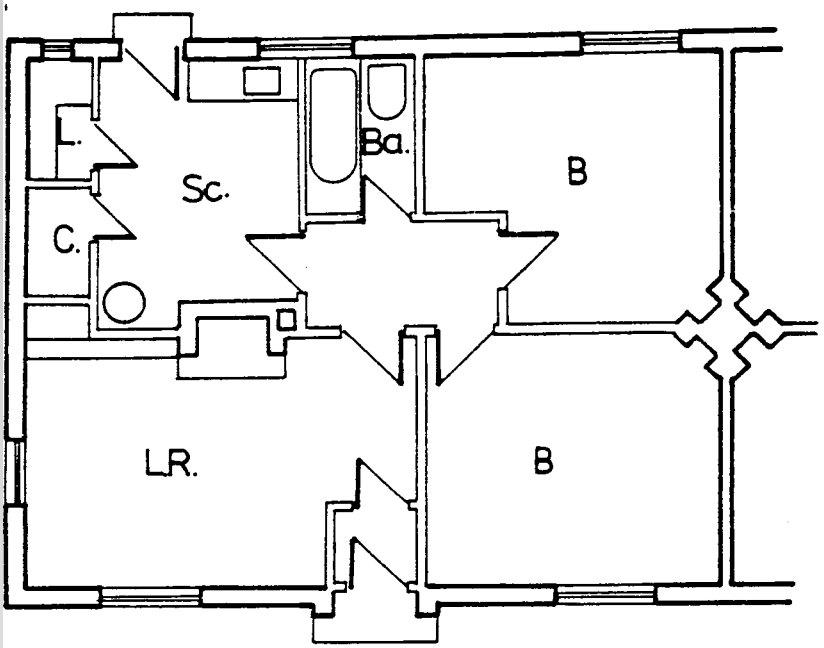
conditions revealed. Nevertheless it inspired an awakening of social conscience to give public assistance to Scottish housing in a series of Acts from 1919 onwards, a 'significant year' for Scotland when the Rent Strike led to controlled rents, about 6 shillings or less per week. Ever since low rents were to become a tradition for Scotland and as a consequence housing at lower standards were to be provided, by comparison to English housing, throughout the inter-war period.

In Scotland, as in England and Wales, after the Great War, the local authorities were given full responsibility for the provision of working class housing. Their inter-war house building activities can be divided into two phases: 1. To provide houses for 'general needs' under the 1919, 1923 and 1924 Housing Acts and 2. To provide houses for slum clearance and the relief of overcrowding under the 1930 and 1935 Slum Clearance and Overcrowding Acts respectively.

The schemes built under the first phase's Acts were considerably improved in design by comparison to the preceded tenement block, (Fig. 6.1, 6.2), which neither abandoned nor had it been completely superseded, although its nomenclature changed to the more pompous one of 'block of flats'. They were different from its prototype tenement, in that it rarely exceeded three floors high. Continuous rows were not tolerated, nor were the concealed beds and the kitchen jawbox retained. Another type of dwelling was the Cottage, (Fig. 6.3), which with its individual garden ground, was built in semi-detached or terraced blocks - best tied with the tradition of Scottish domestic architecture.

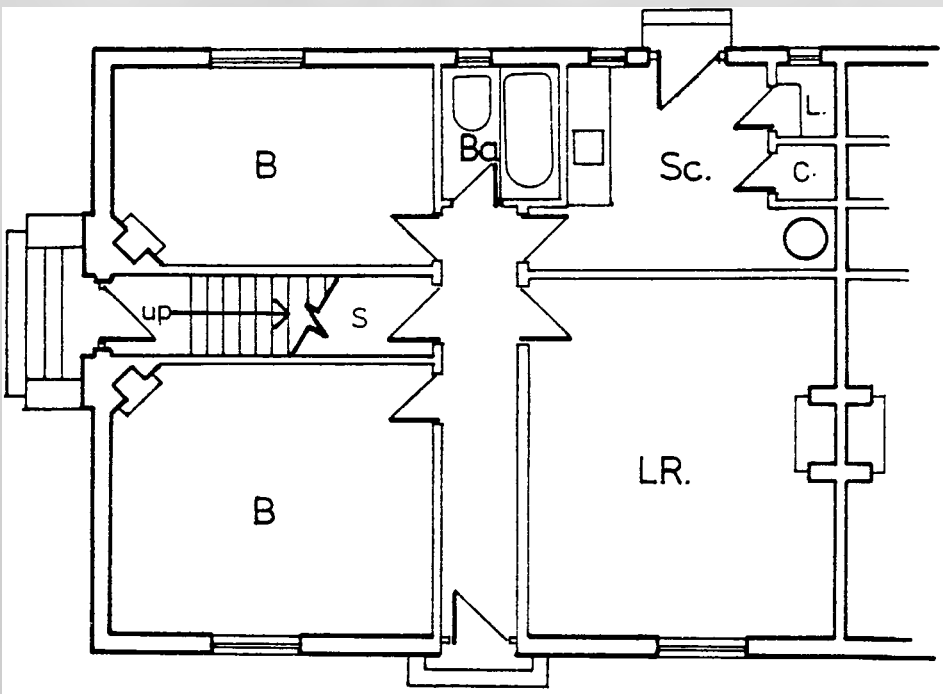
Also there were the 'double-flatted' houses or 'four-in-a-block', see Fig. (6.4), which had all their apartments on one storey and independent access from the ground level. This type was principally accepted as a compromise between

Fig. 6.3 SEMI-DETACHED SINGLE STOREY HOUSE 1:100.

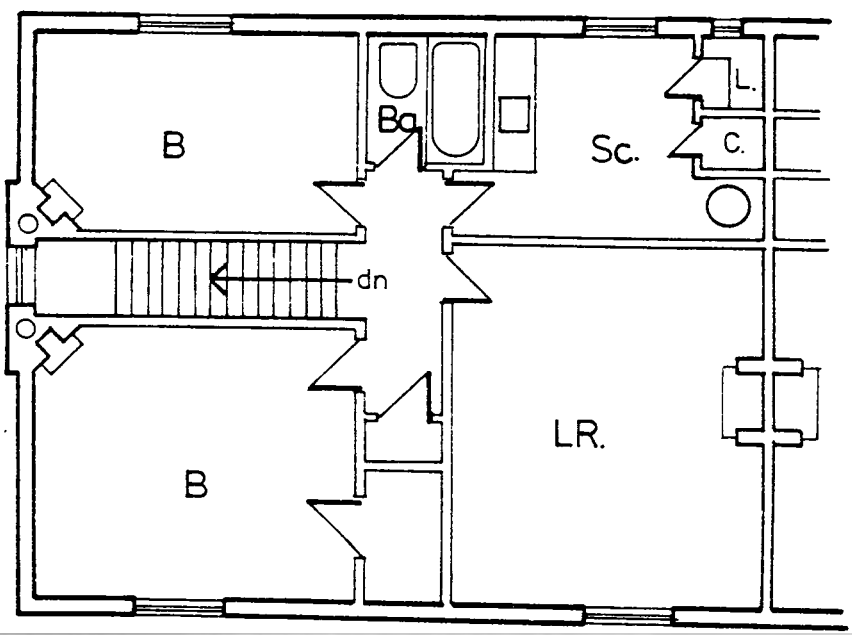


ground floor

Fig. 6.4 DOUBLE FLATTED HOUSES OR "FOUR IN A BLOCK".



ground floor 1:100



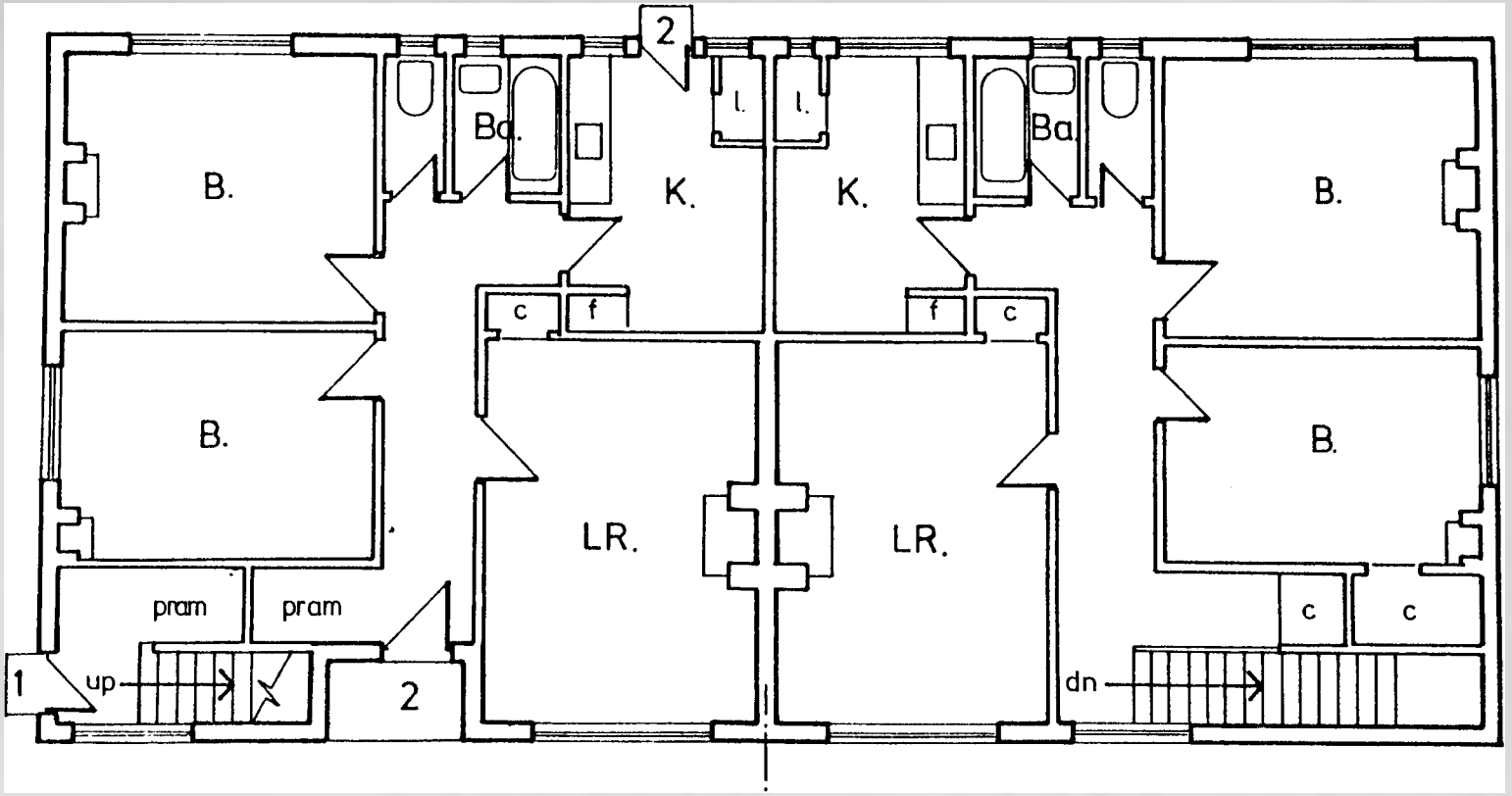
first floor 1:100

the cottage type of house and the 'block of flats' (tenement). It was almost unknown prior to 1890 and uncommon till 1918. However, after the Great War, 137,800 or 57 percent of all houses built by local authorities in Scotland have been of this 'four-in-a-block' type. Indeed this two-bedroomed dwelling, which owes much to the garden city movement of Ebenezer Howard, represented an advance in conditions more marked than would be represented by the three-bedroomed dwelling in England and Wales. And this has been so because the Scottish people, having been forced to live in tenements in the past, had been accustomed to having their whole dwelling on a single floor, with a more limited number of rooms (often single) of larger size.

