

(ST/ECLA/CONF 16/K) DI. 2

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Information document N° 2

STUDY TOUR AND WORKSHOP ON ORGANIZATION AND FUNCTIONS OF NATIONAL
HOUSING AGENCIES FOR THE IMPLEMENTATION OF HOUSING PROGRAMMES
SPONSORED BY THE UNITED NATIONS AND THE GOVERNMENT OF DENMARK

(Copenhagen, Denmark, 30 August to 19 September 1964)

HOUSING IN DENMARK

(Prepared by the Danish Ministry of Housing)



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The following table shows the results of the experiment. The first column shows the number of trials, the second column shows the number of correct responses, and the third column shows the percentage of correct responses. The fourth column shows the standard error of the mean.

Trial	Correct	Percentage	SE
1	15	75%	5%
2	18	90%	3%
3	12	60%	4%
4	20	100%	2%
5	14	70%	6%
6	16	80%	4%
7	19	95%	3%
8	11	55%	5%
9	17	85%	4%
10	13	65%	6%
11	18	90%	3%
12	14	70%	5%
13	16	80%	4%
14	19	95%	3%
15	12	60%	5%
16	17	85%	4%
17	15	75%	5%
18	18	90%	3%
19	14	70%	6%
20	16	80%	4%
21	19	95%	3%
22	11	55%	5%
23	17	85%	4%
24	13	65%	6%
25	18	90%	3%
26	14	70%	5%
27	16	80%	4%
28	19	95%	3%
29	12	60%	5%
30	17	85%	4%
31	15	75%	5%
32	18	90%	3%
33	14	70%	6%
34	16	80%	4%
35	19	95%	3%
36	11	55%	5%
37	17	85%	4%
38	13	65%	6%
39	18	90%	3%
40	14	70%	5%
41	16	80%	4%
42	19	95%	3%
43	12	60%	5%
44	17	85%	4%
45	13	65%	6%
46	18	90%	3%
47	14	70%	5%
48	16	80%	4%
49	19	95%	3%
50	11	55%	5%
51	17	85%	4%
52	13	65%	6%
53	18	90%	3%
54	14	70%	5%
55	16	80%	4%
56	19	95%	3%
57	12	60%	5%
58	17	85%	4%
59	13	65%	6%
60	18	90%	3%
61	14	70%	5%
62	16	80%	4%
63	19	95%	3%
64	11	55%	5%
65	17	85%	4%
66	13	65%	6%
67	18	90%	3%
68	14	70%	5%
69	16	80%	4%
70	19	95%	3%
71	12	60%	5%
72	17	85%	4%
73	13	65%	6%
74	18	90%	3%
75	14	70%	5%
76	16	80%	4%
77	19	95%	3%
78	11	55%	5%
79	17	85%	4%
80	13	65%	6%
81	18	90%	3%
82	14	70%	5%
83	16	80%	4%
84	19	95%	3%
85	11	55%	5%
86	17	85%	4%
87	13	65%	6%
88	18	90%	3%
89	14	70%	5%
90	16	80%	4%
91	19	95%	3%
92	11	55%	5%
93	17	85%	4%
94	13	65%	6%
95	18	90%	3%
96	14	70%	5%
97	16	80%	4%
98	19	95%	3%
99	11	55%	5%
100	17	85%	4%

I. TOPOGRAPHY, CLIMATE, SETTLEMENT AND POPULATION

Denmark, with an area of 43,000 square kilometres, is the smallest of the Scandinavian countries. It is also the flattest, having no real mountains. Neither are there any valuable minerals to be found in its underground. Forests, once covering most of the country, are now only accounting for 10 per cent of the land, and the production is not able to keep up with domestic consumption. The soil, on the other hand, is well adapted for agriculture - 3/4 of the land area is under cultivation - and along the 7,000 km of coast are found many excellent harbours. The climate is windy, but seldom very warm or very cold. The mean temperature varies from about 0° C during the four winter months to about 15° C during the four summer months.

Denmark has a population of 4.7 million or about 110 persons per sq.km. Of these, 1.4 million alone live in the capital while the second largest city, Aarhus, has 180,000 inhabitants and the third largest, Odense, 130,000. A little less than 75 per cent of the population live in towns and urban areas. This distribution of settlement is the result of a still continuing migration from country to town, a development which gathered momentum round the close of the last century, when urban dwellers constituted only around 25 per cent of the total population.

Aside from the problems created by this extraordinary addition to the urban population, the country's most urgent demographic problem today is the great-age classes resulting from the high birth rates in the years 1942-1948. These young people are now entering the economic field and are beginning to want homes of their own.

It is often assumed that Denmark is predominantly agricultural, but this is no longer true. Since the beginning of the fifties, industry's share of the national product has exceeded that of agriculture and was in 1961 about one third higher. The industrial export is also greater than the export of agricultural products, and the trend points to industry's playing an ever increasing role in the economy of the country. Agriculture and industry support respectively 19 per cent and 35 per cent of the total population while commerce accounts for 12 per cent and

/transport services

transport services for 7 per cent. Forestry and fishing together embrace only about $1\frac{1}{2}$ per cent of the population.

As Denmark has, so to speak, no raw materials of its own, the role of industry mainly consists in the processing of imported raw materials, and great emphasis is placed on quality (servotechnical equipment, furniture). The lack of natural resources makes the country heavily dependent of the foreign trade which per capita is among the highest in the world.

Denmark is a member of the European Free Trade Organization, but her trade with the Common Market is of nearly the same importance.

II. SOCIETY AND HOUSING

1. Housing policy up to 1958

The first public measures in the field of housing - which go back to the middle of the last century - were of purely technical character, embodied in building regulations for Copenhagen and the provincial towns. The next step was the enactment of a number of laws in 1887 and the following years providing cheap Government loans for the erection of workers' dwellings. This legislation was of a philanthropic character and had no very great practical importance.

Not until the end of the first World War did housing policy develop a really quantitative aim. The background was a considerable housing shortage following the collapse of private enterprise building during war-time. In the period 1917-1927, no less than 70-90 per cent of new housing production received financial aid from the Government.

Towards the end of the 1920's, employment considerations appeared in the administration of the housing acts - widespread unemployment having followed in the wake of the international economic crisis of 1929. Later, as the advance of the "two-children system" brought about a marked decline in the birth rate, housing legislation was also given a population policy slant. Thus, in 1938, rent subsidies were introduced for large families and provisions were made for the reservation of a certain number of flats in new Government-financed housing for families with three children or more.

/At the

At the outbreak of the Second World War, Denmark had a housing reserve of unoccupied flats totalling 2-3 per cent of the housing stock which ensured a smoothly running housing-market. During the war, however, production fell, the housing reserve was quickly absorbed, and it proved necessary to introduce a rent stop for the entire housing stock. Destruction of houses due to war and sabotage operations was, on the other hand, inconsiderable.

The difficulties of the housing sector at the end of the Second World War may be summed up in the following two points: lack of materials which caused a quantitative and qualitative decline in the annual production, and a considerable war-induced increase in the price level. The result was a serious housing shortage combined with a rent level for new housing hitherto unknown.

