



MINISTRY OF HEALTH

# THE COST OF HOUSE-BUILDING

First Report of the Committee of  
Inquiry appointed by the  
Minister of Health

LONDON: HIS MAJESTY'S STATIONERY OFFICE

1948

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# COMMITTEE ON THE COST OF HOUSE-BUILDING

## Members

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Alderman D. H. Daines, J.P., L.C.C.

Mr. C. H. James, R.A., F.R.I.B.A.

Mr. W. K. M. Slimmings, C.A.

*Assessor* : Mr. D. W. Nunn, A.R.I.C.S.

*Secretary* : Mr. S. G. G. Wilkinson.

*Assistant Secretary* : Mr. R. F. Burch.

## Terms of Reference

“ TO CONSIDER AND KEEP UNDER REVIEW  
THE COSTS OF HOUSE-BUILDING AND TO  
MAKE RECOMMENDATIONS.”

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# COMMITTEE ON HOUSE-BUILDING COSTS

TO THE RIGHT HONOURABLE ANEURIN BEVAN, M.P.,  
MINISTER OF HEALTH

SIR,

1. We were appointed by you in June, 1947, "to consider and keep under review the costs of house-building and to make recommendations". We now have the honour to submit our First Report.

2. Concurrently with our appointment, a Committee with similar terms of reference was appointed by the Secretary of State for Scotland. In July, 1946, a Committee was appointed by the Minister of Works "to examine the organisation and methods of distribution of building materials and components with particular reference to cost and efficiency, and to make recommendations". The Report of this Committee was published in April of this year. A further Committee was appointed by the Minister of Works in June, 1947, "to consider and keep under review the price of building materials and to make recommendations".

3. It was generally known that whereas immediately before the war the typical local authority house cost less than £400 to build, the cost at the time of our appointment was about £1,200. Briefly therefore the problem we were called upon to examine was an apparent trebling of the cost of houses since 1939. We have dealt with this problem by three stages: by establishing the facts as to the difference between pre-war and post-war house-building costs; by analysing the increase in cost and evaluating its component parts; and by considering to what extent and under what conditions a reduction in the present level of costs could be expected. In view of the terms of reference of the other Committees mentioned above, however, we have confined our inquiry to house-building costs in England and Wales; and although building materials account for more than one-half of the total cost of the average house we have concerned ourselves with materials prices only to the extent necessary to enable us to determine how far they have contributed to the cost of house-building.

4. We have taken as our datum the cost of house-building immediately before the increase in building trades wages which took effect from the 16th November, 1947. This was coupled with the adoption by the Industry of a new system of incentive payments, whose effects on building costs cannot yet be fully determined. We have, however, examined certain aspects of the question of incentives in Chapter VI of this Report.

5. At the outset of our Inquiry we invited written statements, in reply to a detailed questionnaire, from the Ministry of Health, the Ministry of Works, Local Authorities and the Local Authority Associations, the Building Trades Employers' and Operatives' Federations, professional and other bodies, and from individuals with a special knowledge of housing matters. We have heard oral evidence from a number of sources arising out of the written statements. A list of the organisations and persons from whom we invited evidence is appended to this Report. We have also received material from a number of other persons who volunteered to supply us with information. We wish to express our indebtedness to all those who have assisted in our inquiry by giving us the benefit of their time, knowledge and experience, and who have contributed to the statistical material available to us.

6. We have confined our investigation to the cost of permanent, as distinct from temporary, houses. The Government's prefabricated temporary house programme is now virtually complete and an analysis of the cost has already been published elsewhere.\*

7. On the 10th May, 1948, the Minister of Works announced in the House of Commons that he had decided to appoint a Working Party to enquire into the organisation and efficiency of building operations. We presume that this Working Party will, in the course of its deliberations, examine the general structure and efficiency of the building industry in all its aspects, including a study of the scope for improvements in building technique, a task for which this Committee was not constituted.

8. We are greatly indebted to our Assessor, Mr. D. W. Nunn, for his hard and most efficient work in the preparation of the technical and other data on which our Report has been based and for his helpful assistance in our deliberations. We would express our thanks to Mr. E. J. S. Clarke, our Secretary during the first three months of our activities, for the very able services he rendered in planning the work to be undertaken; his initiative, keenness in, and outstanding abilities for the task were invaluable to us in the early stages of our investigation, and it was with much regret that we accepted his resignation on his promotion to a higher post in your Ministry. We should particularly like to record our appreciation of the services of Mr. S. G. G. Wilkinson who succeeded Mr. Clarke as our Secretary. In addition to having to overcome the difficulties attached to the assumption of his duties during a most active period in our investigations, Mr. Wilkinson has cheerfully and efficiently undertaken the onerous task of collecting and summarizing the mass of evidence submitted to us, and the drafting of this Report. In these duties Mr. Wilkinson has been most ably supported by Mr. R. F. Burch who has acted as Assistant Secretary throughout and has taken an active and very helpful part in our discussions.

We have the honour to be, Sir,

Your obedient servants,

(Signed) J. G. GIRDWOOD, *Chairman*.

D. N. CHESTER.

D. H. DAINES.

C. H. JAMES.

W. K. M. SLIMMINGS.

D. W. NUNN (*Assessor*).

S. G. G. WILKINSON (*Secretary*).

R. F. BURCH (*Assistant Secretary*).

30th June, 1948.

*Note.*—Since paragraphs 166–170 of this Report, which refer to the volume of building work put in hand after the war, were written, the Government have announced a raising of the permitted limit for unlicensed work from £10 to £100, and also an increase in the number of new houses to be started. We have not had time to secure any evidence as to whether these changes will result in any overloading of the building industry and whether the materials and/or labour will be available to satisfy the increased demand. We only wish to stress again that any overloading of the industry must reduce its efficiency, restrict output, and thereby keep house-building costs at an unnecessarily high level.

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\* White Paper on the Temporary Housing Programme, January, 1948. Cmd. 7304.

## CHAPTER I

## THE BACKGROUND

## THE INTER-WAR YEARS

1. 1919-1922. High building costs were a dominant feature of the housing situation after the first world war, and it is worth recalling the course of events from 1919 onwards because of their bearing on many of the problems confronting the housing programme to-day. 1918 found the country faced with an acute shortage of houses due to the virtual suspension of building during the war, and also to a deficiency inherited from the years immediately before the war, when not more than 58,000\* houses were built annually. The shortage was aggravated by the speed of demobilisation and by a large increase in the number of families wanting homes. At the same time the building industry had been seriously weakened by the war, and the local authorities, who under optional powers had built few houses before 1914, were generally ill-equipped to undertake a large-scale housing drive.

2. In response to the pressing demand for houses, the Government launched an ambitious programme in 1919 and introduced legislation which marked a new conception of housing policy. The Housing, Town Planning, etc. Act, 1919, placed upon local authorities for the first time the duty of providing for the general housing needs of the working classes in their districts, and made the State responsible for a large part of the cost by offering an Exchequer subsidy sufficient to cover the whole of any annual deficit on the local authorities' housing schemes over and above the product of a penny rate. Under the Housing (Additional Powers) Act of the same year the subsidy was extended to private builders in the form of lump sum payments for houses which complied with certain defined conditions. The main task of carrying out the Government's programme however fell upon the local authorities, and by the 31st March, 1921, plans had been approved for the erection of no less than 275,868 houses by these authorities. Progress in construction was relatively slow, the total number of houses completed by the 31st March, 1921, being 41,593, and by a year later 130,335.

3. The rapid expansion of the housing programme during 1919-20 was accompanied by a violent rise in building costs. Whereas houses built for local authorities immediately before the war were costing about £235 each, the average price of three-bedroom houses in contracts let by local authorities in June, 1919, was £643 per house or 16s. 4d. per sq. ft. Building costs rose to a peak in September, 1920, when tender prices for the same type of house averaged £881 per house or 20s. 9d. per sq. ft. Final costs at this time were estimated at £1,100 per house.

4. The general situation was described as follows in the Report† of the Departmental Committee appointed by the Minister of Health in February, 1921, to enquire into the high cost of building working class houses:

“ The competitive spirit of the building trade had largely disappeared. Work would only be undertaken upon conditions whereby the builder was safeguarded against possible increases in the cost of labour, materials, railway freights, and upon terms which insured him against all other possible contingencies. The policy of the Government was to obtain

\* Average for the years 1912 and 1913.

† Cmd. 1447.



houses. There was a great clamour for housing accommodation. The public and Press criticised the comparative lack of progress. Homes for homeless ex-soldiers were regarded as an absolute necessity. No one seemed disposed to count the cost. In an already flooded market there was, therefore, added the demand upon the builder to undertake housing schemes for local authorities throughout the whole country. The balance of supply and demand was thereby entirely upset."

5. The main recommendations of this Committee (the Holmes Committee), which reported in July, 1921, were that a limit should be set at once to the number of houses to be erected under the existing scheme of State assistance; that in future, to prevent undue inflation of costs, the market should not be overloaded in any area with more building work than could be economically undertaken by the building labour available; and that all possible steps be taken to revive house-building by private enterprise under normal competitive conditions. The Committee also pointed out that the subsidy arrangements by limiting the local authorities' financial responsibility to the product of a penny rate failed to establish any community of interest between the State and the authorities in securing economy.

6. By the time the Committee reported, the Government had already decided to limit its commitments under the assisted housing scheme in the light of the heavy burden of subsidies and the difficulties of the general economic situation, and in July, 1921, it was announced that no further local authority houses beyond the 176,000 already in approved tenders would qualify for the 1919 subsidy. At the same time the subsidy to private builders was limited to houses started not later than the 1st July, 1921, and completed before the 23rd June, 1922. By the time these decisions were taken, costs had already started to fall in sympathy with the general fall in prices which set in towards the end of 1920, and prices of local authority houses had dropped to 16s. per sq. ft. Thereafter, house-building costs fell with startling rapidity and by July, 1922, tender prices per square foot were down to 9s. The average price of local authority three-bedroom houses fell from £834 in January, 1921, to £378 in July, 1922, a drop of 55 per cent. in eighteen months.

7. In all, 209,276 houses were built with the aid of subsidies under the 1919 Acts—170,090 by local authorities and 39,186 by private builders.

8. The standards of accommodation provided in the local authority houses of this period generally followed those recommended by the Tudor Walters Committee in 1918. The report\* of this Committee recommended certain minimum sizes of rooms and included plans for various types of three-bedroom non-parlour houses varying in overall area from 766 sq. ft. as a minimum to 957 sq. ft. Most of the houses of this type built by local authorities in the first few years after the war were larger than 800 sq. ft., the average area of houses in tenders approved in January, 1920, being 882 sq. ft. and in January, 1921, 844 sq. ft. As will be seen from Graph B appended to this Report it was not until 1926 that the size of houses generally fell below 800 sq. ft.

9. 1923-1929. By 1923 the low level of building costs had opened the door to house-building by private enterprise without State assistance, but the building of working class houses was further stimulated by the passing of the Housing Act, 1923, which provided a fixed subsidy of £6 per house for twenty years, to local authorities and private builders alike, for houses below a certain maximum size. These houses could be sold or let at will and no

\* Report of Committee on Building Construction in connection with the Provision of Dwellings for the Working Classes, 1918. (Cmd. 9191.)

conditions were laid down as to the prices or rents to be charged. The Housing (Financial Provisions) Act, 1924, however, offered a special inducement for the erection of houses for letting by providing a subsidy of £9 per house for forty years for houses in urban areas, and £12 10s. for houses in agricultural areas, the subsidy being available only for houses built for letting under special conditions. The great majority of the houses provided with the 1923 Act subsidy were built by private enterprise, while the bulk of those built for letting with the 1924 Act subsidy were provided by local authorities.\*

10. In all, during the years 1923-29, 333,000 houses were built by local authorities and 367,000 by private enterprise with the aid of the subsidies under the two Acts, while a further 454,000 houses were built by private enterprise without subsidy. A fairly sharp rise in building costs occurred during 1924-25 concurrently with an increase in the volume of house-building, and tender prices for local authority non-parlour houses rose above £450 at the beginning of 1926; but prices fell during that year and the downward trend continued into the 'thirties.

11. The subsidy payable under the 1923 Act ceased in 1929, and the 1924 Act subsidy was finally withdrawn in 1932, but the broad division of functions between local authorities and private enterprise which followed the granting of the two forms of subsidy was to become more clearly defined. Under the Housing Act, 1930, and later legislation, Exchequer subsidies were granted primarily to enable local authorities to carry out the particular tasks of slum clearance, the abatement of overcrowding, and the provision of houses for agricultural workers, while it was left to private enterprise to provide houses for general needs without State assistance.

12. 1930-39. The response of private enterprise was shown in the great expansion of house-building during the decade before the war, when the output of houses reached a rate never before attained. The number of private enterprise houses built annually reached a peak of 275,299 in 1935, and production during the five years 1934-38 averaged 265,000 houses per annum. This was in addition to the number built by local authorities, which averaged 64,246 houses per year over the same period. The total output of the house-building industry reached a record level in 1938, when 340,878 houses were built in England and Wales during the year.

13. House-building costs continued to fall during the first five years of this period, notwithstanding a sharp increase in production during 1933-34, when the number of houses built rose from 218,000 to 313,000 per annum. The lowest point was reached in 1935, when, in January, tender prices for local authority three-bedroom houses averaged £293, or 7s. 10d. per sq. ft.

14. Some of the factors in the economic background to this achievement in low cost housing can be seen from the appended Graphs A and B. Material prices were falling, while the cost of living and wage rates had declined steadily since 1926. The building labour force increased from 800,000 in 1930 to 1,000,000 in 1937. A significant factor was the large volume of unemployment among building operatives, which stood as high as 217,000 in 1932 and never fell below 100,000. Both builders and house purchasers had the advantage of comparatively cheap money, and increased facilities were available to enable owner-occupiers to buy houses with a small capital outlay.

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\* 362,738 houses were built by private enterprise with subsidy under the 1923 Act, as compared with 75,309 built by local authorities. On the other hand, 15,780 houses were built by private enterprise, and 504,518 by local authorities, with subsidy under the Act of 1924.

15. The fact that local authorities had virtually ceased to build for general needs meant that the demand for houses to let at low rents shifted to private enterprise, and the fall in the cost of building enabled private builders to satisfy this demand on an increasing scale. It has been estimated that almost one-third of the total number of houses erected by private enterprise in the two years before the war were built for letting.\*

16. During the inter-war period as a whole over four million houses were built in all, of which about three-quarters were provided by private enterprise and one-quarter by local authorities. The great majority of these private enterprise houses were built for sale to prospective owner-occupiers. In the first few years after 1918, however, the greater number of houses were provided by local authorities. As the Sub-Committee on Private Enterprise Housing pointed out, an abundance of work on relatively safe conditions was on offer by local authorities during this early period, and it was but natural that builders preferred to take such work than to undertake private work which afforded less safeguards and, in the case of building for sale or letting, entailed an exceptional degree of risk. It was not until prices had fallen and more stable conditions prevailed that the real expansion of private enterprise building began.

Of the total of four million houses, more than 2½ million were built without subsidy, including 83,000 by local authorities.

#### WAR-TIME PREPARATIONS, 1939-45

17. Except for the completion of schemes already in progress, house-building was brought to a standstill at the outbreak of war, and the only new housing work carried out during the war on any appreciable scale, apart from special war-time requirements, was the scheme for 3,000 agricultural cottages which was put in hand at the instance of the Government in 1943. These were provided by local authorities under Housing Act powers.

18. As early as 1941, however, a start was made with the planning of the post-war programme. The Minister of Health's Central Housing Advisory Committee resumed its sittings in March, 1942, and a number of sub-committees were set up during that year to consider different aspects of post-war housing policy. These included the Dudley Committee on the Design of Dwellings, and Committees on Private Enterprise Housing and Rural Housing, all of which reported in 1944. Other Committees were appointed by the Government in the same period with reference to House Construction, the Placing and Management of Building Contracts, the Use of Standards in Building, and Codes of Practice for Building and Civil Engineering Work. The first report of the Committee on House Construction (the Burt Committee) appeared in 1944 as the first of the series "Post-War Building Studies," published by the Ministry of Works, which covered many of the technical aspects of building.

19. In the same year, the Housing Manual, 1944, was issued jointly by the Ministry of Health and the Ministry of Works for the guidance of local authorities and others concerned with post-war housing schemes. The Manual incorporated many of the recommendations of the Dudley and Burt Committees, and prescribed standards which were in many respects an advance on pre-war practice.

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\* Report of the Private Enterprise Sub-Committee of the Central Housing Advisory Committee, Ministry of Health, 1944, paragraph 33.

20. A number of demonstration houses incorporating the post-war standards were erected at Northolt in 1943-44 under the auspices of the Ministry of Works. These included two houses of 900 sq. ft., as recommended by the Dudley Committee, and others of 850 sq. ft. which met the requirements of the Housing Manual, and demonstrated a variety of plan types and alternative forms of construction.

21. Research and experimental work had been carried out by this time on new or non-traditional methods of building, and by 1945 a number of different systems of permanent house construction had been approved by the Burt Committee and had reached the production stage. From the end of 1943 onwards the Ministry of Works was also engaged on plans for prefabricated temporary houses, and production of several types began early in 1945.

22. As early as March, 1943, local authorities were invited by the Ministry of Health to prepare housing programmes for the first year after the war, and during 1944 they were authorised not only to purchase additional land for housing but also to put in hand the work of preparing sites by levelling and the construction of roads and sewers. They were also invited in August, 1944, to apply for allocations of temporary houses. By March, 1945, sufficient land was held by local authorities in England and Wales for 250,000 permanent houses and tenders had been approved for the preparation of sites sufficient for 55,000; 113,761 temporary houses had been allocated and sites for 7,416 of these were ready.

#### THE POST-WAR SITUATION, 1945

23. The salient features of the immediate post-war situation were as follows—

##### (a) *The need for Houses*

According to estimates given in the White Paper of March 1945\* the number of dwellings in existence at the beginning of the war was about equal to the number of separate families. Progress in slum clearance and the relief of overcrowding was cut short by the war, and whereas only a comparatively small number of houses were built between 1939 and 1945, 200,000 were totally destroyed and a further 250,000 made uninhabitable by enemy action. A much larger number were damaged less severely. It was estimated in 1945 that at that time some 750,000 dwellings were needed to give every family a separate home, and that 500,000 more were required to replace houses already condemned as unfit and to abate known overcrowding. These were only the immediate needs, and a far greater number of new dwellings would be required over a longer period to make good the wastage of worn-out houses and to satisfy the demand for better accommodation.

##### (b) *The available resources*

24. The building industry had shewn itself capable before the war of building houses in large numbers and at low cost. The local authorities had had twenty years' experience of large-scale housing and it was anticipated that given adequate technical and supervisory staff they would be able to undertake a substantial housing programme. In addition, as we have seen, much preparatory work had been done by the Government and local authorities during the war, and by 1945 both land and developed sites were available for a large number of new houses.

25. On the other hand, the strength of the building industry had been seriously depleted. The number of insured building operatives fell from

\* "Housing," Cmd. 6609.

905,000 in July, 1939, to 311,000 in July, 1944—a drop of 66 per cent. By July, 1945, the number had been raised to 407,000, but war damage repairs to houses absorbed much of the labour available, 203,000 men being engaged on this work in July, 1945, out of a total housing labour force of 320,000. Arrears of ordinary repair and maintenance work had accumulated for six years, and in addition to the need for new houses there was a vast demand for other building work of all kinds, including industrial development and war damage restoration, much of which called for high priority.

26. The production of most building materials and components in 1945 fell far short of the pre-war level. Brick production was down to an average of 102 million bricks per month in 1945, as compared with about 650 million per month in 1938, and only the existence of large stocks enabled demands to be met while production was being stepped up. The restoration of full output in many of the industries was dependent upon the availability of sufficient manpower, fuel and raw materials, and could not be attained at once. Since practically all the materials used in house-building are also required for other purposes, housing could not expect to secure the sole benefit of any increases in production.

(c) *The cost of building*

27. By 1945 general wage rates had increased by 49 per cent. over the pre-war level and wholesale prices by 66 per cent. The cost of living index had risen to 31 per cent above 1939. Building trades wages were up by some 45 per cent. and house-building material prices by about 80 per cent. The cost of building was already 90-100 per cent. above the level of 1939. On the other hand the Government possessed statutory powers under war-time legislation for controlling not only the prices of raw materials and manufactured articles, but also the use of building materials and the volume of building work which might be undertaken, and these powers afforded a valuable indirect means of controlling the cost of building.

28. The resemblance between these conditions and those prevailing after the 1914-18 war is apparent, but the following points of difference may be noted here—

(i) The greater degree of efficiency attained by the building industry by 1939, when house-building was at its all-time peak, as compared with the low level in 1914, and the greater housing experience of both Government and local authorities.

(ii) The intensive preparatory work carried out between 1942 and 1945.

(iii) The volume of war damage in 1939-45.

(iv) The longer duration of the second world war.

POST-WAR HOUSING POLICY

29. The immediate objectives of the post-war housing programme were stated in the Coalition Government's White Paper of March, 1945, which set a maximum target of 300,000 permanent houses built or building by the end of the second year after the end of the European war. These were to be supplemented by 145,000 temporary houses, which were intended to provide emergency accommodation while the construction of permanent houses got under way. The repair of war damaged houses and the conversion of large houses into flats were to proceed simultaneously. Encouragement was given to the use of new methods of construction, and also to the provision of houses divided temporarily into separate flats on the Duplex principle.

30. When the present Government took office in July, 1945, policy concentrated on the provision of permanent houses by local authorities. It was decided not to extend the temporary house programme after the completion of existing orders, and that in future the principle of prefabrication should be applied solely to permanent house construction. By October, 1945, seven types of permanent non-traditional houses, including steel-framed types and various concrete systems, had been approved for use by local authorities as part of their housing programmes.