During their 'second phase', local authorities' house building programmes continued much on the same lines of their 'first phase'. 'Double-flatted' houses, see Fig. (6.5), as well as cottages in two-storey blocks, see Fig. (6.6), were continued, while the three-storey 'block of flats', in which access to the houses on the upper storeys was by a common staircase and a balcony, were increasingly common, see Fig. (6.7).

The Royal Commission's Report on housing had estimated that nearly a quarter of a million houses were required in Scotland. However, about 337,000 were built between 1920-1939, of which 70 percent were local authority and the remaining 30 percent private sector built dwellings. Accordingly local authorities in Scotland emerged as the main - almost the sole providers of low-rent dwellings throughout the inter-war period.

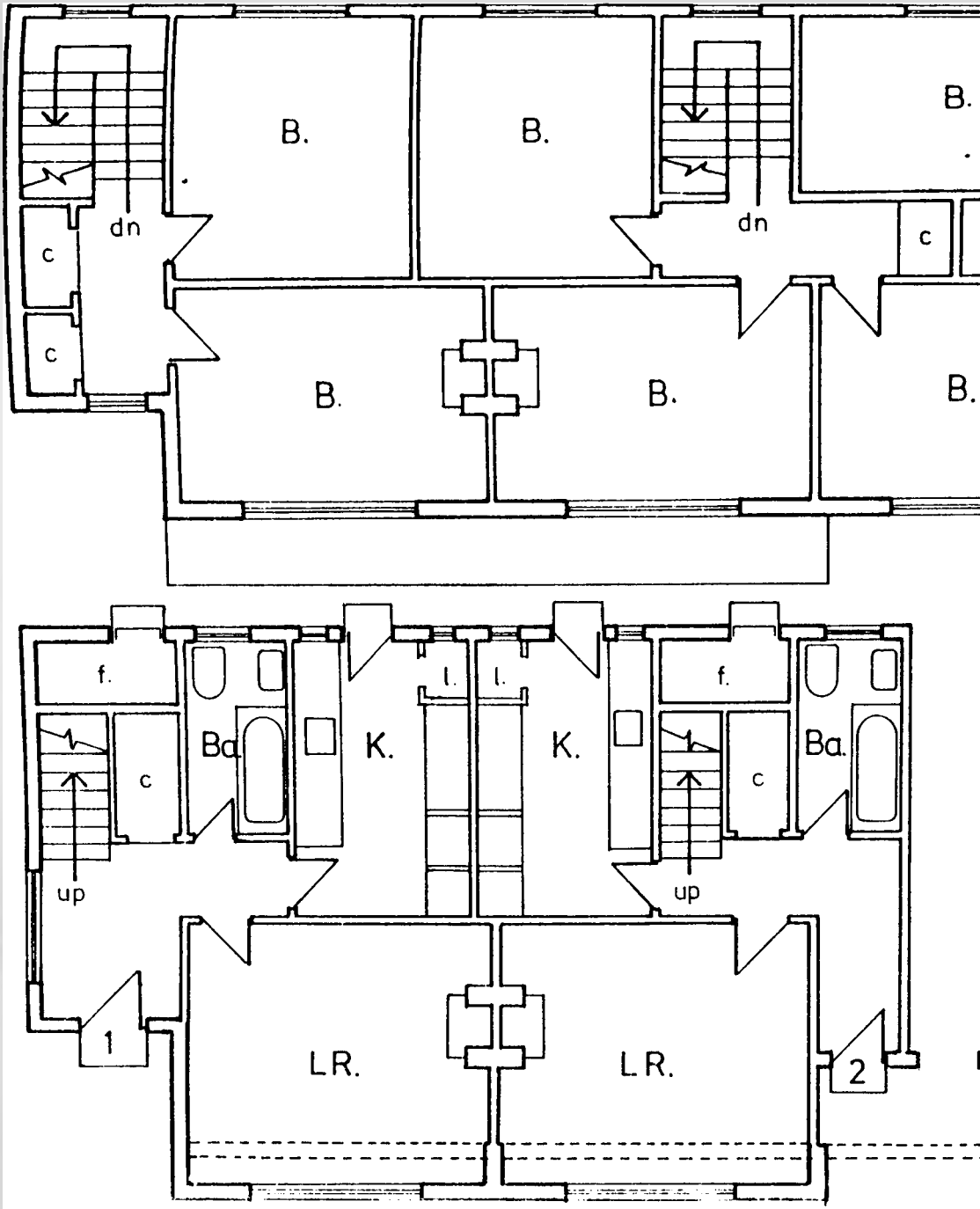
Fig. 6.5 TWO BEDROOM "DOUBLE FLATTED" HOUSES. PENILEE ESTATE, GLASGOW.
1:100



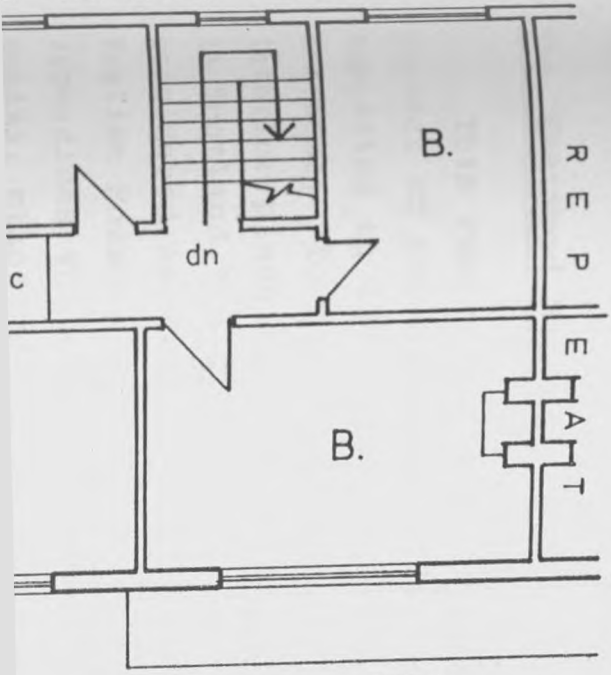
ground floor plan

first floor plan

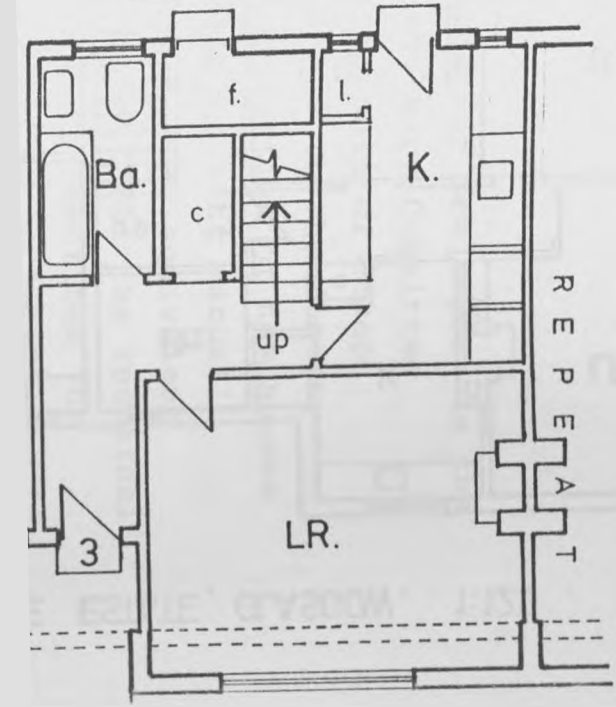
Fig. 6.6 TWO STOREY COTTAGE BLOCK. PENILEE



E ESTATE, GLASGOW. 1:100 .

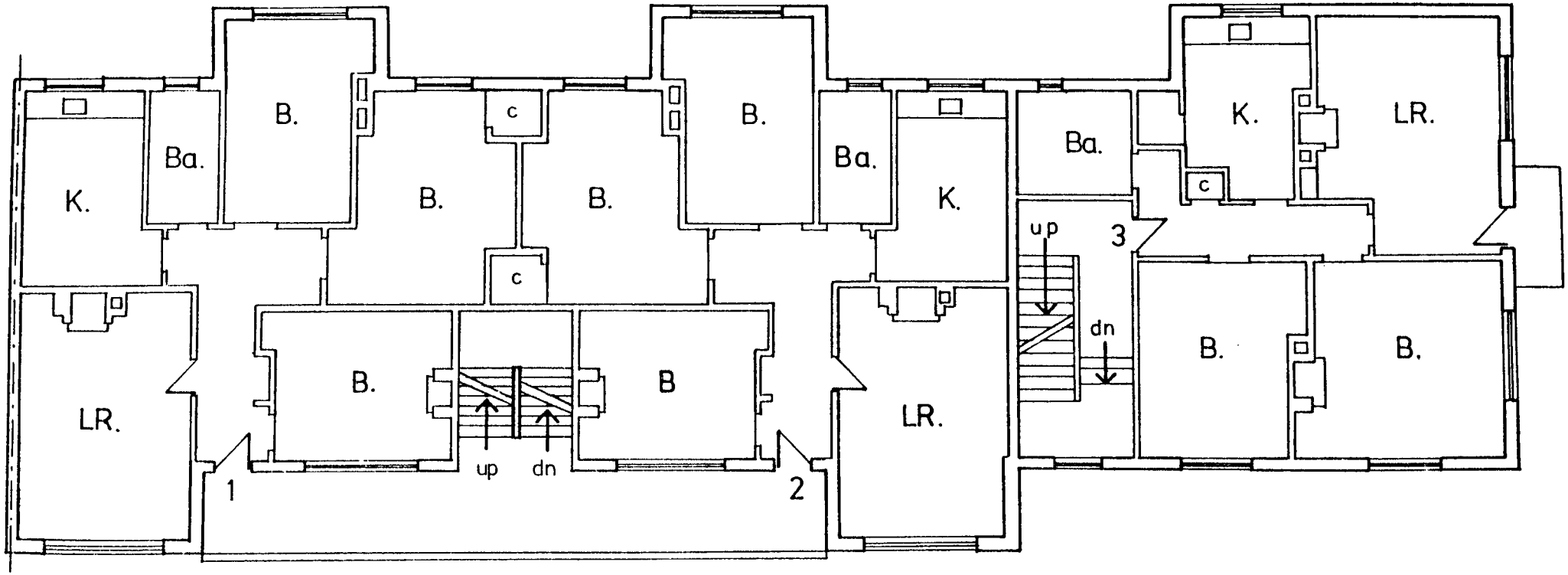


first floor plan.



ground floor plan .

Fig. 6.7 THREE STOREY "TENEMENT BLOCK". PENILEE ESTATE, GLASGOW. 1:125 .



typical first floor plan.

Block may be reversed and repeated on this centre line.

Section 6.2.1: Government 'Official Guidelines'

The three major post W-War-II official reports concerning the public sector housing of Scotland are as follows:

The 'Westwood Report', 1944:

This report entitled "Planning our New Homes" is the product of the Scottish Housing Advisory Committee appointed in 1942 under the chairmanship of Joseph Westwood, "To make recommendations as to the design, interior planning, layout and construction of new houses in Scotland.". It is an excellent 'housing manual', considered as the Scottish version of the equivalent English Housing Manual of 1944, but without the technical appendices volume. At the beginning it describes the social, planning and economic background to local authority housing of the inter-war period and estimated that a total of half a million dwellings were needed to make good the housing shortage. The report further looked into and made recommendations on: the types of dwellings, the standards of living space, the internal planning and arrangement of rooms, service fittings and equipment, standards of construction and the design, layout and amenities. Apart from its long term standards, which in many respects exceeded those of the Parker Morris Report of the early 'sixties, this report also recommended short term standards to overcome the immediate post-war difficulties and make full use of the limited resources available and therefore recommended: accommodation capable of being converted and upgraded, a transitional type of accommodation and accommodation provided by alternative building techniques in addition to that provided by normal methods. Also it looked at the extent to which local authorities can best use their powers under various Housing Acts and provide movable furniture and furnishings in houses provided by them. The report

concludes with a summary of all its recommendations illustrated by 'Model Plans' compiled as an Appendix at the end of the Report.