The Housing Act of 1946 was the contribution of the first post-war Government towards the solving of these problems. This Act, which provided a far greater amount of loan capital than pre-war legislation, authorized the granting of Government loans at a very low interest rate (around 2 per cent p.a. compared with 5 per cent in the open market), to all categories of builders. The Act also included social aims. Thus, rent subsidies were given to lower-income families with 3 (at times 2) or more children living in non-profit housing and loan terms were more favourable for housing built for lower-income - and especially lowest-income - groups. Government loans were also granted for housing for old-age and invalid pensioners. Altogether, ca. 150,000 new dwellings were produced with loans provided by the 1946 Act or ca. 85 per cent of total housing production during the period covered by the Act.

The most important contribution of the 1946 Act was a significant improvement in both space and equipment standards, carried through by means of a number of technical minimum requirements set up as conditions for the obtaining of Government loans. The considerable rent and interest rate subsidies were the economic basis of this improvement of standards.

In the Housing Act of 1955, a number of the provisions in the 1946 Act were changed or amended. Thus, the very low interest rate was abandoned in favour of the market rate, because the cheap loans, calculated,

/as they

as they were, on the basis of actual construction costs, did not incline builders to seek economical methods of construction. To avoid a sudden rise in the rent level due to the change-over from the low interest rate to the market rate, annual rent subsidies were granted, based on the area of the dwelling (management or m² subsidies).

The combination of market rate of interest and management subsidy was a definite incentive to economical construction. At the same time, it involved - unintentionally - the danger of quality deterioration. As no subsidies were given for cellar and attic rooms, outhouses, etc., there was a tendency to cut down on these points as far as possible without conflicting with the technical demands attached to the loans.

The 1955 Act contained social policy stipulation of both general and special character. Generally, the Act encouraged the production of dwellings of from 50 to 85 m² floor area, inasmuch as only flats of this size received the m² subsidy in full. Like the 1946 Act, the 1955 Act favoured housing for lower-income families (though in reality this term comprises ca. 85 per cent of the population), through more favourable loan terms.

Furthermore, the 1955 Act specified various population groups for most favourable treatment. Firstly, Government subsidies were granted for houses built for members of the lowest-income groups (i.e. with incomes under 2/3 of the maximum for lower-income groups). This subsidy, together with subsidies (also interest and amortization-free) from the municipality and from private sources could total up to 35 per cent of construction costs. Secondly, the group of families entitled to family allowances was expanded and rent terms were improved for old-age and invalid pensioners. Finally, 10 per cent of the total loan capital was reserved for the erection of social and cultural institutions: homes for the aged, community houses, student hostels and child welfare institutions.

2. The present housing policy

The Housing Act of 27 December 1958 which, with some amendments, is still in force, brought an end to the era of State financing. It was the result of a more liberalistic thinking in political circles, as nothing particularly bad could be said about State financing seen from a technical point of view.

First and second mortgages are still obtained from the traditional mortgage institutions which are under public control and entitled to grant, respectively, 60-year and 50-year loans covering up to 75 per cent of the value of the property. In post-war years, however, the loans granted by these institutions have actually covered only 35-40 per cent of construction costs. In the vacuum which thus arose between that amount and the initial contribution which could reasonably be demanded of the dwellers, Government loans were placed. Together with the abolishment of Government loans, therefore, the 1958 Act contained provisions for the establishment of so called third mortgage institutions whose loans would replace the Government loans. These institutions, which are under the supervision of the Ministry of Housing, may also grant loans without State guarantees up to 75 per cent of value. With State guarantees the loan limits are the same as in the 1955 Act: 94 per cent for non-profit housing, 90 per cent for one-family houses for lower-income owners, and 85 per cent for private enterprise housing. Ordinarily, loan capital is procured by the sale of the institutions' bonds in the open market so that the interest rate for both the Government guaranteed loans and the institutions' other loans correspond to the ordinary long-term market rate of interest.

The 1958 Act included some "safety-net" provisions concerning the granting of State loans in case that the new-created financial mechanisms would not function. These provisions have not been used. On the opposite, the contribution of private unsubsidized housing, comprising less than 10 per cent of total production during the first part of the fifties, accelerated with a speed unexpected to everybody and reached 23 per cent in 1958, 50 per cent in 1960, and around 2/3 in the three following years. This must, probably, be ascribed to the fact that the Act was carried through during a period of rising incomes, not in the least among the unmarried

/part of

part of the population, whose demands for a separate dwelling only to a minimum degree was met by the State financed housing production. For families, the possibilities of non-state financing meant that the maximum limits for construction costs and dwelling area (110 m² gross) built into the system of State financing could be neglected. A provision in the Act saying that the initial contribution of owners of small houses could be brought down from 25 per cent to 15 per cent of the value through the introduction of a bank or insurance guarantee throws further light on the explosive increase of unsubsidized housing, not to mention that rents on new constructed unsubsidized housing were decontrolled in 1959. Very soon, however, it was found that landlords reaped exorbitant profits, and in 1963 rents in this sector were put under control again.

The result of this sudden change in the character of the building activity was that the control of the annual output of housing, its geographical location and its quality, formerly exercised through the 80-90 per cent State financing, tended to slip out of the hands of the Ministry of Housing. A considerable number of very small or very luxurious dwellings were started a trend not in accordance with the general context of the housing policy: Housing for low-income families. But what was worse, the total building activity rose to such heights, that an overstraining of the building capacity could be foreseen, resulting in prolongation of the average building periods or in rising wages in the building industry, or both. Accordingly, in the spring of 1960, a license system was introduced for all types of housing in the most important urban areas of the country, covering about 2/3 of the building activity. This control is part of a general system controlling the commencement of all building works in the entire country - including public building, but excluding industrial and agricultural buildings.

This expanded license system, the conditions of which are currently revised, is still in force, even it is generally recognized that the effects have not been 100 per cent successful. In one respect, however, the system has fulfilled its purpose: the average periods of construction for different types of building have not increased significantly. The wages in the building

/trades, on

trades, on the other hand, have been rising substantially, but it is not unlikely that they would have been still higher under totally free conditions. Furthermore, an unintended distortion of the geographical distribution of the housing production has taken place, as the housing production within the licensed areas has been stagnating while the whole increase in the annual output has taken place outside these areas. Or, to say in other words, part of housing production has moved from urban to rural areas and often to rural areas where an urban development is not foreseen or wished. To avoid a further development of this trend, the control for the Copenhagen area has been extended to cover the whole of the Zealand Island

In the spring of 1964, the license system was further supplemented through the introduction of maximum limits for construction costs for single-family houses and similar limits for rents in multi-family housing.

As it will be understood from the above, the amount of subsidizing in aided housing has been gradually reduced since 1946. At the same time, the trend has been away from general subsidies, assigned to the dwellings, towards more specialized subsidies granted to such dwellers which are considered to be in need of aid. The State aid now mainly consists in the guarantee system which does not cause expenses to the State, but give way to a smaller initial contribution of dwellers than would otherwise be the case, in the management (m^2) subsidy system and in the family allowance system. The two last mentioned subsidies are realized in the form of rent reductions and are both - according to different criteria, however - based on income of the household, the number of children and the annual cost of the dwelling. The management subsidy is only relevant for State guaranteed or financed housing while family allowances are now granted also to occupants of older houses on the condition that the dwellings fulfill reasonable technical standards. Families living in the poorest part of the housing stock which is not considered fit for occupation by families with children, are, thus, not entitled to the allowance. The result of this is that the poorest families which often are the ones who live in these flats are deprived of a much needed aid.