31. The Government's stated policy was that priority for new houses should be given to those whose needs were greatest, and the main task of providing houses was placed upon the local authorities as being the agency considered best able to select occupants according to need rather than to ability to pay. It was thought also that the activities of local authorities could be fitted into the pattern of a national housing programme more easily than those of private builders. The latter were therefore left with the subsidiary role of building a relatively small number of houses under licence, but it was anticipated that their resources would be largely employed on local authority contracts.

32. Financial provision for the post-war housing programme was made in the Housing (Financial and Miscellaneous Provisions) Act, 1946 which provided a substantial Exchequer subsidy of a fixed amount for each house provided by local authorities, with supplementary contributions from the rates. The standard Exchequer subsidy was fixed at £16 10s. od. per annum for sixty years, and the normal rate contribution at £5 10s. od. per annum for the same period. Special provision was made for houses for the agricultural population, for housing in poorly rated areas, for flats on expensive sites, and to meet extra costs incurred on sites liable to mining subsidence. In addition, the Minister of Health was empowered to pay capital grants over and above the standard Exchequer subsidy in respect of approved types of non-traditional houses costing substantially more than houses built by normal methods. The subsidies provided were calculated to enable houses to be let at an average net rent of about 10s. per week, or 7s. 6d. per week for houses for the agricultural population. At the time they were fixed, the rate of interest on local authority housing loans for periods of over fifteen years was 3½ per cent, but the rate was reduced to 2½ per cent. on the 1st January, 1946. It remained at this level until January, 1948, when the rate was increased to 3 per cent. No subsidy was available for houses erected under licence by private builders.

33. It will be seen that the subsidy arrangements assumed that in the normal case the cost of a house, including capital amortization and the cost of maintenance and management, would be apportioned as follows:—

	£	s.	d.	
Exchequer subsidy ... ..	16	10	0	per annum
Rate contribution ... ..	5	10	0	" "
Rent (at 10s. per week) ... ..	26	0	0	" "

Nearly one-half of the total cost was to be borne by subsidies and three-quarters of the total subsidy was to be provided by the Exchequer. As the amount of the Exchequer contribution was fixed, any increase in the cost of providing houses could only be met by increased rents or by additional rate contributions, or a combination of both.

34. Work on the construction of new houses, whether by local authorities or by private builders, was awarded priority for labour and scarce materials. Government policy was to maintain an allocation of about 60 per cent. of

the total building labour force to housing work of all kinds, and it was anticipated that rather more than one-half of the housing labour force would be engaged on new house construction. Steps were taken to augment the labour strength of the industry by means of accelerated release from the Forces, the training of men in Government Training Centres, and the Apprentice Master Scheme.

35. Control of the demand upon building resources was exercised through the licensing of civil building under Defence Regulation 56A and, since early in 1946, by inter-departmental Building Committees operating regionally and at the centre, whose task was to co-ordinate the building programme by deciding priority within the limits of the available supply of building labour, and by the award of priorities for materials and labour. At the end of 1946 "zonal conferences" between representatives of the Departments and local authorities concerned were started to determine the volume of work to be licensed in relation to the authorised building programme, including house-building, in each zone.

#### HOUSING PROGRESS, 1945-48

36. The progress made up to the 31st March, 1948, in fulfilment of the post-war housing programme is shown stage by stage in Table I appended to this Report. The contributions of local authorities and private builders, and the numbers of houses of different types—permanent and temporary, traditional and non-traditional—are shown separately.

37. Towards the end of 1946 it became apparent that the amount of housing work already started covered more houses than could be completed within a reasonable time, and the Government took steps to restrict the number of new houses started in order to obtain a better balance between the different phases of the programme. This process of balancing the programme was retarded by the bad winter of 1947, which caused widespread delays in house construction, but the restriction of new contracts was further intensified when the dollar deficit made it clear that imports of timber would have to be cut, and later by the Government's decision, arising out of the adverse balance of trade, to restrict the amount of capital investment work. In October, 1947, it was announced that efforts would be concentrated upon finishing those houses already building or under contract, and that subject to a review in the middle of 1948 the programme would be regulated on the assumption that the total number of houses under construction in Great Britain would be reduced to 140,000 by the middle of 1949.

38. The position reached at the 31st March, 1948, taking the figures for England and Wales, was as follows:—

Permanent houses completed	...	...	...	...	...	227,956
"    "    under construction	...	...	...	...	...	189,521
"    "    approved but not started	...	...	...	...	...	51,659
Temporary houses completed	...	...	...	...	...	118,594

During the first three months of 1948 permanent houses were being completed in England and Wales at the rate of 192,000 a year.

## CHAPTER II

### THE INCREASE IN HOUSE-BUILDING COSTS 1938/39 to 1947

#### METHOD OF ASSESSMENT

39. As the basis of our comparison of the cost of house-building before and since the war, we have selected three-bedroom houses of traditional construction built under contract for local authorities as being most nearly comparable in type, and as being representative of houses built in large numbers in both periods. The majority of the houses built for local authorities before the war were of this type, and the local authority three-bedroom house has been predominant in the post-war programme. Furthermore, the records of housing tenders kept by the Ministry of Health before and since the war, which provide the most comprehensive and detailed information available about housing costs in each period, relate exclusively to local authority schemes.

40. The pre-war figures of cost which we have used refer to the latter part of 1938 and the early months of 1939. For the post-war period we have taken as our datum the cost of houses completed immediately before the increase in building trade wages in November, 1947, which was coupled with the adoption by the building industry of a new scheme of incentive payments. The effect upon house-building costs of this scheme, to which we refer in greater detail in Chapter VI, cannot yet be fully assessed.

#### HOUSE-BUILDING COSTS IN 1938/39

41. Monthly average tender prices for local authority three-bedroom houses during the period October, 1938, to March, 1939, ranged between 9s. 1½d. and 9s. 6½d. per sq. ft. of floor area,\* the average price for the six months being 9s. 4½d. per sq. ft. This included the construction of the house itself and foundations, paths, fences, drains, and gas, water and electricity services within the curtilage of the house, but excluded the cost of land, roads and main services outside the curtilage, and professional fees. The size of such houses in approved tenders had been slowly increasing since 1936, and at the end of 1938 the average was 800 sq. ft. We have taken this figure as being representative of the size of three-bedroom houses built by local authorities immediately before the war. At a cost of 9s. 4½d. per sq. ft. the tender price would be £375 per house.

42. Contracts for these houses were placed on a lump sum basis, with no provision for variations on account of changes in building trade wages or in the cost of materials, but the final cost generally included slight extras due to variations decided upon during the course of the work. The average cost of these extras amounted to about £5 per house. The final building cost within the curtilage of the house was therefore as follows:—

Amount of tender (800 sq. ft. at 9s. 4½d.)	...	...	...	£
Extras	...	...	...	375
				5
Total building cost	...	...	...	£380

Final cost per sq. ft. : 9s. 6d.

\* Under the system of measurement used by the Ministry of Health "floor area" comprises the gross area on each floor within the main containing walls of the house, including partitions, dividing walls, bay windows, inset porches and chimney breast projections. The area of tunnel passages at ground level is omitted, but outbuildings, covered ways and porches (other than simple cantilever hoods) are included.



## HOUSE-BUILDING COSTS IN 1947

43. Since the war contracts have included a fluctuations clause under which increases in wages and in the prices of certain materials occurring after the date of the tender are added to the final account at the conclusion of the contract. Contracts also include a maintenance period of several months, during which the builder may be called upon to remedy any defects in the work after its completion, and even after the conclusion of this period there may be delays in the final settlement of claims under the fluctuations clause. In these circumstances, the particulars of final costs at present available cover only a small proportion (approximately 2 per cent.) of the total number of houses completed, and refer mainly to those completed in 1946.

44. The average final cost can however be computed fairly closely from the records of tender prices, with appropriate adjustments for variations and for additions to the contract sum under the price fluctuations clause. The majority of houses completed in October/November, 1947, were tendered for about the middle of 1946. The average tender price for three-bedroom houses at this time was 22s. 9d. per sq. ft. and the average size was 1,029 sq. ft. including an outbuilding of some 95 sq. ft. There was no change in the rates of building trade wages during the period of these contracts and no extras will therefore have been incurred on this account. There was however an increase of about £20 per standard in the price of softwood on the 1st May, 1947. Much of the carcassing timber for the houses completed in October/November, 1947, will have been purchased before May but the increase will have affected the later deliveries and most of the joinery timber. Prices of other materials were rising comparatively sharply between July, 1946, and the latter part of 1947, and we estimate that these increases, together with a proportion of the increase in timber prices, amounted to an extra of approximately £40 per house on average. On some of the contracts payments made for overtime, guaranteed time, travelling and subsistence allowances were extra to the tender prices and we estimate that these extras when averaged over all the contracts in progress at the time amounted to about £12 per house. Payments for guaranteed time were unusually heavy during the bad weather of early 1947.

The adjustment of prime cost amounts and provisional sums together with variations arising during the course of the work, and any extra cost of substitute materials, is estimated at £20 per house. The average final cost of three-bedroom houses completed in October/November, 1947, may therefore be computed as follows:—

Amount of tender (1,029 sq. ft. at 22s. 9d.)	£	£
Increased cost of materials subject to the price fluctuations clause		1,170
Extra cost of guaranteed time, travelling, subsistence and overtime (applicable to some contracts and averaged over all contracts)	40	
General variations	12	
	20	
	—	72
Total building cost		<u>£1,242</u>

Final cost per sq. ft.: 24s. 2d.

We have noted from the Ministry of Health records that tenders for three-bedroom houses approved during October, 1947, showed an average price of 23s. 10d. per sq. ft. This would amount to £1,226 for a house of 1,029 sq. ft. These tenders included the full effect of the increase in timber prices in May, 1947, and increases in other material prices up to the time of tendering, but not the extras for guaranteed time or variations and other

adjustments which rank as additions to the tender price. These tender figures therefore tend to confirm the accuracy of the above estimate of £1,242 as the average final cost of houses completed in October-November, 1947.

#### THE EXTENT OF THE INCREASE

45. It will thus be seen that whereas the typical three-bedroom house of 1938-39 cost approximately £380 to build, the typical three-bedroom house of 1947 cost approximately £1,242, making an increase of £862.

#### SITE COSTS AND PROFESSIONAL FEES

46. Our terms of reference refer to "house-building costs", and we have therefore been concerned principally with the cost of constructing houses, and of foundations, paths, drains and other services within the house curtilage. It may however be desirable to place on record information we have received regarding the cost of land, roads and services outside the curtilage, and other charges which enter into the total cost of providing houses.

47. We have received evidence that although the cost of land has not risen appreciably since immediately before the war, the cost of constructing roads and providing services has considerably increased owing to the greater cost of labour and materials and the decline in productivity, and also to a lower density of development since the war. Estimates of the increase in cost due to these factors have ranged between 100 per cent. and 150 per cent.

The Ministry of Health's records of local authority housing schemes show that over the last six months of 1947, the cost of land and tender prices for site development amounted on average to £122 4s. per house.

48. Where local authorities employ private architects for their housing schemes, a special scale of fees applies, based on the number of houses to be built. The scale is in three parts:—

- A. The layout of the site.
- B. Constructional work for roads and sewers.
- C. House design.

Part C includes a variety of services such as obtaining tenders and quotations for specialist work, supervising the building work, issuing certificates for interim payments, supervising work under the maintenance clause and settling final accounts.

49. The total fee payable ranges between £26 5s. per house for a scheme of four houses to £8 12s. per house for an estate of 500 houses. A number of other services are not covered by the fee scale. The total cost of the Architects' services in connection with most post-war housing schemes is generally between £15 and £30 per house, where a private architect is employed.

50. Bills of Quantities were seldom if ever used for local authority housing schemes before the war, but they have been generally adopted as a basis for obtaining tenders for post-war schemes. The scale of Quantity Surveyors' fees for preparing Bills is based upon the number of houses to be built. Fees range between £12 per house for the first four houses and £3 17s. 6d. per house for 500 houses. The fees do not include any work on roads or services outside the curtilage of the houses, nor the preparation of accounts for variations in the contract. The total cost of the Quantity Surveyor's services in connection with most post-war housing schemes is generally between £10 and £14 per house.

## THE TOTAL COST OF THE 1947 HOUSE

51. The total cost of the average local authority three-bedroom house completed in the latter part of 1947, including site costs and professional fees, may therefore be computed as follows:—

Building cost	...	...	...	...	...	...	£
							1,242
Cost of land and site development	...	...	...	...	...	...	122
Quantity Surveyor's fee	...	...	...	...	...	...	12
							<hr/>
							1,376
Architect's fee, say	...	...	...	...	...	...	24
							<hr/>
							Total
							£1,400

52. Although Architects' fees thus appear in the cost of houses only where a private architect is employed, it is clear that expenditure of a corresponding kind will be borne by the local authority wherever its own architectural staff is employed. Similar expenditure arises in respect of other technical and administrative staff employed by local authorities for housing purposes, and costs under this head have increased considerably since the war owing to the expansion of the housing work of local authorities.

53. It will be noted that the figures in paragraph 51, which appear elsewhere in this Report, are based on averages; they do not reveal the wide range of difference which exists on either side of the average. The cost of house-building is influenced by many variable factors. It varies according to the type, design and specification of the house; prices of materials and wage rates vary as between one area and another; the cost of site works may be greater or less according to the nature of the site; and under any given conditions the cost of building is to some extent dependent upon the efficiency of the contractor. It should therefore be borne in mind that the figures of house-building costs quoted in this Report are calculated or estimated averages drawn from very diverse data, and that in practice the cost of houses varies widely above and below the average according to circumstances.

## CHAPTER III

ANALYSIS OF THE INCREASE IN  
HOUSE-BUILDING COSTS

54. The factors leading to the increase in house-building costs described in the previous chapter may be grouped as follows:—

## A. CHANGES IN SIZE, CONSTRUCTION AND EQUIPMENT OF HOUSES:

- (i) An increase of 134 sq. ft. in the average floor area of houses;
- (ii) The addition of an outbuilding of an average area of 95 sq. ft.,
- (iii) Changes in construction and finish, additional equipment, and other improvements.

## B. DIRECT INCREASES IN BUILDING COSTS, DUE TO INCREASES IN—

- (i) Wage rates and other labour costs;
- (ii) The cost of materials;
- (iii) Plant charges;
- (iv) Overhead charges and profit.

## C. A DECLINE IN THE PRODUCTIVITY OF THE BUILDING INDUSTRY.

55. The effect of all these factors is cumulative, since the 1947 house, besides being larger, is built to better and more costly standards by higher paid labour using materials at increased prices, and working at a lower level of productivity. This cumulative effect is shown in the following table. A fuller analysis of the figures is given in Table A on pages 24 and 25 and is examined in detail in the following paragraphs.

	Costs at 1938-39 levels of prices and productivity	Increases in wage rates, material prices, plant charges and overhead costs between 1938-39 and 1947	Decline in productivity between 1938-39 and 1947.	Costs at 1947 levels of prices and productivity
1938-39 typical house of 800 sq. ft. ... ..	£ 380	£ 421	£ 113	£ 914
Increase of 134 sq. ft. in floor area of house ...	54	59	16	129
Addition of outbuilding of 95 sq. ft. ... ..	30	34	8	72
Changes in construction, fittings, &c. ... ..	54	59	14	127
1947 typical house of 934 sq. ft. and outbuilding of 95 sq. ft.	518	573	151	1,242
Percentage of 1938 cost of £380 ... ..	per cent. 136.3	per cent. 150.8	per cent. 39.7	per cent. 326.8
Percentage of total 1947 cost of £1,242 ... ..	41.7	46.1	12.2	100.0

A. CHANGES IN SIZE, CONSTRUCTION AND EQUIPMENT

(i) AN INCREASE OF 134 SQ. FT. IN THE AVERAGE FLOOR AREA OF THE HOUSE

56. Although any addition to the average size of houses increases their total cost, the percentage increase in cost is usually less than the percentage increase in size. Larger houses normally cost less per square foot of floor area than smaller houses. When the increase in area is considerable, however, other factors begin to operate to make the larger house almost as costly per square foot as the smaller one. Longer spans between walls may necessitate deeper floor joists and roof timber over the whole area of the house, and deeper joists increase the height of the brickwork; the greater roof area also increases the height of gable walls, party walls and chimney stacks. An examination of the comparative costs of houses of various sizes both before and since the war indicates that the cost per square foot of the additional 134 sq. ft. of floor area is some 15 per cent. less than the cost per square foot of a house of 800 sq. ft. Thus, whereas the pre-war house of 800 sq. ft. cost 9s. 6d. per sq. ft., the additional 134 sq. ft. would have cost 8s. 1d. per sq. ft., or £54, at 1938-39 prices and productivity. The corresponding cost of the additional 134 sq. ft. of floor area at 1947 prices and productivity is 19s. 4d. or £129.

(ii) THE ADDITION OF AN OUTBUILDING WITH AN AVERAGE FLOOR AREA OF 95 SQ. FT.

57. Outbuildings vary greatly in size and design. The simplest contain only a fuel store, but most outbuildings include a general store-room for bicycles, tools, etc. A second w.c. is also frequently placed in the outbuilding. In

rural areas the outbuilding is generally larger and may include a washhouse with an extra sink. The outbuilding may be a lean-to structure attached to the house, or it may be a detached building. In the latter case there is usually a covered way connecting it to the back door of the house and the area of this covered way is included in the calculation of total floor area. The roof of the outbuilding is now generally of concrete and the walls are usually in brickwork  $4\frac{1}{2}$  in. thick.

58. The cost of roof and foundations has to be applied to a single floor area only, so that although walling and internal finishes are economical, the average cost per square foot of floor area is nevertheless about two-thirds of the cost per square foot of floor area of the house itself. We estimate that the average out-building of 95 sq. ft. would have cost £30 at 1938-39 prices and productivity, and £72 at 1947 prices and productivity. These costs refer to the building only and do not include the additional w.c. to which we refer in paragraph 65 below.

(iii) CHANGES IN CONSTRUCTION AND FINISH, ADDITIONAL EQUIPMENT AND OTHER IMPROVEMENTS

59. *Construction and Finish.* In 1939 cavity brick walls were coming into more general use by local authorities, but in many districts construction was in 9" solid brick walls, usually rendered or rough-cast to resist dampness. Party walls were of 9" brickwork. Roofs were frequently without any insulation under the tiles or slates. The ground floor was of boarding on timber joists except where a solid floor finished with granolithic or quarry tiles was provided in kitchens or halls.

An 11" brick cavity wall meets the Housing Manual standards for resistance to moisture penetration and thermal insulation, and is now generally used in traditional construction.

60. Cavity party walls are commonly used as an economical way of meeting the required standard of sound insulation. Insulation of the roof with felt or some other material is the general practice.

61. Because of the shortage of timber it became necessary at the end of 1946 to restrict the amount of softwood which might be used in house-building to 1.6 standards per 1,000 sq. ft. of floor area. This entailed substituting solid ground floors for timber joists and boarding, and the omission of timber in the roofs of out-buildings. It has also been necessary to work to minimum safe limits in the dimensions of timber in other uses in the house, including roof and first floor construction. The relative cost of solid floors and timber floors depends upon the levels of the site and the type of floor finish used, but generally there is little difference in cost at the present price of timber.

62. Facing bricks are now used more extensively than in 1939, partly because cavity walls do not require the roughcast often used on 9" walls to resist dampness. The cost of the facing varies according to the type of bricks used, some types costing no more than a roughcast finish and others adding considerably to the cost of the house.

63. Kitchen and bathroom walls are now often finished in gloss paint, and tiled splash backs or tiled surrounds to bath, lavatory basin and sink are sometimes provided.

64. *Additional Equipment and other improvements.* Houses built in 1939 did not always include a hot water supply or linen cupboard, and sometimes were without a lavatory basin. Hot and cold water services to bath, sink and lavatory basin are now always provided, and usually a heated linen cupboard.

65. A second w.c. is now included on the advice of the Ministry of Health. This involves additional plumbing, an extra door, window and partition, and an additional branch drain. It may also necessitate an increase in the size of the house or outbuilding.

66. Additional cupboards are now provided for brooms and dry goods, and more and better-fitted cupboards are provided in the bedrooms. The dresser and shelving are on a more generous scale than in 1939.

67. Thirteen electric light points per house, and ring mains of 3 kilowatts with from 12 to 14 socket outlets per house, are now recommended. Both of these recommendations are not always carried out in full but nearly all houses are now provided with additional lighting points and a power circuit. Most houses are also fitted for gas and electricity, and points may be provided for gas stoves.

68. The average area of paths and paved space at the front of and around the house is now greater than in 1939, and concrete is often used in place of gravel.

69. In addition to the foregoing improvements a number of other items are now frequently provided which increase the cost. Examples are—

Towel rails, meter cupboards, rustproof steel windows, built-in flap tables, lagging to pipes and tanks, insulated jackets to hot water tanks, improved fireplaces, built-in electric fires, two-way light switches on staircases, bath panels, serving hatches, immersion heaters, cold shelves in larders, gas coppers, stainless steel sinks, an extra sink in the washhouse, double draining boards.

In some areas houses now have a gas or electric cooker provided by the local authority in lieu of the solid fuel cooker common before the war, when gas or electric cookers if required were hired by the tenant.

70. The following table shows the increased costs attributable to the various changes and improvements referred to above at 1947 prices and productivity. The increased cost is expressed as a range of prices in view of the fact that some of the items were used to a limited extent in pre-war houses, and in order to allow for local variations in 1947 prices and specifications.

