PUBLIC SECTOR HOUSING IN SCOTLAND

VOLUME TWO
1940 to 1959

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INTRODUCTION

Politically the decade divides into two parts, the war time coalition government under Winston Churchill from 1940 to 1945 and the Labour Government 1945 to 1951 under Clement Attlee. In many ways the foundations for the incoming Socialist Government were being laid by the application of Socialist ideas to fight the National Socialist foe.(1)

The main function of the coalition government was to ensure that Britain survived and that the Axis Powers of Germany, Italy and Japan were defeated. To achieve this the government mobilised not only its armed forces but its industrial and domestic resources. Rationing was introduced, rents were restricted, advertising was controlled and prefabs were proposed for the homeless.

The War had dramatic effects on housing throughout Scotland not just in the 7,000 houses, mainly in Glasgow, Greenock and Clydebank, which were destroyed or rendered uninhabitable. Movement of population as a result of war time industries created over-crowding in some areas while in other areas houses were left empty and uncared for. Regulations on over-crowding were set aside as long as rehousing was impossible. Demolition and replacement of unfit houses was postponed including those condemned prior to the War. Rent restriction reduced real rents with the result that landlords did not have enough money to execute repairs and maintain their property.

The potential of pooling the Nation's resources for the common good was demonstrated during the war years. The 1944 Education Act, for example, which was to raise the school leaving age to 15 and gave universal secondary education and free tertiary education was sold to the nation, especially to conservative doubters, by R. A. B. Butler on the slogan that the cost of four days war paid for one year of the proposed education system.

The war seems to have stimulated thinking on a grand scale and throughout the years 1939 to 1945 many committees and commissions were at work preparing to contribute to the reshaping of post war society. (2)

In 1942 the Uthwatt report on Compensation and Betterment encouraged the state to assume the right to take up undeveloped land for development purposes. In the same year the Scott Report on the Utilisation of Land in Rural Areas looked at development and conservation in the countryside and made recommendations on the improvement of rural housing.

The Blitzes and wholesale destruction of wartime created an obvious need for town planning. The Allies were on the offensive and there was hope of a new world. In 1943 the Town and Country Planning (Interim Development)(Scotland) Act brought all land under planning control, although there were exempted classes of land, mainly Government land and farm buildings. The Town and Country Planning Act 1944 gave Local Authorities greater power, enabled them to acquire extensive areas of war damaged or obsolescent development and to prepare comprehensive replanning schemes.

It is likely that the realisation of the potential for social change and the post war optimism aided the Labour Party to gain its largest ever electoral success. A popular phrase of the day 'to Build a Better Britain' meant equal opportunities, better Health Service, educational opportunities, high standards of living, hence the priority on schools, housing and to a lesser extent health buildings. (3) Many of the Labour Government Acts were based on reports produced by the National Government.

The National Insurance Act of 1946 which established a compulsory insurance scheme providing funds to pay for the National Health Service and social security benefits was based on the 1942 Beveridge Report (Report on Social Insurance and Allied Services). This Act created the Welfare State.

New Town Act 1946

In 1940 the Barlow Commission which had been set up before the war produced its recommendations on the distribution of the industrial population. It proposed redevelopment of congested areas, the dispersal of population and industry and the establishment of a national planning authority. The commission proposed the creation of satellite towns, trading estates and the planned redevelopment of existing towns and regional centres. The report was praised by supporters of the garden city ideal. (4) The strategic advantage of dispersal during war time was obvious as areas of concentrated industrial and urban development become prime bombing targets. The redevelopment opportunities created by war time destruction whetted appetites for comprehensive redevelopment which led to even more destruction later.

In 1945 a New Towns committee was set up under the chairmanship of Lord Reith "To consider the general question of the establishment, development, organisation and administration that will arise in a policy of planned decentralisation from congested urban areas; and in accordance therewith to suggest funding principles on which towns should be established and developed as self-contained and balanced communities for work and living".

The Committee's recommendations were followed by the 1946 New Town Act. East Kilbride New Town Development Area was designated in 1947. Glenrothes, set up a year earlier as a new mining town was designated a New Town Development Area in 1948. Cumbernauld followed in 1955, Livingston in 1962 and Irvine in 1966 (Stonehouse was designated in 1973 but decommissioned in 1977).

The New Town Act was the culmination of years of pressure by the Garden City Movement and the Town Planning Association. New Towns were to be planned developments with commercial, industrial, educational and recreational facilities as well as housing developments. Their development was affected by economic and commercial limitations but they were "planned" not "*laissez faire*" developments.

Town and Country Planning (Scotland) Act 1947

Often described as the birth of modern town planning, it extended land use planning and brought development control. All residential development like other land uses was required to conform to Local Authorities' Development Plans.

The new local planning authorities were required to prepare Development Plans after carrying out a survey and reporting on the needs of the area. The Act also set out the procedure for obtaining planning permission and laid down that schemes were not to be approved if they conflicted with the Development Plan.

Local Planning Authorities were also given powers to restrict and regulate the display of advertisements, to keep a close watch on the preservation of trees and woodlands and to look to the preservation of buildings of architectural or historic interest.

This Act had a major impact on the form of development. Development was controlled to a far greater extent than before. There was a presumption against "ribbon development" and new houses being built in the countryside. Development was planned as an extension of existing settlements or in planned developments in New Towns.

The Act was implemented on the 1st of July, 1948 and dramatically changed the rights of land ownership. After that date ownership of land carried with it nothing more than the right to continue to use the land for its existing purposes. The owner has no "right" to develop it, that is to say without planning permission no right to build on it and no right to change its use. (5)

The 1947 Act "nationalised" the development value of land with the introduction of the controversial development charge. The landowner selling land could expect to obtain (in theory at least) only its existing use value.(6) This provision, intended to free land for comprehensive development for the good of the community and to put money made out of land transactions into State coffers, became a problem as land required for development was frozen rather than freed as owners, seeing no profit in a sale, held onto their land in the hope that the Act would be changed. The development charge was dropped in 1953 following the return of a Conservative Government in 1951.

HOUSING LEGISLATION

Housing (Temporary Accommodation) Acts 1944 and 1945

Houses were to be provided by the Government under the 1944 Act and erected on sites acquired and developed by the Local Authority. The houses were leased to the Local Authority who were responsible for choosing tenants, fixing and receiving rents, managing and maintaining the property. 20% of the U.K. programme was built in Scotland.

The 1945 Act empowered the Secretary of State for Scotland to make an order, at any time before 15th June, 1947 authorising a Local Authority to use land which was part of a public open space as sites for temporary houses.

Building Materials and Housing Act 1945

This Act made it an offence at any time during the four years from December 1945 to sell or let a house erected under a building licence at an amount greater than the maximum selling price or rent on the licence. (7) The Government was clearly of the opinion that the enormous housing shortages would inevitably lead to inflated prices if not controlled.

Housing (Financial Provision) (Scotland) Act 1946

The Housing (Scotland) Act 1944 had extended by two years the financial assistance of the 1938 Act which had provided subsidies on a sliding scale according to house size.

The 1946 Act more than doubled the subsidies available under the 1938 Act and fixed Local Authority contributions at a low level. Additional increments were available for flats in blocks of four or more storeys where lifts were provided. This was the first Exchequer additional subsidy towards high rise development in Scotland.

Additional contributions were made available for; agricultural houses, expensive sites in central areas, clearance areas, houses in remote areas and dealing with potential subsidence. Additional Contributions were made available for houses constructed by special methods anticipating that non traditional construction could be more expensive and would require additional subsidy to encourage production. Provision was also made for Exchequer contributions towards the provision of hostels for single persons.

The Housing (Scotland) Act 1949

A duty was placed on every Local Authority to submit to the Secretary of State particulars of houses and other buildings to be included in improvement proposals.

The Act gave grants of 75% (87.5% in the Highlands and Islands) towards modernisation costs payable by the Treasury to Local Authorities. Improvement Grants were recognised for the first time as an intermediate policy stage between new building and demolition. The Act also removed references to the working classes. (8) This was an acceptance of the fact that the middle class as well as the working class rented Local Authority housing. The demand for a new Local Authority house among the middle class was particularly prevalent in Scotland where, as already demonstrated, overcrowding was most severe and the supply of private housing for sale was lower than in the rest of the U.K.

Additional contributions were available for houses to be constructed of stone or other traditional materials to preserve the character of the surrounding area. This additional finance was typically used to slate roofs and introduce stone as part of the front elevation.

The Act allowed additional Government contributions to those in the 1946 Act in respect of the provision of hostels and of building experiments in Scotland. It also extended the 1945 Act to continue to control the selling price or rent of a house erected under a building licence for four more years until December 1953.

Coming at the end of the decade it was not until the 1950s that the effect of this Act was seen, on modernising existing housing and the use of traditional materials in historic areas.

HOUSING REPORTS

RIBA Reconstruction Committee, Housing Group

The RIBA Committee published an interim report in September 1941. It identified the problem as one of providing war time housing for war industry and agricultural workers, service families and homeless as a result of bombing. It also noted the problem of shortage of materials, such as timber and steel which was required for the war effort whereas there was a greater availability of brick, concrete and asbestos cement.

It advocated camps where there would be no need for housing after the war and where permanent housing would be required it advocated "abandoning the single family peacetime standard house in favour of hostel dwellings providing the minimum of living and sleeping accommodation with communal facilities for feeding, heating, washing and relaxation". (9) It also advocated that the structures should be two and three storeys with the maximum amount of standardisation. The hostels were to be crosswall construction between the outer walls to support the concrete floors and roof and to form a strong rigid cell structure capable of better withstanding bomb blast. The hostels were to be capable of conversion to family housing in peacetime.

The Burt Committee Report

In 1942 the Burt Committee on House Construction was set up assisted by the Ministry of Health, the Secretary of State for Scotland and the Ministry of Works. Its terms of reference were : "to consider materials and methods of construction suitable for the building of houses and flats, having regard to efficiency, economy and speed of erection, and to make recommendations of post war practice", It was foreseen that there would be serious shortages of both materials and labour in the immediate post war years and it was hoped that non traditional construction would augment the traditional house building programme. The Government published a white paper in March 1945 in which it made clear that as long as building labour was scarce prefabrication and other forms of construction would be used to the fullest practicable extent in the construction of permanent houses. It was envisaged that standardisation in materials and fitments would contribute to speedier production and building. In fact 100,000 dwellings, half of the new public sector housing, were built of non traditional construction between 1945 and 1954.(10)

The Burt Committee had been impressed with the cellular concrete (no fines) houses which SSHA had built and the method was strongly recommended in their 1944 report.

Sir George Burt, Chairman of the committee, agreed that the Department of Health for Scotland and the SSHA should experiment with demonstrations house types appropriate for Scotland.

As a result the Sighthill experimental development in Edinburgh was sanctioned in April 1944. The site was to be used for the erection of housing of different types as demonstration of various forms of house construction but as far as possible they were to conform to a standard plan based on the short term standards of the Westwood report. The house constructions to be demonstrated were those recommended by the Burt committee. (Fig 4.01)

Westwood Report 1945

Planning our new Homes, Report by the Scottish Housing Advisory Committee on the Design, Planning and Furnishing of New Homes.

The frontispiece of the report includes this quotation from Winston Churchill - 9th November, 1943.

"The policy of waging war until victory would be incomplete, and indeed spoiled, if it were not accompanied by a policy of food, work and houses in the period following the victory for the men and women who fought and won".

The Committee found that 470,000 houses were required as a result of houses being unfit or overcrowded, destroyed by enemy action and as a result of marriages between 1938 and December 1943. There were very few vacant houses, the overcrowding legalisation had been set aside and very few houses built during the war. In addition to this there were 405,000 houses without an internal WC or water supply.

The Committee carried out surveys of the armed forces and industrial workers to ascertain the prospective householders' preferences, and on those results the recommendations were based.

They found that the cottage house was widely preferred to any other and recommended that the largest proportion built should be of this type.

They did not find in favour of the flatted house and recommended that if it was used it must be well insulated for sound. They also stated that flatted houses should not be built in rural areas, preferring rather single storey cottages.

They accepted that flats or tenements will inevitably be required in some areas but stated that it was undesirable to build blocks of multi storey flats on the frontage of arterial or sub arterial roads as in past practice. They emphasised the need for good sound insulation in flats.

Local Authorities were to pay particular attention to the needs of the elderly, providing accommodation, integrating them into the community on the lower floors of flats and in single storey cottages.(11)

The Committee did not favour balcony access flats as it observed that the balcony access cut out light from apartments. They recommended that flats should be no more than 3 storeys high unless lifts were provided in which case 6 or 10 storey flats could be provided.

Local Authorities were to consider the provision of accommodation for single people in small houses or flats, possibly providing accommodation from the modernisation of existing small flats and houses. In the minority report, Mrs. Jean Mann criticised the Committee's suggestion that Scotland should follow England's example of providing separate blocks of flats for single women, preferring rather that single women should be accommodated within the community.(12)

The Committee strongly criticised the "existing requirement that new houses provided by Local Authorities should not be occupied below the standard laid down in the First Schedule to

the Housing (Scotland) Act, 1935". They stated "this standard is a penal standard of overcrowding and was not intended to be applied to rehousing operations, it involves (1) treating the livingroom as a sleeping apartment, (2) counting children under 10 as half persons and (3) discounting infants under one year". They proposed a new standard based on all bedrooms being built capable of accommodating two persons. This discounted livingrooms as sleeping accommodation and therefore a two bedroom house was for four persons, three bedroom house for six persons and four bedroom house for eight persons. In addition account was to be taken of ensuring sex separation in such a way that the livingroom did not require to be used as a sleeping apartment.(13)

The report considered that while housing provision should be related to local need it anticipated that whereas in the inter war period the majority of houses built were 2 bedroom 3 apartment in the post war period the majority of houses would be 3 bedroom 4 apartment houses mainly in cottage form.

Minimum room floor area standards were raised from those of 1935.

Room	1935 Standard		Westwood 1945 Standard	
Livingroom of 2 bedroom house	180 ft²	(17m²)	180 ft²	(16.72m²)
Livingroom of 3 bedroom house	180 ft²	(17m²)	190 ft²	(17.65m²)
Livingroom of 4 bedroom house	180 ft²	(17m²)	200 ft²	(18.58m²)
First bedroom	150 - 160 ft²	(14 - 15m²)	150 - 160 ft²	(14 - 15m²)
2nd bedroom	120 - 130 ft²	(11 - 12m²)	120 ft²	(11.15m²)
3rd bedroom	110 ft²	(10m²)	120 ft²	(11.15m²)
4th bedroom	90 - 110 ft²	(8 - 10m²)	120 ft²	(11.15m²)
Subsequent bedrooms	-	-	120 ft²	(11.15m²)
Kitchen-Scullery used for meals	70 - 80 ft²	(6. 5 - 7.5m²)	130 ft²	(12.08m²)

The Westwood report recommended that the 130ft² for the Kitchen-Scullery used for meals should have 80 ft² for the kitchen, 50 ft² for the dining annexe. A utility room and kitchen exclusive of dining should have 40 ft² + 70 ft² (3.7 + 6.5m²). Bathrooms should have 36 ft² (3.3m²) with a second wc, whb, compartment if more than 3 bedrooms.

The standards proposed were similar to the 1935 standards for 1 and 2 bedroom houses but were a considerable improvement for 3 and 4 bedroom houses with both living areas and bedroom areas increased in area. It was envisaged that cooking, washing and dining may take place in separate spaces or be combined in a combination of possibilities. The space proposed for these functions was enhanced.

The Committee noted that whereas in England 20% of Local Authority houses had been built with a second livingroom, a parlour, this was uncommon in Scotland. The Committee recommended that in future a proportion of houses in Scotland should have second livingrooms. (14) It suggested four options for living space; livingroom only, livingroom and parlour, livingroom with dining annexe, and livingroom with dining annexe associated with the kitchen.

Criticism was made of the dull appearance of the wet dash and pebble dashed interwar houses and a desire was expressed to see a satisfactory facing brick devised to avoid the drabness of

harling. They felt that flat roofs should be used with discretion on cottages and flatted houses but could be used more extensively on flats. They were critical of the interwar by-law roads which they considered too wide and encouraged through traffic. They preferred to see more use of culs de sac and roads designed to avoid traffic going through housing areas. They were also critical of the interwar cottage gardens which they considered too large and suggested smaller gardens should be provided with the addition of allotments for keen gardeners.

The Committee proposed a high standard of internal fittings and recommended the provision of linen, coat, pram, fuel and general stores.

Comment was made on weatherproofing, sound insulation and thermal insulation although on the latter comment was brief only suggesting that new technical improvements in insulating materials should be made use of.

Standardisation of components and prefabrication of elements such as plumbing units was advocated.

They considered the provision of furniture by Local Authorities for families unable to provide their own and reference was made to the suitability of the controlled price Utility Furniture. (This furniture was simple and well designed. Some bedroom furniture manufactured overseas was designed to pack the suite within the double wardrobe for ease of packing).

The Committee addressed the immediate Post-War problems which were caused by a serious housing shortage as a result of 7,000 house lost by enemy action, 5,000 required for industrial requirements and 154,000 as a result of marriages. (Fig 4.02) There was also a shortage of materials and skilled building labour and high building costs.

They proposed that specially urgent demands for housing could be met by the following types of dwellings:-

1. Transitional houses in the form of converted war time buildings or of prefabricated and preferably demountable - dwellings designed for purely temporary occupation. (They observed that although these types of house had been proposed for a life of ten years, a life of 15 years was more likely). (Fig 4.02)

2. Duplex houses designed initially to accommodate two families and capable of being converted or upgraded later to accommodate single families; (Design examples of these house types were illustrated in the report). (Fig 4.03)

3. Houses provided by alternative methods of building. (Here reference was made to the Burt Committee report on alternative methods of building and earlier in para. 234 to the SSHA cellular concrete, no-fines, construction).

4. Houses built by traditional methods in the immediate post war period might be limited in overall area to that of the average pre-war areas and should conform to the model short term plans in the report. In other words there was to be no increase in overall house areas in the short term.

All house types were required to achieve the standard of fittings and services proposed by the report.

The report illustrates its proposals with short term and long term plan types for 2, 3, 4 and 5 apartment houses and flats. (Fig 4.04 to 4.07)

In comparison the 1923 Act covered two storey houses with floor areas of 620 - 920 ft² (58 - 86m²) and single storey houses and flats of 570 - 880 ft² (53 - 82m²) but with the Sheriff's approval these could be reduced to 570 ft² and 500 ft² (53 and 46m²) respectively. No direct comparison can be made with the 1923 Act standards but clearly those Westwood report plans which are the upper end of both the short term and the long term standards are in excess of the 1923 areas eligible for subsidy.

Comparison has already been made with the 1935 room area standards. There were however no 1935 overall area standards.

The space standards of the short term plans are less than the later 1961 Parker Morris Standard or its 1968 Bulletin 1 Scottish Metric equivalent but the long term plans are more generous.

	Short Term Plans				*Long Term Plans*				*Bulletin 1*		*Wheelchair Standard*
House type	p	ap	ft²	(m²)	p	ap	ft²	(m²)	p	m²	m²
single storey house	-	-	-	-	1/2	1	494	46	1	33	38.5
									2	48.5	53.5
single storey house	4	3	723	67	4	3	817	77	4	71.5	77.5
single storey house	6	4	863	80	6	4	1042	97	6	88.5	99
house (semi) two storey	4	3	735	68.3	-	-	-	-	4	76.5	-
house two storey	6	4	936	87	6	4	1176	109	6	97	106
house two storey	8	5	1052	98	8	5	1240	115	7	114.5	119
parlour house	-	-	-	-	6	5	1240	115	-	-	-
flatted house	4	3	760	71	-	-	-	-	4	73.5	76.5
flatted house	6	4	900	84	6	4	1055	98	6	90	98
flat	4	3	773	72	4	3	768	72	4	73.5	76.5
flat	6	4	908	84	6	4	1115	104	6	90	98
Transitional (temp. prefab)	4	3	545	51	-	-	-	-	4	71.5	-

Bulletin 1 and Bulletin 6 (wheelchair) standard set out minimum floor areas which, controlled by indicative cost allowances, became virtually maximum areas. The long term plans were illustrations of house types complying with the 1944 proposed room areas and the short term plans illustrating the reduced standards.

In general the short term plans have house floor areas less than Parker Morris or Bulletin 1 (which is mainly Parker Morris areas converted to metric). The proposed long term plans however exceed Parker Morris areas and Bulletin 1 areas with the exception of the 8 person 5 apartment (115m²) which is almost the same area as the 7 person house of Bulletin 1.

The proposed long term house areas of the immediate post war years were therefore more generous than any of the standards set thereafter including Parker Morris (1961) and Bulletin 1 (1968). It is only when the long term plans are compared with suggested gross floor areas of Bulletin 6 for wheelchair housing (1979) is there a comparable generosity of floor space.

It is important to remember however that the "proposed" long term standards were just that and did not become mandatory. Post war material and labour shortages together with economic restrictions resulted in the short term standards being followed in 1950 with similar standards aimed at saving space and materials.

The Westwood report is the Scottish equivalent of the 1944 Design of Dwellings "Dudley Report" for England and Wales. The recommendations are similar, both anticipating that the rate of building Local Authority houses would increase although whereas Dudley anticipates building at twice the rate of the average interwar years. (15) Westwood anticipates the necessity to build at twice the best years production of the interwar years. Both anticipated the main production would be of four apartment cottages with the qualification that provision of a variety of house size would be required to meet local needs. The main difference is that the Westwood report is illustrated with photographs of built schemes and includes samples of house plans to illustrate its recommendations whereas the Dudley Report is purely text with only alternative kitchen arrangements illustrated. The Ministry of Health, Ministry of Works Housing Manual 1944, supplied the illustrations and house plan examples to illustrate Government Policy for England and Wales. This Housing Manual was updated in 1949 and covered a wider range of house types than the 1944 Manual which had an emphasis on the provision of three bedroom two storey houses although it also includes examples of old people's dwellings, flats, maisonettes and emergency dwellings. The 1949 Manual covers houses, hostels and flats for single people, maisonettes, flats with and without lifts and old peoples dwellings. Both the 1944 and 1949 Manuals illustrate a range of house areas for the various occupancy sizes with a marginal increase in areas shown in the 1949 Manual.

There are differences between the Scottish 1945 Westwood report and the 1944 and 1949 Manuals for England and Wales. The 1944 and 1949 Manuals have no short term/long term standards but both illustrate house plans (and the 1949 Manual recommends areas) which in general lie within the Scottish standards, being just above the short term standards and just below the long term standards. Single bedrooms are included in the 1944 and 1949 Manuals whereas the Scotland 1945 report only included double bedrooms. Kitchen and bedroom areas are marginally greater in the Scottish report.

The Scottish Housing Handbooks were not published until 1952 onwards. At times the Scottish reports on handbooks were ahead, at other times the England and Wales manuals covered more information. Architects in Scotland were likely to have access to both, referring to the England and Wales publications when required.

Approved House Designs, D.o.H.S., R.I.A.S. 1945

Anticipating a shortage of "technical manpower" in providing new housing accommodation in the early post war years, the Secretary of State for Scotland invited the Royal Incorporation of Architects in Scotland and the Scottish Branch of Chartered Surveyors Institution to prepare a range of house designs including plans, elevations, working drawings and relative schedule of quantities for use by Local Authorities.

The designs are described in the foreword as conforming to the short term model plans contained in the SHAC report Planning out New Homes known to architects of the time as the "Blue Book".

It was intended that the designs would be used only for the erection of houses for which tenders had been approved by the Department of Health for Scotland within three years after the cessation of hostilities in Europe. Drawings and schedules were available to Local Authorities on application and payment of a fee to the R.I.A.S. and Chartered Surveyors Institution and supplied on the basis that an architect and a surveyor were entrusted to do the work.

There are 27 house types some of which are shown with alternative wall construction of brick or stone and some shown with pitched or flat roof giving 38 designs in all.

There are single storey semi-detached houses, two storey semi-detached, two storey four house terraces and two storey flatted houses. The houses are family houses of either four or five apartments. All of the houses are of traditional construction and most are traditional in style. Where flat roof houses are shown they are the pitched roof house types with minor elevational changes mainly banding of the main windows together to give a horizontal emphasis. It is not known how many of the houses were specially designed for the publication but in the case of Design 12, a two storey semi-detached four apartment with through livingroom, it is the Greig and Fairbairn type B house type from the 1919 Architectural Competition. Some house types are worked up and elevated designs from the short term plans in Planning our New Homes. Others are alternative designs to the short term space standards. Four apartment single storey houses have an overall area of approximately 860 square feet (80 square metres), four apartment two storey houses are 930 to 950 square feet (86-88 square metres) and five apartment two storey houses are 1,050 square feet (97.5 square metres). Bedrooms are almost always all double bedrooms 120 to 150 square feet (11 to 14 square metres) with smaller bedrooms 90 to 95 square feet (8.4 to 8.8 square metres) in only a few plans.

Modernising Our Homes - SHAC 1947

The report stated that nearly one third of the houses in Scotland were seriously deficient in sanitary facilities and modern conveniences. It also stated that the immediate post war programme of 500,000 new houses did not cover the replacement of houses in need of modernisation.

It advocated full modernisation to the standard of a modern house for property with a life of 20 years or more and improvement of houses with a life of 5 to 20 years. Improvement should

not be carried out, it stated, when full modernisation was possible. The report favoured full modernisation.

It argued the advantages of modernisation in preserving communities, providing small houses for the elderly and the single and in preserving buildings of architectural and historic interest. It also cautioned against modernising houses with poor structural condition, in overcrowded congested areas or areas to be adversely affected by future development. It recommended that, to guard against the latter, modernisation should be subject to obtaining planning permission.

Its main recommendations were that financial encouragement should be available from Treasury through Local Authorities to encourage; private individuals to modernise their own property, Local Authorities to purchase property for modernisation and Housing Associations to modernise property. The report advocated that there should be no restriction on the value of the house, the maximum percentage of the cost of the works to be met by grant should be 75% and that no minimum cost of works should be prescribed. It also advocated loans of 100% of costs (after grant had been deducted).

It illustrated various types of city, town, and rural houses as suitable candidates for modernisation. These included (1) sub-division of large houses and flats, (2) modernisation of self contained houses and flats, (3) combination of small houses and flats to provide a lesser number of modernised houses or flats. (Fig 4.08, 4.09)

The report drew attention to the advantage Scotland had with its wealth of structurally sound stone houses and how suitable they were for modernisation.

In particular it showed how the typical Glasgow 2:1:2 tenement (2 room:single end:2 room without bathroom) could be converted to give a 1 apartment plus a 2 apartment to modern standards with bathroom and kitchen. Similarly it illustrated the typical Edinburgh 2:2:2:2 back to back tenement providing two 3 apartment flats with bathroom and kitchen.

The report was followed by the 1949 Act giving grants towards modernisation. These were taken up by private individuals and by towns such as Stirling who modernised unfit housing in the historic area from 1949 through the 1950s and 1960s. *(16)*

Unfortunately as will be seen when discussing the Abercrombie Report for the Clyde Valley Glasgow Councillors wanted the "brave new world" of new build not modernisation.

Abercrombie Reports

Patrick Abercrombie, one of the most respected planners of the time, was engaged by the war time Secretary of State, Tom Johnston (Labour MP) to prepare the Clyde Regional Plan of 1946 and by the Edinburgh Town Council to prepare A Civic Survey and Plan for the City and Royal Burgh of Edinburgh. Both were published in 1949.

The planning profession had developed from the Garden City Movement and the Patrick Geddes Regional Planning approach to development. Patrick Abercrombie's solution to Glasgow's problems was to endorse Glasgow City Engineer Bruce's plans for the displacement of 500,000 slum dwellers but to exclude for development the city's earmarked outer suburban

housing land by means of a designated Green Belt which overlapped the city boundaries. This would allow the city to rehouse only half of those displaced within its boundaries with the other half to be overspilled to four New Towns.(17)

Glasgow Corporation, persuaded by the city engineer Robert Bruce that they could maintain their million plus population within the city boundaries, opposed the designation of East Kilbride as a New Town. The Department of Health for Scotland however accepted Abercrombie's interim proposals of 1946 and East Kilbride was designated in 1947. (Abercrombie's final proposals for the Clyde Regional Plan were published in 1949).

The Abercrombie Civic Survey and Plan for Edinburgh, which was published in its final form in 1949, also proposed a green belt for Edinburgh but, as the report states, unlike plans prepared for London, Manchester, Glasgow and Hull, in order to realise the housing proposals for the Edinburgh Plan it would not be necessary to create a satellite to deal with decentralised populations. (18) The Abercrombie report for Edinburgh was an advisory plan prepared for incorporation in whole or in part in the first statutory development plan under the 1947 Planning Act. It found that Edinburgh's population could be accommodated without the need for overspill development but contained within the comprehensive report were radical proposals for transportation including rerouting the North British Railway under the meadows and forming new inner city road links including an underground, Princes Street by-pass scheme accommodated by excavating the Princes Street Gardens embankment. In the spirit of the times it proposed that Princes Street should be completely redeveloped. The report found that with the exception of one or two new buildings and three clubs the whole frontage of Princes Street was ripe for redevelopment. (19)

The Bruce Plan for Glasgow of 1946 while opposing Abercrombie's overspill plan was similar in its desire for large scale redevelopment. It had proposed that 172,000 houses (58% of its housing), being overcrowded and unfit, would be demolished and replaced by high-quality flats at lower densities while the 500,000 displaced residents would be accommodated in cottages in large garden suburbs built on the city's boundary extensions.

Suggestions by the Department of Health for Scotland that improvement schemes should be attempted were, according to Horsey in Tenements and Towers, scornfully rejected by Glasgow councillors. (20)

Edinburgh as much as Glasgow suffers from large peripheral housing schemes built without facilities. Whereas however Edinburgh, with a smaller proportion of inadequate housing, redeveloped only isolated areas of slum housing in areas such as Leith Fort and the Pleasance. Glasgow with a larger housing problem pressed ahead with large scale slum clearance of areas such as Hutchesontown and the Gorbals and an ambitious road programme which destroyed quality Victorian architecture and good sound tenements along with the structurally unsound. Glasgow unable to spread horizontally was to resort to building vertically in the late 50's and 60's with the result that by 1972 48,000 houses had been built within the city boundaries whereas only 25,000 planned overspill houses had been provided. (21)

HOUSING PROVISION

Housing during War Time

War time housing consisted of camps, hostels, flats and family housing.

The outbreak of War in September 1939 led to the immediate suspension of work in all new public housing schemes, with steps being taken to speed up completion of houses already under construction. All building work was restricted as resources were required for war related work and, in the case of housing, for hostels and houses required for workers at war production factories such as the new Rolls Royce aircraft factory at Hillington and the expansion of the dockyards at Rosyth. Hostels were also erected for workers in areas such as Clydebank, Greenock, Blantyre, Kilmacolm, Lennoxtown and Balloch following the location of the war industries.

Penilee in Glasgow was designed in the late 30's and although approved in 1939 prior to the outbreak of war it was thought that it would be indefinitely postponed. However additional housing accommodation was found to be necessary in the Penilee area of Glasgow to provide homes for war workers. The scheme consisted of 1,500 dwellings in three storey tenements and two storey blocks of apartment or cottage houses. There was a serious shortage of timber during the war and the Penilee design had reduced the use of timber to a bare minimum (it was only used for the doors). Walls were cavity brickwork and floors and flat roofs were reinforced concrete slabs. (22)

SSHA, many of whose housing contracts were suspended or reduced in size at the outbreak of war, had been requested as early as March 1939 to provide camps for children evacuated from cities and later for war industry workers. In 1943, with the housing shortage deteriorating, they were allowed to resume construction of 300 house on five sites where work had been discontinued at the outbreak of war.

The scale of the reduction in public sector house building was even more marked in the private sector. In 1939 there were 19,118 public sector and 6,411 private sector house completions. In 1943, the figures were 2,717 public and 92 private and in 1945, 1428 and 141.

Post War Housing

The shortage of labour and materials created difficulties in reviving the public sector building programme. To overcome this the Government embarked on a programme of both temporary and permanent prefabricated housing to supplement the traditional building programme. The traditional programme had to deal with shortage of materials, particularly timber and existing schemes had to be revised and new schemes designed to limit the use of scarce materials.

The effect of these measures was to increase the public sector house completion from 1,428 in 1945 to 24, 745 in 1949. Private housing increased from 141 to 1,102 in the same period.

33,176 temporary houses were built in Scotland between 1945 and 1949. They were provided by the Government on sites acquired and developed by the Local Authorities. The houses were leased to the Local Authorities who managed and maintained the property. They were intended to provide housing accommodation quickly with the bonus of creating employment

for factory workers. It was anticipated that there would be a need to create alternative employment for the war time industries while there would also be an immediate post war shortage of skilled building tradesmen. The main types of temporary houses were:-

Aluminium	(12,000)	Arcon	(10,000)	Miller	(100)
Phoenix	(500)	Seco	(5,000)	Tarran	(4,000)

Despite the name "prefab" they were very popular with tenants who enjoyed in them an unusually high standard of internal furnishings. They used temporary materials which had high maintenance costs resulting in almost all of them being demolished as planned. (They should not be confused with the permanent "prefab" many of which still serve as good quality housing).

Not all of the prefabs were a success. SSHA were required by the Ministry of Works to build Maycrete Houses which were designed by the Ministry of Works using a prefabricated reinforced concrete, portal frame, with 50mm thick breeze block panels of a sawdust/concrete mix. There had been considerable criticism of the design by SSHA prior to building them, all of which turned out to be justified as the low pitch roof and rendered wall panels, gave problems. The panels expanded and contracted leading to render failure and dampness.

The permanent prefabricated houses were built between 1945 and 1955. The 1946 Act made additional subsidy available for non-traditional houses. They were expected to last 60 years and a wide range of forms of construction and systems were used. Some houses used prefabricated plumbing systems and a wide range of roof and walling systems were used. Both flat and pitched roofs were used and walls were constructed of brick, concrete panels, blocks, no fines concrete, aluminium, steel and timber. Many of the houses particularly the brick, no fines and timber houses have lasted well,. Others such as the permanent aluminium bungalow suffered from corrosion.

A number of systems using concrete frame and panels such as Orlit, Myton and Lindsay have however developed structural faults and have been demolished or are classified as defective housing under part 14 of the Housing Scotland Act 1987 and have to be regularly inspected.

Traditional built housing had often been designed prior to the war. In some cases as, on the High Street in Kilmarnock, flats designed with pitched roofs were built with flat roofs to conserve materials. In the case of Kilmarnock, the flats on the High Street frontage were built with pitched roofs and only the less prominent houses back from the main frontage were built with flat roofs. (Fig 4.10)

Housing schemes such as Howwood Road in Johnstone and Shortlees in Kilmarnock where work had been suspended due to the war, were recommenced. In Howwood Road where only a third of Tait's design was built prior to the war, the layout was modified deleting the proposed tenements altering the layout and building only four in a block flats in 1946/47. In Shortlees the pre-war Sam Bunton house designs were not continued after the war with much of the layout completed with permanent prefabricated housing and inter war house designs. This change was fortuitous as the original designs have developed structural faults and were demolished in 1995.

New building methods were experimented with. Glasgow built 1,622 foamed slag houses at Penilee from 1946 to 1951. The foamed slab units were made in the corporation's specially erected factory. (23)

East Kilbride Development Corporation was designated in 1947 as the first of the four New Towns proposed by the Abercrombie plan to take Glasgow's overspill population. House building started with small infill sites around the existing East Kilbride Village but it was not until 1950 that the Murray, the New Town's first housing area, was commenced.

Glasgow had opposed the designation of East Kilbride. It had intended to expand its suburban development to house its slum dwellers but when this was halted by the Secretary of State's acceptance of the Abercrombie proposals for a green belt it proposed to accommodate its population by building within the city boundaries at greater density than its previous suburban development.

Glasgow Corporation not only opposed overspill of its population but was also hostile to SSHA building houses within its boundaries. Roger and Al-Quaddo stated that "perceived by Labour councillors as an agent of central Government and thus as a political threat to both the local control of council jobs and the political support of the working class, the SSHA was for some years after 1945 diverted from those areas of chronic housing need". (24) In its opposition to SSHA Glasgow was therefore not alone.

The other New Town to be designated was Glenrothes in 1948. It was proposed to expand the production of the East Fife coalfields and that the existing labour force of 6,500 miners would be doubled. It was considered to be undesirable to house miners adjacent to the pit as had been done in the past but rather that miners should be housed in a balanced community perhaps making up one eighth or one nineth of the total working population. A new pit was sunk and new pit head built, the Rothes, and the site of the New Town of Glenrothes was chosen as being suitably close to the mining areas for travelling without being adjacent to the pit. As with East Kilbride its first housing areas were commenced in the early 1950s.

HOUSING DESIGN

Wartime Housing

The four main types of war time housing were camps, hostels, duplex housing and family housing.

The camps were built of lightweight materials, some were temporary and removed after the war, others like those built by SSHA had been designed for a post war purpose. SSHA designed their camps for evacuee children and for use as children's holiday camps after the war. They were handed over to the Scottish National Camp Association at the end of the war and continued in use.

The family housing was built as permanent housing in locations where there was a war time need and only differed from pre-war housing in that they had to be built limiting the use of scarce materials such as timber and steel.

The housing which was specifically designed for war time housing were the hostels and the duplex houses. The hostels were built as a series of bedrooms with communal washing, eating, cooking and recreational areas. The duplex houses were built providing half a pre-war house area per family. They were built as small four in a block houses and designed to be easily converted to two semi-detached houses after the war giving two families a full size house each.

Both these types of war time 'provisional' accommodation were submitted by Sam Bunton to the Department of Health for Scotland. Bunton proposed a hostel scheme and a 'duplex' cottage scheme as alternative proposals for a Clydeside burgh. Both schemes used a cross wall system which with a solid outside wall and concrete floors and roof provided a strong box capable of giving increased resistance to bomb blast. The schemes were reported in 'The Builder', 12 September, 1941 the same month as the RIBAJ reported the interim report of the RIBA Reconstruction Committee, Housing Group advocating the very same type of solution.

The hostel provided a series a single bedrooms the smallest of which were 6'0" (1.8m) x 10'6" (3.2m). It also had communal toilets, wash rooms, kitchen and dining hall. The proposals included plans showing how the kitchen dining hall would be converted to provide, post war, two five apartment houses and how the hostel would provide a three apartment flat from eight single bedrooms. (Fig 4.11)

The 'duplex' cottage provided flatted cottages each with four single bedrooms, wc and kitchen/living area which could be converted to provide one five apartment house from a ground floor and a first floor flat combined. (Fig 4.12)

1930s Continuation

The suspension of many of the late 1930s public housing projects at the outbreak of the war resulted in 1930s designs being built in the mid 1940s. Examples of this have already been mentioned in the previous chapter. Two thirds of Tait's scheme for Howwood Road, Johnstone was built with the original flatted house design but not to the original layout. Rosemount Square in Aberdeen was not completed until 1945 by which time there was no longer the need for the basement air raid shelters designed as part of the scheme.

In Glasgow at Larchgrove Street, Springboig another pre-war design was built in 1946. (Fig 4.13) It is built as a massive hollow rectangular plan with openings in the long sides for a pedestrian route through the three storey tenement block. Shops and community rooms are located at the pedestrian entry points, the position of which is identified by two flanking semi-circular stair towers. The corners of the block also have semi-circular tower features which provide curved bay windows at the angles of the 45° splay corners. Here the tenement block is set well back from the road consequently the 45° splayed corners are not provided to accommodate road sightlines in the manner of the 1920s or early 1930 Glasgow rehousing tenement blocks.

An interesting feature of Rosemount Square and Larchgrove Street is that they are hollow square developments. They have continuous street frontages with, in the case of Rosemount Square, three arched entrances and at Larchgrove Street, two small pedestrian access points. They clearly do not follow the 1917 Royal Commission's recommendation against hollow

square tenement development preferring to rely on the spaciousness of the internal court for ventilation.

Penilee, Glasgow

Shortly after the outbreak of war, restrictions on timber were imposed and Glasgow Corporation Housing Department, realising that new housing would have to be erected for war workers, immediately set up a research department to investigate methods of construction which would replace the use of timber. Concrete was the obvious material and so the Research Department examined many varieties of concrete floor. (25)

Penilee, approved in 1939, postponed due to war restrictions but subsequently approved to provide housing for war workers, was built throughout the war years and its first houses were handed over in 1942. It was built restricting the use of timber to the doors and used metal windows, concrete floors and concrete flat roofs. The Corporation experimented with eight differing types of floor construction and found that while there was general tenant satisfaction with sound insulation in the flats the solid concrete floors performed better than the hollow concrete floors.

The scheme consists of some 1,500 dwellings in three storey tenements and two storey blocks of flatted houses and cottage houses. The layout is geometric crescents interlinked to form a maze type plan which discourages through traffic but is disorientating for visitors. The site is 211 acres (85 Ha) and, in addition to the housing, accommodates shops, schools, playing fields, church, clinic and community buildings. (Fig 4.17) The housing provision was two, three and four bedroom houses with many of the flats provided with balconies. The design had a strongly 1930s cubic form with vertical stair windows, steel windows with horizontal emphasis to the proportions of the glazing, cantilevered concrete canopies and concrete balconies. (Fig 4.14, 4.15) The project was well featured in the journals, AJ 5 February, 1942, The Builder 30 January, 1942 and the Architect and Building News, 30 January, 1942. All discuss the construction in great detail. No mention is made in any of the articles of tenant reaction to thermal insulation but former tenants found the houses difficult to heat and remember the houses as very cold in winter. Penilee has now had its fabric upgraded to give better insulation and pitched roofs added. (Fig 4.16)

Pollok, Glasgow

The layout is sub-divided by through roads but within the sub-divisions roads are designed as at Penilee to discourage through traffic. The estate was designed to accommodate 5,200 dwellings with cottage housing, flats (2, 3 and 4 storey), schools, churches, shopping centres and community facilities. (Fig 4.17)

Building had commenced in 1938 with 262 of the 538 house first phase completed at the outbreak of war. A further 206 houses were authorised in 1943 with 744 houses completed or under construction by the end of the war. In the post war period 2,368 houses had been completed by May 1949 and a further 1,816 houses were under construction. Sites had been reserved for two blocks of flats for single women each containing 60 flats and two groups of flats for aged persons.

As a result of the Secretary of State's acceptance of the report Planning Our New Homes in 1945 new house types with revised floor areas were designed. (26) Whereas Penilee was mainly built during the war, Pollok is mainly a post war housing estate. The designs were however little different in standard to those built at Penilee. Pollok's post 1945 houses were built to the short term standards consequently there are no utility rooms nor are there any of the parlours or dining kitchens proposed for long term standards in Planning Our New Homes. The main difference between the Penilee and the Pollok three bedroom flats is that whereas in Penilee the second bedroom was 130 ft^2 ($12m^2$) or more and the third bedroom was 100 ft^2 ($10m^2$), in Pollok the second and third bedrooms are approximately 120 ft^2 ($11m^2$). In both schemes the first bedroom is 150 - 160 ft^2 (14 - $15m^2$) and whereas the Pollok livingroom in a three bedroom house is 190 ft^2 ($17.65m^2$) at Penilee, it is usually 180 ft^2 ($17m^2$). Comparison of the floor areas of the two schemes illustrates the redistribution of floor area between the 1935 and 1944 standards. 'Planning Our New Homes' short term plans illustrate third bedrooms as at Penilee with sizes of 100 ft^2 (below their recommendation of 120 ft^2). However Pollok's 3 bedroom flats comply with the recommendation of 120 ft^2 and the overall house area of 980 ft^2 ($91m^2$) is over the report's illustrated short term three bedroom flat 908 ft^2 ($84m^2$) but under the long term area of 1,115 ft^2 ($104m^2$).

The Pollok estate has both two storey pitched roofed cottages which are semi-detached or terraced and two, three and four storey flats with flat roofs and balconies.

The houses are simple utilitarian designs while the flats have some 1930s fashionable maritime features with port hole windows and steel balconies.

A Saltire Award was given to the three and four storey flats at Netherplace, Pollok in 1949. Netherplace Road flats are sited along a ridge facing south overlooking the Barrhead Road. They consequently accentuate the topography and give a strong urban form to the south west approach to Pollok. The flats are built of pea gravel faced blockwork, a popular material of the 1930s and 1940s in Glasgow, which has weathered well. The flats are flat roofed with steel balconies. The balconies give access to only two flats per floor therefore there is no through circulation and the south facing balconies can be used by tenants as private external space. (Fig 4.18)

Netherplace Road flats are in a prominent location with a good southerly outlook over the main road to Househill Park. They are in reasonable condition. Similar flats built around Calfhill Road, also in Pollok, have suffered serious neglect with the result, flats of the same basic design as Netherplace Road look much less attractive. (Fig 4.19)

Scottish Housing Competition 1945

The competition, which was won by A. J. Smith of Falkirk was to design a block of two storey houses with one three apartment and one four apartment house based on the long term standards recommended in Planning Our New Homes. The floor areas were to be 950 ft^2 ($88.3m^2$) and 1,100 ft^2 ($102.2m^2$). (Fig 4.20)

A dining annexe was provided in both house types, in the case of the four apartment the annexe is separated by a door and a hinged bookcase unit both of which could swing back against adjacent walls to open up the dining area to the livingroom. Both house types have the WC in a separate room from the bath and washhand basin and, while the three apartment house

combines the utility space with the kitchen, the four apartment has a separate utility room. Construction is proposed as cavity wall with foam slag blocks inner leaf, brick outer, with a pitched roof with timber or light steel trussed roof.

Temporary Housing (Prefab)

Factory produced housing had already been built in Scotland with the steel houses of the 1920s and temporary housing had been provided by the Government at Gretna in 1915.

The prefabs of the 1940s were part of a UK programme. They were manufactured by mainly unskilled labour in the factories but, once delivered to site, erection was more likely to be by skilled labour.

Although they were intended to have a life of only ten to fifteen years and used mainly cladding materials of a limited life they were more than temporary shelters. The prefabs were compact, well planned and well fitted out with storage cupboards, fitted wardrobes, airing cupboards and well equipped kitchens. They were in consequence comparable in cost with traditionally constructed cottage housing. The Aluminium Bungalow which was produced in the greatest numbers and the most industrialised of the systems was also the most expensive and more expensive than a traditionally built cottage house.

In the case of the Aluminium Bungalow the system itself was expensive but, as all prefabs were single storey and detached, external wall surface areas and extent of foundations were high in comparison with semi-detached or terraced two storey houses.

Prefabs were popular with tenants partly because of the standard of internal fittings but also because they provided detached housing with fairly generous gardens.

Architecturally the internal planning was excellent providing a very compact three apartment house. The Aluminium Bungalow with its pressed metal window surrounds and curved metal canopy has more style than its lower cost competitors but all systems suffered from the monotonous lack of variation especially when built in large numbers. The lack of variety is perhaps acceptable when the houses had a planned life of ten to fifteen years. The layouts were also unimaginative, generally the prefabs were built at regular intervals with regular set backs from standard width roads. The layout monotony is a more serious criticism as more imaginative layouts would have been no more costly and would have benefited replacement housing where they utilised the prefabs' roads and services.

The four most common prefabs were Aluminium 12,000, Arcon 10,000, Seco 5,000 and Tarran 4,000 houses. All were three apartment bungalows of approximately $65m^2$. This is well over the Planning Our New Homes illustrated transitional three apartment house of 545 ft^2 ($51m^2$). The plan however is common to all with the four rooms, kitchen, livingroom, and two bedrooms each located in a corner of the plan and bathroom backing onto the kitchen. (Fig 4.21)

Temporary Aluminium Bungalow (Mark 1)

In Scotland the houses were built by Blackburn Aircraft Limited, Dumbarton. Except for the nailing down of floorboards the entire production was a mechanical process. Wall frames , like

shallow trays, were first sprayed on the inside with hot bitumen, then passed under a battery of cement pourers to be filled with air entrained grout, which provided an insulating layer. The partly-made wall panels were then passed through low pressure steam drying ovens which enabled the grout to reach full strength in 48 hours. A further layer of hot bitumen was sprayed over the exposed cement face to which, while still hot, a 6mm plasterboard inner lining was pressed and secured by nails to wood fillets fixed to the frame. The houses were delivered to site as 4 component units each almost complete with all fixtures and fittings assembled in position.

From 1953 onwards corrosion of aluminium structural members occurred at the base of the wall panels and condensation occurred in the roof space. The corrosion was a result of the bitumen being displaced during manufacture and failing to give a vapour seal as intended. (27)

Arcon Mark V Temporary Bungalow

A group of architectural consultants under the name Arcon designed a single storey house that could be assembled from stocks of prefabricated parts. The Arcon was simpler and less costly to produce than the Aluminium Bungalow and did not require special transport, special plant or lifting equipment.

The external walls were clad externally with corrugated asbestos cement sheets on prefabricated timber framed panels and faced internally with plasterboard or building board with insulating material.

Roof was asbestos cement sheeting on welded tubular steel trusses and purlins to form a pitched roof with rounded ridge. Ceilings were formed with prefabricated timber framed panels faced one side with building board or plasterboard backed with insulating materials. (28)

Seco Mark 3 Temporary Bungalow

Supplied by Uni Seco Structures Limited they have corner windows and shallow pitched almost flat roofs.

Walls were prefabricated timber frames clad both sides with flat asbestos cement sheeting and filled with woodwool and cement insulation. Roofs were formed with flat asbestos sheets fixed both sides of timber beams which were level on the underside and slightly sloped on top. The joints between the units were sealed with strips of roofing felt and the whole roof covered with two layers of roofing felt in hot mastic. (29)

Tarran Mark 4 Temporary Bungalow

The walls were formed of dished precast concrete panels of storey height and 405mm wide, aggregate faced on the outside. A timber spine was fixed in the joint between the panels to which the lining and insulation were secured. The pitched roof was clad with corrugated asbestos cement sheeting.

Although this prefab with its concrete panels had a permanent appearance it was classified as a defective house in Scotland under Part 14 of the Housing Act 1987. This is no disgrace however as temporary housing was only required to last ten to fifteen years. (30)

Survivors

The survival rate of the prefab has depended on maintenance and on the value of the site. The vast majority of prefabs have been demolished and replaced usually with permanent housing. Some however have been well maintained and refurbished, often overclad with brick and roughcast.

Non Traditional Housing

This building programme which lasted from 1944 to 1955 was conceived in 1942 when the committee on House Construction under the chairmanship of Sir George Burt was set up "to consider, materials and methods of construction suitable for the building of houses and flats, having regard to efficiency, economy and speed of erection, and to make recommendations for post war practice". The report's recommendations were followed by a white paper in 1945 which favoured using prefabrication and other forms of non traditional construction to augment the traditional building programme. Between 1945 and 1954 100,000 non traditional houses were built out of a total of 204,000 houses built.

In the Scottish Office Building Directorate's Guide to Non Traditional Housing in Scotland there are for 1944 to 1955 seventy types of non traditional permanent house construction, systems described. Even this list is not exhaustive.

The majority of these houses were four apartment, two storey semi-detached and, like the temporary prefabs, had their own back and front garden.

Unit Built

At Waterside outside Kilmarnock two "Unit Built" single storey flat roofed, semi detached houses survive. The Unit Built houses use a Gyproc system and were designed by Sam Bunton on a 40 inch grid (1.01m). The semi detached houses are four apartment with two double bedrooms and one single bedroom in an area of $93m^2$ with a $4m^2$ inset porch. The structural system was 200mm Gypklith hollow wall panels with 25mm skins and 150mm cavity. These 80 inch (2.02m) high panels rested on a base kerb and supported perimeter and cross Gypklith reinforced concrete beams which in turn supported Gypklith roof trusses 80 inches x 20 inches x 6 inches (2.02 x 0.5 x 0.15m). Walls were given a 'Mortone' proprietary rendering and the roof finished with a built up bitumen membrane. (31)

The houses were originally built with glass brick side screens to the entrance door and to give supplementary light to the kitchen. The houses have been sold and the glass brick features have been removed. (Fig 4.22)

Steel Clad

The houses by Weir were single storey 4 apartment, Weir Paragon, and two storey 4 apartment, Weir Quality. They were both steel framed, steel clad with steel joists and flat steel roof. The Weir Quality house types were also built with pitched roofs. (32)

Atholl Steel houses were two storey pitched roofed four apartment flatted or cottage houses. They had steel stanchions and trusses and the walls were steel clad. Ground floor and first floor joists were timber. (33) (Fig 4.23)

Steel Frame

Atholl Steel houses were also built, brick clad and harled although these were not built until 1951.