The importance of these subsidies has been decreasing along with the rising prices for new housing and both of them will - for a two-children

/low-income

low-income family in a new built flat of 80 m² - amount to a rent reduction of around 20 per cent. In dwellings built some years ago, the reduction is of greater importance - up to 50 per cent - and the same is the case if the number of children is greater.

In order to give way to a more far-sighted planning of housing production, some provisions concerning long-term plans were incorporated in the Housing Act in 1961. In the first instance, the annual number of dwellings to receive Government aid is now included in the Act itself, and amount to 20,000 dwellings. This subsidized sector of 20,000 dwellings is sub-divided into 10,000 dwellings to be constructed by non-profit housing societies, and 10,000 private enterprise dwellings. Out of the 10,000 private dwellings at least 4,000 must be constructed as one-family houses for low-income owners, and the rest either as one-family houses or as private housing for letting.

In theory, the subsidized sector thus amounts to around 60 per cent of the production. In practice, however, it has not been possible to keep up with this goal, because of the tremendous rise in unsubsidized housing mentioned above. As will be seen from table 1 below, the downward trend of subsidized housing has been reversed in the last three years.

Table 1

COMPLETED DWELLINGS 1959-1962 BY CATEGORY OF BUILDER

	1959	1960	1961	1962	1963
Total number of dwellings	26,300	28,000	31,600	33,400	33,400
State and municipalities, per cent	5	5	3	3	2
Housing associations and subsidized private builders, per cent	66	44	30	31	38
Unsubsidized builders, per cent	29	51	67	66	60
Total, per cent	100	100	100	100	100

For a limited part of the subsidized housing production, it has been possible to secure fixed construction programmes covering several years ahead, and even for the sector which is mostly in need of planning ahead, the sector of prefabricated housing. With a circular from the Ministry of Housing of March 1960, a programme was set up comprising 2,000 dwellings annually which, to a maximum extent, should be erected according to the principles of prefabrication. Housing projects under this programme receive public aid according to the Housing Act of 1958, but are carried through independently of the license system mentioned above. To be admitted into this four-year programme, the single projects should not only be planned to great detail, but several projects must submit to a common progress schedule, so as to give the material and component factories the best possibility of an even production. This includes that the layout in the plans of all housing schemes under the programme, to the greatest possible extent, should be based on the utilization of mass produced parts and on the principles of modular co-ordination. In the circular it was emphasized that the work of all trades - not only the basic structural components - as far as possible should be converted to a pure assembly work.

This programme expired with the close of 1963. It was replaced and extended by a rolling three-year plan comprising 5,500 dwellings annually to be administered according to the same principles as mentioned above. While the former programme only included non-profit housing societies, the new programme is split up into 3,000 dwellings for non-profit housing societies, 1,000 dwellings for private subsidized housing projects, and 1,500 dwellings for unsubsidized projects.

It should be mentioned that only projects of some magnitude, i.e. normally not less than 500 dwellings, are included in the programmes because such projects are mostly in need of being able to set up time schedules for design and execution several years in advance.

3. Housing for special groups

It has already been mentioned that practically all forms of general subsidies - formerly predominating - have been excluded from the housing aid legislation. Or, to say it in other words, that, with minor exceptions, all subsidies are now conditional on the income and/or the number of children of the households. In accordance with this trend, the subsidies for more specialized groups of the population have been extended. Under this heading, the following groups are distinguished:

Lowest-income groups: A special subsidy for housing for these groups is given in the form of interest and amortization-free State grants of 20 per cent of construction costs for up to 2,000 dwellings annually, conditional on a further municipal or private grant of 15 per cent. This totals up to a 35 per cent reduction in construction costs corresponding to a rent reduction of around 25 per cent. Besides, State guarantees are given on similar conditions, as for other non-profit housing. It should perhaps be mentioned that these lowest-income dwellings are no longer located in blocks separated from housing for other income groups. Instead, efforts are made to avoid the creation of "modern slum neighbourhoods" by urging the housing societies to mix the two categories of dwellings which are normally not different in technical standard. This is done by requiring a certain number of the flats in non-profit housing estates to be set aside for lowest-income families - and, it should be noted, not always the same flats. Such an arrangement has two advantages: the other tenants cannot see that "poor people live there", and it will not be necessary for the tenant to change dwelling with a change of income.

Old age and invalid pensioners: A similar tendency is observed in housing for these groups. While earlier special blocks were erected for old people, today it is becoming more and more the practice to house them in ordinary housing, for example by providing specially equipped flats on the ground floor for the elderly and invalids and normal flats on the other floors.

/Rents for

Rents for pensioners' dwellings are fixed as a part of the pension without any relation to the actual building cost and are well below half of the normal rent in new housing. Since 1961, also flats in older non-profit housing (but not in privately owned houses) can be approved as pensioners' dwellings with similar rent reductions as mentioned above. The dwellings to be approved must normally not consist of more than two rooms and kitchen, and if the gross floor area exceeds 50 sq.m., the normal rent must be paid for the exceeding square metres.

Other groups: Within the framework of financial aid legislation, a number of other categories of housing have been given preferential treatment. High priority is conceded to the erection of dwellings with Government aid for families from slum clearance areas. Similar preferential treatment is given for construction which employs new building methods or new materials, and also for housing in districts with rapidly expanding industrial development. The granting of Government guarantees for the modernization or conversion of old houses should also be mentioned, work for which it has been difficult to obtain loans on reasonable terms. The legislation also meets the needs of the young population. In the period 1963-1973, State loans and guarantees will be granted on very favourable terms for the erection of 10,000 dwellings for young persons under education. State loans are also granted for institutions with social or cultural purposes.

4. Housing policy and economic policy

Denmark is not among the countries devoting a very great part of their resources to housing. Thus, housing production's share of fixed capital formation have in the last decade, fluctuated around 16 per cent, and in relation to the gross national product housing investment has varied between 2.5 per cent and 3.5 per cent.

These figures are rather low compared to most other European countries, but it must be remembered that the national product per inhabitant is relatively high which again means that the annual production of dwellings per inhabitant is above Western European average.

/There is

There is also another reason that the housing and building sector is much more important for the whole economy than the figures may indicate: traditionally, the building sector has been considered as one of the most effective means for counter cyclical measures. Thus, when one of the constantly recurring balance-of-payment crises arises, the Government usually resorts to the traditional measures for reducing consumption and investments: raising discount or taxes or direct rationing of credits. As building is sensitive to such measures, the readjustment of the foreign exchange balance is often accomplished at the cost of a considerable reduction in building activity and a rise in unemployment in the building trades. In times of prosperity and full employment fear of inflation has often induced the same or similar reactions from the part of the authorities, and when fiscal measures have not been sufficient direct regulations of the building activity has been introduced.

Thus, the comprehensive license system mentioned above must be seen on the background of a nearly continuous prosperity and high economic activity since 1958. The control should be regarded, in principle, as a temporary restriction and not as a step towards a more "planned economy".