	<i>Range of increased cost per house.</i>
<i>Construction and finish</i>	
More general use of external cavity walls ... ..	Nil to £10
Cavity party wall ... ..	£2 to £4
More general use of roof insulation ... ..	Nil to £8
Solid ground floor and other measures of timber economy ... ..	No change
More general use of facing bricks ... ..	Nil to £12
Washable wall finishes to bathroom and kitchen ... ..	£5 to £15
<i>Additional equipment and other improvements</i>	
More general provision of hot water services ... ..	Nil to £12
Additional w.c. ... ..	£10 to £16
Extra cupboards and shelves ... ..	£15 to £25
Extra electric light points, power circuit, and gas points ... ..	£15 to £25
Greater area of paving ... ..	£6 to £12
Other improvements ... ..	£12 to £50
<b>Total increased cost due to above causes ... ..</b>	<b>£65 to £189</b>

71. In assessing the effect of these items upon the cost of the 1947 house, we have taken a mean of the upper and lower limits quoted above, which is £127 per house. We estimate that the equivalent cost in 1938-39 would have been £54. These figures have accordingly been used in the analysis in Table A on pages 24 and 25.

## B. DIRECT INCREASES IN BUILDING COSTS

## (i) WAGE RATES AND OTHER LABOUR COSTS

72. *Wages.* The direct increase in the cost of labour has been analysed under the five headings shown in columns 3 to 7 of Table A on pages 24 and 25.

73. Before the war a number of operations in housing contracts were carried out under a system akin to piece-work, but the bulk of the labour engaged on local authority contracts was employed at hourly wage rates. The rates of wages were fixed by the National Joint Council for the Building Industry, and were reviewed annually in relation to the cost of living index figures published by the Ministry of Labour for the antecedent 12 months. Rates of wages varied according to the district, and there were 11 different grades. The Grade A rate was applicable to most large towns and cities, but in inner London and Liverpool the craftsman's rate was 1½d. per hour above the current Grade A rate, whilst in the lowest rated rural districts (Grade C) the rate was 4d. below the Grade A rate.

74. Immediately before the war hourly rates of wages were as follows—

	Craftsmen		Labourers	
	s.	d.	s.	d.
Liverpool and Inner London...	1	9	1	3½
Outer London ...	1	8½	1	3½
Grade A ...	1	7½	1	2½
"  A1 ...	1	7	1	2½
"  A2 ...	1	6½	1	2
"  A3 ...	1	6	1	1½
"  B ...	1	5½	1	1½
"  B1 ...	1	5	1	0½
"  B2 ...	1	4½	1	0½
"  B3 ...	1	4	1	0
"  C ...	1	3½	11	½

75. Changes in the Grade A rate of wages have taken place since 1939 as follows—

	Date from which applicable	Grade A District Craftsman's rate		Grade A District Labourer's rate	
		s.	d.	s.	d.
1939	1st December	1	8	1	3½
1940	1st February	1	8½	1	3½
	1st June	1	9	1	4½
1941	1st December	1	9½	1	4½
	1st February	1	10	1	5½
1942	1st June	1	10½	1	5½
	1st February	1	11	1	6½
1943	2nd April	2	0	1	7
1944	1st November	2	1	1	7½
1945	1st February	2	1	1	8
	1st July	2	2	1	9
1946	1st January	2	6	2	0
1947	16th November	2	9	2	2½

76. In addition to changes in the rates of wages applicable to each grade, the lower graded districts were up-graded in October, 1946, leaving only six grades with differing wage rates, prior to November, 1947, as follows—

	Craftsmen		Labourers	
	s.	d.	s.	d.
Liverpool and Inner London	2	7½	2	1½
Outer London	2	7	2	1
Grade A	2	6	2	0
"  A1	2	5½	1	11½
"  A2	2	5	1	11½
"  A3	2	4½	1	11

77. Under the present working rule the labourer's rate is now fixed at not less than 80 per cent. of the current standard rate applicable to craftsmen in the same district.

78. "Extra payments" in addition to the standard hourly rates are payable under the National Working Rules of the industry for certain kinds of work involving special discomfort, inconvenience or risk, extra skill or responsibility, or for large-scale demolition work. Tool allowances are paid to carpenters, joiners and plumbers and to apprentices in those trades in respect of the provision, maintenance and upkeep of tools provided by the operative. The total extra payments now called for under the working rules show an increase over similar payments applicable in 1938-39.

79. There has been no change in the rule governing the rate for overtime payments. Little overtime has been worked on housing contracts since the war owing to an implied agreement in the industry not to work overtime except by special arrangement, and no general increase in cost has arisen on this account.

80. The necessity of importing labour from higher paid districts owing to a shortage of local labour has entailed extra cost on some contracts. Men so imported are paid the rate of the district from which they come; on the other hand men sent from a lower into a higher paid district are entitled to the higher rate. The evidence we have received, however, indicates that this has not been an important item of increased cost in relation to the whole programme, especially as it was not unusual for key men to be paid higher rates under similar circumstances before the war.

81. In calculating the wages in column 3 of Table A applicable to the manhour figures in column 2, we have estimated that the average rate of wages throughout the house-building programme was equal to the Grade A rate in 1938-39 but that the average rate is now equal to Grade A rate owing to the up-grading of the lower paid districts previously referred to. Our estimates take into account the fact that more building was done in the higher paid urban areas than in the rural areas, in both periods. We have also made allowance for the increase in "extra payments" under the working rules and for the extra rates payable to men imported from higher paid districts.

82. After allowing for the foregoing factors, and on the basis of a house-building labour force consisting of 60 per cent. craftsmen and 40 per cent. labourers, it appears that the cost of building trade wages had risen by an average of 69 per cent. overall prior to the November 1947 wage increase.

83. *Insurance.* The weekly contributions payable by the employer for National Health and Unemployment Insurances were increased in 1946 to a total of 2s. 10d. per man, as compared with 1s. 7d. previously. The cost of these payments is shown in column 4 of Table A.

84. *Holidays with pay.* Before the war a few building firms had begun to operate voluntary schemes for paid annual holidays, but such schemes were then exceptional and involved only comparatively small contributions by employers. Under the revised National Working Rules the employer has to pay an "Annual Holiday Credit" of 2s. per week and a "Public Holiday Credit" of 2s. per week in respect of each employed operative aged eighteen years and over, or 1s. 6d. per week in respect of each operative under eighteen. The cost of these items is shown in column 5 of Table A.

85. *Guaranteed Time.* The building trade has always been influenced by weather, and before the war building trade workers lost a certain amount



of pay on this account, particularly during the winter months. The National Working Rules of the Industry (Rule 2A) now include the following provisions for payment for time lost through inclement weather—

“ Where an operative in any pay-week has performed actual work for his employer and, being in that employer’s employment, has kept himself available for work throughout normal working hours of each working day of that week . . . but during part of that week has been prevented by reason of inclement weather from working:

(a) he shall receive payment at his current hourly rate for half the time lost by him by reason of inclement weather during normal working hours;

(b) his total payments in respect of (i) normal working hours worked in that week, and (ii) any payment under (a) above shall together be not less than 32 times the hourly wage rate applicable to him in that week . . .

Where a pay-week during which an operative actually works on the job is immediately followed by a complete pay-week during which, though available for work throughout, he is prevented by inclement weather from performing actual work on the job, he shall be entitled to payment of the guaranteed weekly minimum in respect of the latter week (but not to any additional payments in respect of hours of inclement weather under (a) above).”

86. There has been some diversity of evidence as to the increase in cost resulting from these provisions, and the abnormally bad weather of 1946 and early 1947 has made it difficult to assess the long-term effect of the new rule. It must be borne in mind however that even before the war builders frequently paid for short periods of unproductive time when rain caused intermittent stoppages. The effect of the rule is more pronounced in some trades than in others; concretors, bricklayers and plasterers being more affected than for example carpenters or plumbers who are not generally stopped by frost and may be transferred to work under cover in wet periods.

87. From the evidence before us it appears that the average extra cost of payments in respect of guaranteed time on post-war housing schemes has not exceeded 3 per cent. of the total wages paid, and this figure has been used in calculating the costs shown in column 6 of Table A. In the majority of house-building contracts the cost of time lost through inclement weather is borne by the builder and his tender includes his own estimate of this risk. In some contracts however any such payments are recoverable from the Authority for whom the houses are being built.

88. *Travelling and Subsistence.* Payments in respect of travelling time, travelling expenses and subsistence allowances have increased since 1939. Before the war it was customary for the greater part of the labour on a housing scheme to be recruited on the site and such payments did not arise to any considerable extent. Owing to the shortage of labour since the war, builders have tended to move their men on from one contract to another in order to retain them on a regular basis, although this may have meant paying travelling time and expenses or subsistence allowances to men working some distance from their homes. In many instances, too, a shortage of local labour has made it necessary for the builder to recruit men from a distance. The scale of payments is higher than in 1939. We estimate that the average increase in the cost of house-building due to the payment of travelling time,

travelling expenses (or the transport of workmen in the builder's own transport) and subsistence allowances has amounted to 5 per cent. of the total wages paid, and this figure has been used in calculating the costs shown in column 7 of Table A.

(ii) THE COST OF MATERIALS

89. We have had to consider what parts of the £380 and £1,242, representing respectively the average cost of local authority houses built before and after the war, consisted of the cost of materials purchased by the builder or his subcontractors. In doing so we have been impressed by the fact that the opportunities open to the builder for keen buying were much greater in 1938-39 than in 1947. Manufacturers and merchants competed with one another by offering special terms, discounts and rebates to an extent unknown in the post-war conditions of shortages and controlled prices. There was also a wider range of qualities suitable for particular classes of work, and a large number of relatively cheap imported articles which are not available now. Timber could be purchased in the sizes and grades most economical to the builder, and a builder with a large contract could buy a shipload of timber at favourable rates. By taking advantage of such opportunities the total expenditure upon materials was kept down.

90. We have had before us priced schedules of the materials used in a number of different houses in each period. Taking into account the varying total costs of the houses concerned, and allowing for variations in the price of certain materials in different parts of the country, we estimate that the average cost of materials used in the pre-war house was £227, and in the post-war house £699. These figures represent 60 per cent. and 56 per cent. respectively of the total cost of the houses, which accord closely with the evidence we have received as to the proportion of the total cost of house-building attributable to materials.

91. The two figures refer, however, to houses of different size and specification and for this reason do not show the true increase in the cost of house-building materials between 1939 and 1947. We have therefore applied the 1947 prices to the 1939 schedule of materials, and the 1939 prices to the 1947 schedule, with the following result—

	<i>At 1939 prices</i>	<i>At 1947 prices</i>
Materials for typical pre-war house of 800 sq. ft....	£ 227	£ 511
Materials for typical post-war house of 1,029 sq. ft. ... ..	311	699

92. The increase in cost in each case is approximately 125 per cent. This figure is somewhat above the percentage increases shown in the published indices of building material prices, but the difference is accounted for by the fact that the indices do not refer only to materials used in housing, while the weights assigned to the different items do not correspond with their relative importance in house-building. We understand also that the index figures do not allow for the various discounts, rebates and reductions in price which, as mentioned above, builders were able to obtain when buying materials before the war, but which are less common to-day.

93. The material showing the greatest increase in cost has been timber, which now costs four times as much as before the war. In addition to the direct increase in price, there have been indirect increases in that as a result of shortage builders have frequently had to buy timber of unsuitable quality or

in sizes differing from their actual requirements, thus incurring further additional cost in converting it to the sizes needed. The absence of local supplies and the need to obtain timber from distant sources has often led to increased transport charges.

### (iii) PLANT CHARGES

94. Builders' plant on a normal house-building contract comprises a large number of items ranging from concrete mixers, huts, temporary offices and scaffolding to barrows, tarpaulins, buckets and small tools. It includes both consumable and non-consumable items. Most builders employ lorries and other vehicles, and mechanical hoists are frequently used on large contracts. Heavy plant such as mechanical excavators of various types is used on large sites involving much site clearance or excavation, but it is not much used for excavating normal house foundations. The capital cost of builder's plant has increased since 1939, by as much as 300 per cent. in the case of some items such as scaffold boards. Lorries and vans have increased considerably in price and many builders have had to buy second-hand vehicles at inflated prices. Maintenance costs have been increased both by higher charges and by the greater amount of repairs needed for old vehicles.

95. Whilst the greater part of the plant used in house-building is owned and maintained by the builders themselves, some builders hire a certain amount of their plant from plant-hiring contractors. Charges for plant hire have been controlled by the Ministry of Works since 1941, and the hire rates for most of the items used in house-building have increased little over the pre-war rates.

96. Taking into account the varying conditions and allowing for some of the plant being owned and some being hired, we assess the average increase in the cost of providing plant at 100 per cent. over 1938-39 costs. In addition we estimate that a further 50 per cent. has to be added to the pre-war cost to cover the cost to the builder resulting from the longer duration of contracts.

### (iv) OVERHEAD CHARGES AND PROFIT

97. Builders' overhead costs include both site and head office costs, the latter covering the upkeep of premises and storage yards, and the salaries of staff engaged upon tendering, ordering, paying accounts, maintaining plant, costing and measuring the work for the purpose of interim and final accounts. The cost of the supervisory staff employed on house-building contracts varies with the size of the contract and the organisation of the firm engaged, but in general their duties include setting out the works, direct supervision of the workmen, time-keeping, checking deliveries of materials, making up wages sheets, income tax returns and other records, and general correspondence, co-ordination and supervision. Other overhead charges are workmen's compensation insurance, fire insurance, telephone, canteen and welfare arrangements, watchmen, lighting and fuel. Most of these charges will also be incurred in some degree by sub-contractors.

98. While we have received evidence as to the amount of overhead charges and profit as a combined item we have not received any direct evidence to enable us to assess the amounts of the two items separately. Overhead charges and profit are closely interwoven and the relative amounts of each vary according to the circumstances of the work and the size and structure of the firm employed. In many cases the proprietors of small firms, building say four to six houses at a time, are themselves tradesmen and work on the site alongside their employees; what appears as profit in the case of such

firms may in fact represent no more than remuneration for the proprietor's services. In the absence of any clear line of demarcation between overheads and profit, we have dealt with both as a single item for the purpose of our analysis in Table A.

99. As will be seen from a reference to Table C at the end of this Chapter the amount we have allowed for overhead charges and profit in the cost of the typical 1938-39 house of 800 sq. ft. was £27, representing 7 per cent. of the total cost of £380; in the case of the typical 1947 house of 1,029 sq. ft. the amount allowed for this item is £104, representing 8 per cent. of the total cost of £1,242.

### C. THE DECLINE IN PRODUCTIVITY

100. All the evidence we have received has agreed that there has been a decline in the productivity of the building industry since 1939 but the extent of the decline has been variously assessed. It can however be computed by comparing the average number of man-hours required to build houses before and after the war, making allowance for any difference in the types of house built. We have used this method not merely to gauge the amount of work done per operative but as a convenient measure of building productivity, which we realise is influenced by a variety of factors both within and outside the control of operatives and building contractors.

101. The number of man-hours required for house-building is influenced by many variable factors, which may affect the validity of comparisons of productivity on different contracts and at different times, for example—

1. Differences in the size of houses.
2. Differences in planning.
3. Differences in specification, such as a roughcast exterior or facing bricks.
4. Local conditions on the site such as the type of subsoil, the slope of the ground and the length and depth of drains.
5. The inclusion or otherwise in any particular man-hour figure of the time of foremen, staff, apprentices and sub-contractors.

Even when allowance is made for these differences, the number of man-hours as between one contract and another will vary in so far as the progress of the work is affected by the supply of materials, the labour force employed, the efficiency of the contractor and other factors. We have therefore had to base our estimates of man-hours per house and of the decline in productivity upon average figures, and in putting these forward we would make it clear that they do not purport to be more than averages. All our evidence suggests that over the whole field of house-building the margin of variation on either side of the average is considerable. Furthermore, the figures we have used refer to the total number of man-hours worked per house, and include all the trades normally employed in house-building. They are not therefore indicative of output in any particular trade.

102. In determining the average number of man-hours required for house-building before and since the war we have made use of three different methods—

- (i) We have taken evidence of sample man-hour figures from the records of the Ministries of Health and Works and from local authorities, builders and other sources.

(ii) We have analysed the average tender prices for the two periods into their constituent parts of labour, materials and overheads, and from the labour cost and known wage rates we have calculated approximately the man-hours allowed by the builder in an average tender.

(iii) We have considered the whole house-building labour force in relation to the number of houses produced.\*

In comparing the figures obtained under (i) and (ii) above we have made allowance as necessary for variations in the size and specification of the houses built. Method (iii) could only be applied to the post-war period as there are no reliable records available of the number of men engaged in house-building before the war. In addition, we have received direct evidence as to the estimated percentage increase in the number of man-hours required for house-building since the war, as compared with 1939. These estimates have ranged from 33 per cent. to as much as 85 per cent., and a number of witnesses have quoted figures in the neighbourhood of 50 per cent.

103. None of the above methods taken alone is sufficiently precise, but by comparing the results of each we have arrived at the following conclusions:—

	Man-hours at 1938-39 productivity (1)	Man-hours at 1947 productivity (2)	Extra man-hours in 1947 due to decline in productivity (3)
1938-39 typical house of 800 sq. ft. ...	1,550	2,248	698
Increase of 134 sq. ft. in floor area of house ... ..	220	319	99
Addition of outbuilding of 95 sq. ft. ...	122	177	55
Changes in construction, fittings, etc....	200	290	90
1947 typical house of 934 sq. ft. and out- building of 95 sq. ft. ... ..	2,092	3,034	942

The figures in column 3 above represent an increase of 45 per cent. of the corresponding figures in column 1.

The above table shows in column 1 the man-hours which we estimate were required to build the average three-bedroom local authority house in 1938-39 and the additional man-hours which would have been necessary before the war to build to the higher standards of size and specification current in 1947. Column 2 shows the man-hours† required to build an identical house in 1947, together with the various improvements which have been incorporated in the typical post-war house. The increase of 45 per cent. in the man-hours required to carry out a given quantity of work represents a decline in productivity per man-hour of 31 per cent.

\* At the end of October, 1947, 150,000 permanent houses had been built in England and Wales and 218,000 more were under construction. From the number of houses known to be at each stage of construction at that date it is estimated that the 218,000 houses under construction represented the equivalent of 113,000 completed houses. The total amount of house-building carried out between the end of the war and the end of October, 1947, was therefore equivalent to some 263,000 completed houses. The total labour strength engaged upon permanent house construction since the start of the post-war housing programme is estimated to be 4,283,000 man-months. The calculation is therefore as follows:—

Total of equivalent houses completed to the end of October, 1947 ... ..	263,000 houses
Total man-months occupied on this work ... ..	4,283,000 man-months
Average man-months per house ... ..	16.3 "

At an average of 187 man-hours per man-month, this represents 3,048 per house.

These figures cover permanent houses and flats of all types, including non-traditional construction, but the majority are traditional three-bedroom houses.

† The figures represent man-hours worked. Any time paid for under the working rules relating to guaranteed time and travelling time would be additional.

104. The formula "1 man, 1 house, 1 year" has been often quoted as a measure of productivity in house-building before the war. We have heard it applied to both local authority and private enterprise houses, and it appears to have gained acceptance as a convenient and approximate method of expressing output on housing work in general, without reference to any specific type of house. We have not been able to accept the formula as valid in relation to the pre-war local authority house of the type we are considering, since it would imply an unduly high number of man-hours per house (2,200) and a total labour cost per house which we consider excessive as a general average.

105. Table A shows how the labour cost applicable to the man-hour figures we have arrived at is related to the costs of materials, plant and overhead charges in 1938-39 and in 1947. The resulting totals accord with the average prices of houses built in the two periods.

### SUMMARY OF CHAPTER

106. A full analysis of the estimated increase in house-building costs between 1938-39 and 1947 is given in the adjoining Table A. The increased costs due to labour, materials, changes in specification and other factors are expressed in various ways in the succeeding Tables B, C, D and E.

107. The typical local authority three-bedroom house of 1938-39 cost £380, whereas we estimate that the typical local authority three-bedroom house completed in the latter part of 1947 cost £1,242, that is three-and-a-quarter times as much. (Paragraph 55.)

108. The average size of such houses just before the war was about 800 sq. ft., whereas the average size in 1947 was 934 sq. ft., plus an outbuilding of 95 sq. ft., making a total floor area of 1,029 sq. ft. (Paragraphs 56 and 57.)

109. We estimate that the increased size of the house and the addition of an outbuilding have accounted for £201, or about one-sixth of the total cost. (Paragraph 55.)

110. There have been various improvements in construction, finish and equipment costing some £127, or about one-tenth of the total cost. (Paragraphs 59-71.)

111. We estimate that the cost of labour increased by £297 per house, of which £96 was due to increased rates of wages and other emoluments, £75 to the improvement in housing standards, and £126 to the decline in productivity since 1939. The total cost of labour per house was three-and-a-half times the pre-war amount. (Paragraphs 72-88, 100-105.)

112. We estimate that the total cost of materials increased by £472 per house, of which £284 was due to increased prices and £188 to the extra materials required for the post-war house. (Paragraphs 89-93.)

113. We estimate that the additional cost due to overhead charges and profit was £77 per house. (Paragraphs 97-99.)

114. Stated briefly, the typical local authority house of 1947 cost some three-and-a-quarter times as much as its pre-war counterpart and required twice as much labour and one-third more material to build. The estimated total increase in man-hours worked per house due to all causes (comparing the 1947 total of 3,034 with the 1938-39 total of 1,550) was 1,484, or 96 per cent. This would imply that at 1947 output and 1947 housing standards, a housing labour force equal to that existing before the war would be able to produce in a year only about one-half of the number of houses built in 1938.

## THE COST OF HOUSE-BUILDING

ANALYSIS OF THE PRICE OF A TYPICAL LOCAL COSTING £380 IN 1938-39, AND THE INCREASES AND SPECIFICATION WHICH HAD BUILT UP AUTHORITY 3 BEDROOM HOUSE OF 1,029 SQ. FT.