The best known of the steel framed houses is the BISF (British Iron and Steel Federation). The building envelop had a frame of structural steel in light sections carrying first floor beams which had intermediate support by steel columns concealed in the partitions. The roof was formed by tubular steel with angle purlins and ceiling joists spanning between them.

The houses are easily recognised by their vertical ribbed steel sheet cladding at first floor level which overlaps the rendered finish on lath at ground floor level. The cladding and lath was fixed to the steel frame as was the internal timber frame which was clad internally with plasterboard at ground floor and fibreboard at first floor level. Glasswool quilt insulation was hung in the wall frame and between the roof joists. The roofs have ribbed steel sheet covering. Entrance doors have light steel canopies. The four apartment plan has upstairs three bedrooms and downstairs kitchen, bathroom and store to the rear with entrance hall and living room to the front. Large low cill living room windows give little privacy from the street consequently the house plan suits a southern aspect and a large front garden. The house is designed for five persons and has a net floor area of 940 ft^2 (87m^2). (34) (Fig 4.24)

No Fines Concrete

No fines construction was built by Blackburn, Brydon, Miller, Weir, Wimpey, and SSHA. (Fig 4.25) The houses were all two storey and were either three or four apartment houses. The form of construction has been described in the chapter on non traditional housing in the 1930s. Wall thickness varies, Bryden and Weir and Wimpey used 10" (250mm) no fines plastered on the hard internally. Blackburn who only built four prototype houses used 200mm no fines but dry lined with plasterboard internally. Blackburn was unusual in that their no fines walls were not poured on site but came as factory made panels. All no fines houses are harled externally. Weir built their three apartment house type in either no-fines or cavity brickwork, both harled externally. (35)

Brick Houses

In 1948 there was a shortage of steel as well as timber. Cavity wall houses using brick/brick or brick/block were used with light alloy or light steel truss roofs.

The Blackburn Permanent House (Mark III) had cavity brick walls with timber joisted floors with ground floor joists reduced in size using ground floor concrete slab or sleeper walls at close centres. The roof was a light alloy section truss and covered with corrugated alloy sheet, flat alloy sheet covered the roof gables. The plumbing was prefabricated in a unit known as the KBU (kitchen bathroom unit). The hot water cylinder and cold water storage tank were incorporated in the unit and positioned behind the fireplace. (36)

The plan which had three bedrooms upstairs had the livingroom, kitchen and bathroom placed around the fireplace KBU core. The square plan type could be turned 90° to give a through livingroom with kitchen to the rear or livingroom to the front with kitchen to the rear. (Fig 4.26)

Foamed Slag

Foamed slag, being a by-product of steel manufacture was in plentiful supply in the West of Scotland. Foamed slag block houses were built in Clydebank using two leaves of 75mm thick foamed slag block cast with a 50mm cavity connected by twisted steel bar during manufacture. (37)

At Penilee and elsewhere in Glasgow two storey flatted houses and cottages were built with 150mm thick foamed slag concrete units of storey height and up to 3.050m wide complete with window openings. Partitions were also of foamed slag but 100mm thick. Floors and roof slab were of concrete. Glasgow built 1,622 foamed slag houses from 1946 until 1957 when production ceased at the Corporation's own specially built factory. The 150m thick foamed slag units were harled externally and plastered on the hard internally. (38) (Fig 4.27)

Concrete Frame and Panel

A large number of systems were built using precast concrete panels and concrete frames designed to speed up erection of the external wall. These include; Blackburn Orlit, Cornish Unit, Dorran, Lindsay (Ayrshire Country Council), Myton, Orlit, Tarran-Clyde, Tee Beam, Unitroy and Whitson-Fairhurst. (Fig 4.28)

The systems vary but they commonly use a concrete precast frame jointed on site and infilled with panels or blocks. The most common jointing method was bolting or hooking components together and grouting or casting concrete around the joint to give a continuous structure and to protect the steel from corrosion. The systems relied heavily on the jointing being carried out correctly. The systems did not cater for imperfect workmanship and failures occurred. All of the systems listed above have some or all of their houses classified as a defective house in Scotland under Part 14 of the Housing (Scotland) Act 1987. (39) (Fig 4.29)

Timber

Weir Timber built 3,000 houses in Scotland and in 1945 the Government placed an order for the manufacture of 2,500 prefabricated timber permanent houses, that is houses with a lifespan of not less than sixty years. (Fig 4.30)

The Swedish timber houses were crated and transported to Scotland in 1945 for erection by Local Authorities as part of the immediate post war programme. In 1949 there was a second programme of 1,000 houses for the Highlands and Islands authorities.

Both systems have timber frame walls with vertical timber cladding, the first floor overhanging the ground floor by the thickness of the cladding to obtain a weathering overlap. Roofs are timber truss. The Weir timber houses are all two storey with concrete roof tiles whereas the Swedish timber houses are one and a half storey or two storey and had shingle, slates, clay tiles or concrete roof coverings. (40)

SUMMARY 1940 TO 1949

Housing (Temporary Accommodation) Act 1944

The Treasury financed the manufacture of temporary prefabricated houses (prefabs) which were leased to Local Authorities who were responsible for site preparation. 33,176 prefabs were built in Scotland. These were built as detached single storey houses with their own front and back garden. This together with the high standard of internal fittings made the prefabs popular with tenants. All prefabs were two bedroom houses with very similar room layout. They were built to last ten to fifteen years.

The Burt Committee Report 1942/1946 Act

This committee examined and made recommendations on various non-traditional forms of housing. The 1946 Housing (Financial Provision) (Scotland) Act provided additional subsidy for non-traditional housing. Between 1945 and 1954 half of new public sector housing in Scotland was non-traditional housing.

The majority of these houses were four apartment, two storey, semi detached built with their own front and back garden.

These houses were built to last sixty years. There was a large number of different systems and manufacturers, the main types of construction being, steel frame clad in brick or steel, no fines concrete, foam slag concrete, timber frame and concrete frame and panel. The majority of the systems are likely to exceed their planned sixty year life. Many of the concrete frame and panel systems however relied on grouting to protect the steel frame connectors. Imperfect workmanship has led to corrosion and many of these types are classified as a defective house and have been demolished or require regular checking.

Planning our New Homes 1945/1946 Act

The report proposed that the majority of houses to be built should be four apartment cottage houses. The report did not favour flatted houses but accepted the need for tenement flats or multi storey flats in central urban areas. Flats were to be no more than three storeys unless lifts were provided in which case six to ten storey flats could be provided.

This is reflected in the 1946 Act which doubled the 1938 subsidies for general needs housing and gave additional subsidies for redevelopment areas, remote areas, areas with subsidence and for the first time in Scotland a small subsidy (£7/house for sixty years) for the provision of lifts in high flats.

For house area standards the report proposed short term standards similar to those of the inter war period. The intention was that these would be temporary standards for the immediate post war period and that the more generous "long term" standards would become mandatory once post war shortages ended. (In the event the long term standard was not introduced and in 1950 space saving standards were introduced).

The report recommended that all bedrooms should accommodate two persons and that the 1935 overcrowding standards should not be used as a housing allocation standard. Instead only the bedrooms (not the livingroom) were to be counted as sleeping accommodation and older children of the opposite sex were to have their own bedroom. The report also recommended more generous kitchen living space with living, dining, cooking and laundry space required.

Hostels for women were recommended, but although some designs were commenced in the 1940s they were not built until the early 1950s.

Modernising Our Houses 1947

The report advocated that properties with a life of twenty years or more should be modernised to full "as new build" standards. Examples were given of large houses being subdivided to provide small flats and examples of substandard one and two room flats being combined to provide modern space standards with kitchen and bathroom.

Housing Scotland Act 1949

Subsidies of 75% (87.5% in the Highlands and Islands) were made towards Local Authority modernisation of older houses.

The Act also provided for additional subsidies for new houses to be constructed of stone or other traditional materials to preserve the character of the area.

The effect of the 1947 report and this Act was to be seen in the 1950s with the modernisation of housing and the use of traditional materials in historic areas.

1940 - 1949 References

(1) Gray, A., The Usual Suspects with Pat Kane, Pat Kane interview of Alistair Gray, writer , Radio Scotland 22.3.94

(2) Begg, T., 50 Special Years, A Study on Scottish Housing, The Scottish Special Housing Association, (London, Henry Melland Ltd., 1987), 21.

(3) Architect's Journal, 1945 - 55 Decade of Confidence, 6.10.76, 638

(4) Sim, D., British Housing Design, (Harlow, Institute of Housing and Longman, 1993), 46

(5) Heap, D., An Outline of Planning Law, 5th Edition, London, Sweet and Maxwell, 1969), 12

(6) Ibid, 12

(7) City of Glasgow, 1866 - 1966 Glasgow's Housing Centenary, (Glasgow, Glasgow Corporation Printing and Stationery Department, 1966), 12

(8) Roger, R., Scottish Housing in the Twentieth Century, (Leicester, Leicester University Press, 1989), 241

(9) RIBA Journal, Wartime Housing, September 1941, 188 - 190

(10) Scottish Office Building Directorate, A Guide to non-traditional and Temporary Housing in Scotland 1923 - 1955, (Edinburgh, HMSO, 1987), 5 - 6

(11) S.H.A.C., Planning Our New Homes, (Edinburgh, HMSO, 1945), 12 to 14.

(12) Ibid, 96

(13) Ibid, 21, 22

(14) Ibid, 22

(15) M. o. H., Design of Dwellings, (Dudley Report), (London, HMSO, 1944), 9

(16) The Architects Journal, The Homes of Stirling, RIBA Conference, 20.6.73, 1503 - 1505

(17) Horsey. M., Tenements Towers Glasgows Working Class Housing, 1890 - 1990, (HMSO, 1990), 32 - 33

(18) Abercrombie, P., A Civic Survey and Plan for the City and Royal Burgh of Edinburgh, (Edinburgh, Oliver and Boyd, 1949), 82

(19) Ibid, 81

(20) Horsey, op cit, 28

(21) Horsey, op cit, 45

(22) The Architect's Journal, Glasgow, (5.2.42), 108 - 113

(23) S.O.B.D., op cit, 156

(24) Roger, op cit, 195

(25) Architect's Journal, Glasgow, 5 February, 1942, 109

(26) Architect's Journal, Housing for Glasgow, 15 September 1949, 283

(27) S.O.B.D., op cit, 83

(28) Ibid, 91

(29) Ibid, 95

(30) Ibid, 89

(31) The Builder, 22nd January 1943, 85 to 88

(32) The Builder, 4th August 1944, 91

(33) S.O.B.D., op cit, 215 to 217

(34) Ibid, 220

(35) Ibid, 140, 145, 167, 198 to 201

(36) Ibid, 108 to 110

(37) Ibid, 153

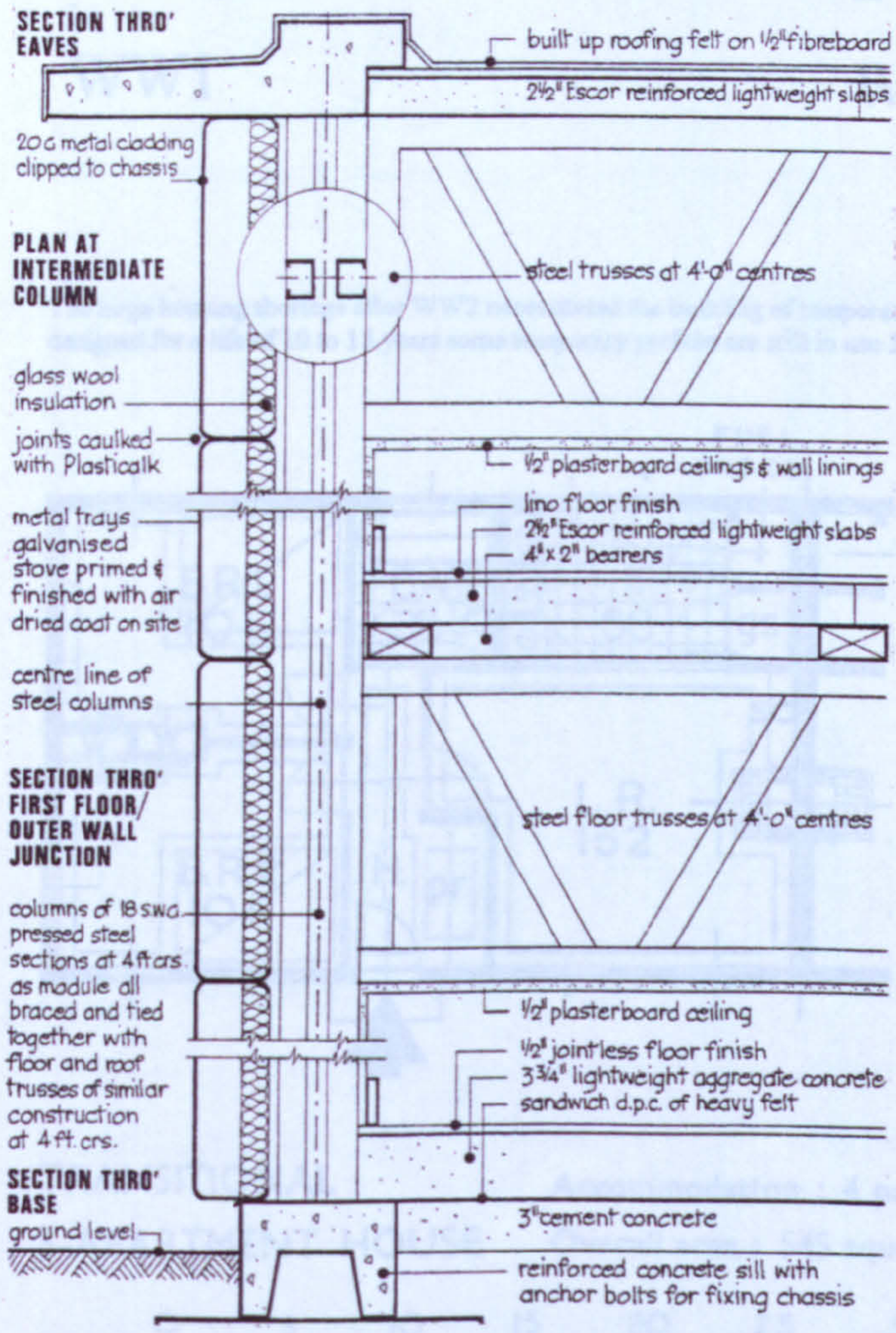
(38) Ibid, 156

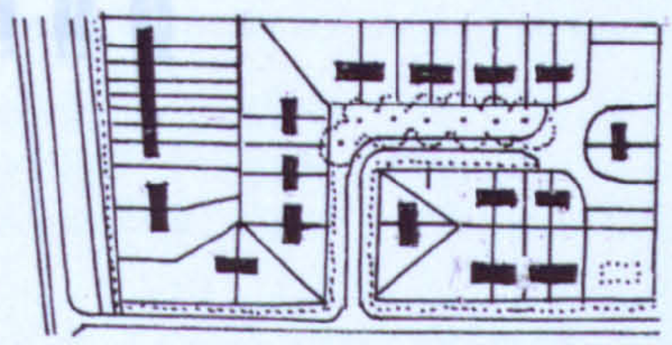
(39) Ibid, 143 to 206

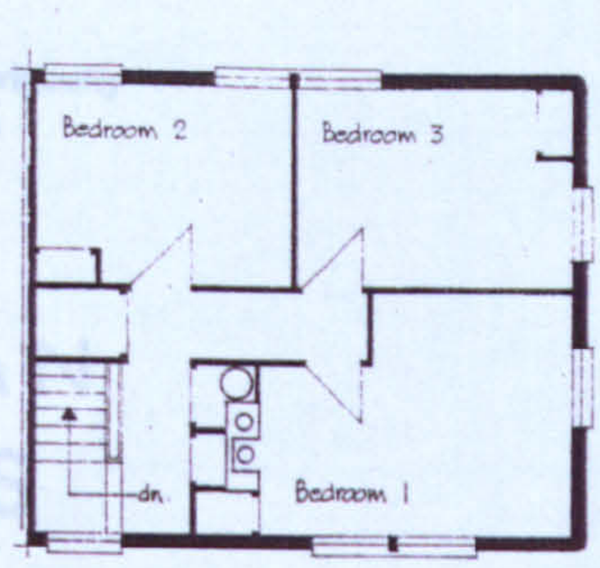
(40) Ibid, 244 to 248

Keyhouse Unibuilt Construction

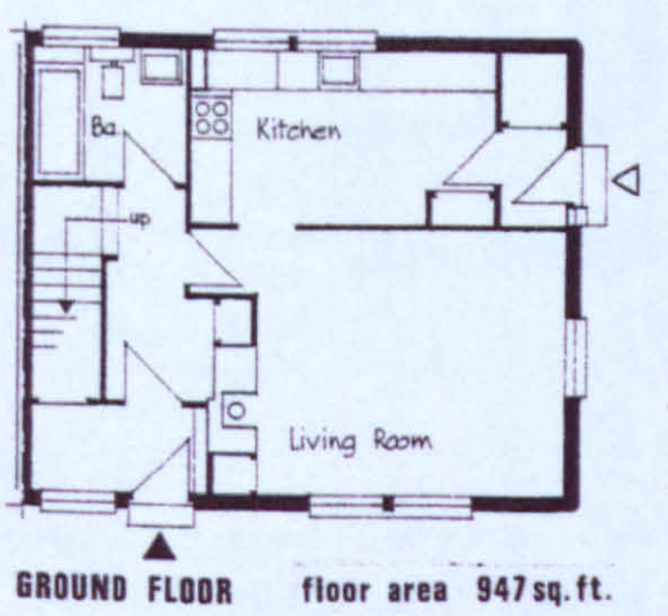
56 and 58 Sighthill Road, Edinburgh. The system was approved by the Burt Committee but these were the only 2 built in Scotland. One of the few systems to have a flat roof.







UPPER FLOOR



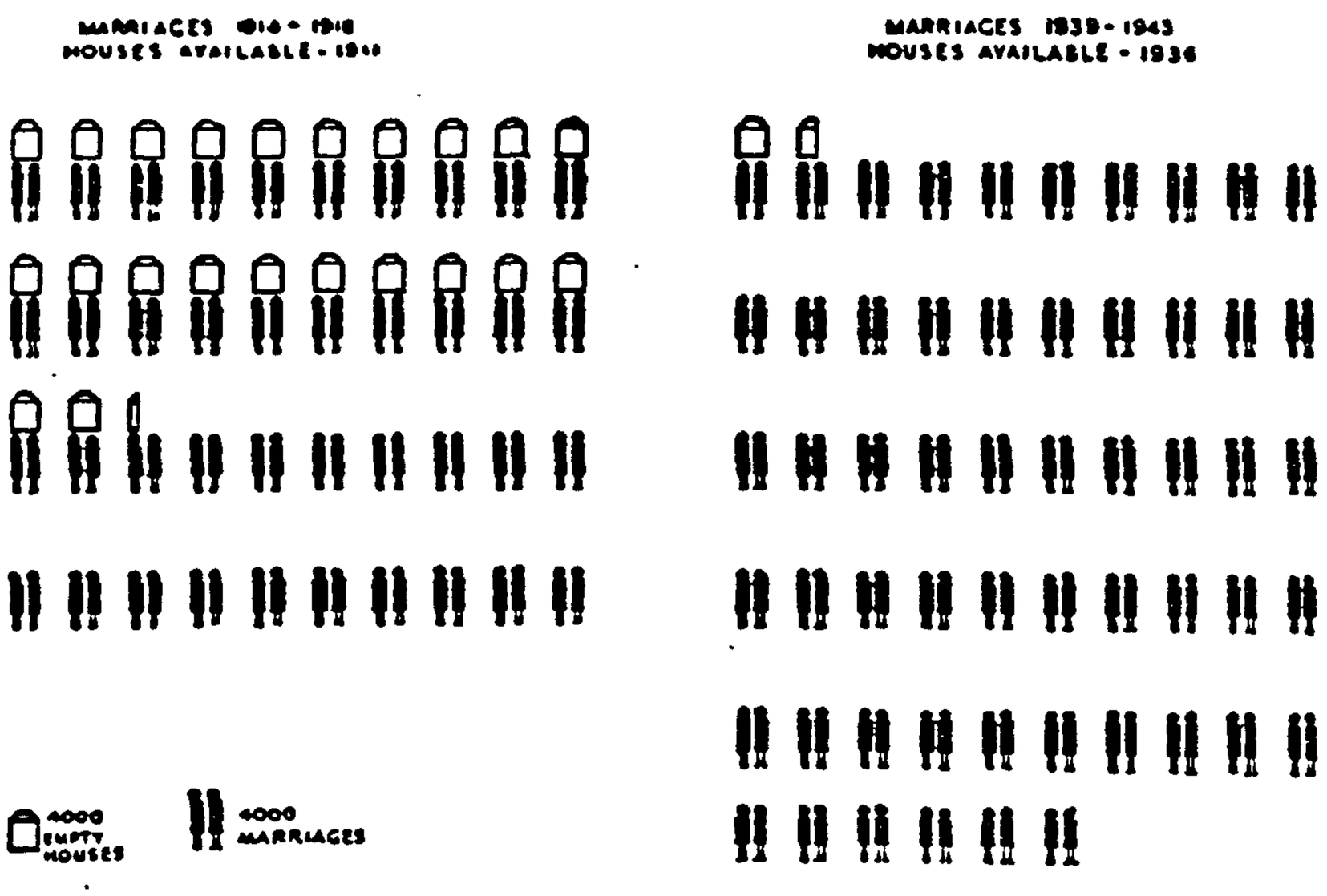
GROUND FLOOR floor area 947 sq. ft.

0 5 10 20 30 feet

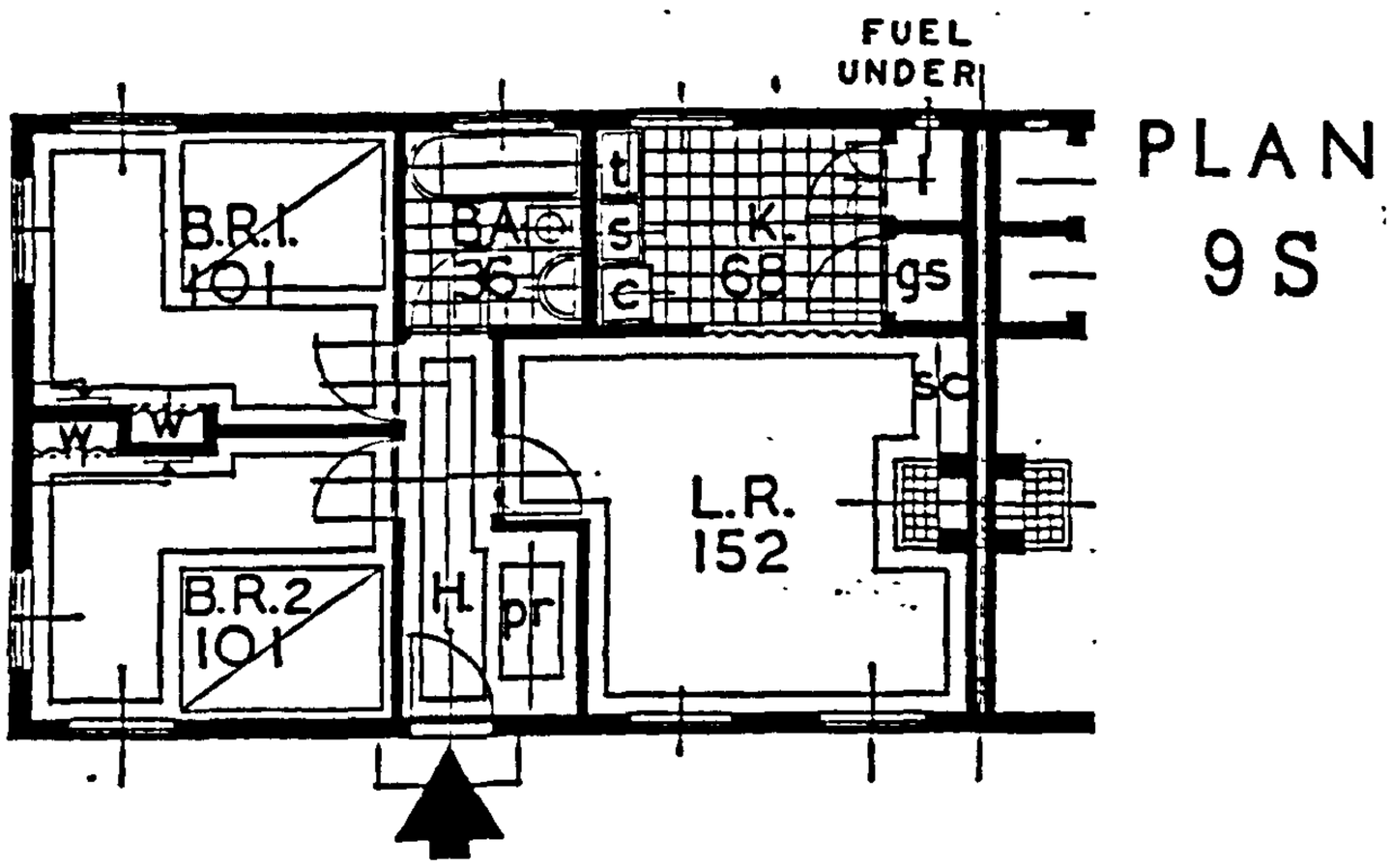
Source : Demonstration Houses, Sighthill, Edinburgh

Figure 4.01

1944 Proposed Temporary Prefab



The huge housing shortage after WW2 necessitated the building of temporary prefabs. Originally designed for a life of 10 to 15 years some temporary prefabs are still in use 50 years later.



TRANSITIONAL
3-APARTMENT HOUSE

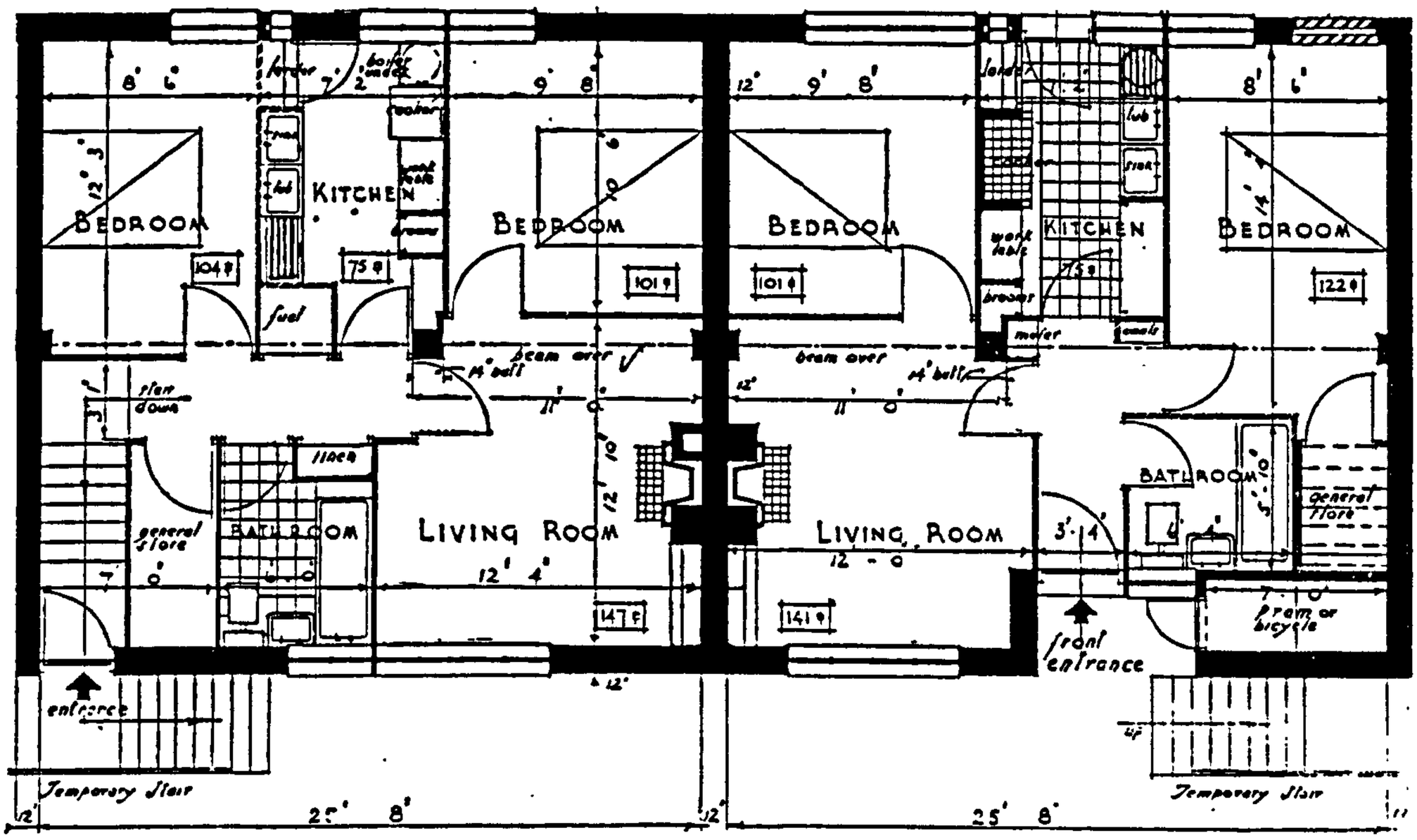
Accommodation : 4 persons
Overall area : 545 square feet

SCALE 0 5 10 15 20 25 30 35 40 FEET

Figure 4.02

Source Planning our New Homes, p.64, ix

1944 Proposed Duplex House



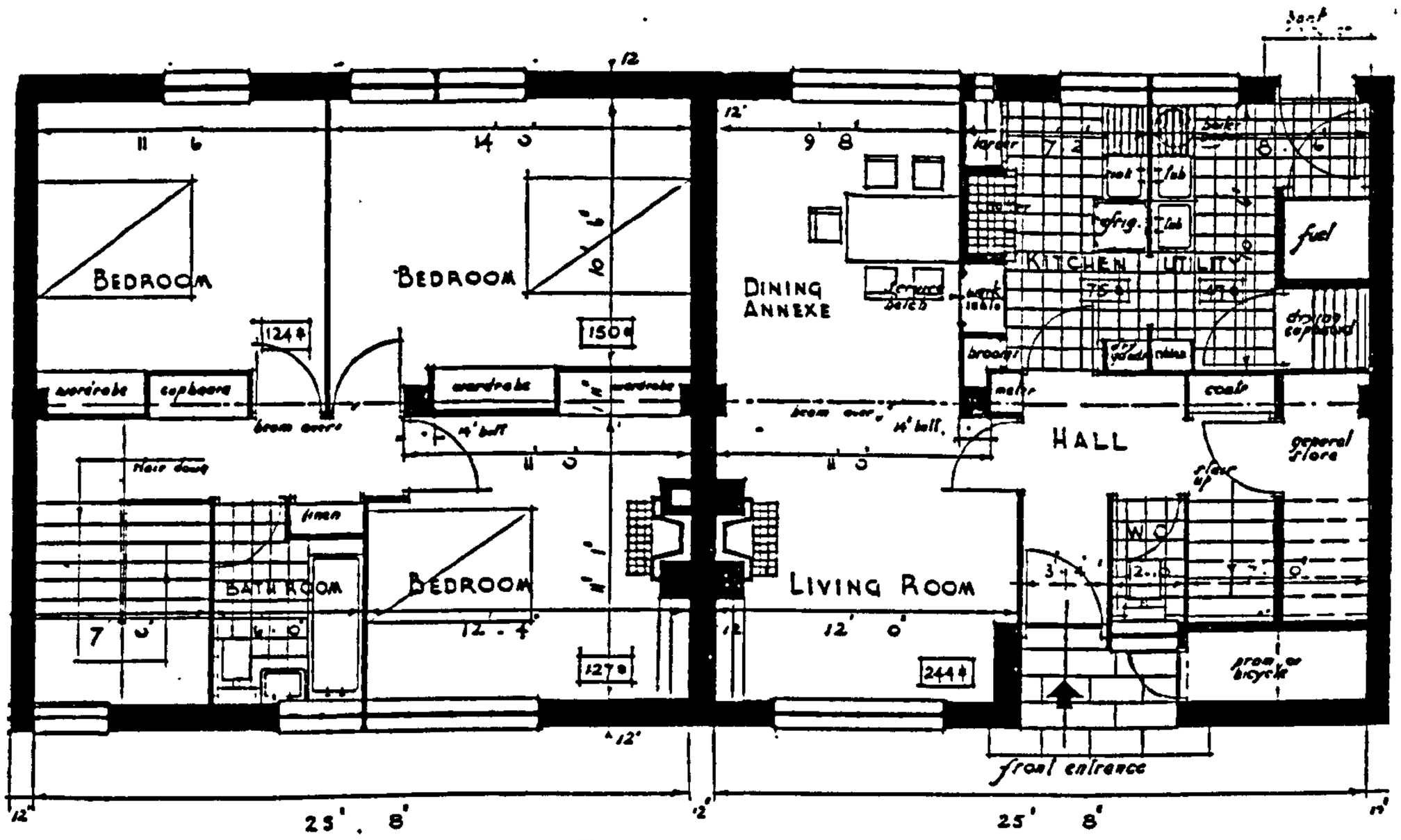
UPPER FLOOR PLAN

GROUND FLOOR PLAN

SHORT TERM—STAGE 1:
4 3-APARTMENT DWELLINGS

INDICATES TEMPORARY PARTITIONS - STAGE 1.

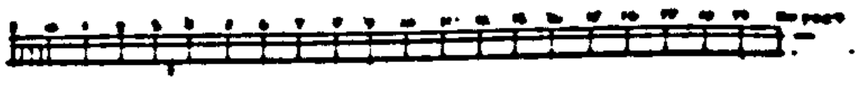
INDICATES PERMANENT WALLS & PARTITIONS - STAGES 1 & 2.



UPPER FLOOR PLAN

GROUND FLOOR PLAN

LONG TERM — STAGE 2:
2 4-APARTMENT DWELLINGS



THE DUPLEX HOUSE

Source Planning our New Homes, plate xxxi

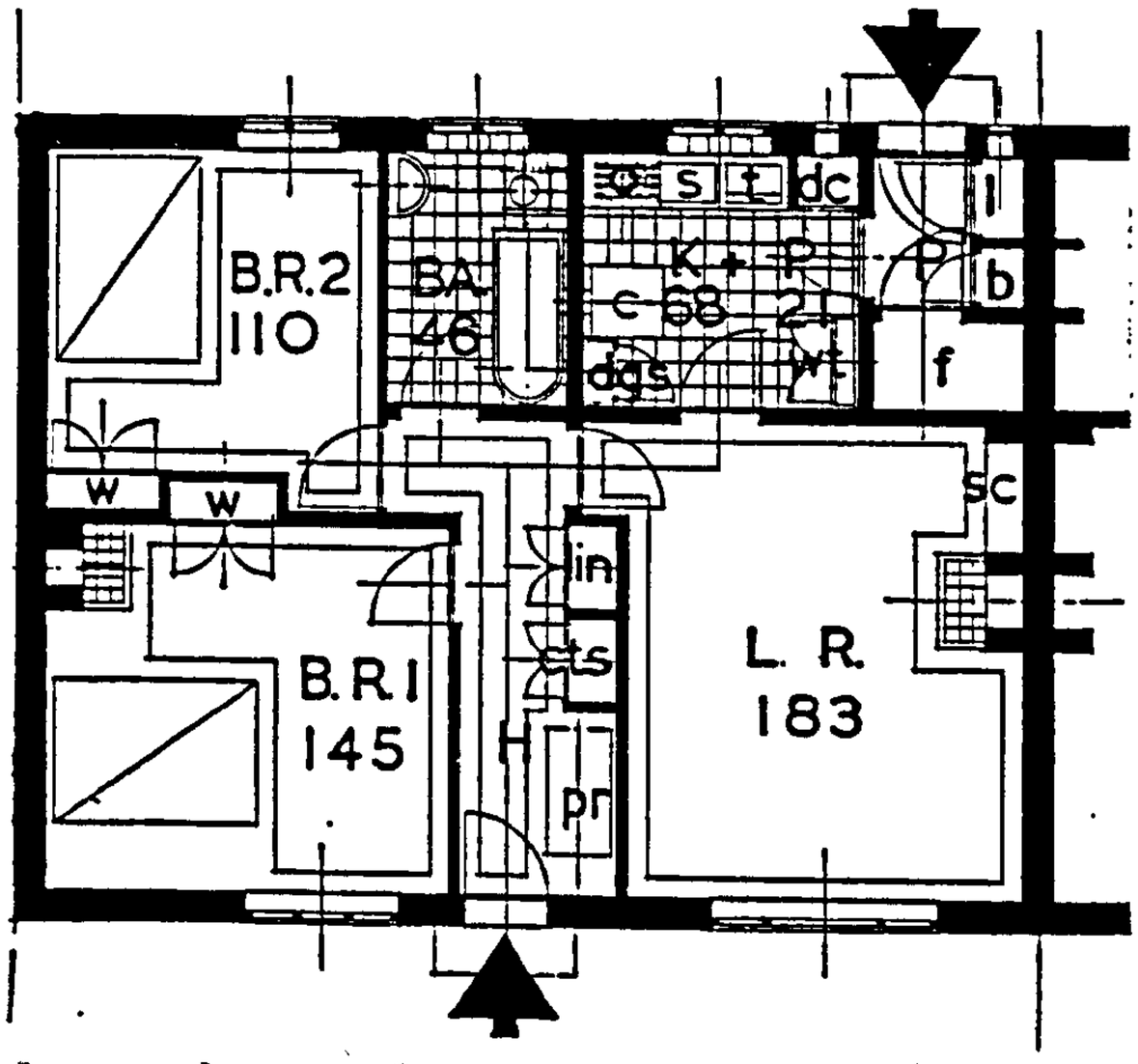
Figure 4.03

1944 Short/Long Term 3 Apartment House

PLAN 1S

SINGLE STOREY
3-APARTMENT
HOUSE

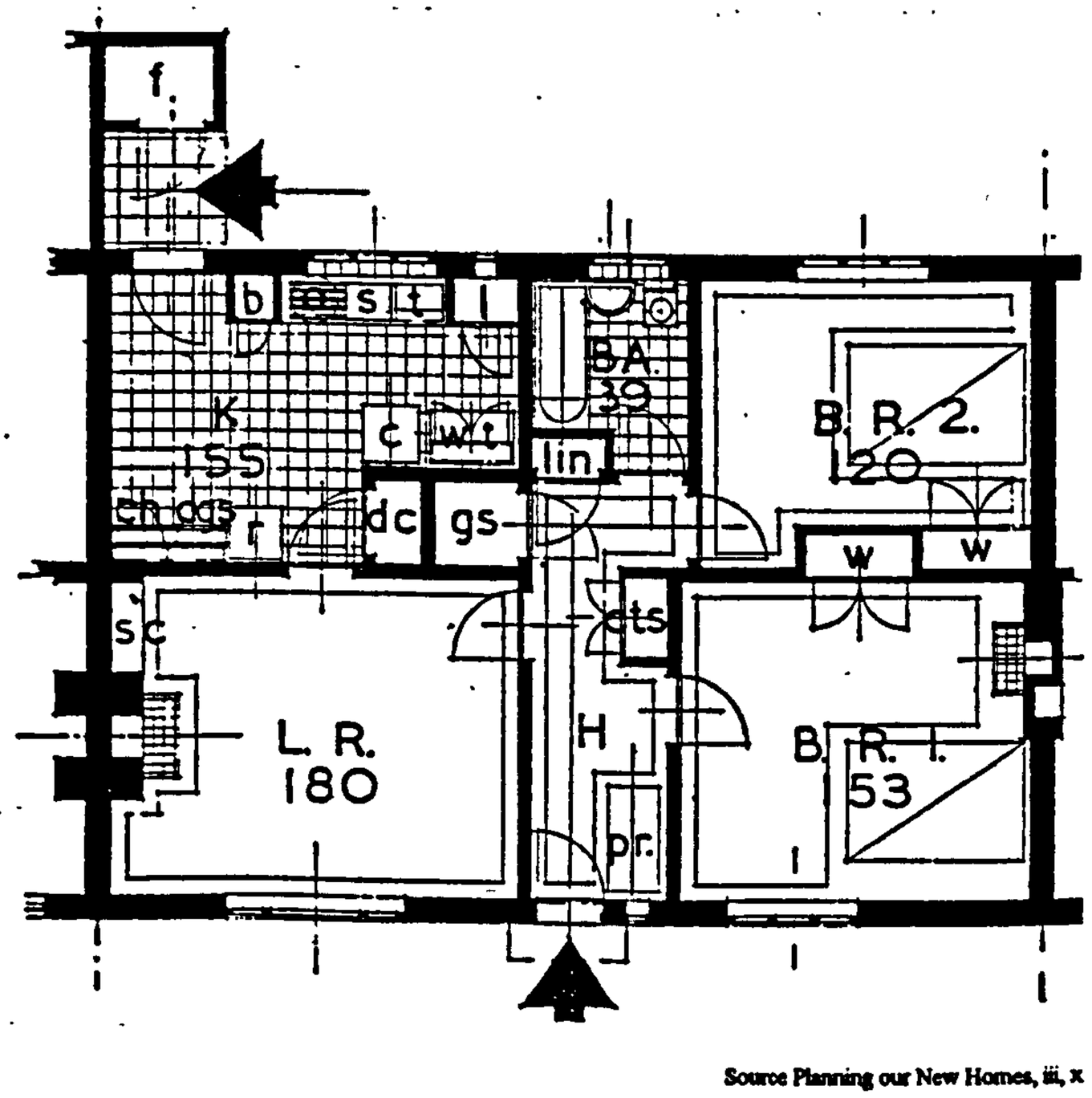
Accommodation : 4 persons
Overall area : 723 square feet



PLAN 2L

SINGLE STOREY
3-APARTMENT HOUSE

Accommodation : 4 persons
Overall area : 817 square feet



Source Planning our New Homes, iii, x

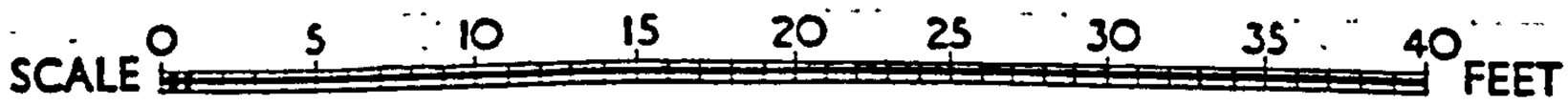


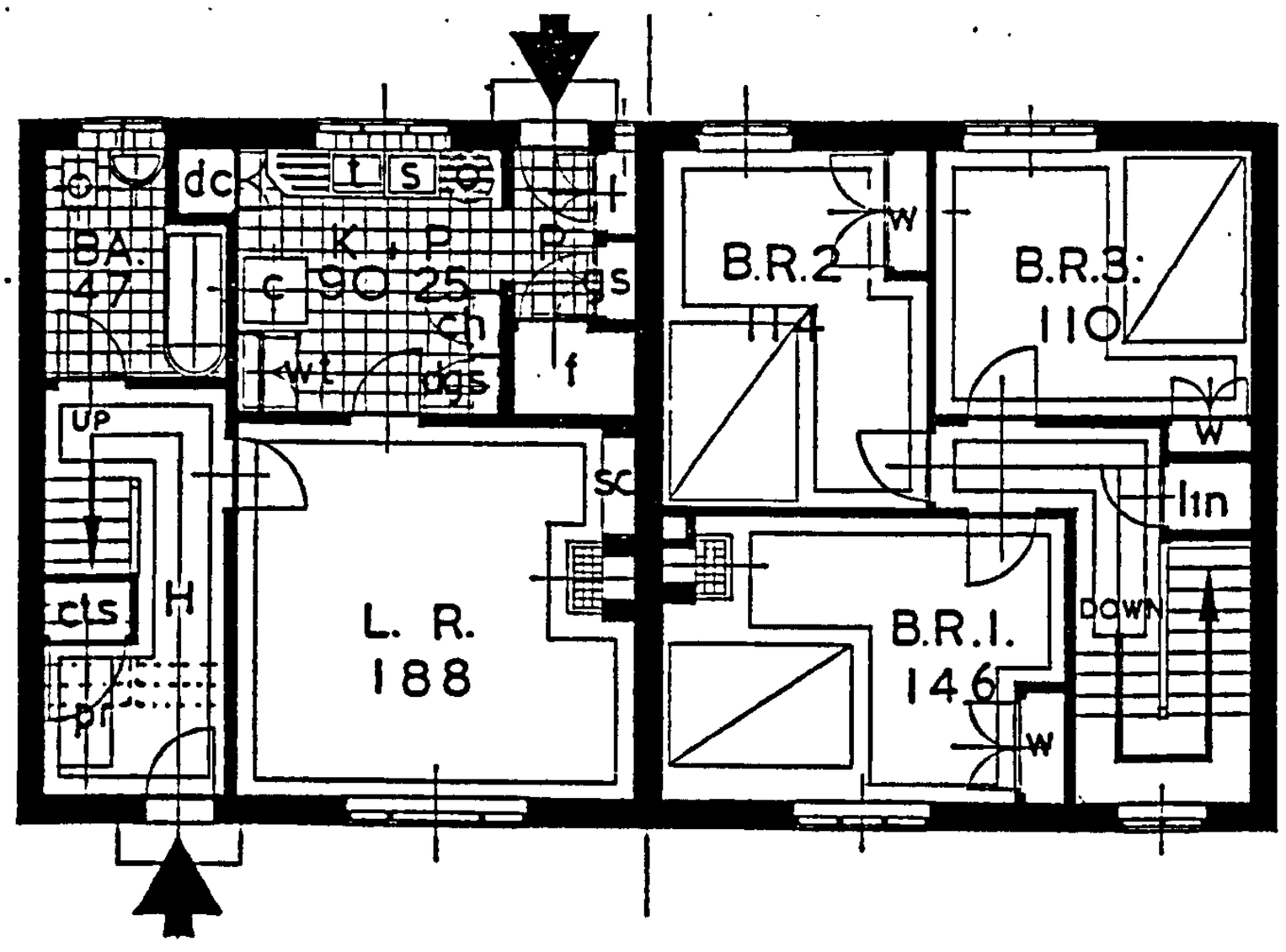
Figure 4.04

1944 Short/Long Term 4 Apartment House

PLAN 4S

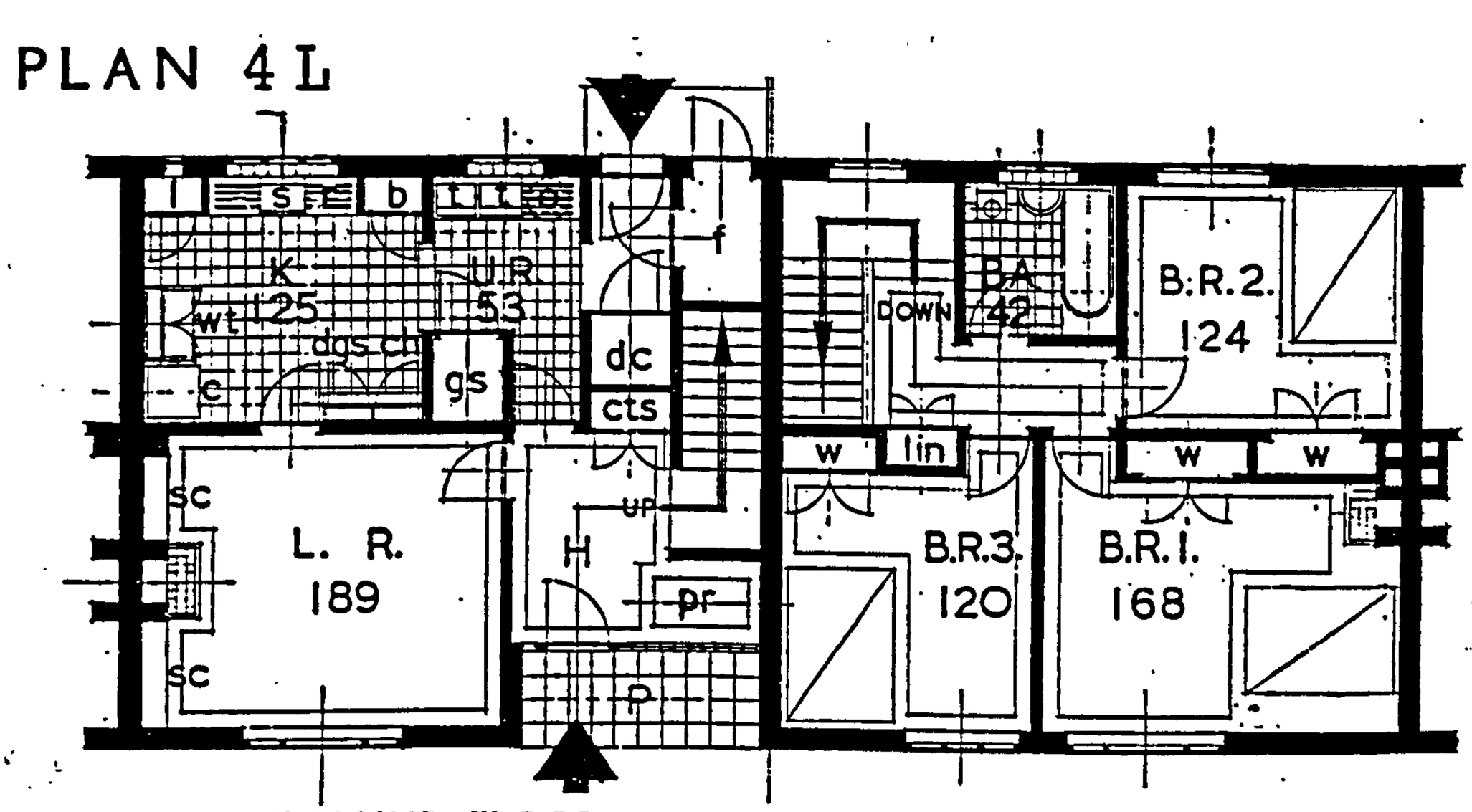
4-APARTMENT HOUSE

Accommodation : 6 persons
Overall area : 936 square feet



GROUND FLOOR FIRST FLOOR

PLAN 4L



GROUND FLOOR FIRST FLOOR

4-APARTMENT HOUSE

Accommodation : 6 persons Overall area : 1176 square feet

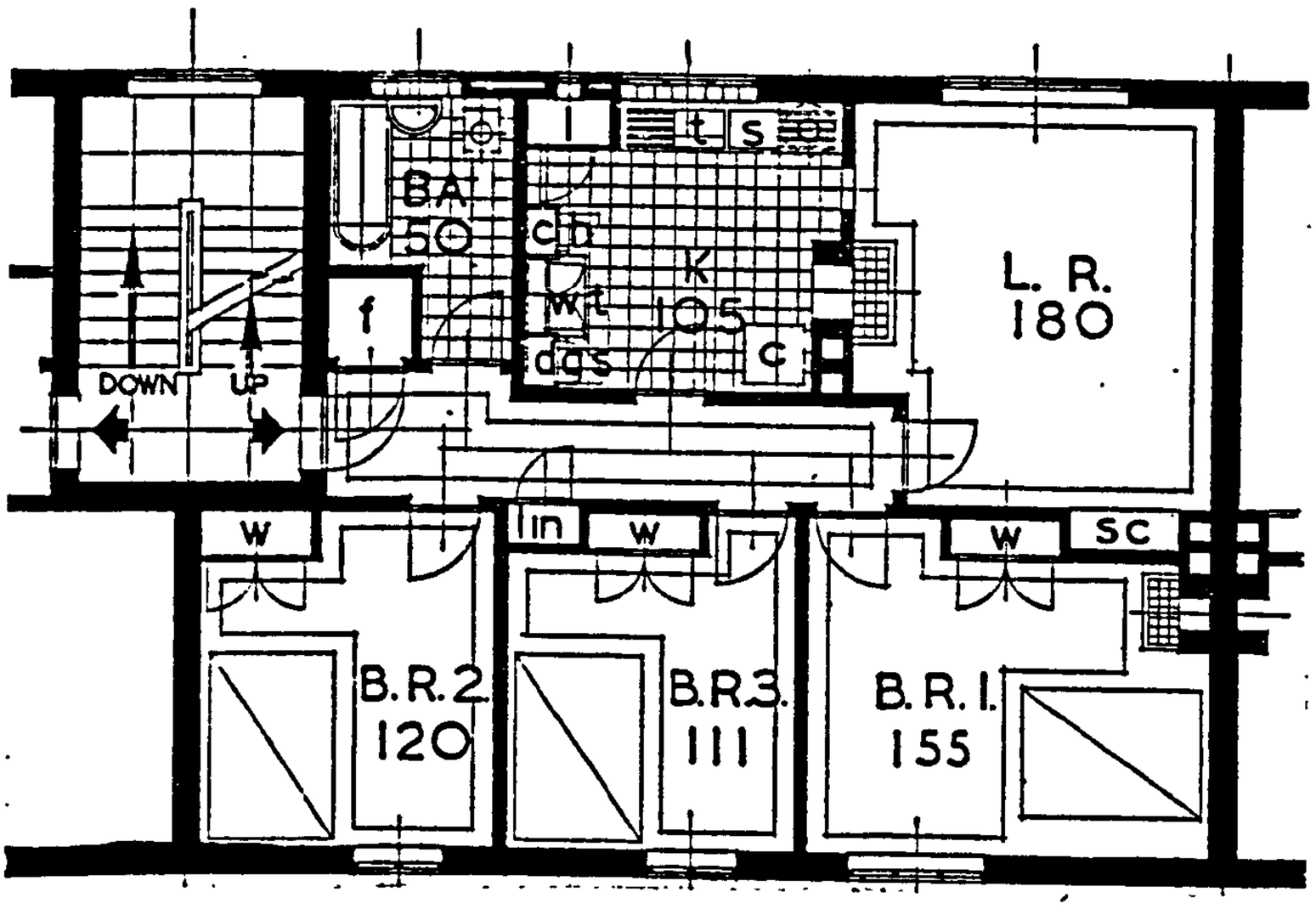
Source Planning our New Homes, v, xi

SCALE 0 5 10 15 20 25 30 35 40 FEET

Figure 4.05

1944 Short/Long Term 4 Apartment Flat

PLAN 8S



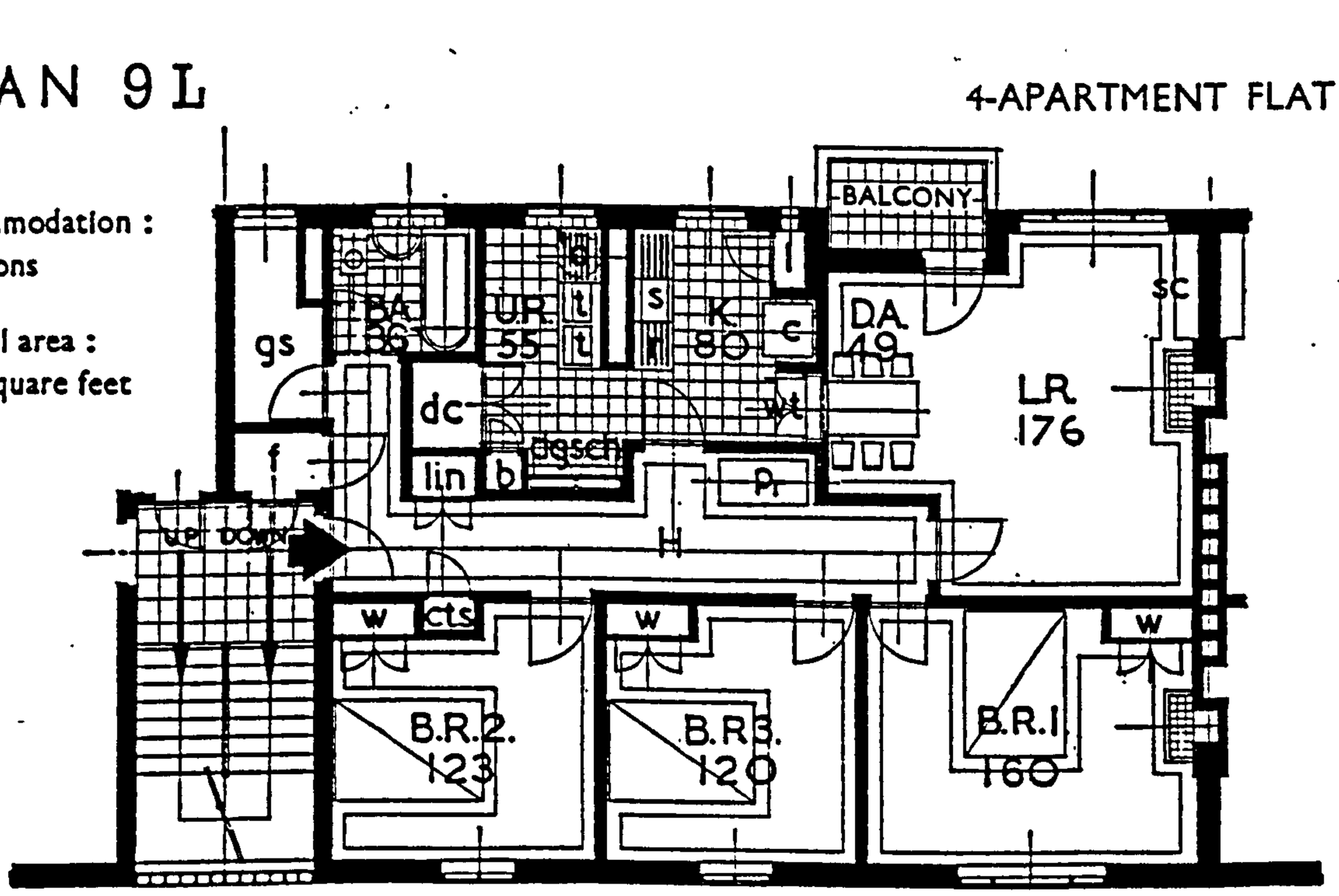
Accommodation : 6 persons
Overall area : 908 square feet