5. Rent policy and the rent income ratio

As mentioned above, a rent stop was introduced at the outbreak of the war and tenures were secured for tenants. Along with the steadily rising prices during and after the war, a serious gap arose between rents in the old and in the new housing stock. It has been very difficult, however, to obtain political agreement on who should benefit by rent increases: the landlords or the State, and a complete levelling out of rents in the form of the abolishing of all rent restrictions still seems to be far ahead in the future.

Some rent increases, however, have been allowed in the post-war years, and it may be estimated that rents in the pre-war housing stock are now 100 per cent above the 1939 level. This means that rent parity has been obtained for all houses built before 1952, but building costs

/and interest

and interest rates have been rising so much that rents in dwellings built in 1963 are still another 100 per cent above the 1952 level.

A number of modifications must, however, be added to the above. Firstly, the rent control today is unconditional only in the Copenhagen area and the larger provincial towns while it is abolished in districts with less than 6,000 inhabitants. In the medium towns (6,000 - 20,000) where the housing shortage is not so outspoken, control may be abolished by the decisions of the local authorities. Secondly, during the entire period, non-profit housing societies have been permitted to increase rents in their houses on presentation of documentary evidences of an increase in maintenance and other costs.

A more complete idea of conditions in the housing market is obtained by including in the picture a study of the relation between rents and incomes. A survey made in 1939-1940 shows that rents share of the income of a sample of both skilled and unskilled workers amounted to 16 to 19 per cent. Another sample survey was made for the year 1960 for inhabitants of three, four and five room dwellings in the Copenhagen area. The results are given in table 2 below.

Table 2

RENTS SHARE OF THE NET INCOME (TAXES DEDUCTED) OF HOUSEHOLDS
IN RELATION TO THE YEAR OF CONSTRUCTION

Year of construction	Percentage of households with a rent corresponding to the share of income:				Total
	Below 10% of income	10-20% of income	20-30 % of income	Above 30% of income	
Before 1931	60	30	8	2	100
1931-1945	50	39	8	3	100
1946-1955	24	65	8	3	100
1956-1960	4	60	27	9	100
Total	48	40	9	3	100

It will be seen that around 50 per cent of the households occupying dwellings built before 1946, pay less than 10 per cent of their income, but in the newer housing stock 36 per cent paid more than 20 per cent.

III. STRUCTURE OF THE BUILDING MARKET

1. Who builds?

The building industry in Denmark can be divided into four groups:

1. The State, whose housing activities in the past few decades have been restricted to the erection of official dwellings.
2. Local authorities and semi-public institutions, who primarily build housing for special groups, such as public servants, old-age and invalid pensioners, lowest-income groups, homeless families, and the like.
3. Private builders, including those who build houses for themselves, and private building agencies which provide one-family houses and multi-storey houses for sale and to let.
4. Non-profit housing societies. The first housing societies - or rather forerunners of housing societies - appeared round the middle of the last century, but became particularly influential in the housing market in the periods following the two world wars. Today there exist about 1,500 non-profit housing societies, a number of which, however, have built only about 50 dwellings while several of the largest are responsible for the construction of more than 10,000 dwellings. The organizational form of these societies also varies, but three main types may be distinguished: housing co-operatives, in which the members (tenants) are shareholders and have direct influence on the running of the society; the second group comprises joint stock companies which have frequently been founded by trade unions or co-operative construction firms; and thirdly, the so-called self-governing housing associations which often are operated in close connexion with the local authorities. The members - the tenants - also have a certain amount of influence in the running of the two latter types.

Many small societies collaborate with special management organizations during the planning and construction period so that administration of the house is first taken over by the local society on completion. In this way, during the construction local interests are combined with the experience and greater technical knowledge of a nation-wide organization.

/As regards

As regards the possibilities for obtaining Government aid, no distinction is made between the various types. Among the most important conditions required for such aid may be mentioned that the aim of the society shall be the production of housing which meets the requirements of the lower and lowest-income groups of the population and that profits, if any, shall be set aside for the construction of new dwellings or for the improvement and modernization - but not ordinary maintenance - of existing houses instead of being paid back to tenants or shareholders. Such surpluses will normally not arise as rents are calculated only to cover costs including annual repayment of loans, but when the loans are fully repaid and capital costs accordingly lower, a yearly balance of a certain extent will come out. The object of this comparatively new system is to achieve, in the course of time, the self-financing of non-profit housing. A presumption is, however, that the housing is of such good quality that it will not be ready for demolition simultaneously with the final repayment of the loans. Further conditions for State aid are that the statutes and annual accounts of the housing societies must be approved by the Ministry of Housing which also may appoint supervisors.

As regards the share of total housing, built by the various categories of builders, mentions have already been made of the considerable rise in unsubsidized housing since 1958 and the corresponding decline in the activities of the non-profit housing associations, cf. table 1.

2. Organization of the building industry

When a housing society - or private housing syndicate - decides to build, the first step will be to engage an architect. Several of the larger housing societies always work in close co-operation with the same architect or firm of architects while other societies employ different architects for different projects. The above-mentioned manager organizations often have their own technical department in which the plans worked out by local societies and their architects are critically scrutinized. In Denmark, contact between builder and architect is never arranged via building contractors or construction firms.

/When the

When the final plans are ready, if not earlier, the builder gets in touch with contractors from the various building trades. The most usual procedures are as follows:

1. Single contract with a main contractor

The builder requests a contractor to submit an overall bid covering the entire work of construction. This form is gaining ground, particularly for the construction of non-traditional housing where a careful planning of the building processes is necessary.

2. Separate contracts with each trade

The builder himself makes separate contracts with each trade employed in the construction - either directly or through one or other form of tender (sealed bidding). This is the traditional and still most popular method.

As, according to the regulations governing the tender system, various limits may be placed on the freedom of the building trades in making bids as well as on the builder's freedom of choice in accepting bids, the system has become rather involved and cumbersome. Efforts to improve and simplify it are steadily being made, but it seems rather difficult to combine the contending interests of the various parties involved.

3. Employment in the building industry

In 1962, 92,000 workers were employed in the building trades of which 52,000 were skilled, 16,000 apprentices and 24,000 unskilled. The high proportion of apprentices is due to high building activity of later years which, again, reflects that wage increases have been more outspoken than in other trades and that the employment has been higher and more stable than formerly seen.

The workers in the building trades are organized in trade unions while industrial unions are not found in this sector. The demarcation between the individual trade unions and building trades are rather

/sharply drawn

sharply drawn so that, in periods of great building activity, "bottle-necks" are likely to result particularly in masonry work. However, with the growing influence of industrialized methods of construction in which non-skilled labour is largely employed, and skilled workers are employed for other operations than the traditional ones (carpenters for the assembly of concrete elements), the building capacity seems to have become somewhat more elastic, and the same is true for the demarcations between the building trades.

Seen from the point of view of firms or enterprises, the Danish building industry is characterized by a very large number of small firms and by a "horizontal" division into specialized firms, each firm performing only a preassigned part of the actual building process.

The wages in the building trades have, since 1958, risen between 40 and 50 per cent which reflects that shortages of labour force have been felt, sometimes quite seriously. Thus, the rise in productivity (calculated according to a very rough method) is, in the same period, estimated to have been around 20 per cent.