Line	—	Man-hours worked	Items of	
			Wages including overtime	Health and unemployment Insurance
	Col. 1	Col. 2	Col. 3 £	Col. 4 £
A	1938-39 TYPICAL HOUSE OF 800 SQ. FT. House of 800 sq. ft. built in 1938-39 ...	1,550	115	3
B	Increased labour rates, material prices and overheads in 1947 ... ..	—	72	2
C	Additional man-hours in 1947 and cost resulting therefrom ... ..	698	83	2
D	Full 1947 cost of 800 sq. ft. house of pre-war type ... ..	2,248	270	7
E	EXTRA 134 SQ. FT. OF FLOOR AREA 1947 increase in size (134 sq. ft.) at 1938-39 cost ... ..	220	16	1
F	Increased labour rates, material prices and overheads on additional size in 1947 ...	—	10	—
G	Additional man-hours in 1947 on extra size	99	12	—
H	Full 1947 cost of extra 134 sq. ft. ... ..	319	38	1
I	OUTBUILDING OF 95 SQ. FT. 1938-39 cost of outbuilding of 95 sq. ft. ...	122	9	—
J	Increased labour rates, materials price and overheads on outbuilding in 1947 ...	—	6	—
K	Additional man-hours in 1947 on outbuilding	55	6	1
L	Full 1947 cost of outbuilding ... ..	177	21	1
M	IMPROVED CONSTRUCTION AND FITTINGS Improved construction and fittings of 1947 house at 1938-39 cost ... ..	200	15	1
N	Increased labour rates, material prices and overheads on improvements ... ..	—	9	—
O	Additional man-hours in 1947 on improvements ... ..	90	11	—
P	Full 1947 cost of improvements ... ..	290	35	1
Q	1947 TYPICAL HOUSE OF 1,029 SQ. FT. Full 1947 cost of improved house of 1,029 sq. ft. including outbuilding ... .. (Total of lines D, H, L and P).	3,034	364	10

AUTHORITY 3 BEDROOM HOUSE OF 800 SQ. FT. IN BUILDING COSTS AND ADDITIONS IN SIZE THE PRICE TO £1,242 FOR A TYPICAL LOCAL (INCLUDING OUTBUILDING), IN OCTOBER, 1947

TABLE A

Labour Cost			Total Labour Cost	Total Material Cost	Plant Charges	Total net cost of labour, material and plant	Overhead Charges, (Site and Head Office) and Profit	Gross Total Cost	Cost per sq. ft.
Holiday contributions	Guaranteed time	Traveling and subsistence							
Col. 5 £	Col. 6 £	Col. 7 £	Col. 8 £	Col. 9 £	Col. 10 £	Col. 11 £	Col. 12 £	Col. 13 £	Col. 14 s. d.
—	—	1	119	227	7	353	27	380	9 6
7	6	9	96	284	7	387	34	421	10 6
3	2	4	94	—	4	98	15	113	2 10
10	8	14	309	511	18	838	76	914	22 10 (on 800 sq. ft.)
—	—	—	17	32	1	50	4	54	8 1
1	1	1	13	40	1	54	5	59	8 10
—	—	1	13	—	1	14	2	16	2 5
1	1	2	43	72	3	118	11	129	19 4 (on 134 sq. ft.)
—	—	—	9	18	1	28	2	30	6 4
1	—	1	8	22	1	31	3	34	7 2
—	—	—	7	—	—	7	1	8	1 8
1	—	1	24	40	2	66	6	72	15 2 (on 95 sq. ft.)
—	—	—	16	34	—	50	4	54	1 2
1	1	1	12	42	—	54	5	59	1 4
—	—	1	12	—	—	12	2	14	3
1	1	2	40	76	—	116	11	127	2 9 (on 934 sq. ft.)
13	10	19	416	699	23	1,138	104	1,242	24 2 (on 1,029 sq. ft.)



TABLE B

TABLE SHOWING INCREASES IN COST DUE TO THE RISE IN THE COST OF BUILDING, AND ALSO TO CHANGES IN THE STANDARD OF THE TYPICAL HOUSE, EXPRESSED AS PERCENTAGES OF THE 1938-39 COST OF £380.

	1938-39		1947	
	Cost	Percentage of £380	Cost	Percentage of £380
	£	per cent.	£	per cent.
Initial 1938-39 cost of house of 800 sq. ft.	380	100	380	100
Increase in building costs on house of 800 sq. ft. ... ..	—	—	534	140
Cost of extra 134 sq. ft. of floor area ...	54	14	129	34
Cost of outbuilding of 95 sq. ft. ... ..	30	8	72	19
Cost of other improvements ... ..	54	14	127	34
Total of increases ... ..	138	36	862	227
Total cost of improved house of 1,029 sq. ft. including outbuilding ... ..	518	136	1,242	327

TABLE C

TABLE SHOWING THE PROPORTIONS OF THE TOTAL COST ACCOUNTED FOR BY LABOUR, MATERIALS, PLANT, AND OVERHEADS AND PROFIT IN 1938-39 AND IN 1947.

	1938-39		1947			
	House of 800 sq. ft.		House of 800 sq. ft.		House of 1,029 sq. ft.	
	Cost	Percentage of gross total cost	Cost	Percentage of gross total cost	Cost	Percentage of gross total cost
	£	per cent.	£	per cent.	£	per cent.
Labour ... ..	119	31	309	34	416	34
Materials ... ..	227	60	511	56	699	56
Plant ... ..	7	2	18	2	23	2
Overheads and Profit ...	27	7	76	8	104	8
Gross total cost ... ..	380	100	914	100	1,242	100

ANALYSIS OF THE INCREASE IN HOUSE-BUILDING COSTS 27

TABLE D

TABLE SHOWING THE INCREASE ON EACH ITEM OF COST EXPRESSED AS A PERCENTAGE OF THE 1938-39 COST OF £380 FOR A HOUSE OF 800 SQ. FT.

	1938-39	1947					
	House of 800 sq. ft.	House of 800 sq. ft.			House of 1,029 sq. ft.		
	Cost	Cost	Increase on 1938-39 cost of £380		Cost	Increase on 1938-39 cost of £380	
	£	£	£	Per cent. of £380	£	£	Per cent. of £380
LABOUR COST—							
At pre-war output ...	119	215	96	25	290	171	45
Additional man-hours	—	94	94	25	126	126	33
TOTAL LABOUR COST	119	309	190	50	416	297	78
MATERIALS ... ..	227	511	284	74	699	472	124
PLANT... ..	7	18	11	3	23	16	4
OVERHEADS & PROFIT	27	76	49	13	104	77	21
GROSS TOTAL COST ...	380	914	534	140	1,242	862	227

TABLE E

TABLE SHOWING THE INCREASE ON EACH ITEM OF COST EXPRESSED AS A PERCENTAGE OF THE SAME ITEM IN A 1938-39 HOUSE OF 800 SQ. FT.

	1938-39	1947					
	House of 800 sq. ft.	House of 800 sq. ft.			House of 1,029 sq. ft.		
	Cost	Cost	Increase on 1938-39 cost of same item.		Cost	Increase on 1938-39 cost of same item.	
	£	£	£	Per cent.	£	£	Per cent.
LABOUR COST—							
At pre-war output ...	119	215	96	81	290	171	144
Additional man-hours	—	94	94	79	126	126	106
TOTAL LABOUR COST	119	309	190	160	416	297	250
MATERIALS ... ..	227	511	284	125	699	472	208
PLANT... ..	7	18	11	157	23	16	229
OVERHEADS & PROFIT	27	76	49	181	104	77	285
GROSS TOTAL COST ...	380	914	534	140	1,242	862	227

## CHAPTER IV

## THE IMPLICATIONS OF THE INCREASED SIZE AND IMPROVED SPECIFICATION OF THE POST-WAR HOUSE

115. It will be seen from Table A above that the increased area and improved specification of the post-war local authority house would have cost some £138 under 1938-39 conditions, raising the total cost of the typical pre-war house from £380 to £518. We have estimated that in 1947 the extra cost of these improvements alone was about £328 per house, which is 86 per cent. of the whole cost of a three-bedroom house in 1939.

116. During most of the inter-war period the tendency of local authorities was to build houses of less than 800 sq. ft. and the majority of three-bedroom non-parlour houses built in the five years 1934-38 were between 750 and 780 sq. ft. in area. It was not until late in 1938 that the size of such houses in local authority tenders increased to 800 sq. ft. In 1944 the Dudley Committee recommended 900 sq. ft. as the minimum size for the post-war three-bedroom house, subject to slight variations according to aspect and siting. The Committee expressed the view that no substantial reduction could be made in this figure if the majority of the defects of the inter-war house were to be remedied. The Committee also recommended the provision of a shed and fuel store with every house, of a minimum combined area of 70 sq. ft., or 100 sq. ft. in rural areas.

117. The sizes of rooms and other improvements in construction, equipment and amenities recommended by the Dudley Committee were in general endorsed by the Housing Manual of 1944, and they have been largely incorporated in the houses built by local authorities since the war. The 900 sq. ft. standard of overall area, however, was not adopted by the Ministry of Health until November, 1945, when local authorities were advised that this figure should be regarded as the minimum area for a three-bedroom house, exclusive of outbuilding, and that from 900 to 950 sq. ft. would be an appropriate range. The provision of a second w.c. at ground level in houses with three or more bedrooms was recommended at the same time.\*

118. Since then the size of houses has risen steadily above the recommended minimum of 900 sq. ft. The following table shows the percentage of houses in each size-group in plans approved by the Ministry of Health between June, 1946, and March, 1948. The figures relate to three-bedroom houses only.

*Square Feet of Floor Area (excluding outbuildings)*

Quarter ended	Under 900	900-950	950-1,000	1,000-1,050	1,050-1,100	Over 1,100
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
June, 1946 ... ..	31.10	56.06	9.81	2.56	.21	.26
September, 1946 ... ..	29.75	55.32	11.70	2.81	.33	.09
December, 1946 ... ..	30.12	52.85	13.55	2.77	.57	.14
March, 1947 ... ..	28.66	52.25	15.36	2.86	.72	.15
June, 1947 ... ..	27.63	52.54	16.07	2.84	.73	.19
September, 1947 ... ..	26.84	52.69	16.52	3.01	.76	.18
December, 1947 ... ..	26.21	52.93	16.80	3.15	.74	.17
March, 1948 ... ..	25.41	53.98	16.65	3.07	.72	.17

\* Circular 200/45.

It will be noticed that up to the quarter ended March, 1948, there was a steady increase in the number of houses of 950 sq. ft. and over and a corresponding decline in the number of smaller houses. As we have already stated in paragraph 44 the average area, including outbuildings, of three-bedroom houses in tenders approved in mid-1946 was 1,029 sq. ft. The increase in overall size has continued since then, and the average areas, including outbuildings, of houses in tenders approved during the first 3 months of 1948 were:—

January ... ..	1,051.1 sq. ft.
February ... ..	1,058.7 sq. ft.
March ... ..	1,062.6 sq. ft.

These are average figures, and as the table on the previous page shows, a number of houses are now being built with a floor area excluding outbuildings of over 1,050 sq. ft. The overall area of such houses must be of the order of 1,150 sq. ft.

119. Both the Dudley Committee's Report and Ministry of Health's advice to local authorities lay stress on minimum standards of floor area, and no maximum has been laid down. There has been no official check upon the upward trend in the size of houses despite the additional drain on labour and materials which it entails. It is possible that the trend has been accelerated by the Ministry's method of examining tender prices by reference to the cost per square foot of floor area rather than to the total cost of the house. Although this is a straightforward and convenient method of comparing prices, it has the disadvantage of concealing the real increase in cost due to increased floor area. Indeed as we have pointed out (paragraph 56), the cost per square foot of a house normally diminishes as the floor area increases, and this is particularly noticeable when the additional area comprises a large outbuilding or covered way, which cost less per square foot than the house itself. The larger house therefore appears more economical on the cost per square foot basis of measurement, notwithstanding its greater total cost. The extent to which this method fails to reflect the real cost of houses where size is variable can be seen by comparing the average tender prices per square foot for three-bedroom houses recorded monthly by the Ministry of Health with the average total prices of houses of the same type. Between June, 1946 and March, 1948, average tender prices rose from £1,151 to £1,306, an increase of 13.5 per cent., whereas the price per square foot rose from 22s. 6½d. to 24s. 8d., an increase of 9.4 per cent. The smaller percentage increase in the price per square foot is noticeable.

120. The advantages of the larger size of house and additional amenities now provided are described in the Dudley Report. Several witnesses have spoken of the merits of the larger house from the points of view of comfort, health and the saving of labour, as well as of general social well-being, and it has been emphasised that since houses are built to last for 60 years or more the standard of permanent housing should take account of future needs. We have also heard evidence that satisfactory internal planning presents less difficulties in a 900 sq. ft. house than in a smaller house, especially when equipment is provided on the usual post-war scale.

121. On the other hand, we must emphasise that the adoption of the larger size of house and additional equipment immediately after the war entailed substantial extra expense at a time when building costs were already abnormally high and prices were still rising. The Dudley Committee recognised that the improvements recommended would need to be considered in relation to the cost of building after the war, but the Committee's forecast of the

probable level of costs after the war, and the additional cost of the improvements, fell far short of the actual increase in cost up to the present.\* It is clear that the full implications of the improved standards could not have been appreciated when they were first introduced. As compared with the Dudley Committee's assumption that building costs would be stabilised at about 30 per cent. over the pre-war level, the actual increase up to November, 1947, was of the order of 140 per cent., with the result that not only has the cost of the improvements been much higher than was anticipated, but the cost of the typical pre-war house, without the improvements, has itself risen from £380 to £914.

122. We refer in Chapter X to the effects of current building costs upon the rents of post-war houses and we have had evidence that in order to avoid increasing rents many local authorities have found it necessary to supplement the normal annual rate contribution of £5 10s. per house. The possibility that the improvements in the post-war house might prove excessively costly was recognised in the Housing Manual, 1944, which in describing structural standards stated (paragraph 102): "The improvements proposed can and should be attained without adding to the cost of building. If costs were to be increased the additional rent might well be found an onerous burden and even, in some cases, wholly unacceptable." We feel it is therefore relevant to point out that the £328 representing the additional cost of the larger size and improved amenities of the post-war house amounts to more than one-quarter of the total building cost and is itself equivalent at the present rate of interest to a weekly rent of over 4s. 6d.

123. In addition to the financial effects, the improvements in the post-war houses have made an additional demand upon national resources at a time when building labour and materials were in short supply. We have estimated that the increased size and more elaborate equipment of the average post-war house account for some 25 per cent. of the total number of man-hours required per house. Increases in the floor area of houses affect most directly those materials used in floors, ceilings and roofs, the most important of which is timber. Materials required for walling are affected to a lesser extent, so that larger houses make a proportionately greater demand upon such items as timber, floor finishes, plasterboard and roofing materials. We have calculated that had the pre-war size of house been retained and certain items of the present equipment omitted, labour and materials might have been released on a scale sufficient to build from 10 per cent. to 15 per cent. more houses, leaving in addition a balance of labour and certain materials, including timber, available for other purposes.

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\* The Dudley Committee estimated that in 1939 the cost of all the improvements recommended for the post-war house would have been £132 in the case of a three-bedroom house of the minimum standard. With regard to the general level of building costs after the war the Report stated:—"We are aware that there has been a considerable increase in building costs since 1939. We understand that precise estimates of the extent of this increase are not yet available, but that it may amount to as much as 100 per cent. The present cost-of-living index figure is 30 per cent. above the pre-war level and one of the disturbing features of the present position is that the rise in building costs is so much out of proportion to the rise in the cost of living. Extensive building is possible only if building costs bear a reasonable relationship to the general cost of living. There may be an inevitable interval before the present inflated costs can be brought into a workable relationship with the cost of living, but we are convinced that unless this is done the Government's programme of three to four million houses will never be completed. We therefore assume that whatever action may be necessary to bring this about will be taken and that building costs will eventually stabilise at about 30 per cent. above those prevailing before the war".

124. It has been suggested to us in particular that the second w.c. which is now provided in most post-war houses might well be dispensed with at the present time. The bulk of the evidence we have heard on the subject, including that of local authority witnesses, has indicated that the cost of this provision in a three-bedroom house is altogether disproportionate to its value to the tenants, while labour and materials could be saved by its omission.

125. While it is not within our province to examine the merits of the improvements in housing standards which have taken place since 1939, we feel bound to stress the high cost both in money and in labour and materials resulting from their introduction immediately after the war. We wish to emphasise the extent to which this factor has contributed to the increase in house-building costs, since it has been the largest single item in the increased cost which is subject to Government influence. We consider it appropriate to recommend that policy regarding the standards of accommodation and equipment of new houses should be reviewed afresh in the light of present-day conditions.

#### TWO-BEDROOM HOUSES

126. It has been represented to us by local authorities and other witnesses that an undue proportion of the houses now being provided are of the three-bedroom type, and that there is a need for more two-bedroom houses. We have been informed that a large proportion of the applicants for new houses to-day are persons whose needs could be satisfactorily met by two-bedroom houses, and that many of them would prefer such houses to the three-bedroom type because of the lower rents. This would suggest that some existing three-bedroom houses are being under-occupied by small families, and that accommodation could be released for larger families if more two-bedroom houses were available.

127. The Ministry of Health's records show that no less than 86 per cent. of all the post-war permanent houses completed by local authorities up to the end of March, 1948, were of the three-bedroom type, and that two-bedroom houses comprise only 8 per cent. of the total. Although over the programme as a whole the preponderance of three-bedroom permanent houses is partially off-set by the large number of two-bedroom temporary bungalows which have been provided since the war, these have been concentrated mainly in the large towns and have not affected the position to the same extent in the smaller urban and rural areas. The relative distribution of permanent and temporary houses completed by local authorities to the end of 1947 is as follows:—

	<i>Permanent</i>	<i>Temporary</i>
London and other large towns ... ..	57,840	61,636
Medium towns ... ..	46,150	27,792
Small towns ... ..	39,936	16,188
Rural areas ... ..	35,996	8,605

These figures show that there is a large excess of permanent over temporary houses in all but the largest towns, and support the view which has been expressed to us that the disproportion between three-bedroom and two-bedroom houses is most marked in the smaller urban and rural areas.

128. The Dudley Committee considered that satisfactory accommodation for a family of four persons could be provided in a two-bedroom house of 750 sq. ft. The Ministry of Health's policy in the past appears to have favoured the three-bedroom house as being the type considered most suitable for general needs, but in view of the great savings in cost as well as in labour and materials which could be obtained by building more two-bedroom houses

we think it important that local authorities should be free to provide such houses to the full extent that local needs permit. More two-bedroom houses are in any case likely to be needed now that the temporary house programme is coming to an end.

## CHAPTER V

### THE COST OF BUILDING

#### LABOUR

129. The analysis in Chapter III of house-building costs in 1938-39 and 1947 has shown the increase in the cost of labour resulting from increased wage rates, insurances, payments for guaranteed time and other labour charges. By October, 1947, the wages of building trades labour employed on house-building, including the additional insurance and holiday contributions which were automatically payable, had increased by some 69 per cent. over the pre-war level. Payments in respect of guaranteed time and travelling time, travelling expenses, and subsistence allowances, added a further 13 per cent. to the cost of labour since the war.

130. Both the wage rates and the various additional payments now provided for in the National Working Rules of the Building Industry are the result of agreements reached by the two sides of the industry, and we have accepted them as established factors upon which any estimate of the present-day cost of employing building labour must be based.

131. As can be seen by reference to Graph C appended to this Report, wages in the building industry have increased no more than wages in other industries generally since 1939. We have no ground therefore for regarding the hourly rate for labour employed on house-building as excessive at the present time. We would emphasise, however, that the total labour cost of house-building since the war has been greatly increased as a result of the decline in building productivity, which has made it necessary to employ labour for a longer period than would have been necessary before the war for the same amount of work. In the case of the typical house built in 1947 this factor alone has increased the labour cost by some £126, or 43 per cent. The decline in productivity is discussed more fully in the next chapter.

#### MATERIALS

132. By October, 1947, the cost of materials used in house-building had increased by approximately 125 per cent. over the 1939 level. Most of the increase took place during the war, prices having risen by about 80 per cent. by August, 1945, but the rise in prices continued throughout 1946 and 1947. The course of these increases over the period 1939-47, as recorded in the Ministry of Works' index of building material prices, can be followed in the appended Graph C. As we have already explained (paragraph 92) the advance in the cost of materials used in house-building has been considerably greater than these index figures indicate.

133. By the end of 1947 the price of cement had increased by 36 per cent. and the price of bricks by 78 per cent. over their 1939 prices. The price of timber has increased more than that of any other material, the cost of carcassing and joinery timber as used in house-building being £70-£80 a standard in 1947 as compared with rather less than £20 a standard in 1939. Even allowing for the smaller quantity now used, the cost of timber per house has

more than doubled. If timber, which is largely an imported material, is excluded, the increase in the cost of the remaining materials is about 97 per cent. over the pre-war level.

134. In July, 1946, a Committee was set up by the Minister of Works "to examine the organisation and methods of distribution of building materials and components with particular reference to cost and efficiency, and to make recommendations". This Committee reported in March, 1948. Another Committee was appointed by the Minister in June, 1947, "to consider and keep under review the price of building materials and to make recommendations". In these circumstances we have not thought it within our province to enquire into the price structure of the building materials manufacturing and distributive industries, or to investigate the prices of individual materials, notwithstanding the large part which these play in determining the total cost of houses. It seems clear, however, that in general the trend of prices of building materials since the war will have reflected increases in wages, the cost of fuel and raw materials, and transport costs, and we have noticed the close correlation which has been maintained between building material prices and the prices of industrial materials in general since 1939. This is shown clearly in the graph referred to.