PLAN 9L

4-APARTMENT FLAT

Accommodation :
6 persons

Overall area :
1115 square feet



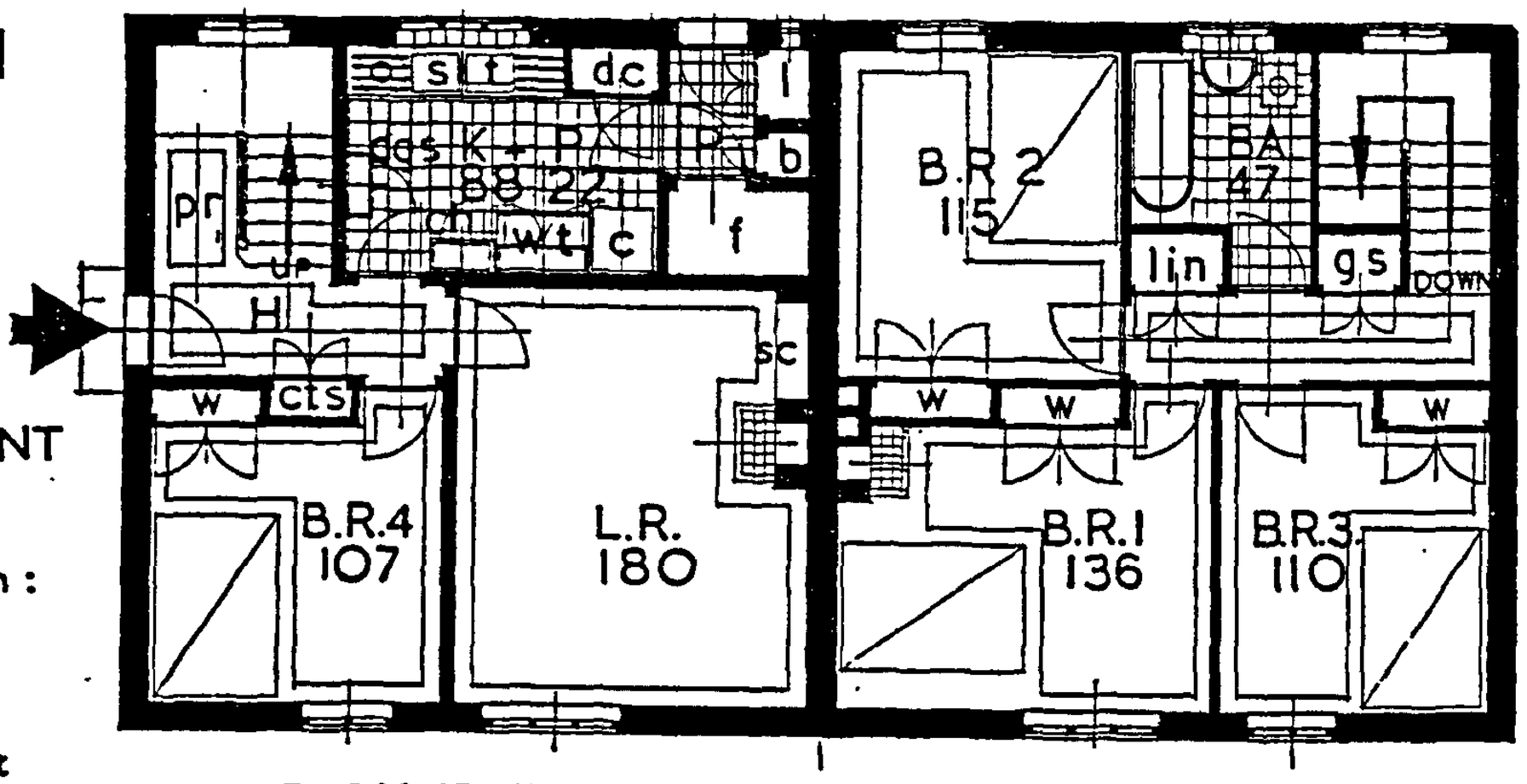
SCALE 0 . 5 10 15. 20 25 30 FEET

Source Planning our New Homes, vii, xiv

Figure 4.06

1944 Short/Long Term 5 Apartment Houses

PLAN
5 S



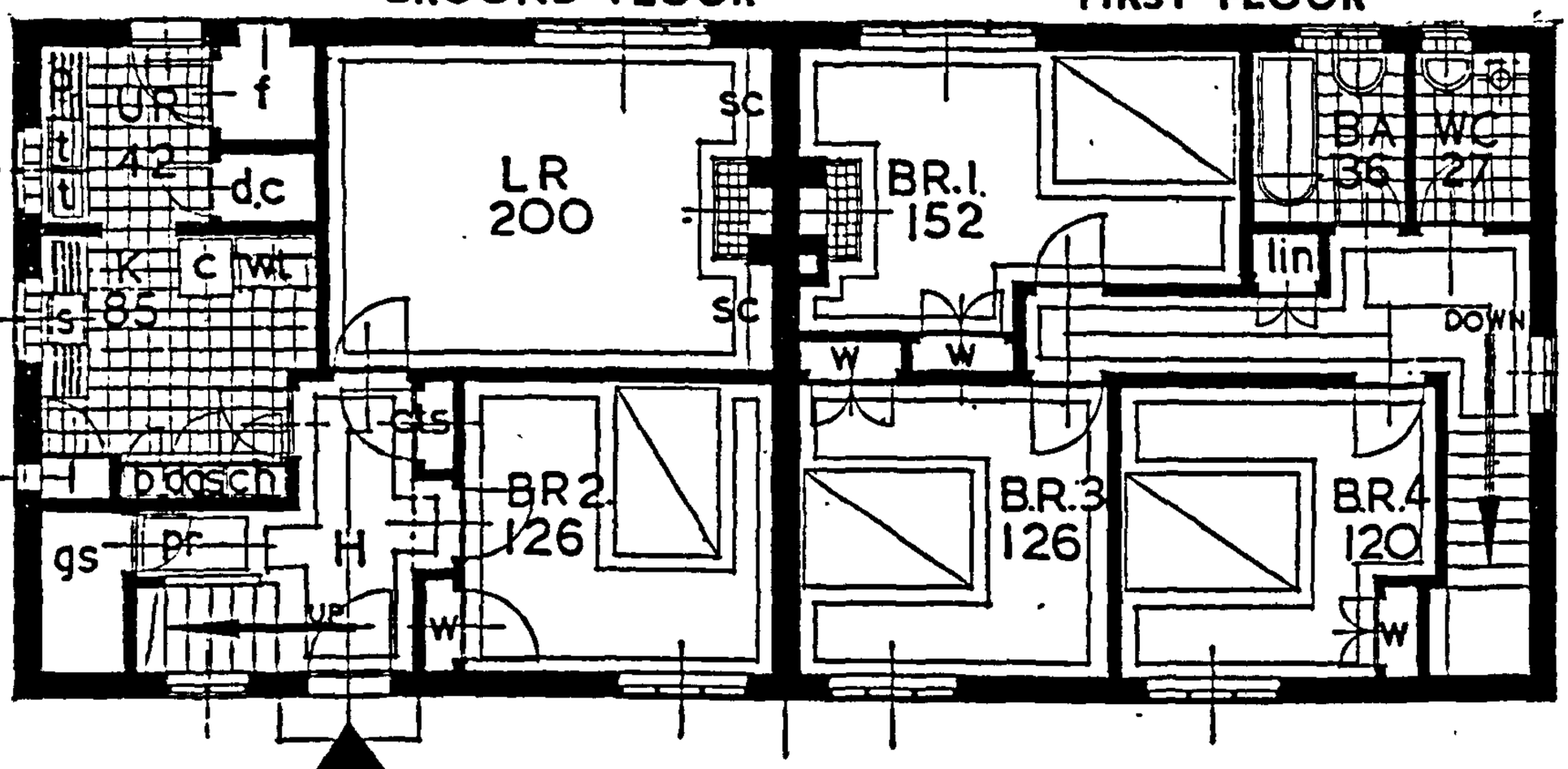
5-APARTMENT
HOUSE

Accommodation :
8 persons

Overall area :
1052 square feet

GROUND FLOOR FIRST FLOOR

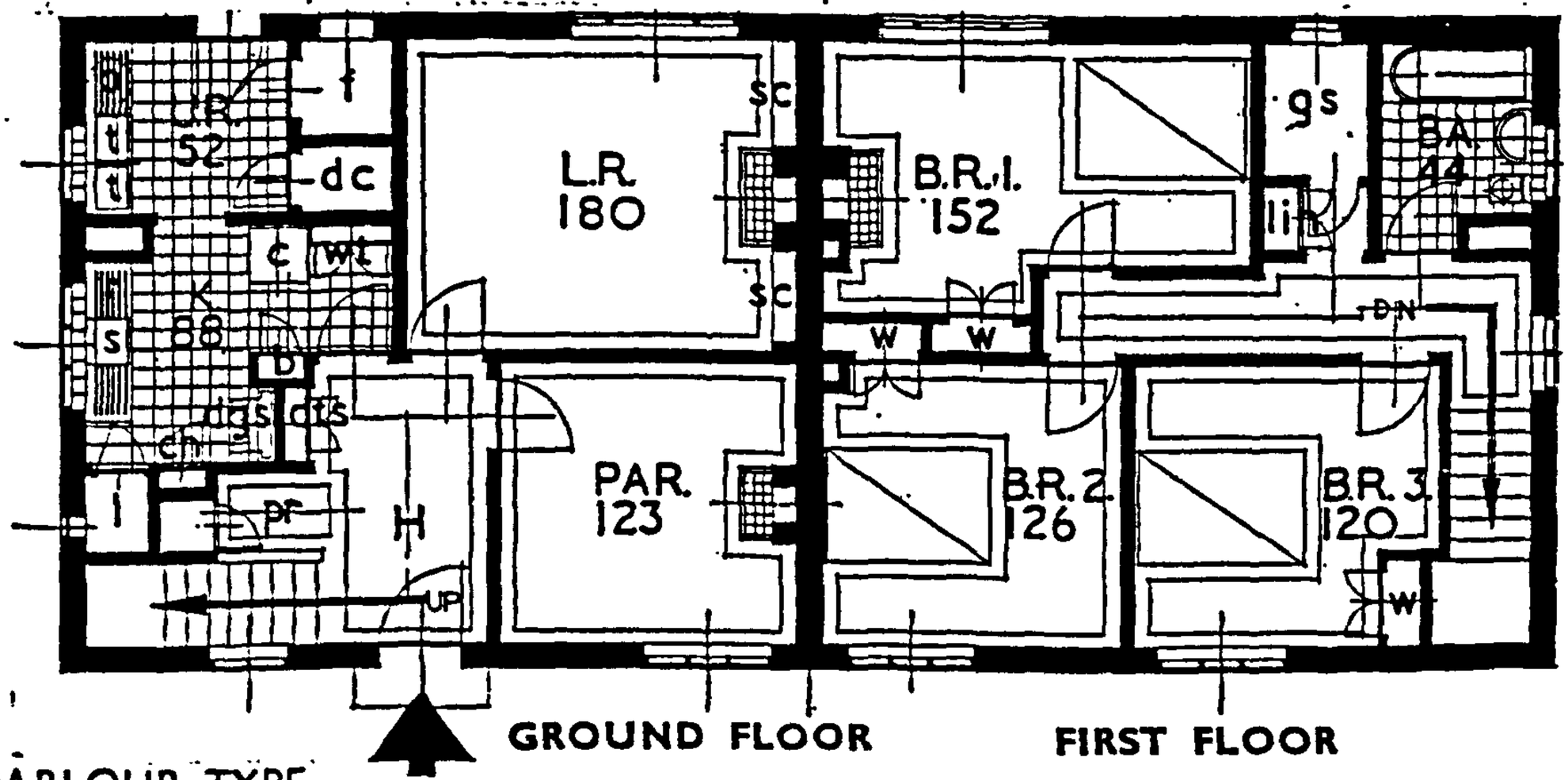
PLAN
11 L



5-APARTMENT GROUND FLOOR FIRST FLOOR

Accommodation : 8 persons Overall area : 1240 square feet

PLAN
12 L



GROUND FLOOR FIRST FLOOR

PARLOUR TYPE
5-APARTMENT HOUSE
Accommodation : 6 persons
Overall area : 1240 square feet

Source Planning our New Homes, v, xv

SCALE 0 5 10 15 20 25 30 FEET

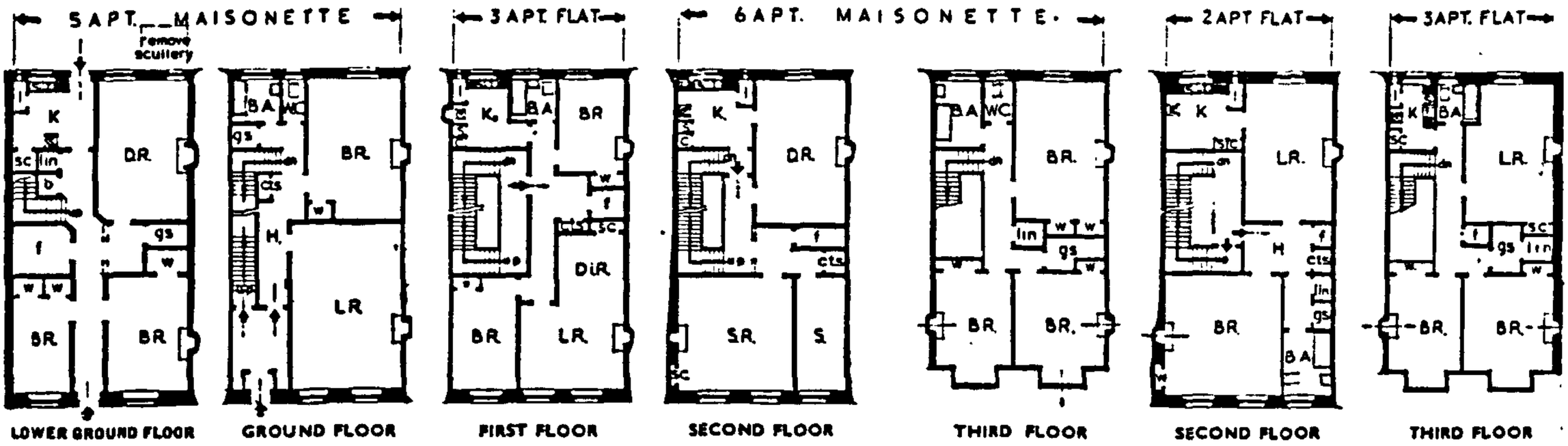
Figure 4.07

Modernising our Homes

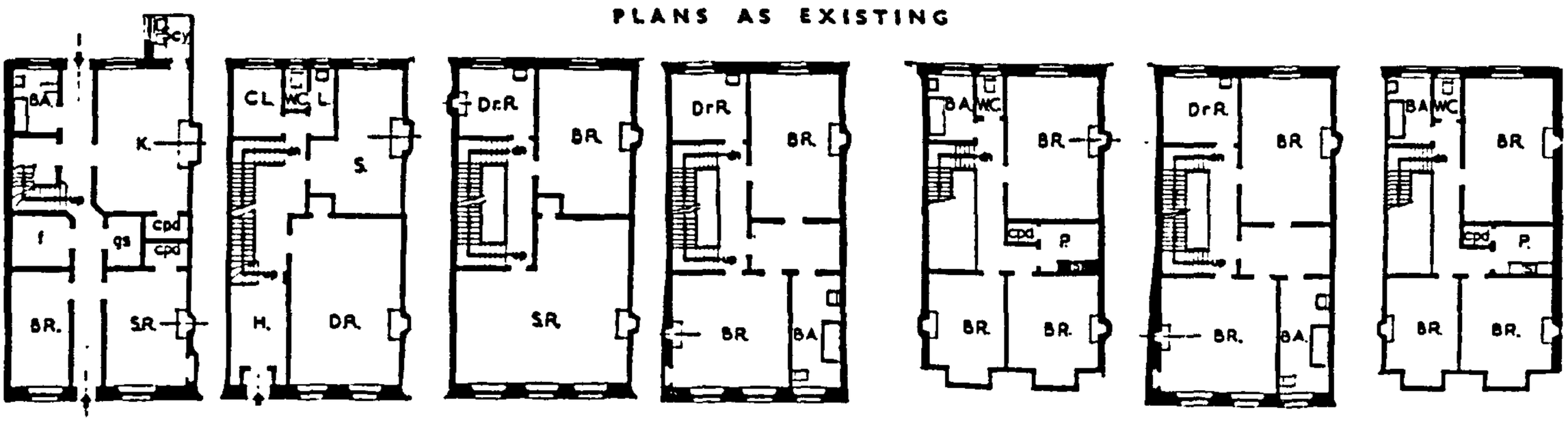
PLAN 3

MULTI-STOREY TERRACE HOUSE CONVERTED INTO MODERNISED FLATS & MAISONETTES OF 2 TO 6 APARTMENTS

PLANS AFTER MODERNISATION



PLANS AS EXISTING

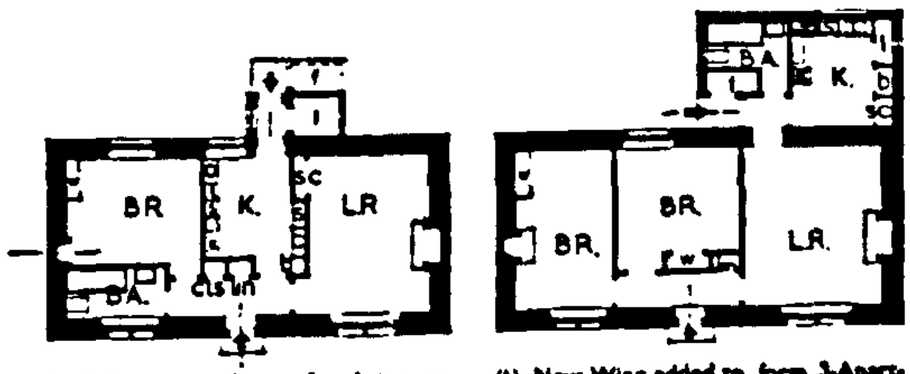


PLAN 9

TWO-APARTMENT RURAL COTTAGES WITHOUT INSIDE WATER SUPPLY OR SANITATION REPLANNED AND MODERNISED

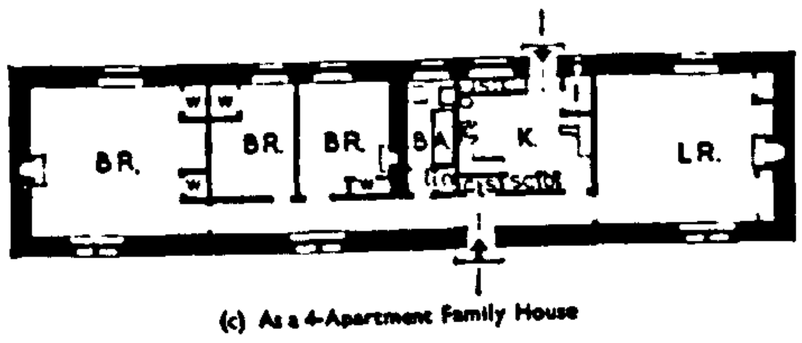
(a) To suit Aging Couple or Single Person
(b) With new Wing to provide 3-Apartment House
(c) To provide a 4-Apartment Family House by combining two Cottages

PLANS AFTER MODERNISATION



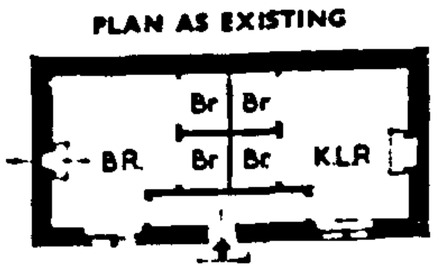
(a) 2-Apartment house for Aging or Single Person

(b) New Wing added to form 3-Apartment House



(c) As a 4-Apartment Family House

PLAN AS EXISTING

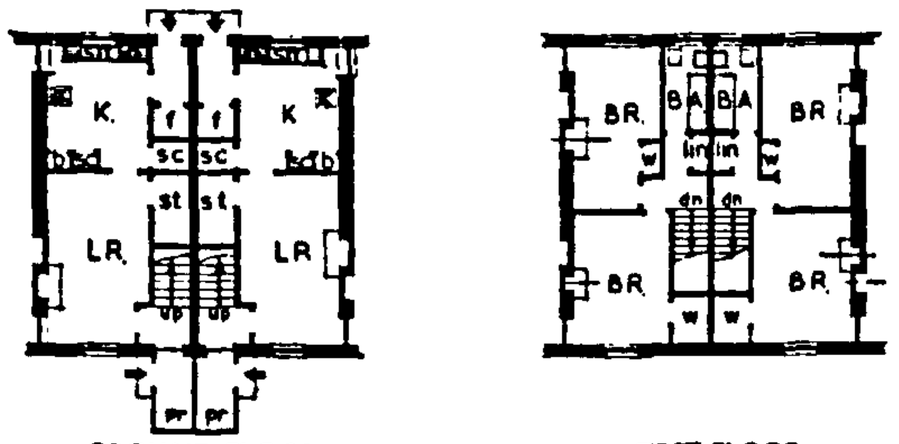


Plan 3, sub-division of large town house
Plan 9, rural cottage modernisation
Plan 11, flatted houses into terraced houses

PLAN 11

TERRACE OF TWO-APARTMENT FLATTED HOUSES IN VILLAGES MODERNISED AS TWO-STOREY 3-APARTMENT HOUSES BY COMBINING A LOWER AND AN UPPER HOUSE

PLANS AFTER MODERNISATION



PLANS AS EXISTING

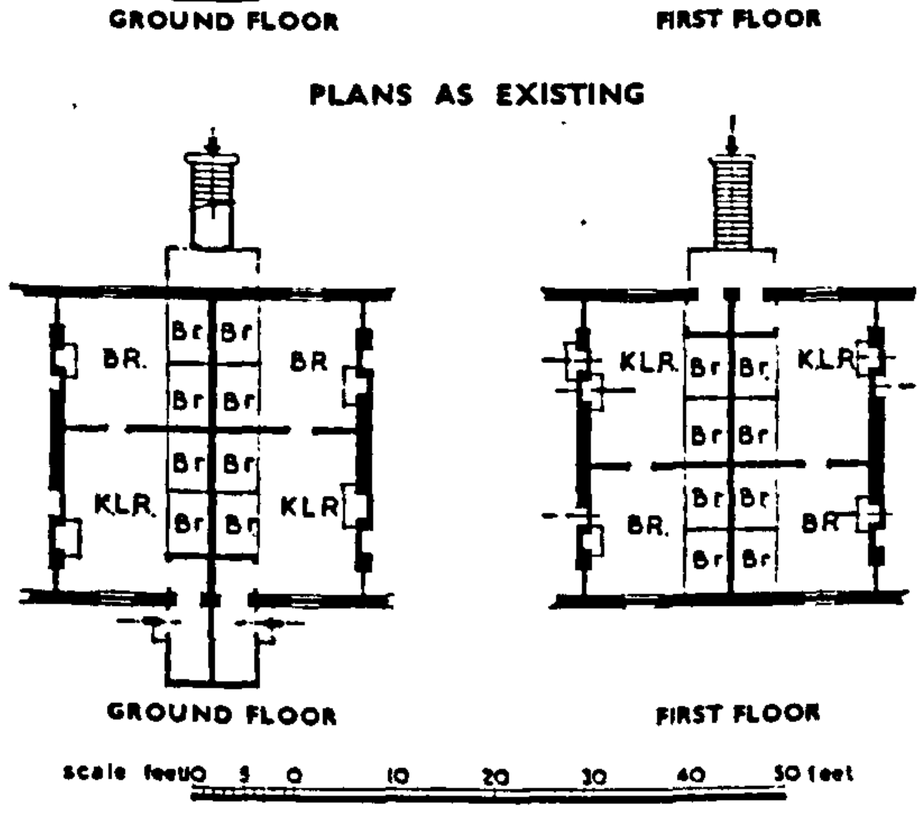


Figure 4.08

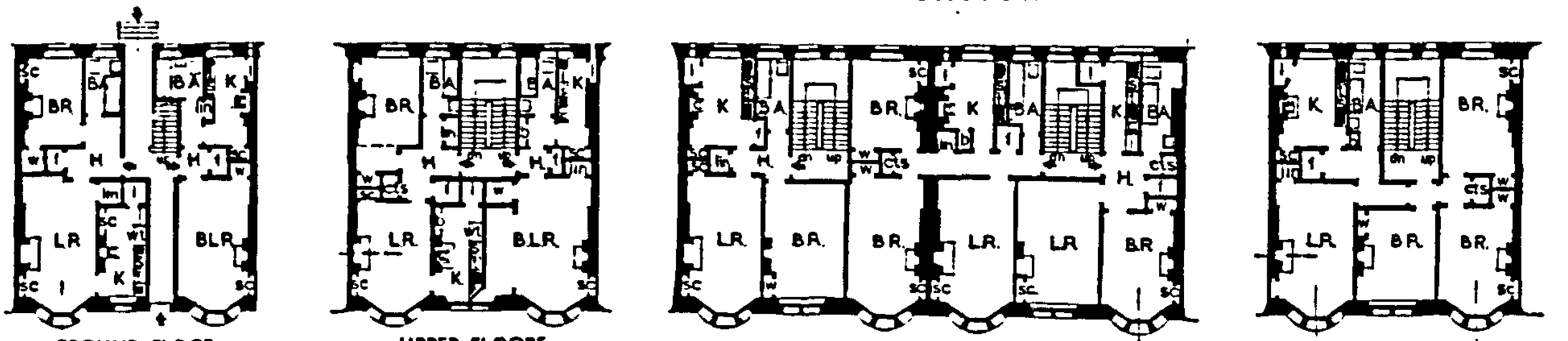
Modernising our Homes

PLAN 4

TENEMENTS OF ONE AND TWO APARTMENT HOUSES WITH ONE COMMON W.C. ON EACH STOREY FOR THREE HOUSEHOLDS CONVERTED INTO :

(*a*) Small Modernised Flats on Ground Floor for Aging Persons
(*b*) Small Modernised Flats on Upper Floors for One and Two Person Households
(*c*) Modernised Flats of 2 and 3 Apartments on Upper Floors (Two Tenements combined)
(*d*) Modernised Flat of 4 Apartments

PLANS AFTER MODERNISATION



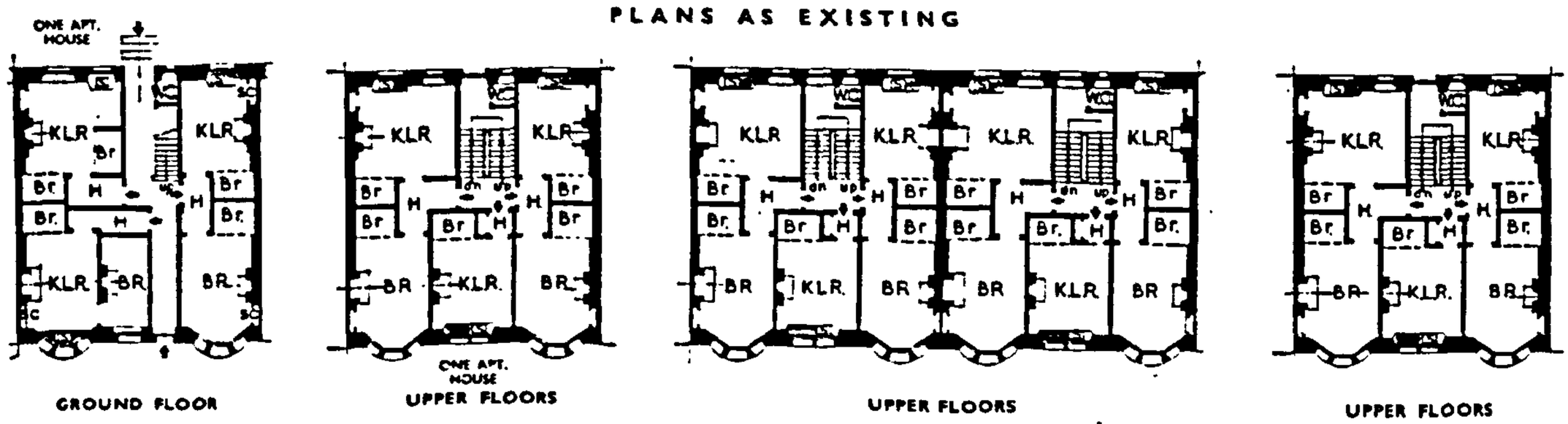
GROUND FLOOR
(*a*) Houses for Aging Persons.
(Three houses converted into two houses.)

UPPER FLOORS
(*b*) Houses for One and Two Person Households. (Three houses converted into two houses.)

UPPER FLOORS
(*c*) Houses of Two and Three Apartments.
(Six houses combined to form three houses.)

UPPER FLOORS
(*d*) House of Four Apartments.
(Three houses combined to form one house.)

PLANS AS EXISTING



GROUND FLOOR

ONE APT. HOUSE UPPER FLOORS

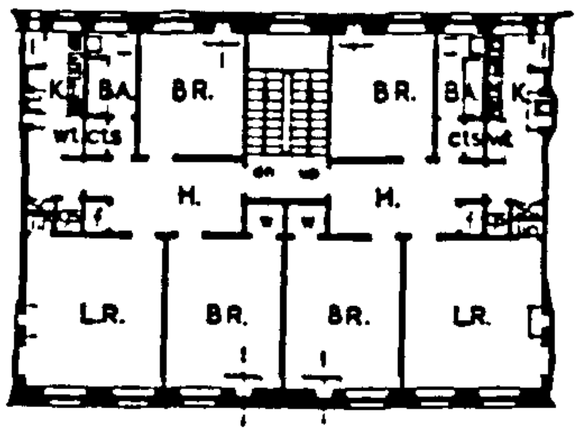
UPPER FLOORS

UPPER FLOORS

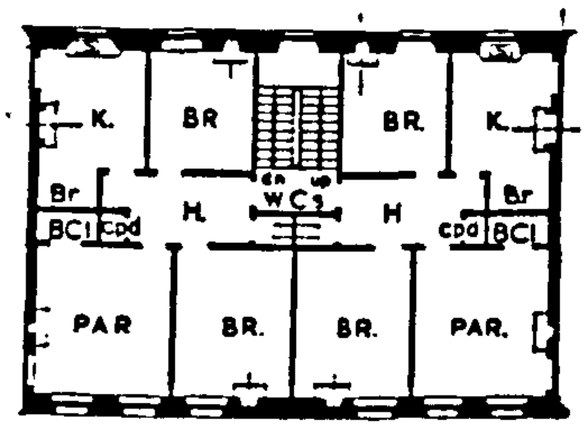
PLAN 5

TENEMENT OF 4-APARTMENT HOUSES WITHOUT BATHROOMS CONVERTED INTO MODERNISED FLATS OF 3 APARTMENTS

PLAN OF AN UPPER STOREY AFTER MODERNISATION



PLAN AS EXISTING

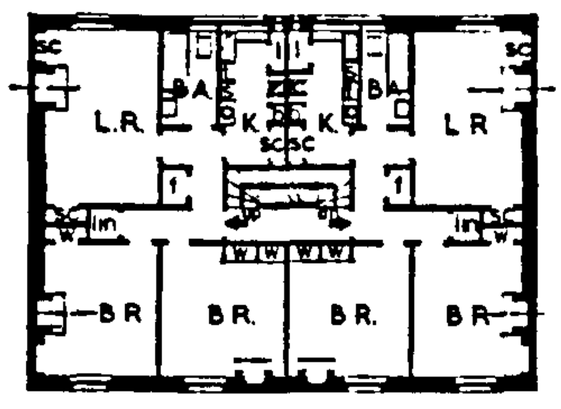


Plan 4, typical 2:1:2 Glasgow tenement
Plan 5, better quality tenement
Plan 7, typical 2:2:2:2 Edinburgh tenement
Many of the kitchens are very narrow after modernisation

PLAN 7

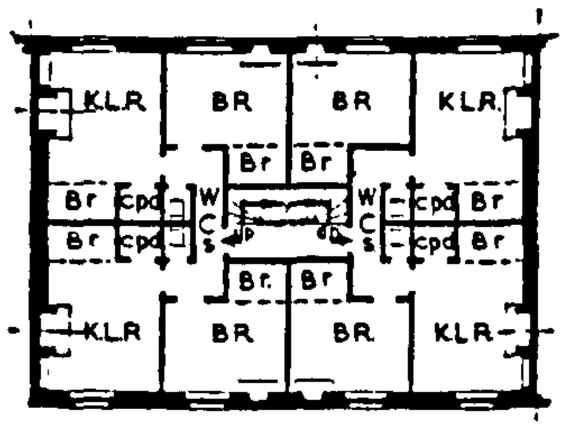
TENEMENT OF BACK-TO-BACK 2-APARTMENT HOUSES EACH HAVING A DARK W.C. TWO HOUSES COMBINED AND MODERNISED TO FORM ONE "THROUGH" HOUSE OF THREE APARTMENTS

PLAN AFTER MODERNISATION



UPPER FLOOR
Two 3-Apartment Houses on each Floor.

PLAN AS EXISTING



UPPER FLOOR
Four 2-Apartment Houses on each Floor.

scale feet 10 5 0 10 20 30 40 50 feet

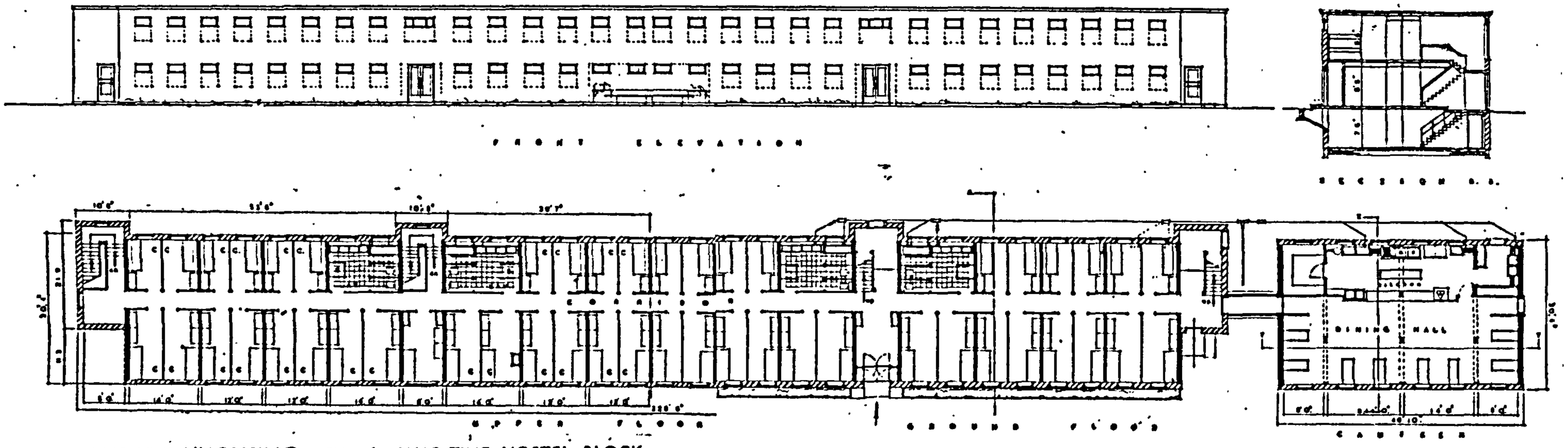
Figure 4.09

1940 s Tenement Kilmarnock High Street

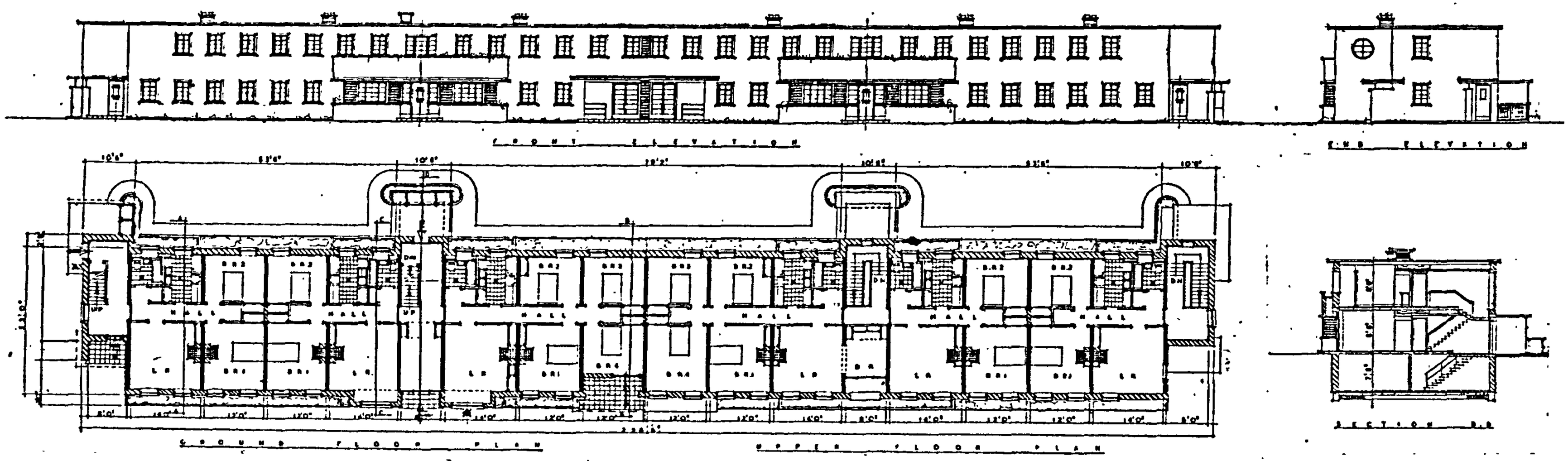
Above, three storey tenement flanked with flatted two storey houses built on the High Street frontage in facing brick and pitched roof.

Below, rear view of tenement with identical plan showing rear balconies. Note the overhanging "box" eaves. These houses in the parallel street behind the High Street were built with flat roofs. Pitched roofs were added as part of refurbishment. The flat roofs were built in response to the timber shortage but here the additional timber required for a pitched roof was considered necessary for the High Street.

Figure 4.10



CLYDESIDE HOUSING : FIG. 4.—WAR-TIME HOSTEL BLOCK.



CLYDESIDE HOUSING : FIG. 5.—PEACE-TIME CONVERSION OF HOSTEL BLOCK INTO FLATTED HOUSES.

War-time Hostel Block

Figure 4.11

War-time Flatted Cottages

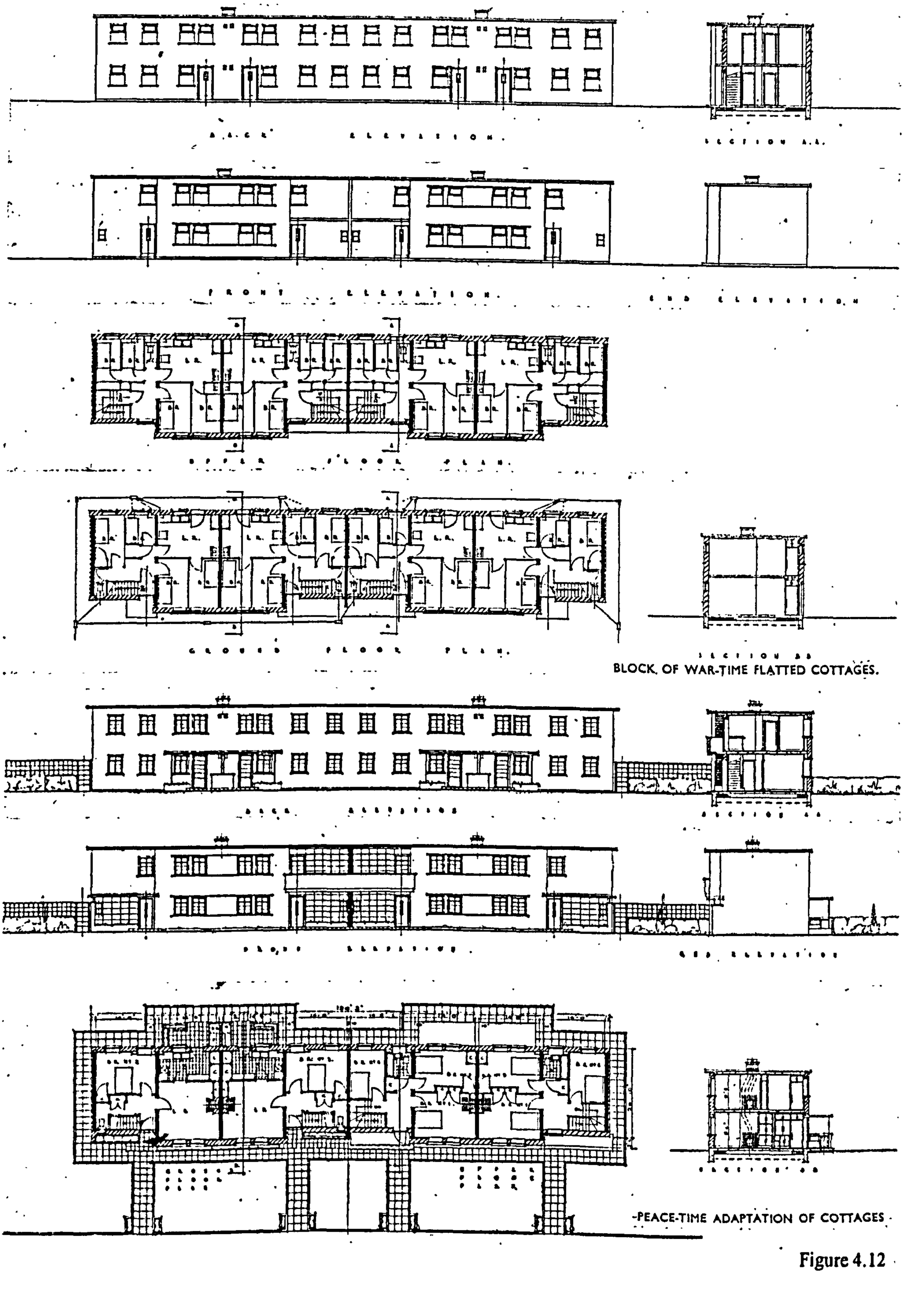


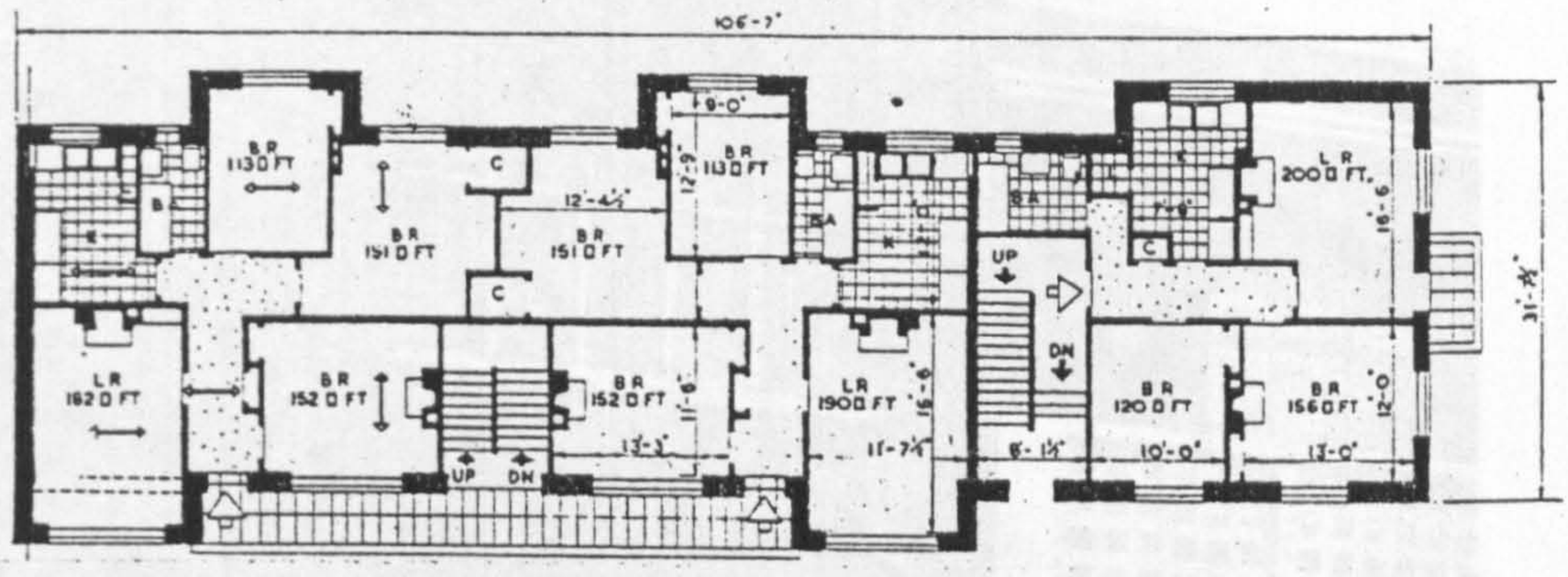
Figure 4.12

Larchgrove Road, Springboig, Glasgow 1946

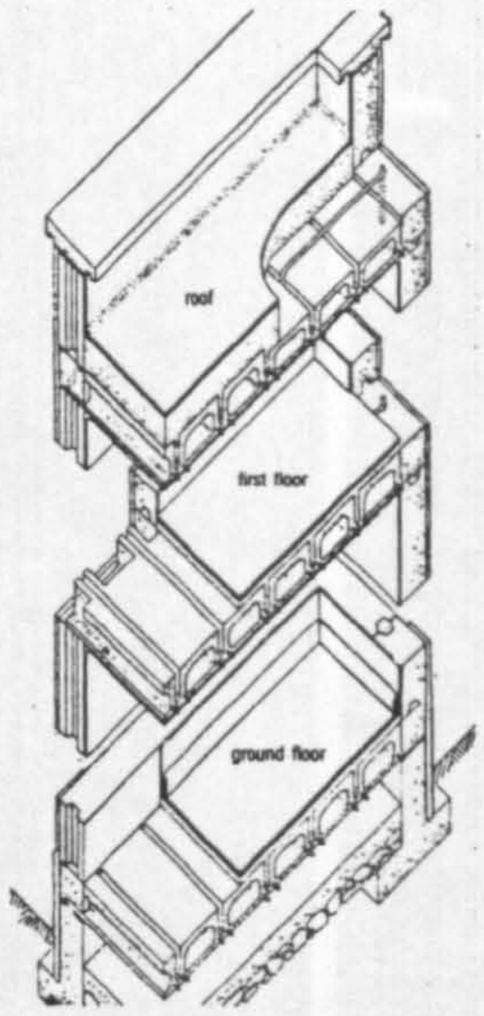
Larchgrove Road was designed in the late 30's but built in 1946. The block encloses an entire street block. Shops and community rooms built in at the centre of the long sides. Horizontal metal windows have been replaced with double glazing with horizontal astragal insets in the glazing cavity.