The 'Scottish Housing Handbook', 1952-56:

The Scottish Housing Handbook is made up of seven different 'Parts', published by the Department of Health for Scotland as individual short reports. They are as follows: Part 1 - Introduction; General: 'Layout'; Part 2- 'Roads and Services'; Part 3 - 'House Design'; Part 4 - 'Equipment of Houses'; Part 5 - 'Tenders and Specifications, etc.'; Part 6 - 'Economy in House-Building' and Part 7 - 'Housing Procedure'. Of these the one we are concerned with is:

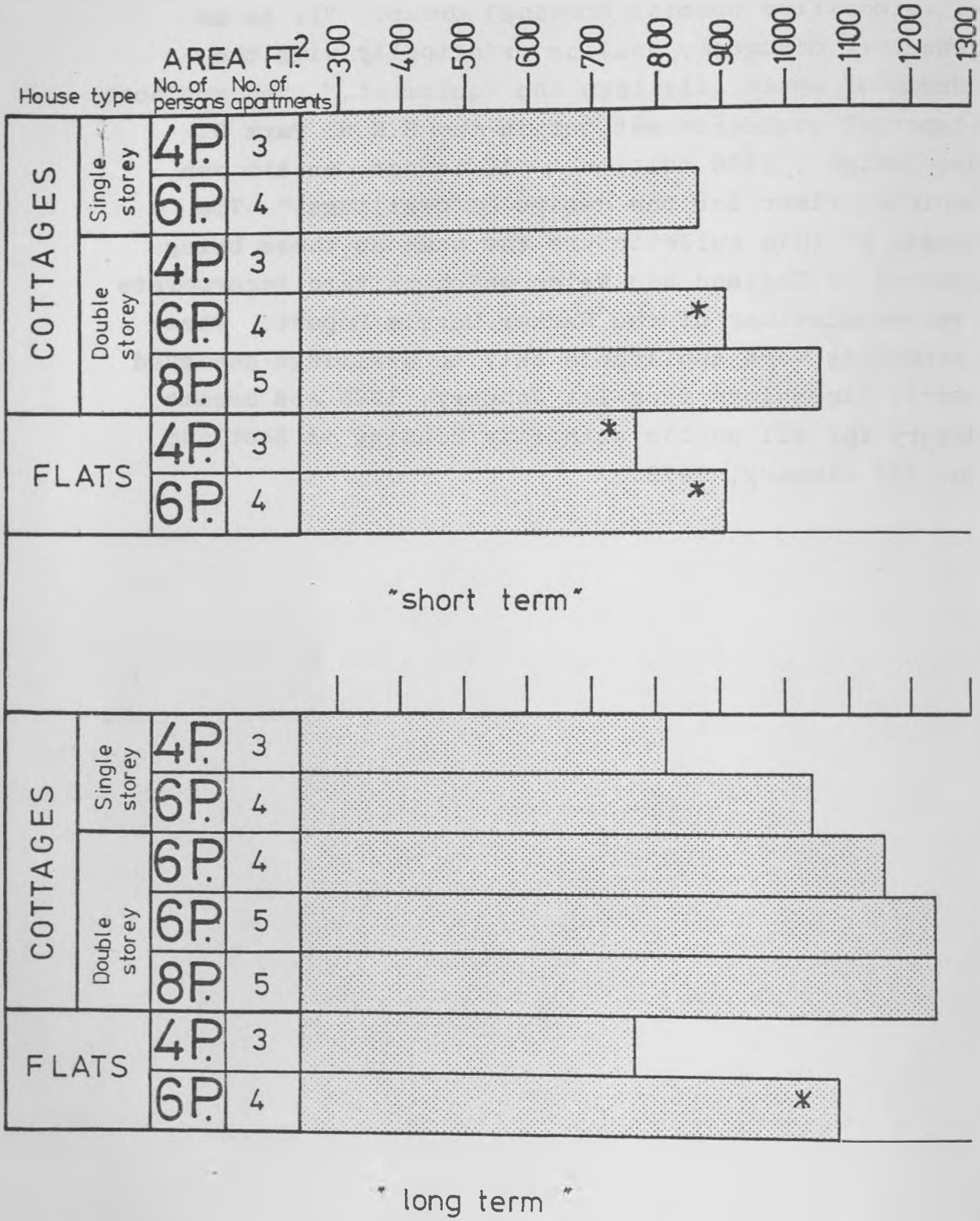
Part 3: 'House Design', 1956:

It supersedes the 1952 edition of Part 3: 'Design' and Part 6: 'Economy in House-Building'. Its purpose is "to guide local authorities; first, in the selection of house types for different kinds of sizes of family and secondly, on the design of houses, having regard to the principles that should be followed and the minimum standards of size and accommodation set by the Department.". The report's approach to house design can best be described by this extract viz : "Good design cannot be achieved in a hurry. The local authority ought to give the designer time and the designer ought to avail himself of this to achieve the best possible result."[4] It put emphasis on the need for diversity of house types as well as on their external design and appearance, but the greatest emphasis is on the standards of size and accommodation for different house types as well as their functional efficiencies, that is heat and sound insulation, ventilation, etc.

The 'New Scottish Housing Handbook', Bulletin 1, 1968:

This new S.H.H. entitled 'Metric Space Standards' is the product of the S.D.D. (Scottish Development Department) and the Housing Authorities of the S.L.A.S.H. (Scottish Local Authorities Special Housing) Group. "It is an introductory document, dealing principally with the standards of space, fittings and equipment." and replaces the imperial standards set out in the S.H.H. Part 3: 'House Design', 1956 edition. "It is not, on its own, a complete primer for the design of dwellings." The standards of this bulletin are the same as those being introduced in England and Wales which in turn incorporate the recommendations of the Parker Morris Report. These new standards were applicable only to dwellings designed in metric dimensions from 1st January, 1969 and became mandatory for all public authority housing in Scotland on the 1st January, 1972.

Fig. 6.8 SPACE STANDARDS. SCOTLAND 1944.



REF: 'Planning our new homes'- The Westwood Report - 1944, SHAC.
* Average of two or more 'sample' plans.

Section 6.3.1: Housing Standards Development

Following the same procedure of previous relevant sections, we are looking here into the standards of space, fittings and equipment, recommended by the three Scottish 'reports' examined briefly in the previous Section 6.2.1. This section ends with a discussion and conclusions as to the advancement or not of the housing standards since the Second World War.

a) The 'Westwood Report', 1944:

1) Dwelling Overall Areas: see Fig. (6.8)

2) Room Areas:

Para. 56: Bedrooms (min. areas);
1st bedroom 150-160 ft.^{2}
2nd bedroom 120 ft.^{2}
All subsidiary bedrooms should be as far as practicable of the minimum standard size of 120 ft.^{2}.

Para. 59: Living Room (min. areas):

No. of Bedrooms	Area of L. Room	
2	180 ft.^{2}	With the addition of 10ft.^{2} to the area of the L-Room for each additional 2-person bedroom.
3	190 ft.^{2}	
4	200 ft.^{2}	

Para. 64-5: Kitchen-Scullery:
"If the kitchen is to be used for meals and for the washing of clothes, it should have a minimum area of 130 ft.^{2} made up of 80 ft.^{2} for the kitchen proper and 50 ft.^{2} for the dining annexe."

Para. 66-8: Utility Room:
"... Should be not less than 40 ft.^{2} and the area of the kitchen proper should be not

less than 70 ft.^{2} exclusive of the dining annexe.

Para. 71: Bathroom:

"... Where all fittings (w.c., w.h.b. and bath) are included in the same apartment, the area of the apartment should be not less than 36 ft.^{2}."

3) Storage Space:

Para.202: Linen Cupboard:

"In the average family household we recommend the provision of a full-length cupboard, 3 ft. wide and at least 18 inches deep, with five slatted shelves not less than 15 inches deep ..."

Para.204: Coat Cupboard:

"... We recommend the provision of a cupboard 6 ft. 6 in. high, 30 in. wide and 20 in. deep (inside measurement)..."

Para.205: Fuel Store;

"It should accommodate not less than 10cwts. of coal etc. and we suggest approx. 42 ft.^{3} of storage space should be provided...."

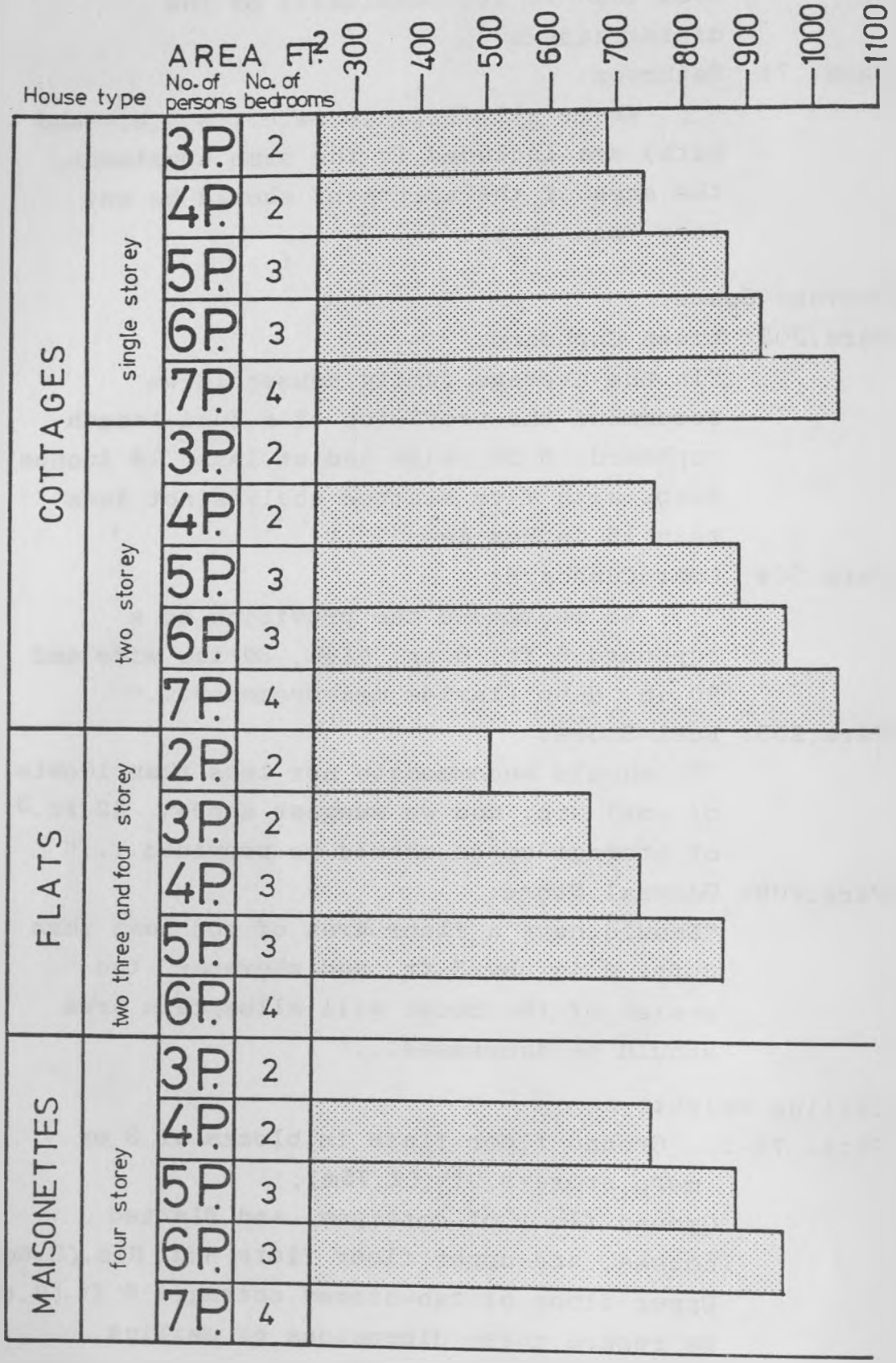
Para.208: General Store:

"Should have a floor area of not less than 3 ft. 6 in. by 3 ft. and wherever the design of the house will allow, this area should be increased..."