#### OVERHEAD CHARGES AND PROFIT

135. We have indicated in paragraph 97 the type of overhead charges which normally arise on a house-building contract. There is no doubt that the cost of this item has been increased since the war by the abnormal conditions prevailing in the industry. The difficulties of obtaining labour and materials, the necessity to comply with the various controls, and the numerous and detailed forms, records and returns now required, have all necessitated not only more staff but staff of a higher qualification and with higher salaries than in pre-war days. They have entailed increased correspondence and more interviews and telephone calls (one witness has estimated the number of telephone calls at 500 per cent. above pre-war). Tendering has become a more elaborate process, and the obtaining of licences for materials and the recording of price fluctuations for a subsequent claim in the final account have created additional work. The buying of materials is more complicated than it was before the war, when competitive quotations could be obtained for any material required, and an order could be placed with the firm quoting the lowest price with an assurance of punctual delivery. Since the war the builder's first concern has often been to find any firm able to deliver what he needs at the right time. Manufacturers may offer alternatives or substitutes which need reference to the architect for instructions, or having received an order they may be unable to supply it, so that further enquiries have to be sent out in haste. All this extra work necessitates more staff in the builder's office and increases overhead expenses.

136. A further consideration to be borne in mind is that the cost of establishment charges is to a large extent constant in amount week by week, and increases in total amount in direct ratio to the longer duration of contracts.

137. We have found no evidence that the margin of profit in housing tenders has been inflated by the operation of price rings among building contractors. In many instances the "spread" of tenderers has been sufficiently wide to exclude any likelihood of collusion, and in a few cases where local rings have been suspected the Ministry of Health has arranged for outside firms to be invited to tender in order to test prices.



138. It has been suggested to us that the level of profit on house-building has generally been lower than on most other forms of building work, whether of new construction or decoration, maintenance or war damage repairs, and that housing is no longer as attractive a proposition to builders as it was before the war. On the other hand there has been no general lack of willingness on the part of builders to tender for housing contracts, despite the heavy demands upon the industry since the war. The reasonably keen competition exhibited has been influenced to some extent by the desire of builders to obtain contracts carrying priority for the labour and materials necessary for their continuance in business.

139. The majority of builders do not confine their activities to house-building, and such balance sheets and profit and loss accounts as are published do not show the results of housing contracts, since this work is not separated from the firm's other operations. In any event the number of building firms who are obliged to publish their accounts is very limited and would not be representative of the industry as a whole.

140. We have however noticed that the available statistics of bankruptcy among building firms show a marked decline in the percentage of failures as compared with the years immediately before the war. It is not possible to relate this factor to housing as distinct from other forms of building, but having regard to the large volume of house-building which has been in progress since the war it suggests that financial failures in this field cannot have been widespread. (See Appendix, Table II, columns 7 and 8.)

141. From all the evidence before us we conclude that the increase in the amount required for the combined item of Overhead Charges and Profit has been due to the greater cost of overhead charges rather than to an increase in profit.

#### THE ECONOMIC ENVIRONMENT

142. It is tempting to assume that increased building costs are merely an inevitable consequence of war and that following the experience after the 1914-18 war there will be an automatic decline in the cost of house-building as the country recovers from the upset of war. In Chapter I we have referred briefly to the rise in prices which occurred after the first world war and the decline which followed in 1920-21. It is desirable to examine the position during those years more closely and to see whether the same trend should occur after the second world war.

143. The trend of tender prices for local authority three-bedroom houses for the four years after 1918 was as follows:—

					Average Price	Average Size	Price per sq. ft.	
					£	sq. ft.	s.	d.
1919	July	...	...	...	713	867	16	5½
	October	...	...	...	750	871	17	2½
1920	January	...	...	...	782	882	17	9
	April	...	...	...	817	865	18	10½
	July	...	...	...	870	860	20	3
1921	October	...	...	...	888	888	20	0
	January	...	...	...	834	844	19	8
	April	...	...	...	697	845	16	6
	July	...	...	...	665	825	16	1½
1922	October	...	...	...	573	851	13	5½
	January	...	...	...	494	847	11	8
	April	...	...	...	395	809	9	9
	July	...	...	...	378	812	9	4
	October	...	...	...	346	808	8	7

The price of houses in the middle of 1919 was about three times the 1914 price. Building costs rose to a peak in September 1920 when average tender

prices reached £881, or 20s. 9d. per sq. ft. After this prices fell, the average being £834 in January 1921 (19s. 8d. per sq. ft.) and £378 (9s. 4d. per sq. ft.) in July 1922. Since the end of the second world war part of a similar trend—the upward part—has already occurred. The question is whether a similar downward trend may be expected. The answer to this will to a large extent be found in the answer to the question—why did the cost of new houses fall after September 1920?

144. Before answering this question however it is worth noticing that the period of rising prices after this war is already much longer than after the war of 1914-18. Then the period of high building costs lasted for less than two years. Now it is already three years since the end of the war and up to March 1948 building costs were still rising. During the third year after the 1918 armistice house-building costs fell from 19s. 8d. to 11s. 8d. per sq. ft. During the third year after the end of the 1939-45 war average tender prices for three-bedroom houses have so far risen as follows:—

1947.		s. d.	1948.		s. d.
June ...	...	23 4	January ...	...	23 11½
July ...	...	23 10½	February ...	...	24 2½
August ...	...	23 7½	March ...	...	24 8
September ...	...	23 4½			
October ...	...	23 10			
November ...	...	23 9			
December ...	...	23 11½			

It is sometimes suggested in explanation of this difference that the second world war was more far-reaching in its economic consequences than the first and that it was to be expected that the downward trend of prices would to that extent be delayed.

145. It is important to appreciate that what happened in the building industry after 1918 was largely a reflection of the general course of economic affairs. Wholesale prices reached their peak in April-May 1920—a few months earlier than the peak in housing costs, as was to be expected. They then fell rapidly until they reached comparative stability in the early part of 1922. The prices of building materials followed almost the same trend but rose to a somewhat lower peak in 1920 and did not fall to quite the same extent by 1922. Wage rates rose from 79 per cent. above the 1914 level in July 1918 to a peak of 177 per cent. in January 1921, and they also fell away to reach comparative stability in 1923 at around 75-80 per cent. above the 1914 level.

146. The same general relation between the trend of building costs and the trend of economic affairs is apparent after the second world war. In other words the superficial reason why building costs have not followed the same trend after this war as after 1918 is that wholesale prices and wage rates have not followed the same trend. This is clearly brought out in the following table\*—

Index of Wholesale Prices				Index of General Wage Rates			
After 1914-18 war		After 1939-45 war		After 1914-18 war		After 1939-45 war	
Jan. 1919 ...	100	Aug. 1945 ...	100	Jan. 1919 ...	100	Aug. 1945 ...	100
" 1920 ...	129	" 1946 ...	103	" 1920 ...	111	" 1946 ...	108
" 1921 ...	104	" 1947 ...	114	" 1921 ...	134	" 1947 ...	111
Sept. 1921 ...	79	Apr. 1948 ...	130	Sept. 1921 ...	115	Apr. 1948 ...	116

\* Sources : Wholesale prices : 1919-21—The Statist ; 1945-48—Board of Trade Index. Wage rates : 1919-21—Dr. Bowley's Index ; 1945-48—Ministry of Labour, June, 1947, Index related to September, 1939, Index.

It will be seen that by September, 1921, wholesale prices had fallen below the end of war level, whereas in the corresponding month after the end of the second world war they were 30 per cent. above their end of war level. Wage rates also declined during the third year after 1918, whereas in April, 1948, they were still rising.

147. The main clue to the possibility of an automatic fall in building costs lies in the possibility of a fall in the general price level including wage rates. It is outside our sphere to explore the general economic situation and it may well be impossible to forecast the trend of prices. But it is relevant to glance at the two factors which caused the main decline in prices and wage rates from the end of 1920 onwards; namely a slump, and a decline in the prices of imported goods. The short-lived post-1918 boom broke during the summer of 1920. Unemployment rose from being 1-2 per cent. during the first half of 1920 to about 6 per cent. by the end of that year and reached about 15-20 per cent. by the first half of 1921. Unemployment in the building industry lagged a little behind the general trend and did not begin to rise until the end of the summer building season of 1920. The Government's decision to curtail drastically the subsidised housing programme was not announced until July, 1921, and house-building continued at a comparatively high level into 1922. The cut in the housing programme after the 1914-18 war therefore came some time after the slump had started and after the general price level, including wages, had begun to fall. In other words the fall in house-building costs immediately after September 1920 was due to general factors, and the decision to restrict the building of subsidised houses gave a further impetus to the downward trend.

148. The other important factor was the decline in the price of imported raw materials and foodstuffs. The index of import prices, taking 1913 as the base (= 100) rose to a peak in the autumn of 1920, being then 289. Thereafter it fell rapidly to 170 during the autumn of 1921 and averaged 152 for 1922. The fall in the price of imports brought down the cost of living as measured by the Ministry of Labour index and the index fell from a peak of 276 in October 1920 to 192 by the end of 1921 (July 1914 = 100). This of course was an important factor in the decline in wage rates and though wage rates fell the real value of wages of those in employment actually rose for a time. In contrast, import prices after the 1939-45 war were still rising in the first half of 1948, and it is only the subsidy to foodstuffs which has kept the cost of living index from rising in sympathy. Taking 1938 as base of 100 the import prices index was 195 in 1945, 219 in 1946, and 257 in 1947. It continued to rise until it had reached 277 in March 1948.

149. The price of imports affects the cost of house-building in two ways. Directly, because certain imported materials, especially timber, are an important element in cost, and indirectly, because the prices of imported foodstuffs and raw materials enter into the cost of living index and therefore have a close bearing on wages. As to timber used for housing, import prices fell after the end of the 1914-18 war as a result of the reopening of the timber-producing areas, whereas import prices have risen substantially today. Three years after the end of the first world war timber import prices were about half their 1918 level—at the corresponding stage in 1948 they were 50 per cent. above their 1945 level.

150. Our conclusions arising out of this comparison of the experience after the two world wars may be summarised as follows—

- (i) The cost of building followed the general trend of wholesale prices and wage rates in both post-war periods.

(ii) Whereas after the 1914-18 war both wholesale prices and wage rates fell during the third year, during the third year after the second world war they have continued to rise.

(iii) Wholesale prices and wage rates fell after the 1914-18 war because there was a slump and a decline in the prices of imported raw materials and foodstuffs.

151. It follows that house-building costs cannot necessarily be expected to decline within any given period after the end of the war. On the contrary they are likely to conform, as hitherto, with the general level of prices and wages, which at the time of writing showed no sign of falling. The policy of full employment is intended to exclude the possibility of a slump such as occurred after the first world war. Whether import prices, which are governed by world factors, will decline in the near future remains to be seen. If they should continue to rise, the cost of building will tend to rise also. There seems to be no ground for assuming that if and when prices fall they will return to the pre-war level.

## CHAPTER VI

### THE PROBLEM OF PRODUCTIVITY

152. The decline in the productivity of the building industry since 1939 led to an increase of some 45 per cent. in the average number of man-hours needed to build a house in 1947, and a resultant extra cost of some £150 per house. This increase in man-hours is equivalent to a 31 per cent. decline in output. It has been a primary object of our inquiry to ascertain the reasons for the decline, since it appeared to us to be one of the main elements of the high cost of building which offered any scope for reduction.

153. The causes of the decline in output are various and complex. The problem is not solely one of a lack of personal effort, nor is it peculiar to house-building. A lowering of productivity below the pre-war level has occurred in other industries owing in some measure to common factors arising from the changed economic and social conditions of the post-war world. Before the war, labour and materials were generally plentiful in relation to the volume of work undertaken, and the fear of dismissal acted as a powerful incentive to individual effort. Since the war, the position has been reversed; unemployment has given place to "over-full" employment and jobs have competed for manpower and materials. The quantity of orders placed has tended to create an excessive load upon resources, and in the result productivity as measured by output per head has in some industries been adversely affected. Too many orders have been chasing too few workers and materials. These are general considerations affecting building and other industries alike; but we would refer to other factors which have particularly influenced productivity in house-building.

#### THE SHORTAGE OF MATERIALS

154. We have heard much evidence about work on housing schemes being held up since the war by shortages of materials and components. Although house-construction has enjoyed priority for materials there have been widespread shortages at different times of timber, cement, rainwater goods, baths, grates, sanitary fittings and electrical equipment. Local shortages of a number of other goods have frequently occurred. A lack of materials on sites has meant either that operations have had to be suspended or that labour and

plant had to be employed unproductively while supplies were awaited. In such circumstances builders have often preferred, owing to the difficulty of replacing labour, to keep men in their employ rather than to discharge them.

155. The irregular supply of materials has also had an adverse effect on the organisation of work on sites. It is normally the contractor's aim, especially on the larger housing contracts, to arrange the work so that a number of houses are passing through each of the various stages of construction at the same time, in order to obtain the maximum continuity of work for plant and for labour in each trade. We have heard evidence from builders and others about the extreme difficulty of maintaining an economical sequence of operations in this way when material supplies have been erratic, with the result that the normal rhythm of work has been upset and time has been wastefully spent in moving men and materials from one job to another.

156. The lack of adequate supplies of materials on sites has had an adverse psychological effect upon labour. Dwindling stocks of materials on sites and the knowledge that future supplies were uncertain have been a direct discouragement to good output, and the prevalence of shortages since the war may well have had a depressing effect on the standard of output in general.

157. We are satisfied that all these conditions have affected the post-war housing programme as a whole. The extent of the loss of productivity due to shortages of materials cannot be precisely assessed; our evidence on the point has been conflicting, one witness placing it as high as 15 per cent. while others have maintained that on some sites output has not improved when materials have been in good supply. We are however of opinion that in general the lack of adequate supplies of materials has been an important contributory cause of the loss of productivity in house-building.

#### THE SHORTAGE OF LABOUR

158. At the end of the war the total strength of the building and civil engineering industries stood at less than 650,000; by May, 1946, the number had been raised to one million. Notwithstanding the speed with which the labour force was built up, the demand for building labour outstripped the supply as the housing programme and the volume of other building work expanded, and by the second half of 1947 the number of operatives employed on house construction represented little more than one man per house as compared with an estimated average of 1.5 to 2 men per house before the war. The disparity is even more marked than these figures indicate owing to the greater amount of labour required for the larger and better equipped post-war houses. Since many of the houses in progress at any given time would have employed several men at once, the ratio of one man per house implies that work must have been suspended on an unduly large number of houses.

159. The shortage of labour was reflected in the volume of demands notified to the Ministry of Labour. The numbers of outstanding vacancies for building trades labour required for new housing work at monthly intervals from June, 1946, to December, 1947, are shown below:—

	<i>Date</i>						<i>Craftsmen</i>	<i>Labourers</i>
1946.								
27th June	...	...	...	...	...	...	19,650	12,051
25th July	...	...	...	...	...	...	22,171	14,528
29th August	...	...	...	...	...	...	25,489	16,756
26th September	...	...	...	...	...	...	28,866	19,515
31st October	...	...	...	...	...	...	30,617	20,036
28th November	...	...	...	...	...	...	28,058	19,450
19th December	...	...	...	...	...	...	24,111	17,957

	<i>Date</i>						<i>Craftsmen</i>	<i>Labourers</i>
1947.								
30th January	...	...	...	...	...	...	23,068	19,742
6th February	...	...	...	...	...	...	22,347	19,113
27th March	...	...	...	...	...	...	22,369	21,021
24th April	...	...	...	...	...	...	25,704	24,233
29th May	...	...	...	...	...	...	27,156	24,669
26th June	...	...	...	...	...	...	26,533	23,272
31st July	...	...	...	...	...	...	26,226	21,928
28th August	...	...	...	...	...	...	26,253	23,256
25th September	...	...	...	...	...	...	25,663	23,463
30th October	...	...	...	...	...	...	22,507	21,022
27th November	...	...	...	...	...	...	19,037	16,180
18th December	...	...	...	...	...	...	15,007	12,279

The principal shortages among craftsmen were bricklayers, carpenters and plasterers. The lack of labourers was also pronounced, especially in industrial areas.

160. Shortages in different crafts and of experienced labourers frequently led to a lack of balance in the labour forces on housing sites, which resulted in work in certain trades being slowed up while waiting for labour in others. It has often been difficult, if not impossible, to build up efficient teams of men and to keep them together. The shortage of labourers has sometimes made it necessary for craftsmen to do their own labouring work, to the detriment of their output. The lack of a balanced force has had the same adverse effects upon output as have the shortages of materials. A shortage of labour is not inconsistent with a shortage of materials, since they may affect different trades; materials may be in good supply for a trade in which labour is short and vice versa. Further, many of the shortages have been local in character and have not affected all sites in the same way.

#### THE QUALITY OF LABOUR

161. Many of the craftsmen and skilled labourers in the building trade before the war were lost to the industry, and the need for additional manpower during the war entailed a large intake of new entrants, whose training took time. A large number of unskilled men were absorbed into the industry for bomb-damage repairs and other work, and the need was such that inexperienced labourers and men of a low standard of physical fitness were accepted. Since the war also, the demand for labour has only been met by recruiting a proportion of men who would normally be considered unsuitable.

162. We have been informed by several witnesses that the greater attractiveness of other industries offering better conditions and amenities to workpeople has added to the difficulty of obtaining adequate building labour and has led to the loss of men already in the building industry. It is apparent that under conditions of full employment, and with a general demand for labour, the building industry has not been able to command the same quality of labour throughout as was possible before the war, when the existence of considerable unemployment provided a pool of labour from which the best men could be drawn.

163. As was to be expected in these circumstances, the average age of building operatives was considerably higher after the war than in 1939. Although the disparity has now been reduced by the entry of more young men into the industry, the age factor has probably had an adverse effect upon productivity.

164. We have heard evidence as to the ill-effects upon the industry of the "cost-plus" system of contracting which was extensively used for bomb-damage repairs and other emergency work during the war. It is a recognised weakness of this system that it provides no financial incentive to the contractor to execute work efficiently or economically, since the amount of profit to be made is actually greater as the cost of the work is increased. The natural result is to produce a lack of effort on the part of both contractor and operatives, resulting in inefficient organisation of work and a general lowering of individual output. We believe that the wasteful use of labour engendered by the widespread use of this system during the war has had long-term effects upon building productivity which have influenced other workers who were not themselves employed on building work at the time. We have been assured by more than one witness that men returning to the building industry from the Forces showed a comparatively high level of efficiency initially but that their output fell after they had worked for a time on housing sites.

165. The Payment by Results Scheme introduced as a condition of the Essential Work Order, 1941, led to the fixing of basic rates of output at a time when most of the work concerned was being carried out under "cost-plus" contracts, on which output was low, and when the physical and technical standards of the men employed were poor owing to the call-up or transfer to other industries of the fitter and younger men. The combination of these two factors necessitated the setting of a low standard of basic output which has tended to perpetuate an unduly low standard of production since the war.

#### THE OVERLOADING OF THE BUILDING INDUSTRY\*

166. The shortages of materials and labour which we have described are symptoms of a more fundamental disorder, namely an overloading of the building industry due to an excessive volume of work being put in hand after the war in relation to the available resources. The importance of controlling the volume of the demand upon building resources was stressed by the Holmes Committee in 1921 and again during the last war in reports dealing with post-war housing. In the White Paper of March, 1945,† the Government declared its intention that the actual number of houses to be built would be dependent on the building resources likely to be available from time to time, and stated:—

"There was a serious rise in building costs after the last war because demands went far beyond the real capacity of the building industry. In order to check such a tendency the Government will this time control the volume of contracts let by local authorities, the building and repair work done on private account and the price of materials, standard components and fittings".

167. Nevertheless it is evident that in practice the speed with which the housing programme developed during 1945 and 1946 far outran the effective capacity of the building and allied industries. At the end of 1946, 171,346 new permanent houses were in course of erection, while a further 89,625 had been authorised or licensed but not yet started. At the 31st March, 1947 the corresponding figures were 183,909 and 100,899. The total number of houses authorised or licensed, but not completed, continued to rise until the middle of the year and it was not until August 1947 that the monthly

\* Certain changes in policy which have a bearing on this subject have been announced since paragraphs 166-170 were written. We refer to these in the footnote to the introductory letter at the beginning of this Report.

† Cmd. 6609.

rate of completions began to overtake the rate at which additional houses were being authorised. The steady increases, persisting well into 1947, in the number of houses authorised but not begun and of those in course of construction are evidence of an excessive load on the industry's capacity, of which the delays in obtaining materials and labour on housing sites were the direct result.

168. The expansion of the housing programme however is only one aspect of this overloading of the building and civil engineering industries since the end of the war. Even a reduced housing programme could not have been isolated from the effects of overloading if the volume of other building work proved to be beyond the industry's capacity. That the danger of overloading was not overlooked by the Government is evident from the various measures taken to limit the amount of work put in hand. On the labour side these included the fixing of "labour ceilings" for works sponsored by each Department, the apportionment of the total labour force between housing and other work, the appointment of Headquarters and Regional Building Committees to approve starting dates for all major works sponsored by Departments, and a limitation of private building work under the licensing system. On the materials side, the war-time system of timber licensing was continued, the amount of timber licensed for any given class of work being governed by Departmental allocations. The consumption of other scarce materials was controlled by priority schemes whose purpose was to ensure that priority work, including house-building, had first claim on supplies, so that any shortages would fall on work of lesser importance. All these measures were designed to secure that the amount of work put in hand was proportional to the amount of materials and labour available.

169. Nevertheless, all the evidence shows that a serious overloading of building resources took place. It should be noted too that this occurred in an environment of general economic inflation in which the building industry had to compete with other industries for the labour and materials it needed. Its capacity to produce houses or to carry out any other given work efficiently was dependent upon the availability of the type of labour or materials in the shortest supply, and upon a sufficiency not merely of current production, but of distributed stocks readily available to builders.