A traditional problem in the building trades has been the great seasonal fluctuation in the rate of employment. Worst were, of course, the outdoor trades. In the 1950's annual unemployment in the masonry trade was 15-20 per cent despite the fact that practically no unemployment was found during the summer months. Along with the rising activity in the building sector, the unemployment has dropped to a level not hitherto experienced in this country. Thus, the average annual unemployment rate for all building trades was, in 1960, 2.9 per cent, 1961: 1.7 per cent, and 1962: 1.3 per cent.

IV. HOUSING DEMAND AND HOUSING PRODUCTION

1. Housing shortage and housing standards

In a country where the housing market has been under public control for almost 25 years, one has no exact knowledge of the actual housing shortage. Many calculations of the shortage have been made, mostly on the basis of estimated headship rates, but none of the calculations have received the stamp of being the official ones.

In this connection, however, two statements may be mentioned as absolutely reliable. Firstly, that the demand for dwellings still exceeds the supply, and, secondly, that housing conditions for the population in general have improved significantly since the end of the Second World War. The latter point may be illustrated by the figures, as to the average number of inhabitants per dwelling.

Table 4

AVERAGE NUMBER OF OCCUPANTS PER DWELLING

	1 room and kitchen	2 rooms and kitchen	3 rooms and kitchen	4 rooms and kitchen
1940	1.37	2.61	3.16	3.42
1945	1.43	2.64	3.06	3.34
1955	1.38	2.59	3.02	3.37
1960	1.29	2.42	2.97	3.37

It will be seen that particularly the occupants of dwellings with three and four rooms (about 50 per cent of the population) are quite well off in this respect. For the whole housing stock each inhabitant has, on an average, almost one third of a dwelling and somewhat more than one room at his disposal which means that the space standards of the country are among the highest in the world.

To throw light on the variations around the average, the figures on the occupancy density may be cited:

/Table 5

Table 5
OCCUPANCY DENSITY 1960

	Percentage of dwellings with	Percentage of the population living in dwellings with
More than two inhabitants per room	2.3	4.6
Two inhabitants per room	5.1	7.1
More than one and less than two inhabitants per room	20.0	29.1
One inhabitant per room	25.6	24.0
Less than one inhabitant per room	47.0	35.2
Total	100.0	100.0

The number of overcrowded dwellings according to the usual definition (more than two inhabitants per room) is quite small. In this connection, it must be remembered that kitchen is not counted as a room in Danish housing statistics, even if dining kitchens are quite usual in post-war housing. The goal, however, must be to provide each inhabitant, except perhaps babies, with his own room and to achieve this there is still a long way to go.

The housing shortage may also take on a qualitative aspect: the dwellings may be too small for families with children, the access of daylight too poor, modern amenities may be lacking, etc. Also in this respect, however, it is impossible to state exactly how much is lacking before the effective demand of the population is met; it is only possible to give information on the actual conditions.

Of the country's 1.5 million dwellings, about 50 per cent are in one-family houses, ca. 10 per cent in two-family houses, and the remainder in multi-storey houses. The distribution of dwelling types varies, naturally, in different parts of the country. Thus, almost 90 per cent of Copenhagen dwellings are in multi-storey houses and in provincial towns about 50 per cent. Purely rural districts, on the other hand, are entirely dominated by one- or two-family houses.

/The average

The average size of a one-family house is a little more than three rooms and kitchen while the average flat in multi-storey housing is somewhat smaller. Altogether, three per cent of the dwellings contain one room and kitchen, 25 per cent two rooms and kitchen, 31 per cent three rooms and kitchen, 21 per cent 4 rooms and kitchen, 18 per cent 5 rooms or more and kitchen, while no figures are given for the last two per cent. The large percentage of two-room flats - many of which, moreover, have very small rooms - is one of the greatest drawbacks of the housing stock and must be seen in connection with its age. The two-room flat was the most ordinary type of dwelling at the end of the last century when, for example, the building up of Copenhagen's large, interior suburban districts took place.

The share of very old dwellings is particularly high in rural districts. But also in the capital, and especially in the central parts, there is a large group of housing which - because of age alone - must be regarded as hardly suitable for dwelling purposes. Furthermore, a large share of the dwellings completed up to 1930 are entirely obsolete and cannot be renovated because of too small room sizes and poor daylighting.

Even though many dwellings are, thus, old and inadequate, the picture is not quite as bad as might be expected as regards the elementary amenities, not in the urban districts anyway. Thus, practically all dwellings in these districts have piped water, electricity, gas or electric stoves and access to water-closets, and a little more than 50 per cent have baths and central heating.

In rural districts the situation is poorer. Here, only about 80 per cent of the dwellings have piped water and 90 per cent gas or electric stoves. Almost all rural dwellings, on the other hand, are wired for electricity, but only about 30 per cent have central heating and bathrooms and only ca. 55 per cent have water-closets.

In Denmark ca. 50 per cent of all dwellings, or practically all one-family houses, are owned by the occupiers while all multi-storey dwellings are tenement houses. It is not legally possible to obtain unlimited ownership of a flat in a multi-storey house. On the other hand, a number of terrace houses and other forms of small housing are rented out.

2. Housing production

The conclusion to be drawn from the foregoing section is that the housing situation in Denmark has improved, not only in relation to the difficult early post-war years, but also in relation to the pre-war period and that the improvement has taken place mainly since 1945. The background for this must naturally be sought in the rate of production.

Some features of the trend in the annual production has already been touched upon (cf. page 8).

In the tables below, the housing production is illustrated from different points of view.

Table 6

COMPLETED DWELLINGS BY TYPES OF HOUSES 1958-1963

	1958	1959	1960	1961	1962	1963
Total number of dwellings	21 000	26 300	28 000	31 600	33 400	33 400
One- and two-dwelling houses, percentage	49	53	58	58	59	60
Multi-dwelling houses, percentage	44	40	36	36	36	36
Others, percentage	7	7	6	6	5	4
Total	100	100	100	100	100	100

A change in the demand for dwellings - which must be characterized as structural - has been taking place in the last decade, resulting in an increased demand for one-family houses. This change - the background of which must be seen in the rising real income of the population as a whole - has also reflected itself in the production figures distributed by size.

/Table 7

Table 7

COMPLETED DWELLINGS BY SIZE (TOWNS AND URBAN DISTRICTS)

Percentage	Housing stock							
	1960	1951/55	1958	1959	1960	1961	1962	1963
1 room with cooking installation	3	4	3	3	3	5	3	8
1 room and kitchen			6	6	8	8	7	
2 rooms and kitchen	25	13	13	14	13	16	13	11
3 rooms and kitchen	31	42	39	36	32	29	29	30
4 rooms and kitchen	21	29	32	33	35	33	38	40
5 rooms or more and kitchen	18	12	7	8	9	9	10	11
Total	98*	100	100	100	100	100	100	100

*) For 2 per cent of the dwellings no information is found.