4) Ceiling Height:

Para. 74-5: "Ground floor flats in blocks of 3 or more storeys 9ft.(2.75m);
Ground floor of cottages, and flatted houses, and upper floor flats 8ft. 6in.(2.6m);
Upper floor of two-storey cottages 8 ft.(2.45m);
We regard these dimensions of ceiling height as satisfactory..."

Fig. 6.9 SPACE STANDARDS. SCOTLAND 1956.



NOTE: The above max overall areas were for houses suitable for young married couples and families with young children requiring individual gardens.

REF: "Scottish Housing Handbook", Part 3, 1956, page 23, table 1.

5) Provisions of Electrical Points:
Such provisions are not stipulated.

6) Kitchen Fittings and Equipment:
Para.149: Kitchen - Utility Room

(i) Kitchen	(ii) Utility Room
Sink with taps, etc,	2 tubs
2 draining boards	Draining or work board
Towel rails	Wringer fitment
Cooker	Copper (wash boiler)
Pot racks	Ceiling pulley
Larder	Drying cabinet
Work-table cabinet	Power point for iron
China store	Broom's store and cleansing Materials (alternative position)
Dry groceries store	
Broom's store	

Para.150; The following items should in appropriate circumstances, also be considered for incorporation in these apartments:

Refrigerator	Washing machine
Plate racks	Ironing board

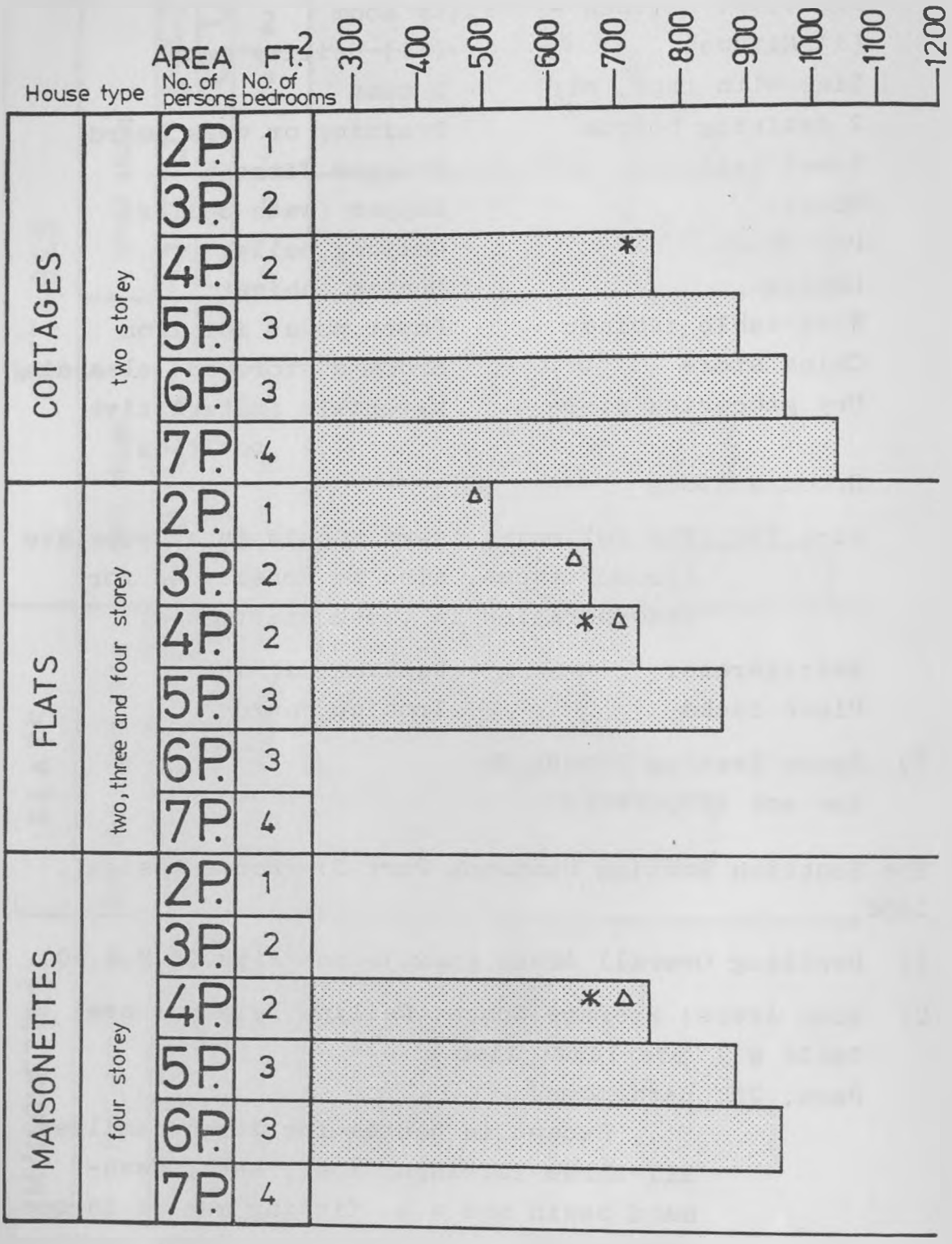
7) Space Heating Standards:
Are not stipulated.

b) The Scottish Housing Handbook Part 3: 'House Design', 1956:

1) Dwelling Overall Areas (max.): see Figs.(6.9,6.10).

2) Room Areas; Storage Space; Ceiling Heights: see Table 6.1 overleaf: also
Para. 22: Bathrooms:
"... Except in houses for large families, all three fittings, i.e., bath, wash-hand basin and w.c. fitting may be in one compartment. If the water closet is in a separate compartment it should be adjacent to the bathroom or else the wash-hand basin

Fig. 6.10 SPACE STANDARDS. SCOTLAND 1956.



NOTE: The above max. over-all areas were for houses suitable for families with adults and older children.

REF: 'Scottish Housing Handbook" Part 3, 1956, page 23, table 2.

* Add 50 sq. ft. to these areas if the house is designed to include two single bedrooms for older children of opposite sex.

Δ Same areas apply to flats and maisonettes with lifts.

TABLE 6.1

Scottish Housing Handbook Standards[5]
Part 3: "House Design" 1956

	2-Person House	3-Person House	4-Person House	5,6,7-Person House
LIVING* SPACE (min.)	210 ft.^{2}	250 ft.^{2}	265 ft.^{2}	305 ft.^{2}
ROOM AREAS (min.):			4,5,6 and 7-Person House	
			W-K House with built in fittings	D-K House without built in fittings
Living room	160 ft.^{2}	170 ft.^{2}	180 ft.^{2}	160 ft.^{2}
Kitchen	50 ft.^{2}	70 ft.^{2}	75 ft.^{2}	105 ft.^{2}
1st Bedroom	90 ft.^{2}	110 - 120 ft.^{2}	110 ft.^{2}	120 | 135 ft.^{2} or
2nd Bedroom	70 ft.^{2}	70 ft.^{2}	110 ft.^{2}	120 | 110 ft.^{2}
3rd Bedroom	-	-	70 ft.^{2}	
Bathroom	36 ft.^{2}	36 ft.^{2}		
STORAGE SPACE (min.)				
Larder	15 ft.^{3}	30 ft.^{3}	30 ft.^{3}	40 ft.^{3}
Dry goods cupboard	15 ft.^{3}	15 ft.^{3}	15 ft.^{3}	15 ft.^{3}
Fuel storage	9 ft.^{2}			
Linen cupboard	32 ft.^{3} with shelves not less than 1ft. 3in. deep			
General store	20 ft.^{2}	40 ft.^{2}	40 ft.^{2}	40 ft.^{2}
	Inclusive of a space capable of accommodating a pram 3ft. 6 in. high, 5 ft. long, and 2 ft. 6 in. wide.			
CEILING HEIGHT	7 ft. 6 in. on ground and all upper floors.			

* Living space = combined areas of kitchen and living room.

should be in the same compartment. Houses designed for eight persons or more should have a second water closet with its own wash-hand basin."

3) Artificial Lighting and Electrical Points:
The Scottish Housing Handbook Part 4: 'Equipment of Houses', 1952;
Para. 11:

Position	Lamps	Plugs and Sockets**
Hall	1	-
Living room	1	2
Kitchen	1	2
Bathroom	1	-
W.C. (if separate	1	-
Bedroom (i) without fireplace or gas point	1	1
(ii) with fireplace or gas point	1	-
Stair*	1	-
Landing*	1	-

*Usually one lamp served both stairs and landing.
**If 13 amp. plugs and sockets are used they will all be of the same type; if not, one living-room and one kitchen socket-outlet should be 5 amp., and the remainder 15 amp.

4) Kitchen Equipment:
The Scottish Housing Handbook Part 4: 'Equipment of Houses', 1952:
Para. 15: These are:
A cooker (gas or solid fuel), sink and tub, and a draining board at least 27 inches long. Also a fixed or hinged work-table or worktop, other than the draining board and tub cover, is desirable. Ceiling pulley racks should have not less than 4 spars.

5) Space Heating Standards:
No specific temperature levels are stipulated..

c) The New Scottish Housing Handbook, Bulletin 1:
'New Metric Standards', 1968:

1) Dwelling Overall Areas (min.): see Table on page 214.

2) Room Areas:
Mandatory minimum room areas abolished. As a min. each room must be capable of containing certain specified items of furniture or equipment, arranged in a sensible way, with sufficient space left to make the room comfortable and convenient in use.
Para. 6.1: Bathrooms and W.C.s:
2 w.c. fittings, one of which may be in the bathroom for two and three-storey dwelling of five or more and for single-storey dwellings (including flats) of six-persons or more.
1 w.c. fitting which may be in the bathroom for all dwellings except the above mentioned ones.

3) Storage Space:
Para. 4.3.3: Linen Storage:
All dwellings: $0.4m^3$ for one, two and three-person dwellings.
$0.6m^3$ for four-person and larger dwellings.

Para. 4.2.2: Fuel Storage:
Houses: $1.5m^2$ (where there is only one appliance)
$2.0m^2$ (where there are two appliances).
Flats and Maisonettes: $1.0m^2$.

Para. 6.2.1: Food Storage:
"A ventilated larder of $0.17m^3$ which is part of the kitchen storage of

1.7m^3 for one and two-person dwellings
2.3m^3 for three-person and larger dwellings.

4) Ceiling Height;
Para. 4.3: A floor to floor height of 2.6m (8ft. 6in.).