Figure 4.13

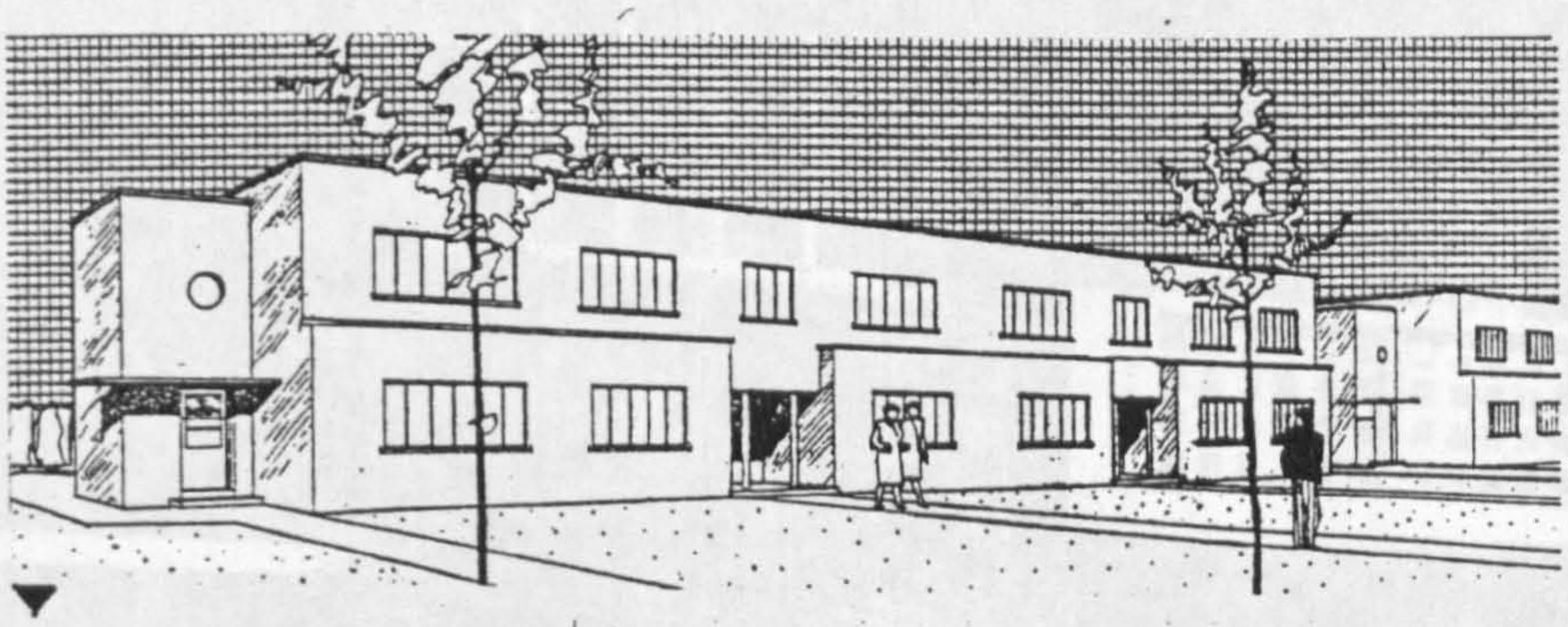
Penilee as designed

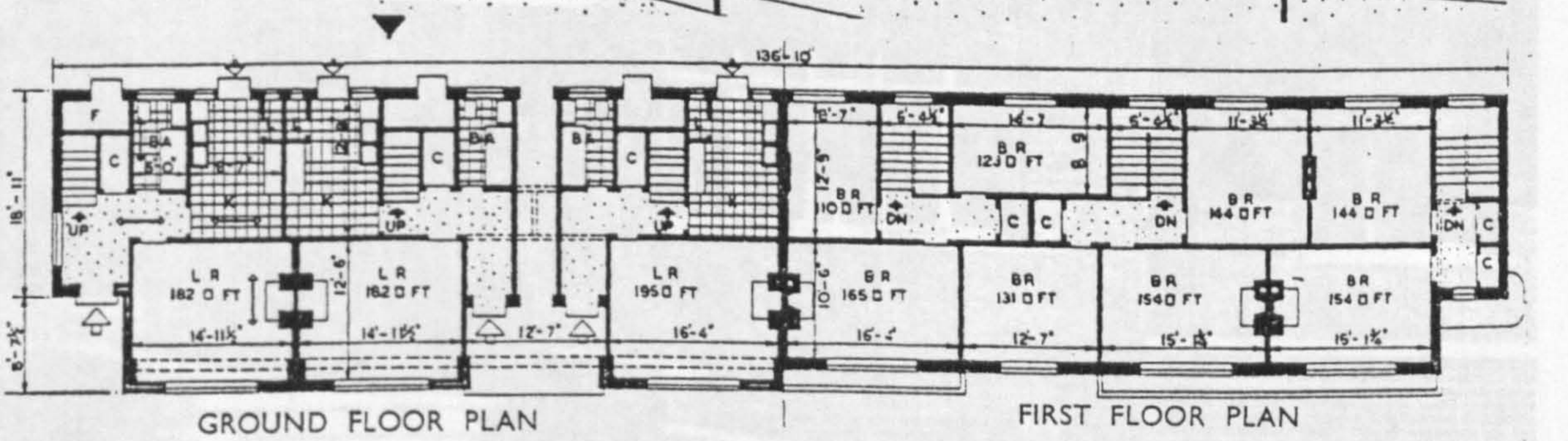


Typical first floor plan of 3-storey **TENEMENT BLOCK**



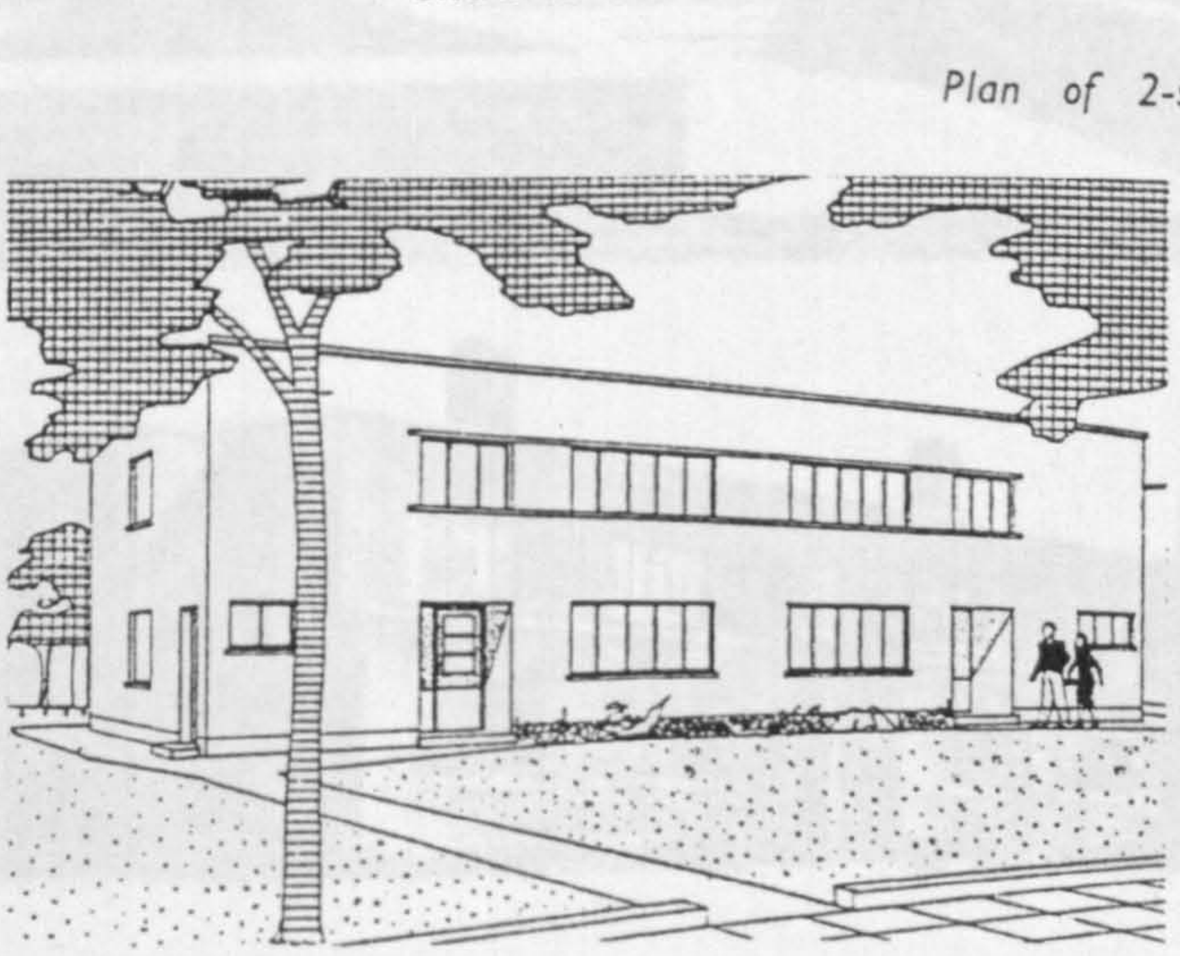
Detail of the Glasgow Foamed Slag house.

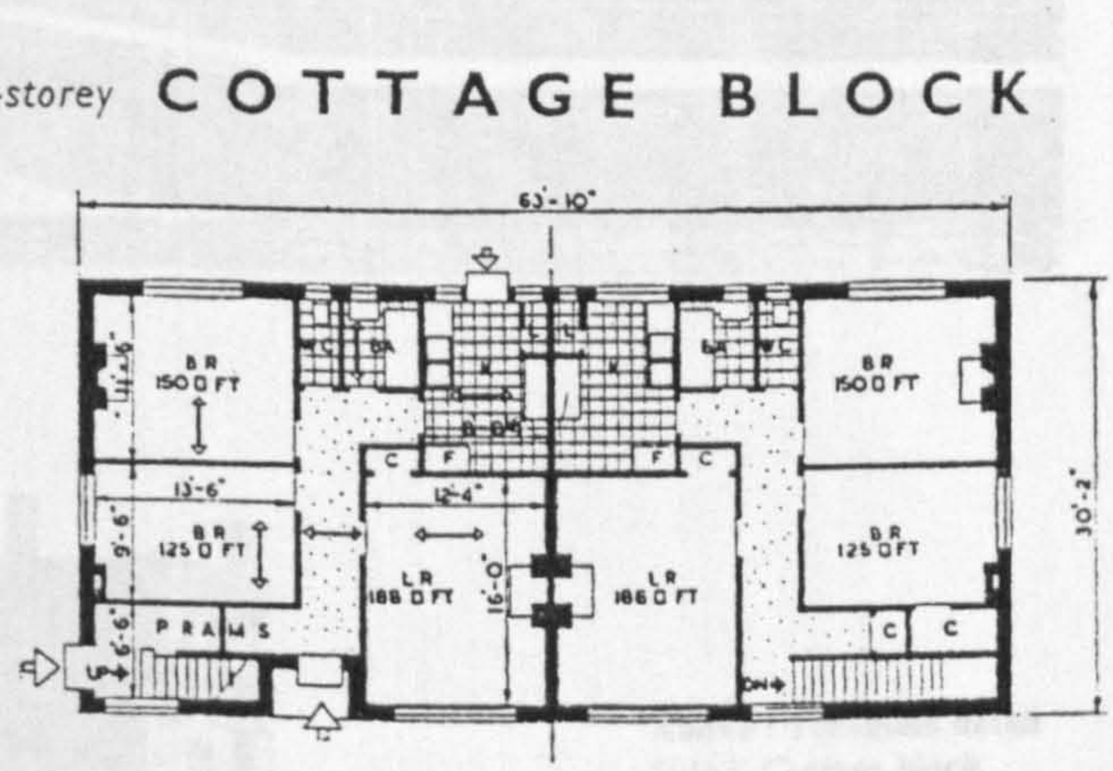




GROUND FLOOR PLAN FIRST FLOOR PLAN

Plan of 2-storey **COTTAGE BLOCK**



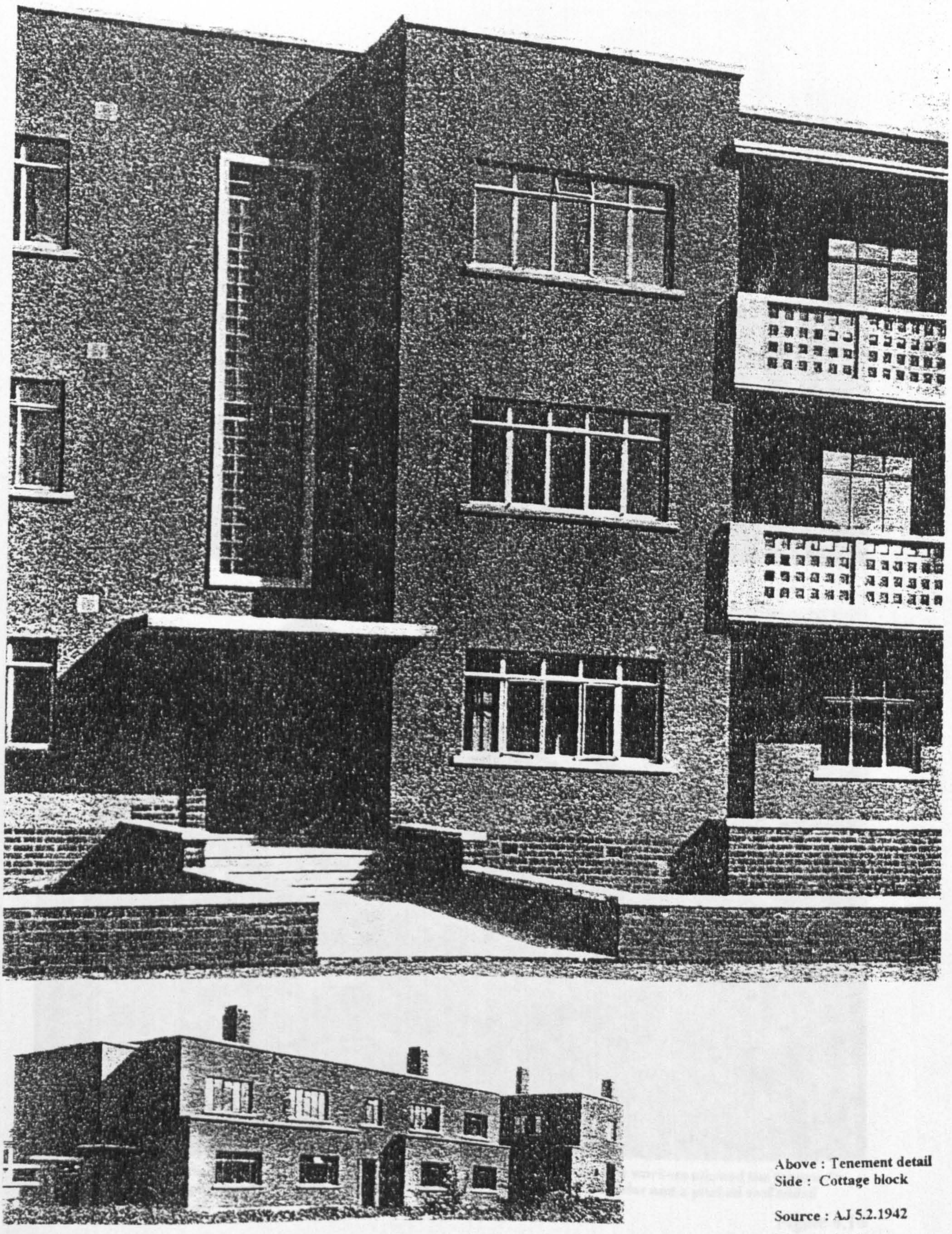


GROUND FLOOR PLAN FIRST FLOOR PLAN

2-storey **FLATTED TYPE**

Figure 4.14

Penilee Estate Glasgow



Above : Tenement detail
Side : Cottage block

Source : AJ 5.2.1942

Figure 4.15

Penilee in 1994

Penilee was to be indefinitely postponed due to the war but the need for homes for war workers allowed the scheme to proceed. It has now replacement windows, dry dash replacing its original smooth render and a pitched roof added over its flat concrete roof.

Figure 4.16

Glasgow
Penilee

Pollok

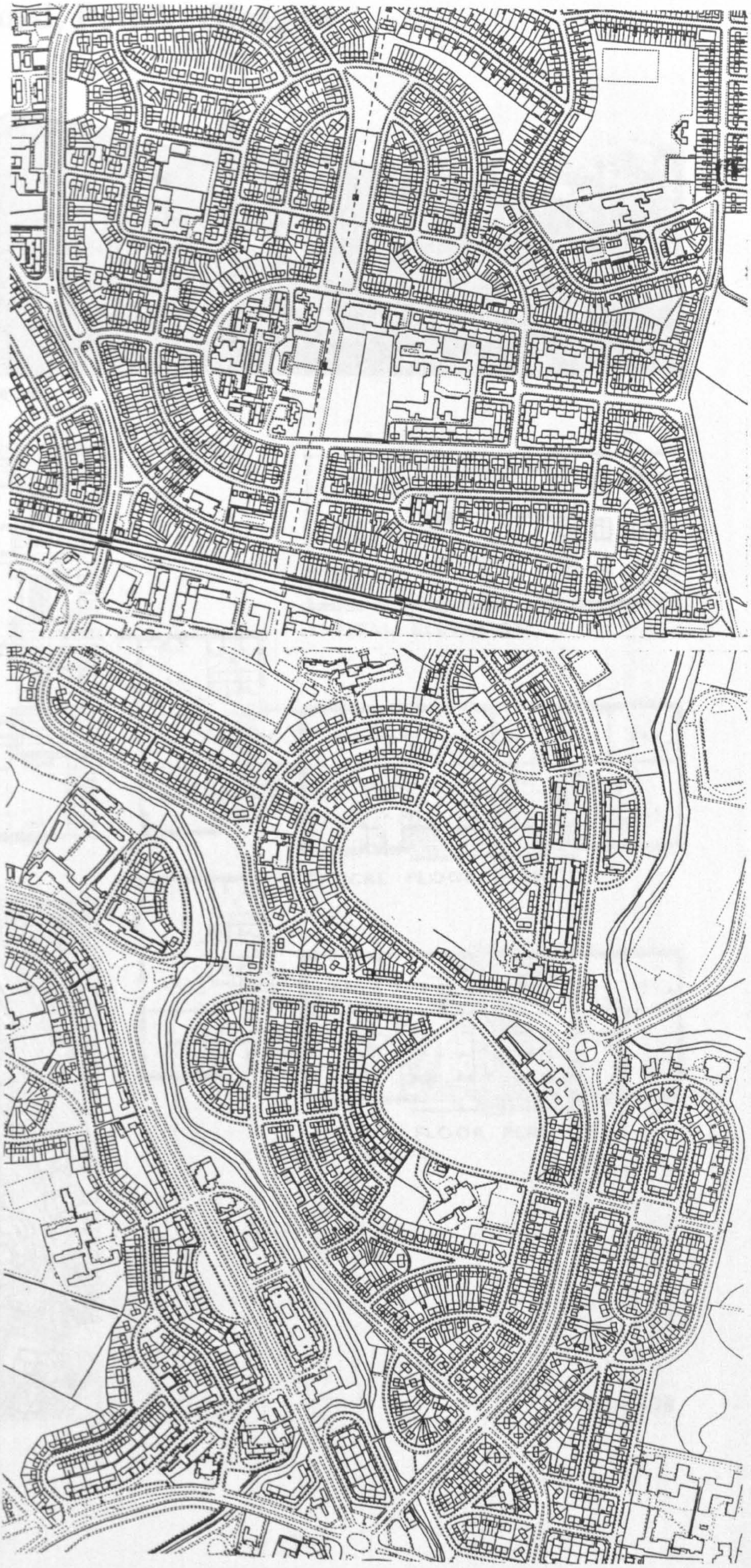
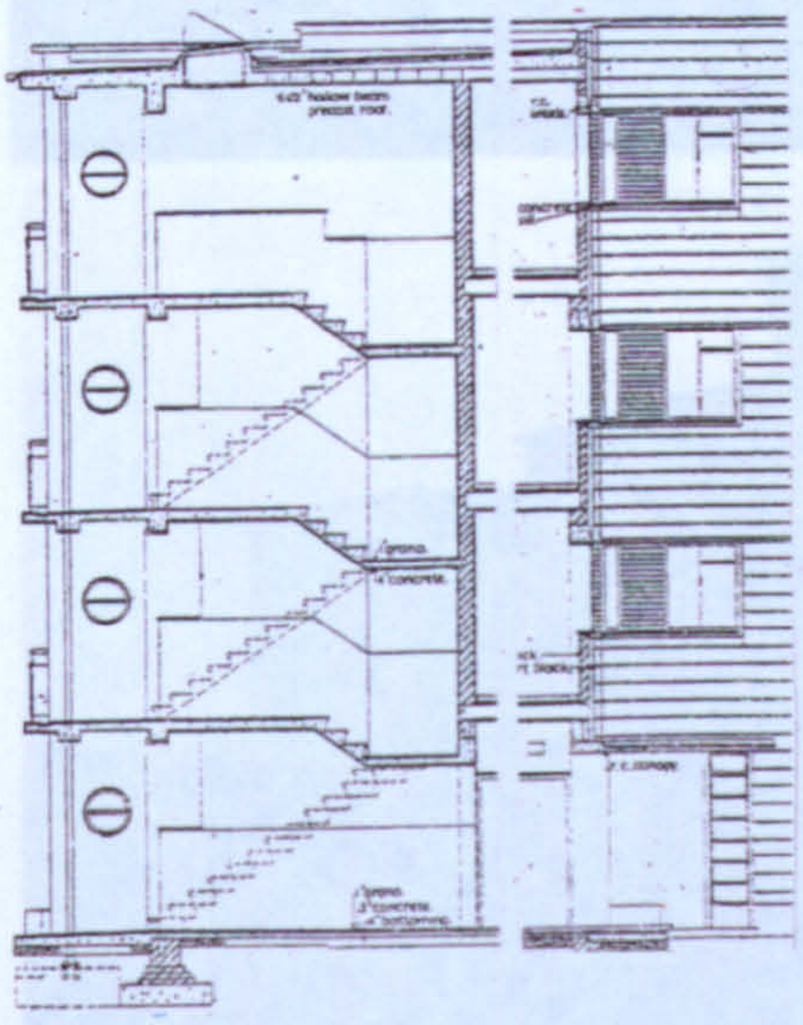


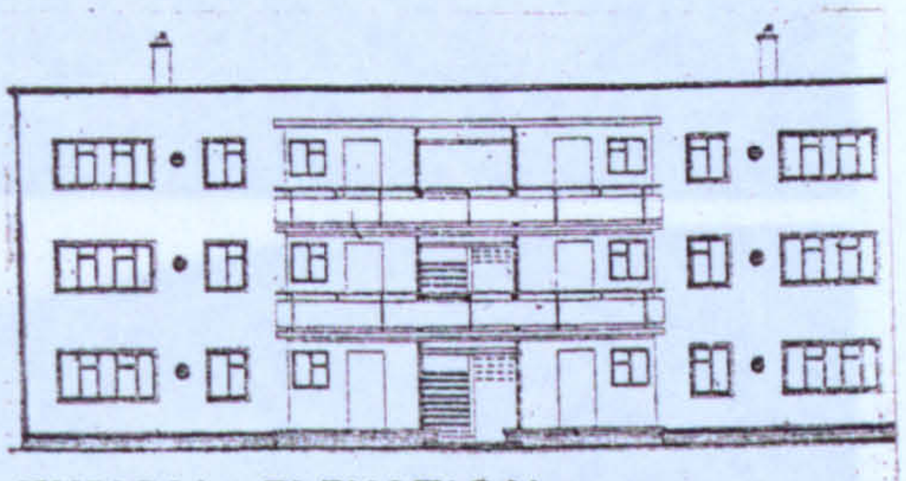
Figure 4.17

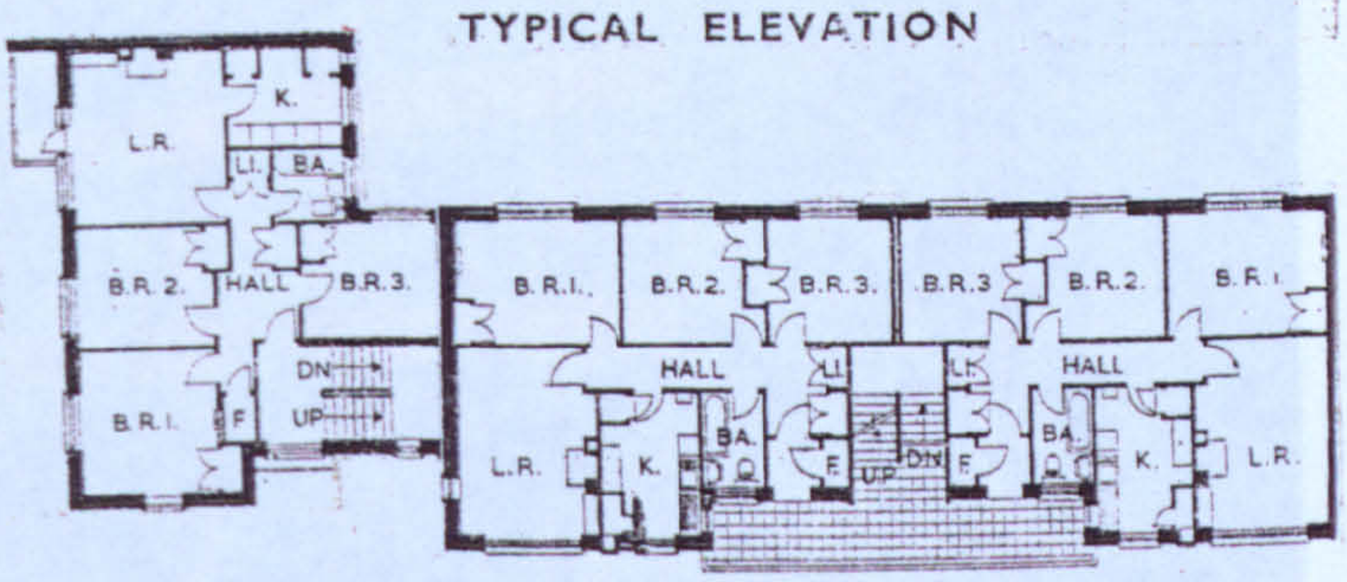
Scale 1:10,000

Netherplace Road, Pollok, Glasgow

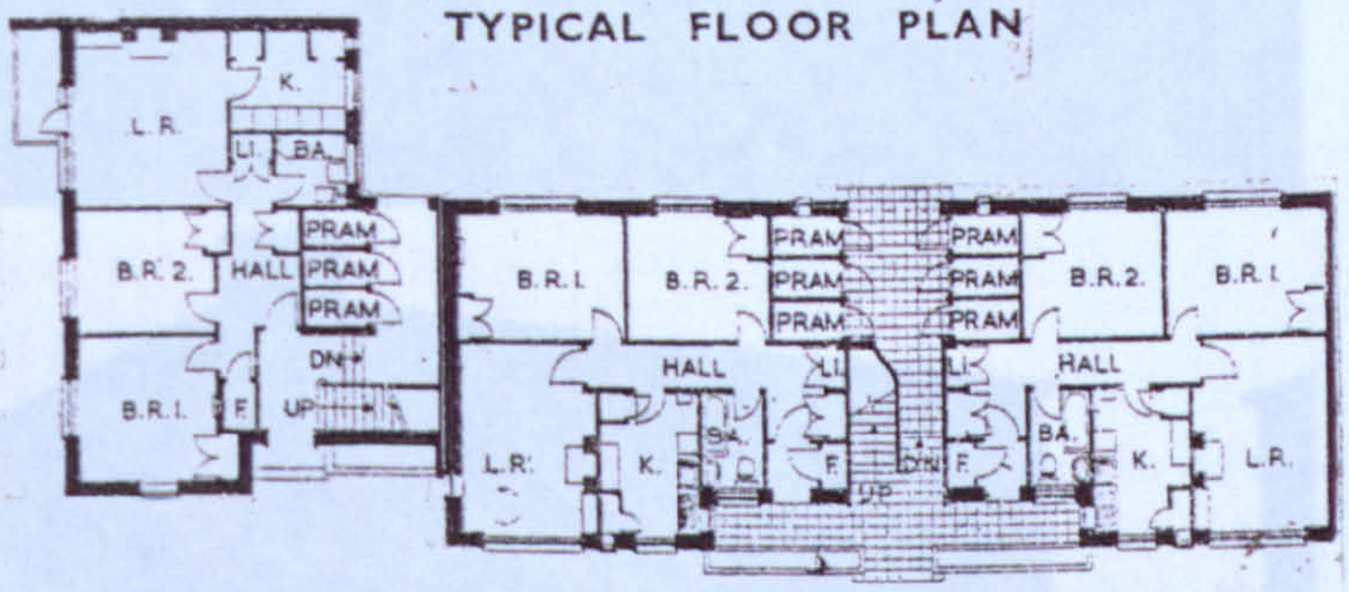
Netherplace Road Saltire Award 1949







TYPICAL FLOOR PLAN



GROUND FLOOR PLAN TYPE I
[Scale : $\frac{1}{8}$" = 1'0"]

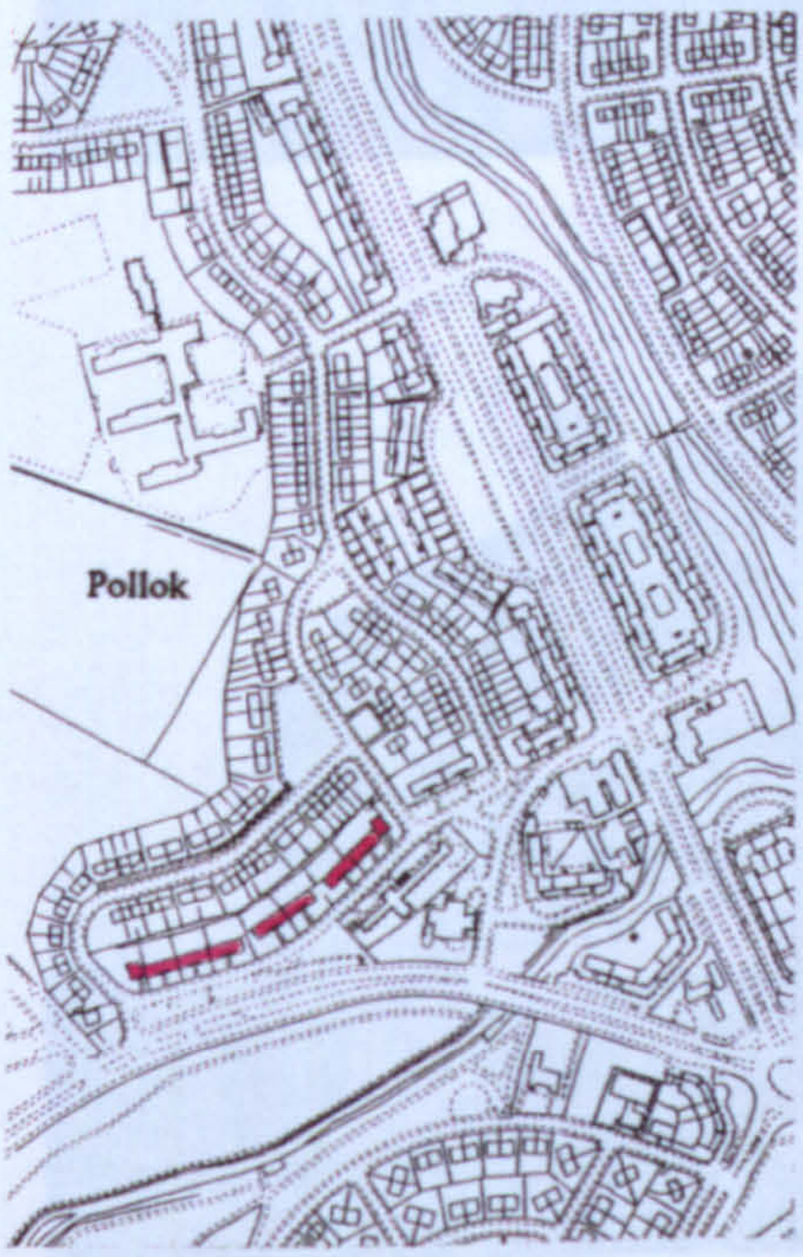


Figure 4.18

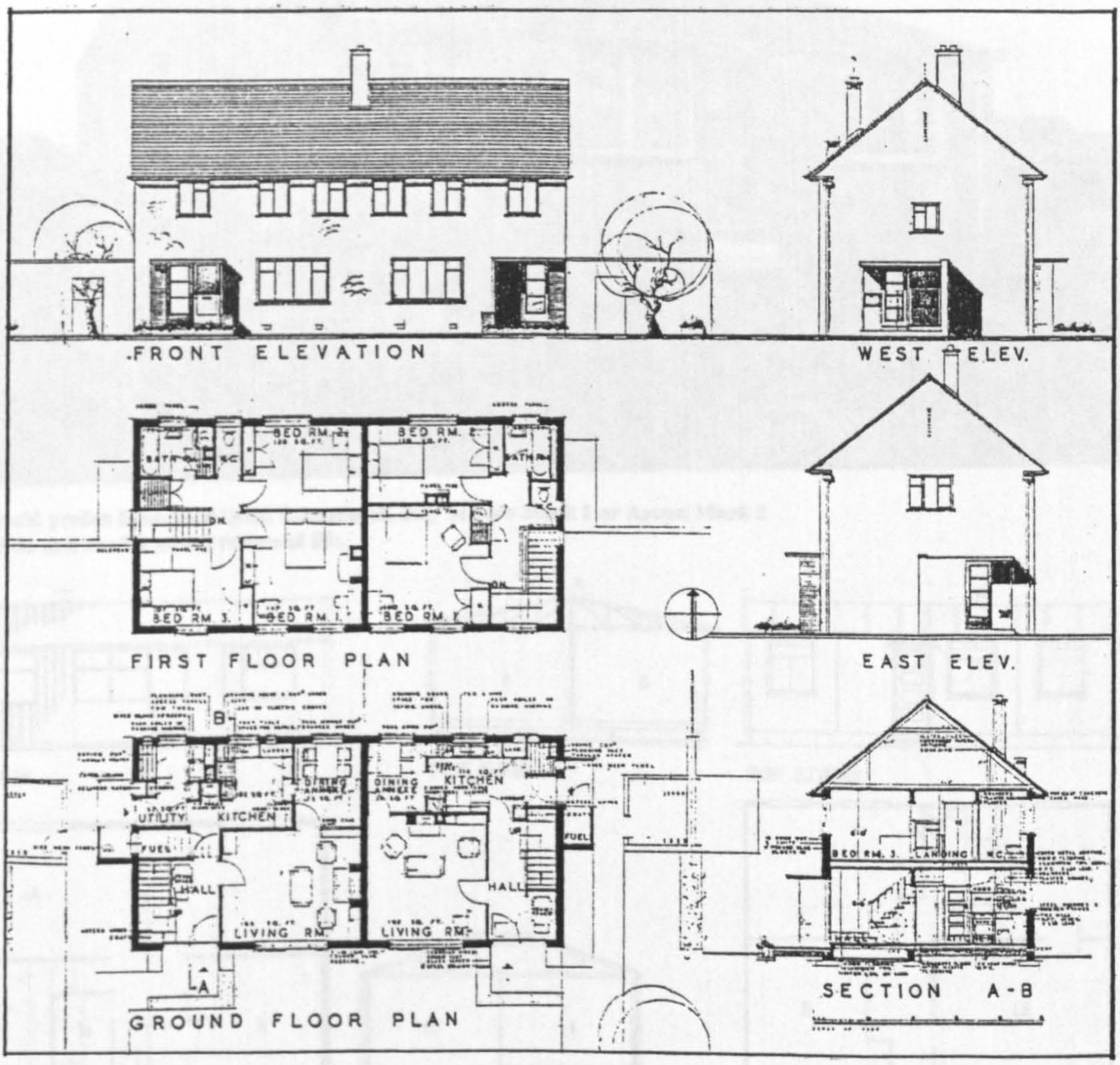
Calfhill Road, Pollock Estate, Glasgow, post 1945

Pollock was designed to meet the standards of the 1945 report "Planning our New Homes". The estate has suffered serious neglect and now parts have been demolished and replaced with new houses.

Figure 4.19

Scottish Housing Competition

A. J. Smith, A.R.I.B.A., of Falkirk,



SCOTTISH HOUSING COMPETITION

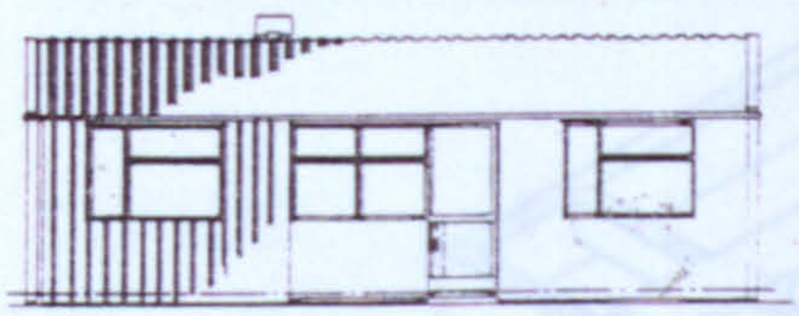
The competition was to design a 950 ft² (88.3m²) 3 apartment and a 1100 ft² (102.2m²) 4 apartment house to the long term standards of the 1944 Scottish Housing Advisory Committee.

Both houses have a dining annexe and a W.C. separate from the bathroom. The larger house has a utility room separate from the kitchen. Ceiling heights are 8'6" (2.6m) on the ground floor and 8' 0" (2.44m) on the first floor.

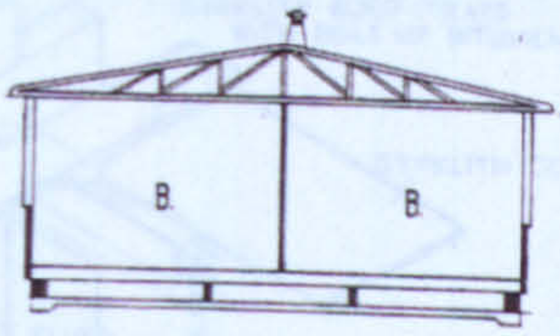
Figure 4.20

Temporary Building (Prefab)

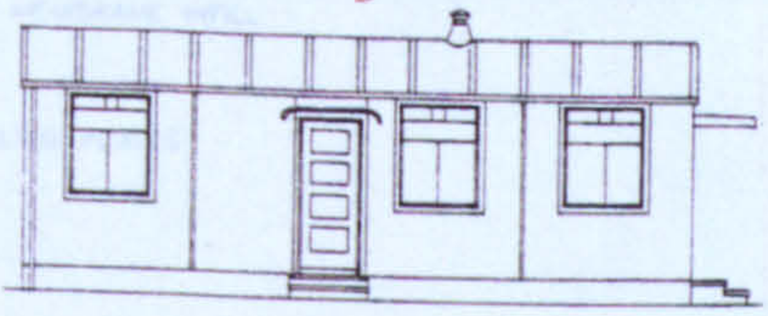
50 year old prefab Broomhill Quad Kilmarnock, may be Seco Mark 1 or Arcon Mark 5
Brick Skin and render added to extend life.



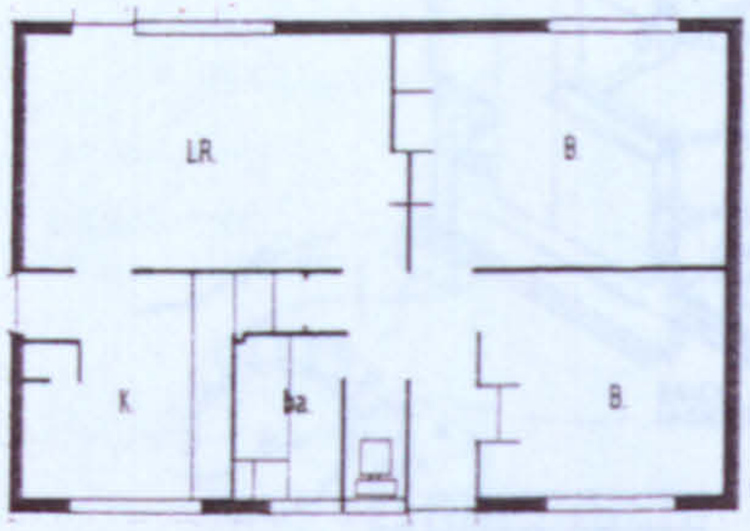
FRONT ELEVATION



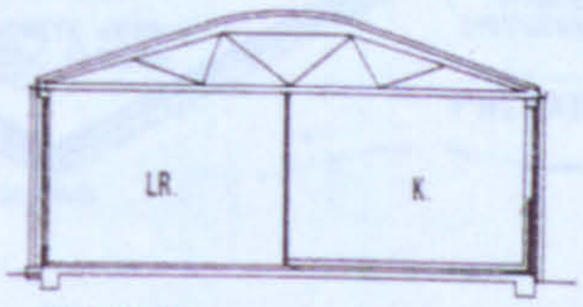
CROSS SECTION



FRONT ELEVATION



Arcon Mark 5



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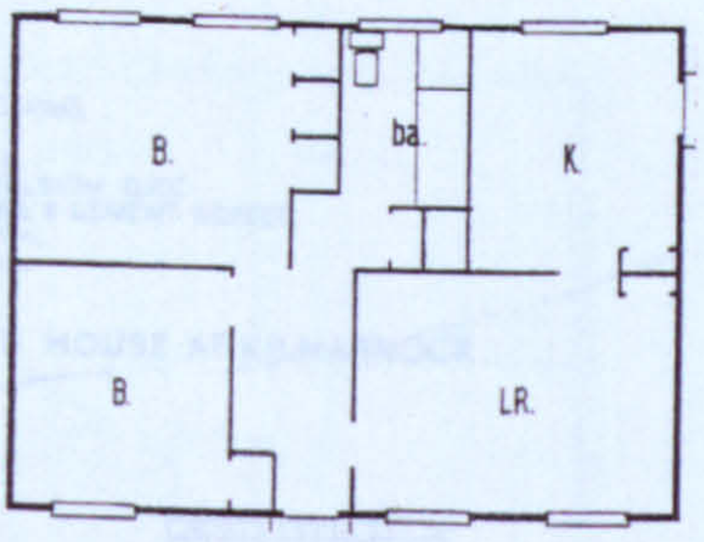
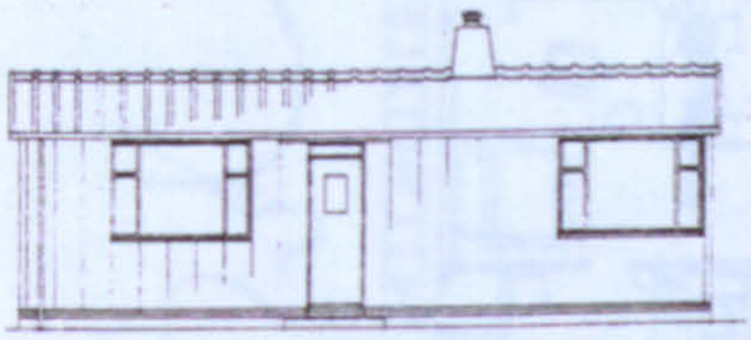
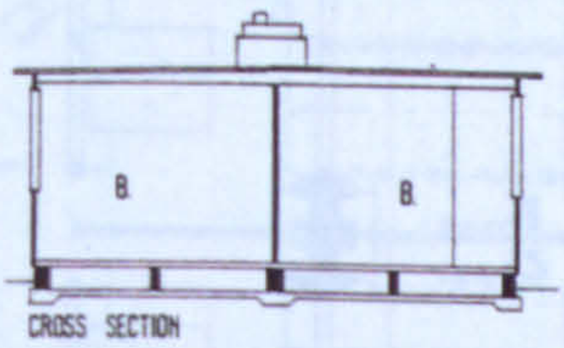


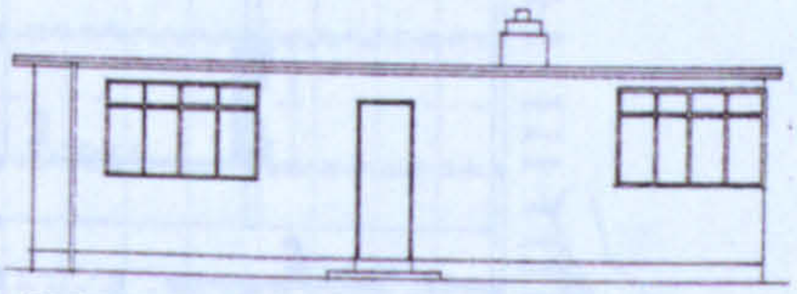
Aluminium Mark 1



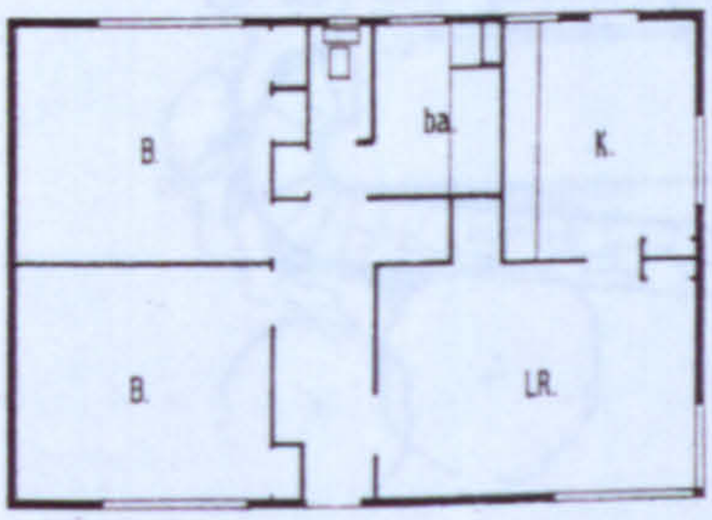
FRONT ELEVATION



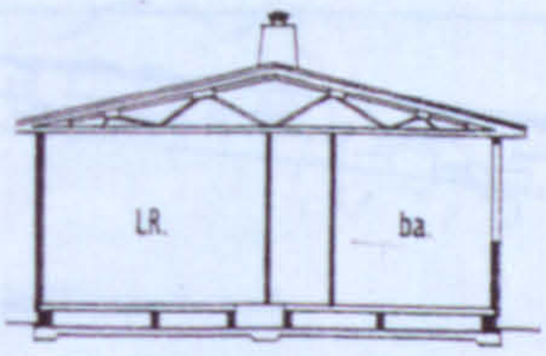
CROSS SECTION



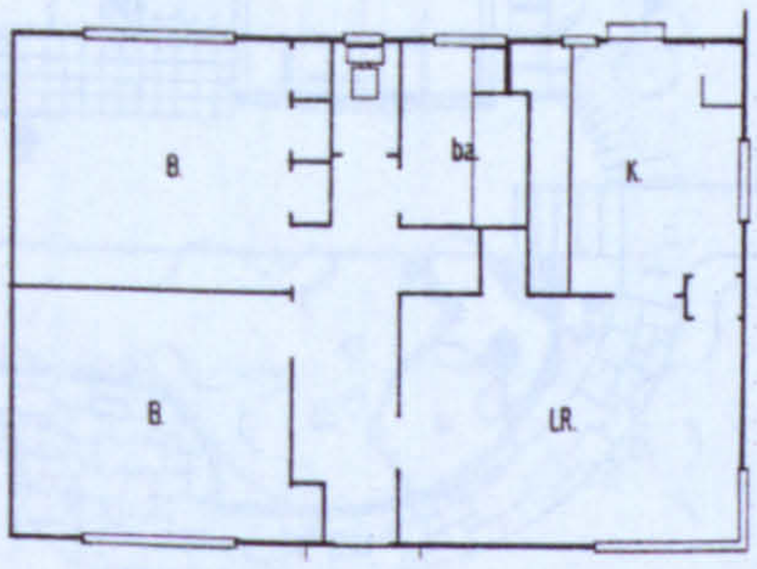
FRONT ELEVATION



Tarran Mark 4



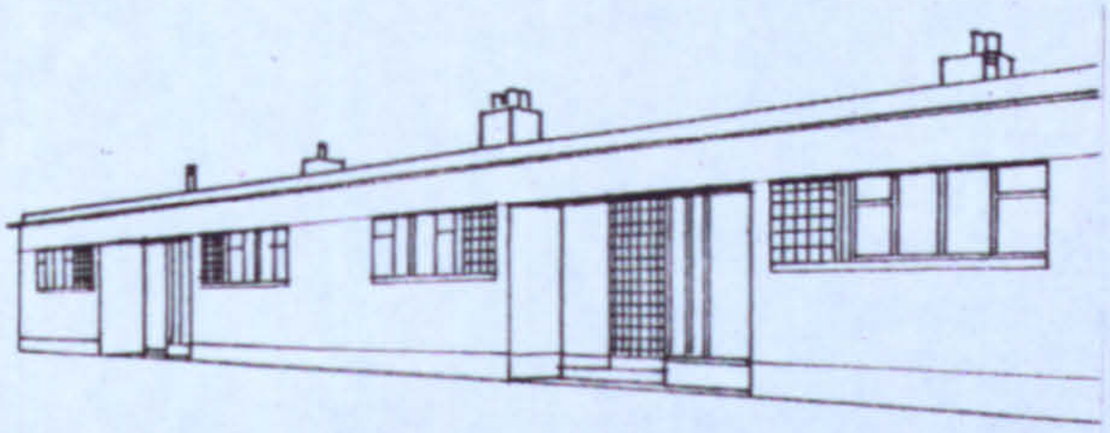
CROSS SECTION



Seco Mark 3

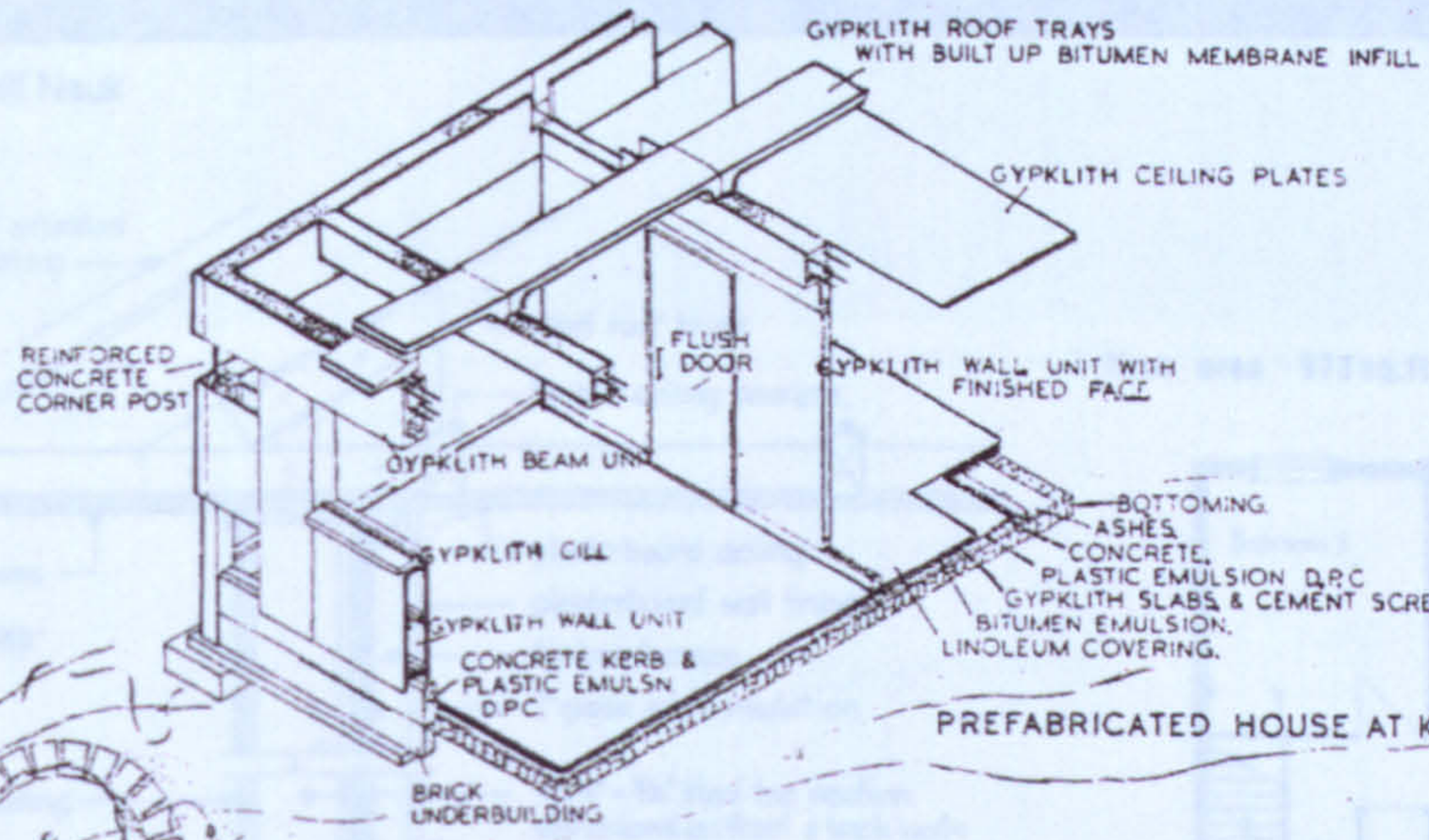
Figure 4.21

Unit Built at Waterside, Kilmarnock by Sam Bunton

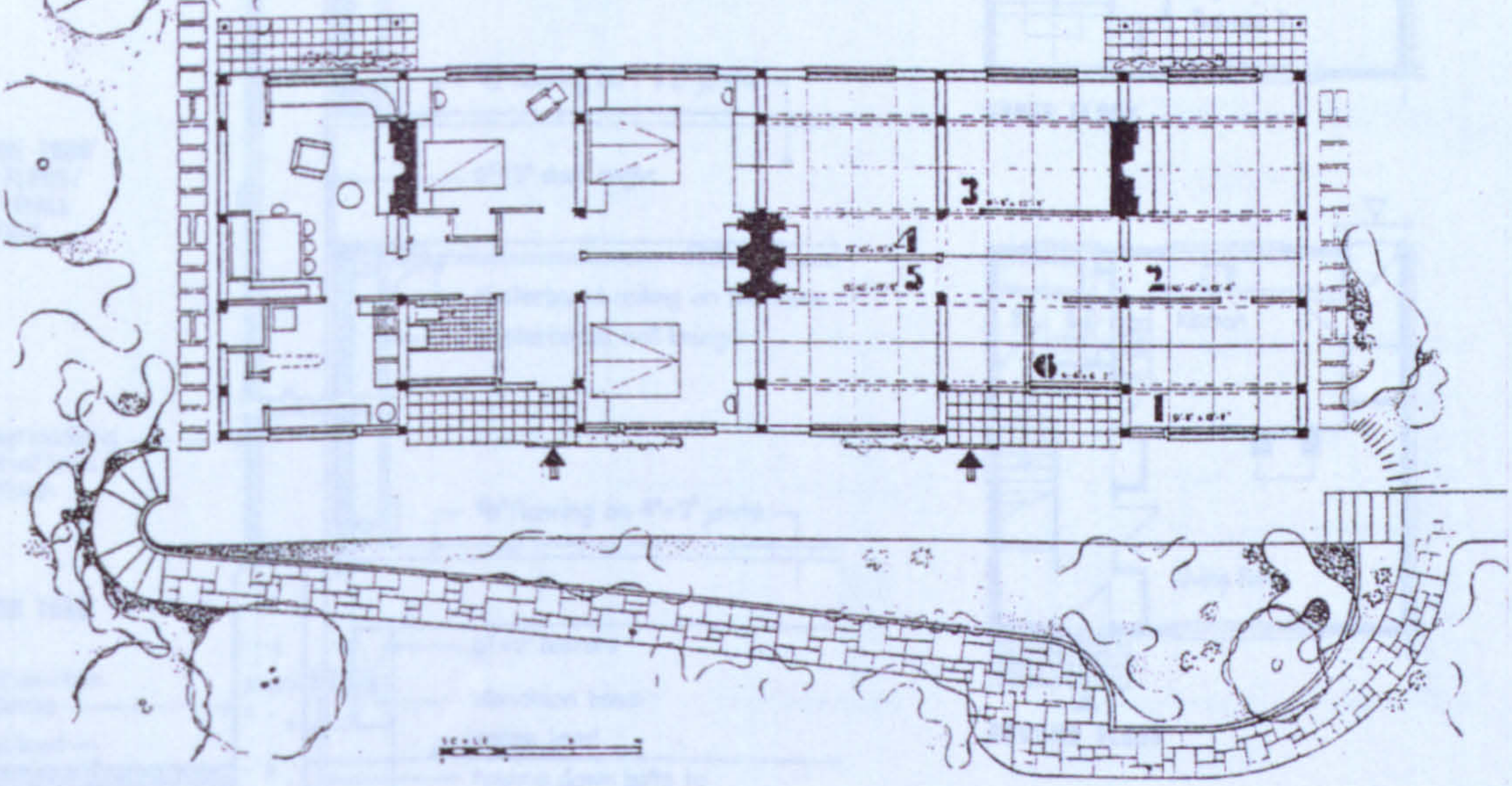


Above, houses in 1994 shorn of glass blocks and entrance screen.