The most common type in post-war construction has been three rooms and kitchen. Since 1958, however, this size has covered a still decreasing share of total new construction while bigger dwellings have gained ground, cf. the above-mentioned increasing demand for one-family houses. Also the number of small dwellings has increased because of a strong demand for independent dwellings from single persons being willing to pay high rents. Not much was done to meet the demands of this group during the era of State financing up to 1958, but after that time private enterprise has found this type of housing a very profitable investment. It must be mentioned, however, that the figures for one-room dwellings include a growing number of students dormitories, etc. where common kitchen is provided.

This variety of trends has, altogether, resulted in a steady rise in the average gross sq. m. area per dwelling, as will be seen from the table below.

Table 8

AVERAGE GROSS SQ.M. AREA FOR COMPLETED DWELLINGS

1958	1959	1960	1961	1962	1963
84.7	86.6	88.0	89.1	95.3	95.3

3. Future prospects

Even though the housing situation has improved and can be regarded, in comparison to other countries, as not unfavourable, the future is not without problems - if for no other reason, then because the demand still exceeds the supply of both old and new dwellings in important parts of the country.

The goal of the present Housing Act is a yearly production large enough to cover the demand created by the normal population increase. Beyond this, production should also cover the special demand in urban centres created by migration from rural districts, to gain on the accumulated demand caused by the long housing shortage combined with the rising standard of living and to improve housing conditions for special groups: old-age and invalid pensioners, lowest-income groups, etc. Furthermore, the authorities hope to be able to fit in the construction of 2,000 - 3,000 dwellings per year for tenants from slum clearance areas so that the number of unfit houses, estimated at ca. 80,000 dwellings or 5 per cent of the entire housing stock, can gradually be reduced. The programme that has been laid down to fulfil these demands is the annual production of 35,000 dwellings (7.4 dwellings per 1,000 inhabitants), but this framework will undoubtedly be extended in coming years, particularly if the production capacity in the most industrialized part of the building sector is extending with the same speed as has been noticed in the last few years, and if the favourable economic conditions continue.

Aside from the stock of dwellings unfit for human habitation, there are other problems to be overcome in the older part of the housing stock, namely the poor maintenance and the lack of modern amenities. The provisions

/contained in

contained in the Rent Act, requiring the setting aside of a certain share of rent increases for repair and maintenance, combined with the provisions in the Housing Act for Government loans or guarantees of private loans for the improvement of old houses should be able to improve these conditions.

There is also the question of distribution. The inexpedient distribution of the housing stock which has developed during the many years of "housing rationing" -- long distance between dwellings and place of work, single elderly persons or families with grown-up children having left home living in the large flats in the best part of the old housing stock while young families with children often have to make do with small and, at times, poorly equipped flats or with very expensive flats in new private housing -- cannot be changed before the total housing stock is large enough to permit a reserve of unoccupied dwellings. This problem is, naturally, related to the differences in rent levels between old and new housing.

There remains another economic aspect. The building industry has not kept up with the productivity increases that have taken place in other industries and this has an unfortunate effect on the construction costs and quality of future housing.

V. BUILDING LEGISLATION, TOWN AND REGIONAL PLANNING, ETC.

1. Building legislation

Before 1960, no common building legislation was found in Denmark. The National Building Act of 1960, however, contains the principal rules for the whole country (except two capital municipalities), as to building density in terms of floor space indices, height of and distance between buildings, the use to which properties may be put, etc. and other provisions of vital importance to the rights of private landowners. The Act is supplemented by a national building code, issued by the Ministry of Housing, in which uniform technical-constructive building regulations for the entire country are laid down. These regulations are -- in part -- worked out in accordance with the results of joint Scandinavian co-operation

/in this

in this field. To a great extent, the regulations are formed as functional requirements for individual building components, thus leaving it to the designer to decide which materials shall be used and how the functional requirements shall be met. In this way, the authorities seek to avoid confining technical development to present materials and constructions so that the way is left open for the employment of new, rational building methods.

An important extension of the aims of building legislation can be seen in the provisions authorizing the Ministry of Housing to set up minimum amenity standards for dwelling houses. Such requirements were earlier only in force for State-subsidized housing.

The National Building Code is further supplemented by local building by-laws for each municipality, the principal contents of which are detailed administrative rules and town planning provisions within the framework laid down by the Act and on the basis of the master plan of the municipality.

Thus, areas can be allocated for residential purposes, industries, mixed residential and industrial purposes, summerhouses, etc., and in this connection provisions may be made, i.e. as to maximum building height and floor space indices and, thereby, a varying building density.

Municipalities comprising towns and built-up areas with more than 1,000 inhabitants shall provide a local building by-law which must be submitted to the Ministry of Housing for approval.

The important and independent position taken up by the municipalities must be emphasized as a characteristic feature of the Danish building and town planning legislation. For the central Government, however, it is sometimes difficult to secure that the decisions of the local authorities fit into the national economic and planning policy.

2. Town plans

In Denmark, town plans are provided in the form of master plans (general plans) and detailed town plans for smaller areas (town planning by-laws).

/Town plans

Town plans are prepared and administered by the municipalities after the approval of the proposed plan by the Ministry of Housing.

The Town Planning Act of 1962 (the first modern Town Planning Act was passed in 1938) prescribes that town plans shall be provided for all towns and built-up areas with a population of more than 1,000 inhabitants. This means that town plans shall be provided for about 250 towns and built-up areas, but many other municipalities have also worked out town plans.

Master plans are, generally, prepared for the total area of the municipality concerned, and are not immediately binding on the landowners. In practice, however, the master plans may, to a wide extent, become binding on the landowners, i.e. by incorporating some of the provisions of the master plan, as to building zones and plot zones, in the local building by-laws under the National Building Act.

In town planning by-laws it can be prescribed that an area must not be used for urban purposes and that it shall be preserved in its existing condition as a farm area. A landowner whose property is comprised in a town planning by-law has no right to compensation, except if the value of his property has decreased. Whether or not compensation shall be paid, is decided by a valuation board, and compensation, if any, is paid by the Treasury, not by the municipality.

The Town Planning Act gives the municipal council authority to make compulsory purchases of real property for public purposes and for the carrying through of the provisions of a town planning by-law, but does not empower the local authority to acquire building sites for housing.

3. Town development plan

With a view to stop urban sprawl and to ensure that the growth of larger towns takes place by such stages that the costs connected with the provision of the necessary public facilities can be kept at a reasonable level, a special Act (which is in force side by side with the Town Planning Act) was passed in 1949: The Regulation of Built-Up Areas Act, giving special local committees authority to fix the boundaries between the urban areas and the open country for certain periods at a time.

/The planning

The planning and administrative authority is local town development committees appointed by the Ministry of Housing for each town development area (consisting of several municipalities). The members of a town development committee are representatives of the municipal councils concerned and a few experts. The chairman is, generally, the prefect of the county concerned.

A proposed town development plan shall be approved by the National Town Planning Board, the members of which are chiefly representatives of the municipal organizations, and by the Ministry of Housing.

The Act prescribes town development plans for Greater Copenhagen and the areas round Århus, Ålborg and Odense. The scope of the Act has later been extended so that the total number of town development plans is now 29. More than half out of the total population live within town development areas.

By a town development plan, the area is divided into:

- (a) inner zones in which land can be parcelled out and built on without special permission by the town development committee (always provided, of course, that it is in accordance with the town plan of the municipality);
- (b) intermediate zones which it is intended to use for urban development at a later time, but normally within the validity period of the town development plan; and
- (c) outer zones which shall be retained for farming and similar existing and local use. In outer zones, areas reserved for summerhouses may be laid out.