170. Whether a housing programme on the scale undertaken was justified under these conditions, and in the light of the warnings we have mentioned, is open to question. We appreciate the immense and urgent demand for new houses at the end of the war, a demand which no doubt exerted a powerful influence on both the Government and local authorities. We understand also that in the early stages of the programme one of the objects of the Ministry of Health's drive to get housing schemes started by local authorities all over the country was to obtain in each area a nucleus of work which would attract further labour and materials as they became available. In the light of events however it is clear that the volume of house-building started in the two years after the end of the war, together with the amount of other building work put in hand, was much too great for the resources available to the building industry. This resulted in too thin a spread of labour and materials over the amount of work in progress and has thus been largely responsible for the low level of productivity in house-building in the past, and the extra cost arising therefrom. We recognise that steps have already been taken by the Government to regulate the housing programme and to secure a better balance of supply and demand for building work in general. We are not yet in a position to say whether the relation of



supply and demand has been satisfactorily adjusted, but we have had sufficient evidence to show that pre-war productivity will not be restored unless those engaged upon house-building can be assured of work on the sites proceeding smoothly and without interruption, with adequate and regular supplies of materials and fittings and a balanced labour force.

#### WEATHER

171. The abnormally bad weather of January to March 1947 had a severe effect on housing progress and adversely affected productivity on contracts current at the time. A large number of operatives were stood off work, but builders were generally more ready to retain their men than they would have been under similar circumstances before the war owing to the difficulty of getting replacements. On a number of schemes work had to be suspended for some two months, and over the programme as a whole there was a general slowing down of construction, especially in the bricklaying and plastering stages. The following table shows the extent to which work on local authority contracts at each stage of house construction was impeded during the period:

*Permanent houses under construction by Local Authorities (England and Wales)  
Number of houses passing each stage during month*

	Started	Damp-course level	Eaves level	Roofed	Plastered	Completed
December, 1946...	10,493	9,697	9,093	8,659	6,647	4,803
January, 1947 ...	10,636	10,015	6,735	6,689	4,817	3,922
February, 1947 ...	5,829	2,982	3,073	3,005	1,484	1,626
March, 1947 ...	6,651	9,517	5,671	5,085	4,684	3,490
April, 1947 ...	11,599	12,184	11,227	10,169	8,816	5,254

#### INCENTIVES

172. The present policy of full employment has removed one of the chief incentives to good output which existed before the war—the fear of being out of a job and of losing income. There is now ample work in prospect for the building industry and the competent worker should feel assured of security of employment for many years to come. There is a need today for more emphasis upon positive incentives, on rewards rather than penalties, on the importance of pride in craftsmanship and a sense of partnership between management and men, and on the value of good working conditions and proper welfare facilities on building sites.

173. This change of emphasis found expression in the agreement reached by both sides of the building industry in October 1947 regarding the introduction of incentive payments. The effect of the new agreement was to authorise the adoption of bonus schemes on a local basis at the discretion of individual employers, the basic rates and the amount of bonus to be fixed in each case in consultation with the operatives concerned, but so as to give "an operative of average ability and capacity reasonable opportunity to achieve earnings 20 per cent. higher than those yielded by the normal prescribed rate". The scheme was to be experimental, subject to review after two years. The incentives agreement was combined with an agreed wage increase of 3d. per hour, equivalent to 10 per cent. of the previous

rate, on the standard rates for craftsmen, with corresponding 80 per cent. rates for labourers, such increases to operate automatically as from 16th November 1947.

174. When announcing this settlement, both sides of the industry acknowledged the vital importance of increased production and lower costs and declared their belief that the terms of the settlement afforded the best means of achieving this object. Both parties affirmed their intention to do everything in their power to secure a higher rate of production and to remove any obstacles in the way of its attainment. Representatives of the Employers and Operatives Federations, as well as other witnesses, have expressed the view to us in evidence that this system of incentive payments would reduce the cost of the building if fully implemented. It has also been pointed out to us that the introduction of bonus schemes would have the additional advantage of bringing employers and men more closely together on building sites in an effort to increase efficiency and improve the organisation of work, and that the opportunity of increased earnings will make the building industry more attractive to labour.

175. We are satisfied that a substantial raising of the 1947 level of output is possible and we believe that the system of incentive payments adopted by the industry can assist in this direction. We would point out, however, that any improvement in output resulting from the new system does not necessarily represent a reduction in labour costs below the level of October, 1947. In order merely to absorb the cost of the wages increase of approximately 10 per cent. which came into force when the incentives scheme was adopted, and the additional 20 per cent. on wages representing the postulated bonus earnings, a rise in output of 33 per cent. would be necessary. Moreover there are a number of operations in building to which bonus payments cannot readily be applied and on which therefore an improvement in output may not occur. The men employed on this work will nevertheless have received the wages increase, which applied automatically to all building trade workers. Some additional cost will be incurred in administering bonus schemes, which entail frequent measuring of work and the calculation of bonus payments. Although the more rapid completion of the work will lead to a saving in plant costs and overhead expenses, it is clear that where incentive schemes are in operation a very substantial raising of output would be necessary to obtain a reduction in the October, 1947, cost of building. We believe nevertheless that on contracts where there is careful organisation and a full degree of co-operation between management and men, the present incentives scheme would assist in securing a reduction in building costs, as well as in providing houses more rapidly. It is clear, however, that the extent to which output in house-building can be raised will be governed by the extent to which supplies of materials are available to meet the additional demand.

#### PERSONNEL MANAGEMENT

176. The changed conditions since the war have underlined the need for good personnel management in the building industry, and we think the subject deserves further study by contractors engaged on housing sites. Witnesses for the London County Council have told us that good results have been achieved in this direction on some of the Council's post-war housing schemes where joint production committees have been established and regular discussions take place with the men to explain the nature and progress of the work. Some of the larger firms of contractors, for whom personnel management presents special problems, have found that the circulation of regular bulletins to their

staff has helped to foster the team spirit and gives opportunities for the exchange of ideas between employers and men. Methods must of course vary according to circumstances and it is for each employer to make such arrangements as are best suited to the contract on which he is engaged. In general, however, the aim should be to foster by all practicable means a spirit of co-operation between management and men, and a joint interest in efficient production.

#### WORKING CONDITIONS AND WELFARE FACILITIES

177. We have already noticed that the greater attractiveness of other industries has been one cause of the difficulty of recruiting suitable labour to the building industry. We are therefore glad to see that the need for improved welfare facilities has now been recognised by both sides of the industry and that the new welfare code which came into force on the 1st March, 1948, contained provision for shelters for bad weather, drying rooms, washing and sanitary facilities, drinking water and facilities for meals on building sites. We hope that these measures will be applied on housing sites wherever it is economical to do so. Several witnesses have suggested to us that in the case of operatives doing heavy manual work lowered output may have been partly due to food rationing and that there is therefore a need for the provision of proper canteen facilities on housing sites. Where the number of men engaged on the site is not such as to justify the installation of a fixed canteen it is sometimes possible to make use of meals services or mobile canteens run by catering firms.

#### THE USE OF MECHANICAL EQUIPMENT AND OTHER AIDS TO PRODUCTION

178. More use has been made of mechanical equipment in building since the war, but the scope for mechanisation on the normal housing site is limited by the relatively small units of work involved as compared with larger building and civil engineering operations. Nevertheless new types of equipment are being developed and there may well be room for advances in building technique which could be applied with advantage to house construction. The need for increased production has given a new impetus to research and development work in this field. This is, however, a matter affecting building work in general rather than house-building, and we presume that as such it will be studied by the Working Party on the organisation and efficiency of building operations which we understand is to be appointed shortly by the Minister of Works.

#### GENERAL

179. In this Chapter we have indicated some of the causes of the decline in productivity, but we would make it clear that a serious factor has been the lack of individual effort. Until this problem of personal effort is solved, output cannot be satisfactory and loss of productivity is inevitable. Fundamentally it is a problem that has to be resolved by every individual in the industry, whether employer or operative. It is possible that there should be more grading of craftsmen and labourers, and more opportunities to labourers for improving their status. This is a matter which is rather outside our province, touching as it does the organisation of the building industry, but it should be noted that differential grading and rewards are more widespread in the United States of America than in this country and the subject is worthy of consideration by the authorities and representative bodies concerned.

## CHAPTER VII

# HOUSING CONTRACTS

### THE METHOD OF PLACING CONTRACTS

180. Since the war the great majority of local authority houses have been built under fixed price contracts based upon bills of quantities, with provision for price fluctuations and adjustments on account of architect's variations. As a rule tenders have been obtained by advertisement and open competition, the contract being awarded to the builder quoting the lowest price. Negotiated prices have however been approved by the Ministry of Health to a limited extent, usually on grounds of special urgency or where it has been desired to extend existing contracts which have proved satisfactory.

181. We are satisfied that competitive tendering affords a valuable safeguard against excessive prices, as well as acting as an incentive to efficient organisation and management on the part of building contractors. The keenest tendering is likely to be secured by open competition, and we have had no evidence that in the case of housing work this method of selecting contractors has in fact given rise to the abuses to which the Committee on the Placing and Management of Building Contracts called attention in 1944. It is probable that the potential objections to open competitive tendering apply with less force to house construction than to other forms of building since the work is relatively straightforward and offers scope to many different types of contractor. The alternative of inviting tenders from selected contractors would limit the scope of competition and would tend to prevent the entry of new firms into the housing field. Such risk of abuse as may arise under the present system can be avoided if proper attention is given to the credentials and capacity of tenderers and so long as the local authority is free to reject the lowest tender if there is reason to doubt the competence of the contractor. Open competitive tendering may, however, be less advantageous for specialist work such as the erection of multi-storey flats, and we appreciate that it may be desirable to invite tenders for work of this kind from selected lists of competent firms rather than by public advertisement. We appreciate the advantages of negotiated prices when speed is of special importance.

182. The London County Council has used the "Value-Cost" form of contract for the majority of the houses built on its cottage estates. This system of contracting was described in the Report of the Committee on the Placing of Management of Building Contracts, and we would agree with their conclusion that it is appropriate only for large organisations with highly competent staffs and with a continuous programme of work. Since no final costs for any of the schemes carried out under Value-Cost contracts since the war were available at the time of our inquiry, we have had no means of determining whether economies can be achieved by the use of this form of contract.

### BILLS OF QUANTITIES

183. Except in the years 1919-1921, Bills of Quantities were rarely used for local authority housing schemes before the war. Contractors submitted lump sum tenders on drawings and specifications supplied by the authority. Since the war, members of the National Federation of Building Trades Employers have required Bills of Quantities to be furnished as the basis of tendering, and in view of the need for the widest competition the Ministry of Health has advised local authorities to supply Bills when inviting tenders.

184. Some witnesses have represented to us that Bills of Quantities are not generally necessary for housing work and that their use results in higher tenders, as well as in unnecessary expenditure on Quantity Surveyors' fees. It has been suggested that builders can estimate the total cost of a house from previous experience, and that the separate pricing of each individual operation set out in a Bill of Quantities leads to a higher total price than the builder would otherwise quote. We have heard it stated that some small builders are "frightened" by the complexity of Bills of Quantities to which they are unaccustomed.

185. We have no doubt that in a period of relative stability such as existed before 1939 Bills of Quantities were not required for house construction, and in due course builders may find once more that they are no longer needed for this class of work. Under the special conditions which have prevailed since the war however we consider that Bills of Quantities have afforded the best method of obtaining satisfactory tenders for housing contracts. In the early days after the war, builders had no reliable experience of the current cost of house-building and accurate tenders could only be built up from detailed information of all the items of work required. Bills of Quantities have provided this information on a systematic and uniform basis, and have thus helped to avoid loose estimating and a duplication of detailed work in builders' offices. The tendency of Bills of Quantities to cause higher prices by their emphasis on the costing of individual items appears to have been checked by the competition for housing work which has existed since the war. Under such conditions we believe that the use of Bills of Quantities has made for more accurate prices, closer tendering and keener competition for housing contracts than would otherwise have been possible. It has had the further advantage of facilitating the ordering of materials and the placing of sub-contracts. Bills of Quantities also provide an accurate basis for assessing the price of variations. We think that these advantages have outweighed the extra cost of Quantity Surveyors' fees.

186. An interesting suggestion has been made to us, which appears to merit further study, that Bills of Quantities should include a separate statement of the total quantity of each material required. The advantage claimed for this method is that it would enable builders to assess the cost of materials (which account for more than one-half of the total cost of a house) with greater accuracy and on a uniform basis, and should thus reduce the margin of variation in tender prices.

187. The revised Code of Measurement prepared jointly by the Royal Institution of Chartered Surveyors and the National Federation of Building Trades Employers in 1945 follows the suggestion made by the Committee on the Placing and Management of Building Contracts about the need for a simpler form of Bill for housing contracts, and has gone far to meet the difficulties of the small builder.

#### THE PRICE FLUCTUATIONS CLAUSE

188. We have considered the effect on house-building costs of the price fluctuations clause which it has become customary to include in housing contracts since the war. Under the terms of this clause, the contract sum is adjusted upon completion of the work in accordance with changes taking place during the course of the contract in building trade wage rates and in the prices of such materials as are specified by the builder when tendering. Any increases above the specified basic rates and prices are payable to the contractor as an addition to the contract sum, and any decreases are deducted.

189. This provision has been considered necessary since the war owing to the general instability of wages and material prices and the consequent risk to the builder attendant upon quoting firm prices when many material manufacturers will only submit quotations "subject to the prices ruling at the date of despatch". It has been pointed out to us that the operation of price controls in itself has introduced an unpredictable element into price movements by substituting irregular and sometimes substantial increases in material prices for the more even trends which normally enable builders to form their own estimates of future price levels. Since the prices of a number of materials are determined by Government action rather than by normal market conditions, it has been claimed that building contractors should not bear the risk of price increases the extent of which they have no means of estimating.

190. On the other hand there appears to be general agreement as to the desirability of discontinuing the use of the price fluctuations clause and of reverting to the normal system of lump sum tendering as soon as circumstances permit. We fully endorse this view. We are indeed of opinion that some limitation of the scope of the fluctuations clause is already called for. We have found that at present there is wide variation in the number and types of materials which builders think it necessary to include in their basic schedules when tendering for housing contracts. In a sample of post-war tenders which has been examined, the number of basic items ranged from 8 to as many as 54, and no one material occurred in all the schedules. The diversity of practice as between different contractors makes it difficult to compare tenders on any uniform basis and may mean that what appears to be the lowest tender in a particular case will not necessarily represent the lowest final cost to the local authority if the schedule of basic materials is extensive. This difficulty is accentuated where, as is often the case, different basic prices are quoted for the same materials by different builders.

191. Although the prices of many building materials are controlled, this does not mean that there is only one possible price for any particular material delivered to a contract. Most of the existing controls refer to maximum selling prices, and even within a range of controlled prices there is often provision for differences of quality, size of order, distance for delivery and source of supply. For example, the controlled prices of bricks varied even for bricks of similar type according to the place of manufacture and the distance for delivery from the brickworks to the building site. Merchants sell small quantities at higher prices than manufacturers. On many contracts, therefore, there are alternative sources of supply, one of which may be cheaper than another although both are at controlled prices. The degree of variability in practice is shown by differences in the basic prices quoted by various tenderers for the same contract.

192. We have seen many indications that supplies of materials for housing are now more plentiful than they were a year ago, and it is hoped that the steps which have been taken to relate the volume of building more closely to available resources will promote a better balance between supply and demand in future. Present Government policy with regard to wages and prices should reduce the likelihood of further increases in the prices of home-produced building materials. We consider that under these conditions the use of the fluctuations clause tends to increase the final cost of house-building by placing the liability for increased prices upon the local authority and thereby removing the builder's normal incentive to buy his materials from the cheapest source. If builders have the full benefit of any reduction in cost which they may obtain

by discriminating buying, the demand for competitive prices and firm quotations will become more effective and the normal resistance to price increases will assert itself. This would ultimately reduce building costs and pave the way for the removal of price controls.

193. So far as materials are concerned, we therefore recommend that in all future housing contracts the price fluctuations clause should be confined, so long as it remains in use, to a small number of price-controlled materials the value of which constitutes an appreciable proportion of the total cost of materials, and that the only increases or decreases allowed under the clause should be those arising directly from officially authorised changes since the date of tender in the controlled prices. On a normal housing contract the clause might be confined for example to cement, timber for carcassing and flooring, lead, stoneware drain goods, metal windows and rainwater goods. In this event no basic prices would be inserted by the builder in his tender, and all tenders would compete on a uniform basis. Adjustments under the fluctuations clause would be made by comparing each invoice with the amount that would have been charged on a similar invoice prior to the specific change in the controlled rate which gave rise to the claim for an increase or a decrease.

We presume that the Ministry of Health is already considering the desirability of restricting the use of the fluctuations clause in its application to wages in the light of present Government policy as expressed in the Statement on Personal Incomes, Prices and Profits (Cmd. 7321).

194. It has been pointed out to us that materials left for selection by the architect have always been dealt with as prime-cost items in tenders, the cost being adjusted on completion to conform with the actual cost of the article selected. Sanitary fittings, ironmongery, facing bricks and several other materials are frequently dealt with in this way and we think that the practice should continue.

#### DIRECT LABOUR

195. The Ministry of Health's policy since the war has been to approve proposals by local authorities for the erection of houses by direct labour only where the estimated cost has been tested by competitive tendering or where it is known to compare favourably with current tender prices in the locality. At the end of 1947 some 180 local authorities were building houses by direct labour and 7,153 houses had been completed by this method since the war.

196. As might be expected in these circumstances, we find that there has been little difference between the general levels of estimated prices for direct labour schemes and tender prices for schemes undertaken for local authorities by contractors. On average up to 31st December, 1947, the former showed a slight saving, but in the absence of further data about final costs than is available at present we have not been able to draw any general conclusions as to the relative costs of the two systems. There is likely to be a greater difference between the estimated and final costs of direct labour schemes than between the tender price and final cost of houses built under contract, since in the case of the former all increases in material prices since the date of the estimate are charged to the scheme, whereas in the case of contract work increases are charged to the final cost of the scheme only in respect of items scheduled for inclusion in the price fluctuations clause. The relative costs of the two methods will therefore only be known when fuller information is available about final costs.

197. A further factor which makes comparison difficult even when final cost statements are available is the difference in the methods of costing. We have found considerable variation in practice between local authorities regarding the extent to which the cost of staff, management and other overhead expenses are charged to direct labour schemes, and we are not satisfied that all the items normally included in a contractor's price are always shown to an equivalent extent in the cost of direct labour schemes as notified to the Ministry of Health.

198. From all the evidence available to us, we have found no reason to believe that house-building by direct labour is more economical than building under contract, and we consider that direct labour can compete in price with contract work only where there is an efficient and experienced direct labour organisation, and competent supervision, including careful attention to costing. We believe also that direct labour can only be used efficiently where there is continuity of work on a scale sufficient to give regular employment to the local authority's organisation over a long period.

## CHAPTER VIII

### NEW METHODS OF CONSTRUCTION

199. More than 25 different types of non-traditional permanent houses have been approved by the Ministry of Health since the war for use by local authorities. By the 31st March, 1948, tenders for 99,903 such houses had been approved and 33,570 had been completed. The system of construction and the degree of prefabrication vary according to the type of house, but the main types can be distinguished as follows:—

(a) Poured concrete: all the work is carried out on the site with the use of special shuttering.

(b) Precast concrete: walls of precast concrete panels, which may be either load-bearing or associated with a reinforced concrete frame.

(c) Steel-framed; with cladding of various materials including steel sheets, concrete or brick.

(d) Timber-framed; or with prefabricated panels of timber or plywood.

(e) Aluminium factory-made bungalows: aluminium frame with walls of aluminium sheet, foamed cement and plasterboard, and roof of aluminium sheet.

With the exception of the aluminium bungalows, in which all internal components are assembled and fitted before delivery to site, all the other types are non-traditional only in regard to the main structure, the amount of work required on the site in connection with the installation of components and fittings being generally the same as in the case of traditional houses.

200. It is clear from experience to date that whatever advantages these non-traditional methods of construction possess in respect of speed of erection and the saving of site labour and scarce materials, they have offered no solution so far to the problem of high building costs. Indeed, most of the systems now in use have proved more costly than traditional construction. The special grant available under Section 17 of the Housing (Financial and Miscellaneous Provisions) Act, 1946, has been payable in respect of most of the non-traditional systems at present in use and the amount of the grant, representing in each case the difference between the "national price" of the non-traditional house as agreed by the Ministry of Health and the estimated cost of a comparable brick house, has in many cases been substantial. The following



figures, showing the average amounts of such grants paid in 1947, have been published:\*

<i>Type of House</i>	<i>Average capital grant payable per house in addition to normal subsidy</i>
	<i>£</i>
Airey Rural ... ..	175
British Iron and Steel Federation ... ..	244·5
British Steel Construction ... ..	50
Cussins ... ..	148
Dyke C.C.C. ... ..	95
Easiform ... ..	112
Orlit ... ..	109
Spooner ... ..	72
Steane ... ..	65
Tarran ... ..	110
Unity ... ..	114
Wate ... ..	108
Wimpey "No-Fines" ... ..	83
Woolaway... ..	94
Permanent Aluminium Bungalow ... ..	708

These sums are additional to the normal housing subsidy and show the extent to which the cost of many of the non-traditional houses has exceeded the cost of building by traditional methods. Certain other types of non-traditional house not listed above have not required the special capital grant and have been built at approximately the same prices, and with the same subsidies, as traditional houses. We have seen no indication however that they have proved cheaper than comparable traditional houses.

201. The special grant under Section 17 of the 1946 Act applied only to schemes approved before the end of 1947, and the Ministry of Health have since announced that upon the completion of these schemes further non-traditional houses will be approved only in so far as they can compete in price with traditional building. It is not yet known how far the manufacturers will be prepared to continue production on this footing or which types of house will finally prove to be most economical. We have therefore no evidence as yet that any substantial saving in cost has accrued from the use of any of the prefabricated or non-traditional systems of construction so far developed.