Side, sketch of houses as built in 1943 with glass blocks to side of entrance door and kitchen window.



PREFABRICATED HOUSE AT KILMARNOCK

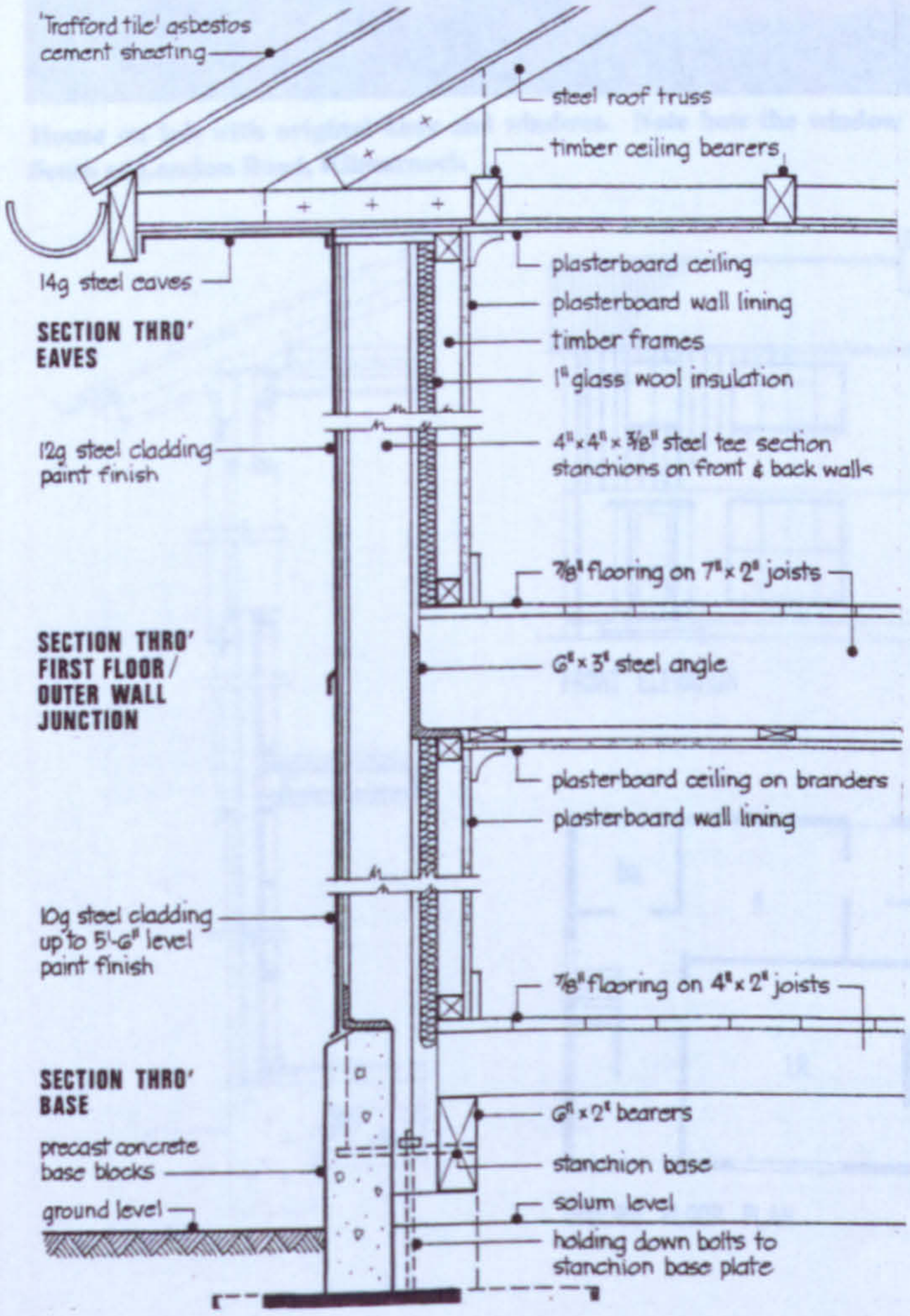


Plan and axonometric from 'The Builder' 22.1.43

Figure 4.22

Atholl Steel

21/23 Sighthill Neuk

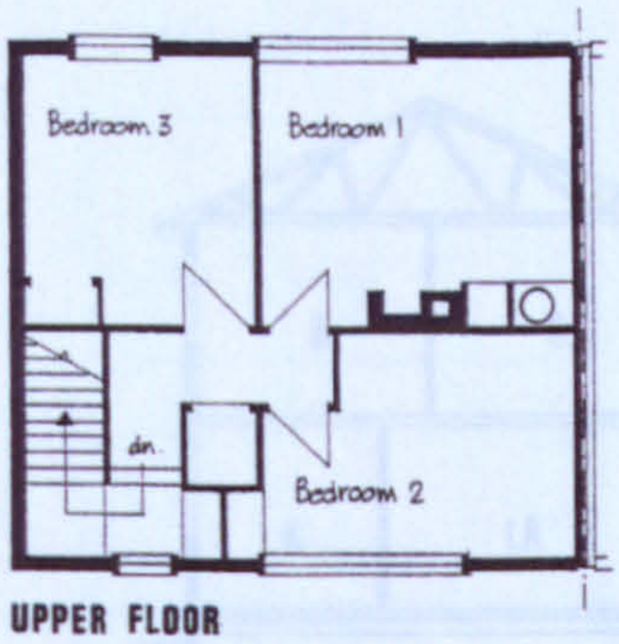


SECTION THRO' EAVES

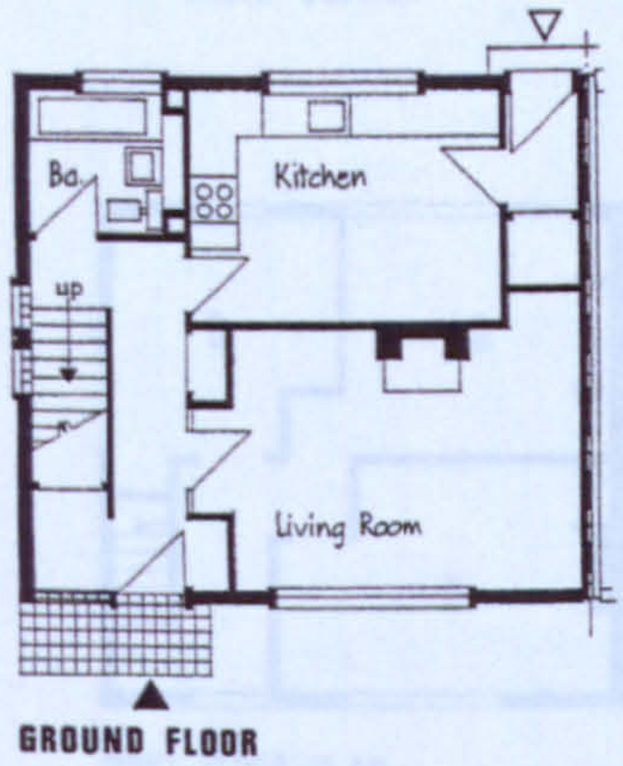
SECTION THRO' FIRST FLOOR / OUTER WALL JUNCTION

SECTION THRO' BASE

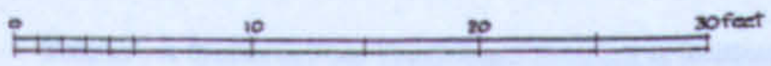
floor area 973 sq.ft.



UPPER FLOOR



GROUND FLOOR

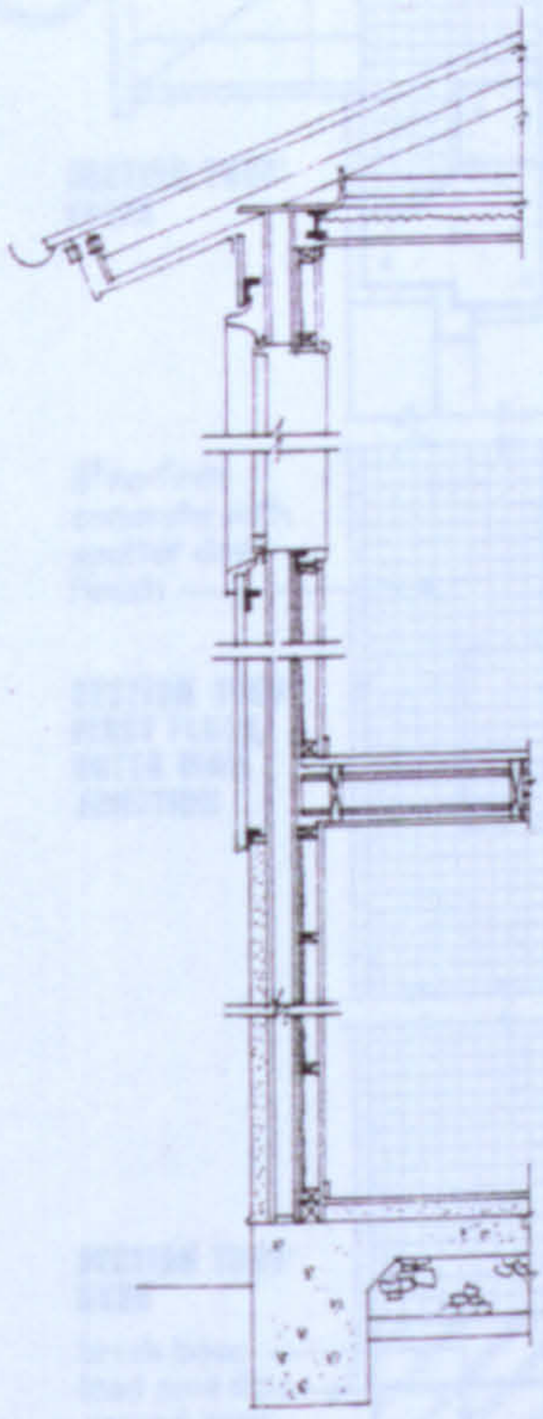


Source : Demonstration Houses, Sighthill, Edinburgh

Figure 4.23

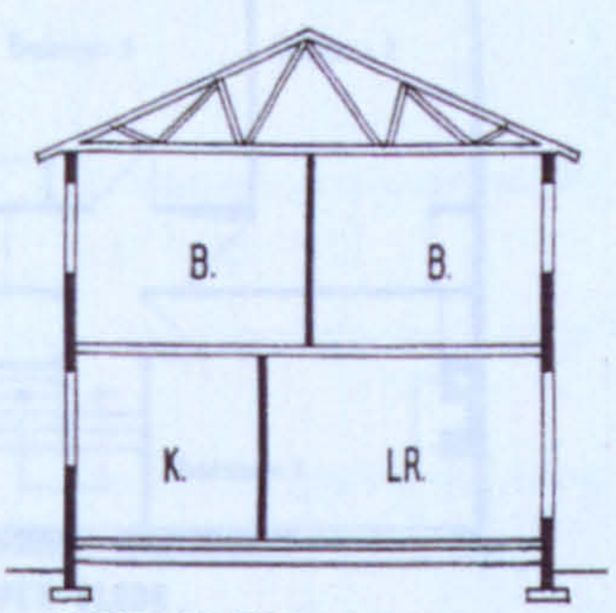
B.I.S.F. (British Iron and Steel Federation)

House on left with original door and windows. Note how the window mullions line with sheet corrugations.
South of London Road, Kilmarnock

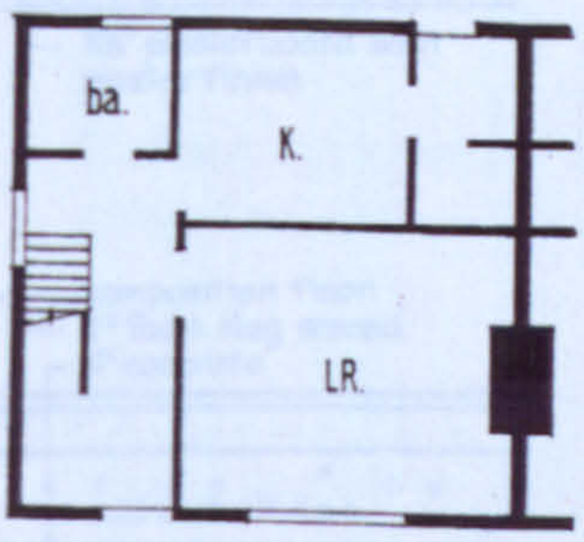


Detail of the BISF house.

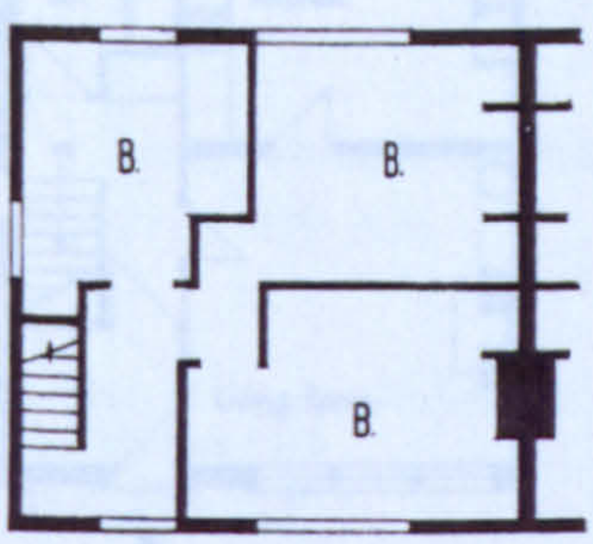
FRONT ELEVATION



CROSS SECTION



GROUND FLOOR PLAN



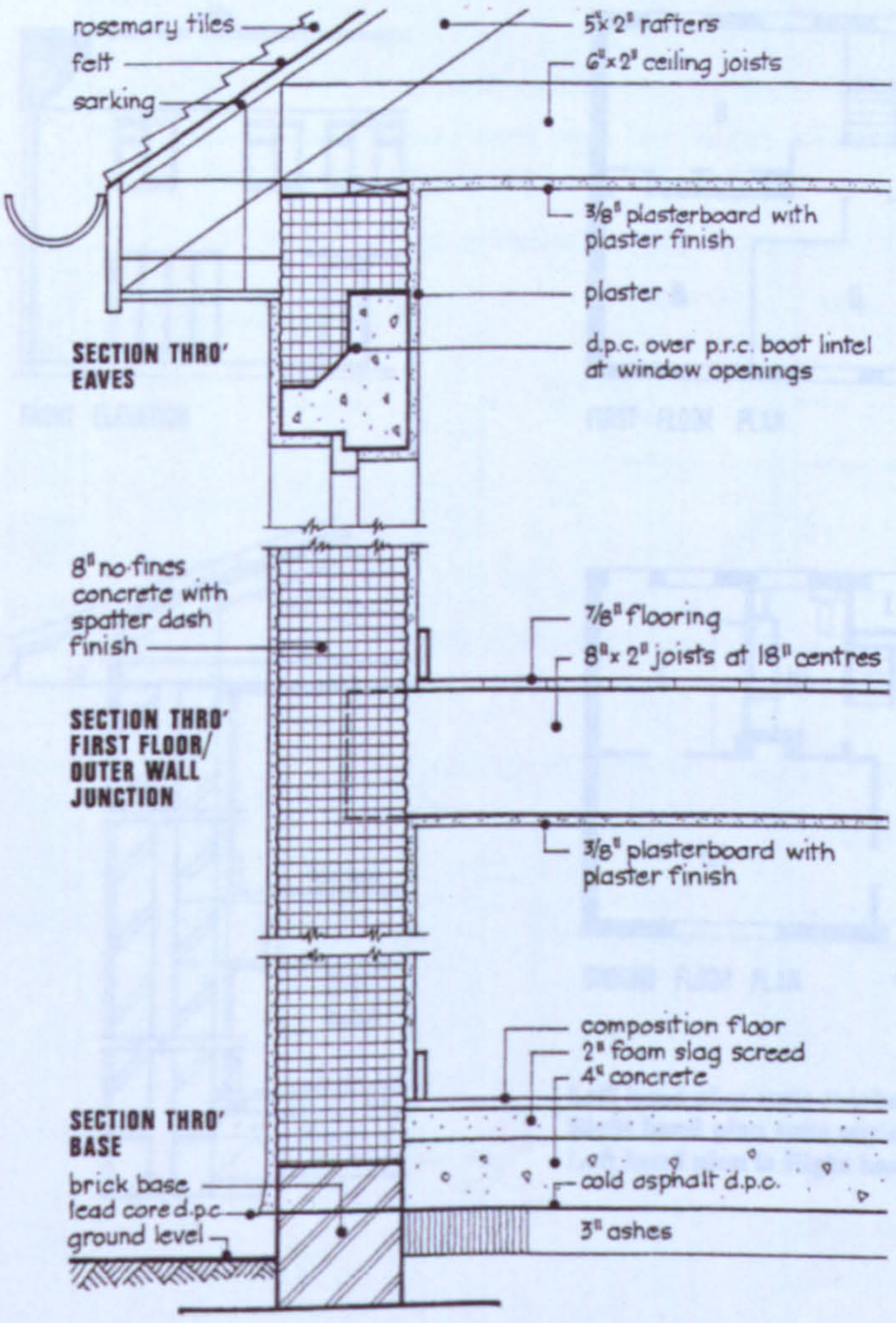
FIRST FLOOR PLAN

Source : A Guide to Non Traditional Housing in Scotland

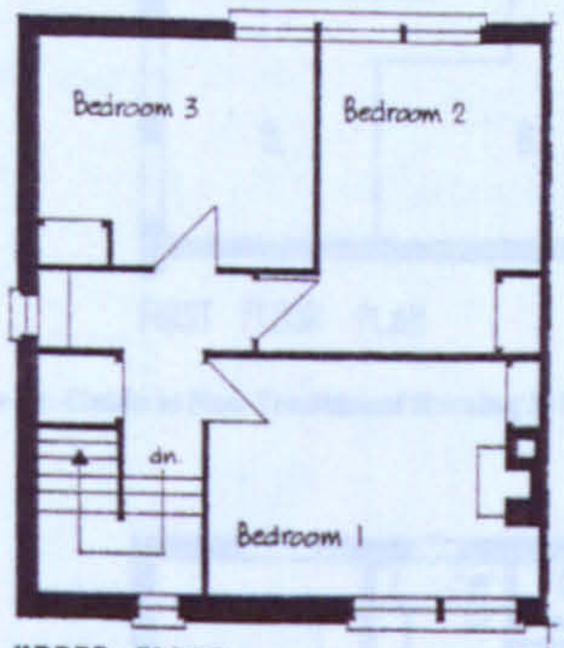
Figure 4.24

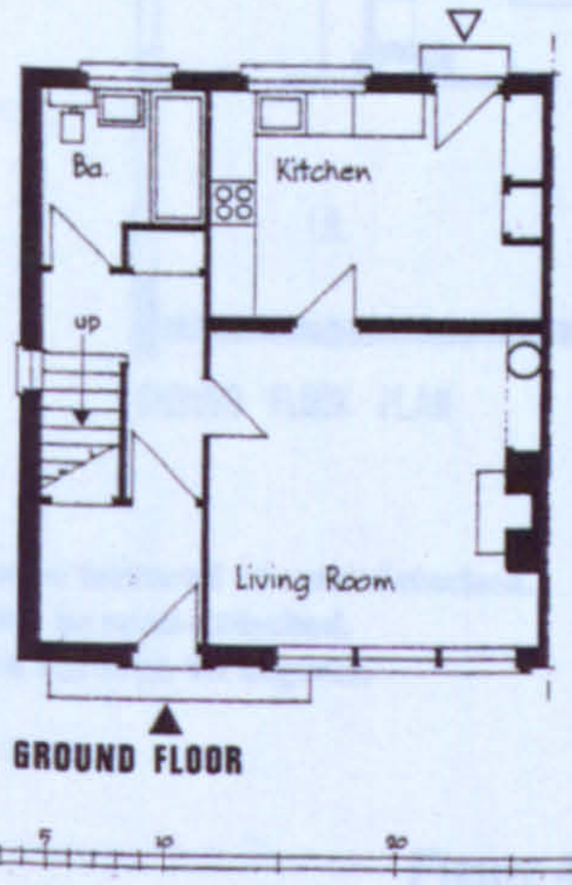
No-Fines Concrete Construction

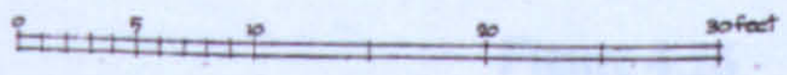
52, 54 Sighthill Road, Edinburgh
House on right with porch extension may have original windows.



floor area 952 sq. ft.





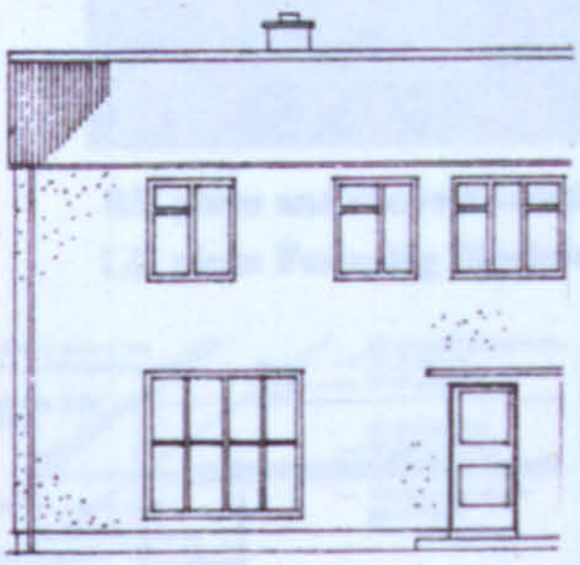


Source : Demonstration Houses, Sighthill, Edinburgh

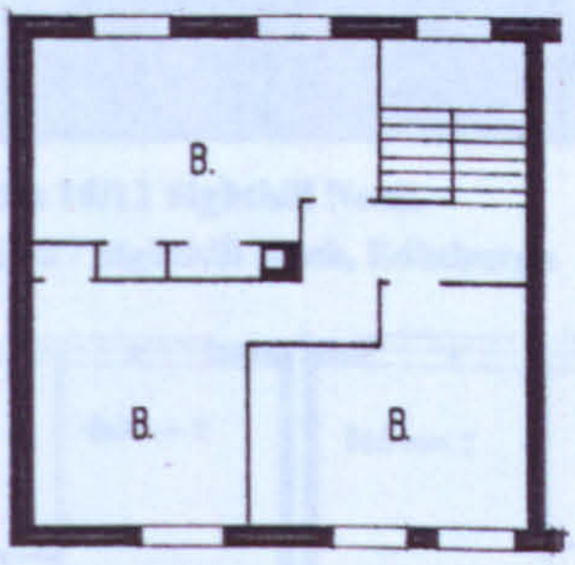
Figure 4.25

Blackburn Permanent House (Mark 3) Brick House

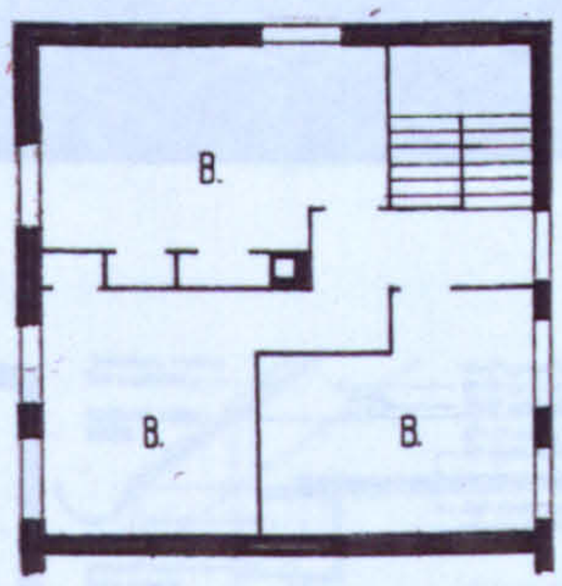
Montrave Avenue Cupar contains both versions of the house plans.



FRONT ELEVATION

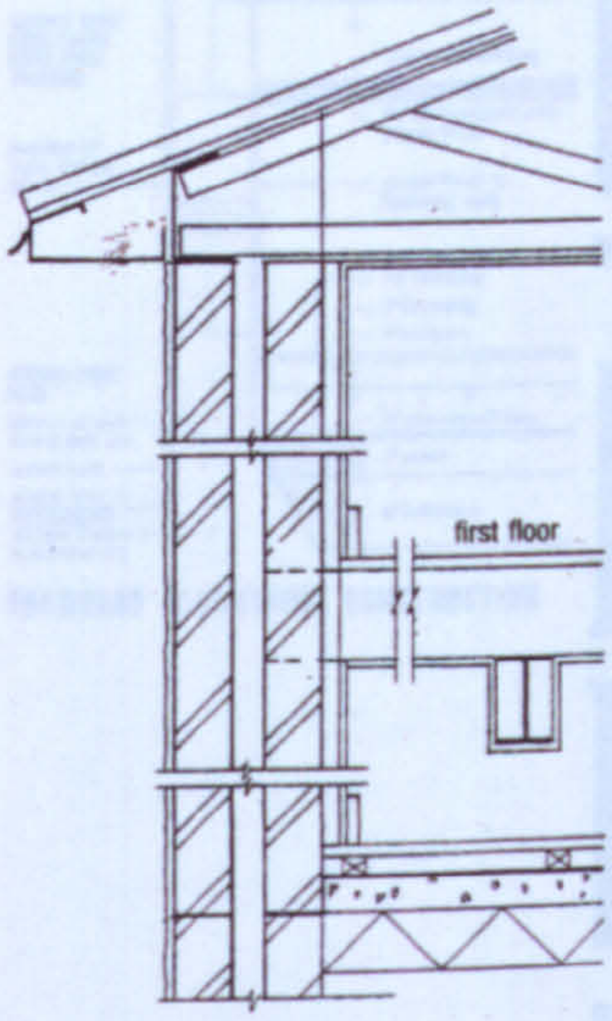


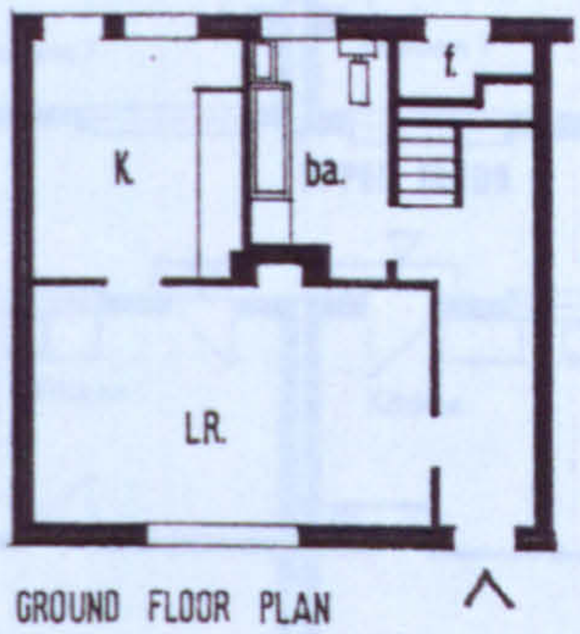
FIRST FLOOR PLAN



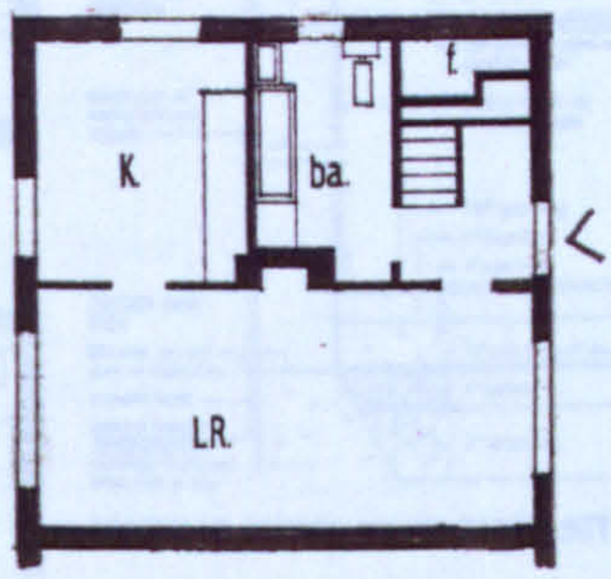
FIRST FLOOR PLAN

Source : A Guide to Non Traditional Housing in Scotland





GROUND FLOOR PLAN



GROUND FLOOR PLAN

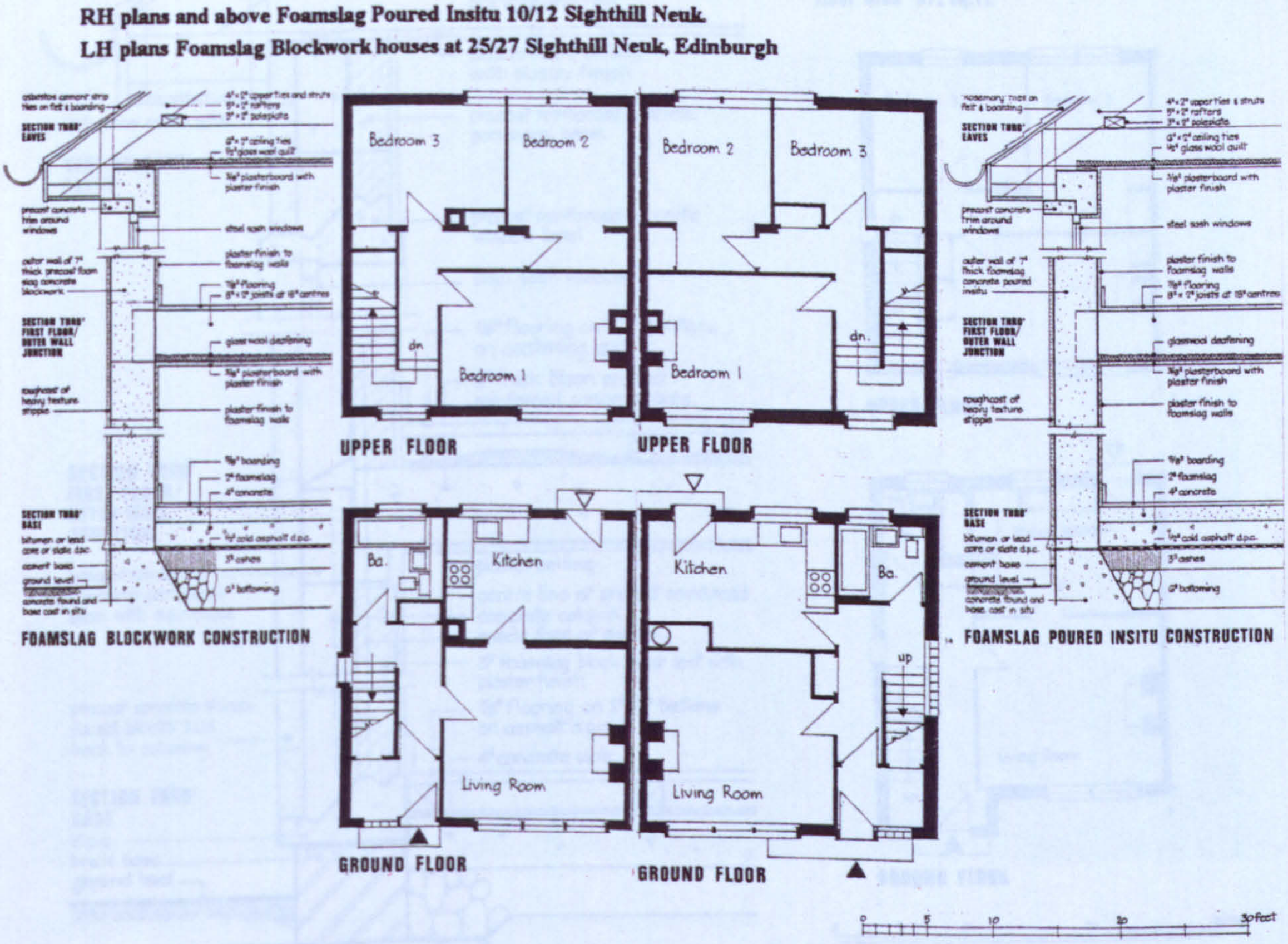
Left hand plan suits southern aspect can be terraced or semi-detached.
Right hand plan suits any aspect but must be semi-detached.
Left hand plan is Right hand plan turned through 90 degrees.

Figure 4.26

Foamslag Construction

RH plans and above Foamslag Poured Insitu 10/12 Sighthill Neuk.

LH plans Foamslag Blockwork houses at 25/27 Sighthill Neuk, Edinburgh

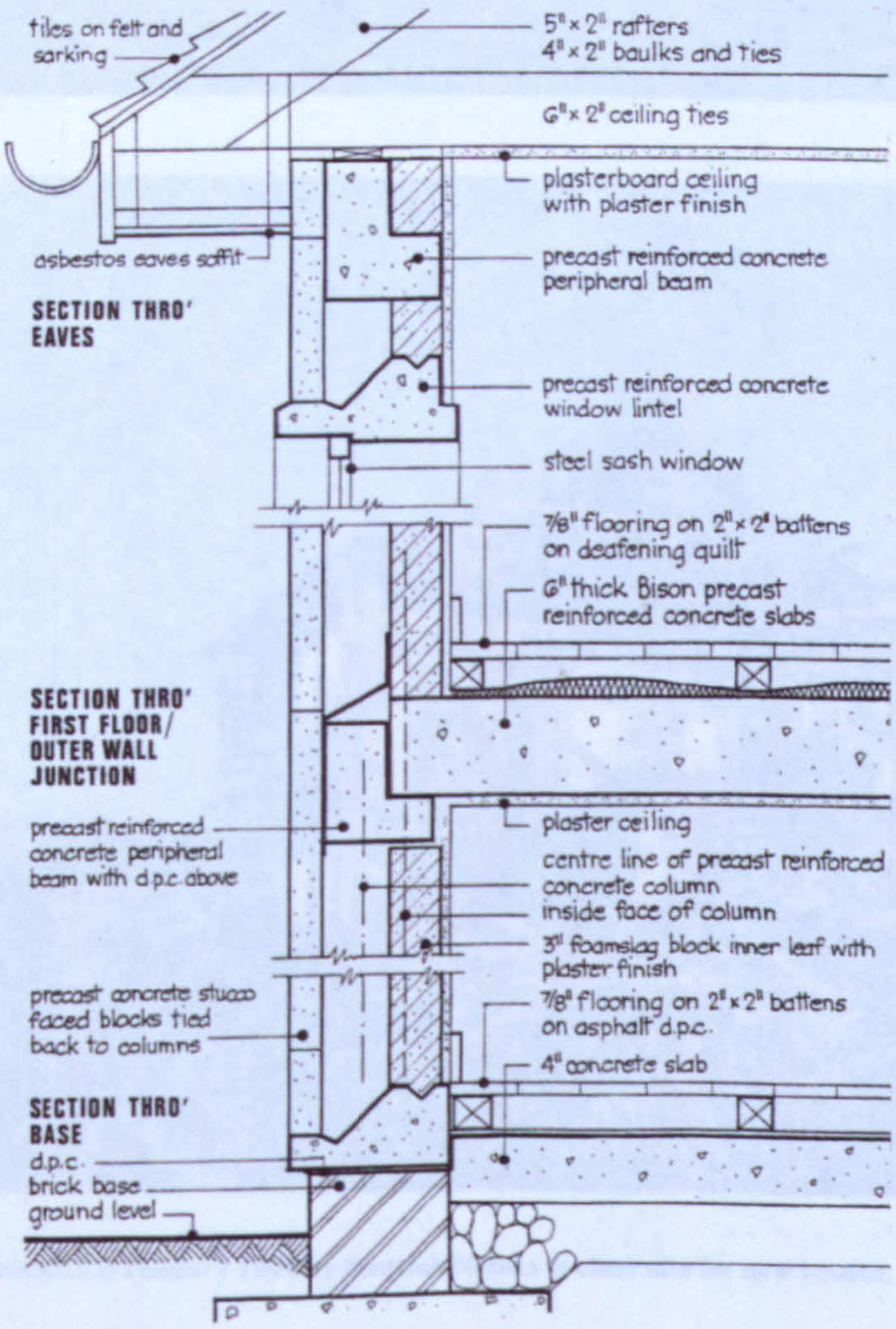


Source : Demonstration Houses, Sighthill, Edinburgh

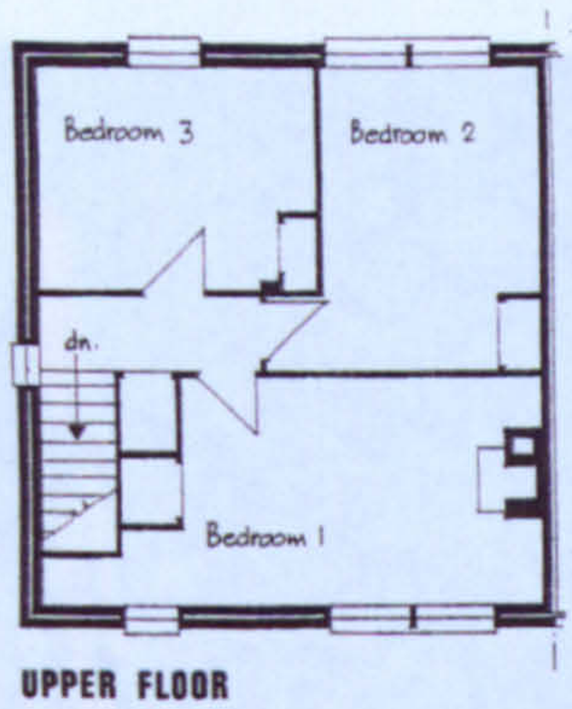
Figure 4.27

Orlit Framed Construction

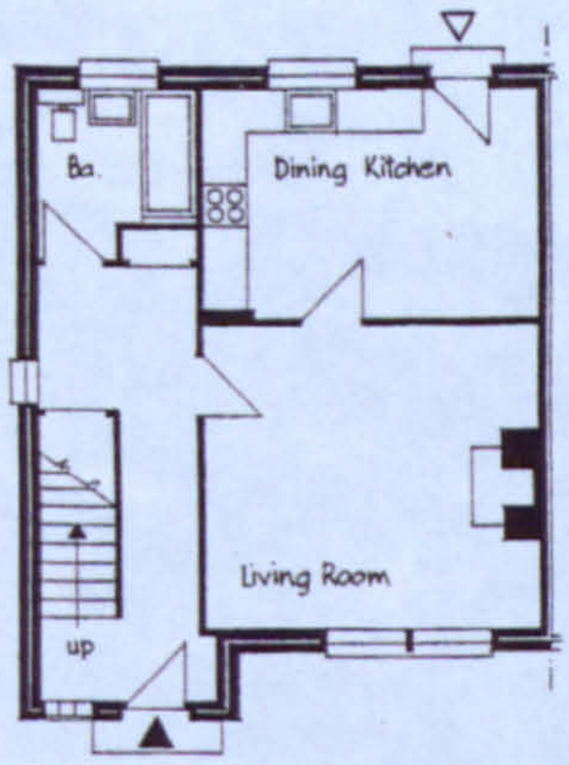
No. 2 and 4 Sighthill Neuk, Edinburgh
Pitched roof added to porch. Doors and windows not original.



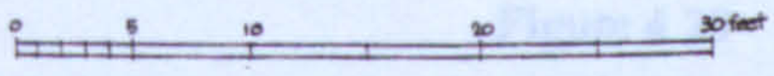
floor area 972 sq.ft.



UPPER FLOOR



GROUND FLOOR



Source : Demonstration Houses, Sighthill, Edinburgh

Figure 4.28

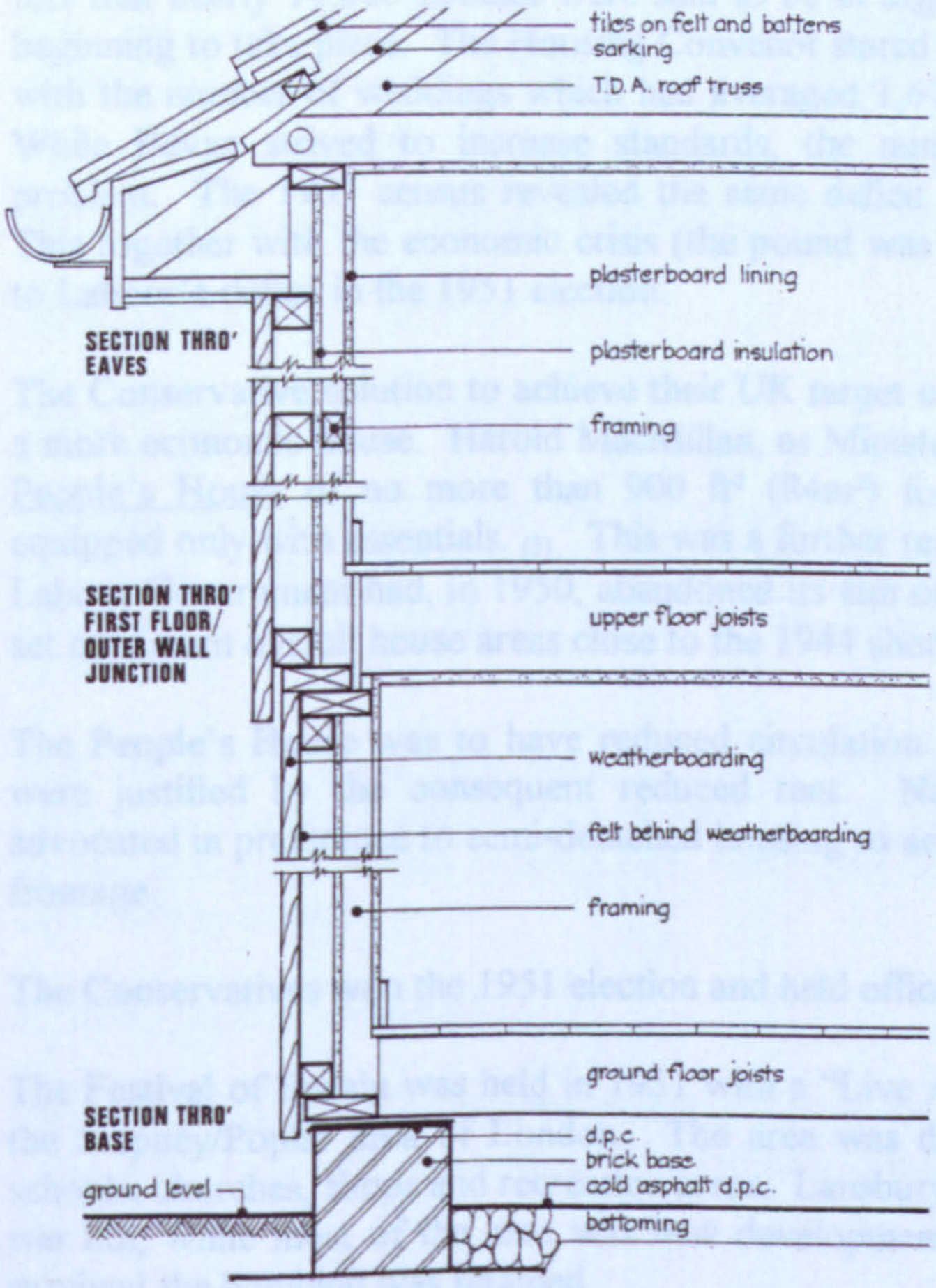
Orlit, Woodlands Avenue, Irvine

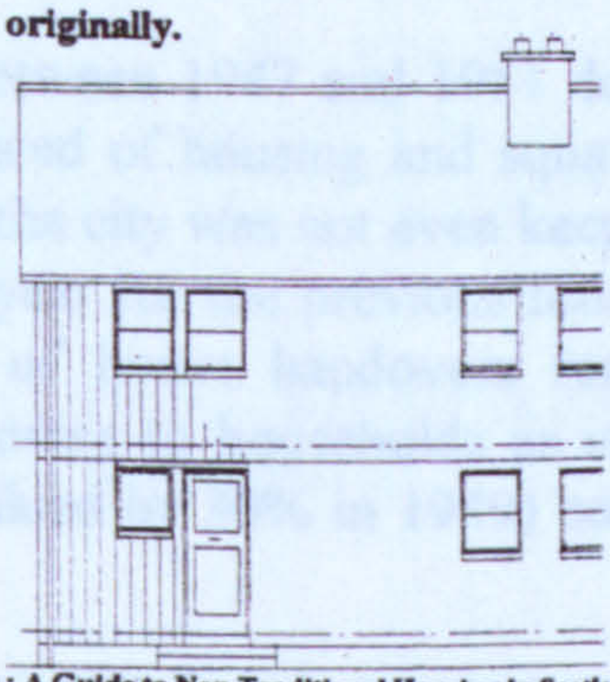
Demolition January 1994 by Scottish Homes to clear site for new houses.