Compensation shall be paid to the landowners if the value of a property has decreased on account of its incorporation in an intermediate or outer zone. The compensation amounts, so far paid to landowners, have been rather modest.

The town development committees are working in close cooperation with the nature preservation committees. According to The Preservation of Nature Act, 14 committees covering the whole of Denmark are charged with the task of preparing nature preservation plans of areas which, owing to their beauty or location, should be kept free of buildings. In this way, location of summerhouse areas and, to a certain degree, urban areas are indirectly selected.

4. Regional planning

Regional planning is carried out for a number of areas in order to indicate the future situation and distribution, within the region, of public utilities, of the transport system, of areas for housing and for recreation purposes and, sometimes, for the development of the industry. The regions are small compared to other countries, and their formation has taken place on a voluntary basis as the division of the country in regions has not been legally prescribed.

In 1945, the preparation of an outline plan for the future development of the Copenhagen Region was commenced. The work was done by a committee set up on private initiative and resulted in the Draft Regional Plan of 1947, the so called "Finger Plan".

The development made a continuation of the regional planning necessary, and in 1958 the National Town Planning Board, in accordance with the wishes of the Joint Council of the Metropolitan Municipalities, set up a regional planning secretariat.

In 1960, this institution submitted a Draft Regional Plan for the Town Development until 1980 in the Counties of Copenhagen, Frederiksborg and Roskilde (covering the north-western part of the island of Zealand). On the recommendation of the Town Planning Board, the Ministry of Housing appointed in 1961 a Committee of Technical Experts, consisting of the representatives of various central and local authorities, to consider this draft. This committee submitted in December 1952 a report which, i.e. contains the committee's judgement of the draft and a number of views, as to the future regional planning in the Capital Region.

In 1954, the Greater Århus Committee prepared a regional plan for Greater Århus. In the beginning of this decade, several other counties in North Jutland have started, or decided to start, regional planning.

The background of the planning outside Greater Copenhagen seem chiefly to be two: firstly, the wish to plan with a view to a possible or expected strong and concentrated development in such a way that the central parts of the older towns are not upset, and secondly, to get a stronger economic and cultural development of less developed areas by means of planning.

5. National physical planning

Physical planning of nation-wide scope in Denmark is of recent origin.

In 1961, a National Planning Committee was set up with the following objectives:

1. To provide to political authorities needed data and methodology for policy- and decision-making with regard to location of public works and facilities;
2. To collect and evaluate information on natural resources, geographical distribution of population, employment, building activity, communication and other economic factors, and to analyze the mutual relationship of these factors;
3. To contribute to the co-ordination of the activities of the various Government departments, and to ensure that they pursue physical planning policies in accordance with the general lines laid down.

The National Planning Committee is composed of civil servants from a number of ministries and three expert members. Administratively, the committee and its secretariat is within the jurisdiction of the Minister of Housing.

The National Planning Committee has not yet submitted a proposal for a national plan proper, but has prepared a proposal: "Zoning Plan 1962 for Denmark" which is a first step towards a more detailed land use planning and, at the same time, a plan for the extension of local and regional controls.

The Zoning Plan which divides the country into four zones is based on:

1. A preliminary assessment of general urban, rural, and recreational land use requirements;
2. An identification of areas where existing or potential development pressures are thought to warrant early institution of local or regional controls.

The Plan is intended as a basis for co-ordination of the planning carried out under present legislation - primarily the Town Planning Act, the Town Development Act, the National Building Act, and the Preservation of Nature Act. In addition, the plan is intended as a guide for the co-ordination of works

/carried out

carried out by Government agencies themselves, as well as construction programmes carried out with financial assistance from the State or under the control of Government agencies. A Government decision as to the status of the Zoning Plan has not yet been made.

6. Slum clearance and housing inspection

On the basis of thorough quality assessments of representative sections of the housing stock, it has been estimated that there are ca. 30,000 unfit dwellings in rural districts, ca. 20,000 in provincial towns, and ca. 30,000 in Copenhagen. The actual slum clearance of larger areas, supported by the Government, was started shortly before the war, but was soon halted by the war and has been only gradually taken up again during post-war years. It is estimated that, by public and private efforts, ca. 7,000 unfit dwellings have been demolished since 1939.

In 1959, as a result of the increasing improvement of the housing situation, a new Slum Clearance Act was passed revising earlier legislation in this field. The new Act authorizes municipalities to prepare plans for the clearance of unhealthy areas or areas with high fire risk. If the plans are approved by the Ministry of Housing, the local authorities have the right to expropriate the buildings within the area and receive economic aid from the Government to carry out the slum clearance programme. The Government aid is given partly in the form of loans for the purchase of the condemned buildings and re-development of the area, and partly in the form of subsidies covering half of the losses resulting from the clearance (difference between expropriation and demolition costs and future value of the land). In this way, conditions are created which will make the rebuilding of the area possible on the usual terms. If they so desire, a majority of the property owners in a slum clearance area have the right to carry out the approved plan themselves, the State and the local authorities each paying one half of the losses resulting from the clearance.

Furthermore, local authorities can order landlords in slum clearance areas to repair, improve, or convert their property as well as prescribe the joint laying-out of open areas, play-grounds, etc.

/Thus, the

Thus, the Act not only authorizes the total clearance of an area by the razing of all building in it, but also makes possible the preservation of buildings that are not obsolete or which, for architectural or cultural reasons, it is desirable to preserve. It is estimated that, on the basis of the new Act, it will gradually become possible to demolish 2,000 - 3,000 unfit dwellings per year.

The Building Inspection Act of 1959 requires local authorities to see that buildings in their districts which are used for dwelling purposes are in decent sanitary condition and do not constitute a fire risk. Whether or not a building can be regarded as dangerous from a health or fire-risk point of view is determined by certain standards, including: whether the building is substantially free from damp, properly heated and ventilated, admits sufficient daylight, has suitable arrangements for drinking water, a proper drainage system, an internal or otherwise readily accessible water-closet, etc.

If a dwelling is judged unfit for human occupation, the authorities may order the landlord to make reasonable repairs or, if deemed necessary, may prohibit the use of the building for dwelling purposes. The landlord may seek to have the decision revoked or modified by submitting a proposal for the improvement of his property. Such proposal may be turned down if the building is still judged to be of essentially poorer quality than the standards prescribed in the requirements for new housing in the building legislation. The Building Inspectors are also authorized to demand a reduction in the number of persons living in a dwelling if the overcrowding is found to be dangerous to the health of the occupants.

Condemnation or orders to repair do not give owners the right to compensation. Such prescription is registered on the property which, thereafter, normally cannot receive public loans beyond the land value.

VI. RATIONALIZATION

Research and educational activity

The technical and organizational development which many industries have experienced in recent generations has only, to a smaller degree, characterized the building trades. The housing shortage of post-war years,

/however, the

however, the periodical shortages of skilled building labour and the increasing building costs have made it doubly important to improve the productivity of the building sector.