## CHAPTER IX

### HOUSE-BUILDING BY PRIVATE ENTERPRISE

202. Our analysis of the increase in house-building costs is based on a comparison of the costs of houses built for local authorities in 1938-39 and in 1947. The great majority of these were erected by private builders under contracts with the local authorities. We have also considered the relative cost of houses built by private builders for sale or letting since the war, since any pronounced difference in the cost of houses so provided would be of special interest in view of the much smaller part which private builders as such have played in the post-war housing programme.

203. It has been claimed that private builders have a number of advantages over contractors building for local authorities which make them a more economical and efficient agency for providing houses. It has been suggested to us that the private builder is usually unwilling to undertake more work than he can see his way to finish, and that he is therefore unlikely to run

\* Hansard, House of Commons, 6th April, 1948.

into difficulties in obtaining labour and materials for work in hand. Where such difficulties do occur, the private builder has the advantage of being a free agent and can alter his specification or substitute one material for another on his own initiative. At all stages he possesses the advantages of flexibility and of being able to make quick decisions without having to seek permission from the local authority or a Government Department. These qualities are especially valuable in times of shortages of materials and labour. In addition, the private builder erecting houses for sale or letting often has a greater financial incentive to quick work than the local authority contractor, since he may obtain no return on his expenditure until the work is finished whereas the latter receives payments during the course of the contract proportionate to the value of the work done to date.

204. We have found that the average building cost of a local authority three-bedroom house of 1,029 sq. ft. built in 1947 was £1,242, and that the average cost per house of land, roads and services amounted to approximately £122. The total average cost of providing such a house in 1947, including professional fees, was approximately £1,400. As compared with this, a maximum selling price of £1,300 (or £1,400 in the London area) including building, land, site development and fees, has, until recently, been fixed for houses built under licence by private enterprise builders, this figure being related to a house of the maximum permitted floor area of 1,000 sq. ft.

205. We have no reliable information, however, about the actual cost of the houses erected by private builders since the war as distinct from the maximum selling prices, nor have we been able to determine how far the houses are comparable in character with those built for local authorities. Whereas the majority of the latter are of the three-bedroom type with areas of some 1,020-1,050 sq. ft., privately built houses have been subject to a maximum floor area of 1,000 sq. ft. and the average size must be below this. The proportions of three-bedroom and two-bedroom types are not known. There may also be differences in the standards of finish and equipment of the houses. In the absence of comparable data, we are not in a position to state that private enterprise has been able to build houses more cheaply than local authorities or their contractors, despite the apparent discrepancy between the maximum selling prices and the average cost of local authority houses.

206. There is nevertheless some evidence that private enterprise has achieved a faster rate of building than local authorities since the war. The Ministry of Health's records show that during the last six months of 1947 local authority houses were taking 14.5 months to build on average, and private enterprise houses 11.2 months. The faster rate of building by private builders is also reflected in the following figures showing the number of houses completed by each agency up to the end of 1947 in relation to the total number undertaken:—

Date	Local Authorities		Private Enterprise			
	In tenders approved	Completed	Licensed	Completed		Per cent.
31st January, 1946 ...	45,294	352	28,260	1,116		3.9
31st December, 1946...	220,698	18,862	73,856	27,777		37.6
31st December, 1947...	314,894	102,339	82,236	57,883		70.4

These figures, however, may not reflect a true comparison of the speed of completion owing to differences between the types of houses built by the two agencies, nor does it necessarily follow that the faster rate of building shown as achieved by private enterprise would have been maintained if the share of the house-building programme allocated to private enterprise had been as large as that undertaken by local authorities.

## CHAPTER X

### THE EFFECTS OF HIGH HOUSE-BUILDING COSTS

207. So far in this Report we have dealt mainly with the cost of building a typical local authority house, but we think that it is relevant to look at the problem of building costs more generally under the two following heads:—

- (i) the effect of the increased capital cost of houses on the level of rents;
- (ii) the demand on national resources which house-building in England and Wales, whether subsidised or unsubsidised, is making or seems likely to make, and the finance which the central and local Governments may have to find for subsidies.

#### THE EFFECT ON RENTS

208. The subsidies provided under the Housing (Financial and Miscellaneous Provisions) Act, 1946, were calculated to enable houses to be let at an average net rent of 10s. per week, or 7s. 6d. per week in the case of houses for the agricultural population. We understand that the amount of subsidy was originally based on a house of 950 sq. ft. costing £1,100 in all. The cost of such a house at the prices ruling in the latter part of 1947 would be—

Building cost (950 sq. ft. by 24s. 2d. per sq. ft.)	...	...	...	...	£
					1,147
Estimated cost of land, roads and services	...	...	...	...	122
Total					£1,269

In contrast with this the following table shows the cost of the average three-bedroom house of the kind provided by local Authorities in 1947, and the net weekly rent required for such a house, assuming the standard rates of subsidy:—

Estimated building cost	...	...	...	...	...	£	s.	d.
						1,242	0	0
Estimated cost of land, roads and services	...	...	...	...	...	122	0	0
Total cost of house					£1,364	0	0	
						£	s.	d.
Annual provision needed to amortize £1,364 in sixty years at 3 per cent.	...	...	...	...	...	49	3	0
Annual cost of repairs, management, etc., say	...	...	...	...	...	10	0	0
					59	3	0	
Economic annual rent	...	...	...	...	...			
Subsidy: Exchequer...	...	...	...	...	£16 10 0			
Local Authority	...	...	...	...	5 10 0			
					22	0	0	
Subsidised annual rent					£37	3	0	

Equivalent net weekly rent: 14s. 4d.

209. The above costs do not include Architects' and Quantity Surveyors' fees. We have estimated that these would amount to approximately £36 per house on average, making the total cost of the house £1,400. Taking this item into account the subsidised net rent would be 14s. 10d. per week. Broadly speaking, every £100 on the cost of the house, spread over 60 years at 3 per cent. interest, is equivalent to an increase in the subsidised rent of 1s. 5d. per week.

210. It is worth noting how the present level of rent has been built up by the various factors which have increased the cost of house-building since before the war. The following table gives an analysis of the weekly charge for rent, exclusive of rates, based on the tables in Chapter III, and assuming throughout that the capital cost is amortized in 60 years at 3 per cent. interest:

	Rents at 1938-39 levels of prices and productivity	Net rent equivalents of		Rents at 1947 levels of prices and productivity
		Increases in wage rates, material prices, plant charges and overhead costs between 1938-39 and 1947	Decline in productivity between 1938-39 and 1947	
	s. d.	s. d.	s. d.	s. d.
1938-39 typical house of 800 sq. ft. ... ..	5 3½	+ 5 10	+ 1 7	12 8½
Increase of 134 sq. ft. in floor area of house ... ..	9	+ 10	+ 3	1 10
Addition of outbuilding of 95 sq. ft. ... ..	5	+ 5½	+ 1	11½
Changes in construction, fittings, etc. ... ..	9	+ 10	+ 2	1 9
1947 typical house of 934 sq. ft. and outbuilding of 95 sq. ft....	7 2½	+ 7 11½	+ 2 1	17 3
Weekly rent equivalent of:—				
(a) cost of £122 for land, roads and services ... ..				1 8
(b) Annual cost of £10 for repairs, management, etc.				3 10
				22 9
				8 5
(c) Annual subsidy of £22 ...				14 4
				Economic net weekly rent
				Subsidised net weekly rent

211. We have heard much evidence from local authority witnesses about the extent to which rents of post-war houses have had to be increased owing to rising costs, and we are informed that in order to avoid raising rents many authorities have made additional rate contributions towards the cost of new houses over and above the normal statutory contribution of £5 10s. 0d. per annum per house. We understand that rents of 16s. per week or more, exclusive of rates, are often being charged for post-war three-bedroom houses, and instances of net rents of as much as 25s. per week have been brought to our notice. Resistance to further increases appears to be growing, and we have been informed that cases have already occurred in which people have refused to take houses offered to them by local authorities because they found the rents beyond their means.

## THE DEMAND ON NATIONAL RESOURCES

212. It has been estimated (National Income and Expenditure in the United Kingdom—Cmd. 7371) that the net national income in 1938 was £4,707 million. In that year the rate of building in England and Wales reached a peak of over 340,000 houses. The average cost of these houses, the majority of which were built by private enterprise, is not known, but a figure of £400, which is somewhat above the average cost of local authority three-bedroom houses of the period, would seem to be a reasonable approximation of the average building cost per house. On this basis, the total expenditure on house-building in England and Wales in 1938 would amount to about £136 million, which represents 2.9 per cent. of the national income for the United Kingdom in that year.

213. In 1947 the national income for the United Kingdom was estimated at £8,770 million. The number of permanent houses completed in England and Wales during the year was 127,500, and assuming an average building cost of £1,240 per house the total expenditure on house-building would be approximately £158 million. The proportion of the national income invested in house construction in England and Wales in 1947 was therefore about 1.8 per cent. but only 37 per cent. of the number of houses built in 1938 were built in 1947.

214. During the first three months of 1948, permanent houses were being completed in England and Wales at the rate of 192,000 per annum, and with an estimated national income for the year of £9,000 million, the proportion being invested currently in house-building in England and Wales will have risen to about 2.6 per cent., but for only 56 per cent. of the 1938 number of houses.

215. At the standard rates of contribution under the Housing (Financial and Miscellaneous Provisions) Act, 1946, the 341,000 permanent houses built with subsidy or projected by the end of March, 1948, will attract subsidy of £7½ million for a period of sixty years, three-quarters borne by the Exchequer and one-quarter by local rates. When these rates of subsidy were fixed, the Government seem clearly to have expected that they would be capable of reduction in a comparatively short time. Speaking in the House of Commons on the 6th March, 1946, the Parliamentary Secretary to the Ministry of Health said—

“ Costs must come down; high subsidies must not be an incentive to maintaining high costs, and since we are determined that high costs shall be temporary, high subsidies must be temporary too . . . I wish to make it clear that the subsidies now proposed—and this applies to the rate contributions as well as to the Exchequer contributions—are maxima, and it is the intention of the Government that they shall be reduced at the earliest opportunity.”

216. Since then the cost of building has increased and in paragraph 151 above we have expressed the view that it is unlikely to fall substantially until there is a fall in the general level of prices and wages, that is, until there is a change in the general economic situation. Rents of post-war houses are much above the general level of rents for pre-war local authority houses and the scope for further increases, having regard to the prospective tenant's ability to pay, is limited. If, therefore, costs do not fall and rents cannot be increased it follows that subsidies must be maintained at around their present level. It also follows that if the present rate at which local authority houses have been completed during the first quarter of 1948, namely 150,000

per annum, is maintained and this number is brought into programme each year, the liability of £7½ million a year attaching to the 341,000 houses built or projected at the 31st March, 1948 will be increased cumulatively by some £3.3 million per annum for so long as costs, rents and subsidies remain at 1947 levels.

217. The demand on the national resources of the house-building programme and the cost of subsidies can be properly considered only in relation to national economic policy and we are neither competent nor entitled by the terms of our remit to give it such consideration. It is our unanimous view that the housing programme must have high priority among the claims on the available national resources. We are clear, however, that in any review of the housing programme, the wider financial implications of building houses—most of them ranking for subsidy—of the sizes and standards that now obtain and at the present level of cost, must be kept prominently in mind.

## CHAPTER XI

### SUMMARY OF REPORT AND CONCLUSIONS

#### THE INCREASE IN HOUSE-BUILDING COSTS 1938/39 TO 1947 (CHAPTERS II AND III)

218. The typical local authority three-bedroom house of 1938/39 cost approximately £380 whereas we estimate that the typical local authority three-bedroom house completed in the latter part of 1947 cost £1,242, that is, three-and-a-quarter times as much. (Paragraphs 41-45.)

219. The average size of such houses just before the war was about 800 sq. ft. whereas the average size in 1947 was 934 sq. ft. plus an outbuilding of some 95 sq. ft. making a total floor area of 1,029 sq. ft. (Paragraphs 41-45.)

220. We estimate that the increased size of the house and the addition of an outbuilding have accounted for £201, or about one-sixth of the total cost. (Paragraphs 55-58.)

221. There have been various improvements in construction, finish and equipment costing some £127, or about one-tenth of the total cost. (Paragraphs 59-71.)

222. We estimate that the cost of labour increased by £297 per house, of which £96 was due to increased wage rates and other emoluments, £75 to the improvement in housing standards, and £126 to the decline in productivity since 1939. The total cost of labour per house was three-and-a-half times the pre-war amount. (Paragraphs 72-88, 100-105.)

223. We estimate that the total cost of materials increased by £472 per house, of which £284 was due to increased prices and £188 to the extra materials required for the post-war house. (Paragraphs 89-93.)

224. We estimate that the additional cost due to overhead charges and profit was £77 per house. (Paragraphs 97-99.)

225. Stated briefly, the typical local authority house of 1947 cost some three-and-a-quarter times as much as its prewar counterpart and required twice as much labour and one-third more material to build. A full analysis of the increase in house-building costs between 1938/39 and 1947 is given in Tables A to E at the end of Chapter III.

THE IMPLICATIONS OF THE LARGER AREA AND IMPROVED SPECIFICATION OF  
THE POST-WAR HOUSE (CHAPTER IV)

226. Since the war the size of local authority houses has risen steadily above the 970 sq. ft. recommended by the Dudley Committee and the Ministry of Health as a suitable minimum size for the three-bedroom house, inclusive of outbuilding. The average area of three-bedroom houses in approved tenders had risen to 1,062 sq. ft., including outbuilding, by March, 1948, and a number of houses have been built with areas of 1,100 to 1,150 sq. ft. There has been no official check on the upward trend in sizes, which we think has been accelerated by the Ministry of Health's practice of examining tender prices for houses by reference to the price per square foot rather than to the total price. (Paragraphs 116-119.)

227. The increase in the size of houses and the more elaborate equipment provided since the war have not only added to the cost of house-building but have created additional demands on scarce materials and labour. Since this is the largest item in the increased cost which is subject to Government influence, we have recommended that policy regarding the standards of accommodation and equipment of new houses should be reviewed in the light of present-day conditions. (Paragraphs 121-125.)

228. The need for a larger proportion of two-bedroom houses appears to merit further study in view of the savings which could be obtained by building such houses in place of the more common three-bedroom type. (Paragraphs 126-128.)

THE COST OF BUILDING (CHAPTER V)

229. The wages of building trades labour employed on house building increased by some 69 per cent. over the pre-war level by October, 1947. Wages in the building industry however have increased no more since the war than wages in other industries generally and there is therefore no ground for regarding the hourly rate for labour employed on house-building as excessive at the present time. (Paragraphs 129-131.)

230. By October, 1947, the cost of materials used in house-building had increased by about 125 per cent. over the 1939 level. If timber, which is largely an imported item, is excluded, the increase in the cost of the remaining materials is approximately 97 per cent. The trend of building material prices since 1939 has followed closely the trend of prices of industrial materials in general. (Paragraphs 132-134.)

231. We have had no evidence of excessive profits on house-building contracts since the war, but builders' overhead costs have increased as a result of the difficult conditions under which they have had to operate in the last three years. (Paragraphs 135-141.)

232. We have compared the general trend of building costs since 1945 with the trend after the first world war, when the price of houses rose until the second half of 1920 but declined sharply in the third year after the end of the war. The period of rising prices has lasted for longer after the second world war, and prices were still rising half way through the third year. We attribute this difference in the trends after the two wars to the close correlation which existed in both periods between the trend of building costs and the general course of economic affairs, and to the fact that whereas after the first world war the general level of prices and wages started to decline at the beginning of the third year, it has continued to rise during 1948. To-day, as after the 1914-18 war, the level of building costs is governed by the general

trend of prices, and there can therefore be no ground for assuming that the cost of building will fall within any given period after the end of the war. The fall in the price of houses after the first world war was the result of changes in the general economic situation, namely a slump, and a decline in the price of imported goods. Whether a similar change in the present economic situation is likely to occur cannot be foreseen, but the policy of full employment is intended to exclude the possibility of a slump. Should import prices continue to rise, the cost of house-building may tend to rise also.

(Paragraphs 142-151.)

#### THE PROBLEM OF PRODUCTIVITY (CHAPTER VI)

233. The decline in productivity in the building industry since 1939 led to an increase of some 45 per cent. in the number of manhours required to build a house in 1947, and a resultant extra cost of about £150 in the case of the typical three-bedroom house. This increase in manhours is equivalent to a 31 per cent. decline in output.

(Paragraph 152.)

234. The main contributory causes of the loss of productivity in house-building were as follows:—

- (a) the shortages of materials; (Paragraphs 154-157.)
- (b) the shortage of labour; (Paragraphs 158-160.)
- (c) the effects upon the quality of labour of the war, the war-time systems of "cost-plus" contracting and of payment by results, the greater attractiveness of other industries, and an increase in the average age of building operatives; (Paragraphs 161-165.)
- (d) a serious overloading of the building industry due to a larger volume of building work of all kinds being put in hand after the war than could be undertaken efficiently with the building resources available. This overloading has been the fundamental cause of the shortages of materials and labour for house-construction; (Paragraphs 166-170.)
- (e) the lack of individual effort; (Paragraph 179.)
- (f) the bad weather of early 1947; (Paragraph 171.)

235. The restoration of a satisfactory level of output in the building industry in the future will be dependent upon a proper adjustment of supply and demand, and upon sufficient and regular supplies of materials and labour being available for the work undertaken.

(Paragraph 170.)

236. Until the problem of personal effort is solved also, output cannot be satisfactory and loss of productivity is inevitable. It is a problem that has to be resolved by every individual in the industry, whether employer or operative. The removal of the pre-war fear of unemployment has emphasised the need for more positive incentives, for rewards rather than penalties, and for new methods of encouraging efficiency. Good personnel management in the industry and the provision of proper working conditions and welfare facilities for building workers have assumed a new importance to-day.

(Paragraphs 172, 176, 177, 179.)

237. Although full information about the working of the present scheme of incentive payments is not yet available, it is clear that a substantial raising of output would be necessary to cover the additional cost of the postulated bonus payments together with the November, 1947, wage increase. The extent to which such an increase in output can be achieved will of course depend upon the extent to which supplies of materials can be made available to meet the additional demand.

(Paragraph 175.)



## HOUSING CONTRACTS (CHAPTER VII)

238. We are of opinion that the present system of open competitive tendering is generally the most satisfactory method of selecting contractors for the normal local authority housing contract. (Paragraphs 180-182.)

239. Under the abnormal conditions which have prevailed since the war we believe that the use of Bills of Quantities as the basis of tendering for local authority housing contracts has made for closer competition and more accurate prices than would otherwise have been possible. We recognise however that a return to more stable conditions might enable Bills of Quantities to be dispensed with for this class of work, as was the case before the war. (Paragraphs 183-187.)

240. We are of opinion that a limitation of the price fluctuations clause in housing contracts in its application to materials would promote keener buying of materials and thus contribute to a reduction in house-building costs. We have recommended that in all future housing contracts the clause should be confined, so long as it remains in use, to a small number of price-controlled materials, the value of which constitutes an appreciable proportion of the total cost of materials, and that the only increases or decreases allowed under the clause should be those arising directly from officially authorised changes in the controlled prices. (Paragraphs 188-194.)

241. We have examined the relative prices of local authority houses built by direct labour and of those built by contractors. The information available at the time of our inquiry suggests that no saving has been obtained by building houses by direct labour. (Paragraphs 195-198.)

## NEW METHODS OF CONSTRUCTION (CHAPTER VIII)

242. We have been impressed by the fact that most of the types of non-traditional permanent houses so far approved by the Ministry of Health have required the special grant payable under Section 17 of the Housing (Financial and Miscellaneous Provisions) Act, 1946, which is additional to the normal housing subsidies and is payable only in respect of houses which are likely to prove more costly than comparable traditional houses. We have no evidence that any substantial saving in cost has accrued from the use of any of the prefabricated or non-traditional systems of construction so far developed. (Paragraphs 199-201.)

## HOUSE-BUILDING BY PRIVATE ENTERPRISE (CHAPTER IX)

243. Despite the apparent discrepancy between the maximum selling prices which have been fixed hitherto for houses built under licence and our estimate of the average cost of local authority houses, there is no conclusive evidence that private enterprise has been able to build houses more economically than local authorities or their contractors. (Paragraphs 202-205.)

244. There is evidence that private enterprise has achieved a faster rate of building than local authorities, but the comparison is obscured by differences between the types of houses built by the two agencies. (Paragraph 206.)