Figure 4.29

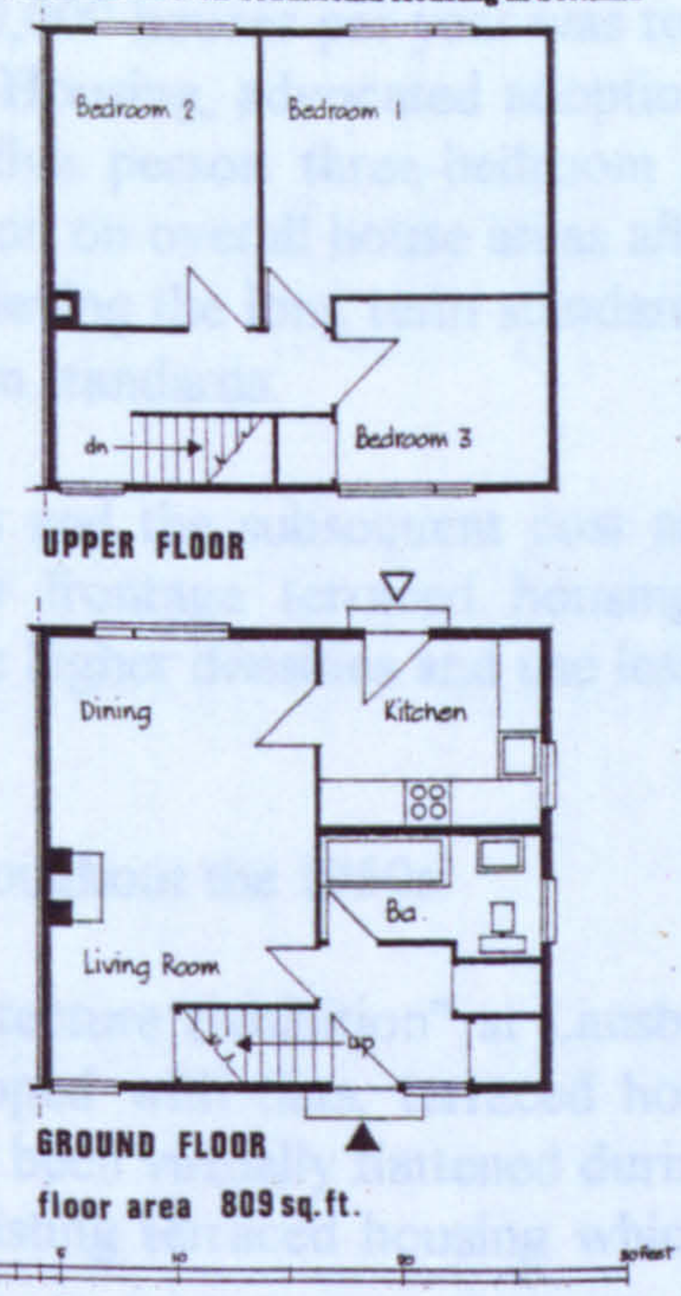
Weir Timber

House may be in original condition although windows may have been sash and case originally.
Tollerton Drive, Woodlands, Irvine.





Source : A Guide to Non Traditional Housing in Scotland



Source : Demonstration Houses, Sighthill, Edinburgh

Figure 4.30

1950 - 1959

INTRODUCTION

In the 1950s a consensus of political opinion existed on the need for a large public housing programme to solve the shortage of adequate housing. There was however a difference of opinion on how this was to be achieved. Housing was a key issue in the 1951 General Election and the Conservatives pledged a target of 300,000 houses a year to tackle the (UK) shortage. (1)

The Labour Minister of Housing, Aneurin Bevan, while accepting the 1944 Housing Manual for England and Wales, had encouraged authorities to improve on these standards. (2) In the 1949 Housing Manual house area standards had been marginally increased. In Scotland the Westwood report had already published increased long term standards along with its short term 1944 standards. Public housing handovers which had been over 19,000 in 1939 had fallen to 4,714 in 1940 and only reached an equivalent number of 19,670 in 1948 rising to 25,029 in 1950.

In Dundee, the City Council had only built 2,851 houses between 1947 and 1951 despite the fact that nearly 14,000 families were said to be in urgent need of housing and squatting was beginning to take place. The Housing Convenor stated that the city was not even keeping pace with the number of weddings which had averaged 1,678 a year for the previous four years.(3) While Bevan strived to increase standards, the number of house handovers remained a problem. The 1951 census revealed the same deficit of homes to households as in 1931.(4) This together with the economic crisis (the pound was devalued by 30% in 1949) contributed to Labour's defeat in the 1951 election.

The Conservative solution to achieve their UK target of 300,000 houses per year was to build a more economic house. Harold MacMillan, as Minister of Housing, advocated adoption of a People's House of no more than 900 ft^2 ($84m^2$) for a five person three-bedroom house equipped only with essentials. (5) This was a further reduction on overall house areas after the Labour Government had, in 1950, abandoned its aim of achieving the long term standards and set maximum overall house areas close to the 1944 short term standards.

The People's House was to have reduced circulation areas and the subsequent cost savings were justified by the consequent reduced rent. Narrow frontage terraced housing was advocated in preference to semi-detached housing to achieve higher densities and use less road frontage.

The Conservatives won the 1951 election and held office throughout the 1950s.

The Festival of Britain was held in 1951 with a "Live Architecture Exhibition" at Lansbury in the Stepney/Poplar area of London. The area was developed with flats, terraced housing, schools, churches, shops and recreation areas. Lansbury had been virtually flattened during the war but, while most of the area was new development, existing terraced housing which had survived the bombing was retained.

The move away from the 1940s semi detached housing to terraced housing and higher densities in the 1950s did not solve the problem of urban sprawl. In comparison to traditional development in urban areas, large areas of otherwise developable land were lost to development by the construction of wide roads and further land sterilised by road sightline requirements or by planning requirements to set residential development back from major roads. The New Towns for all their use of terraced housing and flats were built at Garden City densities of around 12 houses to the acre (29/Ha). Author Gordon Cullen coined the phrase "Prairie Planning" in an article in the Architectural Review in July 1953 and continued, with the support of critic Ian Nairn, to argue for a return to the tight urban form of traditional villages, towns and cities.

Cumbernauld designated in 1955 as a Mark 2 New Town was built to higher densities than the Mark 1 New Towns of Glenrothes and East Kilbride but even here roads used up large amounts of land reducing the overall density.

Concern over smoke pollution in major conurbations led to the 1956 Clean Air Act. This was the first Clean Air Act to reduce both industrial and domestic smoke pollution. There was a prohibition of dark smoke from industrial and trade premises and measures to reduce grit and dust from furnaces. The Act made it an offence for anyone to purchase or sell any solid fuel for use in a Local Authority designated smoke control area, if the fuel was not one of the authorised fuels. While it was still possible to heat housing with approved solid fuel in approved appliances it, together with the convenience advantage of gas, oil and electric heating systems, led to the demise of solid fuel as the primary heating system fuel.

Chimneys for solid fuel fires ceased to feature as an essential element of public housing and a major visual element of traditional Scottish domestic architecture disappeared.

HOUSING LEGISLATION

Housing (Scotland) Act 1950

This Act consolidated in one Act the previous Acts from 1925 with the exception of those passed for a temporary purpose. The 1950 Act became the principal Act repealing the previous Acts but leaving in operation the existing Exchequer subsidies and financial contributions.

Included in the consolidation were; the power given to Local Authorities to make bylaws in relation to houses, the prohibition of back to back houses and the requirement that only in exceptional circumstances should Local Authorities allow new houses to be built with fewer than three apartments.

Housing (Scotland) Act 1952

Exchequer and Local Authorities financial contributions were almost doubled from those of 1946, with higher contributions for rural house building.

Apartment	Exchequer	Local Authorities
less than 4	£39.75	£13.25
4	£42.25	£14.25
5	£46.75	£15.50

Hostels for single persons had £20/dwelling contribution from the Exchequer and Local Authorities contributed an additional one third to that of the Exchequer.

Agricultural accommodation contributions were higher with Exchequer contributions £51.75, £54.25, £58.75 for 3, 4 and 5 apartment respectively. All contributions were for 60 years.

There were also schemes for the provision of agricultural accommodation by bodies other than Local Authorities.

Housing (Repairs and Rents) (Scotland) Act 1954

This Act allowed the landlord of private rental accommodation to increase rents to recover costs of improvements and making the house fit for habitation. The Act also allowed for the tenant to recover costs, of making the house fit, from the landlord.

Further provisions were made for the clearance and redevelopment of areas of unfit housing by Local Authorities. There were also grants available to Local Authorities to make properties habitable in the short term prior to demolition and replacement.

Valuation and Rating (Scotland) Act 1956

This changed the rating system and introduced Rateable Values determined by estimates of reasonable rental value of property.

Housing and Town Development (Scotland) Act 1957

Provisions were made for, subject to the Secretary of State's approval, town development schemes and for compulsory acquisition of land.

The Act introduced overspill agreements. The concept of the overspill agreement was that Authorities with unfit or overcrowded housing would enter into an overspill agreement with another authority whereby a grant or loan was paid to the receiving Authority for rehousing the former citizens thereby reducing the housing problems of the former.

The overspill housing could be provided by the receiving Local Authority, New Town Development Corporation, by SSHA or by the exporting authority. Glasgow entered into overspill agreements with Local Authorities, New Towns and SSHA.

The Act relieved Local Authorities of making specific contributions and also revised Exchequer contributions downwards for general needs housing for the first time since the war. It however provided higher subsidies for overspill houses incoming industrial workers houses and high rise flats.

Exchequer contributions (payable over 60 years) were:-

General needs housing	£24	(down from £42.25)
Incoming industrial workers housing	£30	
Agricultural workers housing	£36	
Overspill agreement housing	£42	
Houses on remote sites	Additional amount to be determined	

Houses in blocks of six or more storeys qualified for an additional amount equal to $^2/_3$ of the sum by which the cost of the house exceeded the average cost of approved houses in Scotland.

This was a shift in emphasis away from general needs housing benefiting housing concerned with incoming workers, overspill and high rise housing.

The 1946 Act had provided for an additional exchequer contribution of £7 per flat in blocks with lifts. This had assisted high flats such as Moss Heights in Glasgow to be planned in the late 1940s but the assistance was small and fell far short of covering the additional costs. The new Exchequer contributions specifically for blocks of six or more storeys considerably reduced the housing authorities' costs of building high rise housing.

House Purchase and Housing Act 1959

This Act applied to the whole of the British Isles with separate sections for England and Wales (part 2) and for Scotland (part 3).

Part 1 provided for Exchequer advances to building societies to encourage them to ease the terms of mortgages on older property. The Exchequer loans were restricted to property built prior to 1919 and of a value up to £2,500 (£3,000 for London). There was also a limit of total Exchequer advances of £100,000,000.

Part 3 required Local Authorities in Scotland to give assistance to any person other than a Local Authority for the improvement of a dwelling by the fitting of standard amenities namely:-

a) a fixed bath or shower in a bathroom
b) a wash hand basin
c) a hot water supply
d) a water closet
e) satisfactory facilities for storing food.

The amount of the grant by the Local Authority was one half of the cost of the works up to a maximum of £155.

Provision was also made for Exchequer contributions towards Local Authorities' Costs.

Exchequer contributions towards the cost of Local Authorities and Development Corporations improving housing accommodation were included in the 1950 Act but Development Corporations were excluded in part 4 of the 1959 Act.

BUILDING STANDARDS

Model Building Bylaws For Burghs 1954

The model bylaws were not backed by legislation and despite encouragement from the Department of Health they were not adopted by all burghs. Some burghs had no bylaws, some used earlier versions and some used variations. This was to change with the 1959 Building (Scotland) Act which provided the legislation for the 1963 and subsequent Building regulations to be applied throughout Scotland.

The value in looking at the 1954 Model Building Bylaws is that they illustrate the Department of Health opinion on what should be a building code in the 1950s and they were the forerunner to the 1963 building regulations which closely followed them in standards.

The new 1954 bylaws were considered necessary to allow greater freedom to use new materials. For those wishing to use traditional methods of construction 'deemed to satisfy' clauses were included to show forms of construction which complied with the bylaws' standards.

The main bylaws relating to houses can be summarised as

Lighting and Ventilation

Reference is made to the Burgh Police Scotland Act for sizes of windows in habitable rooms and ventilation of common stairs.
Window areas are given for sculleries and for bathrooms although in the case of bathrooms mechanical ventilation is allowed as an alternative.

Access

A public road of at least 10 feet (3m) wide was required to be within 150 feet (45.7m) of the door of a house or block of flats and within the same distance of the refuse collection point.

Passenger Lifts (applies to new houses only)

A lift is required to every house where the entrance is above the fifth storey above ground level.

Sculleries and Laundries

Floor areas are given for sculleries and provision specified for cooking, washing and drying of clothes. Larders are also specified along with fuel storage, if required, and press (storage) accommodation.

Bathroom

Every house to be provided with a separate water-closet and a bath or shower. It states that it is permissible to have a bidet, bath, wash hand basin and W.C. pan in the same room but does not include the provision of a wash hand basin as a requirement to meet the bylaws.

Open Space about Houses

Every gable or end of a house must be contiguous with or not less than 3' 6" (1.06m) away from the boundary.

A house or building which does not exceed 40 ft (12m) in height shall have

(a) open space in front of the house not less than the height of the house. It also refers to the 1903 Burgh Police (Scotland) Act which required the same space standard at the rear of the house,

(b) where the front of the house is to a street, there shall be not less than 30 ft (9m) or the height of the building which ever is the greater from the building to the centre of the street.

It states that control over space surrounding buildings exceeding 40 ft (12m) in height will be left entirely to the local planning authority. It also states in the introduction memorandum that housing density, heights and the number of houses in blocks are now matters for the local planning authority under powers given by the Town and Country Planning (Scotland) Act 1947.

Resistance to Heat and Sound

While it is recommended that insulation standards should be provided above the minimum bylaw standard it required minimum insulation standards which were commonly achieved with typical traditional construction.

The standard for walls 0.30 Btu/ft² h degF (1.70 W/m² deg C) is shown to be achieved in the "deemed to satisfy" section by two leaves of 4½" (114mm) brick with ¾" (20mm) internal plaster.

The standard for roofs 0.35 Btu/ft² deg F (2 W/m² deg C) is shown to be achieved in the "deemed to satisfy" by $^{5}/_{8}$" (15mm) timber sarking on a timber framed roof with $^{3}/_{8}$" (10mm) plasterboard. Examples are given showing how with the additional of 4" (100mm) glass wool 0.8 Btu/ft² deg F (0.45 W/m² deg C) was achieved but the minimum roof standard was only thin plasterboard and sarking between the inside and the outside.

For floors of rooms next to the ground the standard was 0.40 Btu/ft² deg F (2.25 W/m² deg C).

Sound insulation was similarly based on traditional brick/timber construction with deadening required for timber floors separating houses.

Clearly in setting out the new bylaws nothing was proposed which would not be achieved by continuing to use established forms of construction.

Building (Scotland) Act 1959

This required that local building bylaws be replaced with building regulations which would apply to the whole of Scotland.

Building Acts in force at this time were the Burgh Police Acts of 1892 and 1903, and the Housing Scotland Act 1950. These Acts included archaic provisions "(e.g. that ceilings of flats should be at least 9'6" (2.9m) high in ground storeys, that WC's should be on outside walls and that all apartments in a dwelling house should be plastered with three coats of plaster)". (6)

Local Authorities had increasingly through Dean of Guild Courts exercised control over building through local Acts and Burgh Police Acts. They had been encouraged by the Department of Health in 1932 to adopt model building bylaws (revised in 1934 and 1937). After the Second World War even the most recent building bylaws of 1937 were found to be unsuitable to deal with the new building techniques and materials coming into use. (7) A working party was set up by the Department of Health in 1952 to revise the model building bylaws with special reference to standards in other countries and to new methods of construction. Burghs were encouraged by the Department of Health to adopt the 1954 model building bylaws but not all did so. In 1957, 2 of the 4 cities and 32 of the 173 small burghs had no bylaws and of those who had adopted model bylaws, some were the 1937 model, some the 1954 model and some used earlier models or models with variations.

Building bylaws in the 1950s lacked consistency and consequently were extremely confusing for builders and designers working in more than one area of Scotland.

The Department of Health for Scotland published a report in 1957 which recommended that the various statutes and bylaws should be replaced by a New Building Act and regulations made under enabling powers conferred by the Act. The machinery of Building Control was to be laid down in the Act but all detailed structural requirements should be in regulations. (8)

The Building (Scotland) Act of 1959 follows the reports recommendations.

For every Burgh and Landward area the Act required there to be a buildings authority which was required to employ a "master of works" who was to be suitably qualified but to have no interest in, nor receive any fees from, any branch of the building trade. The Local Authority was to administer the Act, inspecting the plans, progress of works and issuing completion certificates. Relaxations of building standards regulations in particular cases were to be determined by the Secretary of State for Scotland.

The Act listed "Matters in regard to which building standard regulations may be made" as proposed by the report.

Preparation of site.
Strength and stability.
Fire precautions, resistance to outbreak and spread of fire, means of escape.
Resistance to moisture.
Resistance to the transmission of heat.
Resistance to the transmission of sound.
Durability.

Resistance to infestation.
Drainage.
Ventilation.
Daylighting.
Heating and artificial lighting.
Services.
Accommodation and ancillary equipment.
Access.
Prevention of danger and obstruction.

The Act repealed the existing local Acts and with a few exceptions the 1892 and 1903 Burgh Police Acts. In consequence the following housing provisions no longer applied, from the 1892 Act; WC's to be on external walls; a maximum of 12 houses off a common stair; windows one tenth of floor area; party walls carried through the roof; and from the 1903 Act, requirements regarding widths of streets, cubic capacities of dwelling houses and ventilation of hollow squares.

The Act included powers for Local Authorities to demolish dangerous buildings and to purchase buildings and sites where owners couldn't be found. It also required however that the demolition of a dangerous building must not contravene the 1931 Ancient Monuments Act, Building Preservation Orders under the Town and Country Planning Act of 1947 or the Historic and Ancient Monuments Act 1953.

HOUSING REPORTS

Scottish Housing Handbook 3 House Design 1950

This handbook was published towards the end of the post war Labour Government and, far from moving towards the long term standard proposed by the 1945 Westwood Report, it set down areas close to the 1945 short term standards. The minimum room areas were a reduction on those proposed in the 1945 report but whereas room areas could be increased the overall areas for reason of economy in use of labour and materials could not be exceeded.

1950 SHH3			*1945 short term*		*1945 long term*	
Overall Areas	ft²	m²	ft²	m²	ft²	m²
Single storey cottage :						
3 apartment	725	67.4	723	67.2	817	75.9
4 apartment	880 (or 860*)	82 (or 80)	863	80.2	1042	96.8
5 apartment	1000 (or 980*)	93 (or 91)	-	-	-	-
Two storey cottage :						
3 apartment	770	71.6	735	68.3	-	-
4 apartment	950 (or 930*)	88 (or 86.5)	936	87.0	1176	109
5 apartment	1055 (or 1035*)	98 (or 96)	1035	98	1240	115
Two storey 4-in-a-block flatted house :						
3 apartment	760	70.6	760	70.6	-	-
4 apartment	900 (or 880*)	83.7 (or 81.9)	900	83.7	1055	98
Two or three storey flat (with common stair) :						
3 apartment	775	72.1	773	72	768	72
4 apartment	910 (or 890*)	84.7 (82.8)	908	84	1115	104

* Where the smallest bedroom is a one person bedroom of 90 ft², instead of a two person bedroom of 110 ft²

Room Areas		SHH3 1950 ft² †	m²	Westwood 1945 Comparison ft²	m²
Livingroom		180 (min)	16.7	180 to 200	16.7 to 18.6
First bedroom		145 to 155	13.5 to 14.4	150 to 160	14 to 15
Second bedroom		115 to 125	10.7 to 11.6	126	11
Other bedrooms	1p	90 (min)	8.4	120	11 (no single bedrooms)
Other bedrooms	2p	110 (min)	10.2	120	11
Kitchen		70 to 80	6.5 to 7.4	110	10.2
Bathroom		36 (min)	3.3	36	3.3

† All areas exclude storage space

The report advocated terraced housing and simplification of house design stating that economy may go hand in hand with good design.

Other features in the report were that the livingroom should have as much sunlight as possible particularly in the afternoons. Bedrooms should be grouped together although the report comments that it is often convenient to have one of the smaller bedrooms on the ground floor.

Scottish Housing Handbook 6 Economy in House Building 1951

This handbook section, although published in 1951, is referred to in the 1950 Handbook Part 3.

Advice is given to Local Authorities on how to obtain economies, avoid expense and to obtain a good contract price.

It advocates economy of scale suggesting that rather than having two sites of twelve houses, one site of twenty four would obtain a better price. It suggests choosing a level or a gently sloping site to avoid underbuilding costs. Terraced housing or flats are recommended against semi detached houses and where ground floor houses are needed for the elderly or disabled it is suggested they can be provided at ground floor level with flats or maisonettes above. It recommends not providing larger houses than necessary to avoid under occupation.

It recommends 7'6" (2.3m) ceiling heights commenting that there is no objection on the grounds of comfort or health and that lower ceiling rooms are easier to heat.

It does however draw attention to the special subsidy paid under Section 88 of the Housing (Scotland) Act 1950 which gave additional exchequer contributions for houses constructed to preserve the character of the surroundings. It states that there is a need to maintain employment among local stone-masons and to revive the Scottish slate industry.

The Appendix to Part 6 of the Scottish Housing Handbook is titled space-saving designs and illustrates various house types which are economical in plan area. The house types illustrated are:- (Fig 5.01)

	ft²	m²
Four apartment terrace house, with through access from store to kitchen	860	80
Four apartment semi detached cottage	800	74.3
3 and 4 apartment 3 storey flats	662 to 783	61.5 to 72.7
3 person 3 apartment flats	562	52.2
4 apartment two tier maisonettes	857 to 864	80 to 80.3
Houses for the elderly or single	390 to 447	36 to 41.5
Combining houses for a large family	714 + 812	66.3 + 75.5

The last two categories were also illustrated in Housing of Special Groups 1952.

Design in Town and Village

Published for the ministry of Housing and Local Government in England and Wales by HMSO in 1953 it was on sale throughout the UK. Written by three architect planners Sharp, Gibberd and Holford it gives an insight into official opinion on forms of development in Villages, Residential Areas and City Centres.

In part one Sharp discusses appropriate development for an English village. Sharp states that the true English village is about 300 - 450 inhabitants. Above this size their form, which he sees as linear, begins to get complicated. He advocates "free" or organic layouts following the evolution of the existing village and emphasises the importance of allowing the plan to evolve while designing at "a large scale" (such as 1:500). (Fig 5.02)

He is critical of interwar housing which was predominantly semi-detached with enclosed front gardens to the street and hipped roofs. Traditional development in villages was terraced with open or communal space to the front with houses built hard to the pavement, road or green. Roofs would be pitched with gables (not hipped roofs which emphasise the individual block rather than the continuity of the street). (Fig 5.03) He is also critical of :

> A few self conscious 'advanced' architects (who,) in pushing too far for the proper claim that modern needs must have modern expression, may prefer to think of a modern village as, for example, a simple skyscraper of flats, or a series of short separate terraces, each four or five houses long standing at right angles to a road with windy spaces of communal gardens between. But while flinging aside tradition might be intoxicating it would . . . . (in the context of a village) be wrong. (9)

It is worth noting that the Unite d'Habilation Marseilles designed by Le Corbusier to house a complete community with shops, swimming baths, gymnasium and nursery school was completed in 1952 and is the type of housing solution being criticised and advised against by Sharp.

In part two Gibberd discusses appropriate residential areas. Gibberd specifically refers to the Unité stating that while, it is attractive in theory to have an immense block of flats in open landscape since the least disturbance is caused to natural features, the scene gets beyond human scale and many people do not want to be housed in such conditions. (10)

Gibberd accepts that some flats are needed in modern housing layouts but they are best distributed throughout the neighbourhood mixed with other types of development. Gibberd

also criticises the inter-war semi detached housing solution pointing out that the most modern houses are so small that they gain in appearance in terraces. He also draws attention to the advantage in heat loss reduction of terraced development.

Gibberd discusses the neighbourhood concept rejecting the notion that there is an ideal size of say 10 - 12,000 people and arguing that neighbourhoods could vary in size with 2,000 - 3,000 people being quoted as not being too small. He states that, while an ideal neighbourhood would have its own shopping and school facilities, it was not a serious problem if a small neighbourhood with its own distinct character had to share its facilities with adjacent areas.

He describes the neighbourhood concept with the neighbourhood school ideally situated in the centre, in order that children walking to school walk away from the main roads, while the shops and community facilities would be located near the entrance, to be seen by those entering the neighbourhood, thereby encouraging use of the facilities. It was this concept that formed the basis of planning the residential areas of the early New Towns of East Kilbride and Glenrothes. (Fig 5.03)

Gibberd agrees with Sharp in advocating communal landscaped areas without front gardens to the houses to give a close relationship with ground and external wall. This as in traditional town development gives strong enclosure. He argues for a strong sense of enclosure in towns and gives examples on how this can be achieved. (Fig 5.02) He also, while accepting there is a place for low density developments for both economic and aesthetic reasons, states that the general trend in design should be towards high density housing groups contrasted with broad areas of landscape. (11) In this there is common ground with the series of articles in the Architectural Review by Cullen, Nairn and others condemning Prairie Planning and arguing for tighter urban variety of enclosure, vistas and focal points to give a strong sense of place. (12)

Holford in part three on city centres states that it is necessary to balance one value against another, on the one hand "even in the face of modern traffic" great urban squares and listed buildings can be preserved and improved; on the other he argues that with the demands on city centres for circulation space, "open planning" gives more space for circulation and landscaped spaces.

Holford states "it is one of the objects of open planning to create incidental, progressive and varied views throughout the whole composition, as compared with the more formal and symmetrical set pieces of traditional civic design..... A further object is to provide a setting for free standing building - which is lit and therefore visible from all sides,. . . . . "(13) He also states that buildings once they outgrow the collegiate scale and install lifts will, of course, tend to grow higher. He argues for the necessity of planning control to limit the percentage of floor space of buildings to the land they occupy (plot ratio) to ensure reasonable standards of light and amenity.

Here is the argument for high rise buildings surrounded with large areas of open space or planted areas. It was in Holford's opinion the way to accommodate the traffic requirements and give the new buildings air and sunlight. (Fig 5.02)

Holford also comments earlier that, with modern planning practice "the central tangle is being sorted out, shops and offices grouped separately and each building type given its appropriate

form and layout. The multi-purpose building like the multi-purpose street is regarded as an unsatisfactory compromise". (14)

To summarise in part 1 it is advocated that village expansion should be an extension of the existing built form providing a sense of place and enclosure. In part 2 it is argued for introduction of non-residential uses in residential areas, mixed use, all be it, in a planned fashion and for the introduction of tight enclosed spaces formed with terraces of mixed development. In part 3 good planning practice for the centre of the city is described as "untangling" the mixed uses and creating open planning to ensure sunlight, daylight and traffic penetration.

The Ministry publication rejects the Unité solution of huge slab blocks or towers containing all the village, town or city functions with shopping streets in the air and set as sculptural forms in wide landscape. It accepts however that, to achieve good functional buildings and cities, land uses should be rationalised and "untangled" and the necessary high rise buildings should be set out in sufficient open space to achieve good sunlight and daylight.

Here is an indication that it is not the influence of the architecture of those such as Corbusier which shaped city development. Rather it was the argument that it was necessary in city centres, in order to accommodate increased traffic movement and avoid the congestion and overcrowding of 19th Century development, to build high with generous open spaces to accommodate pedestrian and vehicle movement and give adequate space for daylight, sunlight and fresh air to penetrate the buildings and the city.

Scottish Housing Handbook 1, Housing Layout, Rev. Edition 1958

A comprehensive handbook it is more technical, less opinionated, than Design in Town and Village discussed above. Advice is given on consultation with public utilities, road departments and planning authorities. Choice of site is also discussed and a comprehensive and detailed site survey is advised with Appendix A listing information required.

Three types of housing density are discussed and Appendix B describes suitable forms of houses required for a representative sample of 1,000 households from the 1951 Census. This broadly shows that families with young children (48.1%) could be accommodated in 1 and 2 storey cottages, 2 and 3 storey flats and 4 storey maisonettes. In other words it advises that no young children should be in houses where the entrance is above the third floor. Adult families (21.7%) could be accommodated in cottages, walk up flats or flats with lifts including maisonettes. The elderly could be accommodated in single storey cottages or flats with lifts and one and two adult households in cottages or flats with or without lifts. (Fig 5.04)

The first density described is 14 to 17 houses per acre (34 to 41 houses per hectare) applicable to areas where the majority require a house with a garden. The example given is in East Kilbride New Town. 25% is 2 and 3 storey flats and 75% 2 storey houses. The handbook comments that while the lower end of the density band could be wholly cottages the upper end would require approximately 33% flats.

The second density described is 25 - 26 houses per acre (60 - 62 houses per hectare) applicable to the majority of urban areas. Here there is a combination of 15% flats in an 11 storey tower,

50% two storey houses and two storey flats and the remainder three and four storey maisonettes and flats. The scheme gives 50% of the dwellings gardens.

The third density illustrated is in London and is 38 houses per acre (91 houses per hectare). Here only 8% are houses or flats at two storey, 61% is in 11 storey blocks and the remainder in 3 and 4 storey maisonettes. The handbook however comments that in order to meet the recommendations of Handbook 3, House Design, which recommends that families with young children should not be in flats above two flights of stairs, a density of above 34 houses to the acre is difficult to achieve.

The handbook states that "the establishment of community facilities in step with house building is of the first importance, not only to enable people to have the material benefits of shops, medical attention and convenient schooling but also to help to create satisfactory social relationships within the scheme". (15) A neighbourhood for 7,000 persons is illustrated at Northfield, Aberdeen and an example of a church as a unified composition in a residential street is shown to illustrate how public buildings can be used to give variety of form and create focal points. It also comments on how a primary school building could form part of the street without detracting from the continuity of enclosure but that the playing fields require to be located on an area where enclosure or continuity is not required.

Roads are discussed in more detail in Scottish Housing Handbook 2, Roads and Services. It identifies the three main types as Classified or Arterial roads, Development roads and Minor roads. Classified roads it states should not pass through residential areas but pass between them, access roads being restricted in number. Development roads access shops or public buildings within residential areas. Minor roads serve the houses themselves and should serve a limited number of houses for the sake of neighbourliness, safety and privacy. Loop roads are acceptable providing they do not encourage through traffic. Cul-de-sac roads are seen as having three advantages (1) privacy, (2) a high percentage of car parking and garaging can be provided without obstruction of through roads, (3) pedestrians can have separate footpaths from the cul-de-sac head to other parts of the scheme. Here cul-de-sac roads are linked with the desirability of pedestrian segregation.

It notes on garaging that the Scottish New Towns were providing 35% garaging and that in Sweden 80% car parking is provided. It questions whether this level of car parking is needed throughout Scotland but advises allowing for later provision. (Parking standards for rental housing in the 1990's is 130%).

It discusses allowing curtilage car parking and allowing tenants to build garages on curtilage. It advocates however grouped garaging as the most satisfactory type both economically and in appearance. (16) (Group garages were built throughout Scotland and often vandalised. Glenrothes New Town demolished many of them in the 1980's and redeveloped the sites).

On public open space it advocates general standards, provision of public gardens, playing fields, 1 acre (0.4 Ha) for 1,400 population, kick-a-bouts for 9 to 15 years enclosed with high fences away from houses. Similarly the 6 to 12 year formal and informal play areas are to be sited away from houses to avoid creating a noise nuisance but not across roads and toddlers play areas sited close to houses should have a minimum of 30 x 25 feet (9m x 7.5m) for each 25 houses.

A scientific approach was taken to Sunlight and Daylight. Reference is made to the BS CoP (1945) which recommends that livingrooms and where practicable kitchens and bedrooms should have a minimum of one hour sunlight from February to November. Daylight and Sunlight permissible height indicators are illustrated which allowed the designer to test windows for daylight and sunlight availability in a scheme. The indicator is placed on the window on the plan and the height of the buildings forming an obstruction checked on the indicator to see if they were sufficiently low or far enough away to avoid obstructing either daylight or sunlight. (Fig 5.05) The minimum standard for sunlight was one hour sunlight in the livingroom.

This is the housing reformers' concern for sunlight and daylight applied as a regulation (not for all housing but all housing requiring Scottish Office approval for subsidy namely public housing).

Scottish Housing Handbook 2, Roads and Services

The handbook states that the standards are designed to combine economy with sound architectural and engineering practice. It is concerned not with arterial or through roads only with roads which are part of a housing development.

General principles are given that through roads should never pass through housing areas but round or between them and that the elimination of through traffic enables housing roads to be more flexible in pattern. (17) Economy is a major feature of the handbook. Roads are to be designed to keep down the cost of sewers, water, gas and electricity services. Roads and footpaths widths are given in Appendix 1 and Diagram A (Fig 5.06) together with specifications in Appendix 2. These widths the handbook states "need hardly ever be exceeded and narrower widths are permissible only in exceptional circumstances - for example, when the site is a remote one with very little traffic, or when the terrain creates abnormal difficulties". (18) The standards were therefore to be neither exceeded nor reduced in normal circumstances.

Roads were to be designed for the safety of traffic and pedestrians and, it states, providing other essential principles can be met roads should be designed with an eye to architecture and landscaping giving as an example the use of curved roads to give the user a view of constantly changing frontage.

The report ends the section on roads criticising the use of single sided service roads to access houses fronting a through or arterial road. It advocates for reasons of economy double sided roads (houses fronting the road on both sides). It accepts that where access roads run parallel to through roads this will result in back gardens facing the main arterial or through road, but advocates the planting of "quick" growing hedges or trees. This advice often conflicted with local planning advice which required the houses to front the through road and not present back gardens with their sheds to public view. Perhaps aware of the conflict between planning requirements and economy the single sided service road is illustrated in the handbook. (Fig 5.06)

The handbook includes a brief description of standards for water, gas, electricity, lighting and refuse collection but in general advocates consultation with the relevant public utility board.

Standards are set out simply and on the matter of road and footpath widths are very specific to the point of discouraging variation. The strong emphasis on economy is significant as the report was published in 1952, one year after the Conservatives came to office promising to build 300,000 houses per year (UK) and advocating the (economy) peoples' house where cost savings were to allow greater numbers of houses to be built and to reduce rent.

Houses 1952 Ministry of Housing and Local Government (England & Wales)

This second supplement to the Housing Manual of 1949 has a foreword by the Minister of Housing and Local Government, Harold MacMillan. It put the case for the People's House that, "to meet the needs (of the family) at a time of great economic difficulty ....we must try to build the greatest possible number of houses out of the available labour and materials". The introduction explains how savings of £150 in the capital cost would mean a saving in rent of 2s 5d (12p) per week and a saving of £400 in the capital cost would mean a saving in the rent of 6s 6d (32.5p) per week.

Minimum room sizes were to be maintained but house areas kept down with reduced circulation. Savings were also to be made in the layout with the use of terraced development and savings in road and servicing costs.

House plans were provided to illustrate various solutions to provide adequate living space within a reduced house shell size. Four and five person houses were illustrated. Only three examples are semi detached. All other house plans are for terrace houses.

Group 1 houses have reduced circulation space. Illustrated are semi detached houses, houses sharing a common pend and houses each with their own pend which also doubles as general storage space or utility space. The individual pend is preferred as it has the advantage of providing a sound barrier between houses at ground floor level and avoids the obvious disadvantages of a common pend/passage. (Fig 5.07)

Group 2 houses are all terraced. Some have access from front to rear through store and kitchen with the refuse bin accommodated in the front store which had separate access from the street. (Fig 5.07) The others have access through the hall to a store at the garden side of the house. For the latter it is stated that if it is considered undesirable to bring the bin and fuel through the hall then separate rear access will be required. The questioning of the desirability of carrying refuse and fuel through the hall is interesting.

While some 19th Century developments had rear service lanes for fuel and refuse, many tenemental and terraced developments have relied on refuse and fuel being carried through the hall (including middle class tenement and terrace house development which has continued in use and demand as good quality housing). Carrying refuse through hallways may offend those who advocate housing standards more than it does users.

Group 3 houses are terraced with an enlarged hall to provide a second living space in the form of a dining hall. Access to the rear is from a small hall or lobby to a rear store. (Fig 5.08)

Group 4 houses have large living spaces with the stair to first floor accessed off the combined livingroom/diningroom. These have the advantage of providing a more spacious livingspace

but accepting that part of this space is circulation space and that there is no second livingspace. (Fig 5.08)

The reduced circulation concept was to remain with low cost housing long after this manual supplement was published, as it was one of the main ways in which living space and standards could be maintained or improved within tight cost constraints. It did however have its drawbacks as reduced circulation space often resulted in hallways too cramped to accommodate the arrival and departure of guests and the manoeuvre of prams or wheelchairs.

The four person houses range from 679 to 737 ft² (63 to 68m²).
The five person houses range from 825 to 863 ft² (77 to 80m²).

The Scottish Housing Handbook 3 House Design Revised Edition 1956

The handbook stresses the importance of selecting house types for different kinds and sizes of families and states that "every housing scheme of any size should be designed to accommodate a balanced community and contain houses suitable for a wide range of families". (19) It also lists house types suitable for different age groups. For families with young children, suitable house types are cottages, two and three storey flats and four storey maisonettes. Private gardens should be provided if possible and for flats and maisonettes without private gardens, private balconies, toddlers play areas, allotments and communal space should be provided instead. House types suitable for families with older children include cottages, 2, 3 and 4 storey flats, four storey maisonettes and flats and maisonettes with lifts. For the elderly suitable house types are listed as single storey cottages, two and three storey flats and flats with lifts. As a general rule tenants should not have to walk up more than three flights of stairs. It also states that multi-storey blocks are not generally suitable for large families and should only be used for one to four person households. It also comments that balconies in high buildings are not ideal for the Scottish Climate.

On external design the handbook advises that the designer should not only be responsible for the house design and layout but also the design of external stores, garages and street furniture. The importance of designing housing to suit the location, particularly in rural areas, is discussed together with the use of small areas of stone or using stone on some houses. No mention is made however of the additional contributions available under the 1949 Act for houses to be constructed of stone or other traditional materials to preserve the character of the surrounding area. It advocates, where steep pitched roofs are considered that use should be made of the roof space to justify the additional cost. Flat roofs on the other hand are described as economical but requiring more maintenance.

On internal design it states the aim should be to provide the greatest possible amount of living space and sleeping space within the overall area. This is a change of emphasis from Houses 1952 where the aim was to accommodate the minimum room areas within the most economical shell.

The functional requirements of each room is discussed with working kitchens accepted although, where a working kitchen is provided, space is to be allowed for a small table within the working kitchen. Storage is discussed with the requirement that every house must have a larder and general storage of 20 ft² (1.86m²) for 1/2 person houses and 40 ft² (3.72m²) for larger houses. The provision of the general store was to discourage tenants building sheds.

Dry goods storage, solid fuel storage, linen storage, cloaks and built in wardrobes are also recommended.

House space standards are set out to suit; families with young children, families with older children and for small families and the elderly. (Fig 5.09) For comparison with earlier standards two storey cottages suitable for families with older children the maximum overall areas for 4 persons is 760 ft² (71m²), 5 persons 890 ft² (83m²), 6 person 960 ft² (89m²) and 7 person 1,040ft² (97m²). These are much closer to the Short Term plans than the Long Term plans of the 1944 Westwood report.

Minimum room areas are given for 1 to 7 person houses but the handbook stated that it should be possible to exceed the minimum livingroom kitchen areas within the maximum house areas.

For houses of all types for 4, 5, 6 or 7 persons the minimum room areas are as follows:-

	Working kitchen house		Dining kitchen house	
Livingroom*	180 ft²	(16.7m²)	160 ft²	(14.9m²)
Kitchen*	75 ft²	(7.0m²)	105 ft²	(9.8m²)

	With built in fittings		Without built in fittings			
			A or B		A or B	
1st bedroom	110 ft²	(10.2m²)	120	135 ft²	11.2m²	12.5m²
Other double bedrooms	110 ft²	(10.2m²)	120	110 ft²	11.2m²	10.2m²
Single bedrooms	70 ft²	(6.5m²)				
Bathroom	36 ft²	(3.3m²)				

* These in most cases required to be exceed in order to achieve the following minimum aggregate livingspace of livingroom and kitchen area.

3 person families required a minimum of 250 ft² (23.3m²).
4 person families required a minimum of 265 ft² (24.7m²).
5, 6, 7 person families required a minimum of 305 ft² (28.4m²).

The rules of measurement for calculating the area of a house required that the following areas were deducted,
floor space with less than 5'0" (1.5m) headroom,
area of internal wall in excess (if any exist) of 6" (150mm) in thickness,
area of any duct or flue serving a house on a lower storey,
area of a staircase on any storey other than the one from which it rises.

Ceiling heights were to be a minimum of 7'6" (2.286m) but the handbook recommends using the minimum height for economy of construction and to reduce space heating requirements.

There is in the 1956 handbook a subtle shift away from the 1952 aim to squeeze the minimum room areas into the most economical shell size but it is a small shift with maximum house areas used to limit expenditure.

Housing of Special Groups, SHAC 1952

The Scottish Housing Advisory Committee (SHAC) had, as seen already, produced Planning our New Homes in 1945 and Modernising our Homes in 1947. The Committee delayed submission of their report on Housing of Special Groups due to the Department of Health for Scotland producing in July 1951 plans for lessening the cost of Local Authority houses by reducing circulation space. The committee claim that they had already drawn up their own plans for special groups with economy in mind, nevertheless some of the plans were modified, prior to publication, to produce more economical designs. (20)

Special Groups are defined as households whose needs are not fully satisfied by "general needs" houses of 3, 4 or 5 apartments. Local Authorities had a duty under Section 60 of the Housing (Scotland) Act 1950 of reviewing housing conditions in their districts and forming proposals for the new houses required. The report reminds Local Authorities that this was housing for all groups not just family housing and not just working class housing (reference to working classes was dropped in the 1949 Act). The committee however states that they do not think that all housing can be or should be provided by local authorities and that local authorities should encourage other agencies, housing associations and charities for example.

Various Special Groups are discussed

Older people

Their housing should be situated close to shops, churches, parks and community centres and should have good access to public transport. It notes that most older people wish to be housed among the general population but that housing should be sheltered from houses with large numbers of children. In areas of high density the first claim on houses with ground floor accommodation should be families with young children. Therefore, in areas of high density, flats with lifts are considered appropriate for the elderly. It also notes that a small proportion of older peoples' houses should be provided in groups of up to 30 to enable the employment of a warden to give general supervision of frailer older people (Sheltered Housing).

The committee recommended five types of houses for older persons (Fig 5.10, 5.11).

a) the single person's open bedroom type;
b) the single person's separate bedroom type
c) the open (double) bedroom type
d) the all-purpose small house
e) the small three apartment house

The house which they considered the most suitable for the majority of two person households is the all purpose small house with separate bedroom (Fig 5.11). The small three apartment house is also included to cater for two brothers or sisters, for example, sharing a house but requiring separate bedrooms. Reference is made to Modernising our Homes where examples are shown of existing houses being upgraded to provide houses or flats for small households.

Other single and two person households.

This is the group whose needs, the committee considers, can most fully be met by the modernisation of existing property. The standard of modernisation is to be as for new build projects.

Three types of new build accommodation are covered (Fig 5.10, 5.11, 5.12)

a) hostels of the hotel type mainly for young people who are living away from home and are not in a position to set up homes on their own;
b) grouped houses for older single people who are out at work all day and are dependent on the services of a caretaker;
c) independent houses dispersed among general needs housing.

Long stay and short stay hostels are discussed with hostels of 100 to 150 people seen as likely to combine capital and running cost economy with social amenity and freedom for individual residents. Laundry facilities, common room and restaurant facilities are discussed. It recommends that common rooms should not be provided as one room but as a series of rooms capable of being used for different functions with perhaps two of the rooms capable of being combined to form a larger function room. Civic restaurants, which are open to the public, are discussed as a possibility (a forerunner to the 1990s "Foyer" concept for single people which includes a public restaurant, although the Foyer concept is that some residents are employed in the restaurant). It also suggests that long stay residents may prefer small hostels accommodating 7 or 8 people.

It comments that the provision of open bedroom or separate bedroom houses or flats should be determined by local preference but comments that the "all purpose" small house (Fig 5.11) is the most suitable design for most two person households although the small three apartment house would be required for two person households requiring two bedrooms.

Blocks of flats are considered appropriate for this group and while it considers common room provision unnecessary it considers there should be communal laundry and drying facilities.

Large households

Local Authorities have, it states, a statutory duty to give reasonable preference in the selection of tenants to people who have large families. The report notes that many local authorities had replied to the committee's questionnaire stating that there was no need for them to provide houses with more than five apartments, pointing out that the number was small and that the age span between the youngest and the oldest child meant that few households remained large for more than a short time. This argument was rejected by the committee on the basis that the youngest children would suffer from overcrowding at a critical age.

Two types of large house are illustrated, one a seven apartment is to fulfil an authority's long term need for housing large households, the other is a 3 and a 4 apartment house combined. The report recommends building numbers of houses grouped with their circulation adjacent to each other to allow for easy conversion from 2 houses into 1 large house and eventual return to 2 houses. The latter option is considered preferable but in each case recommends that houses for large households should be built individually or in small groups and should be close to schools, playgrounds, shops and public transport.

The report also states that for large families the provision of two storey housing is preferable to three storey housing.

Disabled People

This is a group where the committee considers that voluntary organisations and housing associations can play a valuable role, often having valuable specialist knowledge.

Two forms of housing are shown, one a storey and a half house which has a bathroom and bedroom at ground floor level and the other a single storey house. (Fig 5.13) The single storey house is for a wheelchair user where it is preferable to have access to the whole house and is shown with garage wide enough to allow wheelchair access to the car.

The report advocates Local Authorities building a proportion of their houses with downstairs bedrooms and bathrooms to allow for allocation to families with a member who would have difficulty with stairs. The storey and a half house is an illustration of this type.

Higher Income Group Households

The report anticipates that most higher income households would purchase their house but points out that some occupations require frequent moves about the country and renting is therefore more attractive than purchasing a house. It is suggested that houses for this group could be let at an economic rent and consequently would not place a burden on a Local Authority's finances. These houses, the report states could vary in size up to 1,500 ft^2 ($140m^2$), the then maximum area for houses built under private licence. The report states that the rent which high income groups will be prepared to pay will be determined by the environment of their houses as much as by the accommodation they provide. It suggests small sites in areas of existing or proposed private development. In areas with density problems it states that detached bungalows should be avoided and suggests three storey terraced houses to avoid "wasteful low densities" which will lead to encroachment on good agricultural land. (21)

Occupational Groups

Various groups are discussed. Fishermen's houses may require storage for nets and gear. Rural workers' houses will also require stores for tools and downstairs bathrooms to avoid carrying dirt through the house. Rural workers' houses with 7'6" (2.29m) ceilings and bedrooms in the roof space of storey and a half houses are recommended as more appropriate in scale for rural areas than two storey houses. Workers in home industries such as island tweed weaving are to be provided with houses with either individual or communal loom sheds. Flats over shops are proposed as suitable for general use as well as for shop-keepers.

The occupational group house types which are illustrated (Fig 5.13) are for Midwives and District Nurses. In town locations it is suggested that end of terrace houses could be adapted by adding a consulting room and waiting room with separate entrance and toilet, pram store and garage. In rural areas it is suggested that fewer visits to the Midwife's and District Nurse's house are to be expected. Therefore the consulting room and toilet are shown contained within the shell of the house and no waiting room is provided.

The report goes on to discuss the possible need to provide a doctor's house and surgery in new housing areas where suitable private, housing accommodation or local health centre was not available.

This report illustrates how far Local Authority provision has progressed from providing "housing for the working classes" to solve the problems of housing shortage, slum housing and overcrowding. These problems still remained to be overcome but the purpose of the report is to recommend that Local Authorities meet their responsibilities to house all groups rather than concentrate solely on the 3, 4 and 5 apartment general needs houses.

Flats and Houses 1958, Design and Economy
Ministry of Housing and Local Government (England and Wales)

The foreword by Henry Brooke, Minister of Housing and Local Government states :

> Between 1958 and 1970 in the towns and cities of England and Wales new homes are likely to be built on sites where no less than half a million older houses now stand or stood. Many local authorities, in consequence, are facing what to them are novel problems of building at higher densities; densities where houses will need to be intermingled with maisonettes or flats. The purpose of this book is to help in meeting these problems. I certainly do not mean it to encourage the use of higher densities or multi-storey buildings where they are not really necessary. (22)

The foreword goes on to say that high density building is frequently essential but never cheap.

The report illustrates, with examples, how various densities from 100 habitable rooms/acre to 160 habitable rooms/acre can be achieved with varying proportions of houses, 4 storey walk up flats and maisonettes and 11 to 16 storey flats. It illustrates how for a given density, if the percentage of 2 and 3 storey houses is high and consequently the deficit in houses to achieve the density cannot be achieved with 4 storey walk up flats/maisonettes then it will be necessary to use a percentage of high flats with lifts. It also shows that the percentages of high flats will increase not only if the required density is increased but also if the percentage of two storey houses is increased.

The report notes that "the two requirements of securing adequate daylighting and sunlight impose exacting limitations in spacing the buildings and consequently influence layout to a large degree". (23) This is an important factor in understanding why high rise building was considered necessary. In previous centuries towns and cities built to high densities often with 2 storey housing or 4 storey tenements. They achieved the high densities by simply building buildings closer together with loss of daylight and sunlight. These were the "slum" houses the new housing was being built to replace; whereas daylight and sunlight along with sanitation and ventilation standards were essential features of new housing.

The report is however about Design and Economy and gives advice on how densities can be achieved as economically as possible. It states that densities of up to 100 habitable rooms per acre can be achieved with houses and blocks (of maisonettes or flats) not more than four storeys in height. This is shown to be the most economical form with costs rising as the percentage of high rise blocks increase. The cost of four storey maisonettes exclusive of access and stairwells is quoted as £1,405 for a 4 person 3 apartment and £1,750 for a 6 person

5 apartment. Costs of four storey flats are shown as being similar whereas houses are stated as being £200 to £250 cheaper and flats in high buildings being £400 to £500 dearer.

Costs are given for the various densities with varying proportions of houses, walk up flats/maisonettes and high flats. In all cases the higher the percentage of high flats the greater the overall dwelling cost (Fig 5.14). Designers are therefore advised to design schemes to achieve economy by using the minimum percentage of high rise buildings for a given density. At the higher densities this implies maximising the percentage of four storey walk up flats at the expense of houses in order to decrease the percentage of high rise flats required to make up the density shortfall. The additional cost of the walk up flats over the house is more than compensated by the saving in reducing the percentage of high rise.

The report discusses the importance of accommodating the maximum number of families, particularly large families, in houses or ground floor flats or maisonettes with gardens. High rise flats are seen as unsuitable for children and best suited to small households. Where it is not possible to accommodate families with children at ground floor level the importance of balconies and play areas is emphasised.

Car parking is discussed with standards ranging from one car for each 5 dwellings to one car for each 1½ dwellings and the consequent space usage in high density schemes, the higher standard requiring 23% of the space about the buildings.

The various methods of providing parking is discussed:-

1. off street in the open - described as the cheapest but unsightly;
2. single storey lock-up garages - few can be accommodated at high density;
3. garages in underbuilding - only practicable on steep sites;
4. garages built in with the house - advocated for three storey housing;
5. multi-storey garages - expensive and obstruct daylight to the site;
6. roofing in between spaces between buildings with living accommodation from first floor upwards. This is also seen as expensive but a better solution than No. 5.

Cost comparisons are made of various types of dwellings.

In the section on flats, two lifts and two stairwells are generally shown for flats above six storeys to overcome the problem of lift breakdown and give alternative means of stairwell escape. The report emphasised the expense of the staircase/lift access flats both in capital cost and in lift running cost.

The most expensive tower block illustrated is the cruciform design with four flats per floor and a high proportion of external wall but has the advantage of daylighted common hall access. Less expensive is the rectangular plan with internal common hall access with four flats per floor and the least expensive of the tower blocks is the short slab with internal access and eight flats per floor. (Fig 5.15).

High slab blocks include balcony access, corridor access and staircase access. (Fig 5.16) Balcony access is shown to be cheaper than the enclosed access although the report cautions that the exposure of open balconies on high blocks could prove unpopular. It also comments that balconies tend to be noisy and afford little privacy, but goes on to say that they help to

promote social contact. Corridor access maisonettes are seen as offering protection from the weather although the report has nothing to say about the lack of natural light to these internal corridors. The most expensive is the two flats per floor off each stairwell and lift with balconies providing the alternative means of escape from flat to flat using a different staircase/lift. The report makes no mention of the advantages that this form of access provides with each flat having exclusive use of its half of the balcony and the avoidance of loss of privacy which balcony and corridor access incur. In fact closer inspection of the detailed costs shows that there is no significant difference in capital cost between staircase and corridor access flats.

Four storey balcony access maisonette blocks and three storey flats are also analysed. (Fig 5.17) Various plan forms of each are analysed and interestingly produce very similar costs all of which are of course without lifts and cheaper than high rise.