5) Provisions of Power Points (min.):
Covered by The Building Standards (Scotland) Consolidation Regulations 1971, Part Q17:
Para. 2:

	Houses with electricity or both electricity and gas	Houses with gas only
Living room	4 p.points (2 of which to be electricity points or 2 p.points and 1 multiple socket outlet	1 gas point
Kitchen	3 power points*	3 gas points
Every other apartment	2 power points	1 gas point
In any part of the house	2 p.points in addition to those referred to above	-

*2 power points in the case of any house of: (i) not more than two apartments, or (ii) not more than three apartments, of which each of the apartments other than the living room has a floor area less than 10m^2.

6) Space Heating Standards:
Para. 5.1: "The minimum standard must be an installation with appliances capable of maintaining kitchen and circulation spaces at 13°C, and the living and dining areas at 18°C when the outside temperature is minus 1°C."

Discussion and Conclusions;

From the 1944 Scottish Housing Advisory Committee's recommendations we moved to the 1956 Scottish Housing Handbook (Part 3) standards, followed by those of the 1968 New Scottish Housing Handbook (Bulletin 1) standards, all with twelve year intervals in between. This movement is not entirely of consistent improvement. On the contrary, the 1951 economic crisis forced standards to fall, while the Department of Health for Scotland Circular No. 94/1951 specified economical design for three and four-apartment houses as follows:

	3-Apartment House	4-Apartment House
Living Room	184 ft.^{2}	220 ft.^{2}
1st Bedroom	136 ft.^{2}	136 ft.^{2}
2nd Bedroom	111 ft.^{2}	116 ft.^{2}
3rd Bedroom	None	70 ft.^{2}
Kitchen	72 ft.^{2}	85 ft.^{2}
Bathroom	36 ft.^{2}	33 ft.^{3}
Utility Room	An inner lobby is substituted	69 ft.^{2}
Overall Area	680 ft.^{2}	860 ft.^{2}

Narrow frontages, simple roofs, low ceilings, compact staircases and economic circulation spaces were some of the features at which the design should aim. It is through this Circular 94/1951 that at last the single bedroom (70 ft.^{2}) appeared in official 'guidelines'. Whilst the Scottish bedroom areas were similar to those of England and Wales, their aggregate living areas continued to fall short of the English ones.

The 1956 Scottish Housing Handbook (Part 3) generally specified improved standards from what they were during the 1951-52 period. In view of the need to update the 1956 standards and in the light of the change to metric and the associated moves towards

dimensional co-ordination, the Scottish Development Department in conjunction with the Scottish Local Authorities Special Housing Group (S.L.A.S.H.) undertook an intensive review of future standards. So in 1967 a joint working group was formed to establish views on the matter. The group favoured the adoption of the Parker Morris standards which were already being observed by some S.L.A.S.H. member authorities. These new Scottish standards fully described in the New Scottish Housing Handbook, (Bulletin 1), 1968, are the same as those of England and Wales and became mandatory since 1st January, 1972 for all local authority housing in Scotland.

A comparison of the 1944, 1956 and 1968 housing standards among themselves has shown that: from the 1956 to 1968 there is a good case of advancement with respect to the provision of (i) sanitary appliances (w.c. and w.h.b.), (ii) more kitchen storage (iii) more power points, and (iv) specific temperature levels for space heating. As far as the dwellings'overall areas are concerned, bearing in mind that the 1956 standards specify overall maximum areas while the 1968 specify overall minimum areas, we concluded that:

1) The single storey cottages' overall area for three and five-personsof the 1956 standards recommended for young married couples and families with young children are well above the minimum Parker Morris, while the seven-person single storey cottages' specified area does not exist in the Parker Morris table. All the two-storey cottages' overall areas are well below those of the Parker Morris Report.

2) The two, three and four-storey flats for two and three-persons recommended areas are above those of the Parker Morris, while the areas specified for four and five-person flats are well below Parker Morris minimum standards. As to the specified overall maximum areas for maisonettes, they are well below

those of Parker Morris too.

The comparison between the overall areas of those dwellings recommended by the 1956 S.H.H. for families with adults and older children, and those of Parker Morris revealed that:

1) All the two-storey cottages' overall maximum areas recommended by the 1956 S.H.H. are far lower than the minimum Parker Morris.

2) The two, three and four-storey flats' areas are almost the same or slightly above while the four, five and six-person maisonettes' areas are well below the minimum Parker Morris equivalent.

Also the comparison between the 1944 S.H.A.C. overall area standards and those of Parker Morris revealed that:

1) The single-storey cottages' areas of four and six-person (short term recommendations) are below those of Parker Morris, but those of the long term recommendations of the same types are well above the latter. The double storey cottages' areas of four and six-person (short term recommendations) are well below Parker Morris standard, whilst the six-person cottages' area (long term) is above it.

2) With respect to the four and six-person flats' areas (short term recommendations), as well as the four person flats' (long term) area, both are below Parker Morris standard, whilst the six-person type of flat (long term) has an area substantially above it.

The comparison between the 1944 S.H.A.C overall areas and those of the 1956 S.H.H. (Part 3) revealed that:

1) Both single and double-storey cottages (short term recommendations) of the 1944 S.H.A.C. are lower

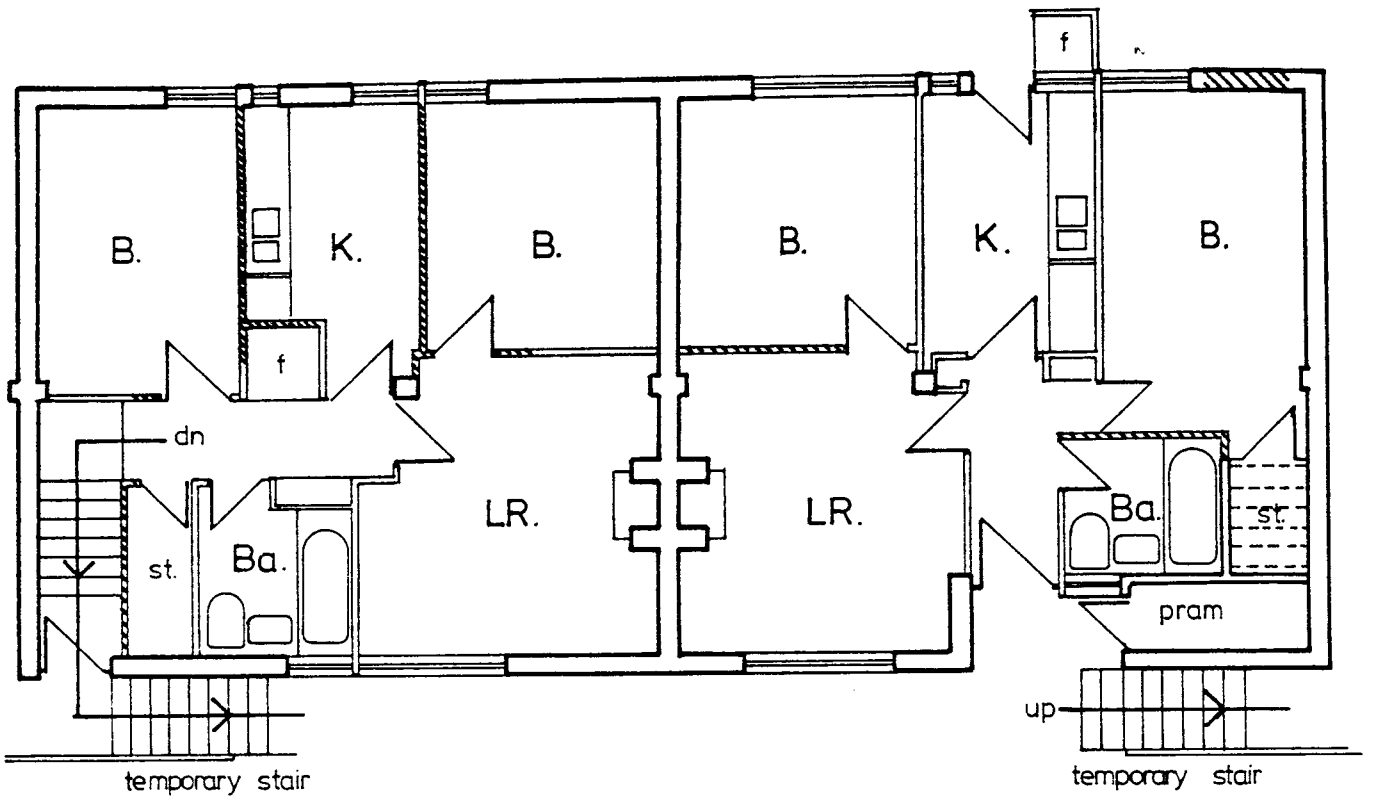
than those of the 1956 for houses suitable for young married couples and families with children; whilst the four and six-person areas of flats are above those of the 1956 standards.

2) On the other hand, both single and double-storey cottages of the 1944 long term standards are above those of the 1956 recommended for both young married couples and for families with adults and older children.

The foregoing discussion and comparisons showed beyond doubt that the Scottish housing standards have been improved substantially since W-War-II and specifically on aggregate living areas, storage and space heating provisions.

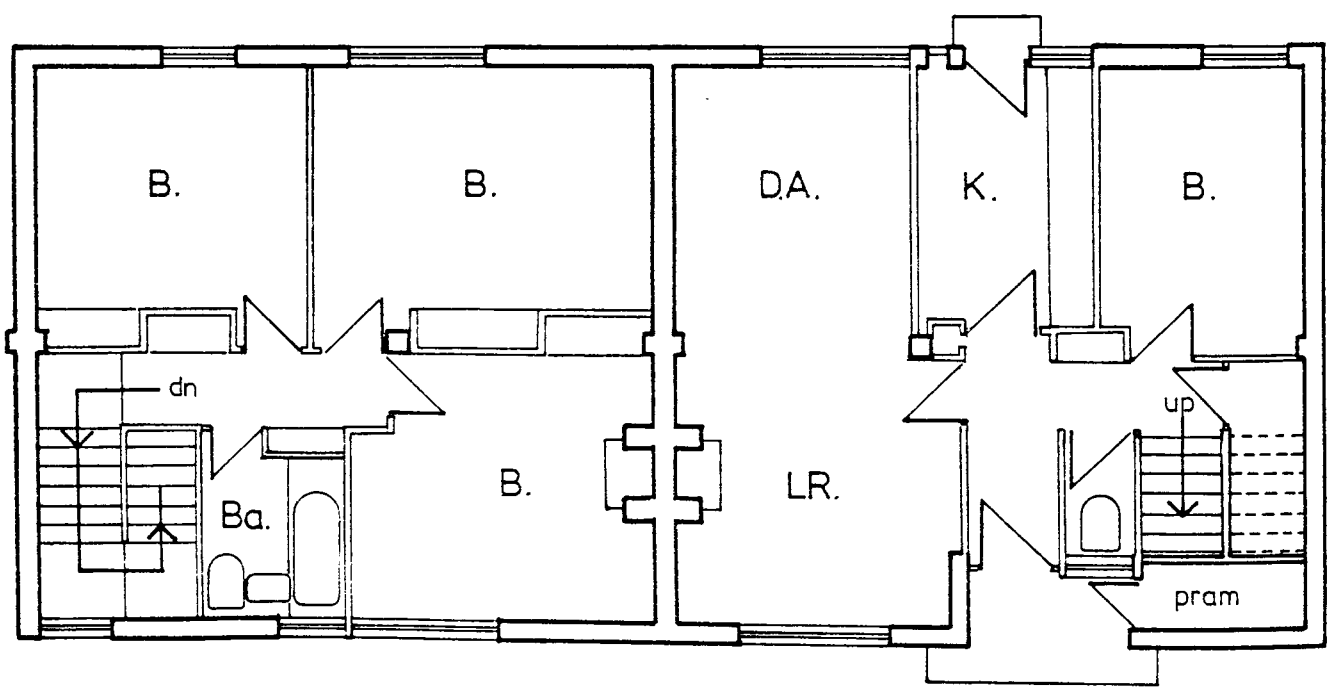
Fig. 6.11 THE DUPLEX HOUSE, 1944. 1:100.