## THE EFFECTS OF HIGH HOUSE-BUILDING COSTS (CHAPTER X)

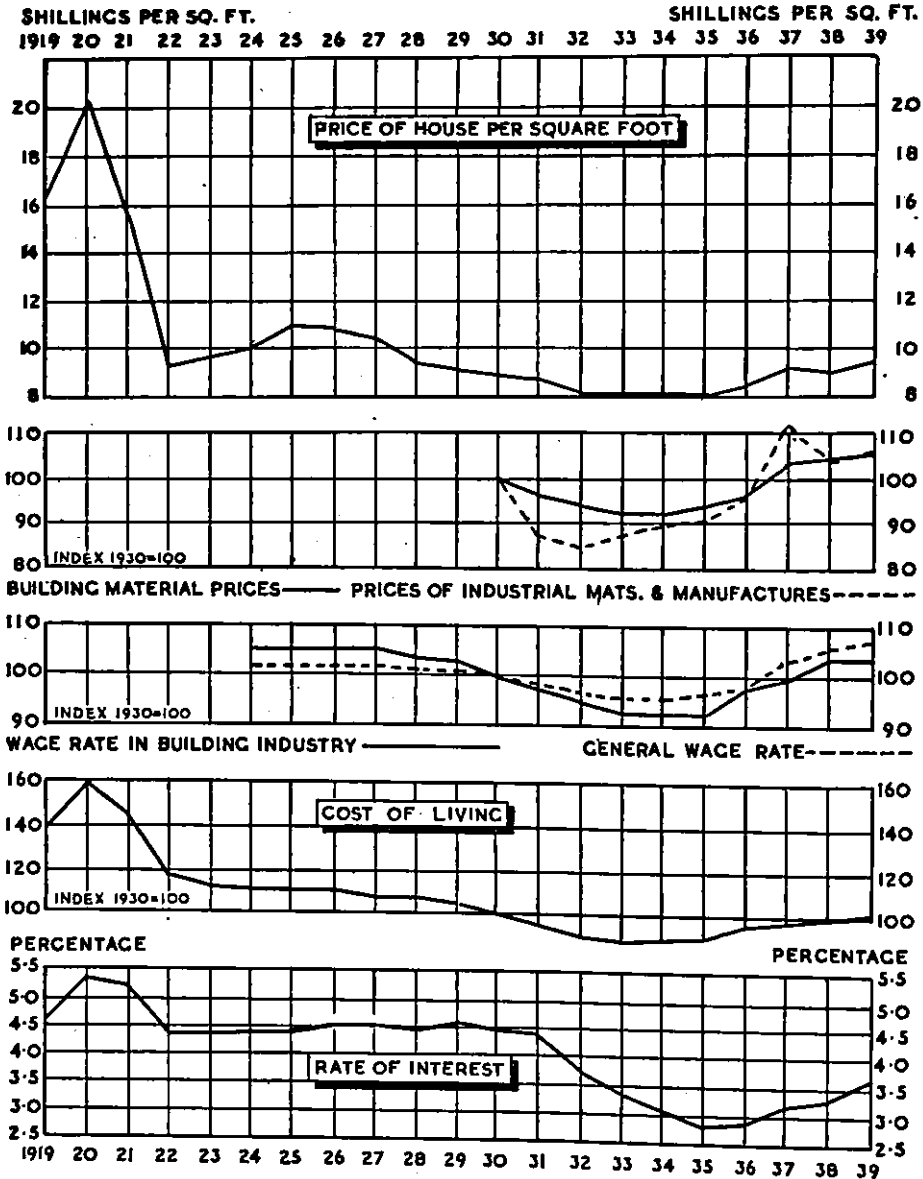
245. We have estimated that the average total cost of a three-bedroom house completed in the latter part of 1947, including the cost of land, roads and services, but excluding professional fees, was £1,364. The net weekly rent

of such a house, assuming the standard rates of subsidy, would be about 14s. 4d. This is much above the general level of rents of pre-war local authority houses, and is appreciably higher than the rents contemplated for post-war houses when the present subsidies were fixed. The table in paragraph 210 shows in what proportions the increase in rent is attributable to higher building costs, to the decline in productivity, and to the post-war improvements in housing standards. (Paragraphs 208-211.)

246. In examining the wider financial implications of high house-building costs we have estimated that whereas approximately 2.9 per cent. of the National Income of the United Kingdom was invested in house-building in England and Wales in 1938, approximately 2.6 per cent. is being so invested today, but for only 56 per cent. of the number of houses built in 1938. (Paragraphs 212-214.)

247. A large part of the cost today is being borne by subsidies, which on all the houses built with subsidy or projected up to the end of March, 1948, already amount to some £7½ million per annum for a period of sixty years. If the rate at which local authority houses have been completed during the first quarter of 1948 is maintained, and this number is brought into programme each year, the cost of subsidies will increase cumulatively by about £3.3 million per annum for so long as subsidies remain at the 1947 level. While we agree that housing must have high priority among the claims on the available national resources, we consider that in any review of the housing programme the financial implications must be borne prominently in mind. (Paragraphs 215-217.)

## PRICE OF HOUSES BETWEEN THE WARS AND RELATED INDICES



### NOTES

Price of House: Mid-yearly average tender prices for Local Authority 3-Bedroom, Non-parlour Houses in England and Wales.

Building Material Prices: Board of Trade Index.

Industrial Materials and Manufactures: Board of Trade Index.

Wage Rate in Building Industry: Prof. A. L. Bowley's Index for Labourers.

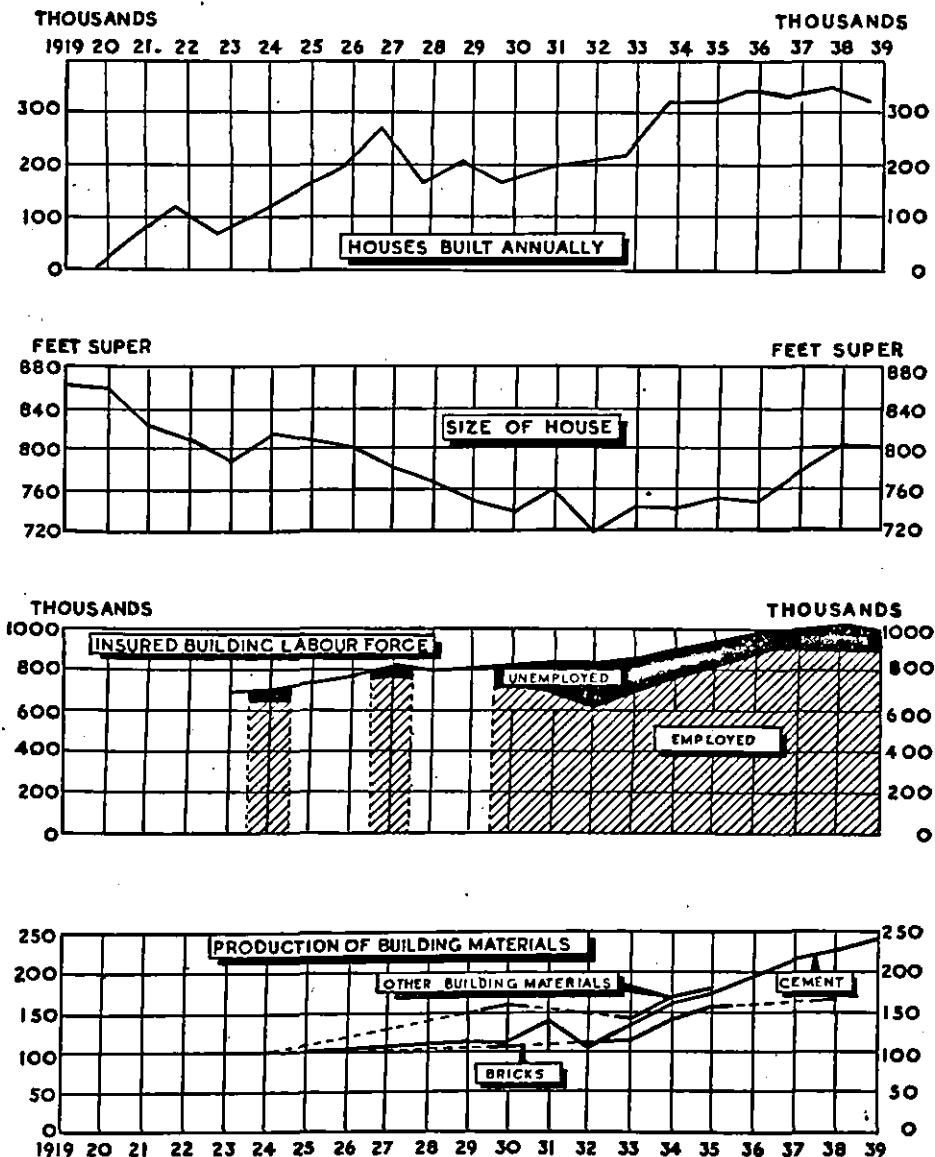
General Wage Rate: Prof. A. L. Bowley's General Index of Wages.

Cost of Living: Ministry of Labour Index.

Rate of Interest: Percentage yield on  $2\frac{1}{4}\%$  Consols.

GRAPH B

HOUSES BUILT BETWEEN THE WARS AND RELATED INDICES

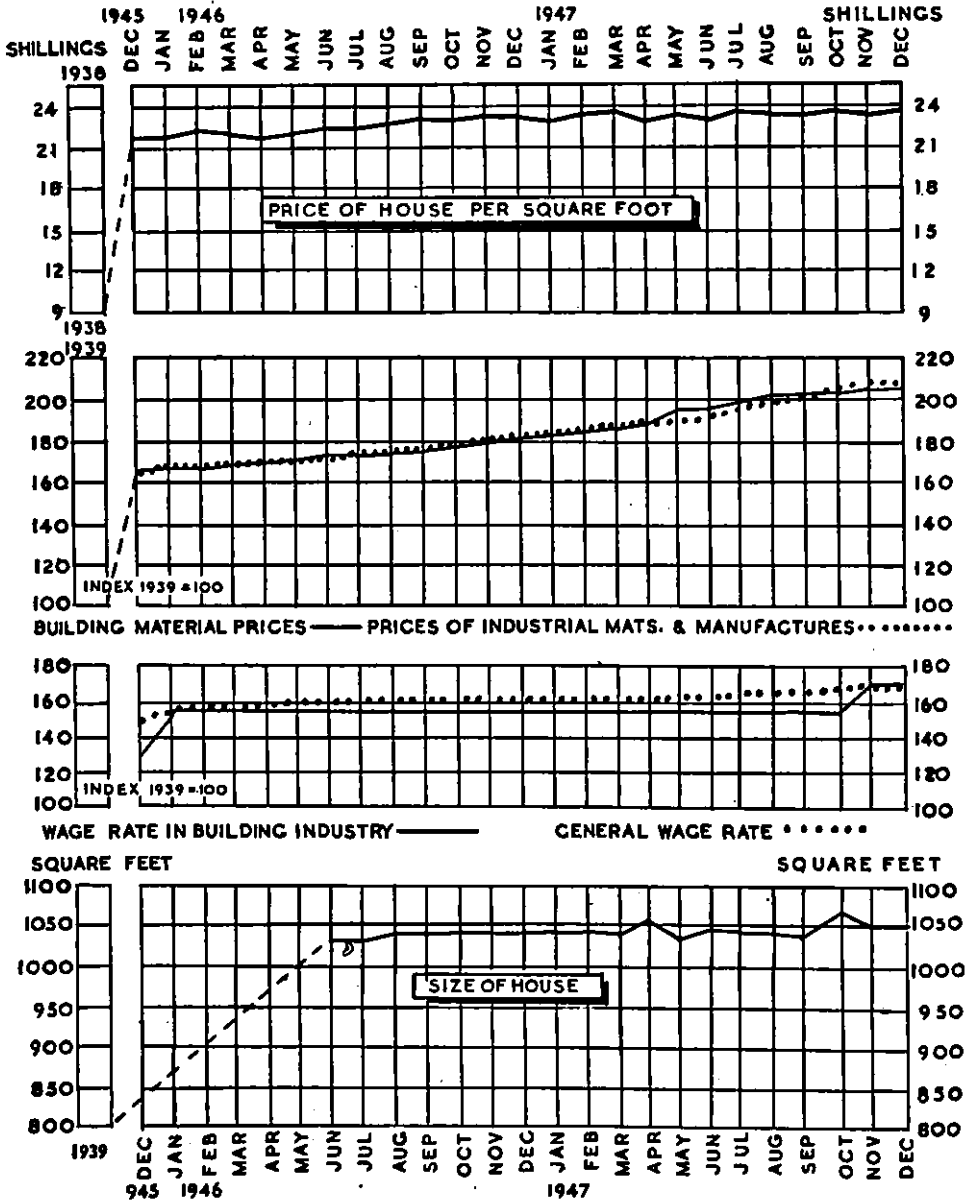


NOTES

- Houses Built Annually : All Houses built in England and Wales to 30th September.
- Size of House : Mid-yearly average floor areas of Local Authority 3-Bedroom, Non-parlour Houses in England and Wales.
- Insured Labour Force : Males aged 16-64 in Building Industry (Great Britain).
- Production Indices : Bricks, Board of Trade Index of Volume of Production, 1924=100. Cement, Index of Deliveries to Home Market, 1925=100, Cement Makers Federation. Other Building Materials, Board of Trade Index, 1924=100.

GRAPH C

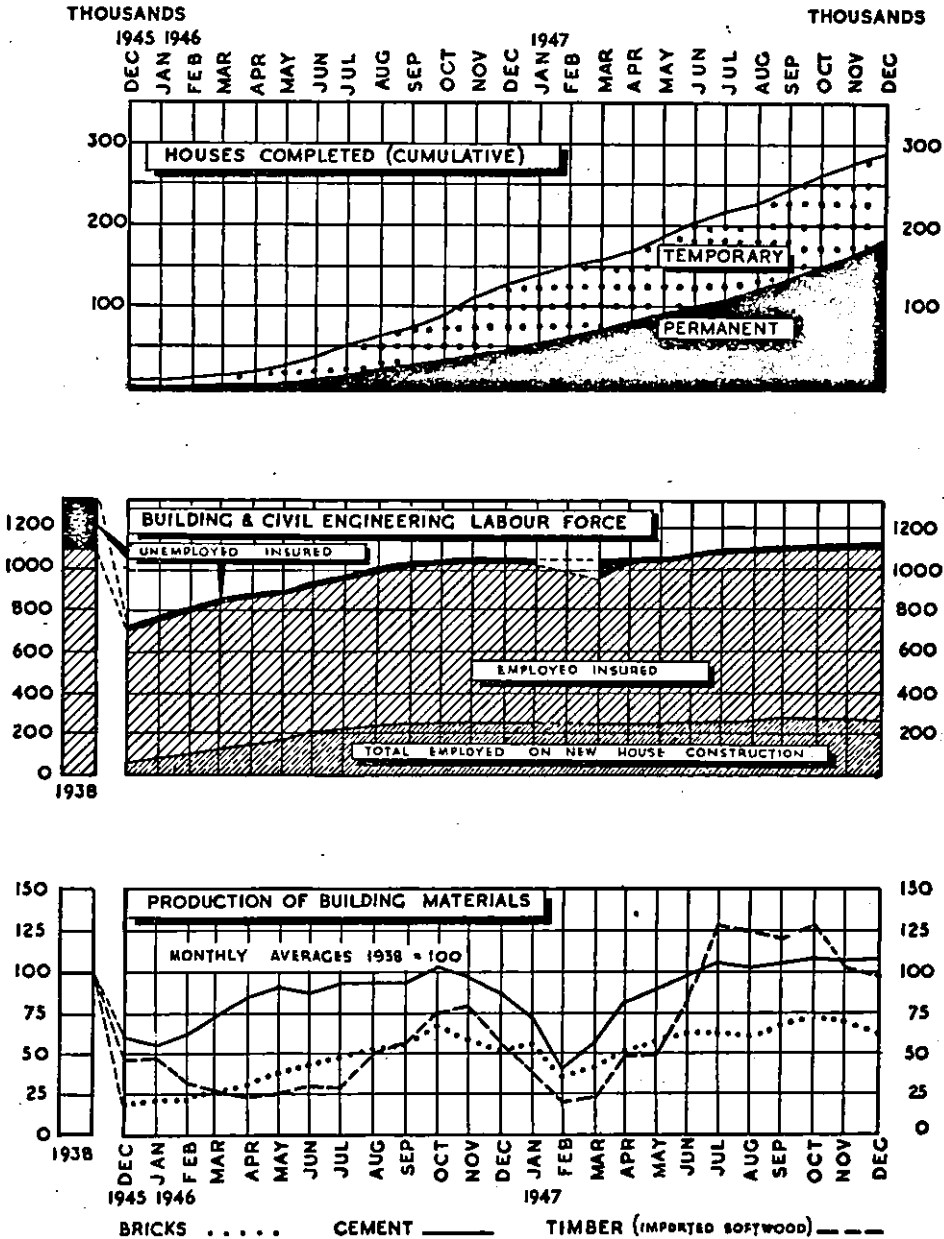
PRICE OF HOUSES POST-WAR AND RELATED INDICES



NOTES

- Price of House : Monthly average tender prices for 3-Bedroom Local Authority Houses in England and Wales.
- Building Material Prices : Ministry of Works Index. Prices of Industrial Materials and Manufactures : Board of Trade Index.
- Wage Rate in Building Industry : Weighted average of Grade A Craftsmen and Labourers Wage Rates, excluding Bonus Payments.
- General Wage Rate : Based on Ministry of Labour Weekly Rates for all Industries.
- Size of House : Monthly average areas (including outbuilding) of 3-Bedroom Local Authority Houses in England and Wales.

GRAPH D  
HOUSES BUILT POST-WAR AND RELATED INDICES



NOTES

Houses Completed : England and Wales. Temporary Houses built by Local Authorities and Government Departments; New Permanent Houses built by Local Authorities, Government Departments, Housing Associations and Private Enterprise.

Labour Force : England and Wales. Insured Males aged 16-64 in Building and Civil Engineering Industries.

Total employed on New House Construction : Male Operatives aged 16 and over employed on preparation of sites and building of Permanent and Temporary Houses.

TABLE 1  
HOUSING PROGRESS (ENGLAND AND WALES), 1945-1948

TEMPORARY HOUSES		PERMANENT HOUSES : NEW AND REBUILT WAR-DESTROYED											
Date	All types, completed by Local Authorities and Government Departments during Quarter	Local Authorities and Government Departments			Private Enterprise and Housing Associations			Traditional and Non-Traditional : Totals					
		Net increase in tenders approved during Quarter	Under construction at end of Quarter	Completed during Quarter	Net increase in licences issued during Quarter	Under construction at end of Quarter	Completed during Quarter	Net increase in tenders approved and licences issued during Quarter		Under construction at end of Quarter		Completed during Quarter	
								Traditional	Non-Traditional	Traditional	Non-Traditional	Traditional	Non-Traditional
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	000's	000's	000's	000's	000's	000's	000's	000's	000's	000's	000's	000's	000's
1945— December	5	..	13	—	..	6	1	..	..	..	..	1	—
1946— March ...	11	37	34	1	19	22	2	..	..	..	..	3	—
June ...	11	49	67	3	16	36	5	..	..	97	6	8	—
September	18	52	102	6	11	41	10	49	14	130	13	15	1
December	31	54	130	12	12	42	12	53	13	150	22	22	2
1947— March ...	8	34	144	9	8	40	9	32	10	159	25	17	1
June ...	10	28	165	20	9	39	11	29	8	171	33	27	4
September	8	21	179	25	8	38	10	20	9	177	40	29	6
December	8	14	173	33	3	33	11	9	8	166	40	35	9
1948— March ...	5	16	158	37	2	27	10	11	7	146	39	38	9
CUMULATIVE TOTALS from Jan., 1945, to end of Mar., 1948	119	341		146	113		81	368	86			195	32

. Not available. — Nil or negligible. Permanent aluminium houses are excluded.

TABLE II  
HOUSING : GENERAL STATISTICAL TABLE

Date	LABOUR					BANKRUPTCIES		WAGES, EARNINGS AND HOURS OF WORK							BUILDING MATERIALS					GENERAL INDICES								
	Building Industry			Building and Civil Engineering Industries		Bankruptcies of Builders and Craftsmen	Windings up of Building Contractors	Grade A Wage Rates in the Building Industry			Average Weekly Earnings		Average Weekly Hours Worked		Date	General Index of Building Materials Prices	Index of Prices of Industrial Materials and Manufactures	Index of Brick Production	Index of Cement Production	Index of Softwood Imports	Cost of Living Indices		Index of Rent	Interest Yield on 2½ per cent. Consols	Rate of Interest on Housing Loans to Local Authorities			
	Total Insured	Insured Employed	Insured Unemployed	Outstanding Vacancies on New Housing Work	Employed on New House Construction			Date of Increase	Craftsmen	Labourers	Date	Building and Decorating	All Industries	Building and Decorating							All Industries	(18)				(19)	(20)	(21)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)			
1938 ...	922	805	117			643	133				1938—					1938... ..												
1939 ...	905	807	98			562					October ...	66 6	69 0	46.1	47.7	1939... ..	100	100	100	100								
1946—								1939—								1946—												
February ...	715	700	8	15	92	36	34	February...	1 7½	1 2½						February...	168	170	24	64	36	131	102-103	2.70	3½			
May ...			10	24	142			December	1 8	1 3½								May ...	171	171	40	88	26	132	104	2.58	3½	
August ...			15	41	192			1945—											August ...	176	177	53	93	45	132	104	2.59	2½
November...			15	45	224			1946—											November	179	181	61	96	71	131	104	2.53	2½
1947—								1946—			1946—					1947—												
February ...	830	817	13	49	217	142		January ...	2 6	2 0	January ...	104 10	114 1	43.6	47.4	February...	183	187	46	57	26	131	104	2.58	2½			
May ...			12	46	233			October ...	108 6	120 9	44.8	47.6	May ...	197	192	59	89	60	131	104	2.62	2½						
August ...			14	32	241			1947—											August ...	201	198	62	105	125	100	100	2.99	2½
November...			22	20	233			November	2 9	2 2½	April ...	109 8	123 5	45.4	46.3	November	205	210	65	109	108	103	100	2.87	2½			
1948—								October ...	114 8	128 10	46.3	46.6	1948—															
February ...						43 (1st Quarter)									February...	208	225	59	104	50	106	100	3.15	3				
NOTES :—	Mid Year Figures				England and Wales. Employed Males aged 16 and over. Includes House Site Preparation	England and Wales. Individuals and Partnerships	England and Wales. Limited Companies	England and Wales. Excluding Bonus Payments, etc.			United Kingdom. Male Manual Wage Earners aged 21 and over						Great Britain. M.O.W. Index Based on 92 materials. End of Month Figures	United Kingdom. Based on B.O.T. Index. Monthly Averages	Great Britain. Quarterly Averages	United Kingdom. Quarterly Averages	From Ministry of Labour Working-Class Cost of Living Index and Interim Index of Retail Prices for United Kingdom (Rent inclusive of Rates)			Monthly Averages	England and Wales. P.W.L.B. Loans over 15 years			



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NOTE. The above list includes only those persons and bodies who were invited by the Committee to submit written or oral evidence. The Committee also wishes to acknowledge the assistance it has received from various other persons and organisations who volunteered to supply information and suggestions.

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[Cmd. 7441]

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