Two storey housing is not discussed as this was covered in Houses 1952 and Houses 1953. Three storey houses are however illustrated as being useful in accommodating large families at high density and therefore allowing a greater proportion of families with children to live in houses instead of maisonettes and flats. (Fig 5.17) It is worth noting that Housing of Special Groups SHAC 1952 recommended that for large households two storey housing was preferable to three storey housing but the SHAC 1952 report was not primarily concerned with high density housing. The Flats and Houses report states that "for densities up to about 100 to 115 habitable rooms/acre the three storey houses used with three storey corner flats and with maisonettes in four storey blocks offers a means of accommodating the largest number of families without the resort to costly high buildings". (24)

Here for reasons of both maximising the number of households housed at ground level and economy, designers are encouraged to limit the use of high rise. The Housing and Town Development (Scotland) Act 1957, however gave additional exchequer contributions to houses in blocks of six or more storeys equal to $^{2}/_{3}$ of the sum by which the cost of the house exceeded the average cost of approved houses. (Exchequer contributions for England and Wales were brought in the previous year but were a fixed sum of money for six storeys plus an additional sum for each additional storey). The Act did not limit the proportion of houses which would qualify for the additional contribution and can be seen, if not actually encouraging high rise certainly facilitating its construction.

The Scottish Housing Handbook Part 6 - Multi-Storey Housing was noted as (not yet published) in the 3rd impression 1961 of the Housing Handbook series.

HOUSING PROVISION

Non Traditional

The post war non traditional housing programme continued until 1955. Of the 204,000 new public sector houses built in Scotland between 1945 and 1954 100,000 of these were of non traditional construction. (25) Those non traditional houses built in the 1950s were however all permanent houses and not temporary "prefabs".

Department of Health Circular No. 82.1954 announced that as from 1st June, 1955 central control of non traditional house building would cease and that Local Authorities could hence forth select designs in direct consultation with various contractors and promoters.

Wimpey and SSHA No Fines systems continued to be built after 1955. In 1957 at Toryglen the SSHA completed the first multi-storey blocks of loadbearing no-fines concrete in Great Britain. (26)

People's House

The 1951 Conservative Government introduced the People's House of no more than 900 ft² (84m²) for a five person house. The aim was to increase house production numbers by building houses with a smaller shell size reducing costs and saving on scarce materials and labour thereby reducing the effect of scarcities. The houses were to be designed with reductions in circulation and bedroom space while maintaining or increasing the livingroom and kitchen space. Fittings such as built in wardrobes were to be omitted except in the case of the smallest bedroom. This was, as has been described, set out in detail in 1951 in the DHS Scottish Housing Handbook 6 and to demonstrate how this was to be achieved SSHA built a prototype block of terraced houses at Sighthill, Edinburgh between 1951 and 1953 and another similar block at Toryglen, Glasgow. In fact, DHS investigation into house design to save space and therefore costs had been instructed in 1950 as the then Labour Government had become concerned about the continuing escalation of building costs. (27)

The houses were built in terraced form to save land and cost of gables over semi detached house construction. Previous terraced house construction used common pends to obtain access to rear gardens whereas these houses used a utility room to give access to a rear kitchen and rear door. Circulation space and bedroom space was kept to a minimum while maintaining livingroom and kitchen space standards. Ceiling height was reduced to 7'9" (2.36m) on the ground floor and 7'6" (2.29m) on the first floor.

Terraced house floor areas of 677 ft² (63m²) for a four person two bedroom house and 860 ft² (80m²) for a five person three bedroom house were built. (Fig 5.18)

These compare with England's standard for a five person, three bedroom house of 800 to 900 ft² (74.3 to 83.6m²) in the 1944 Housing Manual and 900 to 950 ft² (83.6 to 88.3m²) in the 1949 Housing Manual. Scotland's Westwood report 1945 had recommended a three bedroom house should be capable of sleeping six persons and had illustrated this with short-term plans of 936 ft² (87m²) and long term plans of 1176 ft² (109m²).

A Scottish Office minister visiting Holland in 1951 observed features in Dutch flats which were more economical than usual Scottish practice. The DHS were asked to prepare designs for low cost flats on the Dutch principles.

The main experimental feature was the use of 11 inch (275mm) cavity brickwork for a building of three storeys whereas hitherto the ground floor of brick building more than two storeys had brick walls of 16 inch (400mm) or more. Floor spans were restricted to the limit for an 8 inch (200mm) deep timber joist. Roofs were formed with tiles on battens on woodwool sarking on a T.D.A. truss. Economies in plumbing were achieved by the use of a single stack soil and waste, one of the first in Scotland.

The flats had two plan types, one had access off the common stair into the flat hallway whereas the other had access into the livingroom off a lobby using the livingroom as circulation. The latter type was strongly opposed by the Fire Brigades in Scotland as being an escape hazard in the event of fire.

Floor areas were 644 and 673 ft² (60 and 62.6m²) for a three apartment flat and 738 and 756 ft² (68.7 and 70.3m²) for a four apartment flat. (Fig 5.18)

Softwood Economy

In July 1952 the Government decided that a number of houses be built on selected sites in the UK to demonstrate how less softwood might be used to reduce imports. The only site in Scotland was at Sighthill Edinburgh. Phase one houses used concrete for the ground floor and often concrete for first floors. Concrete rafters or hardwood trusses were used for roofs. The second phase aimed to illustrate the best features of phase one for reducing the use of softwood and increasing the speed and efficiency in the construction of house interiors, mainly achieved by the use of plaster panels or 2.25 inch (55mm) "Paramount" plaster partitions. The house types were all two storey four person three apartment with floor areas of 751 ft² (70m²) for end of terrace and 839 ft² (78m²) for mid terrace houses which used the utility room kitchen corridor for access to the rear. These were larger than the space saving four person houses described above. (Fig 5.19)

Traditional Materials

While the use of terraced housing rather than semi detached housing saved money and land it was also a more traditional form of development and better suited to infill development in existing towns and villages. The 1949 Act had made provision for additional contributions for houses constructed of stone or other traditional materials to preserve the character of the area. Examples of the use of traditional materials can be seen in the 1950 fishermen's houses in Dunbar by Spence, the 1956 Bowery backlands infill at Leslie by Wheeler and Sproson and in 1959 at Great Michael Rise, Edinburgh again by Spence and at Heddell's Park, Lerwick by Moira and Moira.

Hostels

The 1949 Act also allowed for the provision of hostels. Examples of this type of provision were being built in 1951 at Crathie Court and in 1952 at Calfhill Court in Glasgow and also in 1952 at Pollock Halls of Residence in Edinburgh.

Modernisation

Another feature of the 1949 Act was the duty placed on every Local Authority to submit improvement proposals to the Secretary of State. The Act also gave grants towards modernisation cost giving financial commitment to the 1947 Modernising Our Homes Report. Full advantage was not taken of this during the 1950s. Glasgow councillors as noted earlier rejected suggestions by DHS that improvement schemes should be attempted, preferring to press ahead with slum clearance and rehousing. Other areas however did carry out improvement schemes. Edinburgh carried out the Canongate Reconstruction with SSHA

carrying out renovation at Dunkeld and Culross in the mid to late 50's. The most comprehensive improvement was however at Stirling where the area below the castle around Broad Street and St. John Street was, with modernisation and infill development, rehabilitated to provide almost 300 Local Authority houses and flats. Here, as at Dunbar, Edinburgh, Leslie and Lerwick, the infill housing used stone and slate to reflect the character of the area.

Clyde Valley Report

The Clyde Valley Report which had been accepted by the Government restricted Glasgow's expansion by a green belt and proposed four New Towns to take half of Glasgow's slum population, the other half to be accommodated within the city boundaries. Glasgow had in its "Bruce" plan proposed to demolish 172,000 houses replacing them with flats at a lower density while the 500,000 displaced residents were to be accommodated in cottages in large garden suburbs. This plan was rejected and East Kilbride designated in 1947 despite opposition from Glasgow. Glasgow, determined to retain its population within its boundaries, embarked on development of its remaining large peripheral sites at Drumchapel, Castlemilk and Easterhouse with three and four storey walk up tenemental flats rather than the cottage style proposed in the original "Bruce" plan.

Drumchapel approved in 1951 was to be a self contained satellite township of approximately 7,500 houses (30,000 persons) with its own town centre, churches, schools, baths and libraries. The new community was to be built in four neighbourhood units, the planning concept currently in favour for New Towns and large scale housing developments. The Castlemilk layout for 6,250 houses was approved in 1952. Easterhouse was approved in 1953 as a township of 7,200 houses on similar lines to Drumchapel and Castlemilk. (28)

New Towns

The above Glasgow schemes differed from the New Towns of East Kilbride and Glenrothes in that they were entirely built as rental housing schemes largely populated with former slum dwellers. The New Towns on the other hand included areas of private housing and the rental housing, with the priority given to incoming workers, consequently was occupied by a more affluent section of the population. In 1952 the Conservative Government, concerned at the initial cost of New Towns policy, announced in England and Wales that no more New Towns would be started. In Scotland however Scottish Office pressure, arguing that the Glasgow green belt policy would become 'quite untenable' succeeded in securing authorisation in 1954 for one further New Town, Cumbernauld. "But the DHS was dissuaded from designating a third Glasgow New Town at Houston in 1956 by local landed pressure". (29)

Cumbernauld was designated in December 1955 but, as preliminary planning proposals were not published until 1958, housing development in Cumbernauld was built in the 1960s onwards.

East Kilbride and Glenrothes are both typical of first generation New Towns built on the neighbourhood principle where each neighbourhood had its own schools and shops, primary schools in the centre of the neighbourhood, and local shops sited close to the road entry point. Both are low density developments of terraced housing and walk up flats although whereas Glenrothes in its early phases had only a small proportion of flats, East Kilbride, sited at the edge of Glasgow, built one third of its houses as flats. Both New Towns built a small

proportion of higher quality, higher rent flats and houses intended for residents whose employment while well paid might require frequent moves around the country (in accordance with the recommendations for higher income households in the 1952 SHAC report on Housing of Special Groups).

Overspill v High Rise

With Glasgow's expansion restricted by the Clyde Valley report's proposed Green Belt but only two of the proposed four Glasgow New Towns designated, there was clearly a problem in accommodating Glasgow's slum population displaced when the slums were replaced by lower density development. There were two solutions, one to increase density the other to disperse the population if not to New Towns then to existing towns.

Sam Bunton described by Glendenning and Muthesius in Tower Block as a one man research and propaganda organisation was active throughout the 1950s proposing the use of multi storey flats for the reconstruction of Glasgow including in 1951-2 multi storey blocks for Glasgow Green. (30) This type of solution was strongly opposed by the planning departments of both Glasgow Corporation and the Scottish Office. The planning profession with their origins in the Garden City Movement preferred lower density development within the city and dispersal of the displaced population.

The 1957 Act accommodated both dispersal and high rise development. Provision was also made in the Act for town development schemes and for compulsory acquisition of land aiding Comprehensive Development. The Act provided an additional subsidy, for houses in blocks of six or more storeys, equal to two thirds of the sum by which the cost of the house exceeded the average cost of approved houses in Scotland. This was a more open ended and probably a more generous subsidy than the fixed sum which applied in England. The Act also introduced overspill agreements and subsidies for overspill housing in excess of those for general needs housing. Glasgow was Scotland's only sending authority, the other major cities having sufficient land to accommodate their population growth and rehousing from substandard accommodation.

Glasgow had overspill agreements with towns from Irvine in the west to Haddington in the east. Glasgow, intent on retaining its population and rate revenue, was to pursue the multi storey subsidy more vigorously than the overspill agreement (31) It had reason to be concerned about the overspill agreements as there was a natural tendency for the more adventurous and more economically active to move to new homes outwith the city leaving Glasgow with a greater proportion of disadvantaged households.

Multi Storey

"During the war Government reports stressed the need to preserve agricultural land; reinforced by the food shortages of the war and post war years, this argument was eagerly taken up by supporters of high density". (32)

The architectural agreement for and against the provision of housing in high-rise blocks was not as one sided as suggested by Ian Davis in Dunroamin when he writes "Architecture in 1953 was to do with great events that happened in Marseilles (or for that matter Camden Town)." (33)

Davies, writing in praise of the virtues of the speculative developers' semi detached villa in the English suburb, claims that architecture and by implication architects were mainly concerned with the design of large public authority multi storey housing blocks: typified by the work of Le Corbusier at Marseilles. Davies ignores the fact that, in the UK with the exception of a few cities such as Glasgow in the 1960s, most public sector housing and therefore the work of most architects designing in this field was not high rise housing but typically two storey terraced housing or walk up flats. This was especially true of the 1950s.

Le Corbusier's Unité d'Habitation in Marseilles (1952) is the archetypal high rise solution to providing not only the housing but shopping, school, gymnasium and community hall in one large block set in landscaping. Frank Lloyd Wright, a believer in individuality, proposed the other extreme with each house having one acre (0.4 Ha) in Broad Acre City. He was particularly critical of Corbusier's ideas for a 'ville radieuse' in which Corbusier visualised that Central Paris was to become a huge park accommodating widely spaced tower blocks serviced by high level roadways. (34)

Corbusier was one of the most influential architects promoting high rise but he was by no means the first. As seen in the Highton report of 1935 an engineer M. Mopin had by then built fifteen storey flats at Drancy, Paris. In 1868 the Builder in an article "Piling up the People" describes a French proposal for building "aërodomes" which were to be buildings of not less than ten storeys, accessed by lifts. The first five storeys were for commercial use, shops and offices. The aërodromes were to be built each side of wide avenues and bridges were to link terraces at fifth floor level to allow traffic to circulate at that level. Residential accommodation was to be provided above fifth floor level. Each aërodome it was stated may accommodate 1,000 people or more in a pure atmosphere and an abundance of light. (35) In the early 20th century Unwin had argued against increasing density as it reduced daylight. Later Gropius took the counter view observing that increasing the height of building allowed for an increase in the number of people to be housed on the site with the same light angle as low rise or allowed the same number of people to be housed on the site with an increase in light penetration. He advocated a height of eight to twelve storeys. Against this Walter Segal's opinion in 1948 was that heights over six or seven floors would prove too costly. (36) There was no uniformity of architectural opinion in favour of high rise.

Glendenning and Muthesius in Tower Block credit LCC architects as being in the forefront of promoting high rise housing in tower blocks, slab blocks and in mixed development. LCC's Roehampton with its mixed development of low rise houses, four storey maisonettes and high rise slab blocks and tower blocks all set in mature parkland was particularly influential. The Government publication for England and Wales Flats and Houses 1958 and the Department of Health for Scotland Housing Layout 1958 both promote the mixed development concept where an area has houses with gardens, walk up flats and flats with lifts in varying proportions of provision to suit household need and the required density. Flats and Houses argued the economic case for building more of the less costly houses and walk up maisonettes and flats and less of the more expensive high flats.

Scotland's multi storey building was modest for the greater part of the 1950s. Approvals/Starts in the period 1948 - 52 was 396, in 1953-7 was 563, rising dramatically to 10,887 in 1958-62. (37) The reason for this was the tenement tradition of 3 and 4 storey walk

up flats provided a medium density solution at low cost. It was this form of housing which provided large numbers of houses at Drumchapel, Castlemilk and Easterhouse.

Edinburgh had built an eight storey block at Westfield Court in the 1940s. Kirkcaldy built an eight storey block at Valley Gardens also in the mid 1950s. Glasgow built Crathie Court in the early 1950s, an eight storey deck access block accommodating 89 single person flats.

The highest blocks were Glasgow's three, ten storey blocks at Moss Heights. The plans were passed in 1948, work commenced in November 1950 and was completed in June 1953. The original cost of £2,800 per flat which was approximately twice that of two storey housing or four storey flats rose to £3,500 on completion. As a method of providing housing Moss Heights although architecturally dramatic was neither low cost nor fast. (38)

The DHS had in 1945 suggested to Glasgow that they should build an experimental high block. The experiment (Moss Heights) had proved expensive. Following visits to London by architects and administrators in the mid 1950s the DHS was "once again keen to see a few experimental high blocks built". (39) The two thirds cost-plus multi storey supplement was introduced in the 1957 Act. This was to be an experiment to be reviewed once multi storey building was underway. The subsidy did not make it financially advantageous to build multi storey flats but in giving a two thirds subsidy towards the extra cost it broke down the cost barrier which was holding back authorities from building high rise.

It was the post 1957 Act period which saw the rapid increase in provision of multi storeys. Towns and cities previously not involved in multi storey building now took advantage of the 1957 subsidy, Aberdeen - Ashgrove 1958, Dundee - Lansdowne 1958 and Paisley - Blackhall and Foxbar 1958. (40)

Comprehensive Development Areas

Comprehensive Development Areas, the legislation for which was passed in 1948, were not like the previous Reconstruction Areas limited to blitz or blight areas but could include any land which the Planning Authority considered to be in need of replanning as a whole. The thinking behind this legislation is illustrated by a quotation from Marion Bowley in Housing and the State 1919 to 1944. "There is no real reason why some areas should be excluded indefinitely from enjoying the benefits of general rebuilding and replacement of their old houses. It seems absurd to decide that these advantages should for ever be confined to the particular places where bombs have fallen". (41)

In Scotland the first priority had been the provision of additional houses. Furthermore before the slums could be demolished new houses were required for rehousing. Therefore it was not until the late 1950s that Comprehensive Development Areas became live projects. The influence of the two thirds cost-plus subsidy on the form of development can be seen at Hutchesontown, Glasgow. A treatment area with multi storey blocks of nine storeys was proposed for Hutchesontown in 1943 but the scheme was shelved on grounds of cost. (42) It became Glasgow's first Comprehensive Development Area in 1957 and the first new houses completed in May 1958 were three and four storey flats. The later phases designed in the late fifties were mixed development of high and low blocks by Robert Matthew and Partners (approved in 1958) and two twenty storey blocks by Basil Spence and Partners approved in 1960.

In Edinburgh a competition was run in 1957 for the area of Leith Fort. This was won by Baikie and Associates with a mixed development of 1½ storey courtyard houses 7 storey deck access maisonettes and 14 storey tower blocks on the north edge of the site. The tower blocks were later changed to two 21 storey blocks.

It is interesting that Aberdeen's first tower block at Ashgrove, a ten storey block started in 1959, was also built on the northern edge of an area of mixed terraced houses and walk-up flats. The high flats were positioned on the northern edge of the site to over-shadow the perimeter road rather than the adjacent houses.

High rise developments in the 1950s in both greenfield sites and in Comprehensive Development Areas were generally architect designed for specific sites.

Housing Completions

There was a brief fall in public sector housing completions in Scotland at the end of the Labour Government in 1951, thereafter with housing a key issue in the 1951 General Election, public sector housing completions continued to rise to reach an all time high in 1953. Thereafter there was a steady decline in completions until the early 1960s.

In comparison private sector housing completions steadily increased throughout the 1950s.

	1950	1951	1953	1955	1957	1959
Private sector	783	1,195	2,393	3,523	3,513	4,232
Public sector	25,029	21,783	37,155	30,546	28,924	23,061

Public sector housing was mainly built by Local Authorities. New Towns' annual completions increased to between 1,000 - 1,500 houses, SSHA annual completions were 3,000 - 4,000 with housing association contribution averaging only 130 houses per year. (Refer also to 11.01 to 11.03).

Glasgow had built mainly cottage housing in the 1940s. (The Bruce Plan for Glasgow envisaged overcrowded tenements being replaced with flats at a lower density and the displaced residents accommodated in cottages in large garden suburbs). As stated previously Glasgow's expansion was limited by the Government's acceptance of the Clyde Valley Report and designation of a green belt. Glasgow in the 1950s, in response to the limitation on its land area, developed its large peripheral sites of Drumchapel, Castlemilk and Easterhouse with three and four storey walk-up flats. Glasgow built mainly flats with few cottage houses and very few of the flats multi-storey in the 1950s.

	Multi Storey Flats	Walk-Up Flats	Cottages	Temporary Houses	Total
1940-49	0	3,527	10,389	2,550	16,466
1950-59	428	40,094	6,580	0	47,102

Whereas in the 1940s the majority of houses built in Glasgow were four apartment, in the 1950s the majority of houses built were three apartment reflecting the move to building flats. There was also an increase in the number of one apartment houses such as the hostel accommodation built at Calfhill, Pollok.

	1 Apt.	2 Apt.	3 Apt.	4 Apt.	5 Apt.	Total
1940-49	36	0	5,504	9,561	1,365	16,466
1950-59	2,237	61	26,955	16,114	1,735	47,102

Source: Glasgow's Housing Centenary 1866 - 1966, p.45-46 (year completions).

HOUSING DESIGN

Austerity

The Labour Government, concerned about rising cost of house building and materials, reduced space standards in 1950 from the 1944 long term standards, setting maximum overall areas close to the 1944 short term standards. This was continued by the incoming Conservative Government who promoted the concept of the small "Peoples House" advocating that savings on house costs reduced rent levels and allowed more houses to be built. This was illustrated in the Scottish Housing Handbook 6, Economy in House Building, and demonstrated at Sighthill in Edinburgh where space saving and softwood saving houses and flats were built. (Fig 5.18 and 5.19).

This austerity led to many plain housing schemes with little architectural detail or variation. An area in which there was extra subsidy was for the use of materials such as stone and slate to preserve the character of an area and support traditional Scottish industries. This gave the opportunity for architects to relieve the plain grey harled box with the use of traditional materials.

Traditional Materials

The Housing (Scotland) Act 1949 provided Treasury grants which were available for houses constructed of stone or other traditional materials to preserve the character of the surrounding area. These were included in the 1950 Consolidation Act.

Dunbar Harbour, Spence, 1951

The houses are grouped between existing stone buildings and Spence's 1930s houses illustrated previously. The houses were built for fishermen and include external stores for gear. The scheme accommodates 3, 4 and 5 roomed houses or flats often with balcony access maisonettes over ground floor flats. The houses have no individual gardens but share a common drying green to the rear. The roofs are red pantiled and red sandstone is used to form a ground floor base. The upper floors have harled walls painted in various pastel colours. Windows are steel casements painted white as were the metal railings originally, doors were painted bright colours. The scheme has traditional chimneys with open fires in the livingroom and main bedroom. Hot water was provided by a back boiler to the livingroom fire place.

The use of stone only at ground floor level gives a horizontal split in the elevation whereas traditionally a street is made up of individual buildings giving a more vertical expression. It would have been more traditional to use stone either for the whole building or for the front elevation with either the rear elevation or the whole building being harled. The use of stone at ground floor level is however common in the 1950s perhaps a fashion resulting from a desire to display the more expensive stone at street eye level. (Fig 5.20).

Great Michael Rise, Newhaven, Edinburgh, Spence, 1959

This later scheme by Spence uses Balachulish slate roofs and "causies" or granite setts for base courses, stairs and external walls. The causies are also used to express the recessed livingrooms on the four storey block splitting the long four storey block into vertical elements. The recessing of the livingroom on the northern access side gives a degree of privacy while on the private southern side livingroom windows and facades are splayed to face south west. Colour is used on the harled walls to break up the scheme visually expressing the individual stack of flats. The slope is used to provide access to the first floor flats on the two storey block which steps down the site. Using the slope, the first floor flats are accessed up a half flight from the higher ground level. The scheme provides 48 flats in 2, 3 and 4 storey blocks with 6 of the flats 2 apartment and the remainder 3 apartment. The design also included two shops on the north eastern entrance to the site. (Fig 5.21).

The Bowery, Leslie, Fife, Wheeler and Sproson

This is backlands infill development with vehicular access off a side street and pedestrian access via a pend and a right of way to the High Street. The design is a terraced street form with single storey and two storey houses on the south side of the street and two storey houses with three storey flats on the north side of the street. Those on the south side are sited close to the road and have livingrooms facing south to the private gardens, Those on the north side are set back from the road with the houses having "through livingrooms" and the flats' livingrooms facing south to the road.

Traditional materials have been used throughout. Pantiles to the roof, stone walls to the porches and harled walls. The scheme was originally built with the harling in contrasting colours however when the scheme was visited in 1994 these had faded to show little difference in colour. (Fig 5.22)

Cartmore Road Flats, Lochgelly, Fife

This scheme, also by Wheeler and Sproson, was the first phase of a large redevelopment of the centre of Lochgelly. The scheme is a mixture of one and two bedroom flats and three bedroom maisonettes. The dwellings are accessed off cantilevered balconies on the northern side of the block. Livingrooms with small balconies are sited on the southern side of the "L" shaped layout. Stone is used at the staircase entrances and coloured harling used to accentuate the recessed livingroom balconies. Again, as at the Bowery, the harling has faded and would be improved by repainting. The balcony access is a traditional tenement form especially in Dundee where the balcony was known as the "plettie" and used for sitting out when the orientation and weather were favourable. Here the livingrooms have their own private

balconies facing south and the main block is staggered in plan to break up the mass and express the individual flats/maisonettes. (Fig 5.23).

Rehabilitations and Modernisation

Whereas many towns in the post war period swept away the old and rebuilt new, Stirling took advantage of the 1949 Act and rehabilitated the historic area at the top of the town in the area of Broad Street below the castle. Retaining the street pattern the existing buildings were either rehabilitated, reconstructed often with only facades retained or, if beyond repair, replaced with buildings of a similar style.

There is a mixture of flats and houses of mainly one, two or three bedroom dwellings. Neither houses nor flats have individual gardens having instead hard paved communal drying areas. All new infill houses have slate roofs but walls are either harled, random rubble or ashlar stone. Here, unlike the schemes described above, stone is not used as feature panels but a whole house is either harled or it is in stone giving a more authentic feel to the infill. (Fig 5.24, 5.25).

Despite the ground floors in Broad Street accommodating some shops, the area has none of the hustle of a market square as has the centre of shopping activity in Stirling further down the hill.

Edinburgh Corporation using Robert Hurd as architect reconstructed the Canongate Tollbooth area of the Royal Mile. This scheme as at Stirling included restoration of existing buildings and replacement of unsound buildings with new buildings designed in the same style. The reconstruction with old and new buildings provide shops at ground floor and stair accessed flats above. Some new buildings are stone faced, others harled above stone arches with shop fronts recessed under the arches. Canongate, while not the heart of Edinburgh's shopping area, still has both local and specialised shops (Fig. 5.26). The first phase was completed in the late 1950s and reconstruction continued with Chessel's Court opposite in the 1960s.

SSHA was Perth Council built the 1953 Coronation block at Dunkeld Cross. This was new infill development following the existing street pattern. The development is two storey harled brick work with slate roofs, sash and case windows and bands to doors and windows, This work was followed by the National Trust for Scotland, providing flats for rent on the North side of Cathedral Street, by restoring houses and building infill houses in the same style. The rehabilitation of Dunkeld is interesting in that it was a joint venture with Perth County Council, SSHA and the National Trust for Scotland. (Fig 5.27).

SSHA were asked in 1957 to carry out similar infill development on three small sites in Culross, Fife. The development was opened by the Secretary of State, John Maclay in 1960 and marked the opening of the fifty thousandth house built by the Association.

Flats for Single Women

The origins for the proposals for this type of accommodation can be found in para. 29 of Planning our New Homes. This 1945 report by the Scottish Housing Advisory Committee recommended building all houses specially for single women. One of the committee Mrs. Jean Mann dissented on certain aspects of the report and special housing for single women was one of them. Mrs. Mann preferred accommodation for single women to be integrated and

suggested modernised flats in central districts and flats on floors above three storey (flats below this level being for families with children).

Mrs. Mann was a member of Glasgow City Council but in 1945 the housing committee approved a proposal to build flats for single women at Crathie Court, Partick. The flats were to be lift access high rise as suggested as being appropriate for large town and city centre sites by Planning Our New Homes.

Crathie Court, Patrick, Glasgow

The design provides 88 single person two apartment flats with common room and sun lounge. Access to the flats in the "U" shaped eight storey block is by external balcony with stair and lift access. The main entrance hall is supervised by the caretaker's office and flat. The design with its cantilevered balconies and porthole windows is 1930s in style. With its controlled access by caretaker and private grounds it is closer in concept to the 1930s private mansion flats than the late 1950s and 1960 flats where there was no controlled access and grounds were open and communal. The design was approved by Glasgow Dean of Guild in 1946. For reasons that are not known, perhaps finance, construction was not commenced until 1949 and not completed until 8th August, 1952. (Fig 5.28, 5.29).

Calfhill Court, Pollock, Glasgow

This more traditional design is three and four storey walk up balcony access flats. The building provides sixty bed sit flats with common room and a three apartment caretaker's flat with office close to the main entrance. The building as with Crathie Court sits in its own grounds. Livingrooms and bedrooms face southerly and each pair of bedsits share a balcony with the exception of gable bedsits which have individual balconies. The success of the provision of private grounds and caretaker supervision of access is such that when visited in 1994, with the exception of the need for repainting, the building and grounds were in good condition. (Fig 5.30). The surrounding area of three storey walk up flats was in far poorer condition and awaiting major refurbishment and replanning.

Glasgow's Peripheral Estates

Drumchapel, Castlemilk and Easterhouse, Glasgow's three main 1950s housing schemes provided 7,500, 6,250 and 7,200 houses respectively. Almost entirely built of three and four storey walk up flats the intention was clearly to build at high density without the additional costs associated with lift access high rise (six storeys and above) . These areas, each almost the planned size of a Mark 1 New Town, were built with few facilities. The desirability of building tenemental style housing with none of the commercial and social advantages of the city centre and without suburban advantages of house and garden is questionable. The justification, for tenemental housing on these peripheral estates, that they accommodated a large number of people is also open to question as inspection of each of the areas reveals large areas of open space, some, but by no means all associated with schools, and wide spaces between blocks of flats. (Fig 5.31 to 5.34). The wide spaces between flats reflects the desire for sunlight penetration to habitable rooms and the wider open spaces the desire for planned public open space. This generous allowance of public space can only be appreciated and used if well landscaped and well maintained. This has not happened in these areas and the large areas of open space when neglected are not an asset.

The obvious contrast to this is Mosspark and Knightswood where the low rise houses are built closer together with the majority of open space in private gardens and only a small area of public open space. Maintenance by the city is therefore lower and the environment more in the hands of the residents maintaining their gardens. The other contrast is the New Towns where there are also large areas of public open space but where there has been a greater commitment to expenditure on maintenance of the open space. Should however this commitment to maintain the open space reduce in the New Towns after Government planned dissolution in 1995/6 then the open space may be seen as less of an asset.

Walk Up Flats

The majority of Glasgow's walk-up flats built in Drumchapel, Castlemilk and Easterhouse and elsewhere in the city in the 1950s were two, three and four bedroom flats. Flats were generally designed with two flats accessed off each stair landing although three flats accessed off a stair landing were designed at some corner junctions. (Fig 5.35).

The reduction in space standards from 1950 onwards can be seen in Glasgow's T 1/3 approved in 1949 and which provided three generous bedrooms, livingroom, kitchen and bathroom in 987 ft² (91.7m²) whereas the T 11/3 approved in 1958 provides a three bedroom flat in 805 ft² (74.8m²) with reduced bedroom size and considerably reduced balcony. The T 11/3 balcony is of little use other than perhaps for airing clothes as it is shared with the neighbouring flat. The earlier T 1/3 balcony is more useful being more generous and exclusive to the flat. (Fig 5.36).

Mark 1 New Towns, East Kilbride and Glenrothes

East Kilbride

East Kilbride was originally proposed in the Clyde Valley Plan as one of the new towns to accommodate the dispersal of Glasgow's overcrowded population. It was designated in 1946 for a population of 45,000 (Drumchapel was built for 30,000). Glasgow reluctantly agreed to the overspill agreement in which Glasgow's overspill population was accommodated by participating towns, SSHA and New Towns. For those families moving out of overcrowded accommodation East Kilbride was one of the alternatives to Drumchapel, Castlemilk or Easterhouse.

The Mark I New Towns were designed at low density with the majority of housing two storey cottage development. East Kilbride in its early years built approximately one third of its housing stock as flats although in its 1957 official brochure it is stated that at least 95% of residents have intimated that they prefer houses with gardens to tenements and flatted homes (43). It is not stated why they built a higher percentage of flats to tenant preference but perhaps this was due to the early phases being close to the town centre and therefore a more suitable location for flats.

The main difference between the peripheral estates and the New Towns was that the new towns were built with all commercial, industrial, social and recreational facilities planned as an integral part of the town's development. Compared to long established towns early New Towns suffered from lack of facilities, particularly in their pioneering days, but they were better off for facilities in comparison to Glasgow's peripheral estates.

Visiting East Kilbride in 1994 the most obvious comparison to be made with the peripheral estates is the evidence of continued maintenance. New Town housing areas are well maintained and landscaped. Glasgow's peripheral estates have suffered from a lack of maintenance and are only now having major refurbishment necessary after years of under investment.

Comparison between the plans of East Kilbride and Glasgow's walk up flats show a great deal of similarity. However East Kilbride's flats are almost all of one and two bedrooms suitable for small households while two and three bedroom family housing is provided in two storey cottage developments. East Kilbride's flats are generally located close to the town centre or local centres and always mixed with two storey family housing. (Fig 5.37 to 5.40). Some of the flats are provided as part of the two storey housing design and used to turn corners as at Brouster Place. (Fig 5.38).

Stuarton Park at Lymekilns was built for rent to higher income groups as advocated in Housing of Special Groups, SHAC, 1952. These are sited in an attractive corner site close to War Memorial Park and the old village centre. They are detached 3 and 4 bedroom two storey houses linked with single storey stores and curtilage garages. The four bedroom house has a separate dining room and living room while the three bedroom house has its dining room divided from the livingroom by a folding screen. Built for a higher rental these were aimed at the needs of a mobile middle class who might prefer to rent than to buy. (Fig 5.41).

Glenrothes

Glenrothes was originally intended as a new mining town for the Rothes Pit with a planned population of 32,000.

The failure of the Rothes Pit and the reduction in mining manpower in the area generally meant that the town growth relied on attracting industry. It was not until 1959 that it formed an overspill agreement with Glasgow. Growth in the 1950s was consequently slower than in East Kilbride.

Some of its most attractive housing is its first housing area around the existing village of Woodside. The area was developed with small housing schemes to different designs giving considerable variety and interest. Within this area are two small almost identical groups of terraced houses and flats at The Beeches. Built in an area with mature Beech trees the two storey terraced houses form a short "L" at the corner of the street and the terrace is terminated by a small three storey block of flats. Both flats and houses are two bedroom house types. The terraced housing has porch projections to the front and livingroom projections to the rear defining the individual house unit. Shallow pitch felt roofs have small overhangs over harled walls. (Fig. 5.42)

Glenrothes built fewer flats than East Kilbride during the 1950s and in Glenrothes they are either grouped with cottage housing as at the Beeches or as at Alexander Road as a small group within a large area of cottage housing.

The flats at Alexander Road have one or two bedrooms and are provided in the form of 36 flats in three four storey star blocks with three flats per landing. They are set in well

landscaped open space which provides play space for the surrounding houses. Alexander Road Flats are well maintained as are the open spaces and most of the residents' gardens. (Fig 5.43, 5.44).

The attractive image of the area was marred in 1993/94 when a court case resulted in reports by the media of an undesirable tenant. The local MP, McLeish after attending a hearing where the Corporation were taking eviction action, was interviewed on television and reported that he had regularly had residents attending his surgery in tears, wishing to move because of one family in the street. (44) This graphically illustrates that the subject of this study, the physical environment, is only one component in the desirability of a housing area.

Early High Rise
Moss Heights, Glasgow

The site was originally scheduled for 180 flats in three storey tenements but in 1946 this was changed to 263 flats to be provided in eight to ten storeys, while augmenting open space and still maintaining a low gross density of seventeen houses per acre. (45) Here high rise is used not to increase density but to increase open space.

The project was approved by the Scottish Office in 1950 but construction took four and a half years and was not completed until 1954. Original estimates of costs of £1,400 rose to £2,236 per flat in the four storey blocks and £3,175 in the ten storey blocks. This compares with £1,865 per flat in walk up flats in Drumchapel. Even allowing for the fact that the Housing (Financial Provision) (Scotland) Act 1946 had given additional subsidy for flats of four or more storey, costs were high.

Moss Heights was designed to provide 267 flats in three, ten storey blocks and two, four storey blocks. 255 flats are four apartment and the remaining 12 are three apartment. The flats had stone coloured cladding and curved balconies, access onto which, was from a glazed screen to the livingroom. The ten storey blocks sited on the crest of the hill give considerable drama to the Cardonald townscape.

The ten storey blocks have been reclad giving a post modern image. This is one of the better recladding designs in Glasgow but given the historic significance of Moss Heights perhaps refurbishment ought to have retained the original architectural form. (Figs. 5.45, 5.46)

Comprehensive Development Area, Hutchesontown, Glasgow

The ability to carry out comprehensive development was aided by provisions for compulsory acquisition in the 1957 Act. This Act also gave more generous subsidies for high rise flats (two thirds additional cost).

The first housing in the Hutchesontown CDA was however 96 dwellings in four storey walk up flats designed by the city architects department and completed in mid 1958 and presumably designed prior to the 1957 Act. The later phases which included high rise were designed after the 1957 Act and the introduction of the more favourable high rise subsidy.

Hutchesontown B, Architects R.M.J.M.

Designed in 1958 by Robert Matthew, Johnson-Marshall and Partners (job architect J. L. Paterson) it is a mixed development of high rise and walk up flats, 308 flats in four 17 storey blocks, 65 flats and maisonettes in five 3 storey blocks and 56 maisonettes in two 4 storey blocks. There is also a nursery school, community hall, two pubs and five shops. The main shopping area was provided in the next phase of the CDA.

The 17 storey block is in fact 19 storeys high as it is raised up on two storey height *pilotis*. Refuse chamber and caretakers office are accommodated in this area. Each block accommodates 38 two apartment and 39 three apartment flats. Flat type A and B are on a split half level with livingroom facing west and bedrooms facing east with through ventilation. Flat type C, or one bedroom flat, is on one side only of the access corridor and is sited on the corner of the block giving two adjacent external walls for ventilation, thus avoiding the prohibited back to back flat plan.

The flats have recently had controlled access foyers added at ground entrance level and roof lids added, both with pediment motif. These additions detract from the original architectural form and clash with the original choice of materials. The alterations could have been carried out more sympathetically perhaps by simply repairing and insulating the roof and creating a foyer with clear glass between the *pilotis*. (Fig 5.47, 5.48).

Hutchesontown C, Queen Elizabeth Square, Spence

Also designed in 1958 it provided the main shopping centre and separately 400 flats in two 20 storey blocks. There were 60, single apartment flats, 180, 3 ap. 3 person flats 120, 3 ap. 4 person flats and 40, 4 ap. 5 person flats. The flats were 'cross over' maisonettes crossing over the central corridor. Livingrooms and kitchen/dining areas faced south/south west and the kitchens have access to the large balcony areas portrayed at the time by Spence as gardens in the air. Access to the flats was by one staircase and two lifts in the small block and double that provision in the larger block. (Fig 5.49).

The design was not suited to quick erection and was not completed until 1964 when it won a Saltire Award for good design. It is likely that the experience of long construction periods for one off architect designed high rise flats such as Moss Heights and Queen Elizabeth Square was one of the main factors for Glasgow turning to package deals in the 1960s.

When the Spence flats were built there was no questioning by the media of the merits of modernising the old tenements rather than demolition and replacement with high rise. This can be seen in the following quote from BBC Scotland when the flats were being opened by the Queen, "Another experiment in living, Gorbals turns its scarred face to a better, fairer future as her Majesty the Queen unveils a foundation stone". Again on the programme, 'Scotland in Focus' (in the old Gorbals) 1965 BBC Scotland' the reporter walking through the old tenement streets and standing in an unkempt back court is filmed saying :

> When things get this bad you cannot patch them up any longer. You have to pull them down and rebuild from scratch. For the past 100 years half the population of Glasgow has lived in districts like these. That means families of half a dozen and more packed into a single room, roughly half a million people. The result, street

> after street of tenements like these. From overcrowded rooms you escaped into the streets and you used the back courts for your playground. In their place new blocks of flats are being built many of them towering up to 15 or 20 storeys. When you are short of space you have to build high.

There were problems with the flats. Tenants complained about the stairs being too steep and of not being able to allow children to play unsupervised on the balconies in case they climbed up over the balcony. Neighbours objected to children playing in the corridors, so most children had to play indoors. Tenants also complained of being blown over at the base of the flats and of washing being blown over the balcony.

There were also later problems with complaints of drug addicts and drug dealers hanging about the entrance and corridors of the block. The problem of undesirable visitors was addressed in the 1930s mansion flats and at Crathie Court for single women by having access controlled by a concierge or warden for the block, a solution being adopted in many blocks being refurbished in the 1980's.

On the other hand many tenants liked their flat and their hanging balcony and, when they saw other flats being renovated in the 1990s, wanted to stay where they were and have their flat renovated. (46)

Queen Elizabeth Square controversial for its innovative design was again controversial when, on the basis of high renovation costs, the District Council decided to demolish. But the argument for and against demolition was not the end of the controversy as tragically Helen Tunney was killed while standing behind the official safety barrier watching the demolition by explosives.

Leith Fort, Edinburgh

The redevelopment of the Leith Fort area was the subject of an architectural completion in 1957 with the winning design by J. E. Baikie and Associates announced early in 1958. The competition design was modified and only the first phase was built. It is a mixed development, two 21 storey point blocks, a 7 storey deck access maisonette block and one and two storey courtyard houses.

The sculptural form of the competition tower blocks shown bottom right hand of fig 5.50 is similar in concept to Hutchestown B, but this was changed to a plan form with flat plans on one level with access to flats from the lifts every second floor level. The flats sit up on a podium under which are the service spaces and car parking. The flats are clad in dished grey concrete panels giving them the harsh appearance of grain silos. The courtyard houses, while having small private patios, have no defensible space between them and the public footpaths.

There is also little informal supervision of public spaces and the area was noted as suffering from vandalism when it was completed in 1965. (47) A pitched roof was added to the seven storey maisonettes block in 1994 and the tower blocks partially boarded up were being considered for demolition. (Fig 5.50, 5.51).

Housing on Remote Sites

Heddels Park, Lerwick, Shetland

The 1957 Act gave additional subsidy for housing on remote sites, recognition of the higher building costs on remote sites of which Shetland is an example.

Heddells Park is a redevelopment site close to the centre of Lerwick which takes vehicular access from Annsbrae Place and uses Lerwick's traditional narrow lanes to give pedestrian access down to the centre of Lerwick and the harbour.

Twenty eight of the houses are 2 or 3 bedroom terraced houses with a further 20, 2 bedroom houses provided in four, three storey flat blocks. The flats are located in the centre of the layout close to the play area with its Shetland boat and along the main pedestrian route. The two storey terraced houses link into the existing terraces and create sheltered enclosed spaces. A small shop is sited under one of the flat blocks on the western edge of the site. Porches and change of floor texture define the semi-private spaces outside the houses. Houses built hard onto public lanes or paved roads, a traditional feature of the centre of Lerwick, has worked successfully where it might not in an area without this tradition and where vandalism is a greater problem. (Fig 5.52, 5.53).

SUMMARY 1950-59

Housing Scotland Act 1949 and SHH6 1951

This Act had given subsidies towards Local Authority modernisation of older houses and additional subsidies for new houses to be constructed of stone or other traditional materials to preserve the character of the area. Scottish Housing Handbook 6 draws attention to the latter subsidy stating that there is a need to maintain employment among local stone masons and to revive the Scottish slate industry.

The use of the modernisation subsidy varied. Glasgow was more interested in slum clearance and replacement with new houses. On the other hand Edinburgh, Stirling and Dunkeld all commenced modernisation and infill development at the Canongate, Broad Street and the Cross respectively. Those infill developments used traditional wall and roof materials to preserve the character of the area.

Other infill developments which used traditional materials to blend with the charter of the area are , the fishermen's cottages at Dunbar Harbour, Great Michael Rise at Newhaven and the Bowery at Leslie in Fife.

Scottish Housing Handbook 3, House Design 1950 and 1956
Scottish Housing Handbook 6, Economy in House Building, 1951

These handbooks illustrated house designs within maximum allowable house floor areas. These areas were close to the 1945 short term standards and consequently below the proposed 1945 long term standards. The purpose of 1950s standards was to economise on labour and materials both of which were in short supply. There was a subtle shift in emphasis in the 1956

edition of SHH3, 1956 which advocated maximising the living and bedroom areas within the maximum shell size.

Houses and flats designed for economy of labour and materials were built as demonstration houses in Sighthill in Edinburgh between 1951 and 1953. Glasgow's peripheral estates were built with walk-up flats during the late 1940s and during the 1950s. Those designed in the late 1940s have more generous house areas than those designed in the 1950s. The 1950s house types no longer have all bedrooms capable of accommodating two people, kitchen areas are reduced and the generous 1940s balconies were replaced with minimal sized balconies.

Housing of Special Groups 1952

This Scottish Housing Advisory Committee (SHAC) report advocated building housing for special groups in addition to general needs housing which it claimed Local Authorities were building almost exclusively.

The special groups for which it proposed housing should be built by public housing authorities were, older people, other single and two person households, large households, disabled people, higher income households and occupational groups.

Examples of this type of housing include: Crathie Court and Calfhill Court, Glasgow both for single women, Stuarton Park in East Kilbride for higher income families and the fishermen's houses at Dunbar Harbour.

Housing Town Development (Scotland) Act 1957

Provision was made for compulsory acquisition of land. This facilitated the purchase of land in Comprehensive Development Areas.

The Act reduced subsidies on general needs housing but provided higher subsidies for overspill housing, incoming workers and for high rise flats. The high rise subsidy for six or more storeys was generous with an additional amount equal to two thirds of the sum by which the cost of the flat exceeded the average house cost in Scotland.

Scottish Housing Handbook 1, Housing Layout, 1958 illustrated housing layouts at various densities using a mixed development of cottage housing, walk-up flats and maisonettes and high rise flats. It also advised that the housing for families with young children (48% of households) should be in cottages, in two or three storey flats or four storey maisonettes.

It is important to note that although Government advice in SHH1 was that high rise flats were not suitable for families with young children there was no restriction on the subsidy for high rise flats to exclude flats for families with young children. In consequence, authorities such as Glasgow built three bedroom high rise flats and occupied them with families with young children. Queen Elizabeth Square in the Gorbals was an example of this. The twenty storey blocks had problems with children who, for safety, were not allowed to play on the open balconies and created a noise disturbance when they played in the corridors.

Prior to the 1957 Act few multi storey flats were built. The subsidy introduced in 1946 (£7 per flat) was not enough to offset the additional costs of early experiments in high rise as, for

example, at Moss Heights in Glasgow where costs per flat were almost double that for walk-up flats. Glasgow, wishing to maximise the development potential of its available land, built mainly flats in the 1950s but as multi storey flat costs were high almost all flats were walk-up flats. With the generous 1957 subsidy this changed. The late 1950s saw the beginning of the high rise flats building programme. This was mainly in Comprehensive Development Areas the acquisition of which was eased with the 1957 Act provision for compulsory acquisition of land required for development.

Examples of this type of development are Hutchestown B CDA, Glasgow which is a mixed development of high rise flats and walk-up flats, the former Queen Elizabeth Square, Glasgow which was entirely high rise and Leith Fort, Edinburgh which was a mix of low rise housing, high rise deck access blocks and tower blocks.

1950 - 1959 References

1. Sim, D., British Housing Design, (Harlow, I.o.H. And Longman Group, U.K., 1993), 56

2. Ibid, 54

3. Ibid, 55

4. Scoffham, E. R., The Shape of British Housing, (London, George Godwin, 1984), 21

5. Ibid, 21

6. Report of the Committee on Building Legislation in Scotland, (Edinburgh, HMSO, 1957), 10

7. Ibid, 8

8. Ibid, 101

9. Sharp, T., Gibberd, F., Holford, W. G., Design in Town and Village, (London, HMSO, 1953), 9

10. Ibid, 70

11. Ibid, 31

12. Failure of a New Town, Townscape, Architectural Review July, 1953, Outrage, A.R., June 1955, Oversprawl and Counter Attack, A.R., December 1956.