The problem of leading a number of crafts into a new path of development of industrial character requires, among other things, that the development take place at the same rate of speed over a broad front, if a ruining lack of balance is to be avoided. A basic factor, therefore, will be the introduction of a more thorough planning, not only of the building project - in which production-technical considerations must be taken into account - but also of the building process.

In this respect, a number of results has been obtained. One of the first achievements - more than a decade ago - was the introduction of a fixed floor-to-floor height, and from 1964 all housing projects (except owner-occupied houses) must be designed in accordance with the modular system which, in the form of a Danish Standard on a basic module of 10 cm. has been included in the National Building Code.

At present, work is being carried out on the standardization of the entire material - plans, specifications, etc. - that is used when tenders are invited for a building project. The work on type plans for small one-family houses is also carried on, and a number of types have received the approval of the Ministry of Housing. Careful planning is promoted by the requirement that Government-aided housing shall be totally planned in detail before the work commences. The employment of progress- and time-schedules for the site work is gaining ground for larger housing projects.

To promote the mechanization of building, building machinery pools have been established in various parts of the country - with Government aid - which lease equipment to firms that do not have the capacity to own expensive machinery themselves.

To promote the rational planning and carrying out of building activity, efforts are being made to create a steady building rhythm. This is taken into account by the Ministry in the issuing of licenses for the construction of public buildings and dwelling houses, and in the setting up of the special three-year programmes for prefabricated housing mentioned on pages 8-9.

/The development

The development in this field is kept under review by a special committee appointed by the Ministry of Housing on which the Federation of Building Employers and the building trade unions are represented. The committee also treats questions pertaining to the rational employment of the labour force. In this connection the work of the committee for the evening out of the seasonal fluctuations in building activity deserves special mention. Climatic conditions in Denmark are somewhat different from those in the other Scandinavian countries. In Denmark, clear, frosty, calm days are unusual during the winter season; much more characteristic is windy, sleety weather with the temperature hovering round freezing point and slush covering the ground, and within 24 hours the temperature may rise above and fall below freezing point several times. This is one of the reasons that it has been so difficult to accomplish winter building, but in recent years a great deal has been done to change this. Among other things, the advice of winter-building consultants is available to builders free of charge. Furthermore, the Ministry of Housing requires and to a certain extent subsidizes measures to be taken in housing with State loans or guarantee to keep the work going until the temperature reaches -5°C and take it up again as soon as the temperature rises above that point.

Technical and economic building research is carried on by many different institutions, but the one which has done the most important work in this field is the National Building Research Institute, founded in 1947. This institution which is completely dependent on public funds has carried out and published the results of a great number of investigations, including publications on winter building and heat insulation, a system of modular co-ordination and the standardization of building components, directions for the working out of progress- and time-schedules, and directions for the preparation of furniture lay-outs. Furthermore, the National Building Research Institute has given economic aid for research to a long list of other institutions.

To ensure the utilization of the research findings, it is necessary to spread the knowledge of these results as widely as possible. To hasten this development, the Ministry for a limited period placed a number of rationalization consultants at the free disposal of builders, architects and building craftsmen.

/Finally, it

Finally, it should be mentioned that an institution, "Byggecentrum", has been established in Copenhagen for collecting and disseminating information regarding developments in the field of building. The institution arranges exhibition of all sorts of building materials, holds study courses and lectures, has a library of building literature and journals, and a film service, and, on the whole, serves as a permanent advisory organ on all questions relating to building.

VII. THE ADMINISTRATIVE ORGANS

The regulation of the country's housing supply and the administration of the housing policy are carried out on two levels - partly by the Ministry of Housing and the various institutions connected with it, and partly by the individual local governments and their organs. Great emphasis has always been placed on local government in Denmark; in the building field the municipalities either make their own decisions or their proposals are sanctioned by the central authorities, as far as possible with due consideration for general co-ordinating efforts and a reasonable distribution of possibly scanty resources: capital, building materials, or manpower. Representatives of the Ministry of Housing frequently travel round the country to acquire first-hand knowledge through discussions with local authorities and inspections of local conditions.

Local administration of housing matters differs quite widely from municipality to municipality, particularly varying according to the size of the community, and it would lead too far to discuss it here. Since the establishment of a separate Ministry of Housing in 1947, the administrative fields of the central housing authorities are more easily surveyed. A schematic outline of the structure of the Ministry of Housing is given below:

Section 1 The organization, staff, budget, and accounting of the Ministry.
 The Landlord and Tenant Act.
 Approval of rents in State-subsidized private housing.
 Supervision of the organization of non-profit housing societies, their by-laws and general activity, apart from the financial control.
 Government aid for tenant cooperatives to take over the ownership of blocks of flats.
 The Danish National Institute of Building Research.

/Section 2

- Section 2 Legislation on town planning and regulation of built-up areas.
Regional and national planning.
Housing inspection and slum clearance legislation.
The town planning aspects of the National Building Act, including expropriation problems.
- Section 3 Planning of the building and construction activity, including the coordination of the activity in relation to demand and the available labour and materials.
The productivity of the building industry, including rationalization, research and standardization.
Type designed houses, questions of price relations within the building industry, including problems on invitations of tenders.
International relations.
Statistics and forecasts.
The library of the Ministry.
- Section 4 The administration of the royal castles and parks, the Government buildings, etc.
Family allowances and rent reductions for old-age pensioners and disabled persons.
- Section 5 The administration of the Housing Act, as regards Government aid for non-profit housing and private housing, apart from owner-occupied one-family houses.
The relations to the State Housing Fund and the State Mortgage Bank.
- Section 6 The administration of the Housing Act, as regards Government aid for one-family and two-family houses and for buildings constructed by institutions for social and cultural purposes.
The provisions on regulation of the building activity, etc. (Commencement control).
Exemption from tax on buildings.
The consultants as to Government aid.
- Section 7 The legislation on mortgage credit institutions.
The National Building Act, apart from provisions of town planning character.
Approval of type designed houses.
Government aid for conversion and modernization of older properties.
The supervision of the annual accounts of the non-profit housing societies.

The State Building Section

Advice and control concerning the planning and construction of the majority of the civilian building works of the Government.

/Architectural Section

Architectural Section

Department A: Technical control of State-subsidized housing.

Department B: Technical control of the civilian building works of the Government.

Department C: Technical aspects of the National Building Act.
Rationalization and standardization techniques.

Major agencies under the resort of the Ministry of Housing:

Consultant for the Ministry of Housing in Town Planning Matters

Technical adviser to the Ministry in matters regarding town and regional planning.
Consultative agency for local town planning work.

The Secretariat of the National Planning Committee

The object of the Committee is to collect data and other information relating to the allotment of public funds with special reference to factors affecting the location of urban and industrial expansion, and to contribute to the co-ordination of the activities of the various government departments in these matters.

The Danish National Institute of Building Research

The object of the institute is to follow, promote and co-ordinate technological and economic investigations and research work which are likely to contribute to the improvement of the quality and the reduction of the cost of building, and to disseminate results also of foreign building research.

The Danish Building Centre

The object of the institution is to promote the productivity of building by means of:
Documentation, i.e. collection and co-ordination of material based on experience or research work; and
Information, i.e. dissemination of the knowledge collected.
The Centre maintains a permanent exhibition of building materials, equipment, etc.