Short term : 4 3-Apartment dwellings.



upper floor plan ground floor plan

Long term: 2 5-Apartment dwellings



upper floor plan ground floor plan

Section 6.4.1: Types of Dwellings

The post W-War-II scene opened for Scotland with the 1944 Scottish Housing Advisory Committee's Report, where it deplored the continuing distinction of the living room as a sleeping apartment and discouraged the distinction of adults and children, while suggesting that a child of any age (including infants) was to be regarded as a person for occupancy purposes.

This Committee recommended the following alternative types of accommodation.

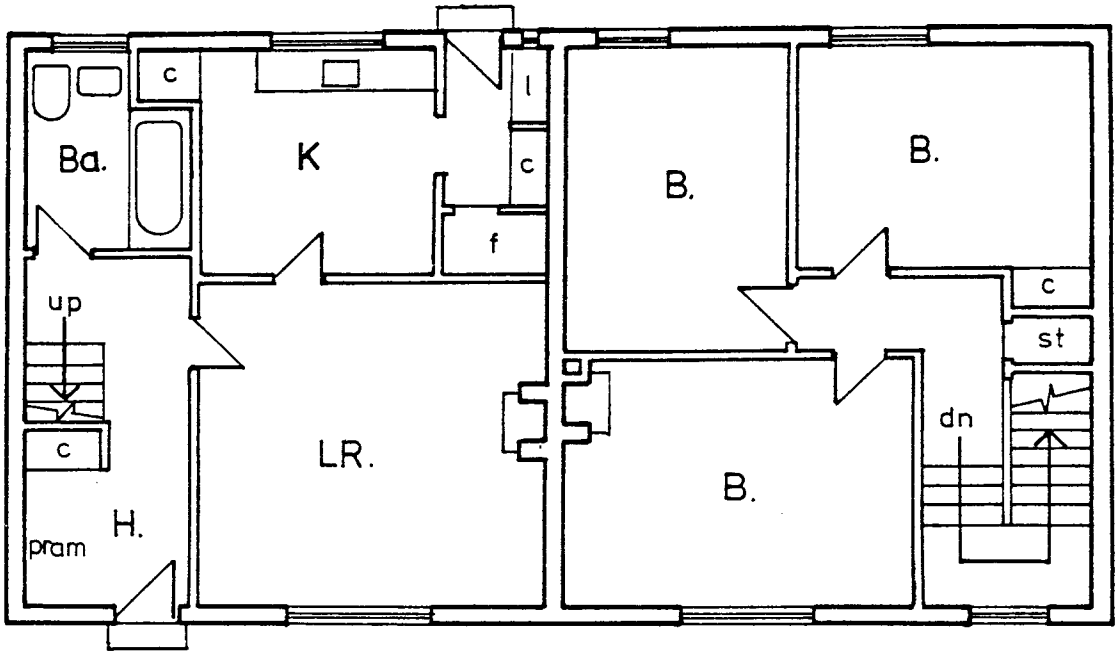
1) Traditional accommodation 're-designed' for purely temporary occupation. Subject to proper safeguards, structures of a suitable type were converted into temporary housing accommodation. The following standards were aimed for a three apartment house viz : living room 160-186 ft.^{2}; 1st bedroom 130 ft.^{2}; 2nd bedroom 100-120 ft.^{2} and kitchenette 70 ft.^{2}. These houses should have been equipped with all the essential equipment and conveniences which were available in the other types of housing.

2) New accommodation capable of being converted or upgraded to higher standards, when circumstances permitted. The provision of such accommodation was based on the 'duplex principle'; that is to say houses built in permanent construction on their final sites so designed that in the immediate post-war period they could accommodate two families and subsequently could be converted into single family houses conformed to higher standards of planning and construction, see Fig. (6.11). The duplex houses' process of conversion mainly consisted of the removal and reinstatement in new positions of certain fittings and conveniences.

3) Short-term accommodation provided by alternative means at the shortest possible time, e.g. prefabricated or demountable form houses and

Fig. 6.12 4-APARTMENT TWO STOREY HOUSE . 6-PERSONS.
O. AREA = 87 m^2

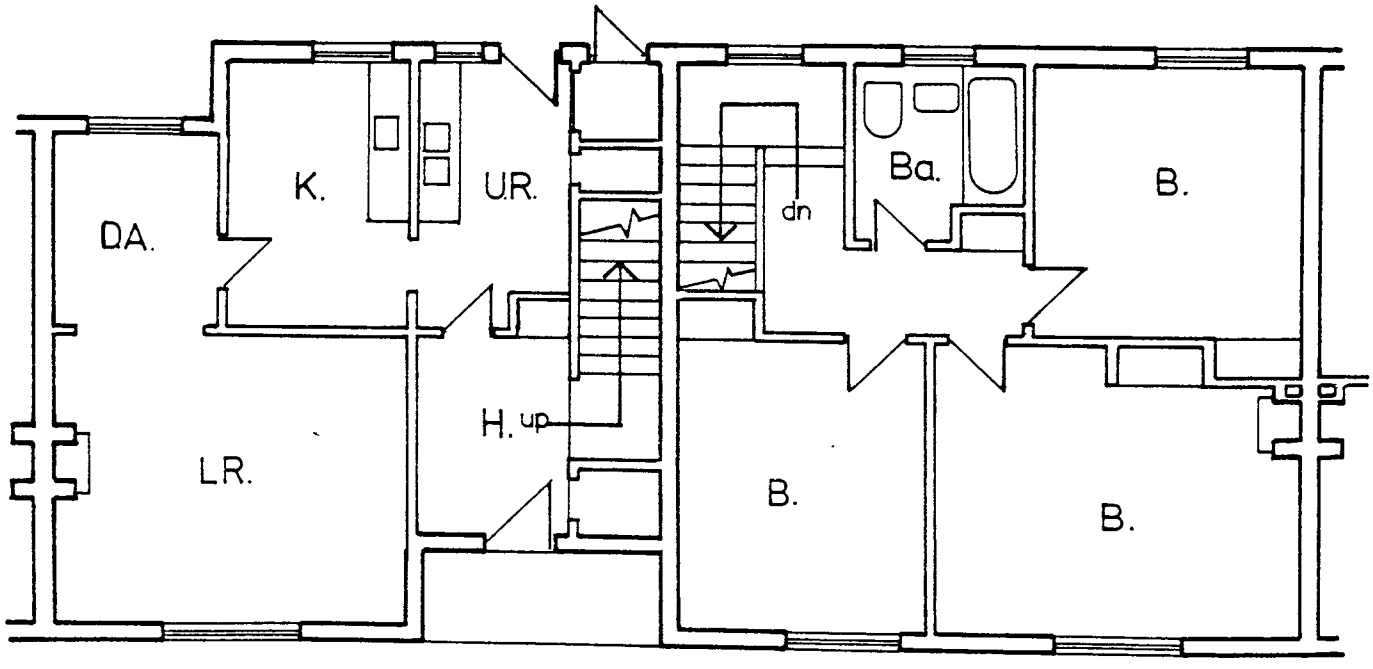
Short term



ground floor plan 1:100 first floor plan

Fig. 6.13 4-APARTMENT TWO STOREY HOUSE . 6-PERSONS
O. AREA = 103·5 m^2

Long term



ground floor plan 1:100 first floor plan

4) New accommodation provided by normal methods of building. Here the S.H.A.C. made both short and long term recommendations illustrated in sample plans. The short term plans, see Figs. (6.12 and 6.14) were based with regard to overall areas on the average inter-war areas of corresponding types but which incorporated in the kitchen-scullery apartment improved fittings and equipment. On the other hand its long term plans, see Figs. (6.13, 6.15, 6.16 and 6.17), set quite high standards some of which are well above the present Parker Morris ones.

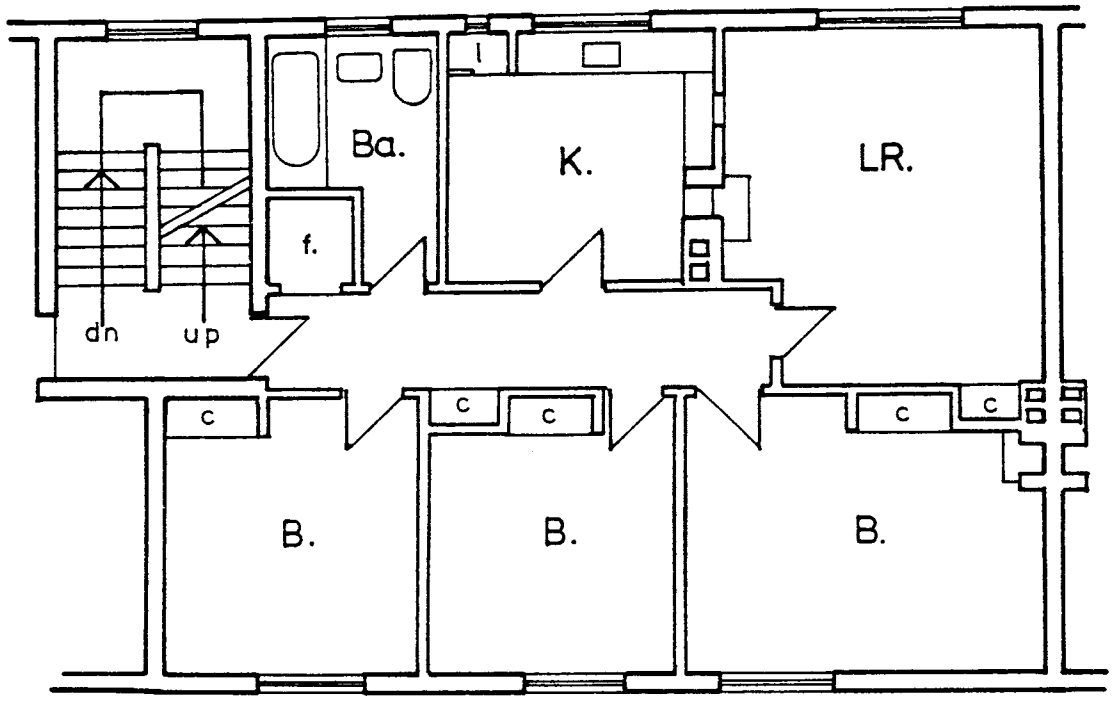
Also the S.H.A.C. strongly emphasised the fact that almost all Scottish local authority housing before W-War-II, irrespective of size, contained only one living room. To remedy this the Committee put forward three alternatives viz.:
Living room and Parlour, see Fig. (6.17) overleaf;
Living room and Dining annexe, see Fig. (6.13) and
Living room and Dining annexe associated with the kitchen-scullery, see Fig. (6.16) overleaf.