13. Sharp, op cit, 112

14. Ibid, 72, 73

15. Scottish Housing Handbook 1, Housing Layout, Department of Health for Scotland, Edinburgh, HMSO, 1958), 5

16. Ibid, 16

17. Scottish Housing Handbook 2, Roads and Services, Department of Health for Scotland, (Edinburgh, HMSO, 1952), 4

18. Ibid, 4

19. Scottish Housing Handbook 3, House Design Rev. Ed. 1956, Department of Health for Scotland, (Edinburgh, HMSO, 1956), 7

20. Housing of Special Groups, Scottish Housing Advisory Committee, (Edinburgh, HMSO, 1952), 61

21. Ibid, 49

22. Flats and House 1958, Design and Economy, (London, HMSO, 1958), v

23. Ibid, 7

24. Ibid, 112

25. A Guide to Non Traditional Housing in Scotland, (Edinburgh, HMSO, 1987), 6

26. Ibid, 13

27. Watson, A., Demonstration Houses, Sighthill, Edinburgh, (Edinburgh, SSHA, 1987), 70

28. Worsdell, F., The Tenement, (Edinburgh, Chambers, 1979), 139 - 142

29. Glendenning, M., and Muthesius, S., Tower Block, (London Yale University Press, 1954), 159

30. Ibid, 55, 170, 171

31. Ibid, 175

32. Ibid, 38

33. Oliver, P., Davis, I., Bentley, I., Dunroamin, (London, Barry and Jenkins Ltd., 1981), 27

34. Wright, F. L., An Autobiography, (London, Faber and Faber), 285 The Natural House (USA, Horizon, 1954), Credo

35. The Builder, Piling up the People, 4 April, 1868, 255

36. Glendenning, op cit, 39, 53

37. Glendenning, op cit, 333

38. Worsdall, op cit, 145

39. Glendenning, op cit, 175, 180

40. Glendenning, op cit, 367 to 369, Gazetter

41. Bowley, M., Housing and the State, (London, Allen and Unwin, 1945), 237

42. Worsdall, op cit 142 - 143

43. Osborn, F. J., Whittick, A., New Towns, (London, Leonard Hill, 1977), 395

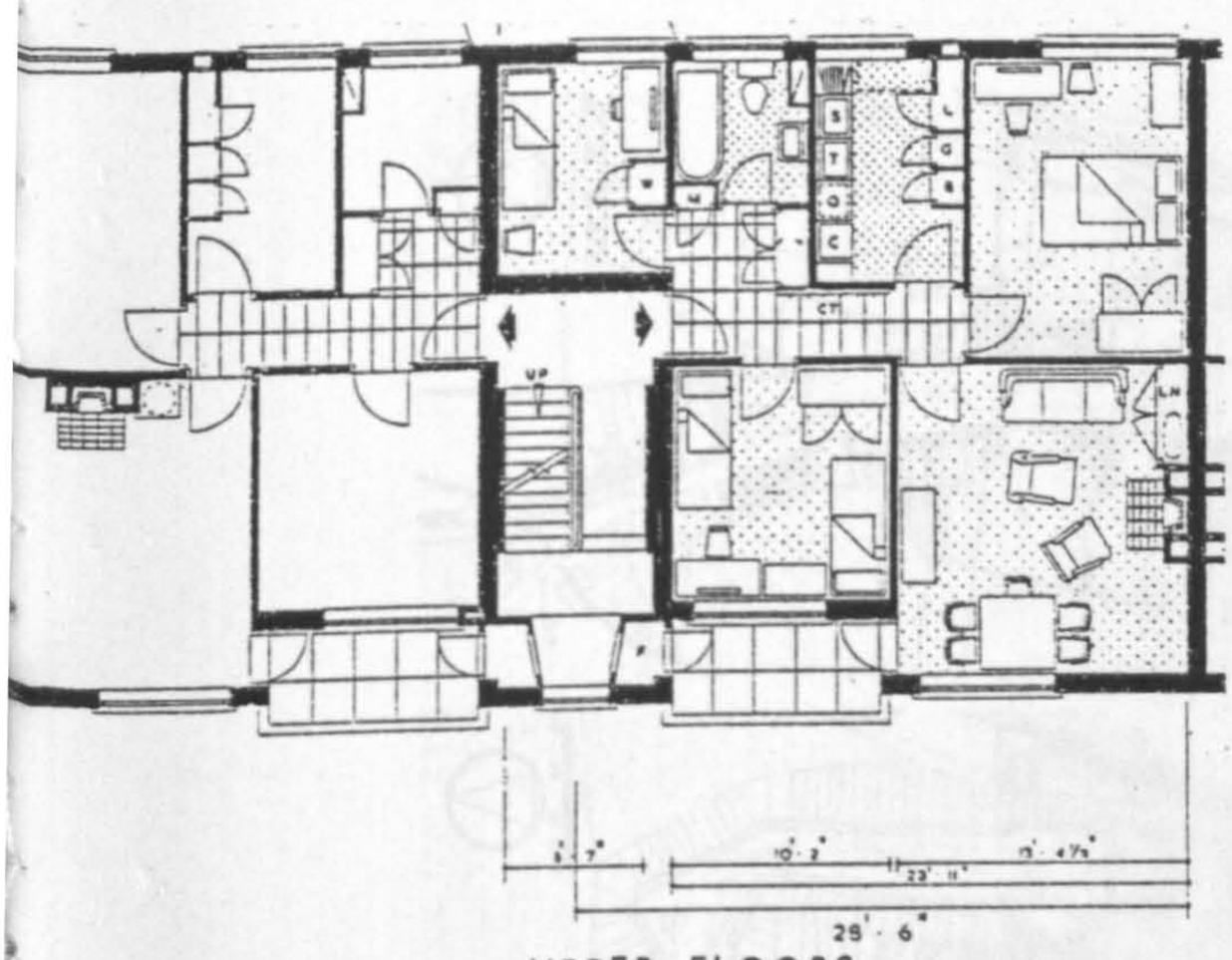
44. McLeish, H., Reporting Scotland, 21.10.1994

45. Horsey, M., Scottish Georgian Society Bulletin 1982, 33

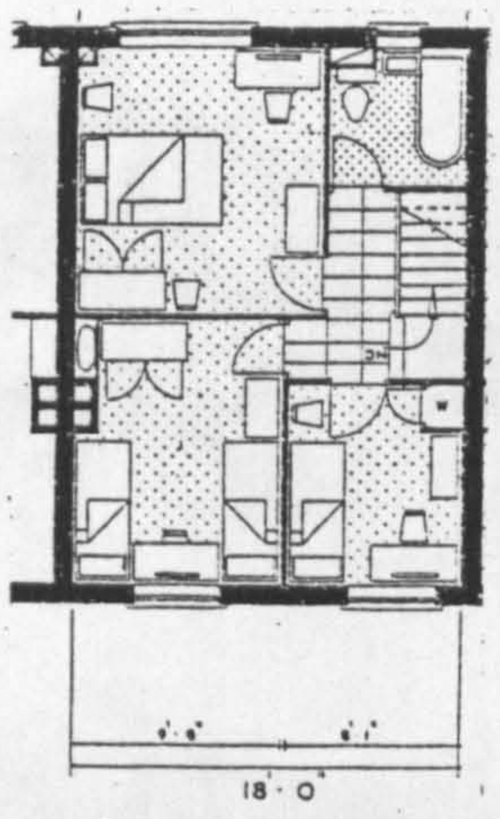
46. Ex. S., BBC Scotland, High Rise and Fall, 23.11.93

47. Architects Journal, 7 April 1965, 837 - 848

Scottish Housing Handbook 6 1951 Appendix 1953



UPPER FLOORS



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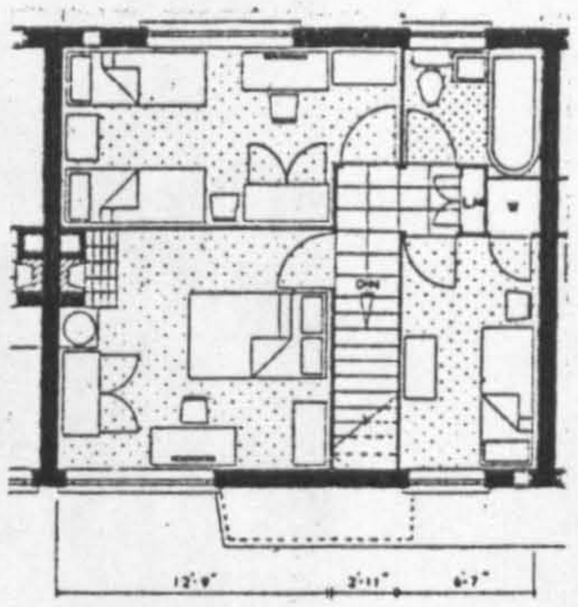

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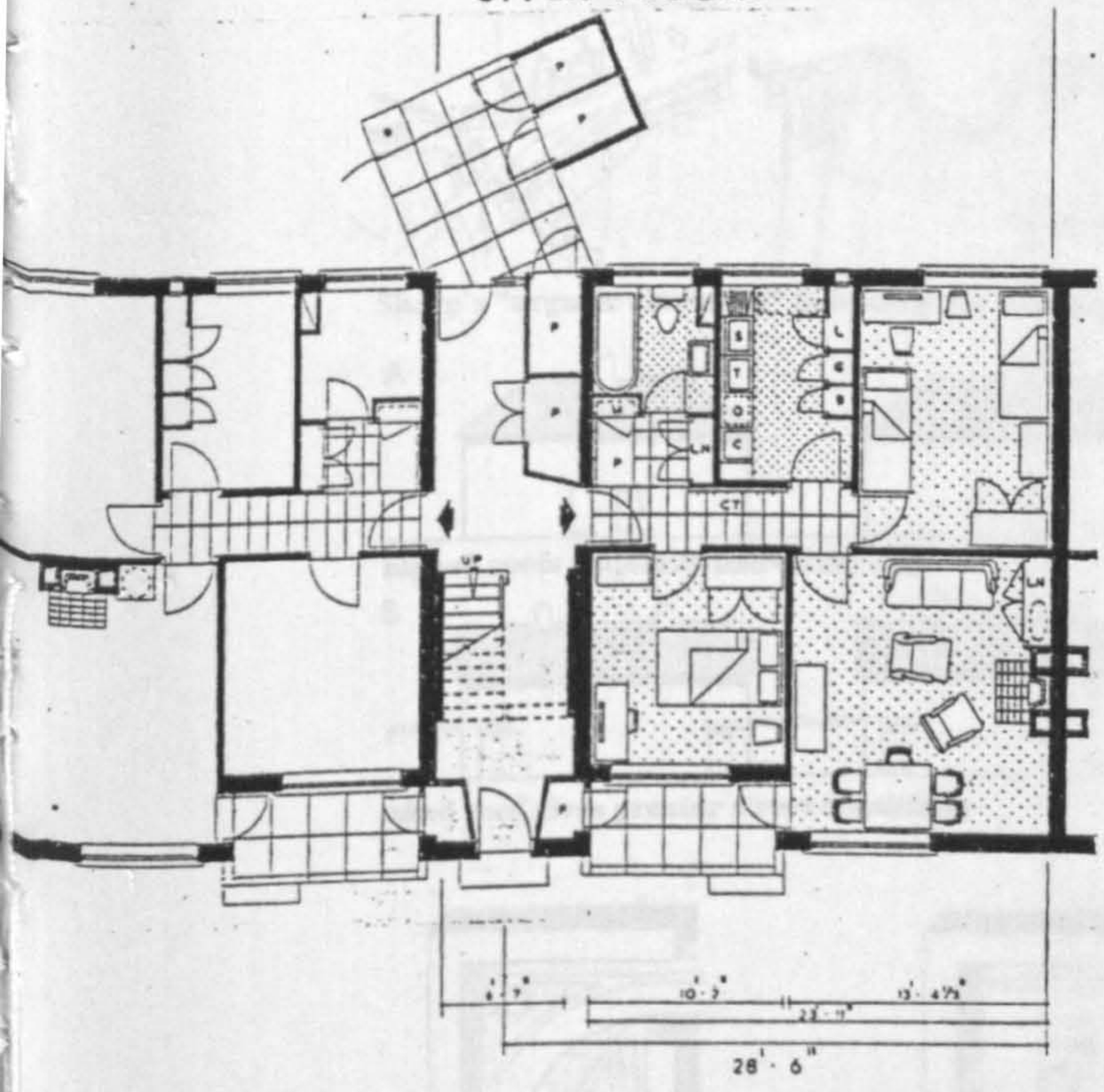
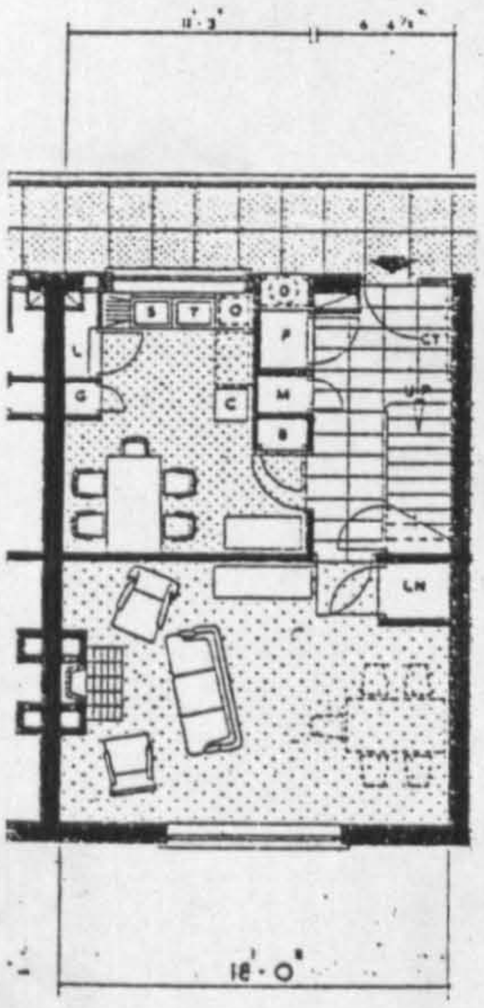


GROUND FLOOR

THREE-STOREY FLATS

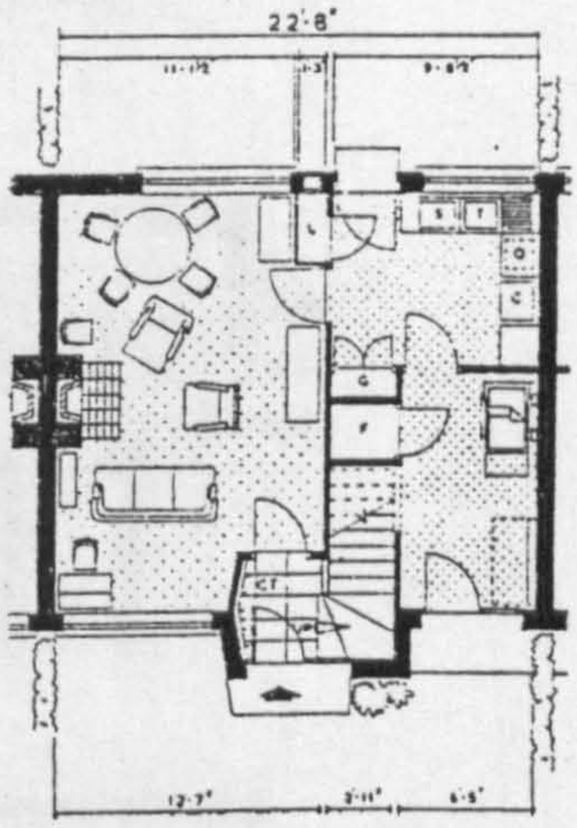
	Three-apartment Flat	*Four-apartment Flat*
Overall area	662 sq. ft.*	740 sq. ft.
Living room ...	180 sq. ft.	
Kitchen ...	60 „ „ ‡	
First bedroom	136 „ „	
Second bedroom	110 „ „	
Third bedroom	70 „ „	



GROUND FLOOR

MAISONETTE

Overall area	864 sq. ft.
Living room	200 „ „
Dining kitchen	105 „ „
First bedroom	135 „ „
Second bedroom	110 „ „
Third bedroom	70 „ „



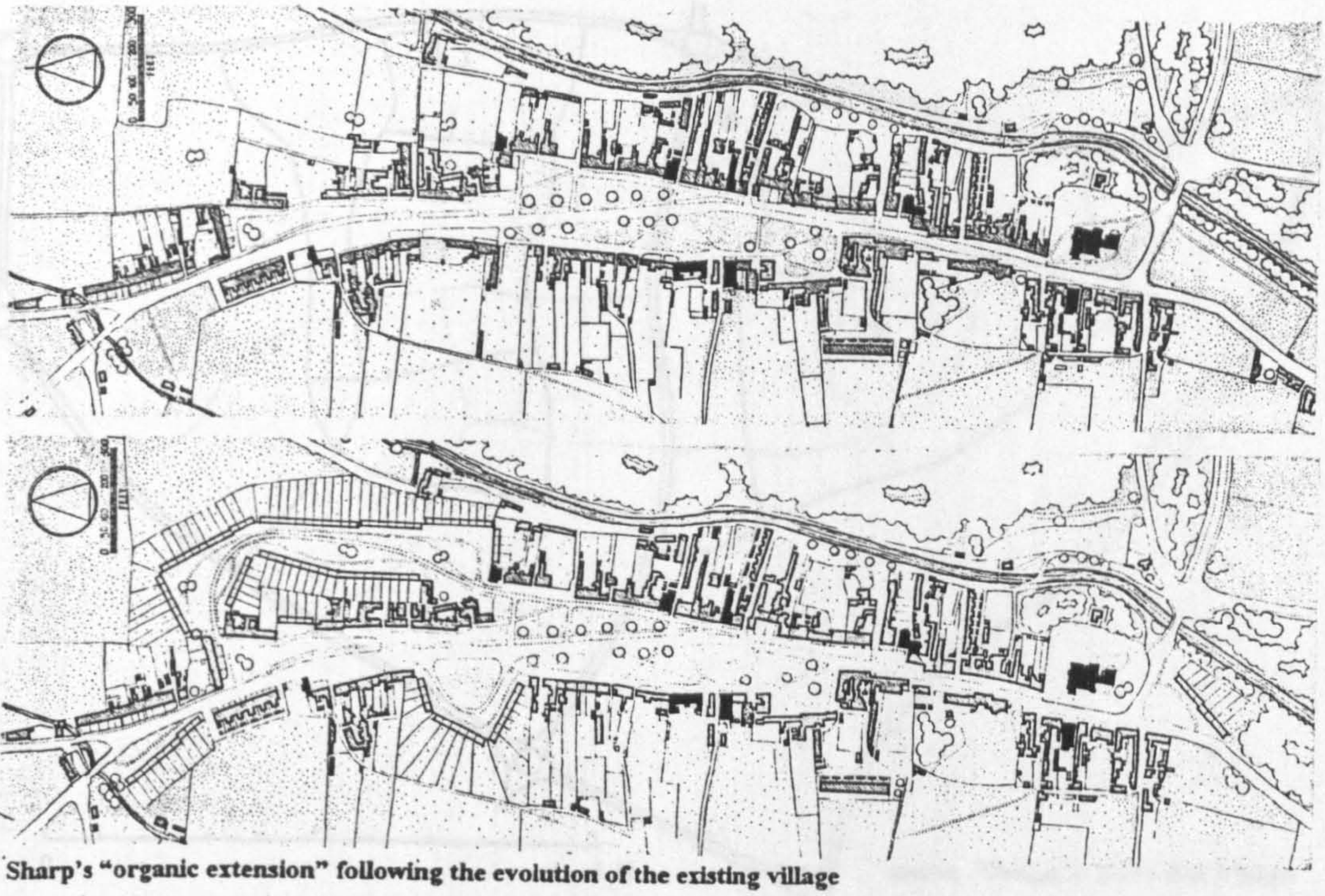
GROUND FLOOR

TERRACED HOUSE

Overall area	860 sq. ft.
Living room	220 „ „
Kitchen ...	85 „ „
Utility room	69 „ „
First bedroom	136 „ „
Second bedroom	116 „ „
Third bedroom	70 „ „

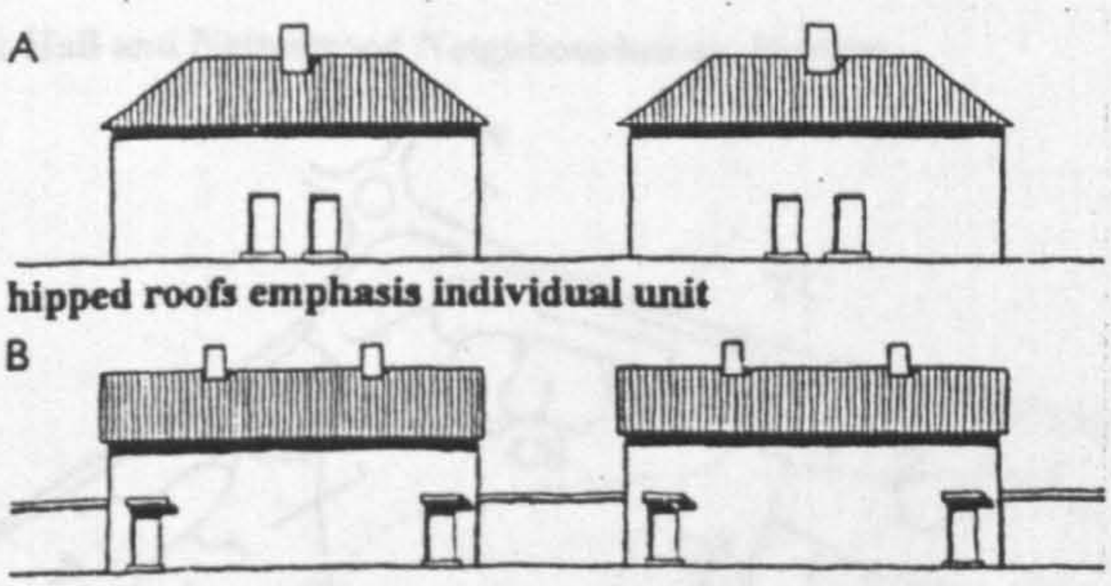
Figure 5.01

Design in Town and Village 1953



Sharp's "organic extension" following the evolution of the existing village

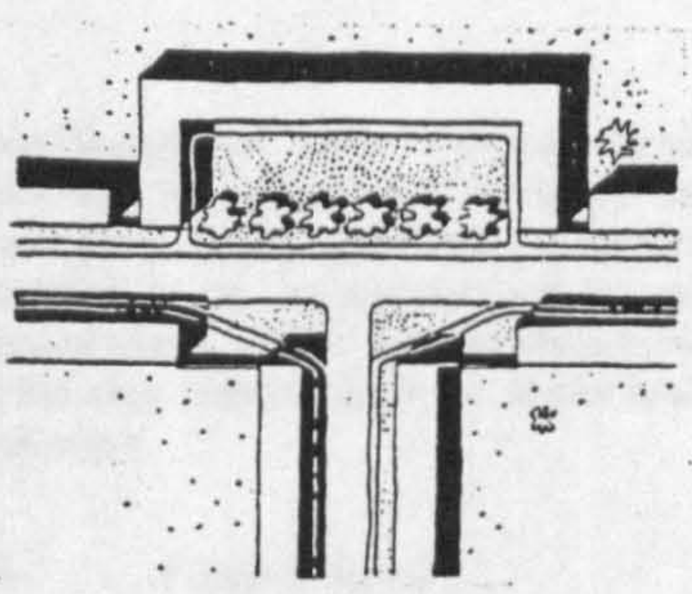
A

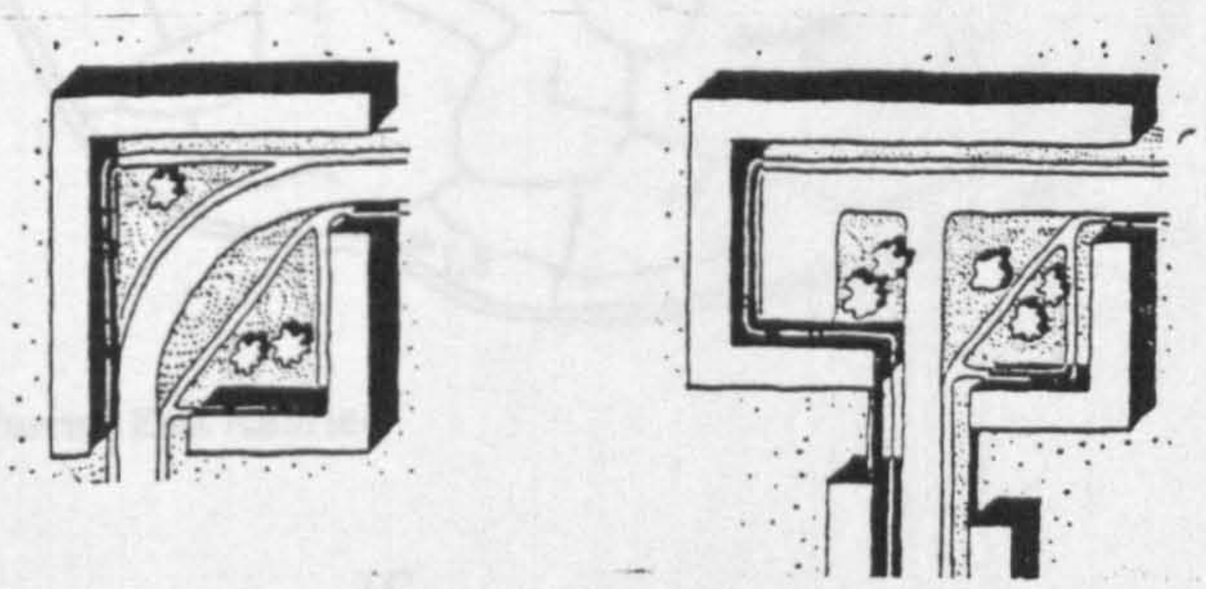


hipped roofs emphasis individual unit

B

shed roof gives greater street continuity



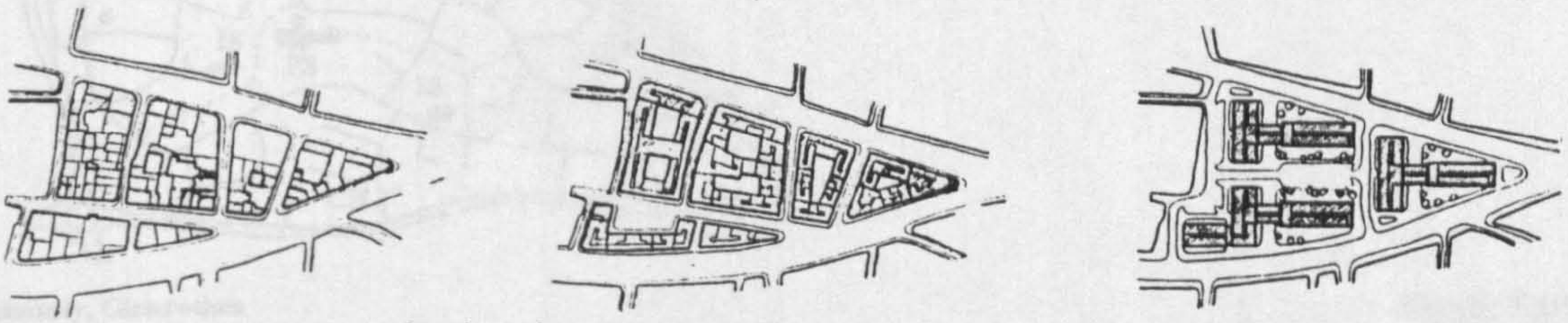


Gibberd illustrates street enclosure with terraced development

" Development as existing in 1939."

" Pre-war piecemeal re-development."

" Redevelopment in large units with open planning."

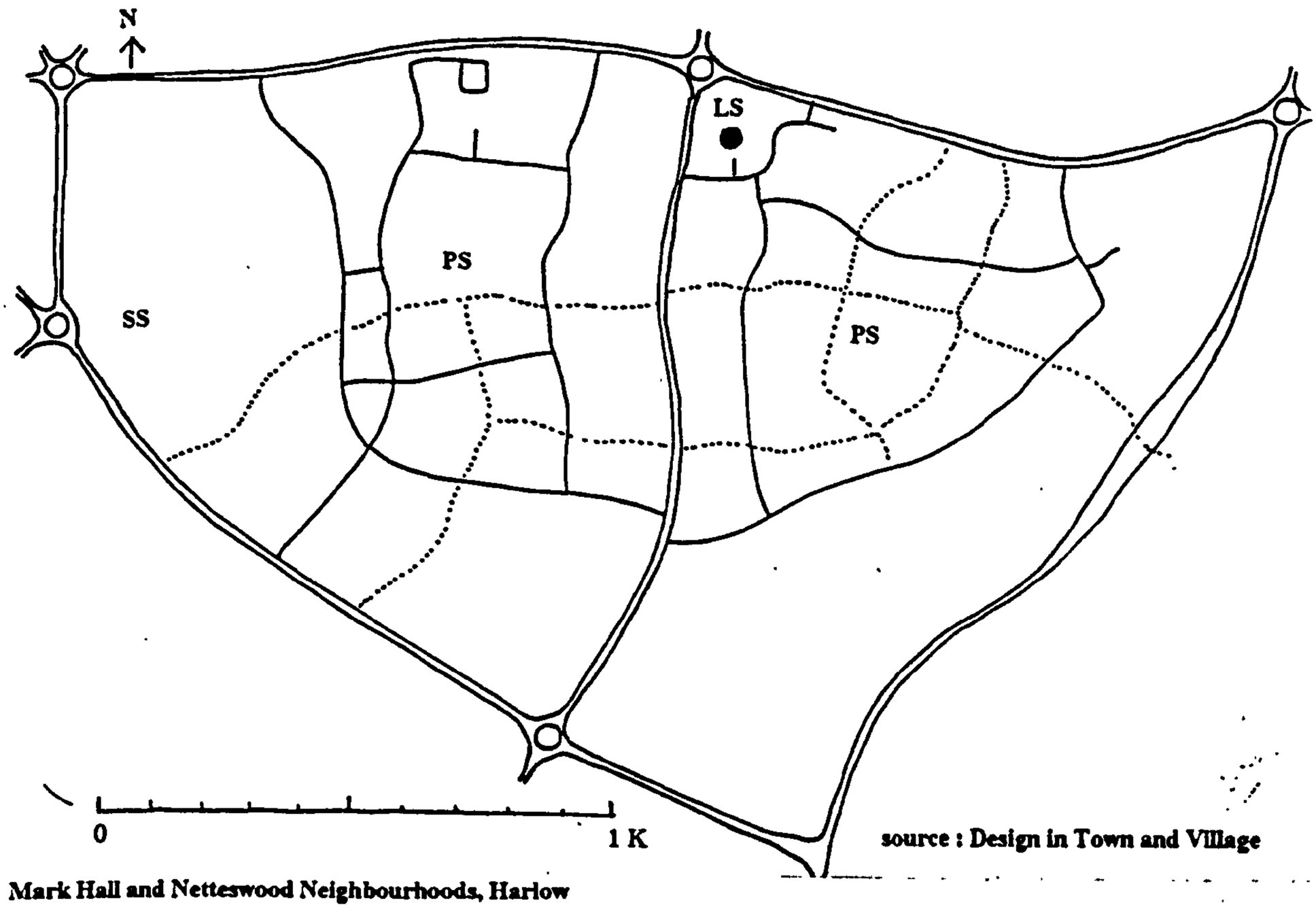


Holford argues that open planning gives greater pedestrian and vehicular access while allowing for daylight and sunlight penetration

source : Design in Town and Village

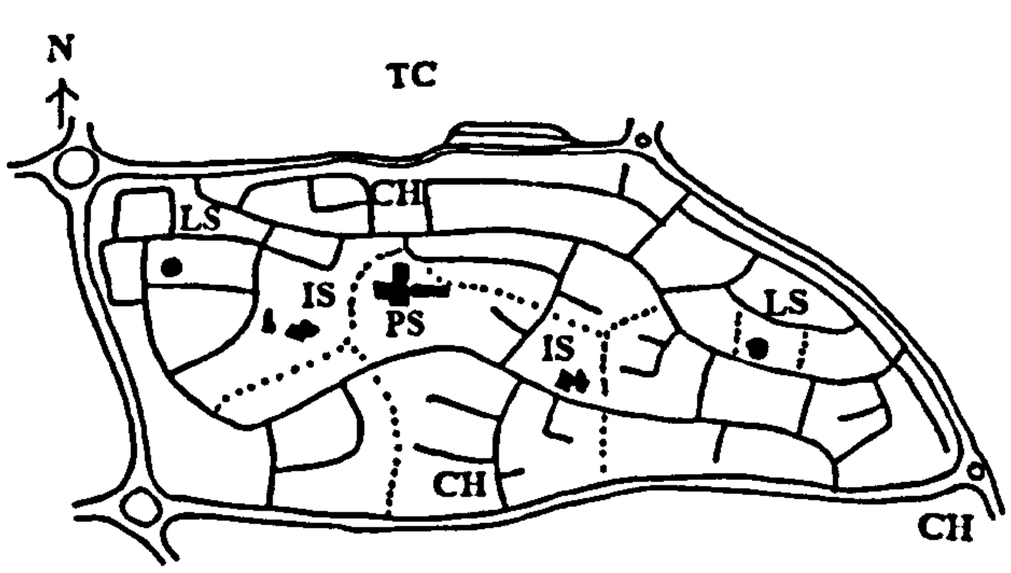
Figure 5.02

Neighbourhoods



Mark Hall and Netteswood Neighbourhoods, Harlow

The Murray, East Kilbride



Auchmuty, Glenrothes

Neighbourhoods have Primary Schools located in the centre away from the main roads and Local Shops located close to the entrance to the neighbourhood to catch passing trade. Both are positioned to be within easy walking distance of the houses they serve.

PS	Primary School
NS	Nursery School
IS	Infant School
SS	Secondary School
LS	Local Shops
CH	Church
TC	Town Centre

Figure 5.03

Density and House Types (Mixed Development)

ANALYSIS OF HOUSE TYPES REQUIRED FOR A REPRESENTATIVE SAMPLE OF 1,000 HOUSEHOLDS

Deduced from information about households in the 1951 *Census*

Type of Household	No. of Houses	Size by Apartments	%	Total %	Total No. Rooms	Suitable House Types recommended in Housing Handbook, Part 3
Group I. Families with children under 16.						All sizes—1 and 2 storey cottages, 3 and 4 apts., 2 and 3 storey flats, 4 storey maisonettes.
1. Young Married	37	3	28.6	48.1	1,693	
2. Couple with 1 child	116	3				
3. Couple with 2 children	133	3				
4. Couple with 3 children	85	4	14.0			
5. Couple with 4 children	55	4				
6. Couple with 5 children	55	5	5.5			
Group II Adult Families of over 2 people.						All sizes—2 storey cottages, 2 and 3 apts.—2, 3 and 4 storey "walk-up" flats and flats with lifts; 3 and 4 apts.—2, 3, and 4 storey "walk-up" flats, 4 storey maisonettes or maisonettes with lifts.
1. 3 adults	110	3	16.7	21.7	714	
2. 4 adults	57	3				
3. 5 adults	29	4	3.7			
4. 6 adults	8	4				
5. 7 adults	13	5	1.3			
Group III						One storey cottages, 2 storey and 3 storey flats*. Flats with lifts.
1. Single elderly people	64	1	11.9	30.2	485	
2. Other single people	55	1				
3. Elderly married couples	130	2	13.5			
4. One adult and child	5	2				* Not suitable for elderly people.
5. 2 single adults	48	3	4.8			
Total	1,000		100.0	100.0	2,892	

TABLE 2

Storeys	Type of Dwelling	Size of Dwelling						
		1-apt.	2-apt.	3-apt.	4-apt.	5-apt.	Total	%
3	Flats	—	6	21	—	—	27	21.0
2	Flats	—	—	6	—	—	6	4.7
2	Houses	—	—	24	71	—	95	74.3
	Total	—	6	51	71	—	128	100.0
	Percentage	—	4.7	39.8	55.5	—	100.0	
	Percentage from Table 1 of Appendix	11.9	18.3	45.3	17.7	6.8	100.0	

14 to 17 Houses per Acre (14.2 H/Ac)

TABLE 3

Storeys	Type of Dwelling	Size of Dwelling						
		1-apt.	2-apt.	3-apt.	4-apt.	5-apt.	Total	%
11	Tower	20	20	—	—	—	40	15.2
4	Maisonettes	—	—	—	16	—	16	19.8
4	Flats	—	—	36	—	—	36	
3	Maisonettes and Flats over	16	—	—	16	—	32	15.6
3	Flats	—	—	9	—	—	9	
2	Flats	—	24	10	—	—	34	49.4
2	Houses	—	—	66	12	18	96	
	Total	36	44	121	44	18	263	100.0
	Percentage	13.7	16.75	46.0	16.75	6.8	100.0	
	Percentage from Table 1 of Appendix	11.9	18.3	45.3	17.7	6.8	100.0	

Number of garages — 66

25 to 26 Houses per Acre (25.7 H/Ac)

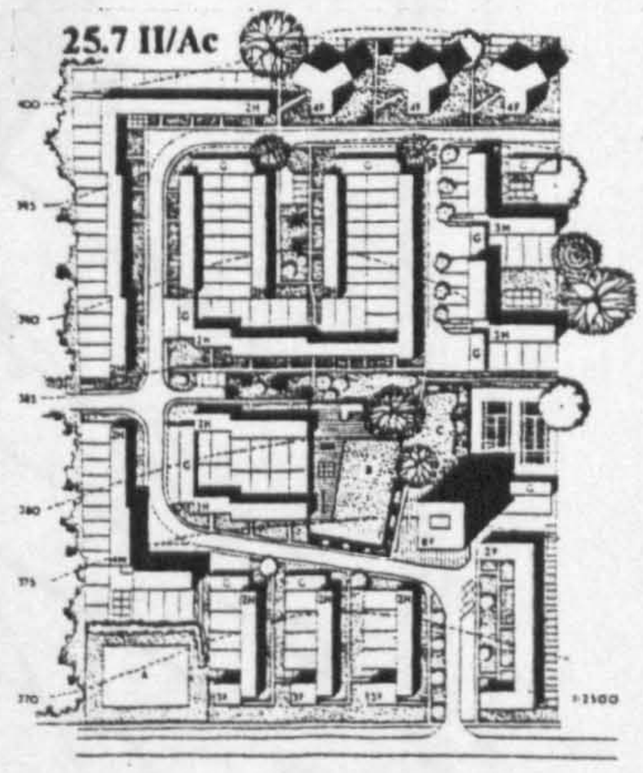
TABLE 4

Storeys	Type of Dwelling	Size of Dwelling						
		1-apt.	2-apt.	3-apt.	4-apt.	5-apt.	Total	%
11	Maisonettes	32	30	350	—	—	412	60.7
11	Flats	—	132	12	68	—	212	
6	Maisonettes	—	—	63	—	—	63	6.2
4	Maisonettes	—	—	—	215	35	250	24.3
3	Maisonettes over shops	—	—	—	9	—	9	.8
2	Flats	20	—	—	—	—	20	1.9
2	Houses	—	—	—	—	62	62	6.1
	Total	52	162	425	292	97	1,028	100.0
	Percentage	5.0	15.8	41.3	28.4	9.5	100.0	
	Percentage from Table 1 of Appendix	11.9	18.3	45.3	17.7	6.8	100.0	

38 Houses per Acre

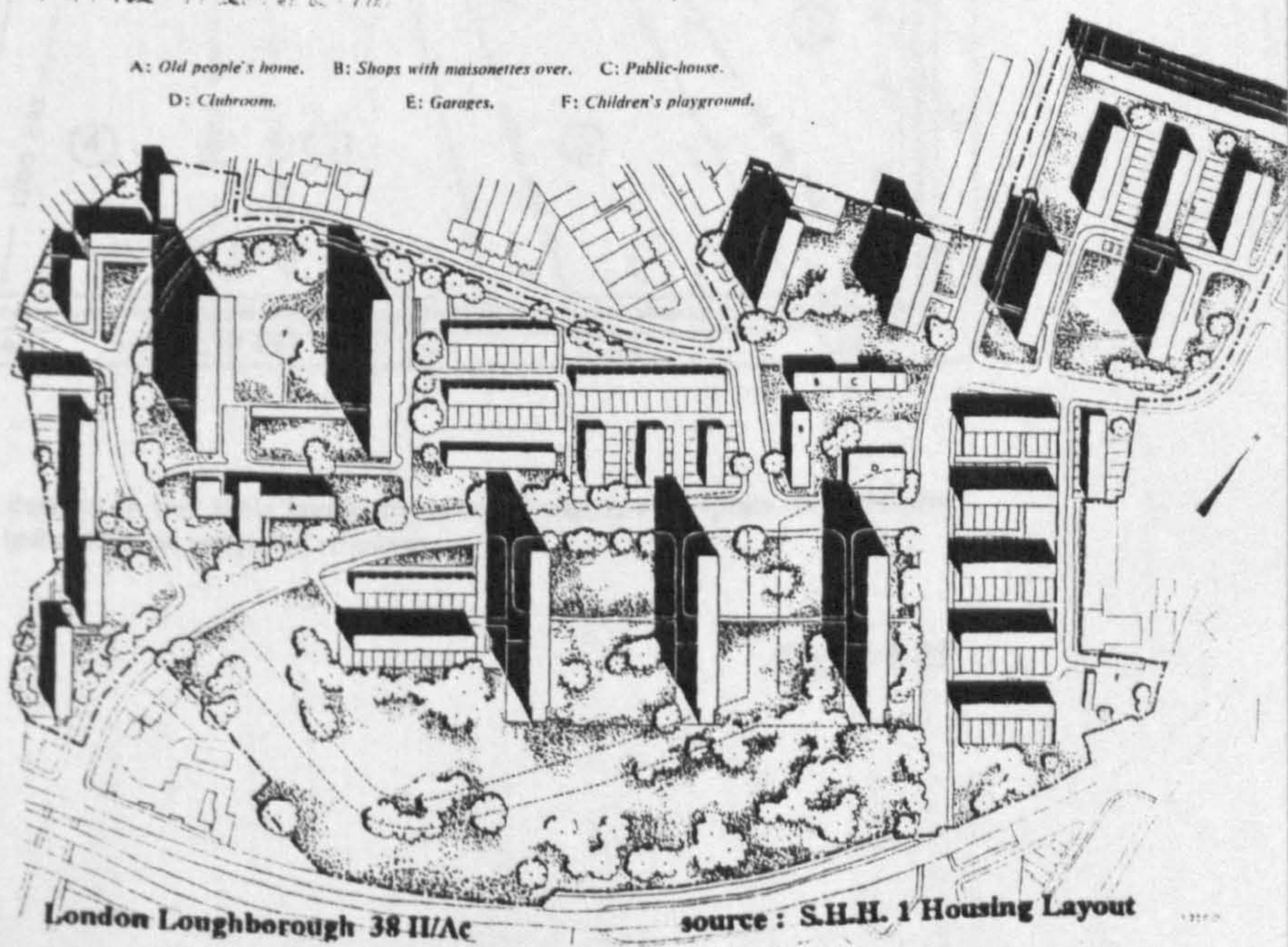
Mixed development of Houses and Flats are used in varied proportions to achieve the required density

Figure 5.04



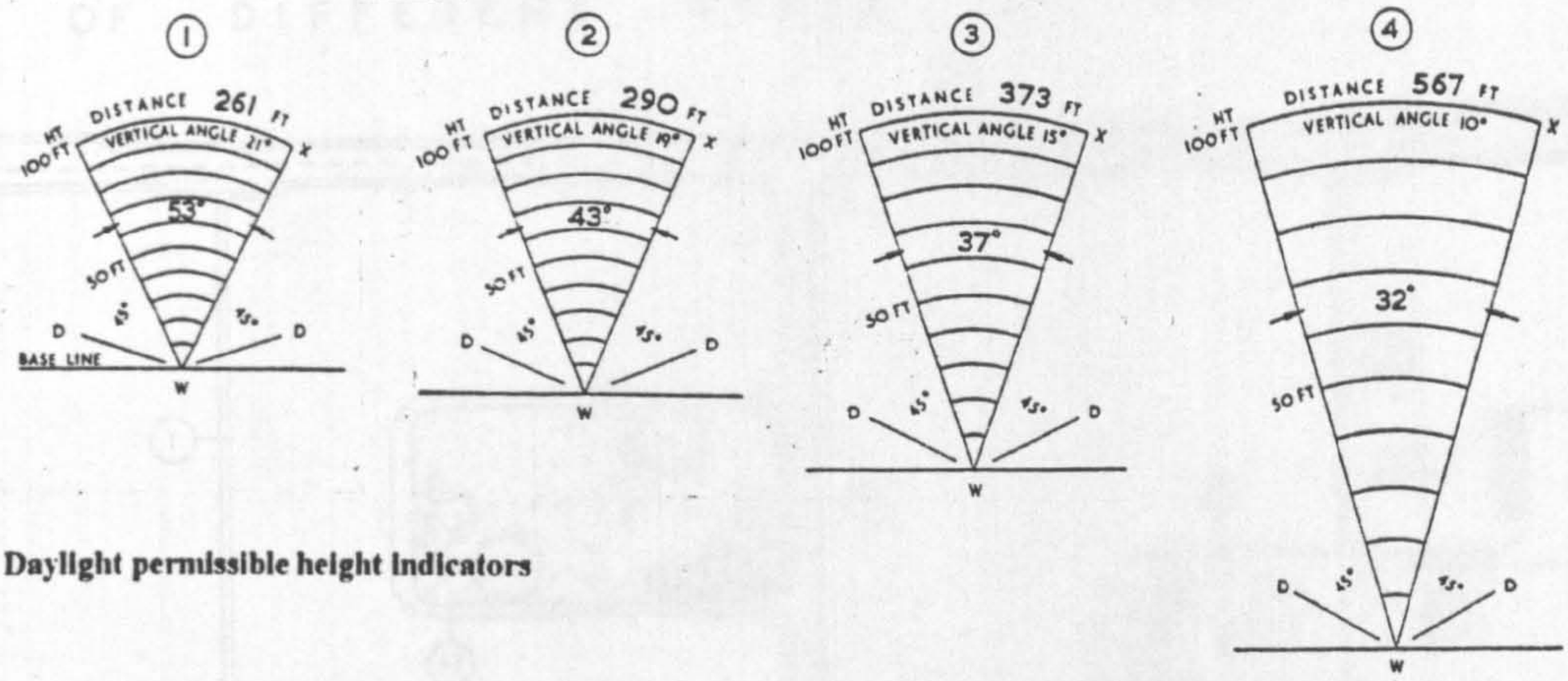
A: *Old people's home.* B: *Shops with maisonettes over.* C: *Public-house.*

D: *Clubroom.* E: *Garages.* F: *Children's playground.*

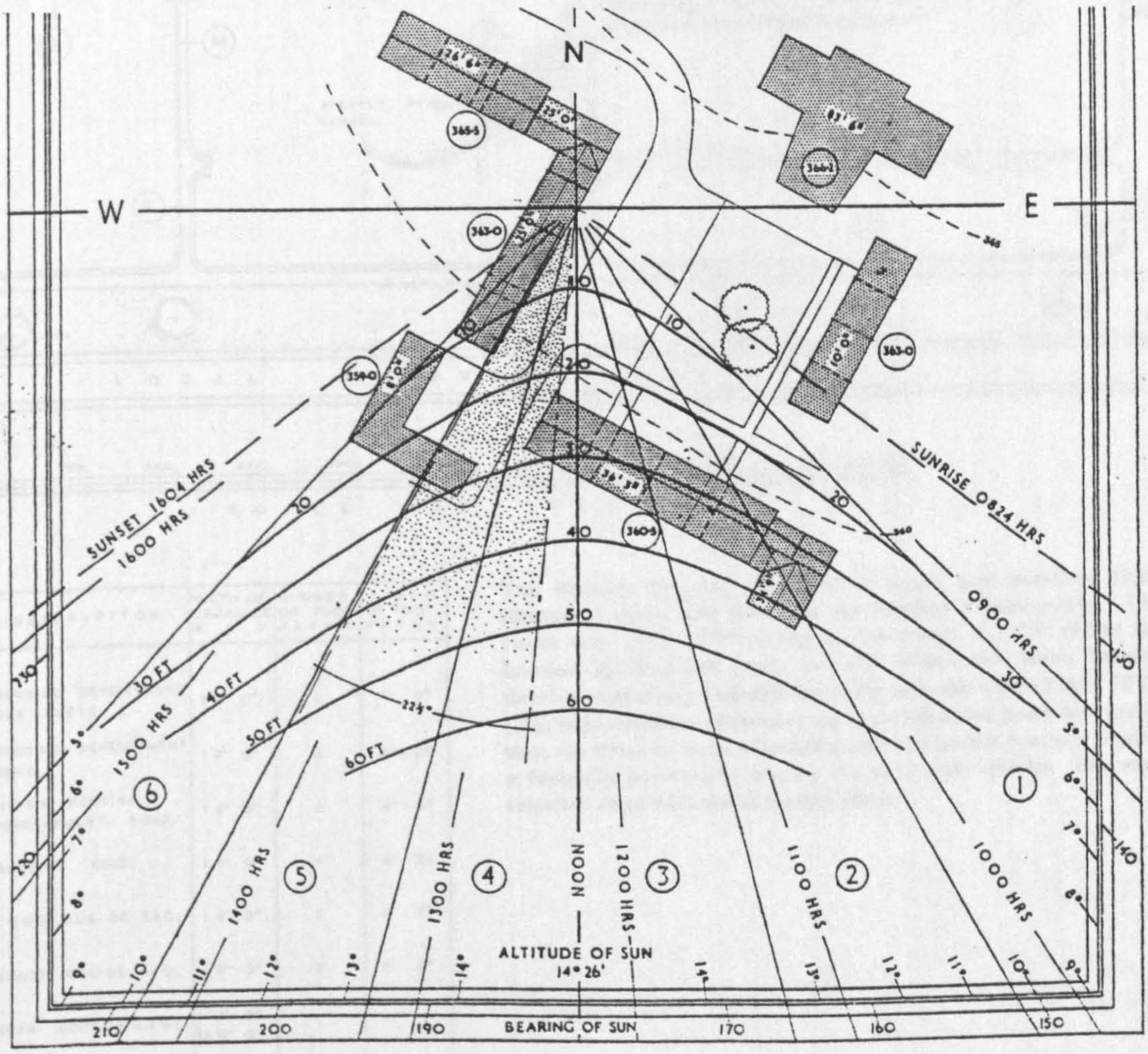


London Loughborough 38 H/Ac **source : S.H.H. 1 Housing Layout**

Daylight and Sunlight (permissible height indicators)



Daylight permissible height indicators



Sunlight permissible height indicators

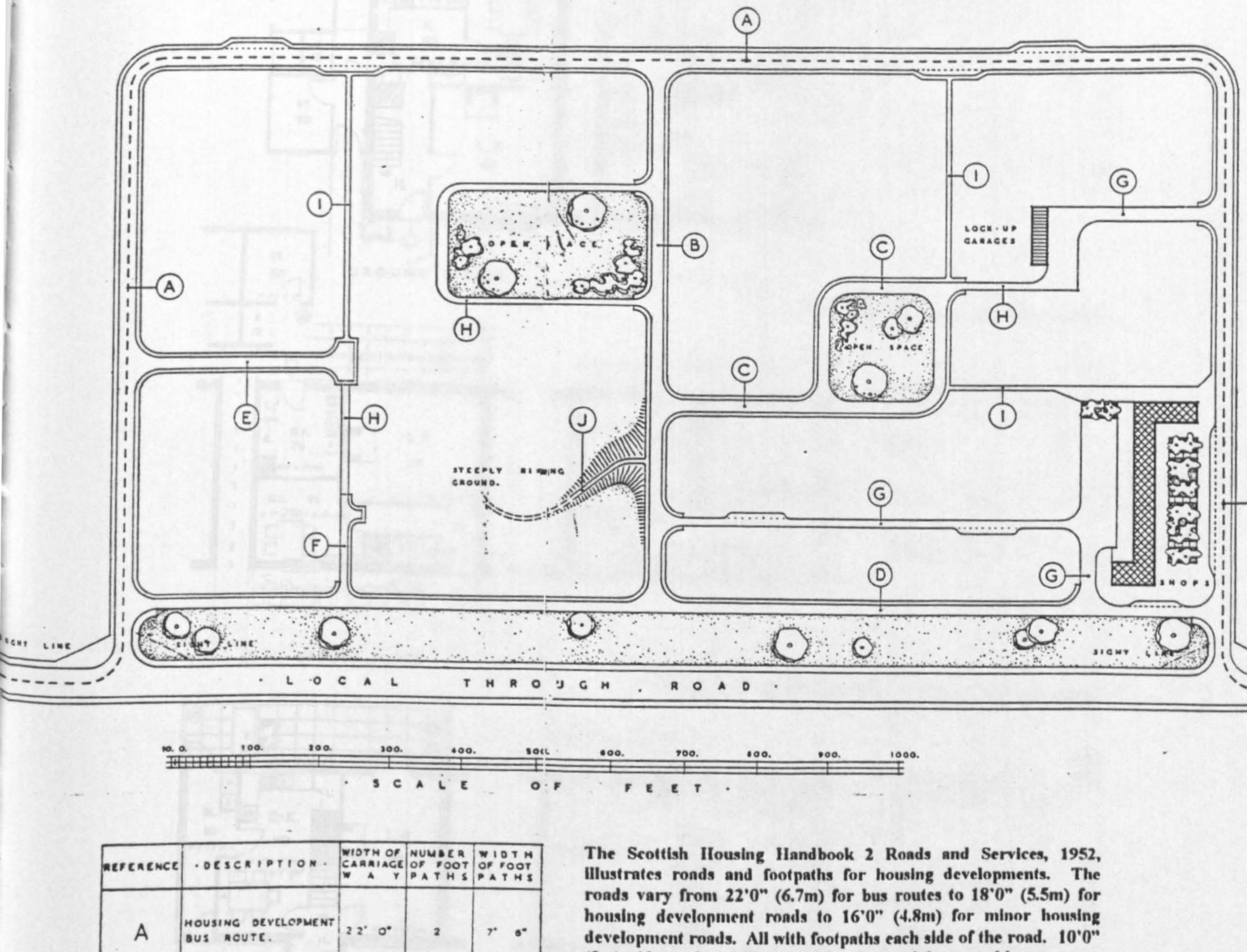
These indicators were produced to allow designs to test their layout to ascertain whether adequate daylight and sunlight could be obtained by placing the indicators on proposed windows.

source : S.H.H. 1 Housing Layout

Figure 5.05

S.H.H. 2 Roads and Services 1952

USE OF DIFFERENT TYPES OF ROAD



REFERENCE	DESCRIPTION	WIDTH OF CARRIAGE WAY	NUMBER OF FOOT PATHS	WIDTH OF FOOT PATHS
A	HOUSING DEVELOPMENT BUS ROUTE.	22' 0"	2	7' 6"
B	HOUSING DEVELOPMENT ROAD.	18' 0"	2	6' 0"
C	MINOR HOUSING DEVELOPMENT ROAD.	16' 0"	2	6' 0"
D	SERVICE ROAD.	16' 0"	1	6' 0"
E	LONG CUL-DE-SAC.	16' 0"	2	4' 6"
F	SHORT CUL-DE-SAC.	10' 0"	2	4' 6"
G	REAR ACCESS LANE.	12' 0" or 20' 0"	.	.
H	HOUSE ACCESS WAY.	10' 0"		
I	INDEPENDENT PEDESTRIAN WAY.			6' 0" or 20' 0"
J	PAVED FOOTPATH.	.	.	6' 0"

The Scottish Housing Handbook 2 Roads and Services, 1952, illustrates roads and footpaths for housing developments. The roads vary from 22'0" (6.7m) for bus routes to 18'0" (5.5m) for housing development roads to 16'0" (4.8m) for minor housing development roads. All with footpaths each side of the road. 10'0" (3m) wide roads are illustrated for short cul de sac and house access way, the latter to serve a limited number of houses does not require a footpath, pedestrians sharing the road with vehicles The road required to be widened at passing places.

source : S.H.H. 2 Roads and Services

Figure 5.06