This Committee also recommended the following occupancy standards:
A 3 apartment house of 2 bedrooms, for three-four persons
A 4 apartment house of 3 bedrooms, for five-six* persons
A 5 apartment house of 4 bedrooms, for seven-eight* persons
(*depending on whether the smallest bedroom was a two-person or one-person bedroom)

against the English formula of :
A 2 bedroom house for four-persons,
A 3 bedroom house for five-persons,
A 4 bedroom house for seven-persons;
which allowed more flexibility by providing single bedrooms. Indeed this was of the significant differences between English and Scottish house plans, that is the greater area of the latter. For example the 4 apartment

Fig. 6.14 4-APARTMENT FLAT. 6-PERSONS.
O. AREA = 84·4 m^2

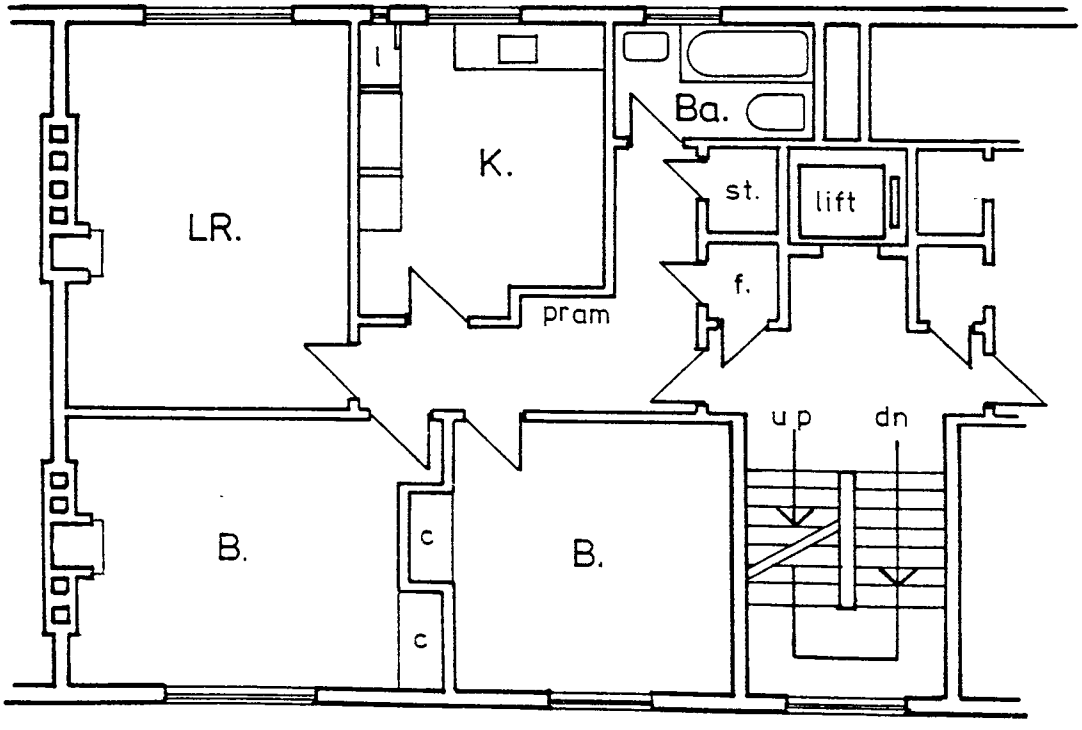
Short term



first floor 1:100

Fig. 6.15 3-APARTMENT FLATS. 4-PERSONS.
O. AREA = 71·4 m^2

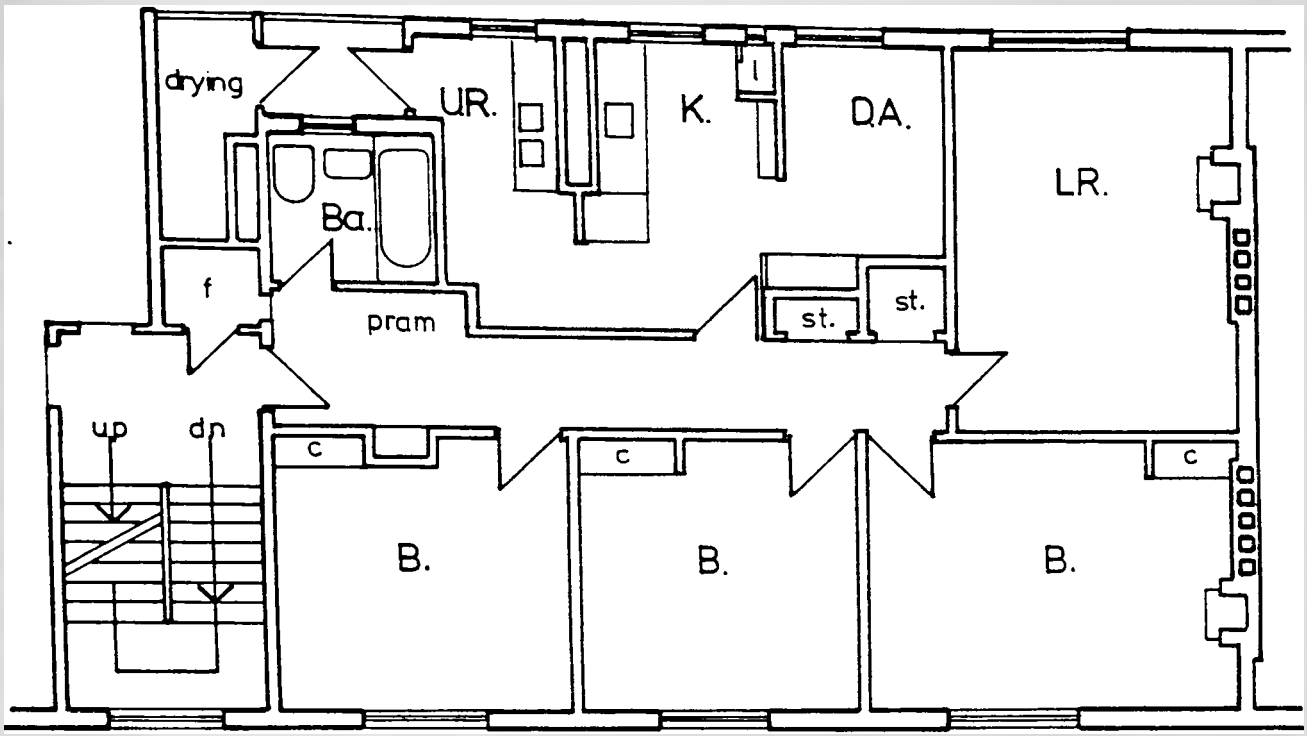
Long term



upper storey 1:100

Fig. 6.16 4-APARTMENT FLAT. 6-PERSONS.
O. AREA = 103·6 m^2

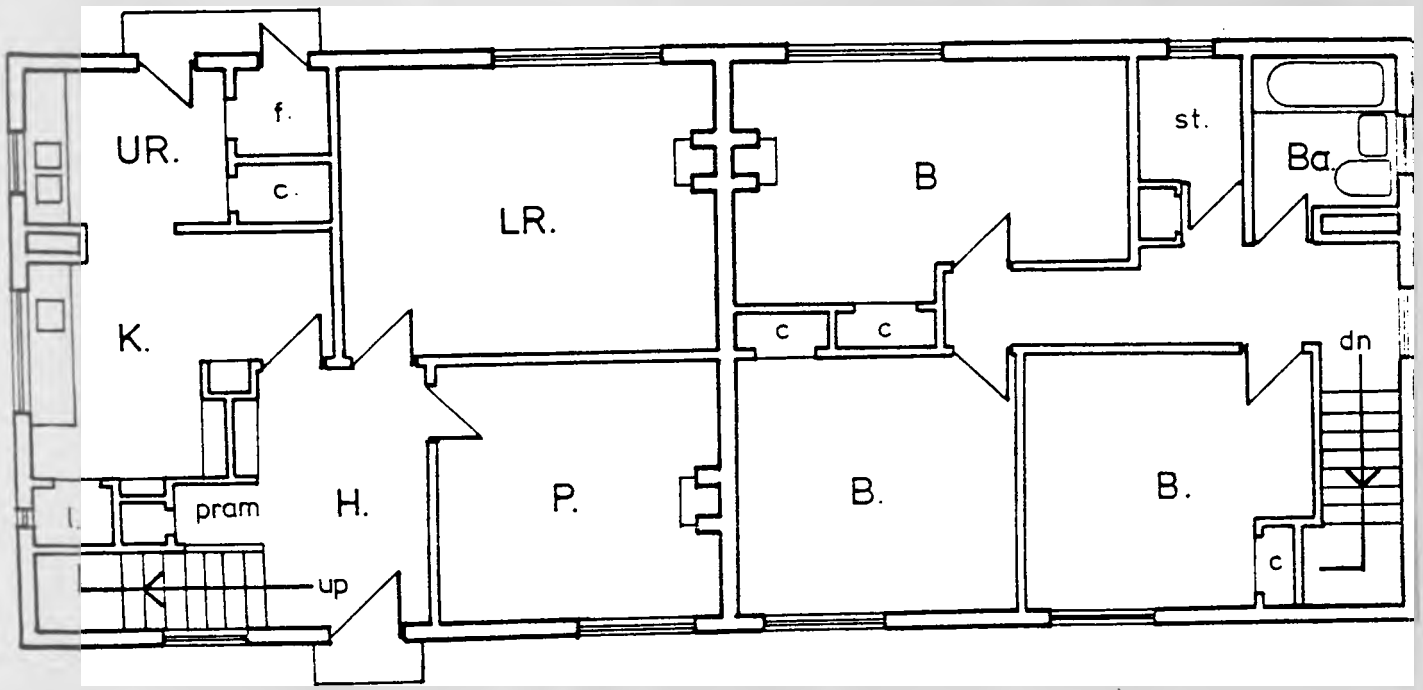
Long term



upper storey 1:100

Fig. 6.17 5-APARTMENT TWO STOREY HOUSE (PARLOUR TYPE).
6-PERSONS. O. AREA = 115·2 m^2

Long term



ground floor plan 1:100 first floor plan

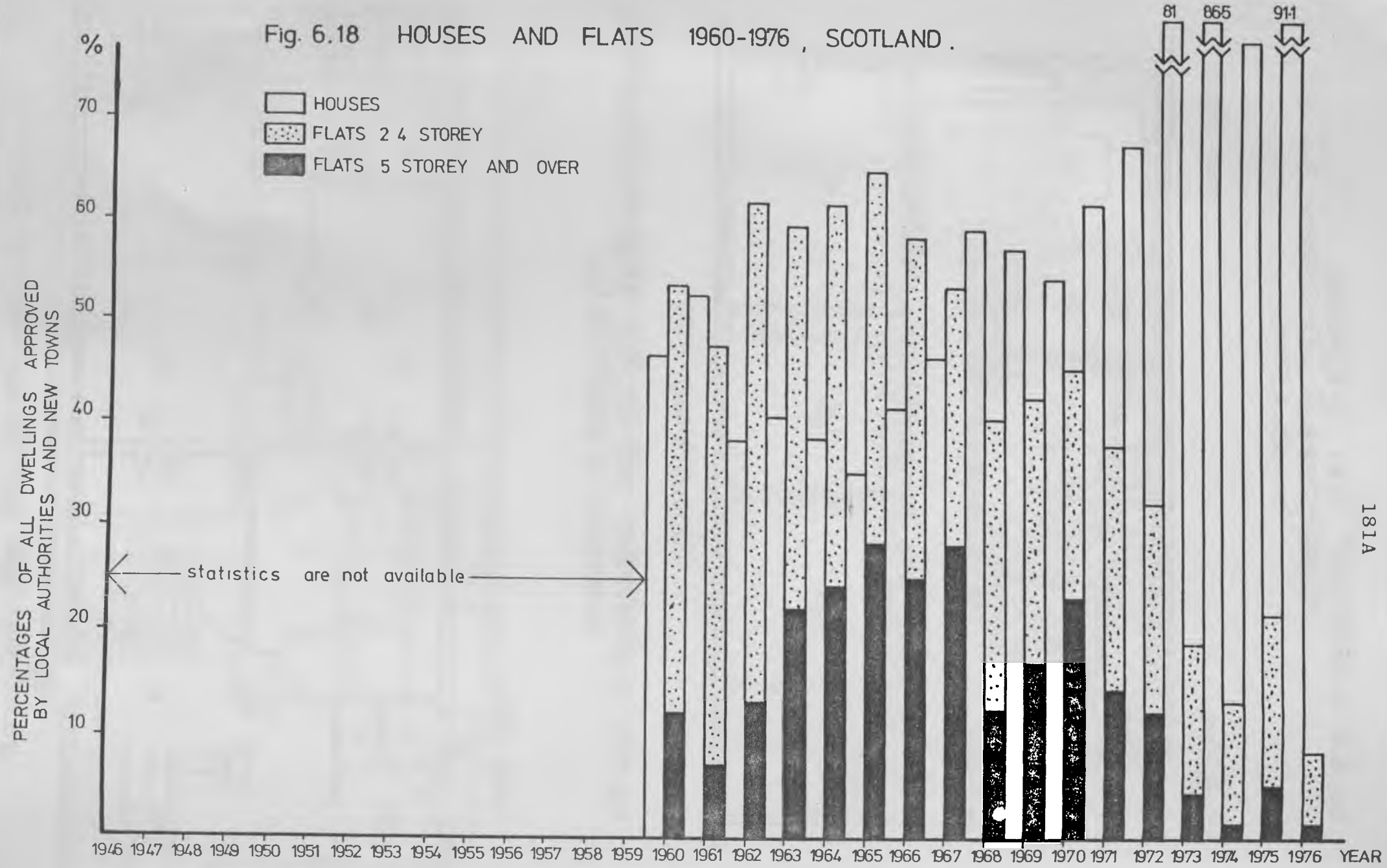


Fig. 6.18 HOUSES AND FLATS 1960-1976, SCOTLAND.
HOUSES
FLATS 2 4 STOREY
FLATS 5 STOREY AND OVER
%
70
60
50
40
30
20
10
PERCENTAGES OF ALL DWELLINGS APPROVED BY LOCAL AUTHORITIES AND NEW TOWNS
statistics are not available
81
86·5
91·1
1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976
YEAR

type of house was designed as a six-person dwelling in which the spare bedroom was to have a minimum area of 100 ft.^{2}. This continued to be the case until mid-fifties when the single room had been well adapted.

The 1956 S.H.H. Part 3 does not include any sample plans to illustrate its recommendations but contains more than 20 plates presumably to indicate what the 'official guidelines' were aiming at. By and large the types of dwellings prevailing in the 'fifties were the cottage type of dwelling, the flatted house as well as the 'tenement' flat type, virtually the 1930's types of dwellings. The three-storey walk-up flats and the four-storey maisonettes to a lesser extent continued to spread simultaneously with the high-rise flats of more than five-storeys, throughout the 'sixties till the latter's 'fall' - late 'sixties - and the establishment of the low-rise high density of the 'seventies to reach a maximum of more than 90 percent of all housing completions in Scotland in 1976, see Fig. (6.18). Also this same figure (6.18) gives us a good idea of the spread of the two- to four-storey flats which reached a 50 percent - their peak - in 1962 before the high-rise flats started to gain ground.

With the Consortia Movement - Industrialised Housing of the 'sixties throughout Britain, the S.L.A.S.H. Group (Scottish Local Authorities Special Housing) was formed in the 'North' in 1963 - which is actually the only consortium in Scotland. Nevertheless its members which are responsible for the 65 to 70 percent approximately of all housing developments in Scotland, continued to build to their own designs up until late 'sixties when a few members started to use the S.L.A.S.H. 'House Shells'. To find out the most frequently used 'S.L.A.S.H. Shells' we carried out the survey described below:

This is a feed-back study on the use of S.L.A.S.H. 'House Shells' for two-storey four, five and six-persons. At first we wrote to the S.L.A.S.H. Group to ask if there was any

SCOTTISH LOCAL AUTHORITIES SPECIAL HOUSING GROUP

Fig. 6.19

Member Authority	Housing Stock (Dec. 1977)
Aberdeen	37,279
Annandale & Eskdale	4,665
Argyll & Bute	8,125
Caithness	4,189
Clackmannan	9,524
Clydebank	11,581
Dunfermline	23,040
East Kilbride	1,620
Glasgow	176,000
Hamilton	22,723
Inverclyde	19,700
Kilmarnock & Loudoun	18,297
Midlothian	13,020
Motherwell	39,650
Nithsdale	8,350
North-East Fife	7,730
Perth & Kinross	16,252
Renfrew	39,600
Stirling	13,044
West Lothian	22,493
Cumbernauld	10,822
East Kilbride & Stonehouse	18,745
Glenrothes	8,810
Irvine	3,725
Livingston	9,455
Scottish Special Housing Association	88,000

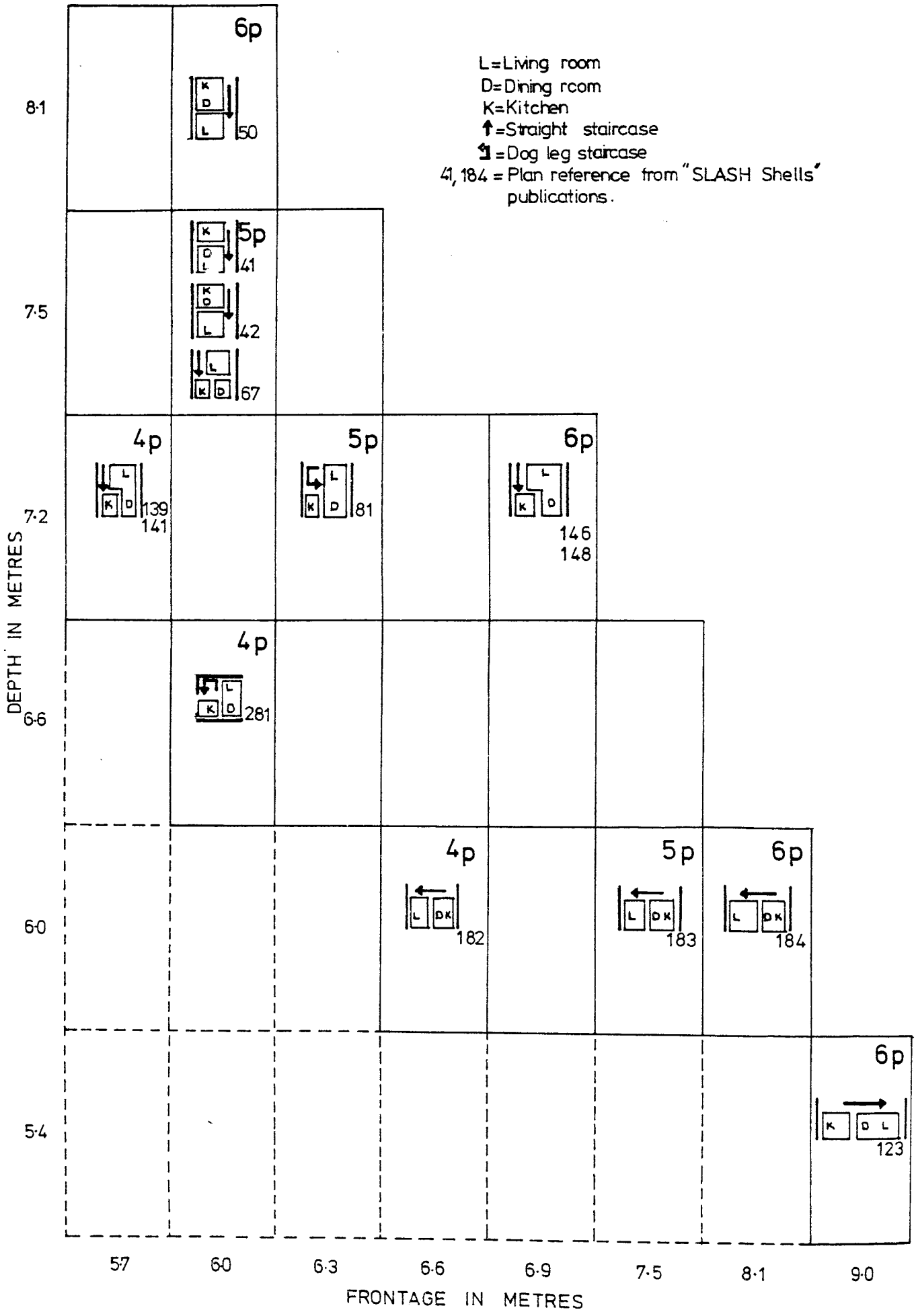
information or study of this sort available. Their answer was negative. With their reply they sent us a list with their full members, see Fig. (6.19) and their respective housing stock. We then sent out letters to all S.L.A.S.H. members requesting information concerning their most frequently used S.L.A.S.H. Shells in their housing schemes.

There was a 64 percent response of S.L.A.S.H. members representing a 72 percent of the total housing stock of the S.L.A.S.H. Group. The survey revealed, contrary to the S.L.A.S.H. officials' belief that their Group's members "do use their shells", that this was not the case. Indeed the survey had to change its nomenclature afterwards from 'original' S.L.A.S.H. shells to 'modified' ones since out of all the members who responded to this survey only the Cumbernauld Development Corporation reported using 'original' unmodified S.L.A.S.H. Shells.

Out of those members who responded (64 percent), 29 percent replied that they have not used S.L.A.S.H. house shells at alluntil today. The remaining 35 percent replied that they use S.L.A.S.H. shells but they modify them substantially before use. This latter group of authorities represents nearly the 50 percent (out of the 72 percent) of the total housing stock of the S.L.A.S.H. Group.

The authorities who answered negatively argued that: "The dictates of the design brief from their housing committees are such that no S.L.A.S.H. plans can be used."; "The house types currently being built and those in the process of development have been specifically designed to satisfy the detailed social requirements of our particular authority."; "S.L.A.S.H. designs have been considered as the basis of many of our house types but modifications have resulted in very (their emphasis) substantial departures from the originals. So for the most part are from our own design to meet requirements which are

Fig. 6.20 THE MOST FREQUENTLY USED S.L.A.S.H. "SHELLS".



particular to our own authority as a matter of policy."

The main modifications (carried out by those S.L.A.S.H. member authorities who responded positively) are on planning access arrangements, such as recessed front entrances incorporating the refuse storage (bins), provision for gas and electricity meters to be read from outside and planning rearrangements with respect to the distribution of storage space on the ground floor. The main modification upstairs is the reallocation of the bedrooms' space; (for example the S.L.A.S.H. Shell No. 148, where the space of the three double bedrooms - of the original shell's upper floor plan - has been reallocated to two double bedrooms plus two single bedrooms of smaller size instead).

The results of this survey are presented in Fig. (6.20) which shows the most frequently used S.L.A.S.H. Shells. These shells, in order of the numbers to which they have been built, are as follows:

1st)	41, 42, 67	6th)	123
2nd)	182	7th)	281
3rd)	81	8th)	146
4th)	139, 141	9th)	184 and
5th)	50	10th)	183

The original S.L.A.S.H. plans of the above shells are given in Appendix V on page 355.

References:

1. Maitland, Steel, J., "Scottish Housing: Past and Present", R.I.B.A Journal, Vol. 59, July 1952, p.316, column 2.

2. Ibid., p.316, column 3.

3. Royal Commission on Housing in Scotland, Report of the Royal Commission on the "Housing of the Industrial Population of Scotland, Rural and Urban", 1917, Command Paper 8731, para. 2232.

4. Ministry of Health for Scotland, Scottish Housing Handbook, Part 3: "House Design", 1956, p.5, column 2.

5. Ibid., pp.24-25, Appendix A.